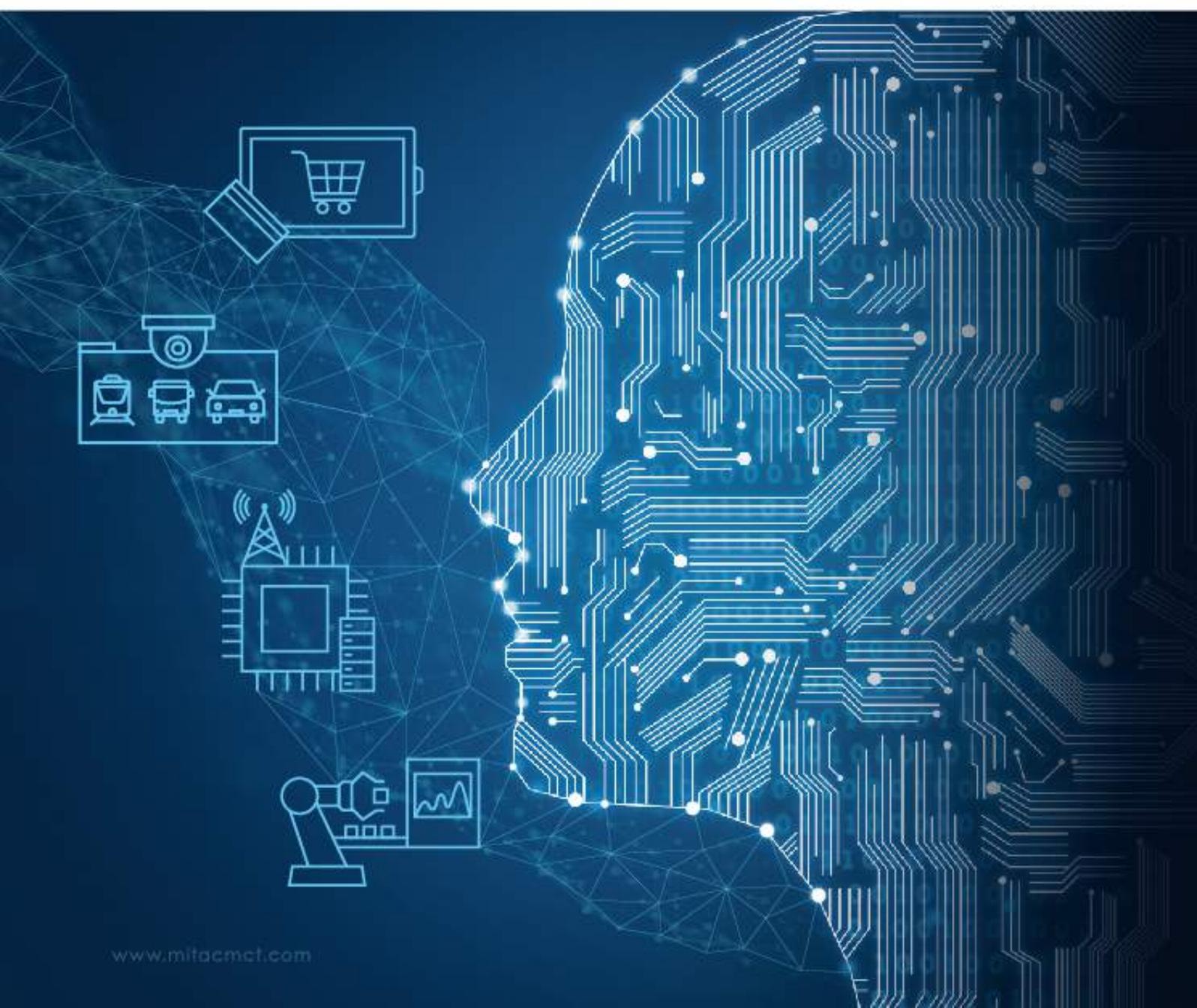




MITAC COMPUTING TECHNOLOGY CORP.

# Embedded Products

Your Success is Our Ambition



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## About MiTAC Embedded

### MiTAC, Leading IT Technology & Service Group

MiTAC Holdings Group has been developing into a multinational organization and expanded its scope of businesses to the computer & consumer electronics, IT distribution, software development, system integration, materials & petrochemicals, industrial gases, transportation & logistics and food processing Industries in JDM / ODM / OEM / OPM (Original Product Manufacture) around four decades.

With headquarters in Taiwan and manufacturing and logistics centers at Guangdong and Jiangsu Province of China, Hsinchu Taiwan and California US, it is now selling products all over the world with leading brands including Mio, Magellan, and Navman (for auto electronics) and TYAN (for servers).



Your Success Our Ambition  
Taiwan Headquarters

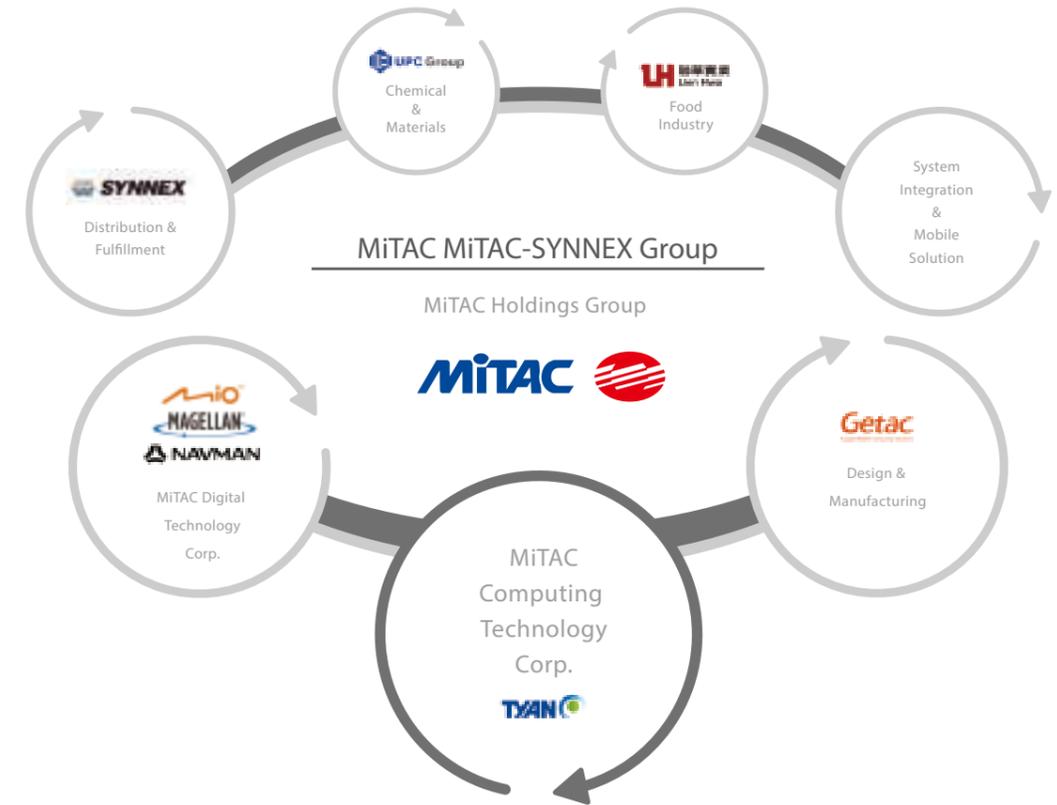
Founded in Taiwan 1982  
Around 40 years world-class Leading Company

The three main subsidiaries of the group, **MiTAC Computing Technology Corp. (abbr. MCT)**, **MiTAC Digital Technology Corp.** and **MiTAC International Corp.**, focus on offering cloud computing, embedded system, and smart living products and services.

<b>40YEAR</b> IN-DEPTH EXPERIENCE IN-COMPUTER SOLUTION	<b>1000+ R&amp;D</b> OUTSTANDING ENGINEERS	<b>100%</b> IN-HOUSE PRODUCTION	<b>&gt;7 YEAR</b> PRODUCT LIFE CYCLE SUPPORT
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### Tailored Design Service

We provide tailored design packages from Hardware, Software, Mechanical Engineering, Industrial design, Validation, Certification to Manufacturing for many tier one technology companies. Our aim is to offer customers the most innovative design and World-class product quality to make the product just born to succeed.



### Manufacturing

MCT design and manufacturing experience dates back more than thirty years, including a history of successfully supplying various computer and server solutions. MCT's industrial grade embedded products, ODM customization capacity, comprehensive relationships with channel and system integration service providers, means MCT now provides customers with deliverables featuring customized, flexible systems. MCT's belief is to ensure customers get the best Total Cost of Ownership (TCO) embedded solution of this and future generations.

### Variety of Embedded Solutions

MCT came with in-house design and manufacturing experiences in embedded products, industrial computers, enterprise servers and storage systems near 40 years, we provided variety of embedded solutions containing panel PC, embedded system, rugged tablet, and industrial motherboards to our distribution partners and system integrators.

## Advanced JDM / ODM / OEM / OPM

### Leading Hardware

- Various silicon platforms
- Board design simulation
- Advanced design tools

### Multiple Software

- Various BIOS platform
- Windows / Linux / Android
- Windows compatibility test
- Utility / APP / API Design

### World Class Industrial Design

- Sketch proposal
- 3D proposal
- Mock-up demo

### Superior Mechanical Engineering

- Tier 1 ODM design experience
- Modularized design
- Strength simulation
- Thermal simulation

### Wide Range Validation

- Compatibility test
- Reliability test
- Environmental test
- Worldwide regulation certificaion

### Advanced Manufacturing

- Automated inspection
- Uncompromising quality
- Systematic control process

### Direct Service

- Early-engage proposal service
- Fast sampling service
- Field technical service
- Global RMA service

### Certifications



## OEM/ODM Service

MiTAC Computing Technology Corp. (MCT) offers both Off The Shelf products, and OEM/ODM professional services to meet customer's needs in different industries and applications. We provide tailored design ackages from HW, SW, ME, ID, Test, Certification to Manufacturing. MCT's expertise is aimed to offer customers the most innovative design and World-class product quality to make the product just born to succeed!

## Technical Support



**World-Class Manufacturing Quality**  
Dedicated in-house manufacturing resource



**Intelligence**



**Online display**  
The alert system, which is one part of intelligent management system (IMS) can alert SMT material shortage immediately.



**Auto hand insertion machine**  
Auto H/I (hand insertion) machines improve production efficiency.

**Efficiency**



**Cell line**  
Compared to the traditional assembly lines, the cellular manufacturing lines are with much higher efficiency and Flexibility, good for low volume and diverse products.



**SPI Process**  
3D solder paste inspection is to detect the quality of solder paste printing, including volume, area, height, XY offset, shape, bridging, etc. It could find defects occurring in process.



**High pot test**  
Automatic HI-POT test realizes test machine selfpositioning, test items auto-identifying, test data auto-uploading.



**ERSA waving solder**  
The advanced ERSA waving solder equipment could reduce the oxidation of the production and reduce the Sn slag, flux residue in PCBA by 0.3mm size selective spray.

**Accuracy**



**P2L (Pick to light) / L2L (Load to light)**

MiTAC have set up 97 racks of P2Ls with the 135,800 reels capacity, 70 material shelves of L2L for over 5000 reels production supporting every day. The advantages is to kit materials collaboratively to avoid occupation, and reduce transferring time. The material kitting time has been reduced from 2 days to 4 hours.



**PCBA production line**

- 3 PCBA production workshops with comprehensive SMT production and test equipment.
- Produce different sizes of PCBA, up to 800\*600mm.
- The most advanced NXT generation III M6 SMT line reaches to 35000 component per hour (cph) with the nozzle H24.
- Support the 03015 component.
- IMS (Intelligent management system) is developed by IT team and connected with ERP and Shop Floor Control System.
- IMS optimizes material kitting process, reduces inventory and improves manufacturing efficiency.
- Material tracking, feeder management, inspection, MSD and material control are controlled by Part tracking system.
- SMT process includes solder paste printing, SPI, component mounting, reflowing and AOI.
- All the boards proceed with hand insertion, press-fit, AXI, Flying Probe or ICT till BFT.



**Clean room**

Clean room for panel cleaning and assembly which have passed ISO class 7 standard.



**Run in test and Burn in test**

Running the burn-in test tool at room temperature or 37°C to make sure the product quality and reliability.

Robust & Reliable

# Design Quality Assurance

Professional design and comprehensive validation

## Reliability Test

MTBF Prediction



Power Cycling Test



Temperature Humidity Test



MTBF Demonstration



HALT Test



## Durability Test

Surface Endurance Test



I/O Connector Life Test



Touch Panel Life Test



Card Swipe Test

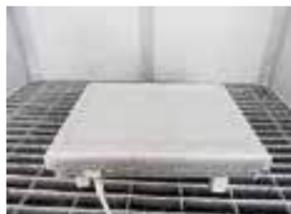


Power Button Test



## Water & Dust Proof Test

Anti-Dust IP-6X Testing



Anti-Water IP-X4 Testing



## Acoustic Test

Acoustic-Sound Pressure Test



Acoustic-Sound Power Test



## Package Test

Package Temperature Humidity Test



Single Package Vibration Test



Pallet Package Vibration Test



Single Package Drop Test



Pallet Package Drop Test



## S & V Test

Vibration and Op Shock Test



Rotational Vibration Test



Non Op Shock Test



Free Fall Test



**Worldwide ENV Marks & Ecolabels**

European WEEE



Energy Star



Japan's Top Runner



Germany GS (PAHs)



80 Plus



EPEAT



**Qualified by international accreditation organization**



Reliability, E-Star and Acoustic lab (Accredit no.:3100/3017)

Certified with ISTA Shipment Criteria (1A,1B,1G,1H,3A,6A,7D)

**MiTAC owns Full line ICT Products Agency Compliance Experiences**

- Servers, including NEBS spec validation and approval
- Workstations
- PCs
- POS-both desktop and mobile types
- Home Media & AV product; Multimedia IT or IA products
- Car electronic products
- Power Supply / AC Power Adapters
- Conduct certification test and international approvals

**Lab Accreditation ISO 17025**

- TAF (member of ILAC) accredited and regularly inspected by TAF through multilateral MRA (Mutual Recognition Arrangement) link to ILAC (Int'l Lab Accreditation Cooperation), and NVLAP is an accreditation body within the U.S and is a signatory of the ILAC MRA. in U.S
- FCC (US)
- VCCI (Japan)
- BSMI (Taiwan)
- Approved by Leading DOM / JDM partners

**Lab Accreditation ISO 17025**

- Agency requirement review
- Joint development with E/E and M/E through schematic / PCB layout design review, system construction review
- Prototype pretest / debugging, system design verifications
- Conduct certification test and international approvals



# Worldwide Regulatory Certification Services

Accredited In-house EMC & Safety Labs



**EMI**  
Radiated Emission Test  
Conducted Emission Test  
Harmonic Test  
Voltage Fluctuations and Flicker Test



**Surge Immunity Test**  
Conducted Susceptibility Test (CS)  
Power Frequency Magnetic Field Immunity  
Voltage Dip and Interruption Test



**EMS**  
ESD Test  
3M Full-Anechoic Chamber for EMI and RS testing  
Radiated Susceptibility Test (RS)  
Electric Fast Transient/Burst Test (EFT/B)



**Hsinchu Lab / Taiwan**  
· L11/L10 Climatic Test  
· L10 Shock & Vibe Test  
· HALT Test  
· RDT Test  
· Robot Test  
· Energy Efficiency Test



**Linko Lab / Taiwan**  
· Acoustic Test  
· L11/L10 Shock & Vibe Test  
· EMI & EMS Test



**MSL Lab / China**  
· L10 Climatic Test  
· L10 Shock & Vibe Test  
· HALT Test  
· RDT Test  
· Energy Efficiency Test

# SUSTAINABILITY

## Green Product

### Eco-Friendly Product Strategies

MiTAC is committed to reducing environmental impacts in various ways. Compliance with international environmental laws, customer demands, and eco-friendly product design serve as the starting points. Harmful chemical substances are controlled from the source,



while energy conservation and material saving are incorporated as main considerations in the product design process.

### Introduction of Product Design for the Environment

- International environmental laws :

ErP (EU) has proposed that all energy-using products must adopt design for the environment to minimize resource depletion and pollution emission.

- Design for the environment :

MiTAC has stipulated DfE (Design for Environment) / Eco-design as one of the prerequisites of product design, therefore we demand our R&D personnel to take into consideration the products' environmental impact during different stages, including design, production, packaging, transportation, usage and re-cycle for re-use to waste disposal.

- Ecolabels :

MiTAC distribute products that meet the highest eco-standards and eco-design requirements of different countries, such as the EPEAT and Energy Star of the USA, the SEPA and CECP of China, the Green Mark of Taiwan, the EU Flower of Europe, and the Blue Angel of Germany, in response to the customer's sales needs.



## Green Supply Chain

### Conflict Mineral Purchasing Policy

We achieved "management at source" by implementing investigations of smelters. MiTAC has placed "conflict minerals" investigations into supplier green product policies to coordinate customer investigation report demands.

This ensures that the company and its suppliers will abide by relevant regulations with utmost effort.

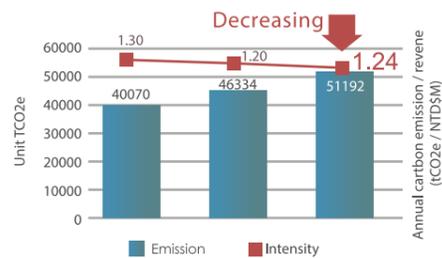
### Restriction on the Use of Hazardous Substances and Management

- To achieve the goal of eco-friendly products, MiTAC's component and materials selections all comply with international regulations, such as: EU's RoHS recast, WEEE recast, REACH and POPs etc.
- MiTAC has created a green product management platform (eGP System) and high efficiency supply chain management system (eSCM System) ensure that our products comply with the latest environmental regulations.
- Provides green products with low toxicity and low pollution, utilize eSCM/eGP to communicate with suppliers and manage green products and components and establish containment strategy.

## Climate Change Global Climate and Greenhouse Gas Inventory

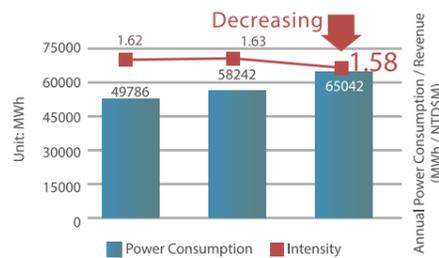
In response to accelerating climate change, MiTAC holdings corp. set an carbon reduction goal for moving toward a cleaner and more sustainable business.

### Greenhouse gas (GHG) emission and intensity



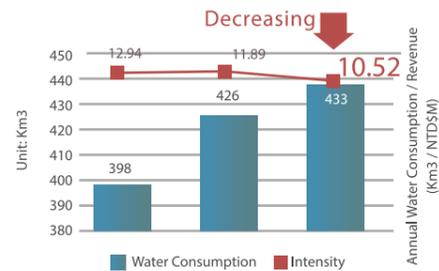
Besides setting legal compliance as the basic requirement, we make constant adjustments to lower environmental impact for environment (DFE) of products and enhancement of equipment efficiency.

### Power Consumption Intensity



The office and plant energy conservation activities in 2020 enhanced energy efficiency to reduce electricity consumption by 2,540kWh/year.

### Water Consumption Intensity



MiTAC's water consumption at production locations worldwide consists of mainly service water (approx. 95%).- Most of the water is tap water, no ground water is used.



eGP System

# Edge AI (Artificial Intelligence) Real-time Calculation

In Industrial applications, the data is used mostly for the detection and control of abnormalities. But, the potential performance is for the optimization and prediction. Edge computing allows real-time operations for critical processes such as data analysis, decision making and taking action. It also decreases the costs and manpower requirements in data transmission and operation accuracy. Therefore, in many field like automation industries, visual inspection is increasingly used by Edge AI computing technology. In vehicle, smart ADAS driver assistance and incident detection also quite rapidly start to be adopted different autonomous vehicle applications.

### Edge AI provides:

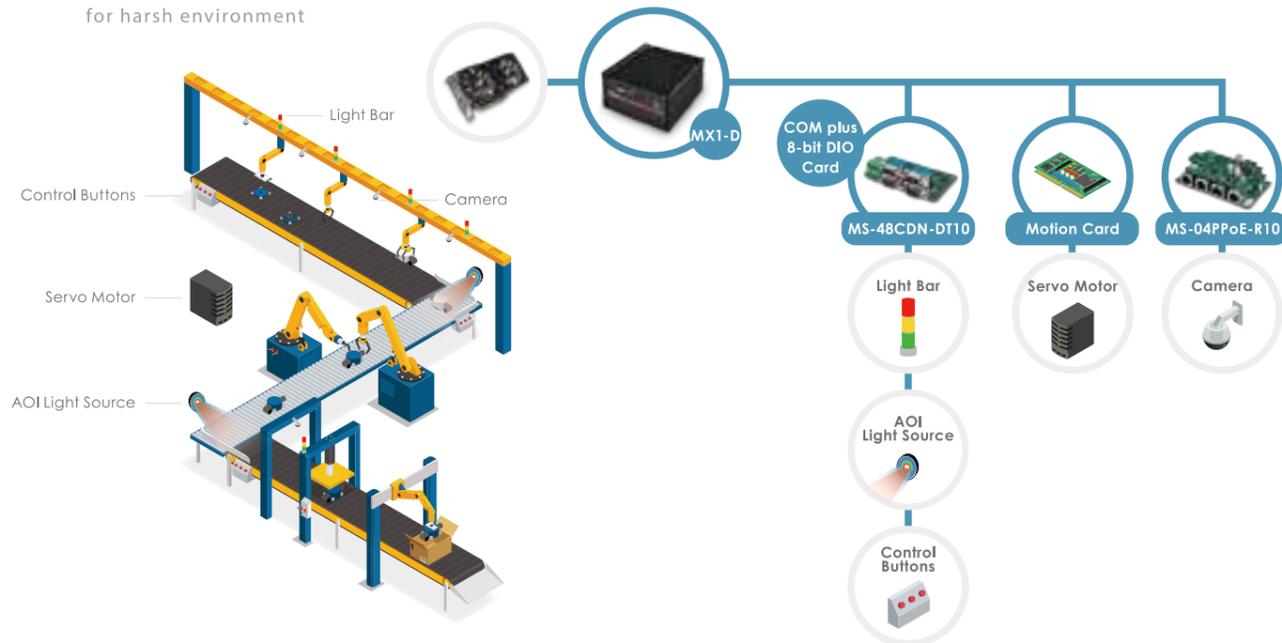
- Increase Productivity
- Improve Security
- Enhance Safety
- Faster Response



## Smart Factory Control Unit

### Solutions: MX1-10FEP-D

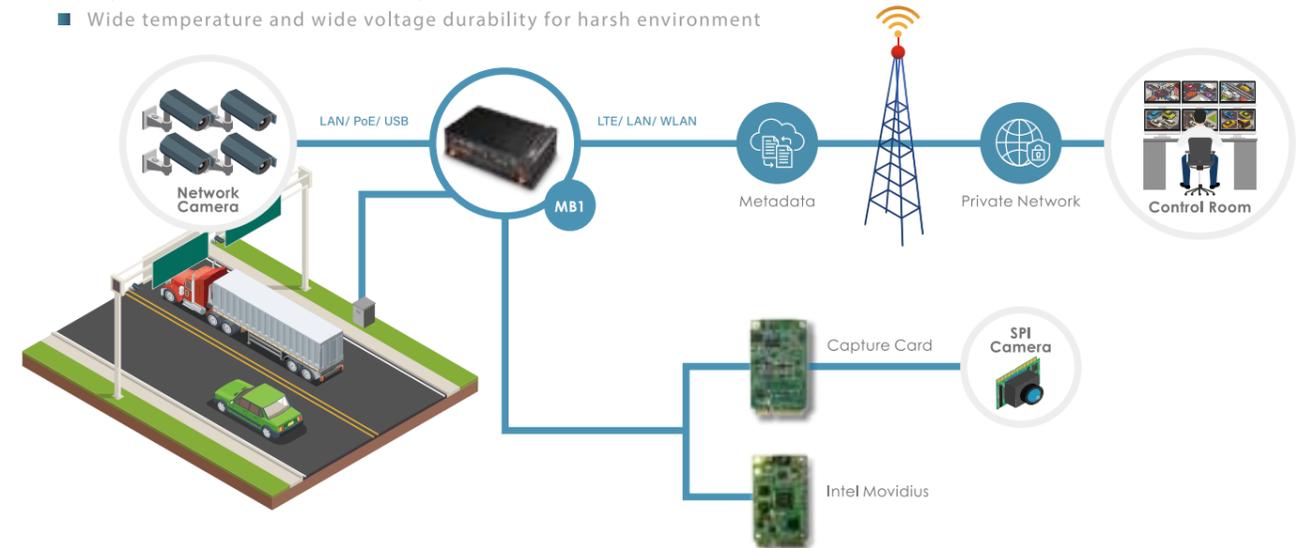
- Intel Xeon/Core-i7 processor for no latency computing power and center control
- Nvidia Tesla T4/P4 graphic card for machine vision application
- Up to 10 PoE for AOI camera connectivity
- Expandable legacy I/O for rich sensors and devices control
- Wide temperature and wide voltage durability for harsh environment



# Traffic Flow Monitoring

### Solutions: MB1-10AP + Intel® Movidius™ Myriad™ X

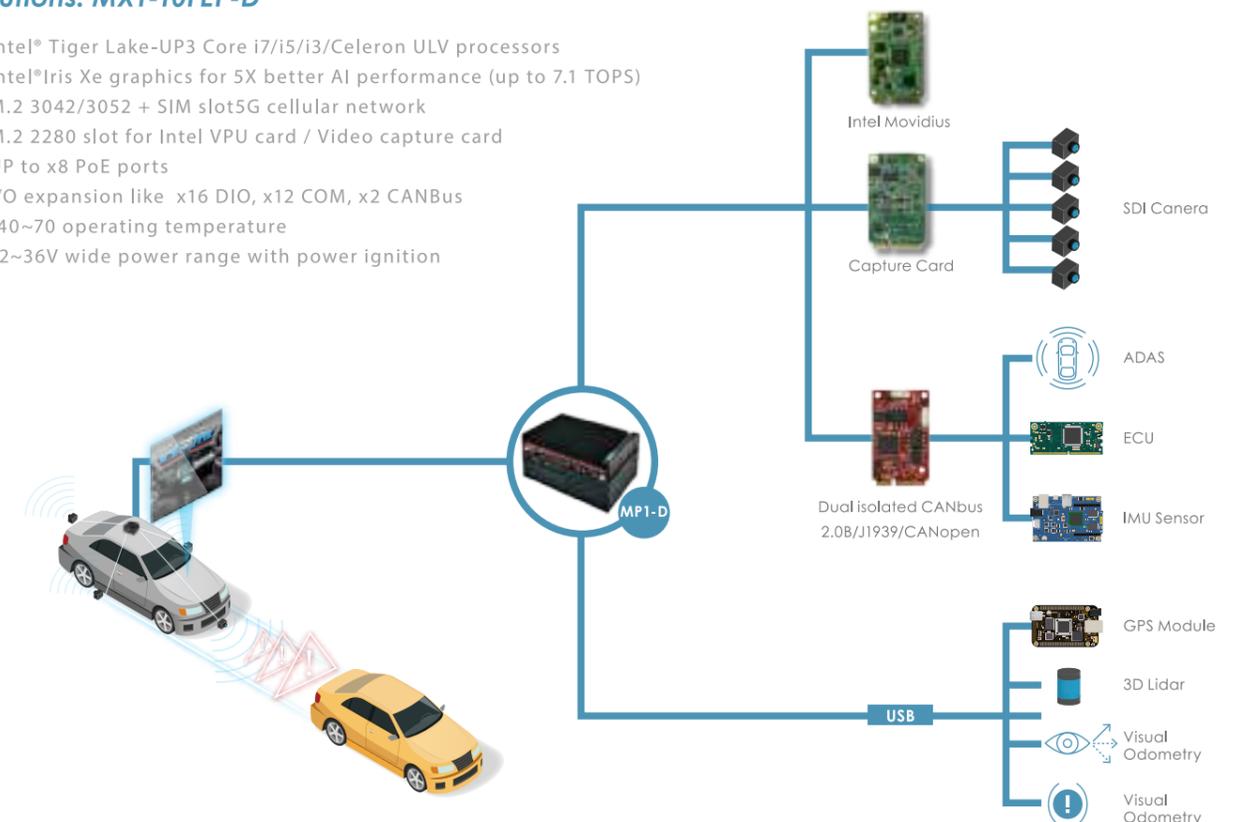
- Intel Apollo Lake Efficient 4C4T or 2C2T Processor for real-time traffic flow monitoring
- Equipped with Intel® Movidius™ Myriad™ X to enhance arithmetic capability for AI metadata computing
- 4 x USB3.0 and 3 x LAN Port for IP Camera connectivity
- 2 x mPCIe Slot for AI accelerator card or video capture card expansion
- Expandable and Flexible I/O via Xpansion Modules
- Wide temperature and wide voltage durability for harsh environment



## Smart Vehicle Control Unit

### Solutions: MX1-10FEP-D

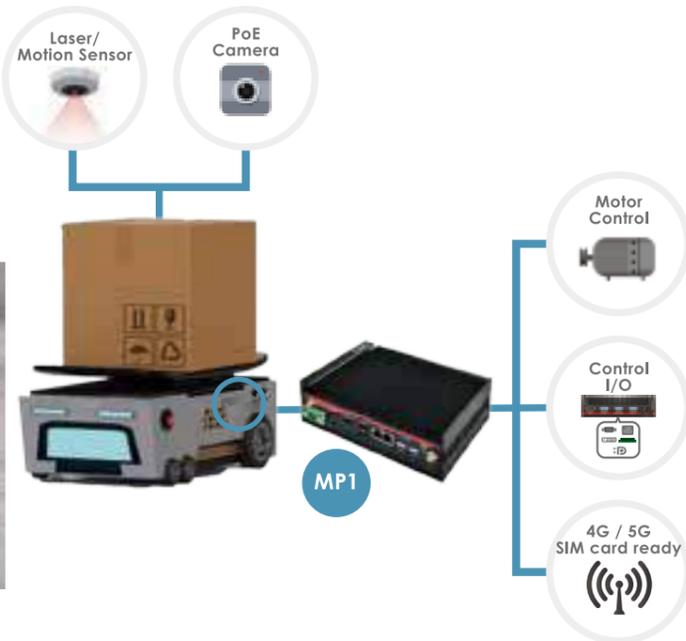
- Intel® Tiger Lake-UP3 Core i7/i5/i3/Celeron ULV processors
- Intel® Iris Xe graphics for 5X better AI performance (up to 7.1 TOPS)
- M.2 3042/3052 + SIM slot 5G cellular network
- M.2 2280 slot for Intel VPU card / Video capture card
- UP to x8 PoE ports
- I/O expansion like x16 DIO, x12 COM, x2 CANBus
- -40~70 operating temperature
- 12~36V wide power range with power ignition



## AMR (Autonomous Mobile Robot)

### Solutions: MP1-11TGS

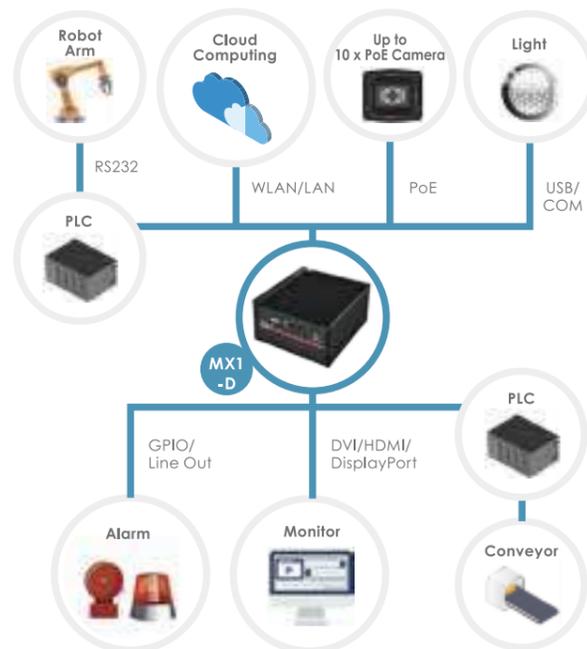
- Intel® Tiger Lake-UP3 Core i7/i5/i3/Celeron ULV processors
- Outstanding graphic computing capability with Integrated Intel® Iris Xe graphics
- Provide rich I/O connections for multiple COM, USB for Camera, Sensor and motor control connection
- 4G/5G/SIM card ready for wireless connectivity



## Machine Vision

### Solutions: MX1-10FEP-D

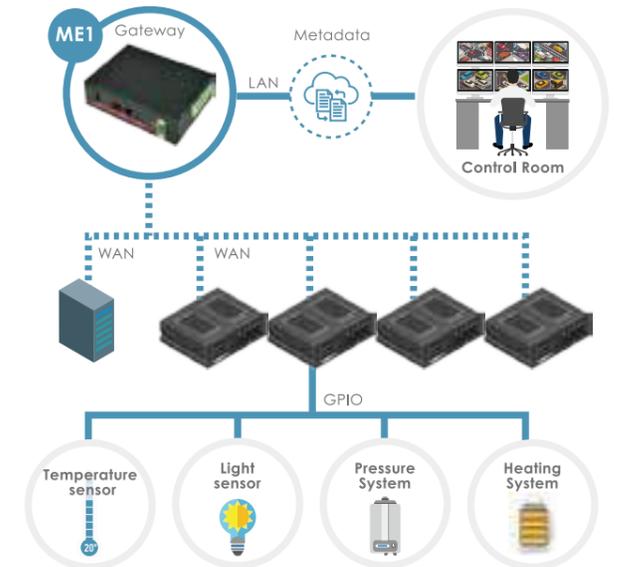
- High performance embedded system by Intel Coffee Lake Core i / Xeon processor
- Provide rich I/O connections for multiple COM, USB and PoE ports
- Features with triple/dual display ports for real-time monitoring
- LAN and WLAN (optional) for cloud & edge computing



## Predictive Maintenance

### Solutions: ME1-108T

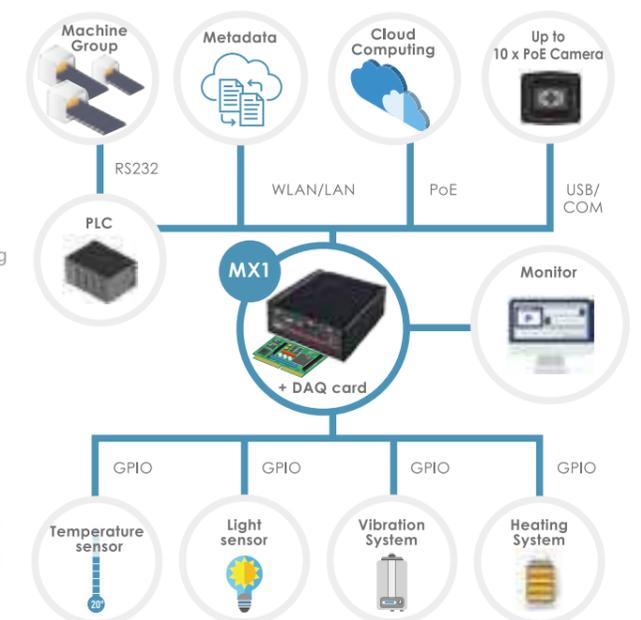
- High performance 4 x 1.5 GHz ARM Cortex-A53 plus Cortex-M4 cores
- Rich interface Giga LAN, USB 3.0, COM, Micro SD/SIM slot
- High resolution DisplayPort @FHD 60Hz & HDMI 2.0@4K 60 Hz
- Versatile expansion for HATs



## Production Optimization

### Solutions: MX1-10FEP

- High performance embedded system by Intel Coffee Lake Core i / Xeon processor
- Provide rich I/O connections for multiple COM, USB and PoE ports
- Features with triple/dual display ports for real-time monitoring
- LAN and WLAN (optional) for cloud & edge computing

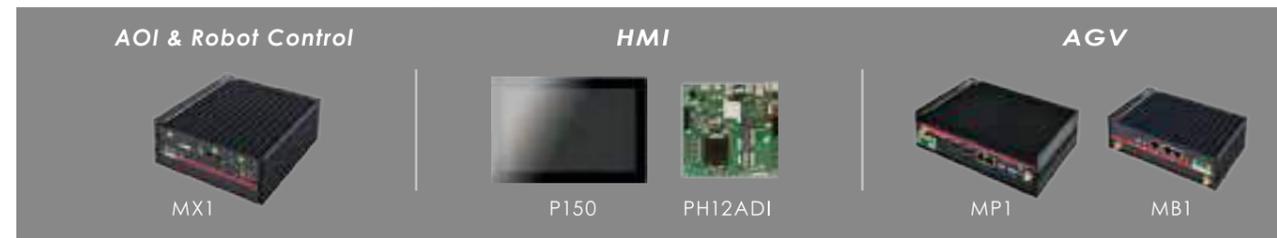


# Factory Automation

Industry 4.0 brings industry automation to a new intelligent era. This represents both a trend and also a challenge to industrial manufacturing companies. To support our customers' demand requires that we make machines more intelligently communicate with each other and perform complex tasks perfectly. MiTAC offers a variety of solutions to meet the needs of stringent environments



## Operation & Automation System



## Monitoring & Security System



## Management & Communication System



# AGV (Automated Guided Vehicle)

## Solutions: MP1-11TGS

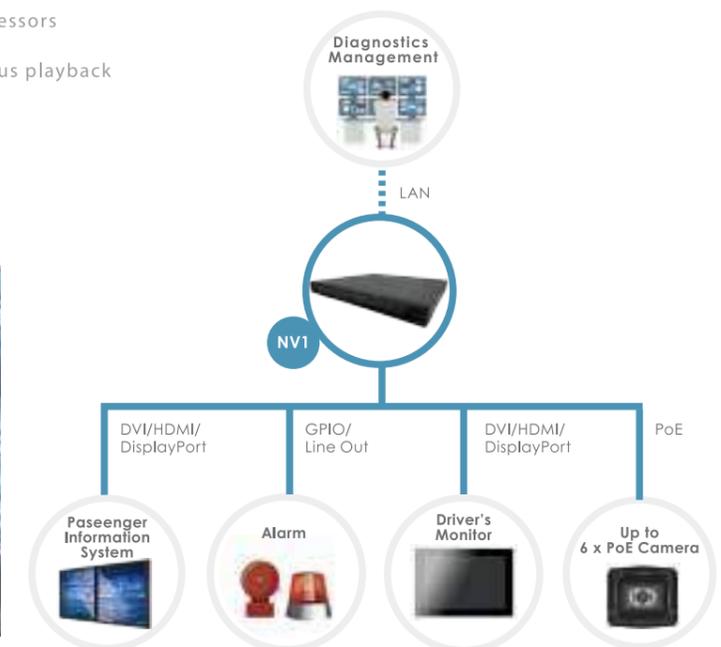
- Intel® Tiger Lake-UP3 Core i7/i5/i3/Celeron ULV processors
- Outstanding graphic computing capability with Integrated Intel® Iris Xe graphics
- Provide rich I/O connections for multiple COM, USB for Camera, Sensor and motor control connection
- 4G/5G/SIM card ready for wireless connectivity



# NVR (Network Video Recorder)

## Solutions: NV1

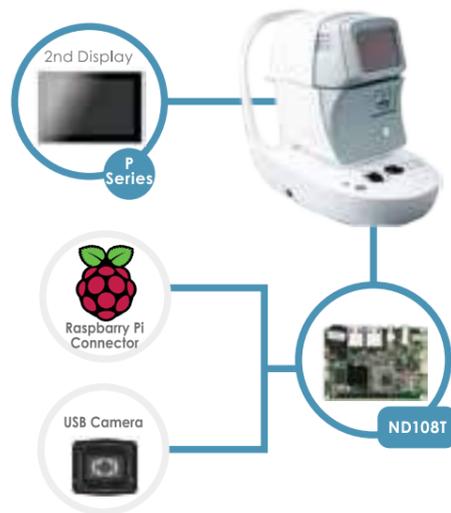
- Intel® Tiger Lake-UP3 Core i7/i5/i3/Celeron ULV processors
- 64-CH H.265/H.264 decoding ability and simultaneous playback
- Support up to 16 PoE ports
- Dual 4K display for clear monitoring
- Support 2 x HDD RAID 0/1 storage



## Inspection

### Solutions: ND108T

- Powered by NXP I.MX8M Quad Core Arm-based processor
- Featured with both LVDS and HDMI for internal and external display
- Raspberry Pi 40 pin compatible connector for easy I/O expansion
- Complete Linux BSP support for quick SW customization and development



## HMI (Human Machine Interface)

### Solutions: P100/P150/D150

- Provide I/O connection in both serial port (RS232/422/485) and GPIO function
- Fanless design and IP rating for automation application
- Feature with dual LAN ports for remote monitoring and maintain



## AOI (Automated Optical Inspection)

### Solutions: MX1-10FEP / S310-11KS

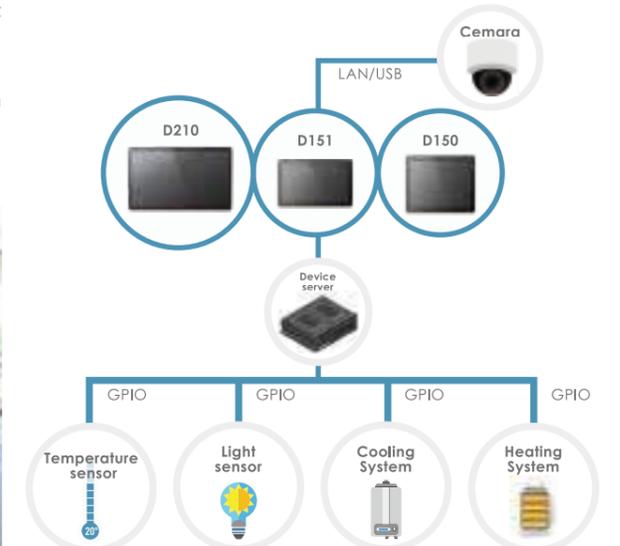
- High performance embedded system by Intel Coffee Lake Core i / Xeon processor
- Provide rich I/O connections for multiple COM, USB and PoE ports
- Features with triple/dual display ports for real-time monitoring
- LAN and WLAN (optional) for cloud & edge computing



## Smart Building - Environment Control

### Solutions: D210/D151/D150

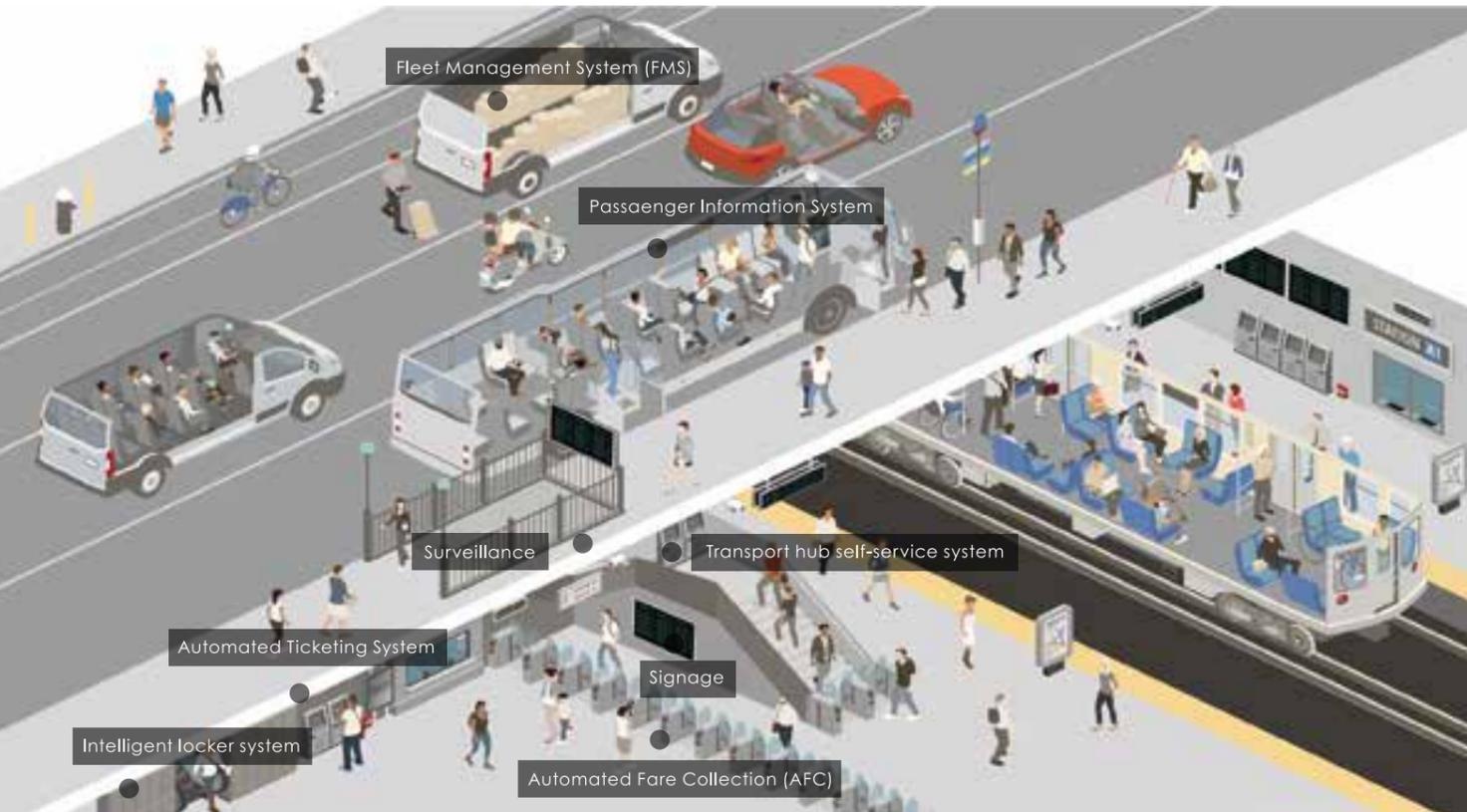
- Provide I/O connection in both serial port (RS232/422/485) and GPIO function
- Industrial operating temperature and IP rating support
- Optional WLAN for restricted area information and data transfer



# Intelligent Transportation System

The application of intelligent transportation system (ITS) is widely accepted and used in many countries today and now become a multidisciplinary conjunctive field of work and thus many organizations around the world have developed solutions for providing ITS applications to meet the need.

The entire application of ITS is based on data collection, analysis and using the results of the analysis in the operations, control and research concepts for traffic management where location plays an important role.



## In Vehicle Equipment Control & Surveillance



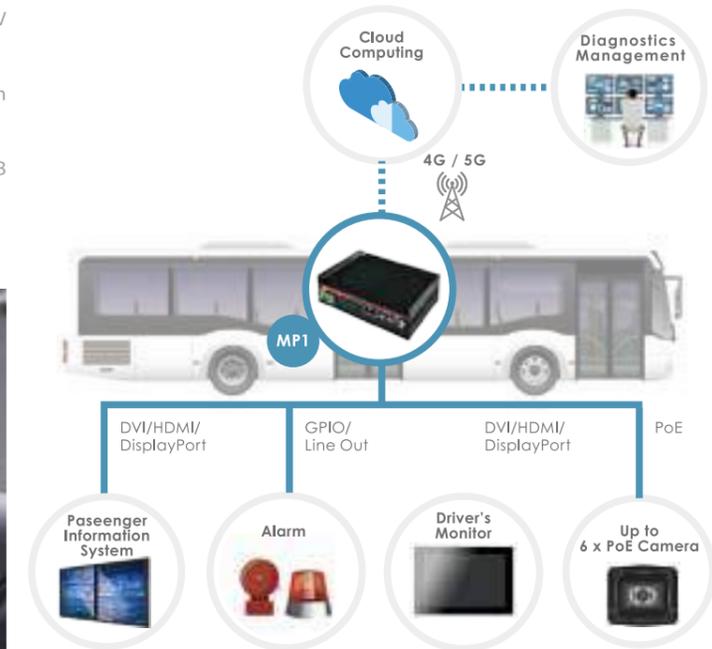
## Traveler Information System



# Embedded NVR (Network Video Recorder)

## Solutions: MP1-11TGS

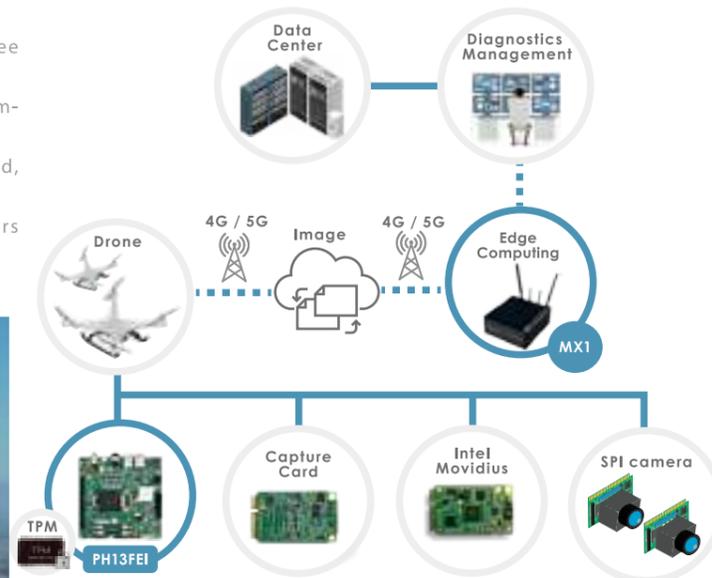
- Intel® Tiger Lake-UP3 Core i7/i5/i3/Celeron ULV processors
- Outstanding graphic computing capability with Integrated Intel®Iris Xe graphics
- Provide rich I/O connections for multiple COM, USB for Camera, Sensor and motor control connection
- 4G/5G/SIM card ready for wireless connectivity



# Edge Computing Drone

## Solutions: PH13FEI

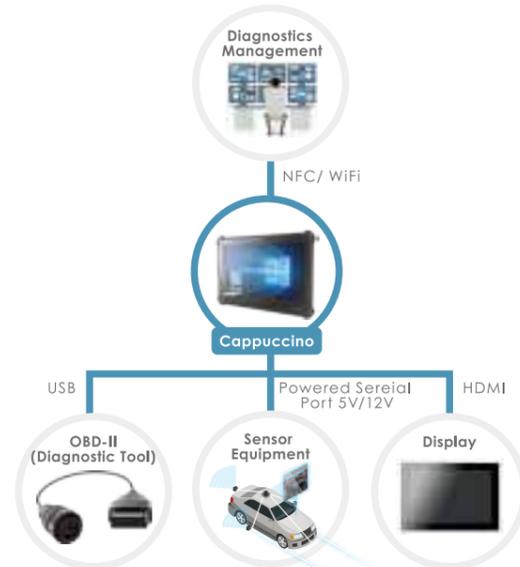
- High performance industrial-grade MB by Intel Coffee Lake Core-i processor
- On-board hardware TPM2.0 module for performing encryption keys & crypto operations
- Rich expansion slots for discrete Video Capture Card, Intel VPU Card, 4G / 5G card expansion
- Up to 11 USB3.0/2.0 ports for camera and sensors connections



## Automotive Diagnostics

### Solutions: Cappuccino Tablet + Extension Cover

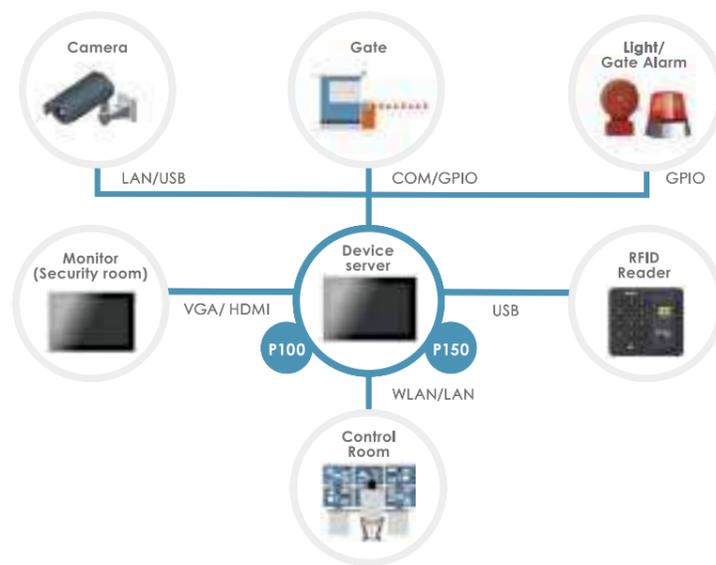
- Capacitive hotkey (F1/F2/F3) on front side for intuitive operation
- Featured with TPM 2.0, powerful anti-tampering device, able to detect potential intrusion during system boot-up
- Built-in NFC reader to authenticate users' credentials
- Featured with WiFi/BT/GPS/WWAN(optional) and rich I/O connections for OBD-II, external display, sensor equipment and Diagnostics Management System



## Access Control

### Solutions: P100 / P150

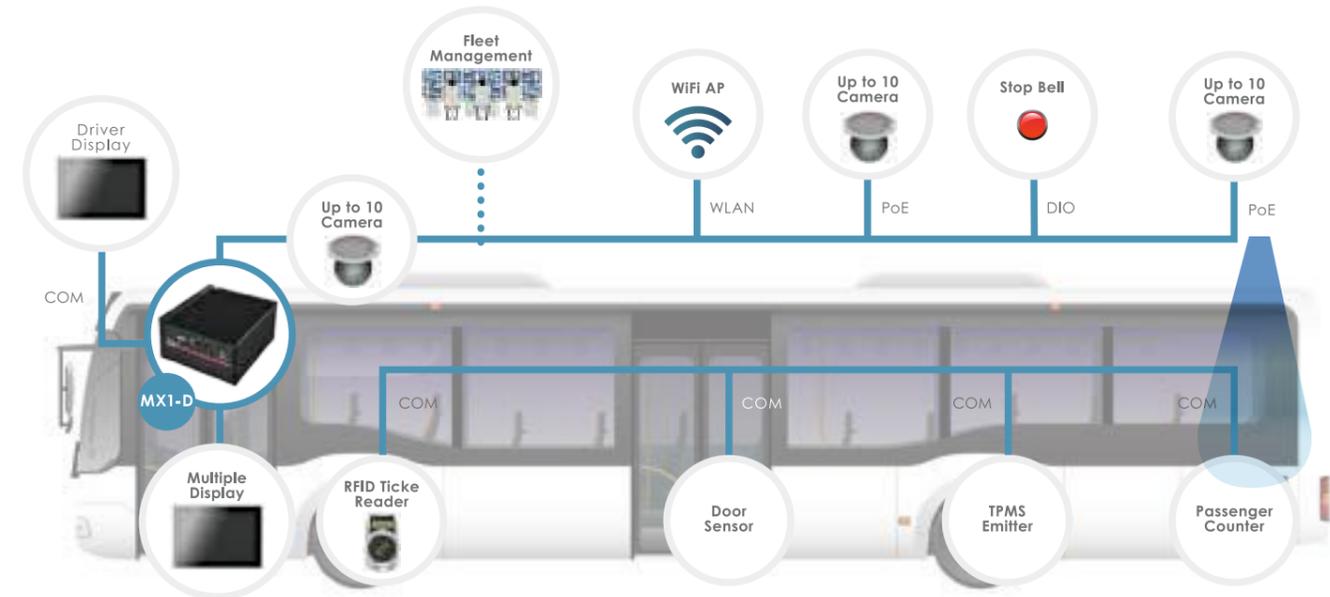
- COM & GPIO interface for gate control
- LAN and WLAN (optional) for real-time data transmission



## Real-time In-Vehicle Surveillance

### Solution: MX1-10FEP-D

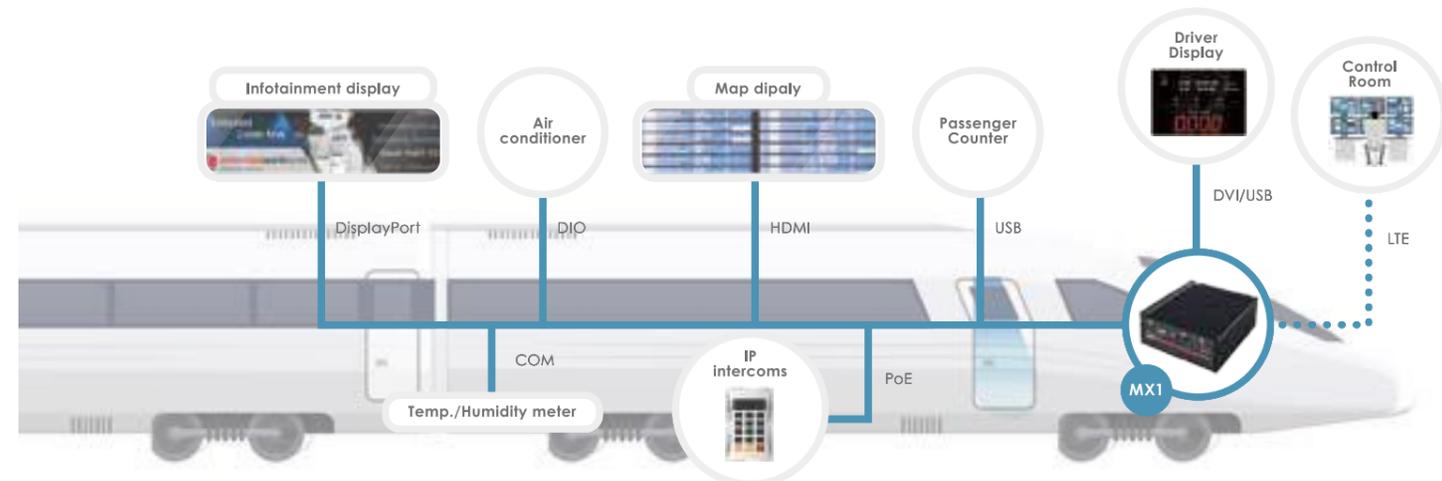
- Features with maximum 10 ports PoE (Power over Ethernet) for safety and surveillance applications, such as facial recognition
- Rich I/O connectivities for multiple sensing and control in-vehicle devices
- Multiple display for monitoring and passenger information displays
- Optional WLAN for passenger internet connection and LTE for fleet management
- E-Mark certified



## Intelligent Passenger Information System (PIS)

### Solution: MX1-10FEP

- Supports HDMI, DisplayPort, and DVI-I triple display ports for multi-display scenarios
- Provides rich I/O connectivities for passenger counters, IP intercoms and environment sensors
- Optional WLAN/4G/GPS expansion modules for railway traffic control
- EN50155 certified



# Retail Automation

With the implementation of check-out free stores in our daily lives, artificial intelligence is transforming the retail industry. Sometimes people seek emotional nourishment from purchasing, not just because of the lack of material. To satisfy these needs throughout the shopping journey, a retailer with millions of customers must make product recommendations based on each person's unique shopping needs based on their historical visits. Through the use of self-service applications such as interactive devices, multimedia equipment, etc., visitors can build on their own purchasing experience and easily have access to customized service.

MiTAC target each customer individually, allowing retailers to convert a high percentage of visitors into long-term, high-value customers. Loyalty, as well as sales will increase, improving brand engagement and growth.



## Self Service System



## Display System



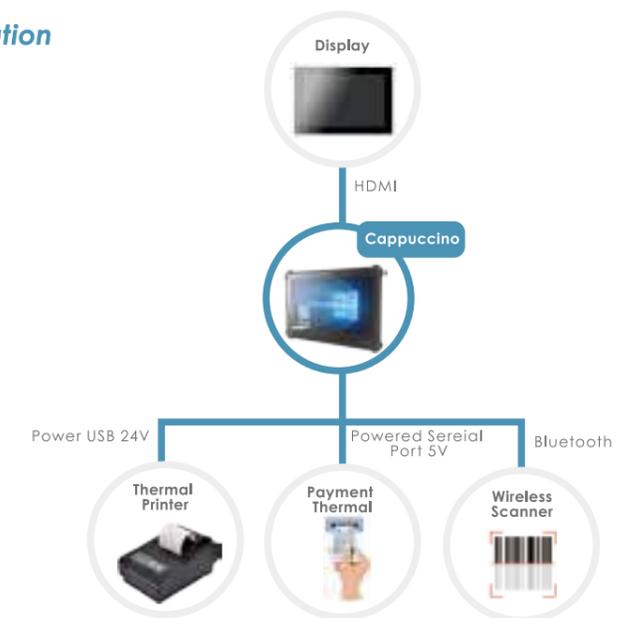
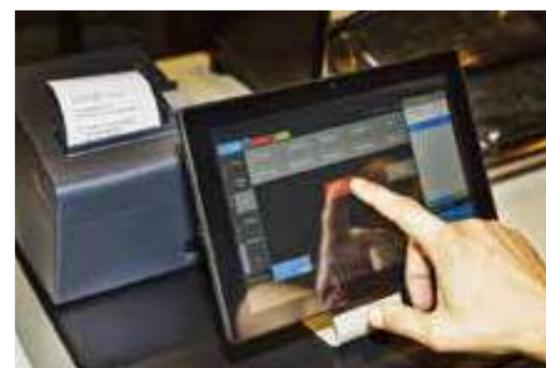
## Point of Sales System



# Hospitality in Restaurant

## Solutions: Cappuccino Tablet + Docking Station

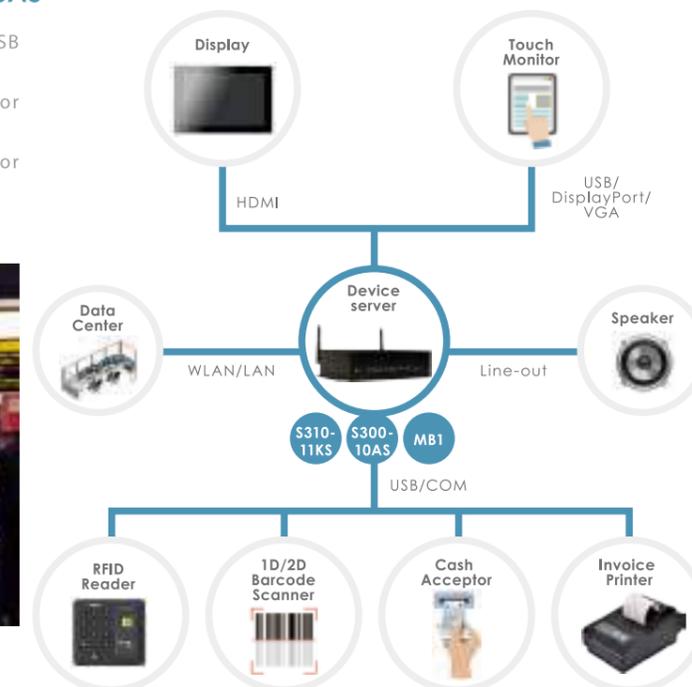
- The lightest 11.6" rugged tablet < 900g
- Dual OS compatibility with Windows® 10 IoT and Linux CentOS7
- Crystal clear display with 2K resolution
- Trouble-free scanning with built-in Honeywell software decoder
- Featured with WiFi/BT and rich I/O connections for display monitor, cash drawer, thermal receipt printer, and payment terminal



# Smart Vending Machine

## Solutions: MB1-10AP / S310-11KS / S300-10AS

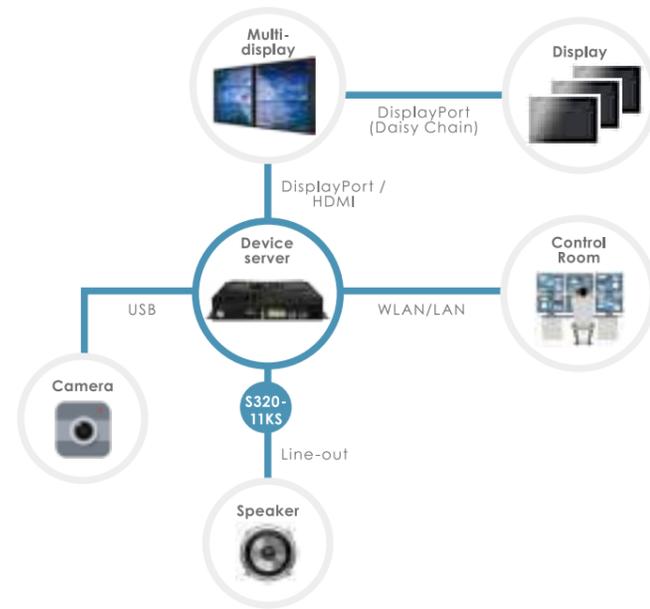
- Provide rich I/O connections in both serial and USB ports for expansion devices
- Featured with HDMI and DP dual display ports for high resolution application
- LAN/WLAN (optional) for internet connection for customer analysis and immediate feedback



## Compact Digital Signage Solution

### Solution: S320-11KS

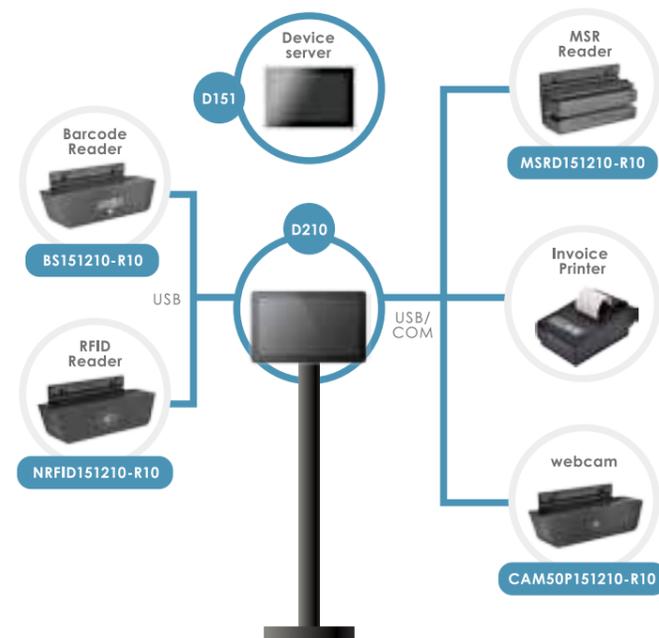
- High performance slim embedded system powered by Intel Kaby Lake Core-i Processor
- Features with high resolution 4K HDMI & 4K DisplayPort for multi-display
- LAN/WLAN (optional) for internet connection and data control
- USB ports connectivity for facial recognition via cameras



## Interactive Kiosk/ Hospitality

### Solutions: D210 / D151

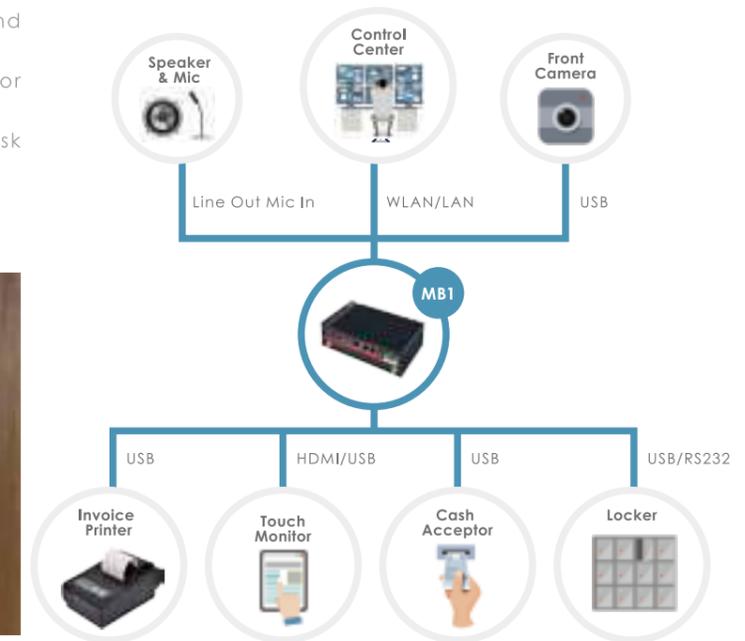
- Support multiple easy-attached mounting modules via USB ports
- IP65 rated multi-touch front panel
- Optional agile WLAN for area information and data transfer



## Smart Charging Station for Stores

### Solutions:

- Provide rich I/O connectivity in both serial and USB ports
- Feature with dual display interface for multi-kiosk application
- Optional WLAN feature for more IoT Kiosk applications



## Interactive Kiosk/ Self-ordering

### Solution: K32F

- Replacing conventional manual operation by MiFace™, facial biometric recognition
- Enabling personalized recommendation on customer's ordering selection by AI-driven solution
- Encouraging more incentives on approaching interactive kiosk in post COVID-19 by MiAirtouch™
- Allowing business users conscious of any real-time operation performance by BI Dashboard Analytics
- Getting ready on most of Kiosk peripherals in terms of UPOS driver



# Industrial Motherboard



## Micro ATX



### Micro ATX

Raptor Lake-S/Alder Lake-S	PH10ADU	P34
Comet Lake	PH10CMU	P36
Coffee Lake	PH10FEU	P38

## Mini-iTX



### Thin Mini-iTX

Alder Lake/Raptor Lake-S	PH12ADI	P40
	PH14ADI	P42
Comet Lake	PH11CMI	P44
	PH12CMI	P46
Coffee Lake	PH12FEI	P48
	PH14FEI	P50
Kaby Lake / Skylake	PH12SI	P52
	PH13SI	P54
Elkhart Lake	PD10EHI	P56
	PD11EHI	P58
	PD14EHI	P60
Apollo Lake	PD10AI	P62
Braswell	PD10RI	P64
Bay Trail	PD10BI	P66



### Mini-iTX

Comet Lake	PH13CMI	P68
Coffee Lake	PH13FEI	P70
Braswell	PD14RI	P72
Bay Trail	PD11BI	P74

## SBC



### 3.5"

Tiger Lake	PD11TGS	P76
Kaby Lake / Skylake	PD11KS	P78
Apollo Lake	PD10AS	P80

### 2.5"



NXP i.MX8M	ND108T	P82
	ND118T	P84

## COMe



### COMe

Kaby lake / Skylake	PD10KC	P86
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## AI Acceleration Card



### AI Acceleration Card

Hailo	MiAi-H8	P88
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# PH10ADU

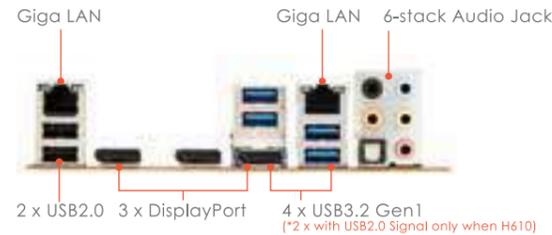
**Micro-ATX Form Factor**  
**Intel® Raptor Lake-S 13th/Alder Lake-S 12th**  
**Processor with Q670 Chipset**

## Features

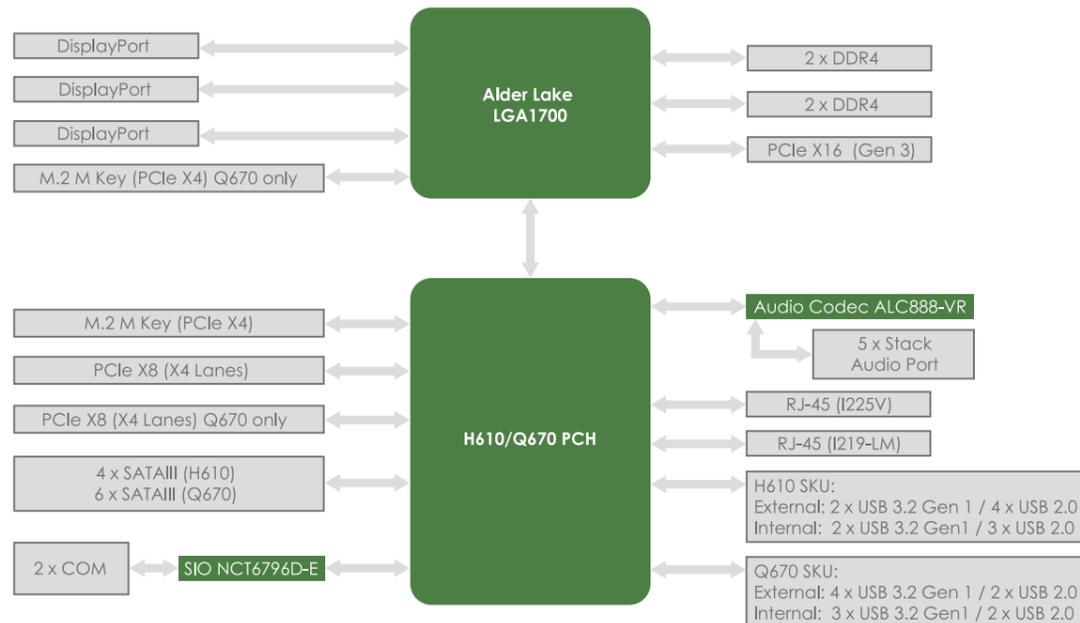
- Intel® Raptor Lake-S 13th/Alder Lake-S 12th i9/i7/i5/i3 125 W processor
- Intel® Q670 Chipset
- Intel® vPro technology support (Q670)
- 4x DDR4 U-DIMM up to 128GB
- 1 x PCIe X16 slot, 2 x PCIe X8 slot (x4 Lanes), 2 x M.2 2280/2210 M-key (NVME)
- Support triple display for 3 x DisplayPort
- Up to 6 x SATAIII (support RAID 0, 1, 5, 10)
- Up to 2 x Intel® Gigabit Ethernet
- Up to 7 x USB 3.2 Gen1, 4 x USB 2.0, 2 x COM ports
- ATX power input



Intel CORE i3	Intel CORE i5	Intel CORE i7	Intel CORE i9
M.2 NVME x2	Dual LAN	Triple Display	11 USB port
2 COM port	Intel vPro	All Solid Capacitor	EMC Class B



## Block Diagram



# PH10ADU Micro ATX

<b>ECHANICAL</b>	
Form Factor	Micro-ATX: 9.6" x 9.6" (244 mm x 244 mm)
<b>SYSTEM</b>	
Processor	13th/12th Gen Intel® Raptor Lake-S/Alder Lake-S LGA1700 Socket Processor / Core i9/i7/i5/i3 Processor / TDP 125W
Chipset	Intel® Q670 / H610
Memory	4 x 288-pin U-DIMM / DDR4 3200 MHz/ Max. 128 GB (Non-ECC)
Graphics	Intel® UHD Graphics 770
Ethernet	Intel® I219-LM Giga LAN + Intel® I225V 2.5 Giga LAN
Audio	Realtek® ALC888-VR
I/O Chipset	Nuvoton NCT6796D-E
TPM	TPM Header / (support optional TPM module board NPCT750)
Expansion Slot	For Q670: PCIe 3.0 X16 slot 2 x PCIe 3.0 X8 slot (X4 Lanes) M.2 2280 / 22110 M key (PCIe X4 ,SATA) M.2 2280 / 22110 M key (PCIe X2, SATA) For H610: PCIe 3.0 X16 slot 1 x PCIe 3.0 X8 slot (X4 Lanes) M.2 2280 / 22110 M key (PCIe X2)
BIOS	AMI BIOS / 256 Mbit SPI
H / W Monitor	Temperature Monitor / Voltage Monitor / Fan Monitor
Watchdog Timer	1~255 steps by software program
Smart Fan Control	CPU Fan / System Fan
<b>GRAPHICS</b>	
VGA	—
DVI	—
HDMI	—
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
LVDS	—
eDP (Option)	—
<b>REAR I/O</b>	
USB	4 x USB 3.2 Gen 1 (2 x with USB2.0 Signal only when H610) 2 x USB 2.0
Display I/O	3 x DisplayPort 1.2
Audio I/O	1 x 6-stack Audio Jack
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	—
<b>INTERNAL CONNECTORS</b>	
Storage	6 x SATAIII (4 x SATAIII when H610)
USB	2 x USB 2.0/ 2 x USB 3.2 Gen1 / 1 x USB 3.2 Gen1 Type A connector (This Type A connector is with USB2.0 Signal only when H610)
Display I/O	—
Audio I/O	1 x Front Audio
Serial Port	2 x RS232
PS/2 Port	—
Parallel Port	—
GPIO	—
Fan	1 x 4-pin CPU Fan Header / 3 x 4-pin system Fan Header
Power	1 x 8-pin ATX Power Connector/ 1 x 24-pin ATX Power Connector
Others	1 x CMOS Jumper/ 1 x FIO header/ 1 x SPI TPM header
<b>POWER REQUIREMENT</b>	
Power Input	ATX 8-pin + ATX 24-pin
<b>ENVIRONMENTAL</b>	
Operating Temperature	0 ~ 60°C (32 ~140°F)
Storage Temperature	-20 ~ 70°C (-4 ~158°F)
Operating Humidity	10% ~ 95% R/H (Non-condensing)
Certification	CE / FCC Class B
<b>OS</b>	
OS Support	Linux (support by request) / Ubuntu 20.04 / Windows® 10 64-bit / Windows® 11 64bit,

## Ordering Information

Model Number	Chipset	PCIe x16 /PCIe x8	M.2 22110	LAN	SATA	DP	USB 3.1 /2.0	COM Port	Power
PH10ADU-H610	Intel® H610	1/1	1	2	4	3	7/4	2	ATX Power (24-pin + 8-pin)
PH10ADU-Q670	Intel® Q670	1/2	2	2	6	3	4/7	2	ATX Power (24-pin + 8-pin)

## Packing List

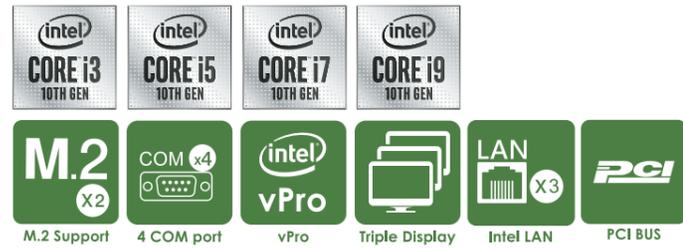
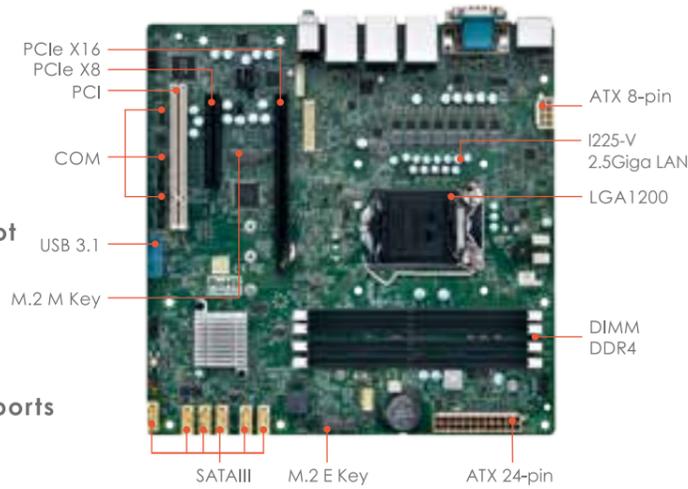
Packing	• 1 x 50 cm SATA Cable	• 1 x I/O Bracket	• 1 x Motherboard
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# PH10CMU

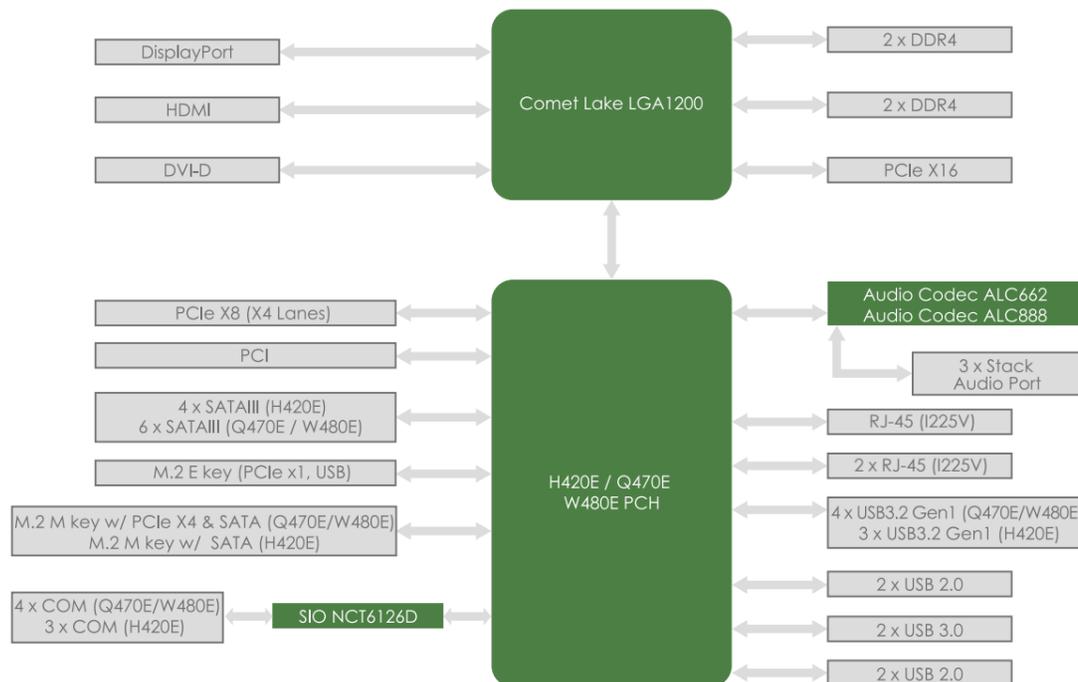
Micro-ATX Form Factor  
Intel® Comet Lake Processor with H420E / Q470E / W480E Chipset

## Features

- Up to Intel® Comet Lake 10th Gen i9 125W (10 Cores) LGA1200 processor
- Intel® H420E / Q470E / W480E Chipset
- Intel® vPro technology supported
- 4 x DDR4 DIMM, support up to 64GB
- Support 1 x PCIe X16 slot, 1 x PCIe X8 slot, 1 x PCI slot, 1 x M.2 2280 slot, 1 x M.2 2230 slot
- Support triple display for 1 x DisplayPort, 1 x HDMI and 1 x DVI
- Up to 6 x SATAIII (support RAID 0, 1, 5, 10)
- Up to 3 x Intel® Gigabit Ethernet
- Up to 6 x USB 3.2 Gen1, 4 x USB 2.0, 4 x COM ports
- ATX power input



## Block Diagram



# PH10CMU Micro ATX

MECHANICAL	
Form Factor	Micro-ATX 9.6" x 9.6" (244mm x 244mm)
SYSTEM	
Processor	10th Gen Intel® Comet Lake LGA1200 Socket Processor, Core i9/i7/i5/i3 up to 10-core TDP Max. 125W
Chipset	Intel® Q470E / W480E (Support RAID 0 / 1 / 5 / 10), H420E
Memory	DDR4 2933MHz, Max. 64 GB (Non-ECC: H420E / Q470E, ECC: W480E), 4 x 288-pin U-DIMM
Graphics	Intel® HD Graphics
Ethernet	Intel® I225V 2.5 Giga LAN
Audio	Realtek® ALC662 / ALC888
I/O Chipset	Nuvoton NCT6126D(eSPI)
TPM	TPM Header (support TPM module board NPCT750)
Expansion Slot	1 x PCIe 3.0 X16 slot (PCIe x16 support 3 options of PCIe switch: #1: 1 x PCIe X16, #2: 2 x PCIe X8, #3: 1 x PCIe X8 + 2 x PCIe X4) 1 x PCIe 2.0 X8 slot (X4 Lanes), 1 x PCIe x4 Lanes is switched with M.2 2242/2260/2280 slot, PCI slot 1 x M.2 2242 / 2260 / 2280 M key (PCIe x4 ,SATA), 1 x M.2 2280 for H420E support SATA only 1 x M.2 2230 E key (PCIe x1, USB2.0, CNVi)
BIOS	256 Mbit SPI
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	CPU Fan / System Fan
GRAPHICS	
VGA	—
DVI	Up to 1920 x 1200 @60 Hz
HDMI	Up to 4K (4096 x 2160) @30 Hz
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
LVDS	—
eDP (Option)	Up to 4K (4096 x 2304) @60 Hz
REAR I/O	
USB	2 x USB 2.0 / 4 x USB 3.2 Gen1 (Q470E / W480E) / 3 x USB 3.2 Gen1 (H420E)
Display I/O	1 x HDMI 1.4 / 1 x DisplayPort 1.2 / 1 x DVH
Audio I/O	1 x 3-stack Audio Jack (Mic-in, Line-in, and Line-out)
LAN I/O	3 x RJ-45 (1 x Optional)
Serial Port	1 x RS232
PS/2 Port	—
Others	—
INTERNAL CONNECTORS	
Storage	6 x SATAIII (Q470E / W480E) / 4 x SATAIII (H420E)
USB	2 x USB 3.2 Gen1 2 x USB 2.0
Display I/O	1 x Backlight Connector / 1 x eDP
Audio I/O	—
Serial Port	2 x RS232 / 1 x RS232 / 422 / 485
PS/2 Port	—
Parallel Port	—
GPIO	1 x MiAPI Header (Programmable, Support 10-bit GPIO)
Fan	1 x 4-pin CPU Fan Connector, 1x 4-pin System Fan Connector
Power	1 x 8-pin ATX Power Connector, 1 x 24-pin ATX Power Connector, 1 x AT / ATX Mode Select Jumper
Others	1 x Front Audio Header (Mic-in & Line-out), 1 x Chassis Intrusion, 1 x CMOS Jumper
POWER REQUIREMENT	
Power Input	ATX Power 8-pin + ATX Power 24-pin
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class A (Class B by request for customization SKU)
OS	
OS Support	Windows® 10 64-bit Linux (support by request)

## Ordering Information

Model Number	Chipset	PCIe X16/ X8/ PCI	M.2 2280 / 2230	LAN	SATA	DisplayPort/ HDMI DVI-D/ DVH	eDP	USB 3.1/ 2.0	COM	Power
PH10CMU-H420E	Intel® H420E	1 / 0 / 0	1 / 1	2	4	1 / 1 / 1 / 0	0	5 / 4	3	ATX Power (24-pin + 8-pin)
PH10CMU-Q470	Intel® Q470E	1 / 1 / 0	1 / 1	2	6	1 / 1 / 1 / 0	0	6 / 4	3	ATX Power (24-pin + 8-pin)
PH10CMU-Q470-3LAN	Intel® Q470E	1 / 1 / 1	1 / 1	3	6	1 / 1 / 0 / 1	1	6 / 4	4	ATX Power (24-pin + 8-pin)
PH10CMU-W480-3LAN	Intel® W480E	1 / 1 / 1	1 / 1	3	6	1 / 1 / 0 / 1	1	6 / 4	4	ATX Power (24-pin + 8-pin)

## Packing List

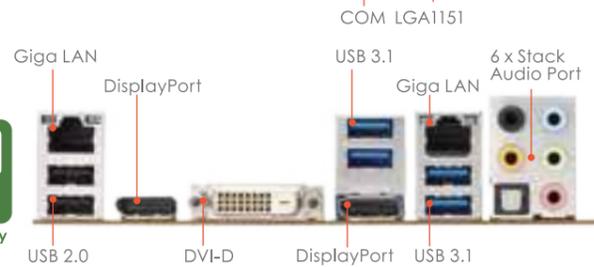
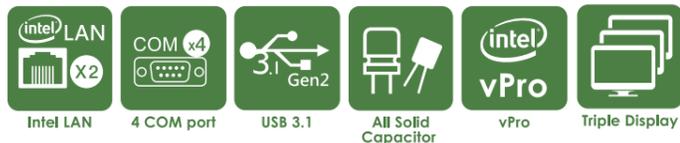
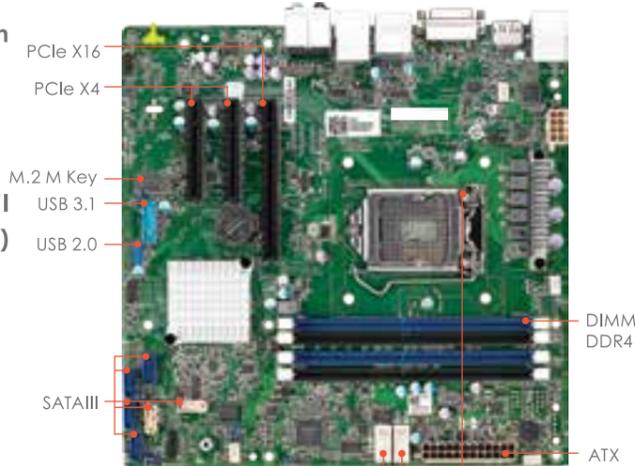
Packing		
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 1 x I/O Bracket

# PH10FEU

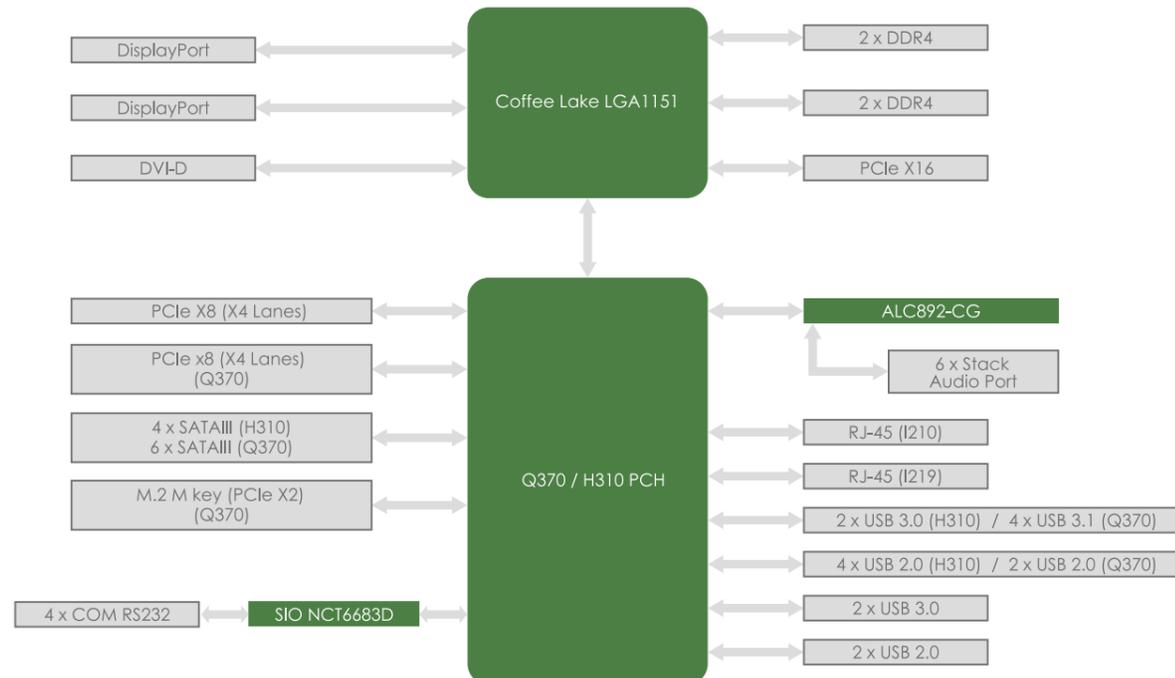
Micro-ATX Form Factor  
Intel® Coffee Lake Processor with Q370 / H310 Chipset

## Features

- Intel® Coffee Lake Core i7/i5/i3/Pentium/Celeron LGA1151 processors
- Intel® Q370 / H310 Chipset
- Intel® vPro technology supported
- 4 x DDR4 DIMM, support up to 64GB
- Support triple display for 2 x DisplayPort and DVI
- Support PCIe X16 (Gen 3) slot, 2 x PCIe X4 (Gen 3) slot, and M.2 slot
- 6 x SATAIII (support RAID 0, 1, 5, 10 w/ Q370)
- 2 x Intel® Gigabit Ethernet
- 4 x USB 2.0, 2 x USB 3.0, 4 x USB3.1 (Gen 2), 4 x COM
- ATX power input



## Block Diagram



## PH10FEU Micro ATX

MECHANICAL	
Form Factor	Micro-ATX 9.6" x 9.6" (244mm x 244mm)
SYSTEM	
Processor	9th & 8th Gen Intel® Coffee Lake LGA1151 Socket Processor, Core i7/i5/i3 6-core TDP Max. 95W, Core i9 8-core TDP Max 35W
Chipset	Intel® Q370 (Support RAID 0 / 1 / 5 / 10) / Intel® H310
Memory	DDR4 2666MHz, 4 x 288-pin U-DIMM, Max. 64GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN
Audio	Realtek® ALC892
I/O Chipset	Nuvoton NCT6683D
TPM	Nuvoton NPCT750AAAYX TPM2.0 (Optional)
Expansion Slot	1 x PCIe 3.0 X16 slot 2 x PCIe 2.0 X8 slot (X4 Lanes) for Q370 1 x PCIe 2.0 X8 slot (X4 Lanes) for H310 / M 2 2242 / 2280 M key (PCIe)
BIOS	256 Mbit SPI, AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	CPU Fan / System Fan
GRAPHICS	
VGA	—
DVI	Up to 4K (4096 x 2160) @30 Hz
HDMI	—
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
LVDS	—
eDP (Option)	—
REAR I/O	
USB	4 x USB 3.1 Gen 2 (Q370), 2 x USB 2.0 (Q370), 4 x USB 2.0 (H310), 2 x USB 3.0 (H310)
Display I/O	1 x DVI-D, 2 x DisplayPort 1.2
Audio I/O	6 x Stack Audio Jack
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	—
INTERNAL CONNECTORS	
Storage	6 x SATAIII / 4 x SATAIII (H310)
USB	2 x USB 3.0 (Q370) 2 x USB 2.0
Display I/O	—
Audio I/O	—
Serial Port	4 x RS232
PS/2 Port	—
Parallel Port	—
GPIO	—
Fan	1 x 4-pin CPU Fan Connector, 1x 4-pin System Fan Connector
Power	1 x ATX 24-pin, 1 x ATX 4-pin, 1 x AT/ATX Mode Select Jumper
Others	1 x Front Audio Header (Mic-in & Line-out), 1 x Chassis Intrusion, 1 x CMOS Jumper
POWER REQUIREMENT	
Power Input	ATX Power 8-pin + ATX Power 24-pin
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 10 64-bit Linux (support by request)

## Ordering Information

Model Number	Chipset	Display Port	DVI-D	External USB 3.1/3.0/2.0	Internal USB 3.0/2.0	6-stack Audio Jack	RS232	LAN	M.2 (2280 M key) / SATA	PCIe X16	PCIe X4	Power
PH10FEU-Q370	Intel® Q370	2	1	4 / 0 / 2	2 / 2	1	4	2	1 / 6	1	2	ATX Power (24-pin + 8-pin)
PH10FEU-H310	Intel® H310	2	1	0 / 2 / 4	2 / 2	1	4	2	0 / 4	1	1	ATX Power (24-pin + 8-pin)

## Packing List

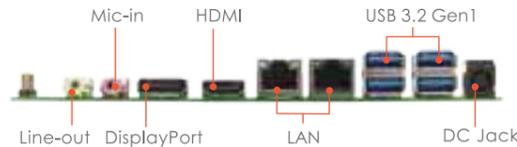
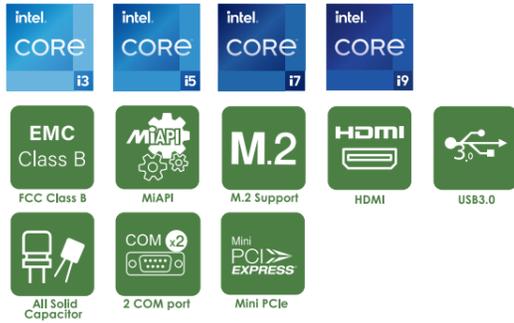
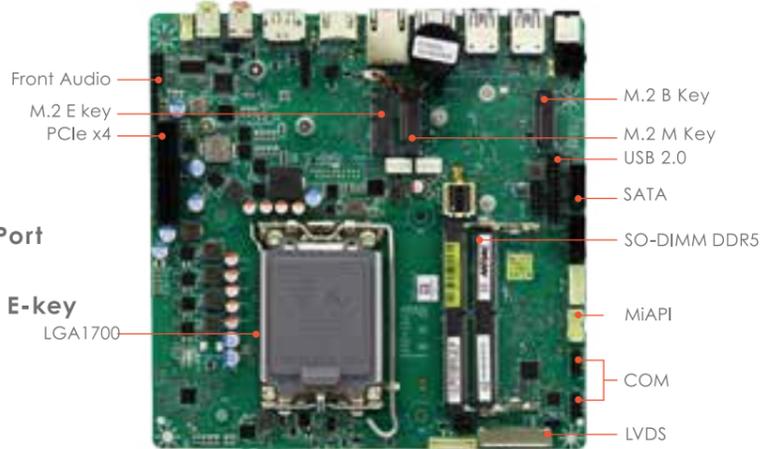
Packing		
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 1 x I/O Bracket

# PH12ADI

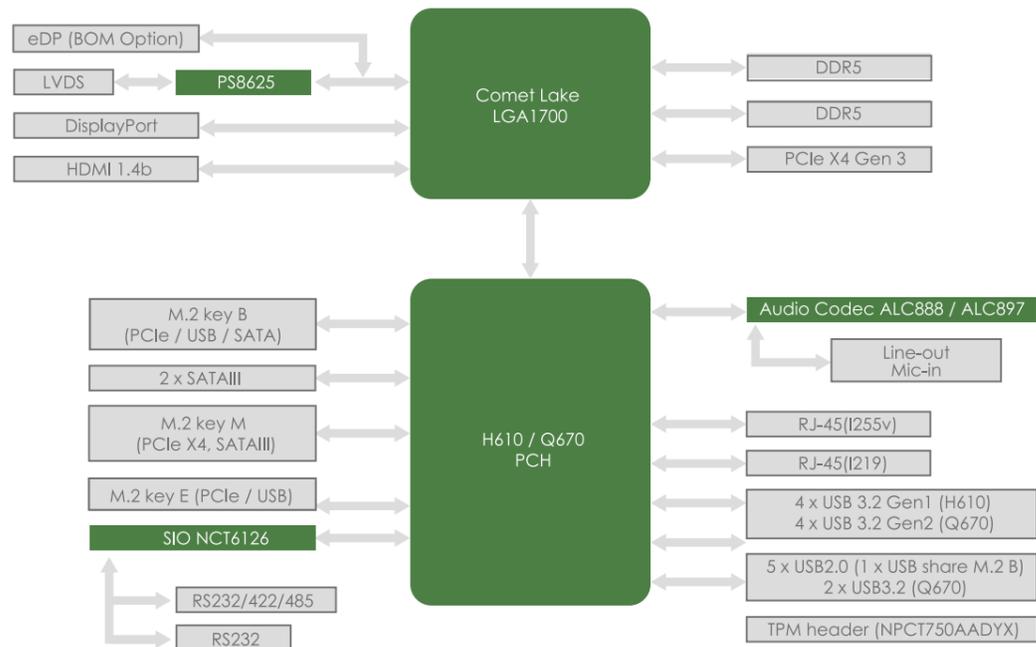
Thin Mini-ITX Form Factor  
Intel® 13th/12th Processor with H610/Q670 Chipset

## Features

- Intel® Raptor Lake-S 13th/Alder Lake-S 12th i9/i7/i5/i3 65W processor
- Intel® H610 / Q670 Chipset
- Intel® vPro technology support (Q670)
- 2x DDR5 SO-DIMM up to 64GB
- Support triple display for HDMI, DisplayPort and LVDS/eDP
- 1x M.2 2280M-key (NVME), 1 x M.2 2230 E-key (CNVi), 1 x M.2 3042 B-Key, 1 x PCIe X4
- 1 x Intel® 2.5Gigabit Ethernet, 1 x Intel® Gigabit Ethernet
- DC-in 12V / 19V



## Block Diagram



# PH12ADI Thin Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	13th/12th Gen Intel® Raptor Lake-S/Alder Lake-S LGA1700 Socket Processor / Core i9/i7/i5/i3 Processor / TDP 65W
Chipset	Intel® H610 / Q670
Memory	DDR5 4800 MHz / 2 x 262-pin SO-DIMM / Max. 64GB (Non-ECC) Horizontal (support 5200MHz on Raptor Lake s)
Graphics	Intel® UHD Graphics 770
Ethernet	Intel® I219-LM Giga LAN + Intel® I225V 2.5 Giga LAN
Audio	Realtek® ALC888 Co-Lay ALC897
I/O Chipset	Nuvoton NCT6126D (eSPI)
TPM	TPM Header / (support optional TPM module board NPCT750)
Expansion Slot	1x PCIe x4 slot Gen3 open end (not support x16 graphic card) 1x M.2 2242 / 2280 M key (PCIe X4, SATA) 1x M.2 2230 E key (PCIe, USB 2.0, CNVi) 1x M.2 3042 B key (USB, PCIe, SATA)
BIOS	AMI BIOS, 256 Mbit SPI
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1 ~ 255 Steps by Software Program
Smart Fan Control	CPU Fan / System Fan
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (4096 x 2160) @30 Hz
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (4096 x 2304) @60 Hz
REAR I/O	
USB	4 x USB 3.2 Gen1 (H610) / 4 x USB 3.2 Gen2 (Q670)
Display I/O	1 x HDMI 1.4, 1 x DisplayPort 1.2
Audio I/O	1 x Mic-in, 1 x Line-out
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	DC-in 12V (2.5 mm / ID, 5.5 mm / OD) / DC-in 19V (5.1 mm / ID, 7.4 mm / OD)
INTERNAL CONNECTORS	
Storage	2 x SATAIII
USB	H610 & Q670: 5 x USB 2.0 (1 x USB share M.2 B) Q670: 2 x USB 3.2
Display I/O	1 x LVDS (Optional eDP SKU available) 1 x Backlight Connector
Audio I/O	1 x Stereo Speaker 2W
Serial Port	1 x RS232, 1 x RS232 / 422 / 485
PS/2 Port	—
Parallel Port	—
GPIO	1 x MiAPI Header (Programmable)
Fan	1 x 4-pin CPU Fan Connector / 1 x 4-pin System Fan Header
Power	12V DC in Jack (2.5mm/ ID, 5.5mm/ OD) colay 19V DC in Jack (5.1 mm / ID, 7.4 mm / OD) 1 x ATX-4pin Connector, Jumper: 1 x AT / ATX Mode Select
Others	1 x Front Audio Header (Mic-in / Line-out), 1 x CMOS Jumper, 1 x panel power select header, 1 x SATA power, 1 x FIO header, 1 x intrusion switch header, 1 x DMIC header, 1x buzzer header
POWER REQUIREMENT	
Power Input	DC-in 19V (5.1 mm / ID, 7.4 mm / OD) / ATX 4-pin 19V DC-in 12V (2.5 mm / ID, 5.5 mm / OD) / ATX 4-pin 12V
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 11 64bit, Linux (support by request) ubuntu 20.04

## Ordering Information

Model Number	Chipset	DisplayPort	HDMI	LVDS / eDP	USB 3.2 / USB 2.0	RS232	Mic-in/ Line out	LAN	M.2 2230 E key / M.2 2280 M key / M.2 3042 B key	PCIe X4	Power
PH12ADI-H610-19V	Intel® H610	1	1	1/0	4/5	2	1/1	2	1/1/1	1	DC-in 19V
PH12ADI-Q670-19V	Intel® Q670	1	1	1/0	6/5	2	1/1	2	1/1/1	1	DC-in 19V
PH12ADI-Q670-12V	Intel® Q670	1	1	1/0	6/5	2	1/1	2	1/1/1	1	DC-in 12V

## Packing List

Packing
• 1 x Mainboard
• 1 x SATA & SATA Power Cable
• 2 x I/O Bracket (Half and Full Height)

# PH14ADI

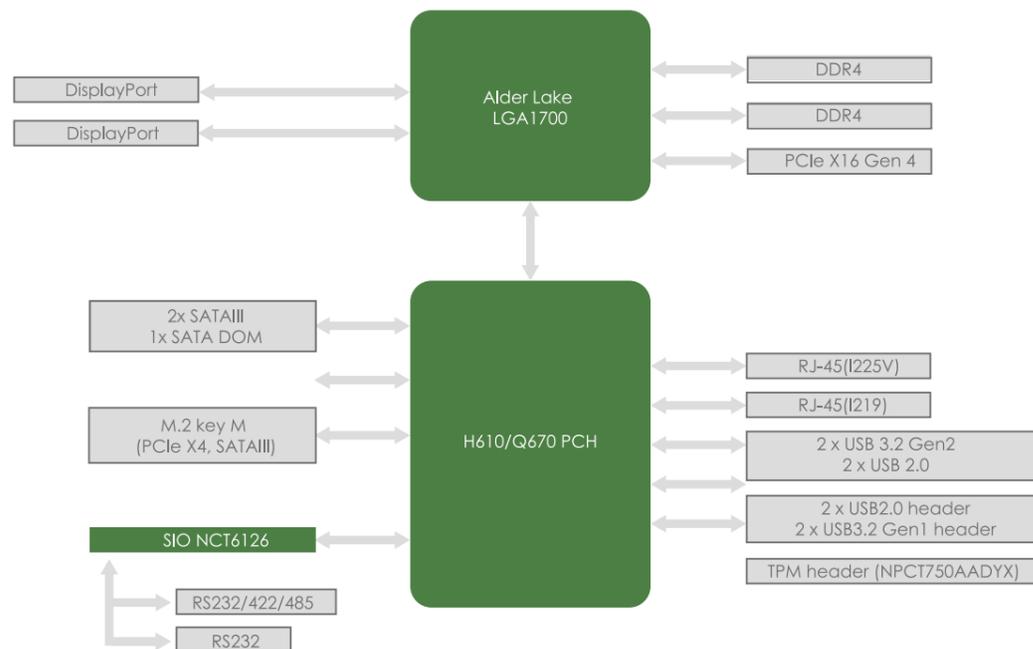
Thin Mini-ITX Form Factor  
Intel® 13th/12th Processor with H610/Q670 Chipset

## Features

- Intel® Raptor Lake-S 13th/Alder Lake-S 12th i9/i7/i5/i3 65W processor
- Intel® H610 / Q670 Chipset
- Intel® vPro technology support (Q670)
- 2x DDR4 SO-DIMM up to 64GB
- Support dual display for 2x DisplayPort
- 1x M.2 2280M-key (NVME & SATA), 1x PCIe X16 Gen 4
- 1 x Intel® 2.5Gigabit Ethernet, 1 x Intel® Gigabit Ethernet
- DC-in 12V



## Block Diagram



# PH14ADI Thin Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	13th/12th Gen Intel® Raptor Lake-S/Alder Lake-S LGA1700 Socket Processor / Core i9/i7/i5/i3 Processor / TDP 65W
Chipset	Intel® H610 / Q670
Memory	DDR4 3200 MHz, 2 x 260-pin SO-DIMM, Max. 64GB (Non-ECC)
Graphics	Intel® UHD Graphics
Ethernet	Intel® I219-LM Giga LAN + Intel® I225V 2.5 Giga LAN
Audio	—
I/O Chipset	Nuvoton NCT6126D (eSPI)
TPM	Header (support optional TPM module board NPCT750)
Expansion Slot	1 x PCIe X16 slot Gen4 1 x M.2 2280 M key (PCIe X4, SATAIII)
BIOS	Temperature Monitor, Voltage Monitor, Fan Monitor,
H / W Monitor	—
Watchdog Timer	1~255 steps by software program
Smart Fan Control	CPU Fan, System Fan
GRAPHICS	
2nd DisplayPort	Up to 4K (4096 x 2304) @60 Hz,
VGA	—
DVI	—
HDMI	—
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
LVDS	—
eDP (Option)	—
REAR I/O	
USB	2 X USB2.0, 2 x USB3.2 Gen2
Display I/O	2 x DisplayPort 1.4
Audio I/O	—
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	DC-in 12V (2.5 mm / ID, 5.5 mm / OD)
INTERNAL CONNECTORS	
Storage	2 x SATAIII, 1 x SATA DOM, 1x SATA Power header
USB	2 x USB 2.0, 2 x USB3.2 Gen1
Display I/O	—
Audio I/O	—
Serial Port	1 x RS232, 1 x RS232 / 422 / 485
PS/2 Port	—
Parallel Port	—
GPIO	—
Fan	1 x 4-pin CPU Fan Connector / 1 x 4-pin System Fan Header
Power	1 x ATX-4pin Connector
Others	1 x intrusion switch header, 1 x CMOS Jumper, 1 x FIO header
POWER REQUIREMENT	
Power Input	DC-in 12V (2.5 mm / ID, 5.5 mm / OD) / ATX 4-pin 12V
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS Support	Windows® 11 64bit, Windows® 10 IoT LTSC 64bit (LTSC 2021), Ubuntu 22.04, Linux (support by request)

## Ordering Information

Model Number	Chipset	DisplayPort	USB 3.2 / 2.0	COM	LAN	2280 M key	PCIe X16	Power
PH14ADH610-12V	Intel® H610	2	4 / 4	2	2	1	1	DC-in 12V
PH14ADI-Q670-12V	Intel® Q670	2	4 / 4	2	2	1	1	DC-in 12V

## Packing List

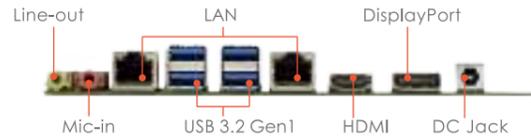
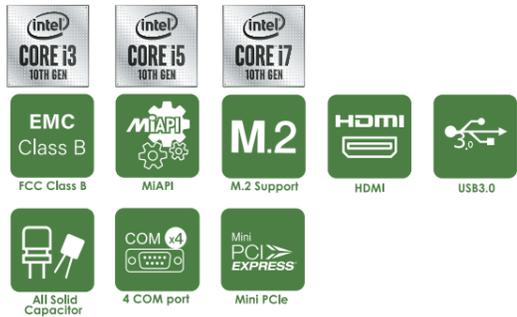
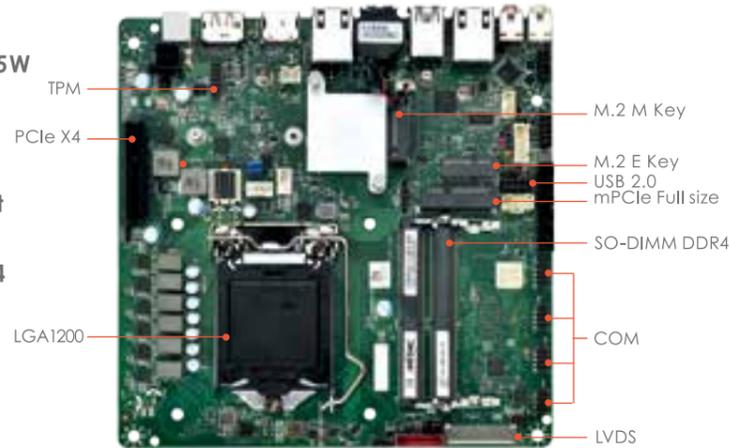
Packing		
• 1 x Motherboard	• 1 x 50 cm SATA Cable	• 2 x I/O Bracket (Half and Full Height)

# PH11CMI

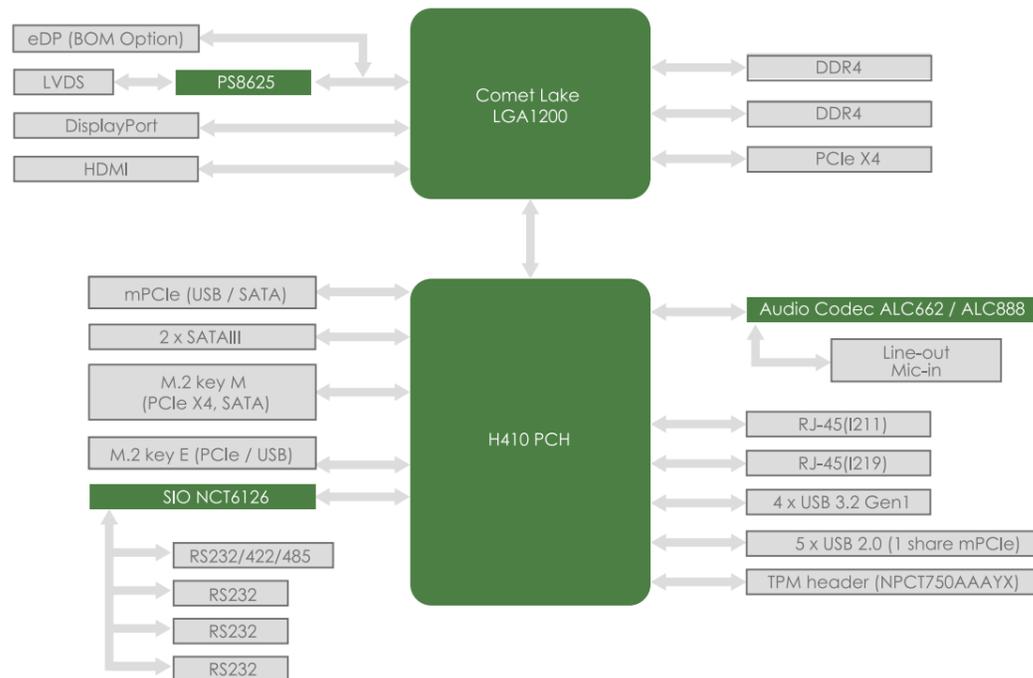
Thin Mini-ITX Form Factor  
Intel® Comet Lake 10th Processor with H410 Chipset

## Features

- Up to Intel® Comet Lake 10th i7 35W & i5 65W LGA processor
- Intel® H410 Chipset
- 2 x DDR4 SO-DIMM up to 64GB
- Support Dual display for HDMI, DisplayPort and LVDS/eDP
- 1 x M.2 M 2280, 1 x M.2 E 2230, 1 x PCIe X4 and 1 x mPCIe Full size,
- 2 x Intel® Gigabit Ethernet
- DC-in 12V / 19V



## Block Diagram



# PH11CMI Thin Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	10th Gen Intel® Comet Lake LGA1200 Socket Processor / 10core TDP Max 35W / 8ccore TDP 65W
Chipset	Intel® H410
Memory	DDR4 2933/2666/2400MHz / 2 x 260-pin SO-DIMM / Max. 64GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN
Audio	Realtek® ALC662 / ALC888
I/O Chipset	Nuvoton NCT6126D (eSPI)
TPM	TPM Header / (support TPM module board NPCT750)
Expansion Slot	1 x PCIe 3.0 X4 slot / 1 x Mini PCIe Full size (SATA / USB) 1 x M.2 2242 / 2280 M key (PCIe, SATA) 1 x M.2 2230 E key (PCIe, USB 2.0)
BIOS	
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1 ~ 255 Steps by Software Program
Smart Fan Control	CPU Fan / System Fan
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (4096 x 2160) @30 Hz
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (4096 x 2304) @60 Hz
REAR I/O	
USB	4 x USB 3.2 Gen 1
Display I/O	1 x HDMI 1.4, 1 x DisplayPort 1.2
Audio I/O	1 x Mic-in, 1 x Line-out
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	DC-in 12V (2.5 mm / ID, 5.5 mm / OD) / DC-in 19V (5.1 mm / ID, 7.4 mm / OD)
INTERNAL CONNECTORS	
Storage	2 x SATAIII / 1 x SATA power header
USB	5 x USB 2.0 pitch 2.54mm (1 x USB share mPCIe)
Display I/O	1 x LVDS (Optional eDP SKU available) 1 x Backlight Connector
Audio I/O	1 x Stereo Speaker Header
Serial Port	4 x RS232 pitch 2.0mm (One supports RS232 / 422 / 485)
PS/2 Port	—
Parallel Port	—
GPIO	1 x MiAPI Header (Programmable, Support 10-bit GPIO)
Fan	1 x 4-pin CPU Fan Connector / 1 x 4-pin System Fan Header
Power	1 x AT / ATX Mode Select Jumper, 1 x 4-pin ATX Power Connector
Others	1 x Front Audio Header (Mic/HP) x 1, CMOS Jumper
POWER REQUIREMENT	
Power Input	DC-in 19V (5.1 mm / ID, 7.4 mm / OD) / ATX 4-pin 19V DC-in 12V (2.5 mm / ID, 5.5 mm / OD) / ATX 4-pin 12V
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 10 64bit, Linux (support by request)

## Ordering Information

Model Number	Chipset	DisplayPort	HDMI	LVDS / eDP	USB 3.2 / 2.0	SATA	Mic-in/Line out	LAN	M.2 2230 E key / M.2 2280 M key	mini PCIe	PCIe X4	Power
PH11CMI-H410-12V	Intel® H410	1	1	1/0	4/5	2	1/1	2	1/1	1	1	DC-in 12V
PH11CMI-H410-19V	Intel® H410	1	1	1/0	4/5	2	1/1	2	1/1	1	1	DC-in 19V

## Packing List

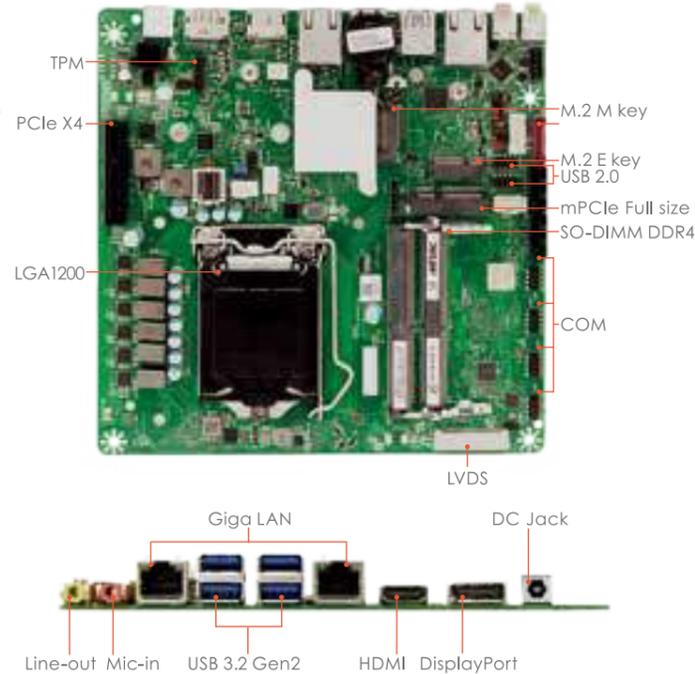
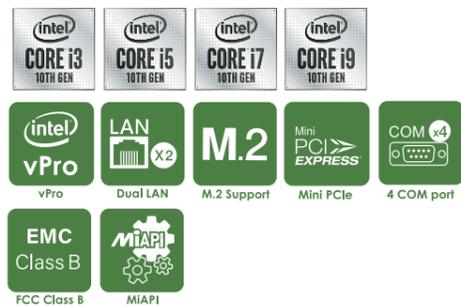
Packing	• 1 x Mainboard	• 1 x SATA & SATA Power Cable	• 2 x I/O Bracket (Half and Full Height)
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# PH12CMI

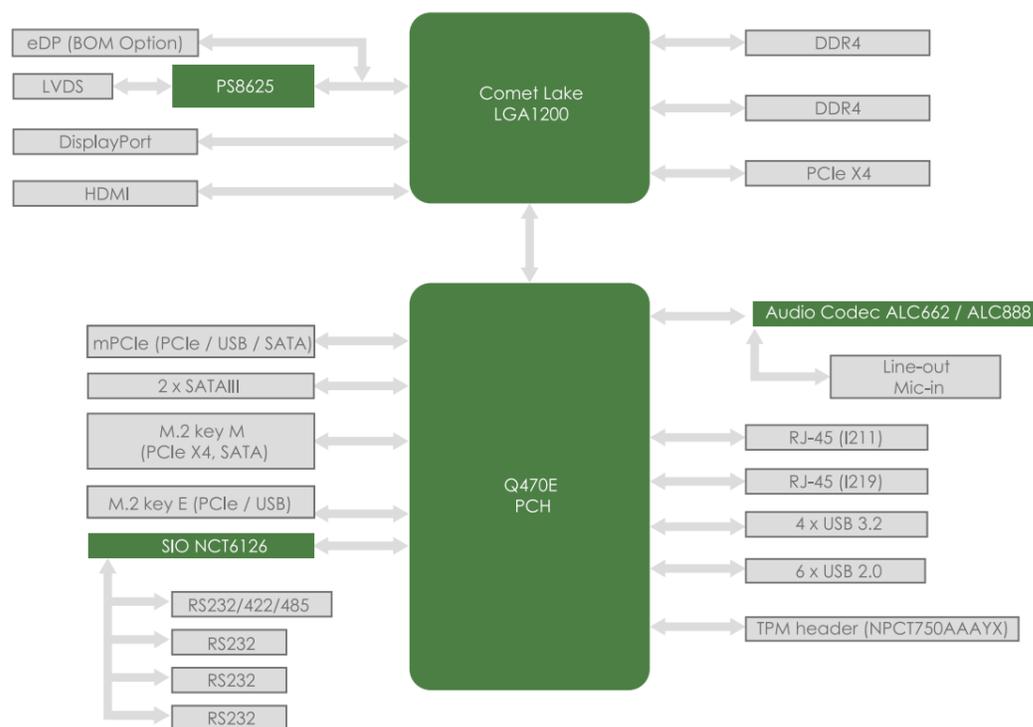
Thin Mini-ITX Form Factor  
Intel® Comet Lake Processor with Q470E Chipset

## Features

- Intel® Comet Lake 10th 65W(10cores) LGA processor
- Intel® Q470E Chipset
- Intel® vPro technology support (Q470E)
- 2 x DDR4 SO-DIMM up to 64GB
- Support triple display for HDMI, DisplayPort and LVDS / eDP
- 1 x M.2 M 2280, 1 x M.2 E 2230, 1 x mPCIe Full size, 1 x PCIe X4
- 2 x Intel® Gigabit Ethernet
- DC-in 12V / 19V



## Block Diagram



# PH12CMI Thin Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	10th Gen Intel® Comet Lake LGA1200 Socket Processor, 10core TDP Max 35W / 8ccore TDP 65W
Chipset	Intel® Q470E (Support RAID 0 / 1 / 5, VPro)
Memory	DDR4 2933/2666/2400MHz, 2 x 260-pin SO-DIMM, Max. 64GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN
Audio	Realtek® ALC662 / ALC888
I/O Chipset	Nuvoton NCT6126D(eSPI)
TPM	TPM Header (support TPM module board PCT750)
Expansion Slot	1 x PCIe X4 slot 1 x Mini PCIe Full size (PCIe / USB / SATA) 1 x M.2 2242 / 2280 M key (PCIe X4, SATA) 1 x M.2 2230 E key (PCIe, USB 2.0)
BIOS	AMI BIOS, 256 Mbit SPI
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	CPU Fan / System Fan
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (4096 x 2160) @30 Hz
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
2nd DisplayPort	—
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (4096 x 2304) @60 Hz
REAR I/O	
USB	4 x USB 3.2 Gen 2 (Q470E)
Display I/O	1 x HDMI 1.4, 1 x DisplayPort 1.2
Audio I/O	1 x Mic-in, 1 x Line-out
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	DC-in 12V (2.5 mm / ID, 5.5 mm / OD) / DC-in 19V (5.1 mm / ID, 7.4 mm / OD)
INTERNAL CONNECTORS	
Storage	2 x SATAIII / 1 x SATA power header
USB	6 x USB 2.0 pitch 2.0mm
Display I/O	1 x LVDS (Optional eDP SKU available) 1 x Backlight Connector
Audio I/O	—
Serial Port	4 x RS232 pitch 2.0mm (one supports RS232/422/485)
PS/2 Port	—
Parallel Port	—
GPIO	1 x MiAPI Header (Programmable)
Fan	1 x 4-pin CPU Fan Connector, 1 x 4-pin System Fan Connector
Power	1 x ATX 4-pin Power Connector, 1 x AT / ATX Mode Select Jumper
Others	1 x Front Audio Header (Mic-in / Line-out), 1 x CMOS Jumper, 1 x panel power select header, 1 x backlight power select header, 1x buzzer header, 1 x Digital MIC
POWER REQUIREMENT	
Power Input	DC-in 19V (5.1 mm / ID, 7.4 mm / OD) / ATX 4-pin 19V DC-in 12V (2.5 mm / ID, 5.5 mm / OD) / ATX 4-pin 12V
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~140°F)
Storage Temperature	-40 ~ 85°C (-40 ~185°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 10 64-bit Linux (support by request)

## Ordering Information

Model Number	Chipset	DisplayPort / HDMI	LVDS / eDP	USB 3.2 / 2.0	Mic-in / Line-in	RS-232	LAN	M.2 2230 E key / M.2 2280 M key	PCIe X4	Power
PH12CMI-Q470-12V	Intel® Q470E	1 / 1	1 / 0	4 / 6	1 / 1	4	2	1 / 1	1	DC-in 12V
PH12CMI-Q470-19V	Intel® Q470E	1 / 1	1 / 0	4 / 6	1 / 1	4	2	1 / 1	1	DC-in 19V

## Packing List

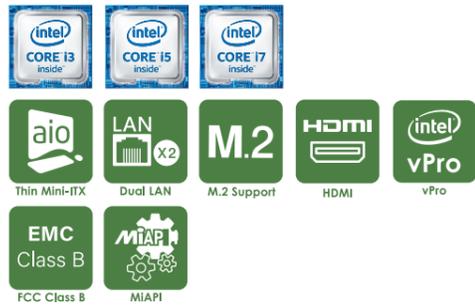
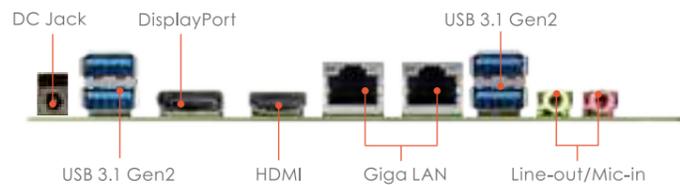
Packing
<ul style="list-style-type: none"> <li>• 1 x Motherboard</li> <li>• 1 x SATA &amp; SATA Power Cable</li> <li>• 1 x I/O Bracket (Full Height)</li> </ul>

# PH12FEI

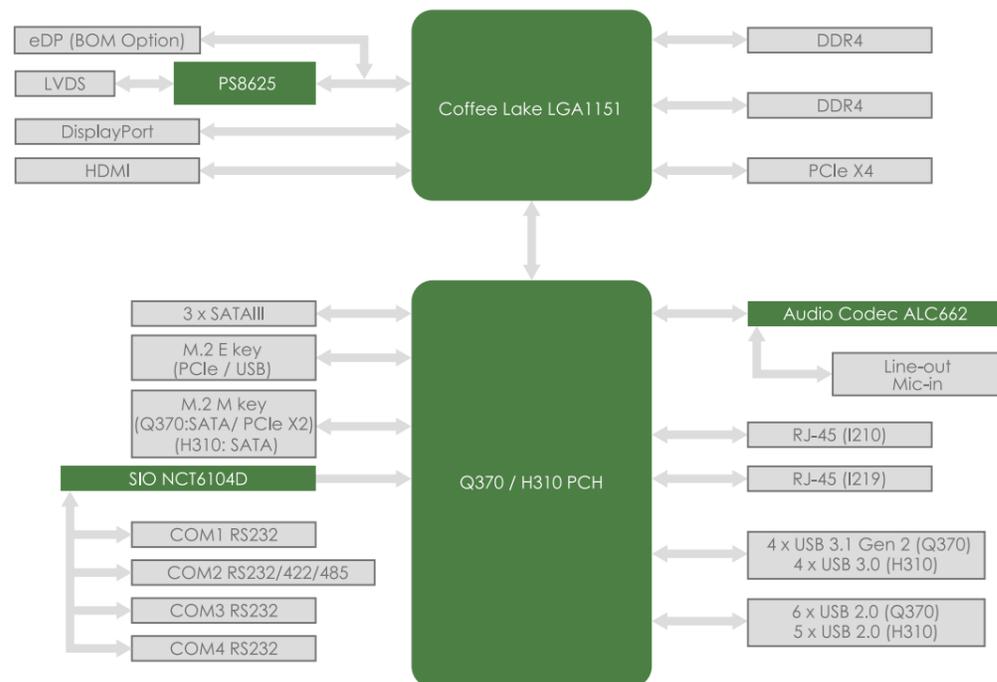
Thin Mini-ITX Form Factor  
Intel® Coffee Lake Processor with Q370 / H310 Chipset

## Features

- Intel® Coffee Lake Core i7/i5/i3 / Pentium / Celeron LGA1151 processors
- Intel® H310/Q370 Chipset
- Intel® vPro technology support (Q370)
- 2 x DDR4 SO-DIMM, support up to 32GB
- Support triple display for HDMI, DisplayPort and LVDS/eDP
- Support PCIe X4 (Gen 3) slot and M.2 slot
- 3 x SATA III support RAID 0, 1, 5
- 2 x Intel® Gigabit Ethernet
- 6 x USB 2.0, 4 x USB 3.1 (Gen 2), 4 x COM and 1 x MiAPI (configurable digital I/O)
- DC-in 12/19V power input



## Block Diagram



## PH12FEI Thin Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	9th & 8th Gen Intel® Coffee Lake LGA1151 Socket Processor, Core i7/i5/i3 6-core TDP Max. 65W, Core i9 8-core TDP Max 35W
Chipset	Intel® Q370 / Intel® H310
Memory	DDR4 2666MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN
Audio	Realtek® ALC662
I/O Chipset	Nuvoton NCT6116D
TPM	Nuvoton NPCT750AAAYX TPM2.0 (Optional)
Expansion Slot	1 x PCIe 3.0 X4 slot 1 x M.2 2260 / 2280 M key (PCIe X2, SATA) **H310 only supports SATA SSD 1 x M.2 2230 E key (PCIe, USB 2.0) *not support Intel CNVi wifi module
BIOS	AMI BIOS, 256 Mbit SPI
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	CPU Fan / System Fan
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (4096 x 2160) @30 Hz
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (4096 x 2304) @60 Hz
REAR I/O	
USB	4 x USB 3.1 Gen. 2 (10 Gb/S)
Display I/O	1 x HDMI 1.4, 1 x DisplayPort 1.2
Audio I/O	1 x Mic-in, 1 x Line-out
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	DC-in 12V(DIN 4-pin power cable) / DC-in 19V (5.1 mm / ID, 7.4 mm / OD)
INTERNAL CONNECTORS	
Storage	3 x SATAIII
USB	6 x USB 2.0 (Q370) , 5 x USB 2.0 (H310)
Display I/O	1 x LVDS(Optional eDP SKU available) 1 x Backlight Connector
Audio I/O	1 x Line-out
Serial Port	4 x RS232(one supports RS232/422/485 select by BIOS)
PS/2 Port	—
Parallel Port	—
GPIO	1 x MiAPI Header (Programmable) support 8 x GPIO
Fan	1 x 4-pin CPU Fan Connector, 1 x 4-pin System Fan Connector
Power	1 x ATX Power Connector, 1 x AT/ATX Mode Select Jumper
Others	1 x Front Audio Header (Mic-in/Line-out), 1 x Chassis Intrusion, 1 x CMOS Jumper
POWER REQUIREMENT	
Power Input	DC-in 19V(5.1mm / ID, 7.4mm/ OD) / ATX 2-pin 19V DC-in 12V(DIN 4-pin power cable) / ATX 4-pin 12V
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~140°F)
Storage Temperature	-20 ~ 80°C (-4 ~158°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 10 64-bit Linux (support by request)

## Ordering Information

Model Number	Chipset	DisplayPort	HDMI	LVDS / eDP	USB 3.1 / 2.0	Line-out / Mic-in	RS-232	LAN	M.2 2230 E key / M.2 2280 M key	PCIe X4	Power
PH12FEI-H310-19V	Intel® H310	1	1	1 / 0	4 / 5	1 / 1	4	2	1 / 1	1	DC-in 19V
PH12FEI-H310-12VC	Intel® H310	1	1	1 / 0	4 / 5	1 / 1	4	2	1 / 1	1	DC-in 12V
PH12FEI-Q370-19V	Intel® Q370	1	1	1 / 0	4 / 6	1 / 1	2	2	1 / 1	1	DC-in 19V
PH12FEI-Q370-12V	Intel® Q370	1	1	1 / 0	4 / 6	1 / 1	4	2	1 / 1	1	DC-in 12V

\*Option: TPM, eDP

## Packing List

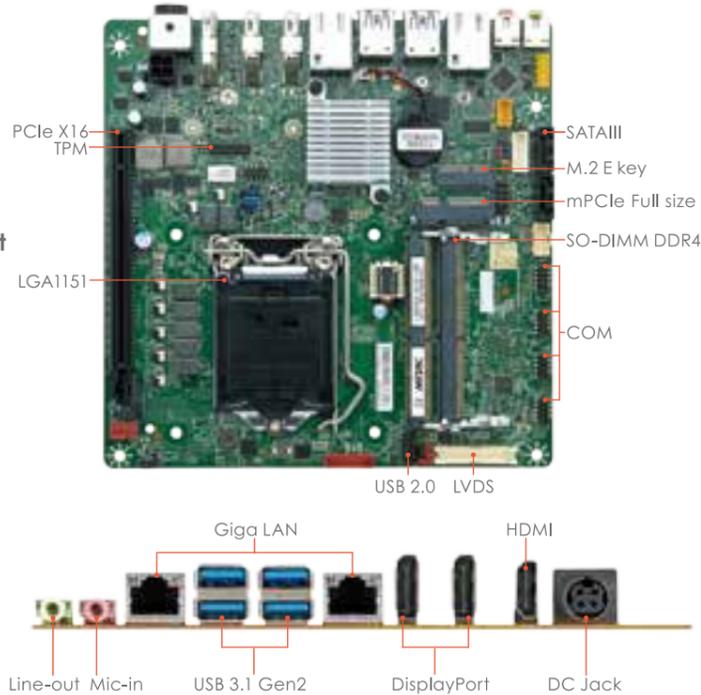
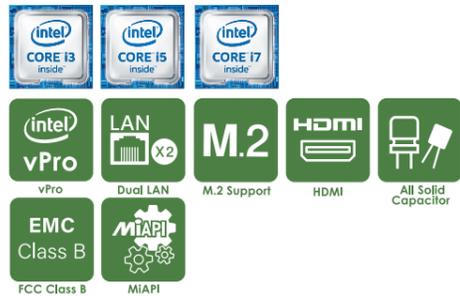
Packing		
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 1 x 45cm SATA Power Cable
• 1 x ATX 4-pin to DIN 4-pin Cable (12V SKU Only)	• 2 x I/O Bracket (Half and Full Height)	

# PH14FEI

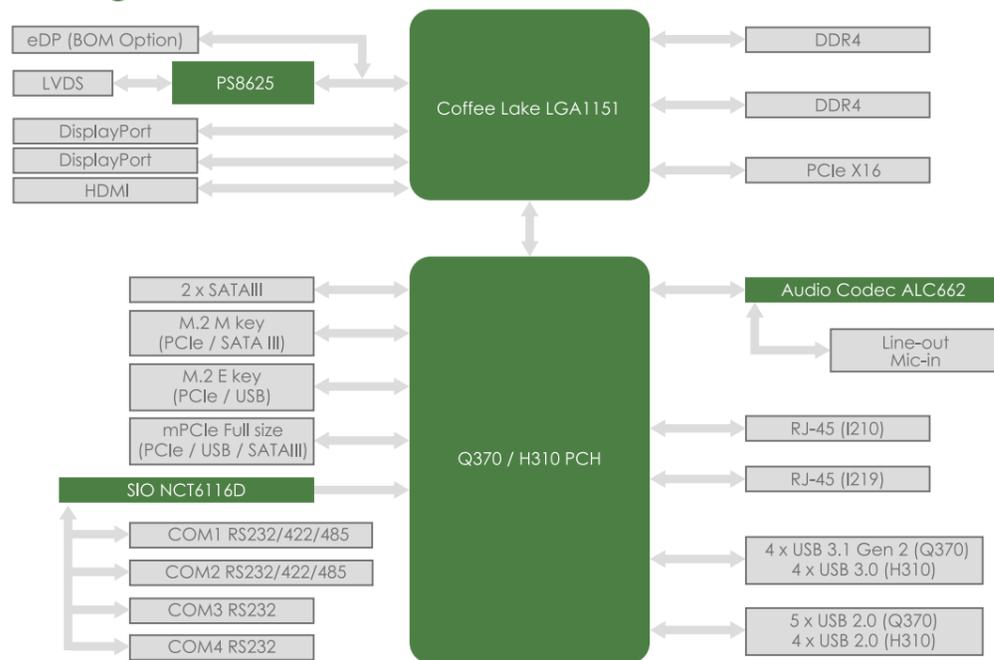
Thin Mini-ITX Form Factor  
Intel® Coffee Lake Processor with H310/Q370 Chipset

## Features

- Up to Intel® Coffee Lake-R 9th i9 35W & 8th i7 95W(6cores) LGA processor
- Intel® H310/Q370 Chipset
- Intel® vPro technology support (Q370)
- 2 x DDR4 SO-DIMM up to 32GB
- 5 phase power design
- Support triple display for HDMI, DisplayPort and LVDS/eDP
- 1 x M.2 M 2280, 1 x M.2 E 2230, 1 x mPCIe Full size, 1 x PCIe X16
- 2 x Intel® Gigabit Ethernet
- DC-in 12V (Optional: 12~24V SKU)

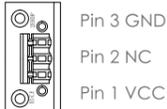
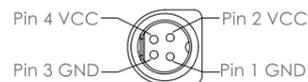


## Block Diagram



PH14FEI-XXXX-12V(Output)

PH14FEI-XXXX-24V(Output)



## Power Ordering Information

MITAC PN	Description
442110000147	12V 180W adapter for PH14FEI-XXXX-12V
442110000151	24V 120W adapter (for 35W CPU only) for PH14FEI-XXXX-24V
442110000149	24V 220W adapter for PH14FEI-XXXX-24V



# PH14FEI Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	9th & 8th Gen Intel® Coffee Lake LGA1151 Socket Processor, Core i7/i5/i3 6-core TDP Max. 95W, Core i9 8-core TDP Max 35W
Chipset	Intel® Q370 (Support RAID 0 / 1) support vPro / Intel H310
Memory	DDR4 2666MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN
Audio I/O Chipset	Realtek® ALC662
TPM	Nuvoton NCT6116D
Expansion Slot	TPM Header (option TPM-SPI-NPCT750) 1 x PCIe X16 slot 1 x Mini PCIe Full size (SATA, USB, PCIe) 1 x M.2 2260 / 2280 M key (PCIe, SATA) * H310 only supports M.2 SATA SSD 1 x M.2 2230 E key (PCIe, USB 2.0)
BIOS	AMI BIOS, 256 Mbit SPI
H / W Monitor Watchdog Timer	Temperature Monitor, Voltage Monitor, Fan Monitor 1~255 Steps by Software Program
Smart Fan Control	CPU Fan / System Fan
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (4096 x 2160) @30 Hz
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
2nd DisplayPort	Up to 4K (4096 x 2304) @60 Hz
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (4096 x 2304) @60 Hz
REAR I/O	
USB	4 x USB 3.1 Gen. 2 (10Gb/S)(Q370) / 4 x USB 3.0 (H310)
Display I/O	1 x HDMI 1.4, 2 x DisplayPort 1.2
Audio I/O	1 x Mic-in, 1 x Line-out
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	1 x DIN 4-pin DC Jack
INTERNAL CONNECTORS	
Storage	2 x SATAIII
USB	5 x USB 2.0 (Q370) , 4 x USB 2.0 (H310)
Display I/O	1 x LVDS (Optional eDP SKU available) 1 x Backlight Connector
Audio I/O	1 x Speaker 2W
Serial Port	4 x RS232 (two supports RS232/422/485 select by BIOS)
PS/2 Port	—
Parallel Port	—
GPIO	1 x MiAPI Header (Programmable)
Fan	1 x 4-pin CPU Fan Connector, 1 x 4-pin System Fan Connector
Power	1 x ATX 4-pin Power Connector, 1 x AT / ATX Mode Select Jumper
Others	1 x Front Audio Header (Mic-in / Line-out), 1 x CMOS Jumper, 1 x panel power select header, 1 x backlight power select header, 1x buzzer header
POWER REQUIREMENT	
Power Input	DC-in 12V DIN 4-pin connector / ATX 4pin 12V *optional 12V-24V SKU
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~140°F)
Storage Temperature	-40 ~ 85°C (-40 ~185°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 10 64-bit Linux (support by request)

## Ordering Information

Model Number	Chipset	DisplayPort / HDMI	LVDS / eDP	USB 3.1 / 2.0	Line-out / Mic-in	RS-232 LAN	M.2 2230 E key / M.2 2280 M key	mPCIe Full size	PCIe X16	Power
PH14FEI-H310-12V	Intel® H310	1 / 1	1 / 0	4 / 4	1 / 1	4 2	1 / 1	1	1	DC-in 12V
PH14FEI-Q370-12V	Intel® Q370	2 / 1	1 / 0	4 / 5	1 / 1	4 2	1 / 1	1	1	DC-in 12V
PH14FEI-H310-24V	Intel® H310	1 / 1	1 / 0	4 / 4	1 / 1	4 2	1 / 1	1	1	DC-in 12~24V

## Optional Peripheral

Model Number	TPM-SPI-NPCT750	Description
		Nuvoton NPCT750 TPM2.0

## Packing List

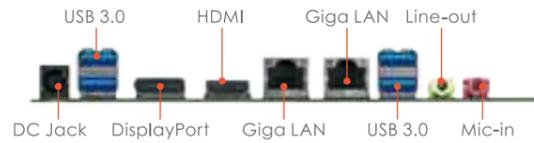
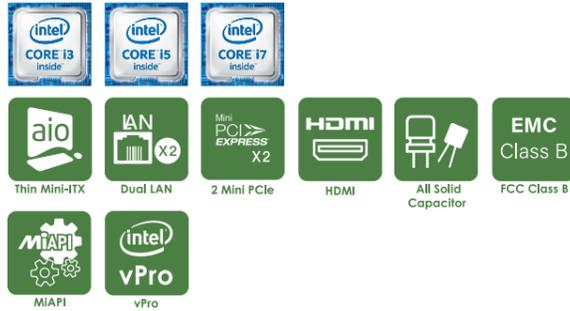
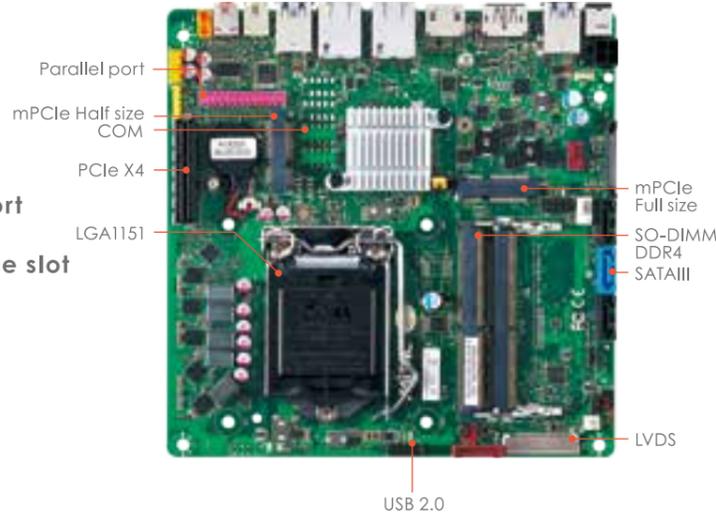
Packing
• 1 x Motherboard
• 1 x 50cm SATA Cable
• 2 x I/O Bracket (Half and Full Height)

# PH12SI

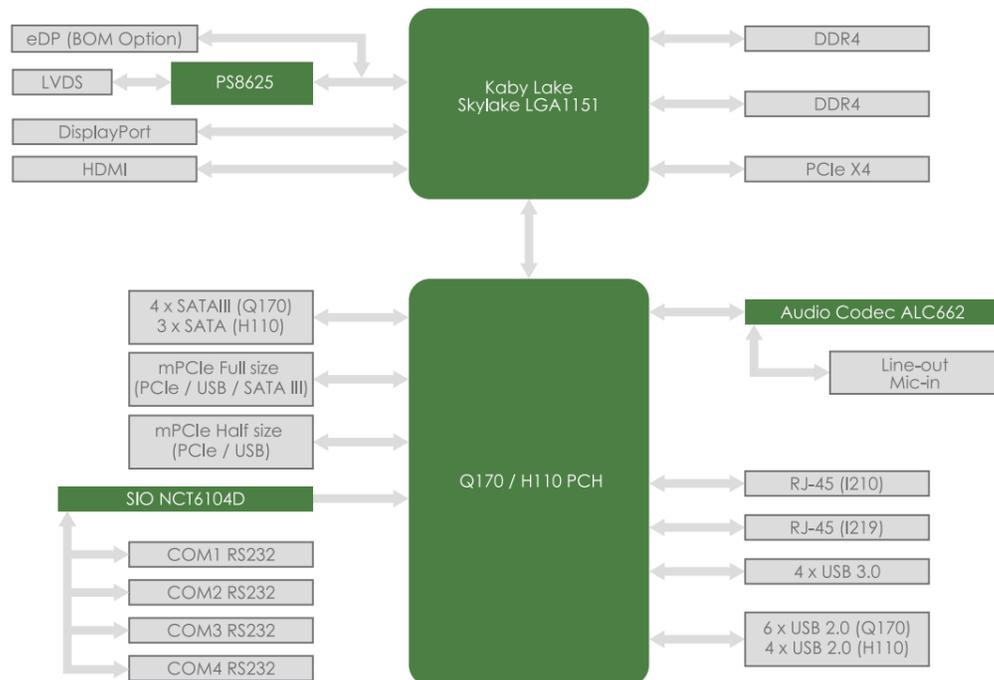
Thin Mini-ITX Form Factor  
Intel® Kaby Lake / Skylake Processor with Q170 / H110 Chipset

## Features

- Intel® Skylake / Kaby Lake Core i7/i5/i3 / Pentium / Celeron LGA1151 processors
- Intel® H110/Q170 Chipset
- Intel® vPro technology support (Q170)
- 2 x DDR4 SO-DIMM, support up to 32GB
- Support triple display for HDMI, DisplayPort and LVDS/eDP
- Support PCIe X4 (Gen 3) slot and Mini PCIe slot
- 4 x SATA III support RAID 0, 1, 5, 10
- 2 x Intel® Gigabit Ethernet
- 6 x USB 2.0, 4 x USB 3.0, 4 x COM and 1 x MiAPI (configurable digital IO)
- DC-in 12/19V power input



## Block Diagram



# PH12SI Thin Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	7/6th Gen Intel® Kaby Lake/Skylake LGA1151 Socket Processor, TDP Max. 65W
Chipset	Intel® Q170 (Support RAID 0 / 1 / 5 / 10) / Intel® H110
Memory	DDR4 1866/2133MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN
Audio	Realtek® ALC662
I/O Chipset	Nuvoton NCT6104D
TPM	Nuvoton NPCT650AAAYX TPM2.0 (Optional)
Expansion Slot	1 x PCIe X4 slot 1 x PCIe Full/Half size (PCIe / USB / SATA) 1 x PCIe Half size (PCIe / USB)
BIOS	128 Mbit SPI, AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1 ~ 255 Steps by Software Program
Smart Fan Control	CPU Fan / System Fan
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (3840 x 2160) @30 Hz
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (4096 x 2304) @60 Hz
REAR I/O	
USB	4 x USB 3.0
Display I/O	1 x HDMI 1.4, 1 x DisplayPort 1.2
Audio I/O	1 x Mic-in, 1 x Line-out
Lan I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	1 x DC Jack
INTERNAL CONNECTORS	
Storage	3 x SATAIII (H110) , 4 x SATAIII (Q170)
USB	4 x USB 2.0 (H110) , 6 x USB 2.0 (Q170)
Display I/O	1 x LVDS (Optional eDP SKU available) 1 x Backlight Connector
Audio I/O	1 x Line-out
Serial Port	4 x RS232
PS/2 Port	—
Parallel Port	1 x Parallel Port
GPIO	1 x MiAPI Header (Programmable)
Fan	1 x 4-pin CPU Fan Connector, 1x 4-pin System Fan Connector
Power	1 x ATX Power Connector, 1 x AT/ATX Mode Select Jumper (Optional)
Others	1 x Front Audio Header (Mic-in/Line-out), 1 x CMOS Jumper
POWER REQUIREMENT	
Power Input	DC-in 19V(5.1mm/ ID, 7.4mm/ OD)/ ATX 2-pin 19V DC-in 12V(2.5mm/ ID, 5.5mm/ OD)/ ATX 4-pin 12V
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Kaby Lake: Windows® 10 64bit, Linux (support by request) Skylake: Windows® 7 32 / 64bit, Windows® 10 64bit, Linux (support by request)

## Ordering Information

Model Number	Chipset	DisplayPort / HDMI	LVDS / eDP	USB 3.0 / 2.0	SATA	Mic-in / Line out	RS232	LAN	PCIe Full/ Half size	PCIe X4	Power
PH12SI-H110-19V	Intel® H110	1 / 1	1 / 0	4 / 4	3	1 / 1	2	2	1 / 1	1	DC-in 19V
PH12SI-Q170-19V	Intel® Q170	1 / 1	1 / 0	4 / 6	4	1 / 1	2	2	1 / 1	1	DC-in 19V
PH12SI-Q170-12V	Intel® Q170	1 / 1	1 / 0	4 / 6	4	1 / 1	4	2	1 / 1	1	DC-in 12V

## Packing List

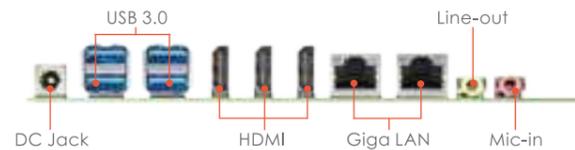
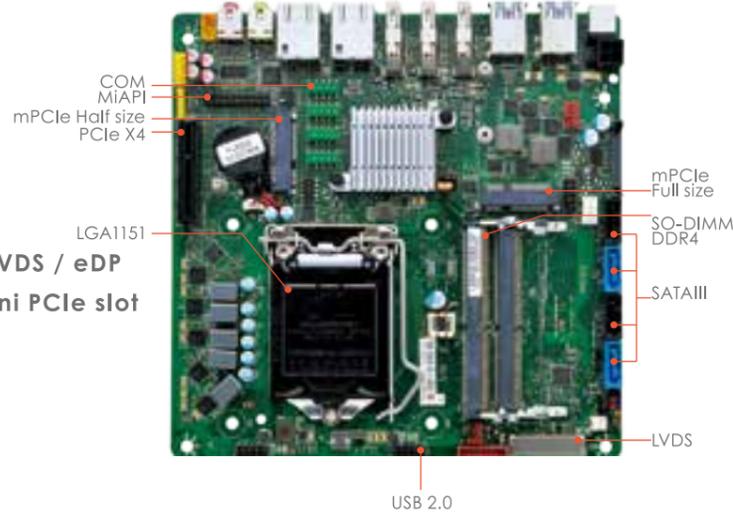
Packing			
• 1 x Motherboard	• 2 x I/O Bracket (Half and Full Height)	• 1 x 50cm SATA Cable	• 1 x 45cm SATA Power Cable

# PH13SI

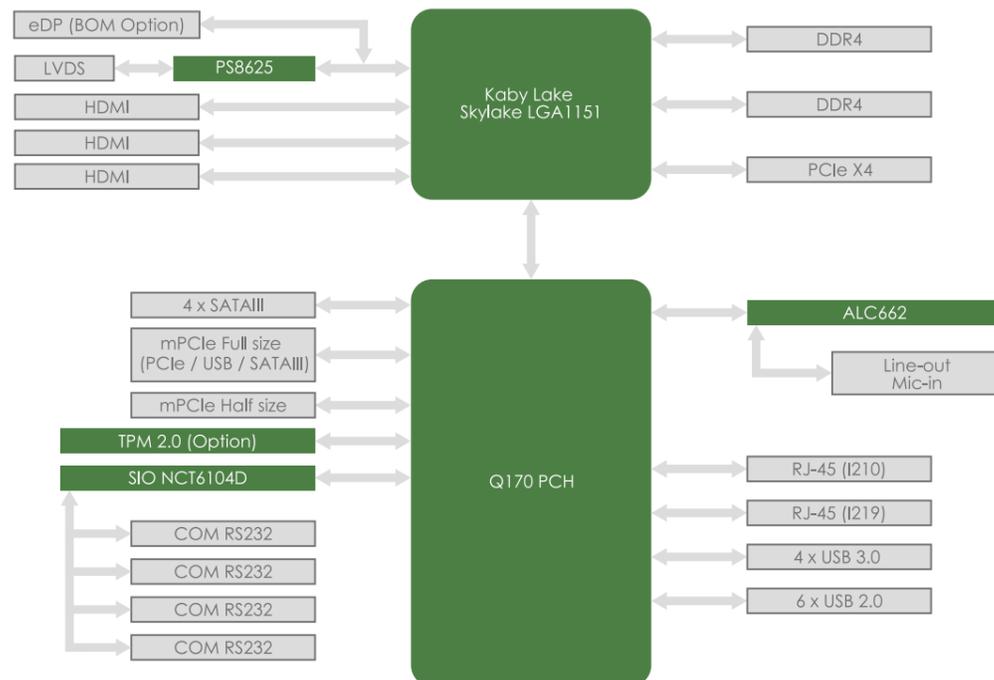
Thin Mini-ITX Form Factor  
Intel® Kaby Lake / Skylake Processor with Q170 Chipset

## Features

- Intel® Skylake / Kaby Lake Core i7/i5/i3 / Pentium / Celeron LGA1151 processors
- Intel® Q170 Chipset
- Intel® vPro technology support
- 2 x DDR4 SO-DIMM, support up to 32GB
- Support triple display for 3 x HDMI and LVDS / eDP
- Support 1 x PCIe X4 (Gen 3) slot & 2 x Mini PCIe slot
- 4 x SATAIII
- 2xIntel® Gigabit Ethernet
- 6 x USB 2.0, 4 x USB 3.0, 4 x COM and 1 x MI-API (configurable digital I/O)
- DC-in 12V power input



## Block Diagram



# PH13SI Thin Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	7/6th Gen Intel® Kaby Lake / Skylake LGA1151 Socket Processor, TDP Max. 65W
Chipset	Intel® Q170 (Support RAID 0 / 1 / 5 / 10)
Memory	DDR4 1866/2133MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN
Audio	Realtek® ALC662
I/O Chipset	Nuvoton NCT6104D
TPM	Nuvoton NPCT650AAAYX TPM2.0 (Optional)
Expansion Slot	1 x PCIe X4 slot 1 x Mini PCIe Full/Half size (PCIe / USB / SATA) 1 x Mini PCIe Half size (PCIe / USB)
BIOS	128 Mbit SPI, AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	CPU Fan / System Fan
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (3840 x 2160) @30 Hz
DisplayPort	—
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (4096 x 2304) @60 Hz
REAR I/O	
USB	4 x USB 3.0
Display I/O	3 x HDMI 1.4
Audio I/O	1 x Mic-in, 1 x Line-out
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	Processor: 1 x DC Jack
INTERNAL CONNECTORS	
Storage	4 x SATAIII
USB	6 x USB2.0
Display I/O	1 x LVDS (colony eDP) 1 x Backlight Connector
Audio I/O	1 x Line-out
Serial Port	4 x RS232
PS/2 Port	—
Parallel Port	—
GPIO	1 x MI-API Header (Programmable)
Fan	1 x 4-pin CPU Fan Connector, 1 x 4-pin System Fan Connector
Power	1 x ATX Power Connector, 1 x AT/ATX Mode Select Jumper
Others	1 x Front Audio Header (Mic-in & Line-out), 1 x Chassis Intrusion, 1 x CMOS Jumper
POWER REQUIREMENT	
Power Input	DC-in 12V(2.5mm/ ID, 5.5mm/ OD)/ ATX 4-pin 12V
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Kaby Lake: Windows® 10 64bit, Linux (support by request) Skylake: Windows® 7 32/64bit, Windows® 10 64bit, Linux (support by request)

## Ordering Information

Model Number	Processor	HDMI	LVDS/eDP	USB 3.0 / 2.0	SATA	Mic-in / Line-out	PCIe X4	RS232	LAN	mPCIe Full/Half size	Power
PH13SI-Q170	Intel® Q170	3	1 / 0	4 / 6	4	1 / 1	1	4	2	1 / 1	DC-in 12V

## Packing List

Packing			
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 2 x I/O Bracket (Half and Full Height)	• 1 x 45cm SATA Power Cable

# PD10EHI

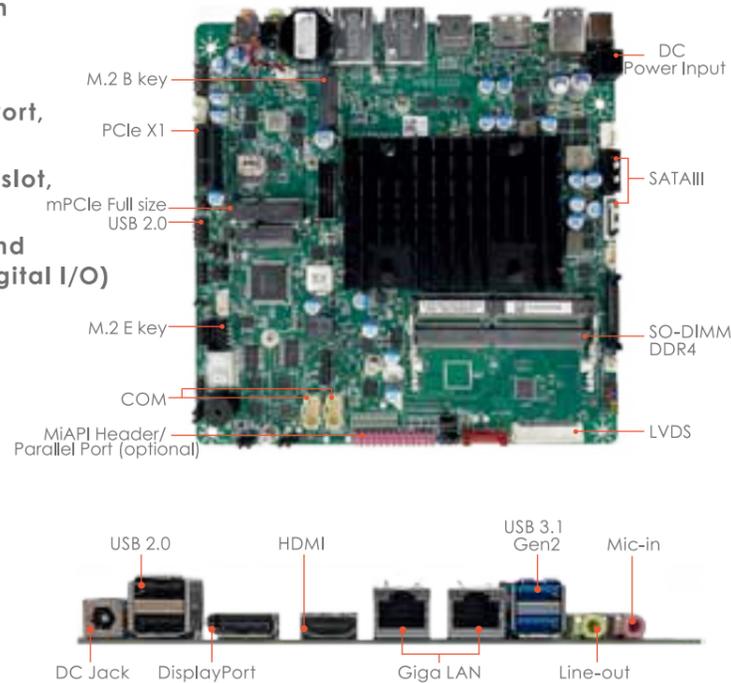
Thin Mini-ITX Form Factor  
Intel® Elkhart Lake Processor

## Features

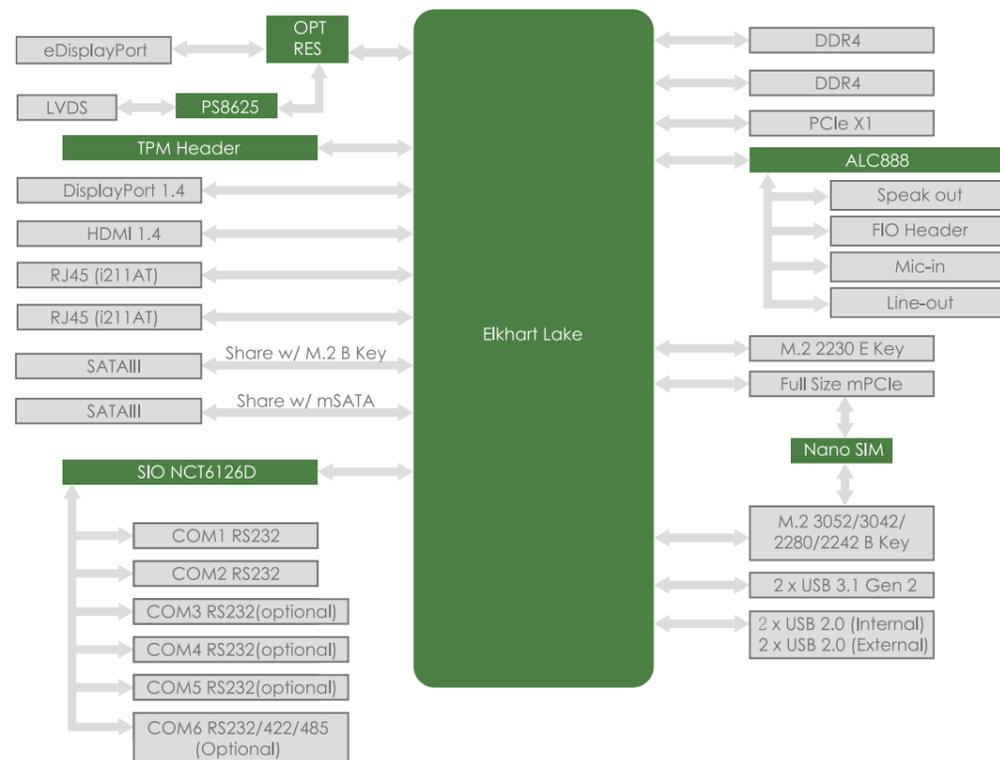
- Intel® Elkhart Lake Celeron/Pentium/Atom BGA Processor (TDP up to 10W)
- Support 2 x DDR4 SO-DIMM (Up to 32GB)
- Support Triple Display for HDMI, DisplayPort, and LVDS/eDP
- Support 1 x PCIe X1 (Gen 3) slot, 2 x M.2 slot, 2 x SATA III and 1 x mPCIe slot
- 4 x USB 2.0, 2 x USB 3.1 Gen2, 6 x COM and 1 x Parallel Port / MiAPI (configurable digital I/O)
- 8V~24V wide voltage power input



EMC Class B  
FCC Class B



## Block Diagram



# PD10EHI Thin Mini-ITX

MECHANICAL	
Form Factor	Thin Mini-ITX: 6.7" x 6.7" (170 mm x 170 mm)
SYSTEM	
Processor	Intel® Elkhart Lake Celeron J6413, Pentium N6415, Celeron N6211, Celeron N6210, and Atom x6413E
Chipset	Intel® SoC Integrated
Memory	DDR4 3200, 2 x 260-pin SO-DIMM, Max. 32 GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	2 x Intel® i211AT Giga LAN
Audio	Realtek® ALC888S
I/O Chipset	Nuvoton NCT6126D
TPM	Nuvoton NPCT750AABYX TPM2.0 (Optional)
Expansion Slot	1 x M.2 2260 / 2280 / 2242 / 3042 / 3052 B key (USB2.0, SATAIII, *PCIe X1) *Not support M.2 M Key NVMe SSD 1 x PCIe 3.0 X1 slot, 1 x M.2 2230 E key (PCIe X1, USB2.0) 1 x mPCIe Full size (USB2.0 / PCIe X1 / SATAIII)
BIOS	AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	CPU Fan
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (4096 x 2160) @60 Hz
DisplayPort	Up to 4K (4096 x 2160) @60 Hz
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (4096 x 2160) @60 Hz
REAR I/O	
USB	2 x USB 3.1 Gen2, 2 x USB 2.0
Display I/O	1 x HDMI 1.4, 1 x DisplayPort 1.4
Audio I/O	1 x Mic-in, 1 x Line-out
LAN I/O	2 x RJ45
Serial Port	—
PS/2 Port	—
Others	DC-in Jack 8~24V (2.5mm/ ID, 5.5mm/ OD)
INTERNAL CONNECTORS	
Storage	2 x SATAIII (Multiplexed with M.2 and mSATA port)
USB	2 x USB 2.0 Header
Display I/O	1 x LVDS 1 x Backlight Connector
Audio I/O	1 x Speaker Header 1 x Front Audio Header (Mic-in / Line-out)
Serial Port	2 x RS232 Header (Extra 1 x RS232/422/485 Header + 3 x RS232 Header for Option, total 6 x COM)
PS/2 Port	—
Parallel Port	1 x MiAPI Header (Optional for Parallel Port Header)
GPIO	—
Fan	1 x 4-pin CPU Fan Header
Power	1 x AT / ATX Mode Select Jumper / 1 x ATX 4-pin Power Connector
Others	1 x Clear CMOS Button / MiAPI: Programmable header (support 10 x GPIO, 1 x SMBUS, 1 x UART, 1 x Watchdog) with API library supported for Windows OS 1 x Buzzer / 1 x 3-pin CAN-FD Bus Header
POWER REQUIREMENT	
Power Input	DC-in 8~24V/ ATX 4-pin Power Connector + DC Jack
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 10 IoT LTSB 64bit/Windows® 11 64bit Linux (Support by request)

## Ordering Information

Model Number	Processor	HS Configuration	Model Number	Processor	HS Configuration
PD10EHI-J6413	Celeron J6413	MB + Heatsink	PD10EHI-N6210**	Celeron N6210	MB + Heatsink
PD10EHI-N6415	Pentium N6415	MB + Heatsink	PD10EHI-X6413E	Atom x6413E	MB + Heatsink
PD10EHI-N6211	Celeron N6211	MB + Heatsink			

\*5G card support might be by BOM option. Please check with sales about the M.2 B Key 3052 5G card spec if you have any request  
\*\*This is a build-to-order model, please contact our sales team for more sampling or shipping details

## Packing List

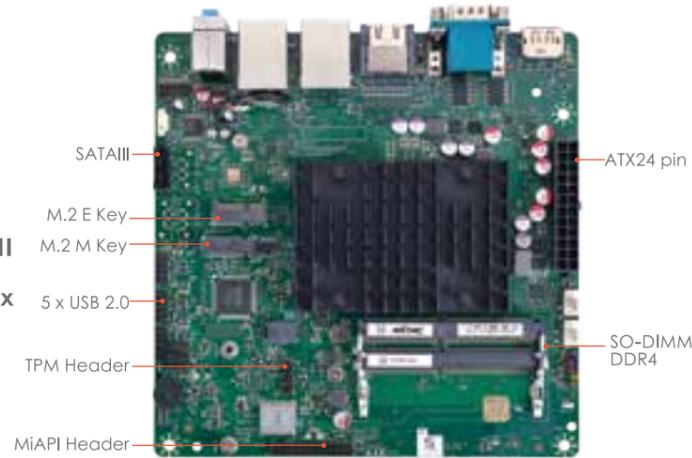
Packing			
• 1 x Motherboard	• 2 x I/O Bracket (Half and Full Height)	• 1 x 50cm SATA Cable	• 1 x 45cm SATA Power Cable

# PD11EHI

Mini-ITX Form Factor  
Intel® Elkhart Lake Processor

## Features

- Intel® Elkhart Lake Celeron J6413 BGA Processor (Up to 3.0GHz)
- Support 2 x DDR4 SO-DIMM (Up to 32GB)
- Support Triple Display for dual HDMI, and DisplayPort
- Support 1 x M.2 2242/2280 M-Key (SATA, PCIe X2), 1 x M.2 2230 E-Key, and 1 x SATA III
- 7 x USB 2.0, 2 x USB 3.2 Gen2, 2 x COM and 1 x MiAPI (configurable digital I/O)
- ATX 24-pin power input



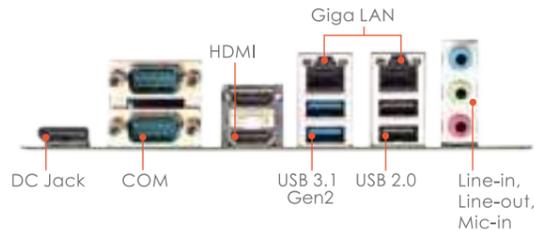
M.2 Support

USB 3.2

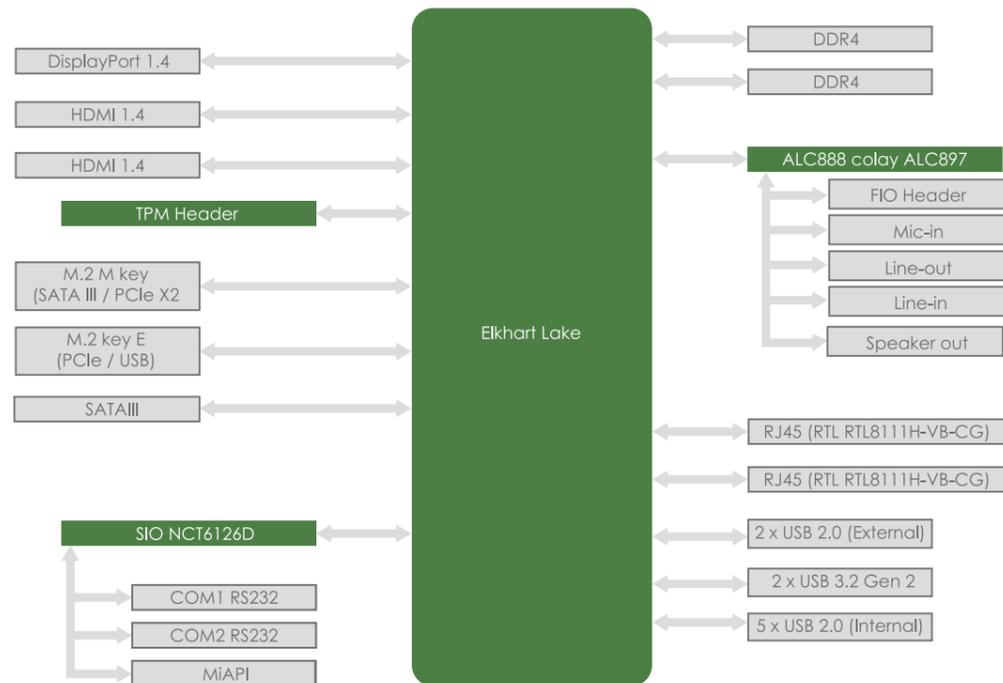
All Solid Capacitor

MiAPI

EMC Class B



## Block Diagram



# PD11EHI Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170 mm x 170 mm)
SYSTEM	
Processor	Intel® Elkhart Lake Celeron J6413
Chipset	Intel® SoC Integrated
Memory	DDR4 3200, 2 x 260-pin SO-DIMM, Max. 32 GB (Non-ECC)
Graphics	Intel® UHD Graphics
Ethernet	2 x Realtek RTL8111H-VB-CG Giga LAN
Audio	Realtek® ALC888S colay ALC897
I/O Chipset	Nuvoton NCT6126D (eSPI)
TPM	TPM Header, (support optional TPM module board NPCT750)
Expansion Slot	M.2 2242 / 2280 M key (SATAIII, *PCIe X2) **support M.2 M Key NVMe SSD M.2 2230 E key (PCIe, USB 2.0)
BIOS	AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	CPU Fan
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (4096 x 2160) @30 Hz
DisplayPort	Up to 4K (4096 x 2160) @60 Hz
LVDS	—
eDP (Option)	—
REAR I/O	
USB	2 x USB 3.2 Gen2, 2 x USB 2.0
Display I/O	2 x HDMI 1.4, 1 x DisplayPort 1.4
Audio I/O	1 x Mic-in, 1 x Line-out, 1 x Line-in
LAN I/O	2 x RJ45
Serial Port	2 x RS232
PS/2 Port	—
Others	—
INTERNAL CONNECTORS	
Storage	1 x SATAIII (4x SATA III by customize sku)
USB	5 x USB 2.0
Display I/O	—
Audio I/O	1 x Stereo Speaker Header 1 x Audio Header (Front Panel Mic-in & Line-out)
Serial Port	—
PS/2 Port	—
Parallel Port	1 x MiAPI Header (Optional for Parallel Port Header)
GPIO	—
Fan	1 x 4-pin CPU Fan Header / 1 x 4-pin System Fan Header
Power	1 x ATX 24-pin Power Connector / 1 x AT / ATX Mode Select Jumper
Others	1 x CMOS Jumper 1x Buzzer, 1 x FIO header
POWER REQUIREMENT	
Power Input	ATX 24-pin
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~140°F)
Storage Temperature	-40 ~ 85°C (-40 ~185°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE / FCC Class B, UKCA
OS	
OS Support	Windows® 11 64bit., Windows® 10 IoT LTSC 64bit (LTSC 2021), Ubuntu 22.04, Linux (support by request)

## Ordering Information

Model Number	Processor	HS Configuration
PD11EHI-J6413	Celeron J6413	MB + Heatsink

## Packing List

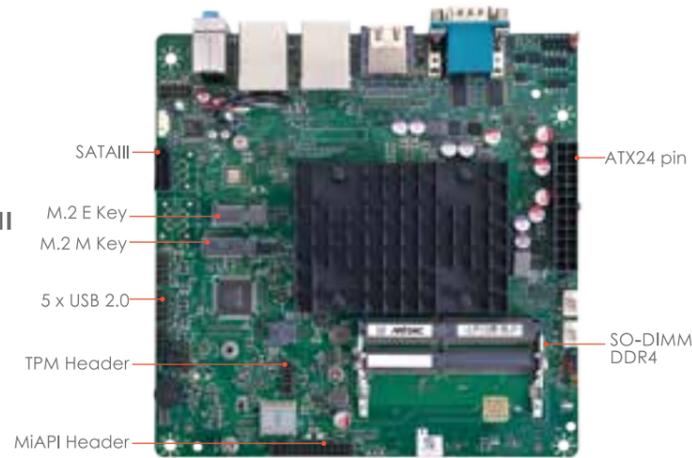
Packing			
• 1 x Motherboard	• 1 x I/O Bracket (Full Height)	• 1 x 50cm SATA Cable	• 1 x Quick Installation Guide

# PD14EHI

Mini-ITX Form Factor  
Intel® Elkhart Lake Processor

## Features

- Intel® Elkhart Lake Celeron N6210 BGA Processor (Up to 2.6GHz)
- Support 2 x DDR4 SO-DIMM (Up to 32GB)
- Support Dual Display for HDMI
- Support 1 x M.2 2242/2280 M-Key (SATA, PCIe X2), 1 x M.2 2230 E-Key, and 1 x SATA III
- 7 x USB2.0, 2 x USB3.2 Gen2, 1 x COM and 1 x MiAPI (configurable digital I/O)
- ATX 24-pin power input



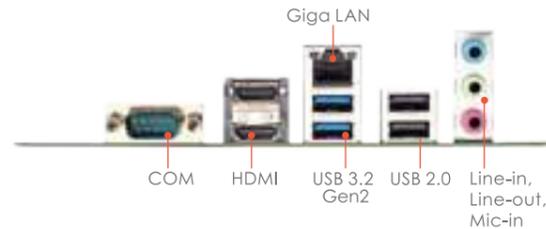
M.2 Support

USB3.2

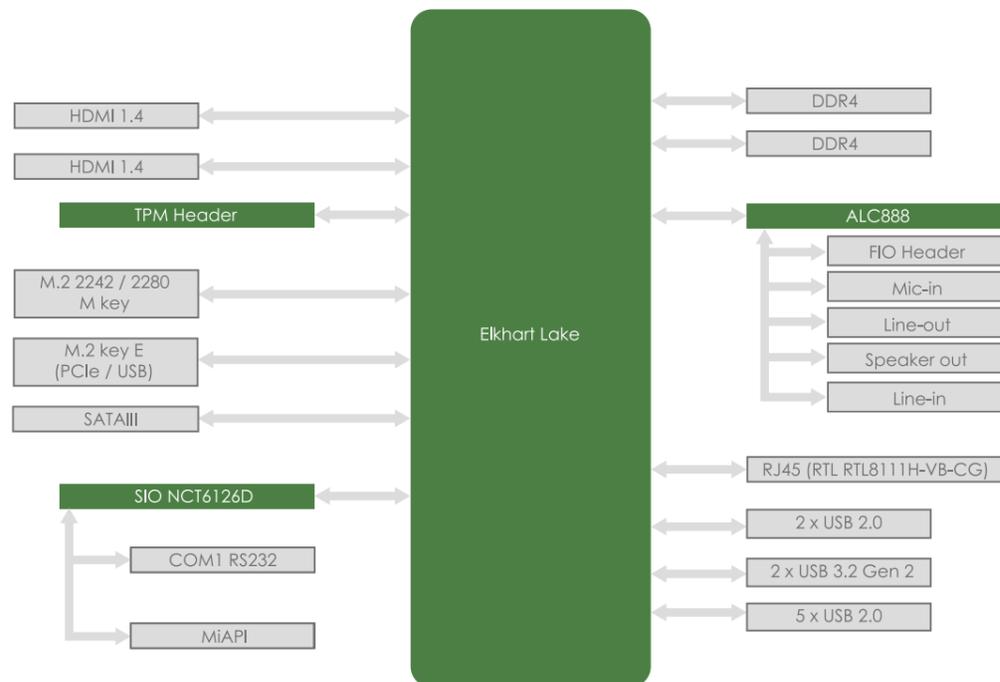
All Solid Capacitor

MiAPI

FCC Class B



## Block Diagram



# PD14EHI Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170 mm x 170 mm)
SYSTEM	
Processor	Intel® Elkhart Lake Celeron N6210 Processor
Chipset	Intel® SoC Integrated
Memory	DDR4 3200, 2 x 260-pin SO-DIMM, Max. 32 GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	1 x Realtek RTL8111H-VB-CG Giga LAN
Audio	Realtek® ALC888S colay ALC897
I/O Chipset	Nuvoton NCT6126D (eSPI)
TPM	TPM Header, (support optional TPM module board NPCT750)
Expansion Slot	M.2 2242 / 2280 M key (SATAIII, *PCIe X2) **support M.2 M Key NVMe SSD M.2 2230 E key (PCIe, USB 2.0)
BIOS	AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	CPU Fan
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (4096 x 2160) @30 Hz
DisplayPort	—
LVDS	—
eDP (Option)	—
REAR I/O	
USB	2 x USB 3.2 Gen2, 2 x USB 2.0
Display I/O	2 x HDMI 1.4
Audio I/O	1 x Mic-in, 1 x Line-out, 1 x Line-in
LAN I/O	1 x RJ45
Serial Port	1 x RS232
PS/2 Port	—
Others	—
INTERNAL CONNECTORS	
Storage	1 x SATAIII (4x SATA III by customize sku)
USB	5 x USB 2.0
Display I/O	—
Audio I/O	1 x Stereo Speaker Header 1 x Audio Header (Front Panel Mic-in & Line-out)
Serial Port	—
PS/2 Port	—
Parallel Port	1 x MiAPI Header (Optional for Parallel Port Header)
GPIO	—
Fan	1 x 4-pin CPU Fan Header / 1 x 4-pin System Fan Header
Power	1 x ATX 24-pin Power Connector / 1 x AT / ATX Mode Select Jumper
Others	1 x CMOS Jumper 1 x Buzzer, 1 x FIO header
POWER REQUIREMENT	
Power Input	ATX 24-pin
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~140°F)
Storage Temperature	-40 ~ 85°C (-40 ~185°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE / FCC Class B, UKCA
OS	
OS Support	Windows® 11 64bit., Windows® 10 IoT LTSC 64bit (LTSC 2021), Ubuntu 22.04, Linux (support by request)

## Ordering Information

Model Number	Processor	HS Configuration
PD14EHI-N6210	Celeron N6210	MB + Heatsink

## Packing List

Packing			
• 1 x Motherboard	• 1 x I/O Bracket (Full Height)	• 1 x 50cm SATA Cable	• 1 x Quick Installation Guide

# PD10AI

Thin Mini-ITX Form Factor  
Intel® Apollo Lake Processor

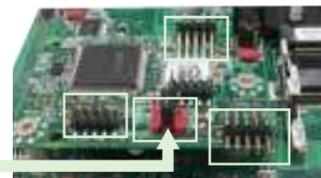
## Features

- Intel® Apollo Lake / Celeron/Pentium BGA processor
- 2 x DDR3L SO-DIMM and support up to 8GB
- Support triple display for HDMI, DisplayPort and LVDS / eDP
- Support 1 x PCIe X1 (Gen 2) slot and 2 x M.2 slot 2 x SATA III
- 2 x Intel® Gigabit Ethernet
- 2 x USB 2.0, 4 x USB 3.0, 2 x COM and 1 x Parallel Port / MiAPI (configurable digital I/O)
- 8V~24V wide voltage power input



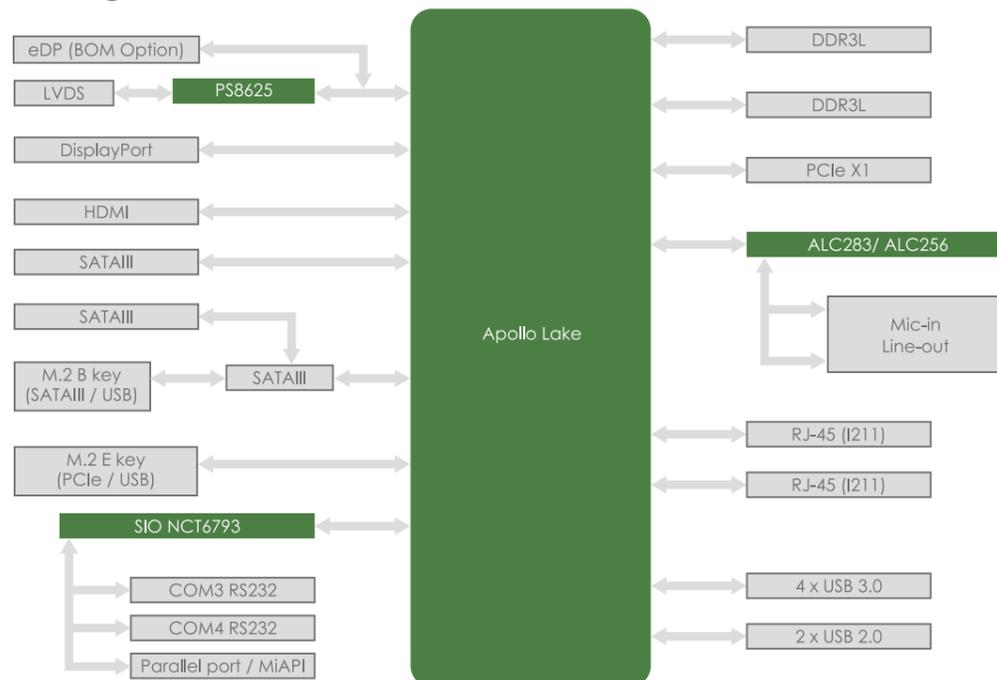
## Legacy I/O Expansion

2 x Configurable Power RS232  
2 x Configurable RS232/422/485



6 x COM port  
• 2 x RS232 from Motherboard  
• 4 x RS232 from Legacy I/O Board

## Block Diagram



# PD10AI Thin Mini-ITX

MECHANICAL	
Form Factor	Thin Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	Intel® Apollo Lake-M N3350 Processor Option: N4200
Chipset	Intel® SoC Integrated
Memory	DDR3L 1866MHz, 2 x 204-pin SO-DIMM, Max. 8GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I211-AT Giga LAN + Intel® I211-AT Giga LAN
Audio	Realtek® ALC283 / ALC256
I/O Chipset	Nuvoton NCT6793D
TPM	Nuvoton NPCT650AAWX TPM2.0 (Optional)
Expansion Slot	1 x PCIe X1 slot 1 x M.2 2280/2260/2242 B key (SATA / USB) 1 x M.2 2230 E key (PCIe / USB)
BIOS	AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	—
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (3840 x 2160) @30 Hz
DisplayPort	Up to 4K (4096 x 2160) @60 Hz
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (3840 x 2160) @60 Hz
REAR I/O	
USB	4 x USB 3.0
Display I/O	1 x HDMI 1.4, 1 x DisplayPort 1.2
Audio I/O	1 x Mic-in, 1 x Line-out
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	DC-in Jack 8-24V (2.5mm/ ID, 5.5mm/ OD)
INTERNAL CONNECTORS	
Storage	2 x SATAIII (One SATA is multiplexed with an M.2 port)
USB	2x USB 2.0
Display I/O	1 x LVDS, 1 x eDP 1 x Backlight Connector
Audio I/O	1 x Stereo Speaker Header 1 x Front Audio Header (Mic/HP)
Serial Port	2x RS232
PS/2 Port	—
Parallel Port	1 x MiAPI Header (Programmable, Support 10-bit GPIO)
GPIO	—
Fan	2 x 4-pin PWM Fan Header
Power	1 x 2-pin Power Connector, 1 x AT/ATX Mode Select Jumper MiAPI (Optional): Programmable header (support 10 x GPIO, 1 x SMBUS, 1 x UART, 1 x Watchdog) with API library supported for Windows OS 1 x CMOS Jumper 1 x Legacy I/O Board Header (Optional Legacy I/O Board for Extra RS232*2 and RS232/422/485*2 Expansion)
Others	—
POWER REQUIREMENT	
Power Input	2-pin Internal Power Connector + DC Jack DC-in 8-24
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-20 ~ 80°C (-4 ~ 176°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE, FCC Class B
OS	
OS Support	Windows® 10 64bit, Linux (support by request)

## Ordering Information

Model Number	Processor	DisplayPort / HDMI	LVDS / eDP	Mic-in / Line-out	USB3.0 / 2.0	LAN	SATA	M.2 2230 E key / M.2 2280 B key	Parallel / MiAPI	PCIe X1	Power
PD10AI-N3350	N3350	1 / 1	1 / 1	1 / 1	4 / 2	2	1	1 / 1	1 / 0	1	DC-in Jack 8-24V
PD10AI-N4200	N4200	1 / 1	1 / 1	1 / 1	4 / 2	2	1	1 / 1	0 / 1	1	DC-in Jack 8-24V
Legacy I/O Board		RS232 with 5V/12V		RS232/422/485							
MS-04COM-D10		2		2							

## Packing List

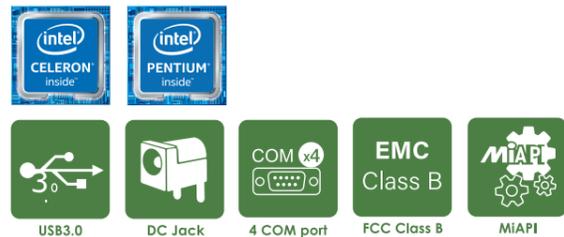
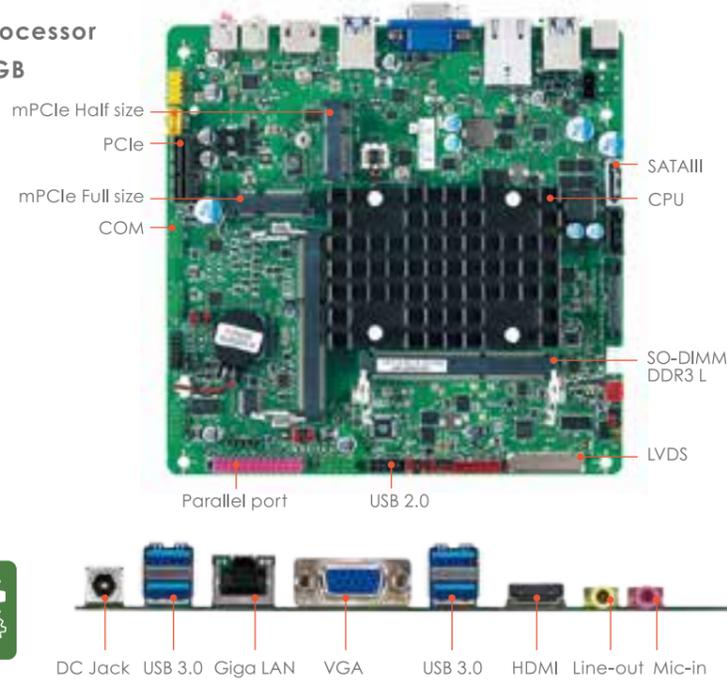
- Packing
- 1 x Motherboard
  - 2 x I/O Bracket (Half and Full Height)
  - 1 x 50cm SATA Cable
  - 1 x 45cm SATA Power Cable

# PD10RI

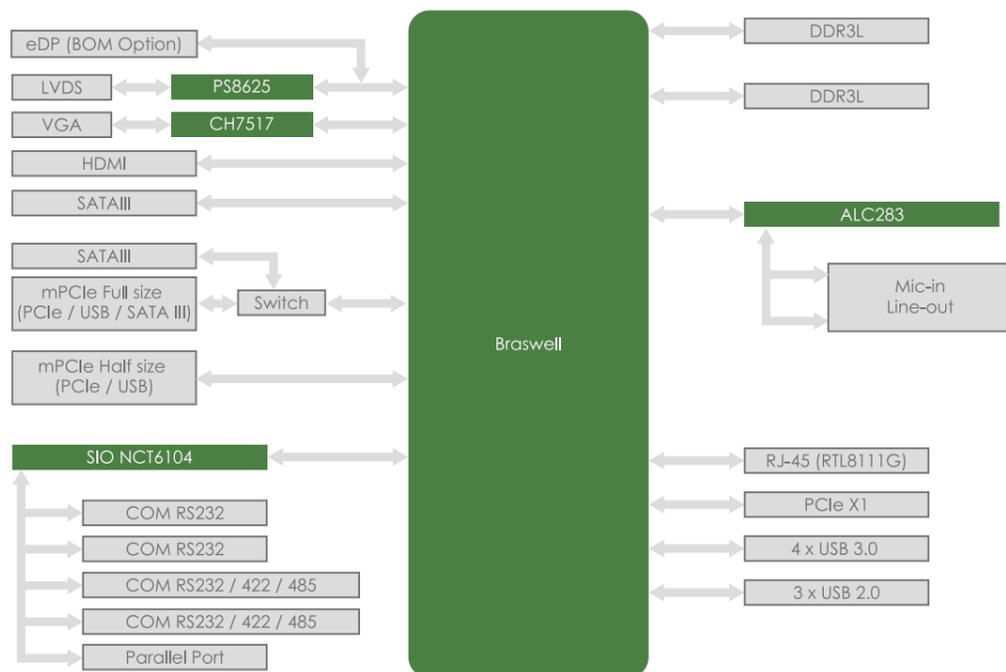
Thin Mini-ITX Form Factor  
Intel® Braswell Processor

## Features

- Intel® Braswell Celeron / Pentium BGA processor
- 2 x DDR3L SO-DIMM and support up to 8GB
- Support triple display for HDMI, VGA and LVDS / eDP
- Support 1 x PCIe X1 (Gen 2) slot and 2 x Mini PCIe slot
- 2 x SATAIII
- 1 x Gigabit Ethernet
- 3 x USB 2.0, 4 x USB 3.0 and 4 x COM
- 8V~24V wide voltage power input



## Block Diagram



## PD10RI Thin Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	Intel® Celeron® Processor N3160 (2M Cache, up to 2.24 GHz)
Chipset	Intel® SoC Integrated
Memory	DDR3L 1600MHz, 204-pin SO-DIMM x 2, Max. 8GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Realtek RTL8111G Giga LAN
Audio	Realtek® ALC283
I/O Chipset	Nuvoton NCT6104D
TPM	—
Expansion Slot	1 x PCIe x1 slot 1 x Mini PCIe Full/Half size (PCIe / USB / SATA) 1 x Mini PCIe Half size (PCIe / USB)
BIOS	64 Mbit SPI, AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1 ~ 255 Steps by Software Program
Smart Fan Control	CPU Fan / System Fan
GRAPHICS	
VGA	Up to 1920 x 1200 @60 Hz
DVI	—
HDMI	Up to 4K (3840 x 2160) @30 Hz
DisplayPort	—
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (4096 x 2304) @60 Hz
REAR I/O	
USB	4 x USB 3.0
Display I/O	1 x HDMI 1.4, 1 x VGA
Audio I/O	1 x Mic-in, 1 x Line-out
LAN I/O	1 x RJ-45
Serial Port	—
PS/2 Port	—
Others	1 x DC Jack
INTERNAL CONNECTORS	
Storage	2 x SATAIII 3 x USB2.0
Display I/O	1 x LVDS, 1 x eDP 1 x Backlight Connector
Audio I/O	1 x Audio Header (Front panel Mic-in & Line-out)
Serial Port	4 x RS232
PS/2 Port	—
Parallel Port	1 (colay MIAPI function)
GPIO	—
Fan	1 x 4-pin CPU Fan Connector, 1x 4-Pin System Fan Connector
Power	1 x AT/ATX Mode Select Jumper, 1 x 2-pin Power Connector
Others	1 x CMOS Jumper
POWER REQUIREMENT	
Power Input	DC-in 8~24V(2.5mm/ID, 5.5mm/OD)/ ATX 2-pin
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 7 32/64bit, Windows® 10 64bit Linux (support by request)

## Ordering Information

Model Number	VGA	HDMI	LVDS/eDP	USB 3.0/2.0	SATA	Mic-in /Line in	RS232	LAN	mPCIe Full / Half size	PCIe X1	Power
PD10RI-N3160	1	1	1/1	4/3	2	1/1	4	1	1/1	1	DC-in 8~24V

## Packing List

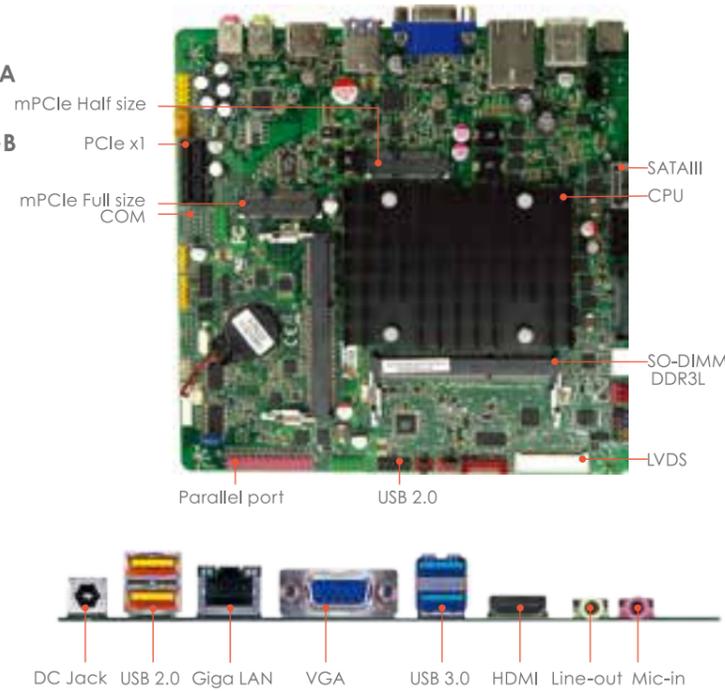
Packing			
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 2 x I/O Bracket (Half and Full Height)	• 1 x 45cm SATA Power Cable

# PD10BI

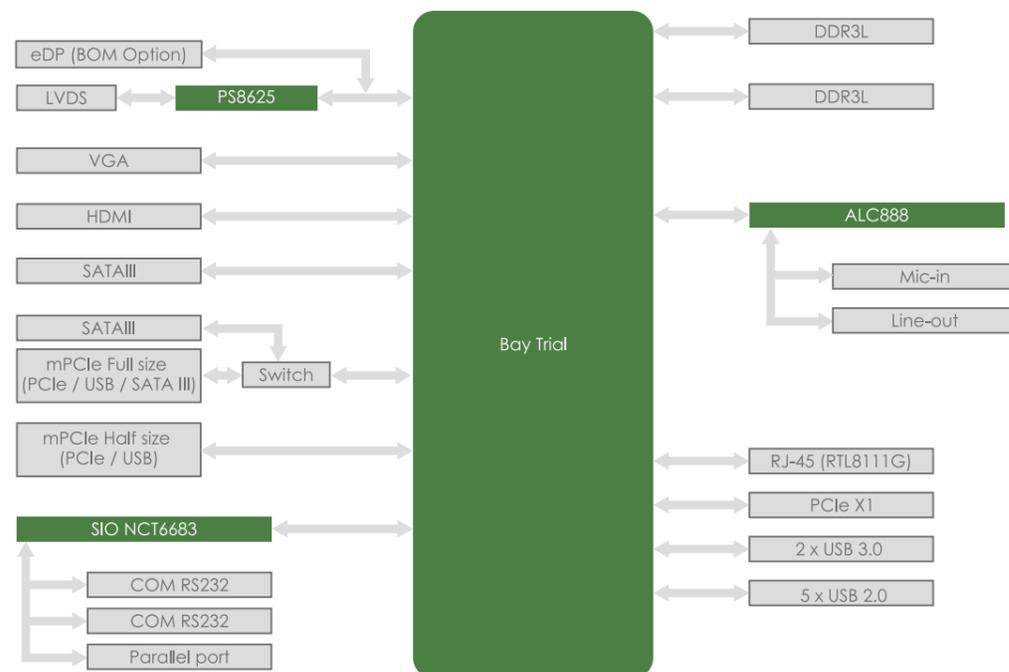
Thin Mini-ITX Form Factor  
Intel® Bay Trail Processor

## Features

- Intel® Bay Trail Atom/Celeron/Pentium BGA processor
- 2 x DDR3L SO-DIMM and support up to 8GB
- Support dual display for HDMI, VGA and LVDS/eDP
- Support 1 x PCIe X1 (Gen 2) slot and 2 x Mini PCIe slot
- 8V~19V wide voltage power input



## Block Diagram



# PD10BI Thin Mini-ITX

MECHANICAL	
Form Factor	Thin Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	Intel® Bay Trail-D J1900 Processor
Chipset	Intel® SoC Integrated
Memory	DDR3L 1333L, 2 x 204-pin SO-DIMM, Max. 8 GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Realtek® RTL8111G Giga LAN
Audio	Realtek® ALC888
I/O Chipset	Nuvoton NCT6683D
TPM	Nuvoton NPCT420AA0WX (Optional)
Expansion Slot	1 x PCIe X1 slot 1 x mini PCIe Full / Half size (PCIe / SATA / USB) 1 x mini PCIe Half size (PCIe / USB)
BIOS	AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	—
Smart Fan Control	—
GRAPHICS	
VGA	Up to 1920 x 1200 @60 Hz
DVI	—
HDMI	Up to 1920 x 1200 @60 Hz
DisplayPort	—
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 2560 x 1600 @60 Hz
REAR I/O	
USB	2 x USB 3.0, 2 x USB 2.0
Display I/O	1 x HDMI 1.4, 1 x VGA
Audio I/O	1 x Mic-in, 1 x Line-out
LAN I/O	1 x RJ-45
Serial Port	—
PS/2 Port	—
Others	DC-in Jack 8-19V (2.5mm/ ID, 5.5mm/ OD)
INTERNAL CONNECTORS	
Storage	2 x SATAIII (One SATA is multiplexed with an mSATA port) 3 x USB2.0
Display I/O	1 x LVDS *Optional eDP SKU available 1 x Backlight Connector
Audio I/O	1 x Stereo Speaker Header, 1 x S/PDIF header 1 x Front Audio Header (Mic-in & Line-out), 1 x Digital MIC
Serial Port	2 x RS232
PS/2 Port	—
Parallel Port	1 x Parallel Port Header
GPIO	—
Fan	1 x 4-pin PWM Fan Header, 1 x 3-pin Voltage Control Fan Header
Power	1 x 2-pin Power Connector
Others	1 x CMOS Jumper
POWER REQUIREMENT	
Power Input	2-pin Internal Power Connector + DC Jack DC-in 8-19V
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-20 ~ 70°C (-4 ~ 176°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE, FCC, Class B
OS	
OS Support	Windows® 7 32/64bit, Windows® 8.1 64bit, Windows® 10 64bit, Linux (support by request)

## Ordering Information

Model Number	Processor	VGA	HDMI	LVDS / eDP	USB 3.0 / 2.0	Mic-in / Line in	LAN	mPCIe Full / Half size	SATA	PCIe X1	POWER
PD10BI-J1900	J1900	1	1	1 / 1	2 / 5	1 / 1	1	1 / 1	2	1	DC-in Jack 8-19V

## Packing List

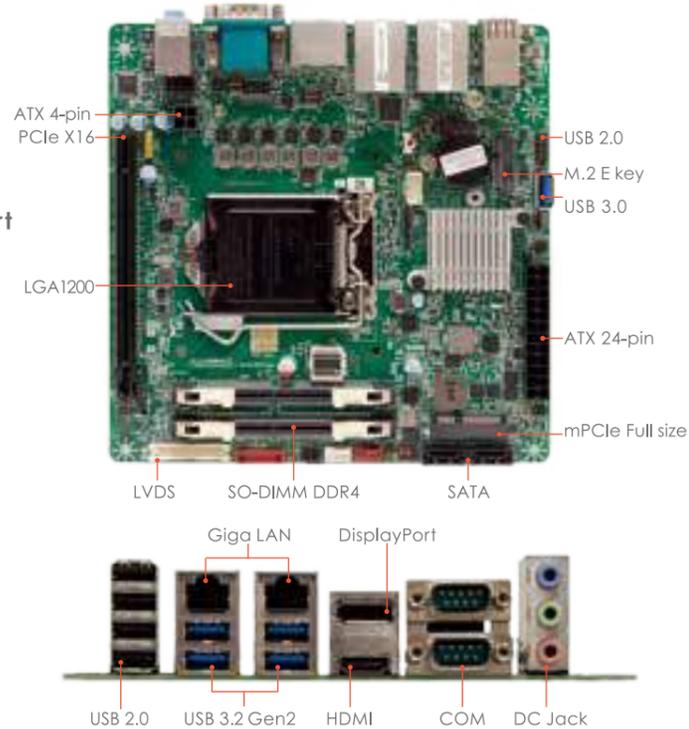
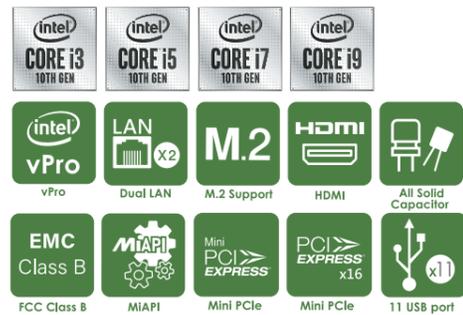
Packing			
• 1 x Motherboard	• 1 x I/O Bracket	• 1 x 50 cm SATA Cable	• 1 x 45 cm SATA Power Cable

# PH13CMI

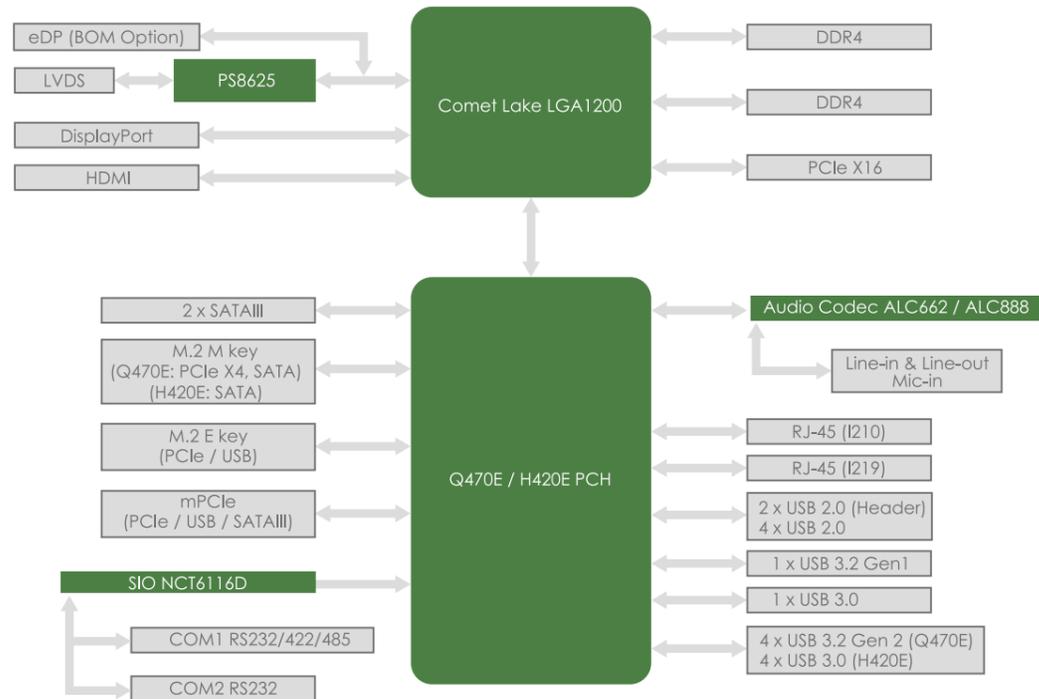
Mini-ITX Form Factor  
Intel® Comet Lake Processor with Q470E/H420E Chipset

## Features

- Up to Intel® Comet Lake 10th i9 35W & i5 95W LGA processor
- Intel® Q470E / H420E Chipset
- Intel® vPro technology support (Q470E)
- 2 x DDR4 SO-DIMM up to 64GB
- Support triple display for HDMI, DisplayPort and LVDS/Edp (Q470E)
- 1 x M.2 M 2280, 1 x M.2 E 2230,
- 1 x mPCIe Full size, 1 x PCIe X16
- 2 x Intel® Gigabit Ethernet
- ATX or single 12V DC input



## Block Diagram



# PH13CMI Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	10th Gen Intel® Comet Lake LGA1200 Socket Processor 10core TDP Max 35W / 8 core TDP 65W / (ATX support 6core 95W)
Chipset	Intel® Q470E (Support RAID 0 / 1 / 5, vPro) / colay H420E
Memory	DDR4 2933/2666/2400MHz / 2 x 260-pin SO-DIMM / Max. 64GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN
Audio	Realtek® ALC662 / ALC888
I/O Chipset	Nuvoton NCT6126D (eSPI)
TPM	Nuvoton NPCT750AAAYX TPM2.0 (Optional)
Expansion Slot	1 x PCIe X16 slot 1 x Mini PCIe Full size (SATA, USB, PCIe) M.2 2242 / 2280 M key (PCIe, SATA) 1 x M.2 2230 E key (PCIe, USB)
BIOS	AMI BIOS, 256 Mbit SPI
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	CPU Fan / System Fan
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (4096 x 2160) @30 Hz
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
2nd DisplayPort	—
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (4096 x 2304) @60 Hz
REAR I/O	
USB	4 x USB 3.2 Gen. 2 (Q470E) / 4 x USB 2.0
Display I/O	1 x HDMI 1.4, 1 x DisplayPort 1.2
Audio I/O	1 x Mic-in, 1 x Line-out, 1 x Line-in
LAN I/O	2 x RJ-45
Serial Port	2 x RS232 (one support RS422/485)
PS/2 Port	—
Others	—
INTERNAL CONNECTORS	
Storage	2 x SATAIII
USB	1 x USB 3.0, 2 x USB 2.0
Display I/O	1 x LVDS (Optional eDP SKU available) 1 x Backlight Connector
Audio I/O	—
Serial Port	—
PS/2 Port	—
Parallel Port	—
GPIO	1 x MiAPI Header (Programmable)
Fan	1 x 4-pin CPU Fan Connector, 1 x 4-pin System Fan Connector
Power	1 x ATX Power Connector, 1 x AT / ATX Mode Select Jumper, ATX 12V Power Connector (24-pin + 4-pin)
Others	1 x Front Audio Header (Mic-in / Line-out), 1 x CMOS Jumper, 1 x panel power select header, 1 x backlight power select header, 1 x SPDIF
POWER REQUIREMENT	
Power Input	ATX 24-pin + 4-pin / 12V DC ( 3-pin terminal connector via cable by connecting to ATX 24-pin + 4-pin )
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~140°F)
Storage Temperature	-40 ~ 85°C (-40 ~185°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 10 64-bit Linux (support by request)

## Ordering Information

Model Number	Chipset	DisplayPort / HDMI	LVDS / eDP	USB 3.2 / 2.0	Mic-in / Line-out / Line-in	RS-232	LAN	M.2 2230 E key / M.2 2280 M key / mPCIe	PCIe X16	Power
PH13CMI-H420E-12V	Intel® H420E	1 / 1	1 / 0	5 / 6	1 / 1 / 1	2	2	1 / 1 / 1	1	DC-in 12V
PH13CMI-Q470-12V	Intel® Q470E	1 / 1	1 / 0	5 / 6	1 / 1 / 1	2	2	1 / 1 / 1	1	DC-in 12V
PH13CMI-H420E-ATX	Intel® H420E	1 / 1	1 / 0	5 / 6	1 / 1 / 1	2	2	1 / 1 / 1	1	ATX
PH13CMI-Q470-ATX	Intel® Q470E	1 / 1	1 / 0	5 / 6	1 / 1 / 1	2	2	1 / 1 / 1	1	ATX

## Packing List

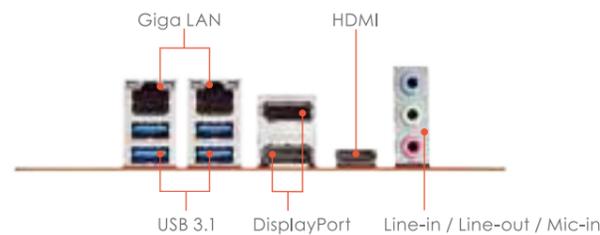
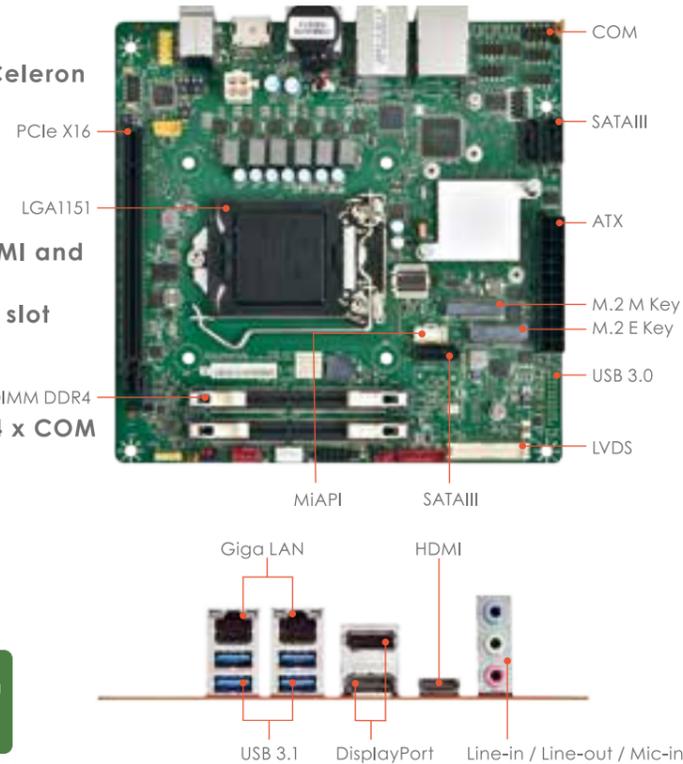
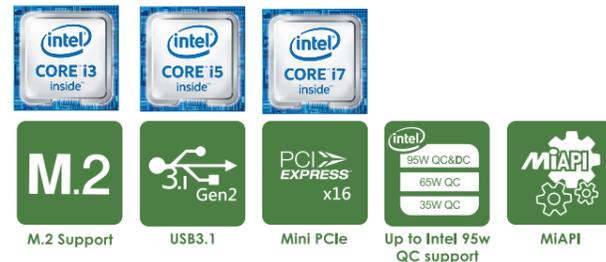
Packing		
• 1 x Motherboard	• 1 x 8-pin ATX female to 24p ATX + 4-pin ATX + SATA power convert cable (12V SKU)	• 1 x 50cm SATA Cable
• 1 x I/O Bracket (Half and Full Height)		

# PH13FEI

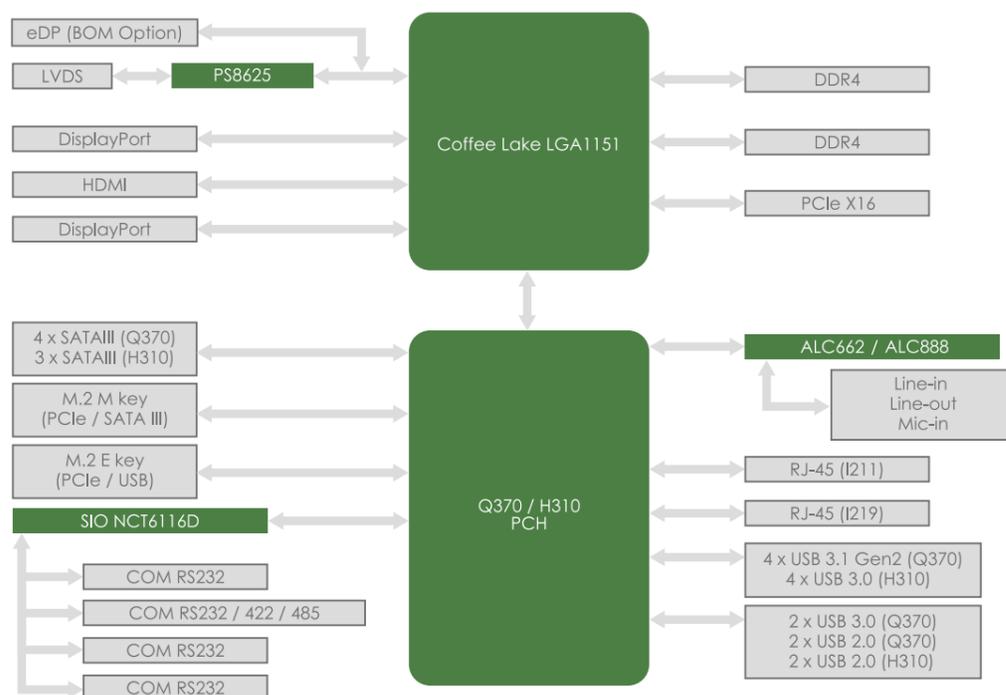
Mini-ITX Form Factor  
Intel® Coffee Lake Processor with Q370 / H310 Chipset

## Features

- Intel® Coffee Lake Core i7/i5/i3 / Pentium / Celeron LGA1151 processors
- Intel® H310 / Q370 Chipset
- Intel® vPro technology support (Q370)
- 2 x DDR4 SO-DIMM and support up to 32GB
- Support triple display for 2 x DisplayPort, HDMI and LVDS / eDP
- Support 1 x PCIe X16 (Gen3) slot and 2 x M.2 slot
- 4 x SATAIII and support RAID 0, 1, 5, 10
- 2 x Intel® Gigabit Ethernet
- 2 x USB 2.0, 2 x USB 3.0, 4 x USB3.1 (Gen 2) , 4 x COM and 1 x MiAPI (configurable digital IO)
- ATX power input



## Block Diagram



# PH13FEI Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	9th & 8th Gen Intel® Coffee Lake LGA1151 Socket Processor, Core i7/i5/i3 6-core TDP Max. 95W, Core i9 8-core TDP Max 35W
Chipset	Intel® Q370 / Intel® H310
Memory	DDR4 2666MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I219LM Giga LAN +Intel® I211AT Giga LAN
Audio	Realtek® ALC662 / ALC888
I/O Chipset	Nuvoton NCT6116D
TPM	Nuvoton NPCT750AAAYX TPM2.0 (Optional)
Expansion Slot	1 x PCIe x16 slot 1 x M.2 2260 / 2280 M key (PCIe X2, SATA) 1 x M.2 2230 E key (PCIe, USB 2.0) * H310 only support M.2 SATA SSD
BIOS	256 Mbit SPI, AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	CPU Fan / System Fan
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (4096 x 2160) @30 Hz
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
Lvds	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (4096 x 2304) @60 Hz
REAR I/O	
USB	4 x USB 3.1 Gen 2 (10Gbps) (Q370), 4 x USB 3.0 (H310)
Display I/O	1 x HDMI 1.4, 2 x DisplayPort 1.2
Audio I/O	1 x Mic-in, 1 x Line-out, 1 x Line-in
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	—
INTERNAL CONNECTORS	
Storage	4 x SATAIII (Q370), 3 x SATAIII(H310)
USB	2 x USB 3.0 (Q370), 2 x USB 2.0 (Q370), 2 x USB 2.0 (H310)
Display I/O	1 x LVDS(Optional eDP SKU available) 1 x Backlight Connector
Audio I/O	1 x Line-out
Serial Port	4 x RS232
PS/2 Port	—
Parallel Port	—
GPIO	1 x MiAPI Header (Programmable) support 10-bit GPIO
Fan	1 x 4-pin CPU Fan Connector, 1x 4-Pin System Fan Connector
Power	1 x ATX 24-pin, 1 x ATX 4-pin, 1 x AT/ATX Mode Select Jumper
Others	1 x Front Audio Header (Mic-in/Line-out), 1 x CMOS Jumper
POWER REQUIREMENT	
Power Input	ATX 4-pin + ATX 24-pin
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~140°F)
Storage Temperature	-20 ~ 80°C (-4 ~158°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 10 64-bit Linux (support by request)

\*Option: TPM, eDP

## Ordering Information

Model Number	Chipset	Display Port	HDMI	LVDS / eDP	USB 3.1 / 2.0	Mic-in/ Line-out/ Line-in	RS232	LAN	M.2 2230 E key / M.2 2280 M key	PCIe X16	Power
PH13FEI-H310	Intel® H310	2	1	1/0	4/2	1/1/1	4	2	1/1	1	ATX Power (24+4 pin)
PH13FEI-Q370	Intel® Q370	2	1	1/0	6/2	1/1/1	4	2	1/1	1	ATX Power (24+4 pin)

## Packing List

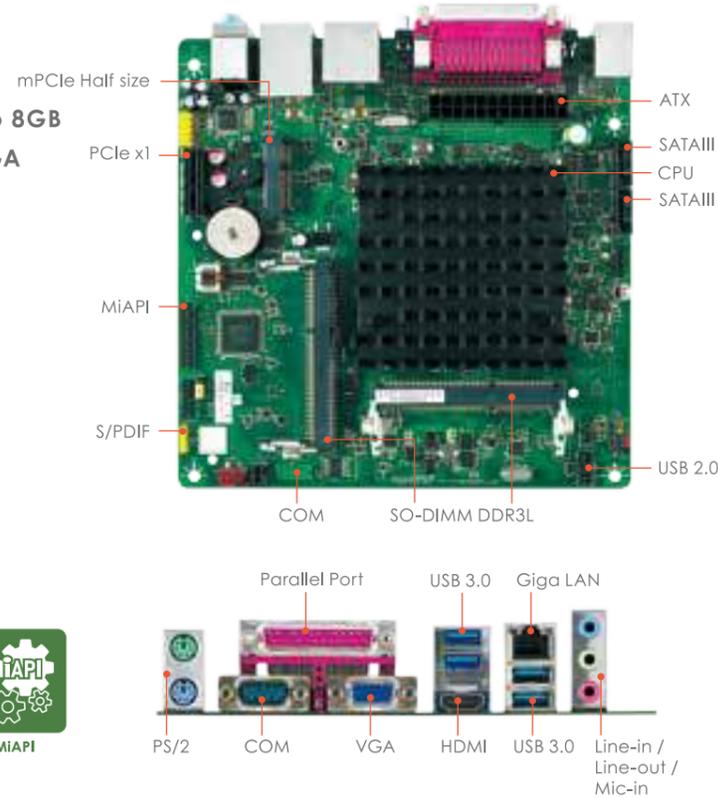
Packing	• 1 x Motherboard	• 1 x 50cm SATA Cable	• 1 x I/O Bracket (Full Height)
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# PD14RI

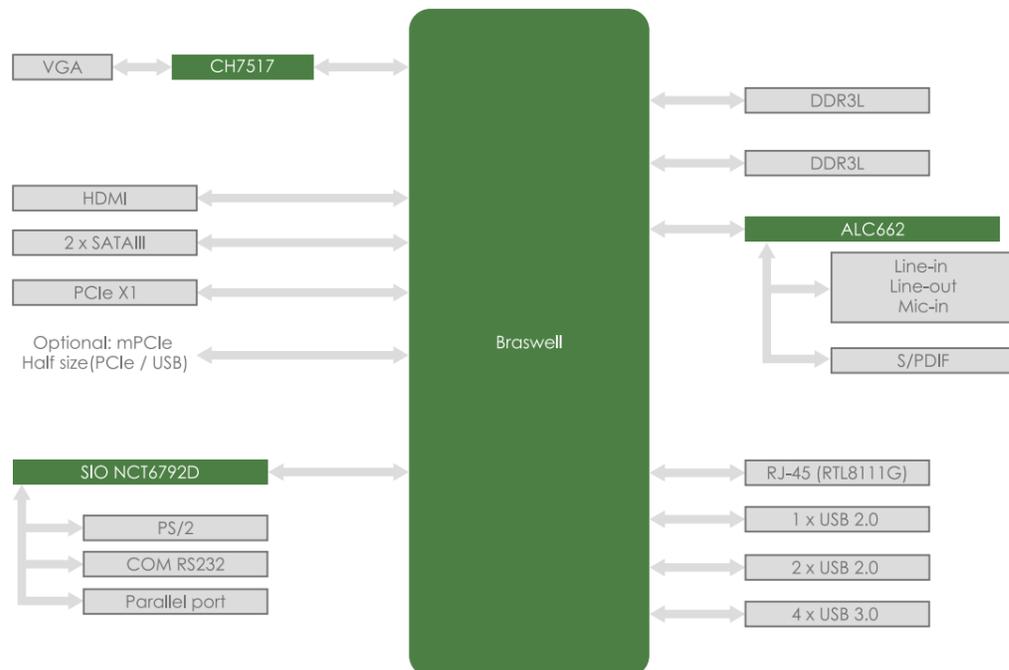
Mini-ITX Form Factor  
Intel® Braswell Processor

## Features

- Intel® Braswell Atom/Celeron/Pentium BGA processor
- 2 x DDR3L SO-DIMM and support up to 8GB
- Support dual display for HDMI and VGA
- Support 1 x PCIe X1 (Gen 2) slot and Mini PCIe slot
- 2 x SATA III
- 1 x Gigabit Ethernet
- 3 x USB 2.0, 4 x USB 3.0, 2 x COM and 1 x Parallel Port
- ATX power input



## Block Diagram



# PD14RI Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	Intel® Celeron® Processor N3060 (2M Cache, up to 2.48 GHz)
Chipset	Intel® SoC Integrated
Memory	DDR3L 1600MHz, 2 x 204-pin SO-DIMM, Max. 8GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Realtek® RTL8111G Giga LAN
Audio	Realtek® ALC662
I/O Chipset	Nuvoton NCT6792D
TPM	Nuvoton NPCT650AAAWX (option)
Expansion Slot	1 x PCIe X1 slot Option: 1 x Mini PCIe Half size (PCIe / USB)
BIOS	64 Mbit SPI, AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1 ~ 255 Steps by Software Program
Smart Fan Control	CPU Fan
GRAPHICS	
VGA	Up to 1920 x 1200 @60 Hz
DVI	—
HDMI	Up to 4K (3840 x 2160) @30 Hz
DisplayPort	—
LVDS	—
eDP (Option)	—
REAR I/O	
USB	4 x USB 3.0
Display I/O	1 x HDMI 1.4, 1 x VGA
Audio I/O	1 x Mic-in, 1 x Line-out, 1 x Line-in
LAN I/O	1 x RJ-45
Serial Port	1
PS/2 Port	2
Parallel Port	1
INTERNAL CONNECTORS	
Storage	2 x SATAIII
USB	3 x USB 2.0
Display I/O	—
Audio I/O	1 x Line-out
Serial Port	1 x RS232
PS/2 Port	—
Parallel Port	—
GPIO	1 x MiAPI Header (Programmable)
Fan	1 x 4-pin CPU Fan Connector
Power	1 x ATX 24-pin
Others	1 x Front Audio Header (Mic-in/Line-out)
POWER REQUIREMENT	
Power Input	ATX Power 24-pin
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 7 32/64bit, Windows® 10 64bit Linux (support by request)

## Ordering Information

Model Number	Processor	VGA	HDMI	PS/2	USB 3.0 / 2.0	Parallel Port	SATA	Mic-in/Line out/Line-in	RS232	LAN	mini PCIe Full / Half size	PCIe x1	Power
PD14RI-N3060	1	1	1	2	4 / 3	1	2	1 / 1 / 1	2	1	0 / 0	1	ATX Power 24-pin
PD14RI-N3160	1	1	1	2	4 / 3	1	2	1 / 1 / 1	2	1	0 / 0	1	ATX Power 24-pin

## Packing List

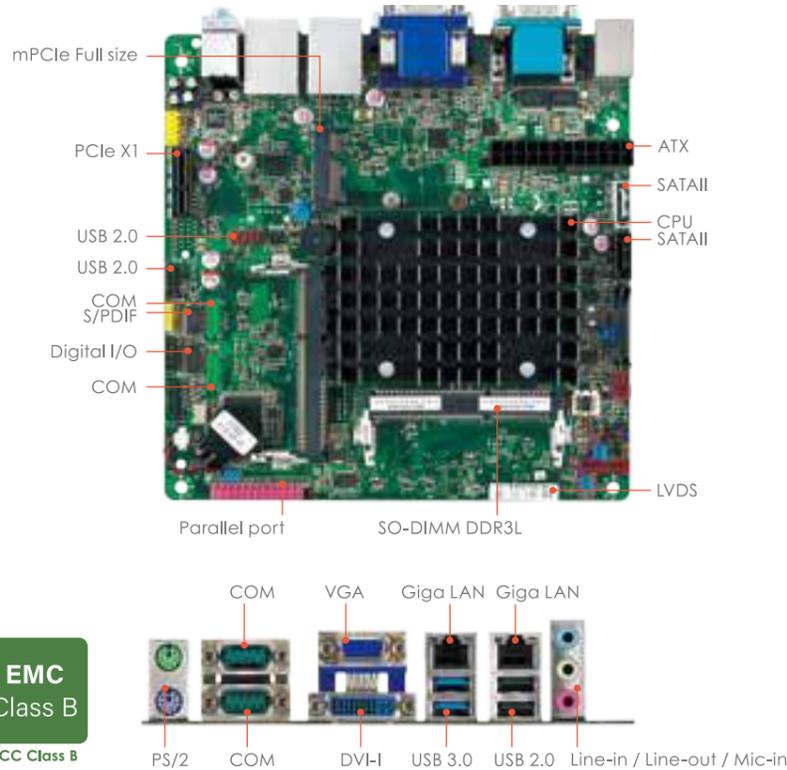
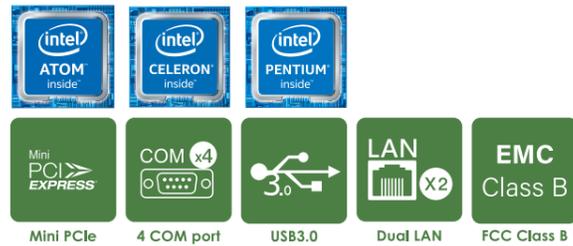
Packing	
• 1 x Motherboard	• 1 x 50cm SATA Cable
	• 1 x I/O Bracket

# PD11BI

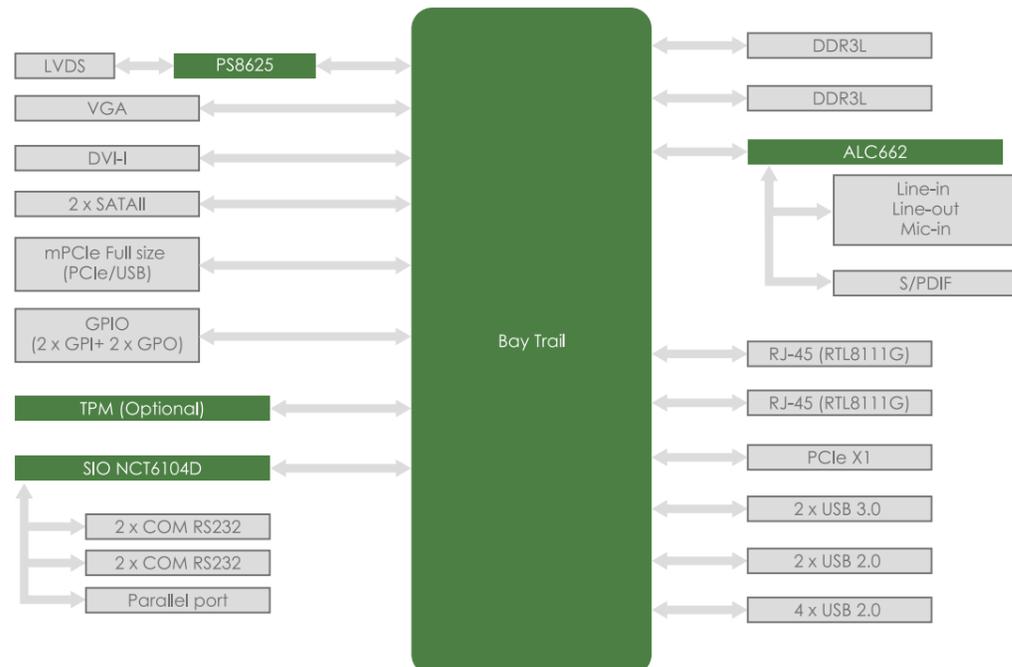
Mini-ITX Form Factor  
Intel® Bay Trail Processor

## Features

- Intel® Bay Trail Atom / Celeron / Pentium BGA processor
- 2 x DDR3L SO-DIMM and support up to 8GB
- Support triple display for VGA, DVI and LVDS
- Support 1 x PCIe X1 (Gen 2) slot and Mini PCIe slot
- 2 x SATA II
- 2 x Intel® Gigabit Ethernet
- 6 x USB 2.0, 2 x USB 3.0, 4 x COM and 1 x Parallel Port
- ATX power input



## Block Diagram



# PD11BI Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	Intel® Bay Trail-D J1900 Processor
Chipset	Intel® SoC Integrated
Memory	DDR3L 1333, 2 x 204-pin SO-DIMM, Max. 8 GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	2 x Realtek® RTL8111G Giga LAN
Audio	Realtek® ALC662
I/O Chipset	Nuvoton NCT6104D
TPM	—
Expansion Slot	1 x PCIe X1 slot 1 x Mini PCIe Full / Half size (PCIe / USB)
BIOS	AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	—
GRAPHICS	
VGA	Up to 1920 x 1200 @60 Hz
DVI	Up to 1920 x 1200 @60 Hz
HDMI	—
DisplayPort	—
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	—
REAR I/O	
USB	2 x USB 3.0, 2 x USB 2.0
Display I/O	1 x DVI-I, 1 x VGA
Audio I/O	1 x Mic-in, 1 x Line -in, 1 x Line-out
LAN I/O	2 x RJ-45
Serial Port	2 x RS232
PS/2 Port	2 x PS/2
Others	—
INTERNAL CONNECTORS	
Storage	2 x SATAII
USB	4 x USB2.0
Display I/O	1 x LVDS 1 x Backlight Connector
Audio I/O	1 x S/PDIF header 1 x Front Audio Header (Mic-in / Line-out)
Serial Port	2 x RS232
PS/2 Port	—
Parallel Port	1 x Parallel Port Header
GPIO	Digital I/O (2 x Input / 2 x Output)
Fan	1 x 4PIN PWM Fan Header
Power	1 x ATX 24-pin
Others	1 x CMOS Jumper
POWER REQUIREMENT	
Power Input	ATX Power 24-pin (Optional: ATX Power 12V 4-pin)
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-20 ~ 70°C (-4 ~ 176°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B, UL
OS	
OS Support	Windows® 7 32/64bit, Windows® 8.1 64bit, Windows® 10 64bit, Linux (support by request)

## Ordering Information

Model Number	Processor	DVI-I	VGA	LVDS	3-Stack Audio Jack	LAN	USB 3.0 / 2.0	PS/2	Serial Port	mPCIe	SATA	PCIe X1	Power
PD11BI-J1900	J1900	1	1	1	1	2	2 / 6	2	4	1	2	1	ATX Power 24-pin

## Packing List

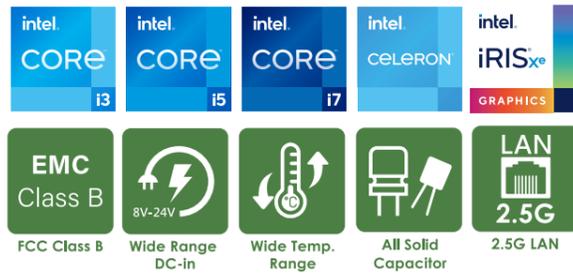
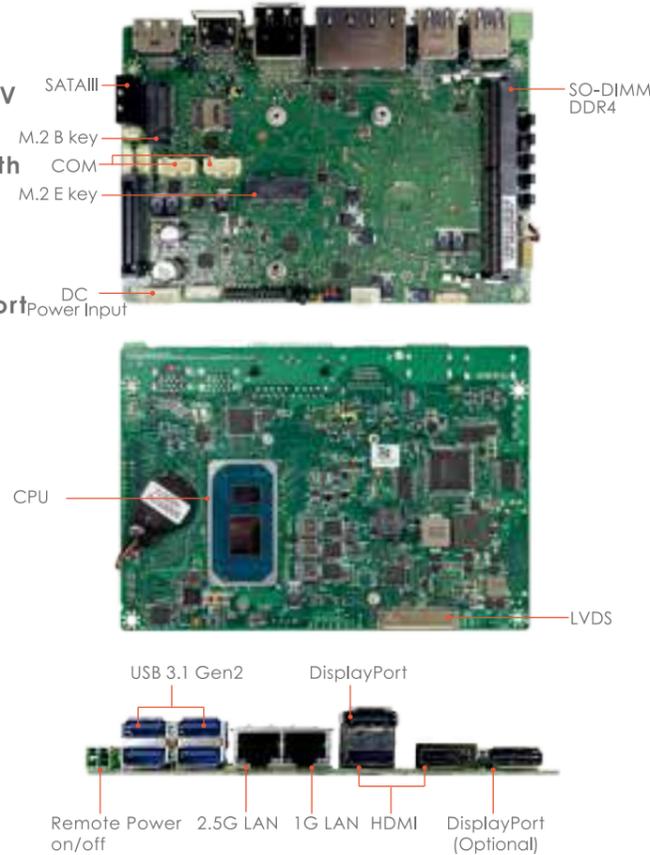
Packing	
• 1 x Motherboard	• 1 x 50cm SATA Cable
	• 1 X I/O Bracket

# PD11TGS

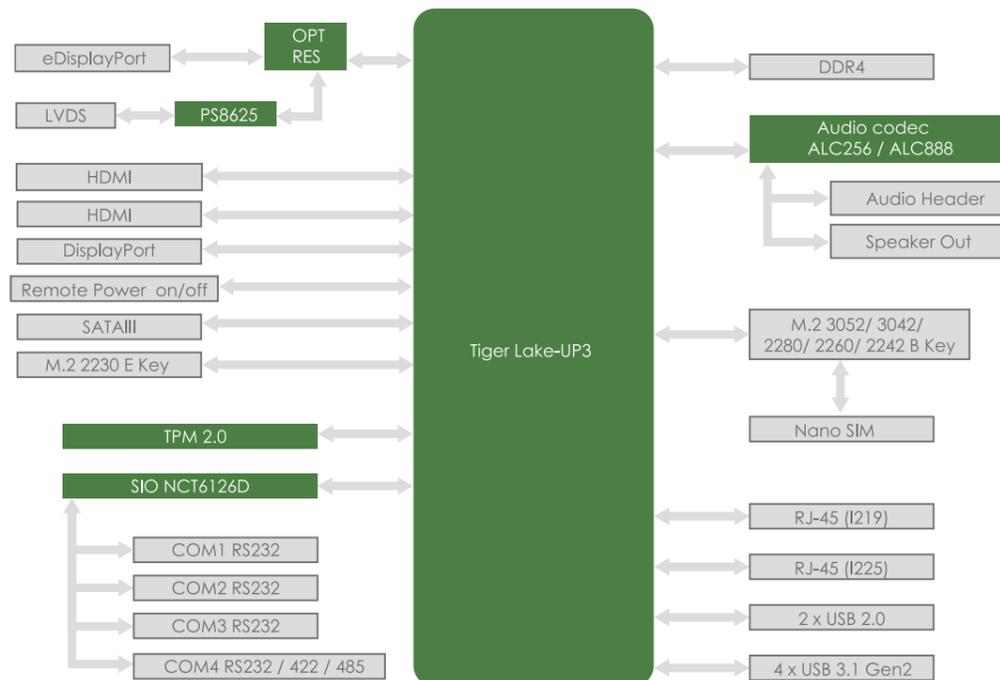
3.5" SBC Form Factor  
Tiger Lake UP3 (Intel® Core™ and Celeron® TDP up to 28W)

## Features

- Intel® Tiger Lake UP3 Core i7/i5/i3 / Celeron ULV processors
- Outstanding graphic computing capability with Integrated Intel® Iris Xe graphics
- Intel® vPro technology support (SKUs i5 & i7)
- 1 x DDR4 SO-DIMM and support up to 32GB
- Support quadruple display for HDMI, DisplayPort and LVDS / eDP
- 1 x SATA III
- 1 x Intel® 1G + 2.5G LAN port
- 2 x USB 2.0, 4 x USB 3.1 Gen2 and 4 x COM
- 8V~24V wide voltage power input



## Block Diagram



# PD11TGS 3.5" SBC

MECHANICAL	
Form Factor	3.5" SBC Embedded: 4" x 5.8" (102mm x 147mm)
SYSTEM	
Processor	11th Gen Intel® Tiger Lake-UP3 i3-1115G4E (Dual Core, 6MB Cache, up to 3.90 GHz) option: 11th Gen Tiger Lake-UP3 Celeron 6305E / i5-1145G7E / i7-1185G7E
Chipset	Intel® SoC Integrated
Memory	DDR4 3200MHz / 1 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)
Graphics	Intel® Iris Xe Graphics
Ethernet	Intel® I219LM Giga LAN + I225LM 2.5GLAN
Audio	Realtek® ALC256 / ALC888
I/O Chipset	Nuvoton NCT6126D
TPM	Nuvoton NPCT750AABYX TPM2.0
Expansion Slot	Storage / LTE / 5G: M.2 2242 / 2260 / 2280 / 3042 / 3052 B Key (USB2.0/*PCIex1/SATAIII) Wireless: M.2 2230 E KEY (PCIe / USB) *Not support M.2 M Key NVMe SSD
BIOS	AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	CPU Fan
GRAPHICS	
HDMI 2.0b	Up to 4K (4096 x 2160) @60 Hz
HDMI 2.0b	Up to 4K (4096 x 2160) @60 Hz
DisplayPort 1.4	Up to 5120 x 3200 @60 Hz
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 5120 x 3200 @60 Hz
REAR I/O	
USB	4 x USB 3.1 Gen2
Display I/O	2 x HDMI 2.0b, 1 x DisplayPort 1.4
Audio I/O	—
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	1 x 2-pin Remote Power ON/OFF Terminal Block Connector
INTERNAL CONNECTORS	
Storage	1 x SATAIII
USB	2 x USB2.0
Display I/O	1 x LVDS (colay eDP) 1 x Backlight Connector
Audio I/O	1 x Audio Header Supporting System Stereo Speaker 1 x Audio Header (Front Panel Mic-in & Line-out)
Serial Port	4 x RS232 (One Supports RS232/422/485)
PS/2 Port	—
Parallel Port	—
GPIO	—
Fan	1 x 4-pin CPU Fan Header
Power	1 x 8~24V 4-pin Power Connector, 1 x AT/ATX Mode Select Jumper
Others	1 x Front IO Header (PWR ON/RESET/PWR LED/HDD LED) 1 x Nano SIM slot, 1 x Buzzer
POWER REQUIREMENT	
Power Input	8~24V Wide Range DC Input w/ 4-pin Power Header (Pitch: 2.5mm)
ENVIRONMENTAL	
Operating Temperature	15W TDP: -40 ~ 60°C (-40 ~ 140°F) 28W TDP: -40 ~ 50°C (-40 ~ 122°F) with 0.7m/s Air Flow and Wide Temperature Memory/Storage
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 10 64bit/Windows® 11 64bit, Linux (support by request)

## Ordering Information

Model Number	Processor	HS Configuration	Model Number	Processor	HS Configuration
PD11TGS-6305E-HSK	Celeron 6305E	MB + Heatsink	PD11TGS-1145G7E-HSK	i5-1145G7E	MB + Heatsink
PD11TGS-1115G4E-HSK	i3-1115G4E	MB + Heatsink	PD11TGS-1185G7E-HSK	i7-1185G7E	MB + Heatsink

\*5G card support is by BOM option. Please check with sales about the M.2 B Key 3052 5G card spec if you have any request

\*Option 1 / 2 : eDP / with 2nd DP without LVDS/eDP,

## Packing List

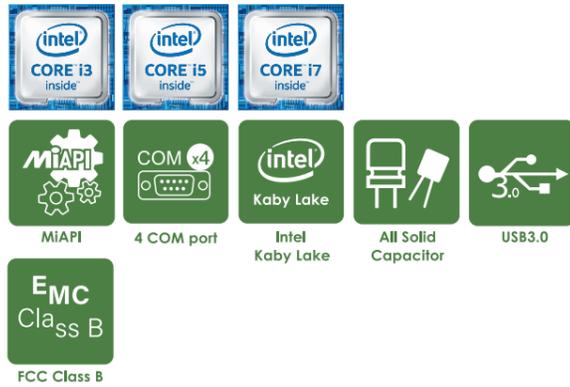
Packing		
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 1 x 45cm SATA Power Cable

# PD11KS

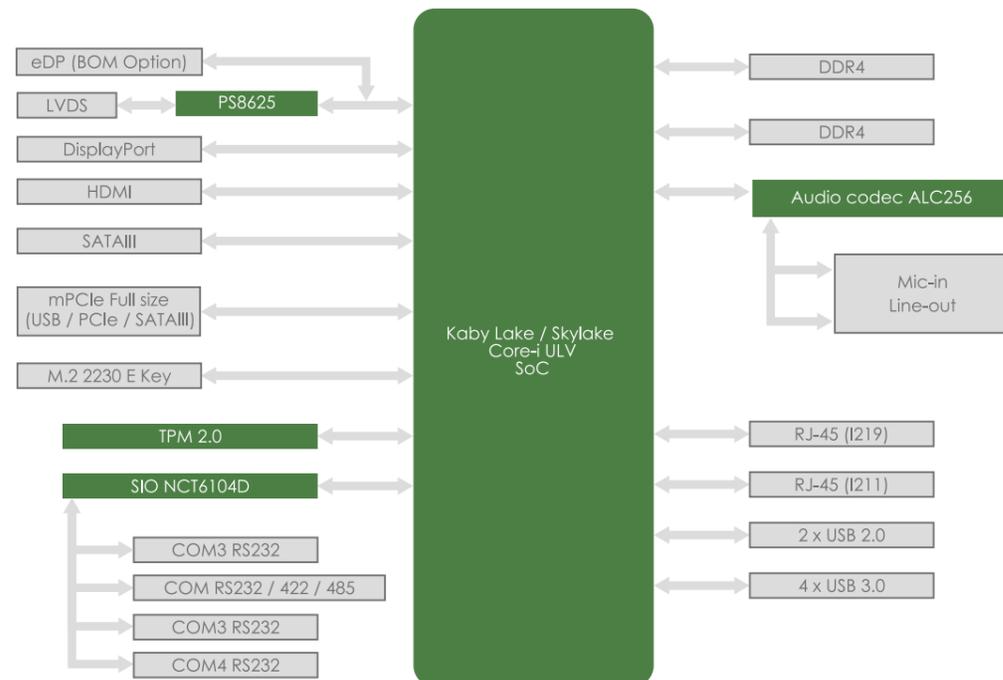
3.5" SBC Form Factor  
Intel® Kaby Lake / Skylake Processor

## Features

- Intel® Skylake / Kaby Lake Core i7/i5/i3 / Celeron ULV processors
- Intel® vPro technology support (sku i5 & i7)
- 2 x DDR4 SO-DIMM and support up to 32GB
- Support triple display for HDMI, DisplayPort and LVDS / eDP
- 1 x SATA III
- 2 x Intel® Gigabit Ethernet
- 2 x USB 2.0, 4 x USB 3.0 and 4 x COM
- 8V~24V wide voltage power input



## Block Diagram



# PD11KS 3.5" SBC

MECHANICAL	
Form Factor	3.5" SBC Embedded: 4" x 5.8" (102mm x 147mm)
SYSTEM	
Processor	Intel® Kaby Lake-U i3-7100U (Dual Core, 3MB Cache, 2.40 GHz) Option: Kaby Lake Celeron 3965U / i5-7300U / i7-7600U Skylake Celeron 3955U / i3-6100U / i5-6300U / i7-6600U
Chipset	Intel® SoC Integrated
Memory	DDR4 2133/2400, 2 x 260-pin SO-DIMM, Max. 32 GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I219LM Giga LAN + Intel® I211AT Giga LAN
Audio	Realtek® ALC256
I/O Chipset	Nuvoton NCT6104D
TPM	Nuvoton NPCT650ABCXY TPM2.0
Expansion Slot	Storage: Mini PCIe Full size (USB / PCIe / SATA) Wireless: M.2 2230 E key (PCIe / USB)
BIOS	AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	CPU Fan
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (4096 x 2160) @24 Hz
DisplayPort	Up to 4K (4096 x 2160) @60 Hz
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (4096 x 2160) @60 Hz
REAR I/O	
USB	4 x USB 3.0
Display I/O	1 x HDMI 1.4, 1 x DisplayPort 1.2
Audio I/O	1 x Audio Combo Jack (Mic-in and Line-out)
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	—
INTERNAL CONNECTORS	
Storage	1 x SATAIII
USB	2 x USB2.0
Display I/O	1 x LVDS (colay eDP) 1 x Backlight Connector
Audio I/O	1 x Audio Header Supporting System Stereo Speaker or Buzzer 1 x Audio Header without Amplifier (for Extra Amplifier Board for System Speaker)
Serial Port	4 x RS232 (One Supports RS232/422/485)
PS/2 Port	—
Parallel Port	—
GPIO	1 x MiAPI Header (Programmable, Support 10 x GPIO)
Fan	1 x 4-pin PWM Fan Header
Power	1 x 8~24V 4-pin Power Header, 1 x AT/ATX Mode Select Jumper
Others	MiAPI: Programmable header (support 10 x GPIO, 1 x SMBUS, 1 x UART, 1 x Watchdog) with API library supported for Windows OS 1 x Chassis Front Panel Header (2 x 5-pin) 1 x CMOS Jumper
POWER REQUIREMENT	
Power Input	8~24V Wide Range DC Input w/ 4-pin Power Header (Pitch: 2.5mm)
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-20 ~ 80°C (-4 ~ 176°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Kaby Lake: Windows® 10 64bit, Linux (support by request) Skylake: Windows® 7 32/64bit, Windows® 8.1 64bit, Windows® 10 64bit, Linux (support by request)

## Ordering Information

Model Number	Processor	HS Configuration	Model Number	Processor	HS Configuration
PD11KS-3965U-HSK	Celeron 3965U	MB + Heatsink	PD11KS-7300U-HSK	i5-7300U	MB + Heatsink
PD11KS-7100U-HSK	i3-7100U	MB + Heatsink	PD11KS-7600U-HSK	i7-7600U	MB + Heatsink

\*Option: eDP

## Packing List

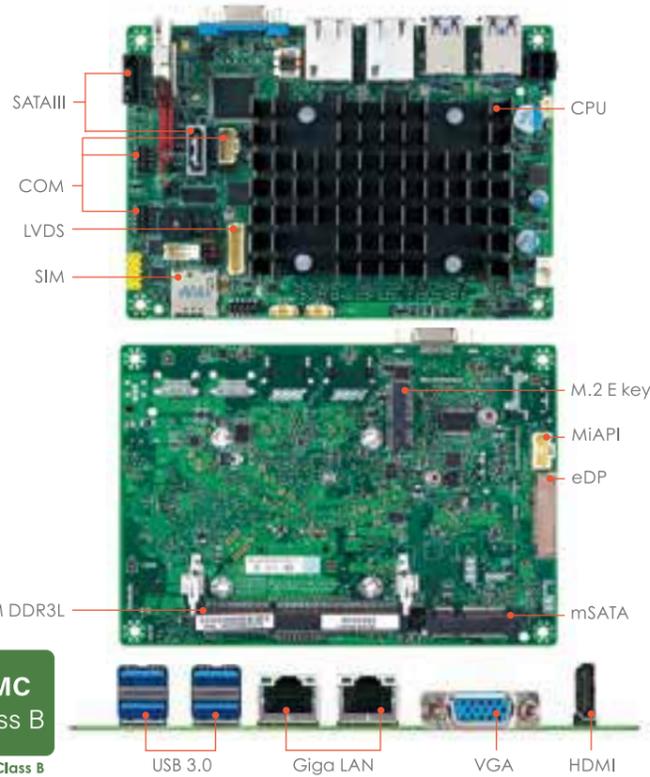
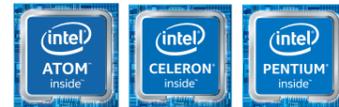
Packing		
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 1 x 45cm SATA Power Cable

# PD10AS

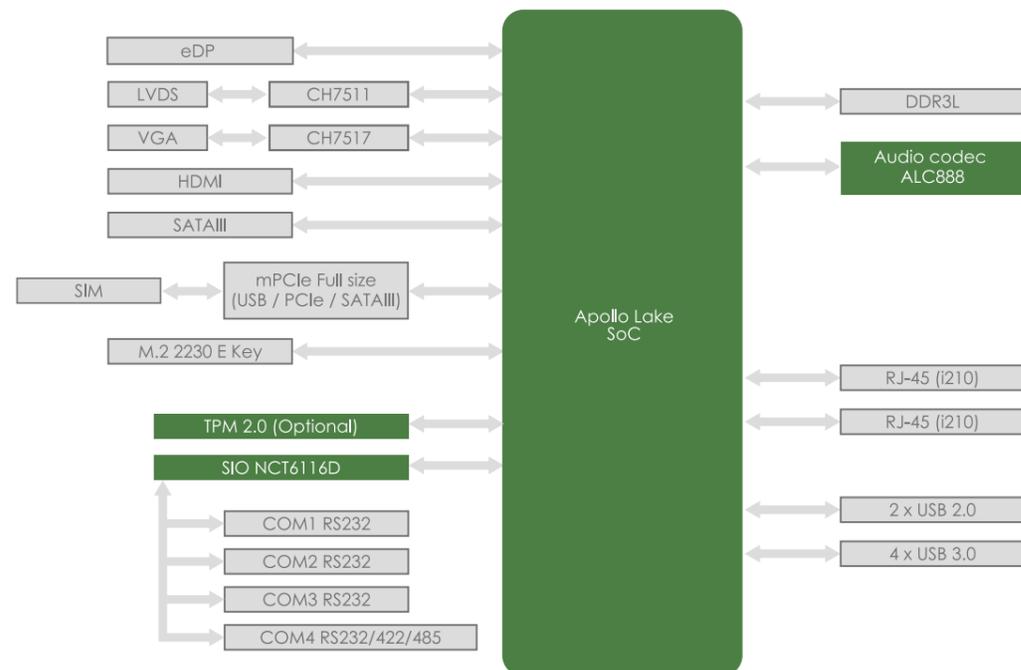
3.5" SBC Form Factor  
Intel® Apollo Lake Processor

## Features

- Intel® Apollo Lake Atom / Celeron / Pentium BGA processor
- 1 x DDR3L SO-DIMM and support up to 8GB
- Support triple display for HDMI, VGA and LVDS / eDP
- 1 x Mini PCIe + 1 x M.2 slot
- 2 x SATAIII (1 x SATA is multiplexed with 1 x mSATA port)
- 2 x Intel® Gigabit Ethernet
- 2 x USB 2.0, 4 x USB 3.0 and 4 x COM
- 8V~24V wide voltage power input
- mPCIe with SIM card holder



## Block Diagram



# PD10AS 3.5" SBC

MECHANICAL	
Form Factor	3.5" SBC Embedded: 4" x 5.8" (102mm x 147mm)
SYSTEM	
Processor	Intel® Apollo Lake-M N3350 / N4200 Processor Intel® Apollo Lake-I E3930 Processor Option: E3940 / E3950
Chipset	Intel® SoC Integrated
Memory	DDR3L 1867, 1 x 204-pin SO-DIMM, Max. 8GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	2 x Intel® I210-IT Giga LAN
Audio	Realtek® ALC888
I/O Chipset	Nuvoton NCT6116D
TPM	Nuvoton NPCT650ABCYX TPM2.0 (Optional)
Expansion Slot	Storage: Mini PCIe Full size (USB / PCIe / SATA), w/ SIM Card Holder Wireless: M.2 2230 E key (PCIe / USB)
BIOS	AMI BIOS
H / W Monitor	Temperature Monitor, Voltage Monitor
Watchdog Timer	1~255 Steps by Software Program
Smart Fan Control	CPU Fan
GRAPHICS	
VGA	Up to 1920 x 1200 @60 Hz
DVI	—
HDMI	Up to 4K (3840 x 2160) @30 Hz
DisplayPort	—
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 4K (3840 x 2160) @60 Hz
REAR I/O	
USB	4 x USB 3.0
Display I/O	1 x HDMI 1.4, 1 x VGA
Audio I/O	—
LAN I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	—
INTERNAL CONNECTORS	
Storage	2 x SATAIII (1 x SATA is multiplexed with 1 x mSATA port)
USB	2 x USB 2.0
Display I/O	1 x LVDS, 1 x eDP 1 x Backlight Connector
Audio I/O	1 x Audio Header (Front Panel Mic-in & Line-out)
Serial Port	4 x RS232 (One Supports RS232/422/485)
PS/2 Port	—
Parallel Port	—
GPIO	1 x MiAPI Header (Programmable, Support 10-bit GPIO)
Fan	1 x 4-pin CPU Fan Header
Power	1 x 8~24V ATX Power Connector, 1 x AT/ATX Mode Select Jumper
Others	1 x CMOS Jumper
POWER REQUIREMENT	
Power Input	8~24V Wide Range DC Input w/ 4-pin ATX connector (Pitch: 4.2mm)
ENVIRONMENTAL	
Operating Temperature	Normal Temperature: 0 ~ 70°C (32 ~ 158°F) Wide Temperature (Optional*) : -40 ~ 85°C (-40 ~ 185°F)
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 10 64-bit Linux (support by request)

## Ordering Information

Model Number	Processor	VGA	HDMI	LVDS / eDP	USB 3.0 / 2.0	LAN	mPCIe	M.2 (2230)	Operating Temp.	Power	HS Configuration
PD10AS-E3930-NT	E3930	1	1	1 / 1	4/2	2	1	1	0 ~ 70°C	ATX 4-pin DC-in 8~24V	MB + Heatsink
PD10AS-N3350-NT	N3350	1	1	1 / 1	4/2	2	1	1	0 ~ 70°C	ATX 4-pin DC-in 8~24V	MB + Heatsink
PD10AS-N4200-NT	N4200	1	1	1 / 1	4/2	2	1	1	0 ~ 70°C	ATX 4-pin DC-in 8~24V	MB + Heatsink

\*Option: TPM

## Packing List

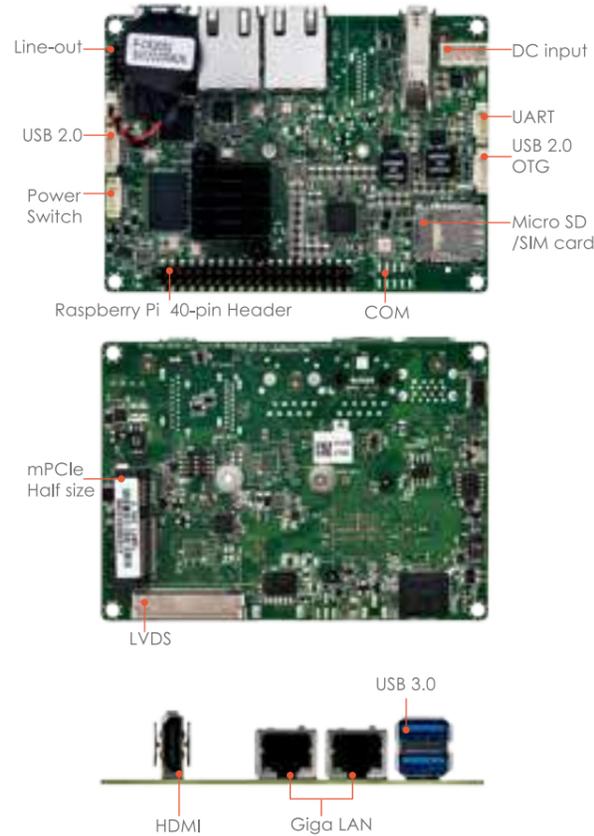
Packing	
• 1 x Motherboard	• 1 x 50cm SATA Cable
	• 1 x 45cm SATA Power Cable

# ND108T

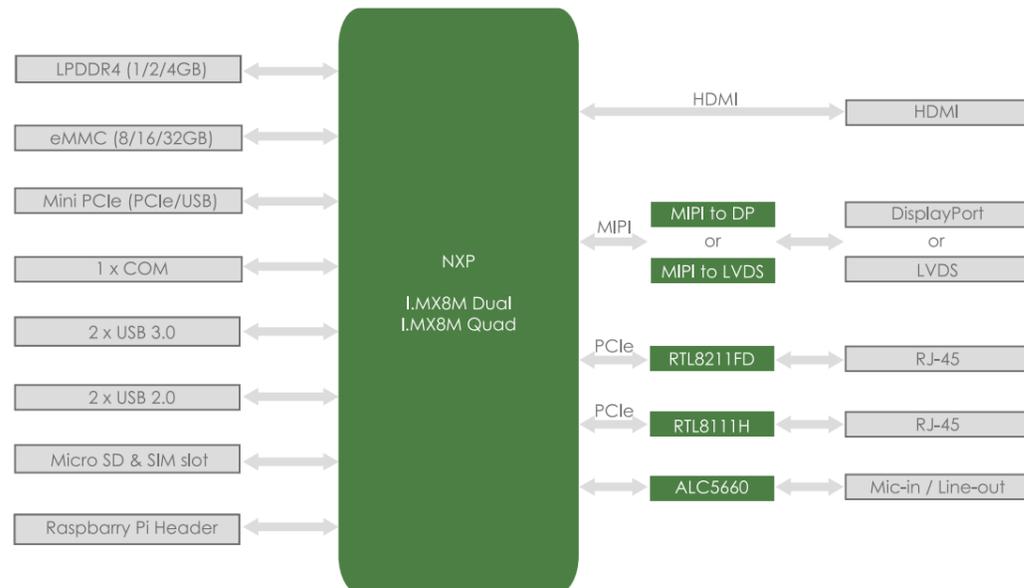
Pico-iTX Form Factor  
NXP® i.MX8M Family

## Features

- NXP® i.MX8M Dual Core & Quad Core Processor
- LPDDR4 Memory (Options for 1GB / 2GB / 4GB)
- eMMC Storage (Options for 8GB / 16GB / 32GB)
- Support up to 2 x Giga LAN
- Support up to 2 x display: 1x HDMI (4K), 1 x DisplayPort(FHD) or LVDS(FHD)
- Support 1 x Mini PCIe expansion slot
- Support 1 x Raspberry Pi fully Compatible 40-pin Header
- Up to 2 x USB 3.0, 2 x USB 2.0, 12V DC Power Input
- 1 x COM port (RS232/422/485)



## Block Diagram



# ND108T Pico-iTX

MECHANICAL	
Form Factor	Pico-iTX 2.5" SBC: 3.94" x 2.84" (100 mm x 72 mm)
SYSTEM	
Processor	NXP® i.MX8M Family: 8M Quad (4x Cortex-A53 @ 1.3GHz) / 8M Dual (2x Cortex-A53 @ 1.3GHz)
Chipset	i.MX8M SoC Integrated
Memory	LPDDR4 Onboard Memory with Options: 1GB (1200MHz), 2GB (1600MHz), 4GB (1600MHz)
Graphics	i.MX8 Integrated
Ethernet	2 x Realtek Giga LAN (1st LAN: RTL8211FD; 2nd LAN: RTL8111H)
Audio	Realtek ALC5660
I/O Chipset	-
TPM	-
Expansion Slot	Mini PCIe Full / Half Size (PCIe / USB)
BIOS	-
H / W Monitor	Temperature Monitor, Voltage Monitor, Fan Monitor
Watchdog Timer	Yes
Storage	Onboard eMMC with Options for 8GB / 16GB / 32GB 1 x Micro SD card slot (Up to 256GB)
GRAPHICS	
VGA	---
DVI	---
HDMI	Up to 4K (4096 x 2160) @60 Hz
DisplayPort	Up to FHD (1920 x 1080) @60 Hz
LVDS	Up to FHD (1920 x 1080) @60 Hz
eDP (Option)	---
REAR I/O	
USB	2 x USB 3.0
Display I/O	1 x HDMI 2.0, 1 x DisplayPort 1.2
Audio I/O	---
LAN I/O	2 x RJ-45
Serial Port	---
PS/2 Port	---
Others	---
INTERNAL CONNECTORS	
Storage	1 x Micro-SIM/Micro SD combo card slot
USB	1 x USB2.0 Port Header / 1 x USB 2.0 OTG port Header
Display I/O	1 x LVDS / 1 x LCD PWR Selection Header 1 x Backlight PWR Header
Audio I/O	1 x Line-out / Mic-in Header
Serial Port	1 x RS232/422/485 Header
PS/2 Port	---
GPIO	1 x MiAPI Header (Programmable, Support 10-bit GPIO)
Front Panel	1 x Front Panel Header
Power	1 x 12V 4-pin Power Connector
Others	1 x 40-pin General Purpose Header (Fully Compatible with Raspberry Pi 40-pin Header) *Raspberry Pi is a trademark of the Raspberry Pi Foundation
POWER REQUIREMENT	
Power Input	DC-in 12V (4-pin Power Connector)
ENVIRONMENTAL	
Operating Temperature	-10 ~ 65°C (14 ~ 149°F)
Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Yocto Sumo (Kernel version 4.14.98) BSP Support Android 9 Pie (Kernel version 4.14.98) BSP Support <small>(Remark: Android is suggested for 2G or 4G memory MB SKU)</small>

## Ordering Information

Model Number	Processor	DDR4	eMMC	Display	LAN	COM Port
ND108T-8MD-1G8G-LVDS	i.MX8M Dual Core	1 GB	8 GB	HDMI + LVDS	1	0
ND108T-8MD-2G16G-LVDS	i.MX8M Dual Core	2 GB	16 GB	HDMI + LVDS	1	0
ND108T-8MQ-4G32G-LVDS	i.MX8M Quad Core	4 GB	32 GB	HDMI + LVDS	2	1

## Packing List

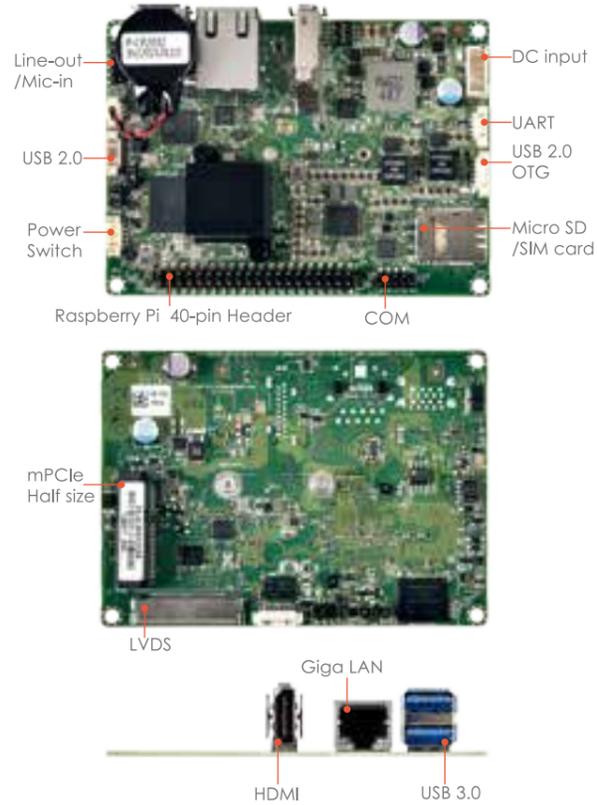
- Packing
- 1 x Mainboard

# ND118T

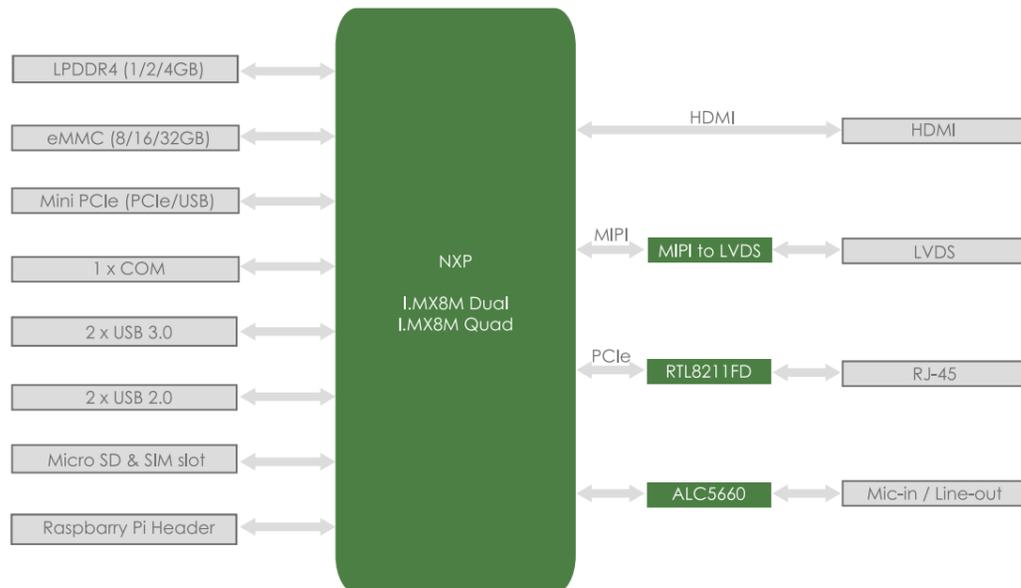
Pico-iTX Form Factor  
NXP® i.MX8M Family

## Features

- NXP® i.MX8M Dual Core & Quad Core Processor
- LPDDR4 Memory (Options for 1GB / 2GB / 4GB)
- eMMC Storage (Options for 8GB / 16GB / 32GB)
- Support up to 1 x Giga LAN
- Support up to 1x HDMI (4K)
- Support 1 x Mini PCIe expansion slot
- Support 1 x Raspberry Pi fully Compatible 40-pin Header
- Up to 2 x USB 3.0, 2 x USB 2.0, 1 x COM port (RS232/422/485)
- 12~24V DC Power Input



## Block Diagram



# ND118T Pico-iTX

MECHANICAL	
Form Factor	Pico-iTX 2.5" SBC: 3.94" x 2.84" (100 mm x 72 mm)
SYSTEM	
Processor	NXP® i.MX8M Family : 8M Quad (4 x Cortex-A53 @ 1.3GHz) / 8M Dual (2 x Cortex-A53 @ 1.3GHz)
Chipset	i.MX8M SoC Integrated
Memory	LPDDR4 Onboard Memory with Options: 1GB (800MHz), 2GB (1600MHz), 4GB (1600MHz)
Graphics	i.MX8 Integrated
Ethernet	1 x Realtek® RTL8211FD Giga LAN
Audio	Realtek ALC5660
I/O Chipset	—
TPM	—
Expansion Slot	Mini PCIe Full / Half size (PCIe / USB)
BIOS	—
H / W Monitor	—
Watchdog Timer	Yes
Storage	Onboard eMMC with Options for 8GB / 16GB / 32GB
GRAPHICS	
VGA	—
DVI	—
HDMI	Up to 4K (4096 x 2160) @60 Hz
DisplayPort	—
LVDS	Up to FHD (1920 x 1080) @60 Hz
eDP (Option)	—
REAR I/O	
USB	2 x USB 3.0
Display I/O	1 x HDMI 2.0
Audio I/O	—
LAN I/O	1 x RJ-45
Serial Port	—
PS/2 Port	—
Others	—
INTERNAL CONNECTORS	
Storage	1 x Micro-SIM or Micro SD combo card slot
USB	1 x USB2.0 Port Header / 1 x USB 2.0 OTG port Header
Display I/O	1 x LVDS / 1 x LCD PWR Selection Header / 1 x Backlight PWR Header
Audio I/O	1 x Line-out & Mic-in Header
Serial Port	1 x RS232/422/485 Header
PS/2 Port	—
GPIO	—
Front Panel	1 x Front Panel Header
Power	1 x 12~24V 4-pin Power Connector
Others	1 x 40-pin General Purpose Header (Fully Compatible with Raspberry Pi 40-pin Header) *Raspberry Pi is a trademark of the Raspberry Pi Foundation
POWER REQUIREMENT	
Power Input	DC-in 12~24V (4-pin Power Connector)
ENVIRONMENTAL	
Operating Temperature	-0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Yocto 3.2 BSP Support Android 9 Pie (Kernel version 4.14.98) BSP Support <small>Remark: Android is suggested for 4G memory MB SKU)</small>

## Ordering Information

Model Number	Processor	DDR4	eMMC	Display	LAN	COM Port
ND118T-8MD-1G8G-LVDS	i.MX8M Dual Core	1 GB	8 GB	HDMI + LVDS	1	0
ND118T-8MD-2G16G-LVDS	i.MX8M Dual Core	2 GB	16 GB	HDMI + LVDS	1	0
ND118T-8MQ-4G32G-LVDS	i.MX8M Quad Core	4 GB	32 GB	HDMI + LVDS	1	1

## Packing List

- Packing
- 1 x Mainboard

# PD10KC

COM Express Compact Size (Type 6) Form Factor  
Intel® Kaby Lake / Skylake Processor

## Features

- Intel® Kaby Lake / Skylake Core i7/i5/i3 / Celeron ULV processors
- Intel® vPro technology support (SKUs i5 & i7)
- 2 x DDR4 SO-DIMM and support up to 32GB
- Support triple display for Display Port, HDMI and LVDS
- 3 x SATAIII
- 1 x Intel® Gigabit Ethernet
- 4 x USB 2.0 and 4 x USB 3.0



SO-DIMM DDR4 socket



CPU

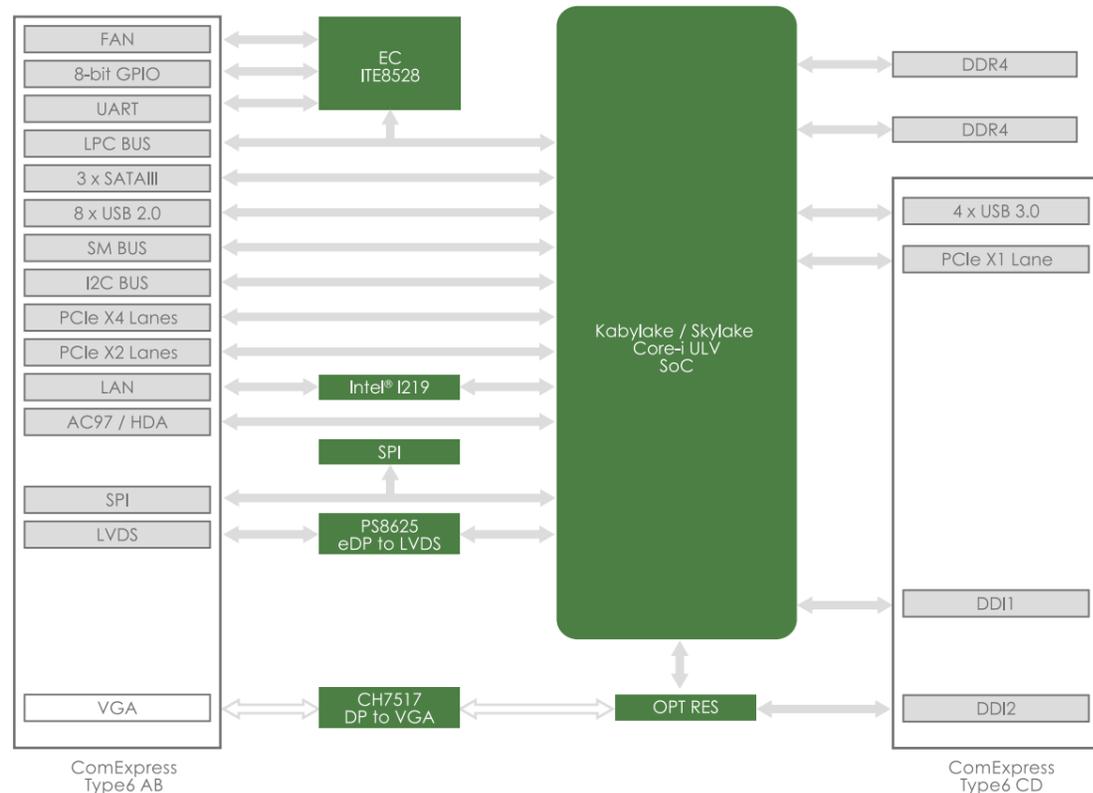


SO-DIMM DDR4 socket

Connector Row C/D

Connector Row A/B

## Block Diagram



# PD10KC COM Express

MECHANICAL	
Form Factor	COM Express Compact, Type 6: 3.74" x 3.74" (95 mm x 95 mm)
SYSTEM	
Processor	7th Gen Intel® Kaby Lake-U i3-7100U (Dual Core, 3MB Cache, 2.40 GHz) Option: Kaby Lake Celeron 3965U / i5-7300U / i7-7600U Skylake Celeron 3955U / i3-6100U / i5-6300U / i7-6600U
Chipset	Intel® SoC Integrated
Memory	DDR4 2133 / 2400MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Graphics	Intel® HD Graphics DDI 1 / 2: Support Display Port / HDMI 1.4 / DVI (DP 1.2: up to 4096 x 2304 @60Hz) DDI 2 (BOM Option): Switch to VGA (up to 1920 x 1200 @60 Hz) LVDS: Single / Dual channel 18/24-bit LVDS (up to 1920 x 1200 @60 Hz)
LVDS Transmitter	Parade PS8625
Ethernet	1 x Intel® I219LM Giga LAN
Audio	High Definition Audio Interface
Embedded controller	ITE IT8528
TPM	Nuvoton NPCT650AAAWX TPM2.0
Solid controller	All Solid Capacitors
I/O SUPPORT	
PCI Express	PCIe Gen 3.0 X7 Lanes
SATA	3 x SATAIII (can be configured as RAID)
USB 3.0	4 x USB 3.0
USB 2.0	8 x USB 2.0
Pin-out Type	COM Express Type 6 Connector
LPC	LPC bus (no DMA)
I2C	I <sup>2</sup> C bus (fast mode, 400 kHz, multi-master)
Others	8-bit GPIO / SMBus / 2-pin UART
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Windows® 10 64bit, Linux (support by request)

## Ordering Information

Model Number	Processor	HS Configuration
*PD10KC-3965U-HSD	Celeron 3965U	MB + Heatspreader
*PD10KC-7100U-HSD	i3-7100U	MB + Heatspreader
*PD10KC-7300U-HSD	i5-7300U	MB + Heatspreader
*PD10KC-7600U-HSD	i7-7600U	MB + Heatspreader

\*Remark: This is a build-to-order model, please contact our sales team for more sampling or shipping details

## Packing List

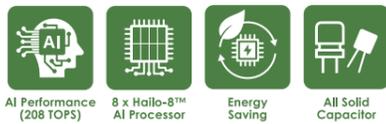
Packing	
• 1 x Motherboard	• 1 x Screw Pack

# MiAi-H8

Real-time & AI Inference Acceleration  
Xpansion PCIe Card

## Features

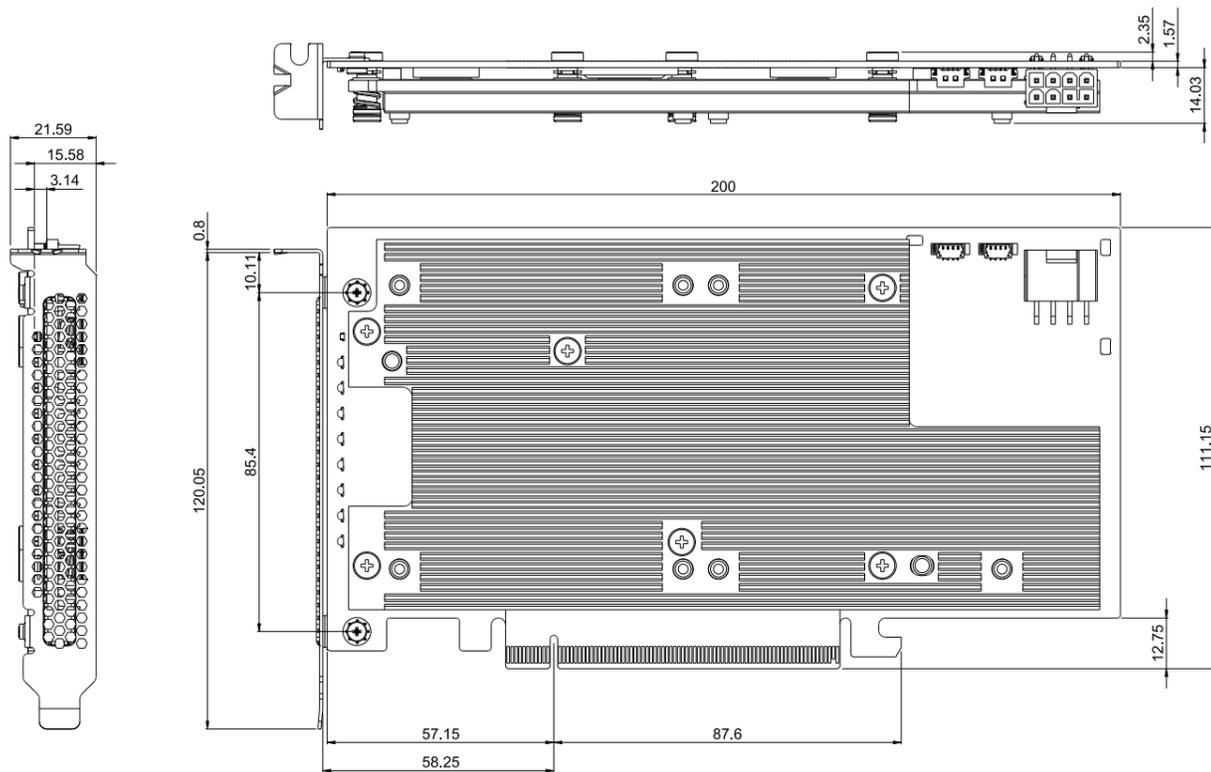
- Support up to 8 x Hailo-8™ AI Processor
- Support up to 208 TOPs
- Support Hailo-8™ Software Development Kit
- Passive and active cooling alternatives
- Industrial grade design with all solid capacitors and wide temperature support



## Dimension

Passive Cooling: 111mm (Width) x 200mm (Length) x 14mm (Height)

Active Cooling: 111mm (Width) x 200mm (Length) x 30.5mm (Height)



# MiAi-H8 AI Acceleration card

## Specification

General	
Form Factor	Real-time AI Inference Acceleration
Bus Type	PCI Express Gen3 x16
Certification	CE, FCC
Dimension	111 x 200 x 14 mm (Passive Cooling); 111 x 200 x 30.5 mm (Active Cooling)
AI Processor	
AI Processor	4~8 x Hailo-8™ AI Processor
AI Performance	
4 x Hailo-8™	104 TOPs, 5,300 FPS of ResNet, and 900 FPS of YOLO v5m
8 x Hailo-8™	208 TOPs, 10,600 FPS of ResNet, and 1,800 FPS of YOLO v5m
Power Requirement	
Power Consumption	4 x Hailo-8™: Max. 42W; Typ. 20W 8 x Hailo-8™: Max. 74W; Typ. 30W
Accessory	
Accessory	Pre-installed Full height PCIe bracket with venting holes

## Software

ML Frameworks Support	
ML Frameworks Support	ONNX; TensorFlow; pyTorch
Runtime Support	
Runtime Support	GStreamer; ONNX Runtime; Native C/C++
Hailo Software Suites Support	
Hailo Software Suites Support	Dataflow Compiler (Model conversion and compilation) HailoRT (Runtime environment and driver) Model Zoo (Pre-trained models) TAPPAS (Deployment framework, examples and multi-network pipelines)
OS Support	
OS Support	Linux Ubuntu 22.04 Microsoft® Windows® 10 Pro/IoT 2021 LTSC, Windows® 11 Pro (only support PCIe driver and HailoRT tool in Windows)

## Environmental

Operating Temperature	
4 x Hailo-8™	-40 ~ 60°C (Passive cooling SKU)
8 x Hailo-8™	-40 ~ 50°C (Passive cooling SKU)
4 x Hailo-8™	-40 ~ 85°C (Active cooling SKU)
8 x Hailo-8™	-40 ~ 75°C (Active cooling SKU)
Storage Temperature	
Storage Temperature	-40 ~ 85°C
Operating Humidity	
Operating Humidity	10% ~ 95% R/H (Non-condensing)

## Ordering Information

Model Number	AI Processor	Thermal Solution	Operating Temperature
MiAi-H8-C4-AF	4 x Hailo-8™ AI Core	Active Fan with Heatsink	-40 ~ 85°C
MiAi-H8-C8-AF	8 x Hailo-8™ AI Core	Active Fan with Heatsink	-40 ~ 75°C

# Embedded System



## Industrial Embedded System

## Rugged & Versatile



### Intel® Xeon, Core-i & Atom Model

MZ1-10ADP	P92
MX1-10FEP	P94
MX1-10FEP-D	P96
MP1-11TGS	P98
MP1-11TGS-D	P100
MA1	P102
MB1-10AP	P104

### NXP 1.MX8

ME1-108T	P106
ME1-118T	P108

## Fanless Embedded System

### Intel® Core-I & Atom Model E series (Versatile)

E420	P110
E410	P112
E310	P114

### Intel® Core-i & Atom Model S series (Compact)

S300-10AS	P116
S310-11KS	P118



## Fanned Embedded system



### Intel® Core-i Model

E500-14FEI	P120
E600-14CMI	P122

## Rackmount System

### Intel® Core-i Model

NV1	P124
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# MZ1-10ADP

AI Inference/ Machine Learning/ Deep Learning  
**Rugged GPU Computing System**  
 Supports Intel® Raptor Lake-S / Alder Lake-S Core-i processor up to 125W

## Introduction

- Supports Intel® Raptor Lake-S 13th/Alder Lake-S 12th Core-i processor (Up to 125W)
- Support 2 x DDR5 SO-DIMM (Up to 64GB)
- HDMI, DisplayPort, VGA, Dual 2.5G LAN
- Support 10 x USB, 4 x RS232, and 32-bit DIO
- 9~48V Wide Power Range

intel  
CORE  
i3

intel  
CORE  
i5

intel  
CORE  
i7

intel  
CORE  
i9

8KV/15KV  
High ESD protection

All Solid Capacitor

USB3.2

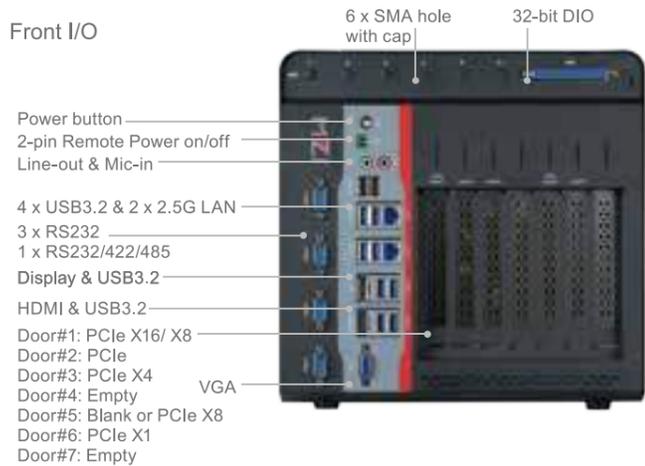
Power Ignition

PCIe

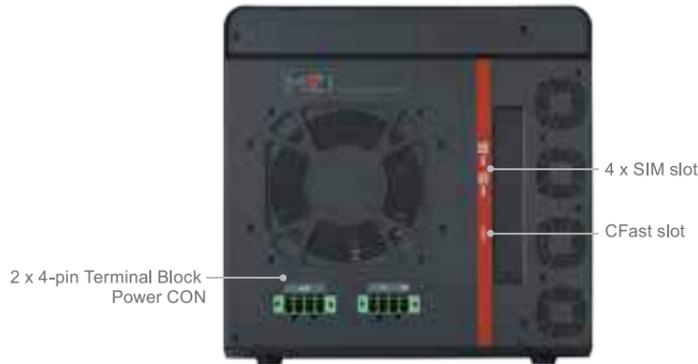


## I/O Interface

Front I/O



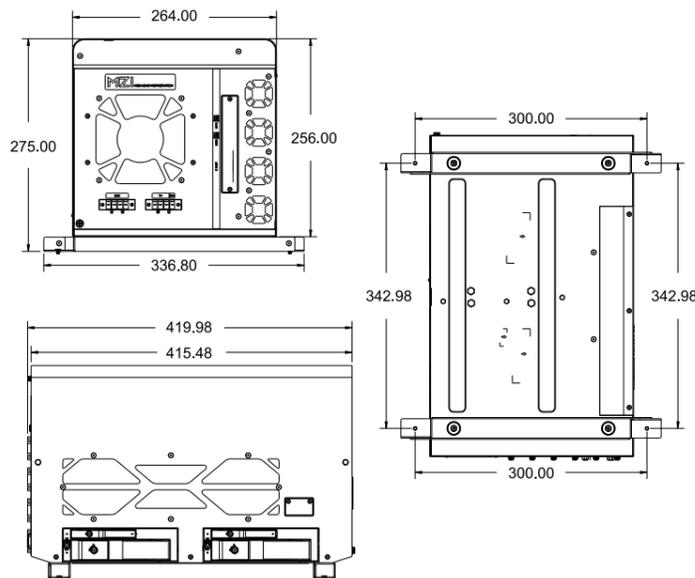
Rear I/O



Side I/O



## Dimension (mm)



## Optional Peripheral

**MS-01IGN-S10**  
 Vehicle Power Ignition Card,  
 12V/24V and Power ON/OFF Timing Selectable



# MZ1-10ADP Fan Embedded System

SYSTEM	
CPU	13th/12th Gen Intel® Raptor Lake-S/Alder Lake-S Core i9/i7/i5/i3/Celeron/Pentium (Up to 125W)
Chipset	Intel® R680E
System Memory	DDR5 4800MHz, 2 x 262-pin SO-DIMM, Max. 64GB
Graphics	Intel® UHD Graphics
Display Interface	VGA, DisplayPort 1.4, HDMI 2.0b
Storage Slot	1 x mSATA 1 x M.2 B Key 2280/2260/2242 Slot 2 x Hot Swappable 2.5" HDD Tray (support 7-9.5mm height) 2 x Hot Swappable 3.5" HDD Tray 1 x CFAST slot / 1 x M.2 M Key 2280/2262/2242 SSD slot
Ethernet	1 x Intel® I225-LM 2.5GbE LAN + 1 x Intel® I225-V 2.5GbE LAN
Audio	Realtek® ALC888S
I/O Chipset	Nuvoton NCT6126D
TPM	Nuvoton NPCT750AAAYX TPM2.0
Expansion Slot	1 x M.2 3052 / 3042 / 2242 / 2260 / 2280 B key (USB3.0, SATAIII, PCIeX1) w/ SIM slot / 1 x M.2 2230/ 2242 / 2260 / 2280 M key (PCIeX4 NVME, SATAIII) / 1 x M.2 2230 E key (CNVi, PCIeX1, USB 2.0) / 1 x Mini PCIe Full size (USB2.0 / SATAIII / PCIeX1) / #1: 1 x PCIe X16 (Gen4) or PCIe X8 (Gen4) / #2: 1 x PCIe X4 in PCIe X16 physical connector (Gen4) / #3: 1 x PCIe X4 in PCIe X16 physical connector (Gen4) / #4: 1 x PCIe X8 in PCIe X16 physical connector (Gen4 x8 = Gen3 x16 Bandwidth) / #5: 1 x PCIe X1 in open ended connector (Gen3)
Indicator	Power Button, Power LED, HDD LED
Internal I/O	1 X USB3.2 Gen1 Type A/ 1 X USB2.0 Type A
FRONT I/O	1 x HDMI 2.0b/ 1 X DP1.4/ 1X VGA 1 x 2-pin Terminal Block Remote Power on / off 3 X RS232/ 1 X RS232/ 422/ 485/ 4 X USB3.2 Gen2/ 4 X USB3.2 Gen1 6 x SMA hole with rubber cap / 1 x DB37 connector for 32 bit DIO 1 X Mic-in/ 1 X Line-out
REAR I/O	2 x 4-pin Terminal Block Power Input 2 x SIM slot to M.2 B Key slot 2 x SIM slot to mPCIe slot 1 x CFAST slot
Internal Speaker	1 x Buzzer
POWER REQUIREMENT	
Power Input	9~48V Wide Rage DC Input w/ dual Terminal Block Connectivity
MECHANICAL	
Thermal Design	Fan
Mounting	Wallmount
Dimension	264mm(W) x 415mm(D) x 256(H)
Material	Top cover: Aluminum Alloy, Bezel and chassis: Steel
ENVIRONMENTAL	
Operating Temperature	-40°C ~ 70°C (w/ 35W CPU, w/o GPU card) -40°C ~ 60°C (w/ 65W CPU, w/o GPU card) / -40°C ~ 50°C (w/ 80W CPU, w/o GPU card) -40°C ~ 40°C (w/ 125W CPU, w/o GPU card) *Max OT limit -10°C w/ dual GPU card / with 0.7m/s Air Flow and Wide Temperature Memory/Storage *Please consult with your sales contact window about the Operating Temperature of GPU Card Configurations
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)
Storage Humidity	10% ~ 95% @85°C non-condensing
Humidity	264mm(W) x 415mm(D) x 256(H)
Vibration Resistance	MIL-STD-810H, Follow Method 514.8C-1 Category 4 for Truck
Shock Resistance	MIL-STD-810H 516.8 procedure I - functional shock, Operating 20G, 11ms (Follow IEC 60068-2-27 half sine)
Certification	264mm(W) x 415mm(D) x 256(H)
OS	
Thermal Design	Windows® 10/ 11 64-bit, Linux (support by request)

## Ordering Information

Model Number	Power	AC to DC PSU
MZ1-10ADP-R680E		No PSU & no power cord
MZ1-10ADP-R680E-AC300	9~48V DC-in w/ Terminal Block Connectivity	1. 24V/300W AC Adaptor 2. EU + US AC power cord
MZ1-10ADP-R680E-AC1000		1. 48V/1000W Power Supply (External) 2. DC to DC power cable 3. DC to AC - EU + US power cord

## Packing List

Packing	
• 1 x MZ1-10ADP	• 1 x Wall Mount Bracket
• 1 x 2-pin Terminal Block Male Connector	• 2 x 4-pin Terminal Block Power Connector

# MX1-10FEP

Fanless Embedded System  
Supports Intel® Coffee Lake Xeon / Core-i Powerful Processor

## Introduction

MITAC's MX1-10FEP embedded system is the next generation embedded system with Intel® Coffee Lake C246 workstation chipset which can support Xeon and Core-i LGA1151 socket type processor. The excellent performance, powerful processor, OCP/OVP power protection, and expandable design provide the solution for every complicated task and most types of application.

The MX1-10FEP's 7.8 liter fan-less chassis design and Xpandable module design give it the possibility to implement the complicated tasks and for every workspace and environment. VESA mount holes allow for space-saving and rear-mounting on VESA arms. Flexibilities also mean a rich array of I/O ports (including 2 x Ethernet RJ45, 8 x USB, 1 x HDMI, 1 x DVI-I, 1 x DisplayPort, 2 x COM, PCIe X16 slot, 3-pin Terminal Block Power Input, and 3 x Expansion doors) to add a variety of peripherals. Storage expandability is supported for 3 x high-density hard drives in 2.5" HDD bracket design. Two mPCIe (shared with mSATA) slots provide the support of SSD and wireless interfaces which allow effortless connection to Wi-Fi and Bluetooth networks, and 4Gconnectivity. DIO/COM/LAN/PoE/Power Ignition expansion modules extend the capability and possibility to be used in more applications.



EN-50155

Isolation I/O

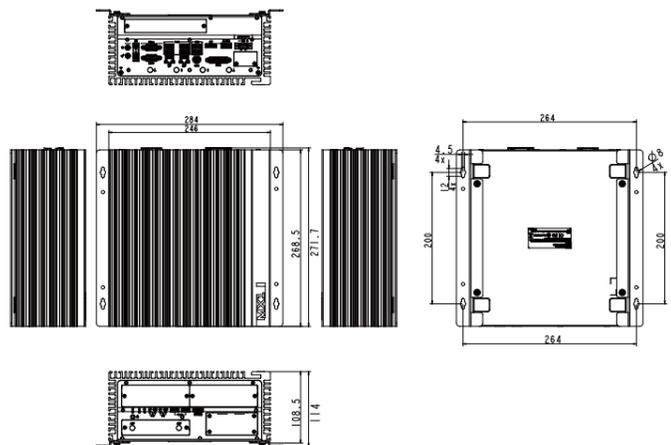
Power Ignition

High ESD protection

High shock & vibration protection

Fanless Design

## Dimension (mm)



## Optional Peripheral

Model Number	Description
MS-48CDN-DT10	Xpansion Module with 4 x RS232 / 422 / 485, 8-bit Isolated DIDO (4 x DI, 4 x DO)
MS-04LAN-R10	Xpansion Module with 4 x Intel i210-T Giga LAN, RJ45 Port
MS-04LAN-M10	Xpansion Module with 4 x Intel i210-T Giga LAN, M12 Port
MS-04POE-R10	Xpansion Module with 4 x PoE+, Intel i210-T Giga LAN, RJ45 Port
MS-04POE-M10	Xpansion Module with 4 x PoE+, Intel i210-T Giga LAN, M12 Port
ME-02POE-R10	Xpansion Module with 2 x PoE+, Intel i210-T Giga LAN, RJ45 Port
MS-01IGN-S10	Vehicle Power Ignition Card, 12V/24V and Power ON/OFF Timing Selectable
220W Power Adapter	AC to DC, DC24V / 9.2A, 220W*
300W Power Adapter	AC to DC, DC24V / 12.5A, 300W*

\* Safety Operating: 0~40°C, practical Operating: -30~60°C (Over 40°C need derating by 2.5%/°C).  
\* AC to DC Accessory for industrial application. Not for railway application



# MX1-10FEP Fanless Embedded System

SYSTEM	
CPU	9th & 8th Gen Intel® Coffee Lake Xeon LGA1151 Socket Processor, 6-core TDP Max. 80W 9th & 8th Gen Intel® Coffee Lake LGA1151 Socket Processor, Core i7/i5/i3 6-core TDP Max. 65W, Core i9 8-core TDP Max 35W
Chipset	Intel® C246
System Memory	DDR4 2666MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Xeon: ECC; Core-i: Non-ECC)
Graphics	Intel® HD Graphics
Display Interface	HDMI, DisplayPort, DVI-I
Storage Slot	3 x 2.5 HDD / SSD (1 w/ Removable HDD Bay, 2 w/ Internal HDD Bracket) 2 x mSATA
Ethernet	Intel® I219-LM Giga LAN + I210-IT Giga LAN
Audio	Realtek® ALC888
I/O Chipset	Nuvoton NCT6116D
TPM	Nuvoton NPCT750AAAYX
Expansion Slot	Storage: M.2 2242 / 2260 / 2280 M key (PCIe X4 / SATAIII) Storage/LTE/Wireless: 2 x Mini PCIe Full / Half size (USB2.0 / SATAIII / PCIe X1), w/ SIM Card Holder Wireless: M.2 2230 E key (PCIe X1 / USB2.0) PCIe 3.0 X16
Indicator	Power LED, HDD LED, DIO LED, LAN1 & 2 ACT / SPEED
FRONT I/O	2 x USB 3.2 Gen1 1 x HDMI 1.4 2 x SIM Card Slot w/ Cover 1 x 2.5" SATAIII HDD / SSD Bay
REAR I/O	4 x USB 3.2 Gen 2 (Gbps), 2 x USB 2.0, 2 x RJ-45, 1 x DisplayPort 1.2, 1 x DVH, 1 x PS/2 2 x RS232 / 422 / 485 (Support Power 5V / 12V), 1 x Mic-in, 1 x Line-out 1 x 2-pin Terminal Block Remote Power on / off 1 x 2-pin Terminal Block Remote Power reset 1 x 4-pin Terminal Block External Fan Connector 1 x 3-pin Terminal Block Power Input 4 x SMA Antenna (Optional for WiFi/LTE function)
H/W Monitor	-
Watchdog Timer	1~255 Steps by Software Program
Edge AI Engine (Optional)	Hailo-8™ M.2 2242 M key (Model Name:M2M-01HA-MX1)
POWER REQUIREMENT	
Power Input	9~48V Wide Range DC Input w/ Terminal Block Connectivity
MECHANICAL	
Thermal Design	Fanless
Mounting	Wallmount
Dimension	10.6" x 9.7" x 4.3" (268 mm x 246 mm x 108 mm)
Material	Top cover: Aluminum Alloy, Bezel and chassis: Steel
ENVIRONMENTAL	
Operating Temperature	35W TDP Processor: -40°C to 70°C 51~65W TDP Processor: -40°C to 50°C 71~80W TDP Processor: -40°C to 40°C
Operating Humidity	10%~90% R/H (Non-condensing)
Vibration Resistance	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
Shock Resistance	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)
Certification	EMC: CE & FCC Safety: compliant with LVD,EN60950-1 / EN62368-1 Certified with EN50155/EN50121/E-mark
OS	
OS Support	Windows® 10 64-bit, Linux (support by request)

\*with 0.7m/s Air Flow and Wide Temperature Memory/Storage

## Ordering Information

Model Number	Chipset	Thermal	Power	AC Adaptor
MX1-10FEP-C246	C246	Fanless	9~48V Wide Range DC Input w/ Terminal Block Connectivity	None
MX1-10FEP-C246-AC300	C246	Fanless	9~48V Wide Range DC Input w/ Terminal Block Connectivity	300W AC to DC Adaptor
MX1-10FEP-C246-AC220	C246	Fanless	9~48V Wide Range DC Input w/ Terminal Block Connectivity	220W AC to DC Adaptor

## Packing List

Packing		
• 1 x MX1-10FEP	• 1 x 3-pin Terminal Block Connector	• 1 x 4-pin Terminal Block Connector
• 1 x CPU Cooler (passive)	• 1 x DVI to VGA converter	• 1 x Wall Mount Bracket
• 1 x Screw Pack (For HDD)	• 2 x 2-pin Terminal Block Connector	

Rugged

Fanless

Fanned

Rackmount

# MX1-10FEP-D Embedded System for GPU Computing

Supports Intel® Coffee Lake Xeon / Core-i Powerful Processor

## Introduction

MiTAC's MX1-10FEP-D embedded system is the next generation embedded system with Intel® Coffee Lake C246 chipset which can support Xeon and Core-i LGA1151 socket type processor. The excellent performance, powerful processor, OCP/OVP power protection, and expandable design provide the solution for every complicated task and most types of application.

The MX1-10FEP-D's 8.5 liter chassis design and Xpandable module design give it the possibility to implement the complicated tasks and for every workspace and environment. Flexibilities also mean a rich array of I/O ports (including 2 x Ethernet RJ45, 8 x USB, 1 x HDMI, 1 x DVI-I, 1 x DisplayPort, 2 x COM, PCIe X16 + X1 slots, 3-pin Terminal Block Power Input, and 3 x Expansion doors) to add a variety of peripherals. Storage expandability is supported for 3 x high-density hard drives in 2.5" HDD bracket design. The reserved space for dual PCIe slots can be used for 1 x GFX Card installation. Two mPCIe (shared with mSATA) slots provide the support of SSD and wireless interfaces which allow effortless connection to Wi-Fi and Bluetooth networks, and 4Gconnectivity. DIO/COM/LAN/PoE/Power Ignitoin expansion modules extend the capability and possibility to be used in more applications.

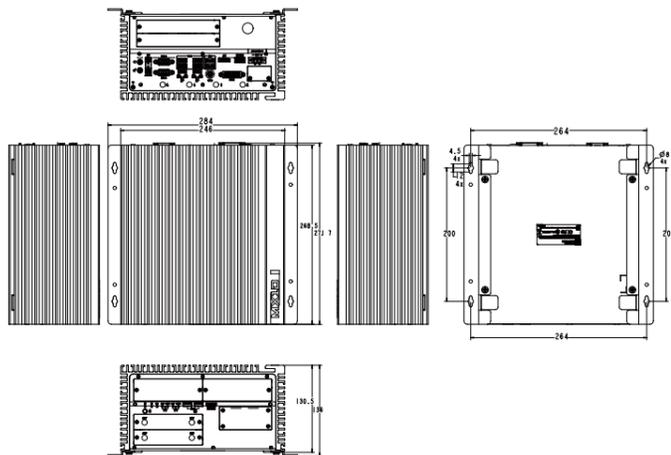
Isolation I/O

Power Ignition

8KV/15KV  
High ESD protection

5G/50Grms  
High shock & vibration protection

## Dimension (mm)



## Optional Peripheral

Model Number	Description
MS-48CDN-DT10	Xpansion Module with 4 x RS232 / 422 / 485, 8-bit Isolated DIDO (4 x DI, 4 x DO)
MS-04LAN-R10	Xpansion Module with 4 x Intel i210-IT Giga LAN, RJ45 Port
MS-04LAN-M10	Xpansion Module with 4 x Intel i210-IT Giga LAN, M12 Port
MS-04POE-R10	Xpansion Module with 4 x PoE+, Intel i210-IT Giga LAN, RJ45 Port
MS-04POE-M10	Xpansion Module with 4 x PoE+, Intel i210-IT Giga LAN, M12 Port
ME-02POE-R10	Xpansion Module with 2 x PoE+, Intel i210-IT Giga LAN, RJ45 Port
MS-01IGN-S10	Vehicle Power Ignition Card, 12V/24V and Power ON/OFF Timing Selectable
220W Power Adapter	AC to DC, DC24V / 9.2A, 220W*
300W Power Adapter	AC to DC, DC24V / 12.5A, 300W*

\* Safety Operating: 0~40°C, parctical Operating: -30~60°C (Over 40°C need derating by 2.5%/°C ).  
\* AC to DC Accessory for industrial application. Not for railway application



# MX1-10FEP-D Embedded System for GPU Computing

SYSTEM	
CPU	9th & 8th Gen Intel® Coffee Lake Xeon LGA1151 Socket Processor, 6-core TDP Max. 80W 9th & 8th Gen Intel® Coffee Lake LGA1151 Socket Processor, Core i7/i5/i3 6-core TDP Max. 65W, Core i9 8-core TDP Max 35W
Chipset	Intel® C246
System Memory	DDR4 2666MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Xeon: ECC; Core-i: Non-ECC)
Graphics	Intel® HD Graphics
Display Interface	HDMI, DisplayPort, DVI-I
Storage Slot	3 x 2.5 HDD / SSD (1 w/ Removable HDD Bay, 2 w/ Internal HDD Bracket) 2 x mSATA
Ethernet	Intel® I219-LM Giga LAN + I210-IT Giga LAN
Audio	Realtek® ALC888
I/O Chipset	Nuvoton NCT6116D
TPM	Nuvoton NPCT750AAAYX
Expansion Slot	Storage: M.2 2242 / 2260 / 2280 M key (PCIe X4 / SATAIII) Storage/LTE/Wireless: 2 x Mini PCIe Full / Half size (USB2.0/ PCIe X1/ SATAIII), w/ SIM Card Holder Wireless: M.2 2230 E key (PCIe X1 / USB2.0) PCIe 3.0 X16, PCIe 3.0 X1 (Option: 2 x PCIe 3.0 X8)
Indicator	Power LED, HDD LED, DIO LED, LAN1 & 2 ACT / SPEED
FRONT I/O	2 x USB 3.2 Gen1 1 x HDMI 1.4 2 x SIM Card Slot w/ Cover 1 x 2.5" SATAIII HDD / SSD Bay
REAR I/O	4 x USB 3..2 Gen2 (Gbps), 2 x USB 2.0, 2 x RJ-45 , 1 x DisplayPort 1.2, 1 x DVI-I, 1 x PS/2 2 x RS232 / 422 / 485 (Support Power 5V / 12V), 1 x Mic-in, 1 x Line-out 1 x 2-pin Terminal Block Remote Power on / off 1 x 2-pin Terminal Block Remote Power reset 1 x 4-pin Terminal Block External Fan Connector 1 x 3-pin Terminal Block Power Input 4 x SMA Antenna (Optional for WiFi/LTE function)
Edge AI Engine (Optional)	Hailo-8™ M.2 2242 M key (Model Name:M2M-01HAL-MX1)
POWER REQUIREMENT	
Power Input	9~48V Wide Rage DC Input w/ Terminal Block Connectivity
MECHANICAL	
Thermal Design	a. Fanless w/o Venting Holes b. With 2 x Internal 40x40x20 System Fan (Supporting NVIDIA GTX1650/GTX1660 Graphic Cards) c. With 2 x Internal 40x40x28 System Fan and Fan Duct (Supporting NVIDIA Tesla T4/P4 GPU Cards)
Mounting / Material	Wallmount / Top cover: Aluminum Alloy , Bezel and chassis: Steel
Dimension	10.6" x 9.7" x 5.0" (268 mm x 246 mm x 128 mm)
ENVIRONMENTAL	
Operating Temperature	35W TDP Processor: -40°C to 70°C 51~65W TDP Processor: -40°C to 50°C / 71~80W TDP Processor: -40°C to 40°C *The operating temperature is based on fanless design w/o GPU card installation. **with 0.7m/s Air Flow and Wide Temperature Memory/Storage
Operating Humidity	10%~90% R/H (Non-condensing)
Vibration Resistance	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
Shock Resistance	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)
Certification	EMC: CE & FCC Safety: compliant with LVD,EN60950-1 / EN62368-1 Compliant with EN50155/EN50121/E-mark
OS	
OS Support	Windows® 10 64-bit, Linux (support by request)

## Ordering Information

Model Number	PCIe Slot	Thermal	AC Adaptor
MX1-10FEP-D-C246-FL	X16 + X1	Fanless	None
MX1-10FEP-D-C246-FL-AC300	X16 + X1	Fanless	300W AC to DC Adaptor
MX1-10FEP-D-C246-IF-AC300	X16 + X1	2 x Internal System Fan for PCIe slots	300W AC to DC Adaptor
MX1-10FEP-D-C246-IEF-AC300	X16 + X1	2 x Internal System Fan for PCIe slots 1 x External System Fan	300W AC to DC Adaptor

## Packing List

Packing		
• 1 x MX1-10FEP-D	• 1 x 3-pin Terminal Block Connector	• 1 x 4-pin Terminal Block Connector
• 1 x CPU Cooler (passive)	• 1 x DVI to VGA converter	• 1 x Wall Mount Bracket
• 1 x Screw Pack (For HDD)	• 2 x 2-pin Terminal Block Connector	

Rugged

Fanless

Fanned

Rackmount

# MP1-11TGS Fanless Embedded System with Intel® Tiger Lake-UP3 Processor (up to 4.4GHz)

## Introduction

- Intel® Tiger Lake-UP3 Core i7/i5/i3/Celeron ULV processors
- Outstanding graphic computing capability with Integrated Intel® Iris Xe graphics
- Intel® vPro technology support (SKUs i5 & i7)
- 1 x DDR4 SO-DIMM and support up to 32GB
- Support Quadruple display for HDMI, and DisplayPort
- 1 x Hot Swappable SSD/HDD slot
- 2 x USB 2.0, 4 x USB 3.1 Gen2 and 4 x COM
- Intel® 1G + 2.5G LAN Ports (Option: additional 2 x LAN)
- 8V~24V wide voltage power input



Intel Core i3

Intel Core i5

Intel Core i7

Intel Celeron

Intel Iris Xe Graphics

EDGE CROSS  
Recommended IPC

Intel Tiger Lake

Fanless Design

Quadruple displays

2.5G LAN

4 COM port

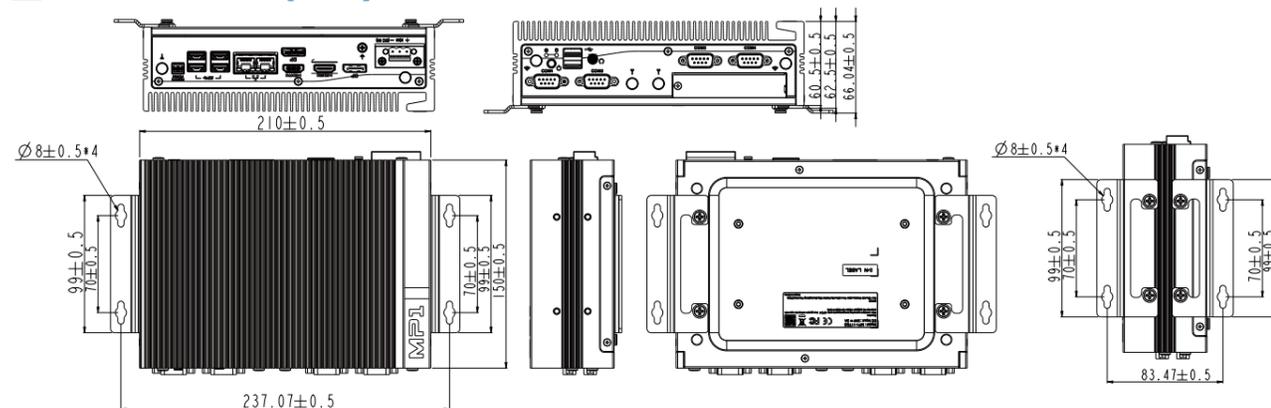
8V-24V DC-in  
Wide Range DC-in

## I/O Interface



\* Power Ignition Xpansion module is only optional for MP1-11TGS-D model. MP1-11TGS doesn't support IGN

## Dimension (mm)



# MP1-11TGS Fanless Embedded System

SYSTEM	
CPU	11st Gen Tiger Lake-UP3 Intel® Core™ i ULV Processor i3-1115G4E (Dual Core, 6MB Cache, up to 3.90 GHz) / option: 11st Gen Tiger Lake-UP3 Celeron 6305E / i5-1145G7E / i7-1185G7E
Chipset	Intel® SoC Integrated
System Memory	DDR4 3200MHz, 1 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Graphics	Intel® Iris Xe Graphics
Display Interface	DisplayPort 1.4, HDMI 1.4
Storage Slot	1 x Hot Swappable 2.5 HDD / SSD 1 x M.2 B Key 2280/2260/2242 Slot
Ethernet	Intel® I219-LM Giga LAN + Intel® I225-LM 2.5G LAN Additional 2 x Intel® I210-IT Giga LAN for Options
Audio	Realtek® ALC256 / ALC888
I/O Chipset	Nuvoton NCT6126D
TPM	Nuvoton NPCT750AABYX TPM2.0
Expansion Slot	Storage/LTE/5G Slot: M.2 224/2260/2280/3042/3052 B Key (USB2.0/**PCIex1/SATAIII) Wireless: M.2 2230 E key (PCIe / USB) *Not support M.2 M Key NVMe SSD
Indicator	Power LED, HDD LED 1 x Hot Swappable 2.5" SSD/HDD slot 3 x RS232
Front I/O	1 x RS232/422/485 2 x USB 2.0 2 x SMA Antenna (Optional for WiFi function) 1 x Audio Combo Jack (Mic-in & Line-out)
Rear I/O	2 x DisplayPort 1.4 2 x HDMI 1.4 2 x RJ-45 4 x USB 3.2 Gen2 1 x 3-pin Terminal Block Power Input 2 x SMA Antenna (Optional for LTE function) 1 x 2-pin Terminal Block Remote Power on / off
H/W Monitor	Temperature Monitor, Voltage Monitor
Watchdog Timer	1~255 Steps by Software Program
Edge AI Engine(Optional)	Hailo-8™ M.2 2242 B+M key (Model Name:M2B-01HAI-MP1)
POWER REQUIREMENT	
Power Input	8~24V Wide Range DC Input w/ 3-pin Terminal Block Connectivity
Power Adapter	AC / DC / DC24V / 3A / 72W adapter in AC SKUs
MECHANICAL	
Thermal Design	Fanless
Mounting	Wallmount / Side Mount / 75 mm x 75 mm VESA Holes & Din Rail Mount Combo Kit (Optional)
Dimensions (W X D X H)	8.3" x 5.9" x 2.5" (210 x 150 x 63 mm)
Material	Top cover: Aluminum Alloy, Bezel and chassis: Steel
ENVIRONMENTAL	
Operating Temperature	15W TDP: -40 ~ 70°C with 0.7m/s Air Flow (w/ Extended Temp. SSD/mSATA/RAM) 28W TDP: -40 ~ 60°C with 0.7m/s Air Flow (w/ Extended Temp. SSD/mSATA/RAM)
Storage Temperature	-40~85°C (-40 ~185°F)
Operating Humidity	10%~95% (Non-condensing)
Vibration Resistance	5Hz~500Hz / 5Grms / 3Axis (w/ SSD, according to IEC60068-2-64)
Shock Resistance	Operating: 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)
Certification	CE & FCC Class A
OS	
OS Support	Windows® 10 64bit/Windows® 11 64bit, Linux (support by request)

## Ordering Information

Model Number	Processor	AC Adaptor	Model Number	Processor	AC Adaptor
MP1-11TGS-6305E	Celeron 6305E	None	MP1-11TGS-1145G7E	i5-1145G7E	None
MP1-11TGS-6305E-AC	Celeron 6305E	72W AC to DC Adaptor	MP1-11TGS-1145G7E-AC	i5-1145G7E	72W AC to DC Adaptor
MP1-11TGS-1115G4E	i3-1115G4E	None	MP1-11TGS-1185G7E	i7-1185G7E	None
MP1-11TGS-1115G4E-AC	i3-1115G4E	72W AC to DC Adaptor	MP1-11TGS-1185G7E-AC	i7-1185G7E	72W AC to DC Adaptor

\*5G card support is by BOM option. Please check with sales about the M.2 B Key 3052 5G card spec if you have any request

## Packing List

Packing		
• 1 x Wall Mount Brackets (2PCS in 1 set)	• 1 x Quick Installation Guide	• 1 x Embedded System
• 1 x Power Adapter(AC sku)	• 1 x US + EU Power Cord(AC sku)	

Rugged

Fanless

Fanned

Rackmount

# MP1-11TGS-D

Fanless Embedded System with Intel® Tiger Lake-UP3 Processor (up to 4.4GHz)

## Introduction

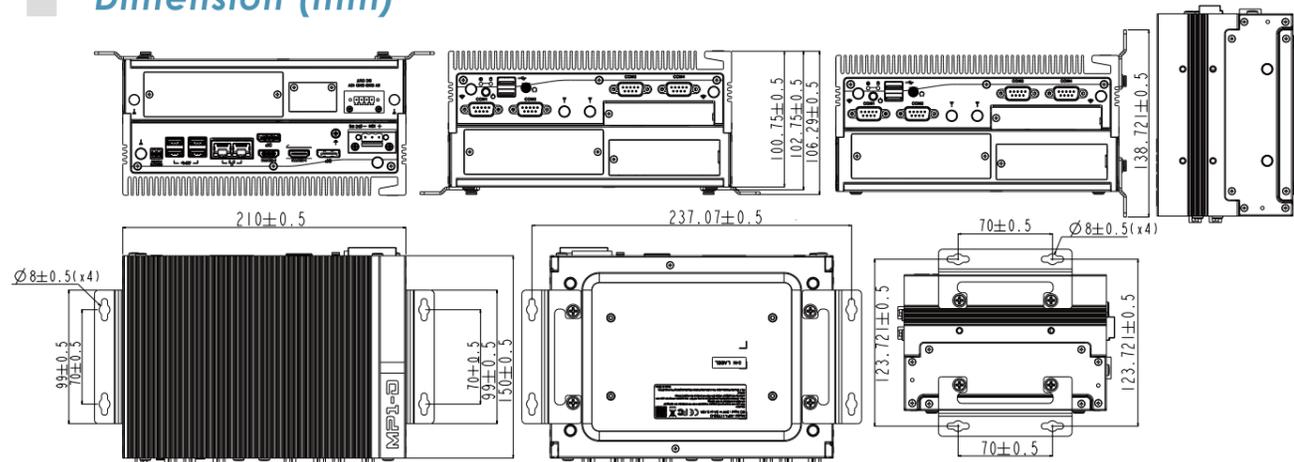
- Intel® Tiger Lake-UP3 Core i7/i5/i3/Celeron ULV processors
- Outstanding graphic computing capability with Integrated Intel® Iris Xe graphics
- Intel® vPro technology support (SKUs i5 & i7)
- 1 x DDR4 SO-DIMM and support up to 32GB
- Support Quadruple display for HDMI, and DisplayPort
- 2 x Hot Swappable SSD/HDD slot
- Intel® 1G + 2.5G LAN Ports (Option: additional 2 x LAN)
- 2 x USB 2.0, 4 x USB 3.1 Gen2 and 4 x COM
- 12V~36V wide voltage power input



## I/O Interface



## Dimension (mm)



# MP1-11TGS-D Fanless Embedded System

SYSTEM	
CPU	11st Gen Tiger Lake-UP3 Intel® Core™ i ULV Processor i3-1115G4E (Dual Core, 6MB Cache, up to 3.90 GHz) / option: 11st Gen Tiger Lake-UP3 Celeron 6305E / i5-1145G7E / i7-1185G7E
Chipset	Intel® SoC Integrated
System Memory	DDR4 3200MHz, 1 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Graphics	Intel® Iris Xe Graphics
Display Interface	DisplayPort 1.4, HDMI 1.4
Storage Slot	2 x Hot Swappable 2.5 HDD / SSD 1 x M.2 B Key 2280 / 2260 / 2242 Slot
Ethernet	Intel® I219-LM Giga LAN + Intel® I225-LM 2.5G LAN Additional 2 x Intel® I210-IT Giga LAN for Options
Audio	Realtek® ALC256 / ALC888
I/O Chipset	Nuvoton NCT6126D
TPM	Nuvoton NPCT750AABYX TPM2.0
Expansion Slot	Storage/LTE/5G Slot: M.2 2242/2260/2280/3042/3052 B Key (USB2.0/*PCIex1/SATAIII) Wireless: M.2 2230 E key (PCIe X1 / USB2.0) *Not support M.2 M Key NVMe SSD Mini PCIe slot (Full size, USB2.0/ PCIe X1/SATAIII) 2 x Xpansion slot (PoE/LAN/COM/DIO/IGN/CANBus Options)
Indicator	Power LED, HDD LED 2 x Hot Swappable 2.5" SSD/HDD slot 3 x RS232 1 x RS232/422/485
Front I/O	2 x USB 2.0 2 x SMA Antenna (Optional for WiFi/LTE function) 1 x Audio Combo Jack (Mic-in & Line-out)
Rear I/O	2 x DisplayPort 1.4 2 x HDMI 1.4 2 x RJ-45 4 x USB 3.2 Gen2 1 x 3-pin Terminal Block Power Input 1 x 4-pin Terminal Block Power Output (12V/5V) 4 x SMA Antenna (Optional for LTE function) 1 x 2-pin Terminal Block Remote Power on / off
H/W Monitor	Temperature Monitor, Voltage Monitor
Watchdog Timer	1~255 Steps by Software Program
Edge AI Engine(Optional)	Hailo-8™ M.2 2242 B+M key (Model Name:M2B-01HAI-MP1D)
POWER REQUIREMENT	
Power Input	12~36V Wide Range DC Input w/ 3-pin Terminal Block Connectivity
Power Adapter	AC / DC / DC24V / 5A / 120W adaptor in AC SKUs
MECHANICAL	
Thermal Design	Fanless
Mounting	Wallmount / Side Mount / 75 mm x 75 mm VESA Holes & Din Rail Mount Combo Kit (Optional)
Dimensions (W X D X H)	8.3" x 5.9" x 4" (210 x 150 x 103 mm)
Material	Top cover: Aluminum Alloy, Bezel and chassis: Steel
ENVIRONMENTAL	
Operating Temperature	15W TDP: -40 ~ 70°C with 0.7m/s Air Flow (w/ Extended Temp. SSD/mSATA/RAM) 28W TDP: -40 ~ 60°C with 0.7m/s Air Flow (w/ Extended Temp. SSD/mSATA/RAM)
Storage Temperature	-40~85°C (-40 ~185°F)
Operating Humidity	10%~95% (Non-condensing)
Vibration Resistance	5Hz~500Hz / 5Grms / 3Axis (w/ SSD, according to IEC60068-2-64)
Shock Resistance	Operating: 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-64)
Certification	CE & FCC Class A
OS	
OS Support	Windows® 10 64bit/Windows® 11 64bit, Linux (support by request)

## Ordering Information

Model Number	Processor	AC Adaptor	Model Number	Processor	AC Adaptor
MP1-11TGS-D-6305E	Celeron 6305E	None	MP1-11TGS-D-1145G7E	i5-1145G7E	None
MP1-11TGS-D-6305E-AC	Celeron 6305E	120W AC to DC Adaptor	MP1-11TGS-D-1145G7E-AC	i5-1145G7E	120W AC to DC Adaptor
MP1-11TGS-D-1115G4E	i3-1115G4E	None	MP1-11TGS-D-1185G7E	i7-1185G7E	None
MP1-11TGS-D-1115G4E-AC	i3-1115G4E	120W AC to DC Adaptor	MP1-11TGS-D-1185G7E-AC	i7-1185G7E	120W AC to DC Adaptor

\*5G card support is by BOM option. Please check with sales about the M.2 B Key 3052 5G card spec if you have any request

## Packing List

Packing		
• 1 x Wall Mount Brackets (2PCS in 1 set)	• 1 x Quick Installation Guide	• 1 x Embedded System
• 1 x US + EU Power Cord (AC sku)	• 1 x Power Adapter (AC sku)	

# MA1

Industrial Edge AI Computer Powered by NVIDIA Jetson Orin NX & Nano SOM

## Introduction

- NVIDIA® Jetson Orin™ Nano and NX SOM Compatible Box PC, Up to 100TOPS/25W
- Industrial Fanless & Compact Design
- Wide Operating Temperature -25~60°C
- HDMI up to 4K@60Hz Resolution
- 2x RJ-45 1GbE LAN
- 2x USB3.2 Gen2 Type A
- 1x D-Sub9 RS-232 (4-wire)
- High-speed M.2 2280 PCIe x4 NVMe
- Support 5G/LTE and WiFi-6E

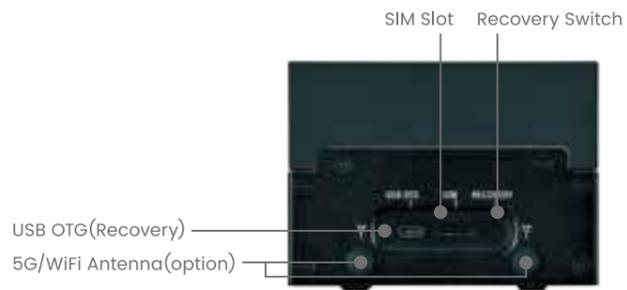


## I/O Interface

Front I/O

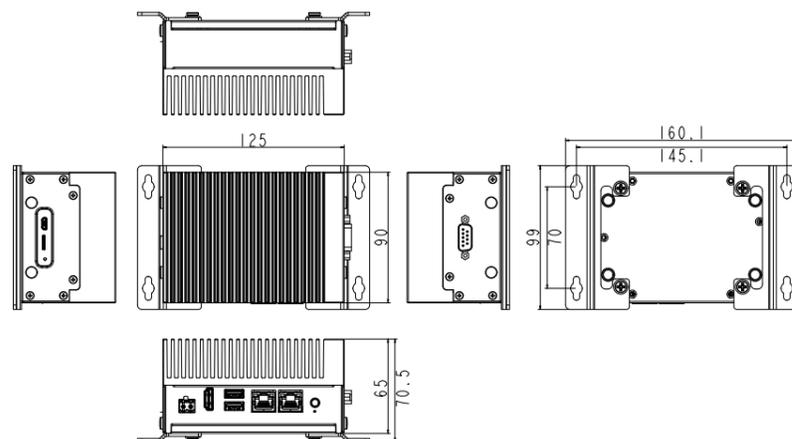


Side I/O



## Dimension (mm)

Side I/O



## MA1 Fanless Embedded System

SYSTEM	
NVIDIA® Jetson Orin™ Compatible Module	NVIDIA® Jetson Orin™ Nano 4GB Module (7~10W) NVIDIA® Jetson Orin™ Nano 8GB Module (7~15W) NVIDIA® Jetson Orin™ NX 8GB Module (10~20W) NVIDIA® Jetson Orin™ NX 16GB Module (10~25W)
Display Interface	1 x HDMI 2.0 Type A, Up to 3840 x 2160 at 60 Hz Resolution
Storage Slot	1 x M.2 2280 M-Key Slot (PCIe x4 for NVMe)
Expansion Slot	1 x M.2 3042/3052 B-Key Slot (USB3.2) for 5G/LTE Module 1 x M.2 2230 E-Key Slot (PCIe/USB2.0) for WiFi Module 1 x Nano-SIM Slot
Front I/O	2 x USB 3.2 Gen 2 Type A 1 x USB2.0 MicroUSB OTG with Recovery Button (for Recovery Mode Only)
Rear I/O	2 x 1GbE RJ-45 / 1 x RS-232 DB9 (4-wire)
POWER REQUIREMENT	
Power Input	12V DC Input
Power Adapter	60W AC-DC Power Adapter with 2-PIN Terminal Block
MECHANICAL	
Thermal Design	Fanless
Dimensions (W X D X H)	90 x 125 x 65 mm
ENVIRONMENTAL	
Operating Temperature	-25°C ~ 60°C
Operating Humidity	10% ~ 95% R/H (Non-condensing)
Certification	CE / FCC Class B
OS	
OS Support	NVIDIA JetPack 5.1.1 (Ubuntu 20.04 with Linux Kernel 5.10 LTS)

## Packing List

Packing			
• 1 x MA1	• 1 x AC-DC Power Adapter with 2-Pin Terminal Block	• 1 x Power Cord	• 1 x MicroUSB cable

Rugged

Fanless

Fanned

Rackmount

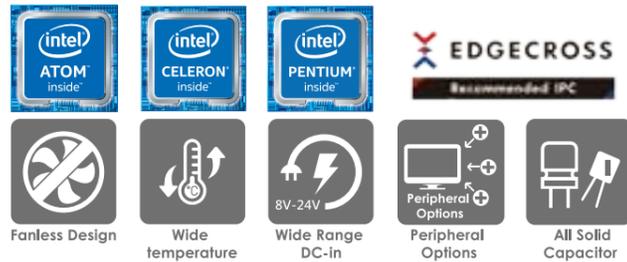
# MB1-10AP

Fanless Embedded System  
Intel® Apollo Lake N3350 / N4200 Processor (up to 2.5 GHz)

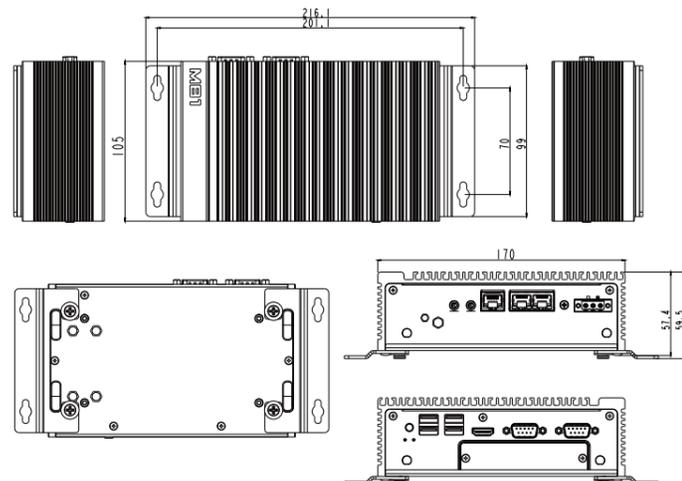
## Introduction

MITAC's MB1-10AP embedded system is the next generation embedded system with Intel® Apollo Lake processor. The whole new SOC structure packs more powerful capability for your tasks or applications.

The MB1-10AP's 1.5 liter fanless chassis design and expandable module design give it the flexibility to adapt to every workspace and environment, whether implemented as an embedded system. Din Rail mount support allows it to be used in factory environment and application. VESA mount support allows for space-saving and rear-mounting on flat-screen displays. Flexibilities also mean a rich array of I/O ports (including 3 x Ethernet RJ45, 4 x USB 3.0, 1 x HDMI, 2 x RS232/422/485, 1 x 3-pin Terminal Block Power Input, 1 x Expansion Socket) to add a variety of peripherals. Storage expandability is supported for high-density hard drives in 2.5" HDD bracket design. 2 mini PCIe (1 shared with mSATA) slots provide the support of SSD and wireless interfaces which allow effortless connection to Wi-Fi and Bluetooth networks, and 4G connectivity. HDMI and one additional expansion display module extend your visual experience with support for dual displays.



## Dimension (mm)



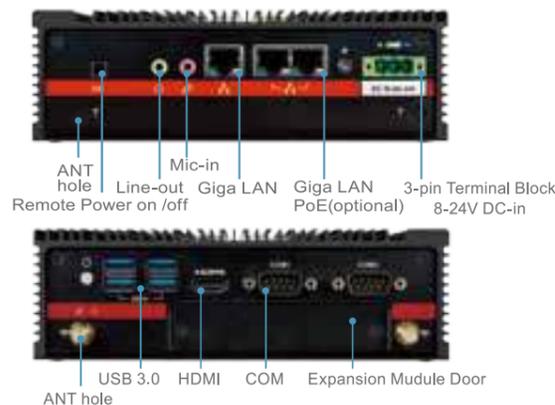
## Optional Peripheral

Model Number	Description
MS-01VGA-D10	VGA Port Expansion Module
MS-01DVI-D10	DVI-D Port Expansion Module
MS-01DPN-D10	DisplayPort Expansion Module
MS-02COM-D10	Expansion Module with 2 x RS232 / 422 / 485 (support power 5V/12V)
MS-08DIO-T10	Expansion Module with 8-bit Isolated DIDO (4 x DI, 4 x DO)

Power Adapter	Description
72W Power Adapter	AC / DC, DC24V / 3A, 72W*
120W Power Adapter	AC / DC, DC24V / 5A, 120W*

\* Safety operating: For AC Adaptor 0 ~ 40°C

## I/O Interface (mm)



## MB1-10AP Fanless Embedded System

SYSTEM	
CPU	Intel® Apollo Lake-M N4200 / N3350 Processor
Chipset	Intel® SoC Integrated
System Memory	DDR3L 1867, 1 x 204-pin SO-DIMM, Max. 8GB (Non-ECC)
Graphics	Intel® HD Graphics
Display Interface	HDMI, Optional DisplayPort/VGA/DVI-D by Expansion Module
Storage Slot	1 x 2.5 HDD / SSD (Default w/ HDD Bracket) 1 x mSATA
Ethernet	2 x Intel® I210-IT Giga LAN (2 x PoE LAN: Optional), 1 x Realtek RTL8154 LAN (Up to 480 Mbps)
Audio	Realtek® ALC888
I/O Chipset	Nuvoton NCT6116D
TPM	Nuvoton NPCT750AAAYX (Optional)
Expansion Slot	Storage: Mini PCIe Full size (USB / SATA) LTE/Wireless: Mini PCIe Full size (USB / PCIe), w/ SIM Card Holder (w/ Full to Half size adapter plate)
FRONT I/O	1 x HDMI 1.4 4 x USB 3.2 Gen1 2 x SMA Antenna (Optional for WiFi/LTE function) 1 x Expansion Module Door 2 x RS232 / 422 / 485 (Support Power 5V / 12V) 3 x RJ-45
REAR I/O	1 x Mic-in, 1 x Line-out 1 x 3-pin Terminal Block Power Input / 1 x 2-pin Header Remote Power on / off 2 x SMA Antenna (Optional for WiFi/LTE function)
H/W Monitor	-
Watchdog Timer	1~255 Steps by Software Program
Edge AI Engine (Optional)	Hailo-8™ mPCIe (Model Name:MPE-01HAI-MB1)
POWER REQUIREMENT	
Power Input	8~24V Wide Range DC Input w/ Terminal Block Connectivity
MECHANICAL	
Thermal Design	Fanless
Mounting	Wallmount (default), 75 x 75 mm VESA hole and din rail mount combo kit (optional)
Dimension	6.9" x 4.1" x 2.2" (170 mm x 105 mm x 57 mm)
Material	Top cover: Aluminum Alloy, Bezel and chassis: Steel
ENVIRONMENTAL	
Operating Temperature	-25°C to 70°C (For non-PoE SKU, with 0.7m/s Air Flow and Wide Temperature Memory/Storage) -25°C to 60°C (For PoE SKU, with 0.7m/s Air Flow and Wide Temperature Memory/Storage)
Operating Humidity	10%~90% (Non-condensing)
Vibration Resistance	Operating: 5Hz~500Hz / 5Grms / 3Axis (w/ SSD, according to IEC60068-2-64)
Shock Resistance	Operating: 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)
Certification	CE & FCC Class A
OS	
OS Support	Windows® 10 64-bit, Linux (support by request)

## Ordering Information

Model Number	Processor	Giga / PoE LAN	Operating Temperature	AC Adaptor
MB1-10AP-N3350	N3350	3 / 0	-25 ~ 70°C	None
MB1-10AP-N3350-AC	N3350	3 / 0	-25 ~ 70°C	72W AC to DC Adaptor
MB1-10AP-N4200	N4200	3 / 0	-25 ~ 70°C	None
MB1-10AP-N4200-AC	N4200	3 / 0	-25 ~ 70°C	72W AC to DC Adaptor

\* Option: TPM

## Packing List

Packing		
1 x MB1-10AP Box PC	1 x Quick Installation Guide	1 x 3-pin Terminal Block Power Connector
1 x Screw Pack (For HDD)	1 x Mini PCIe Full to Half size adapter plate	1 x Wall Mount Bracket

# ME1-108T

Fanless Embedded System with NXP® i.MX8M Processor

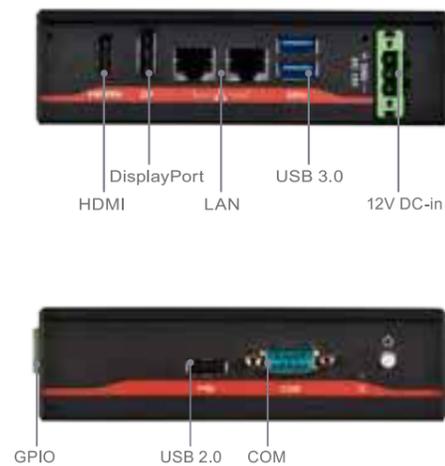
## Introduction

- NXP® i.MX8M Dual Core & Quad Core Processor
- LPDDR4 Memory (Options for 1GB / 2GB / 4GB)
- eMMCStorage (Options for 8GB / 16GB / 32GB)
- Support up to x2 Giga LAN
- Support up to x2 display for 1x HDMI (4K), 1 x DisplayPort(FHD)
- Support x1 Mini PCIe expansion slot
- Up to 2 x USB 3.0, 1 x USB 2.0, 1 x COM port (x RS232/422/485), 4in-4out GPIO
- 12V DC Power Input

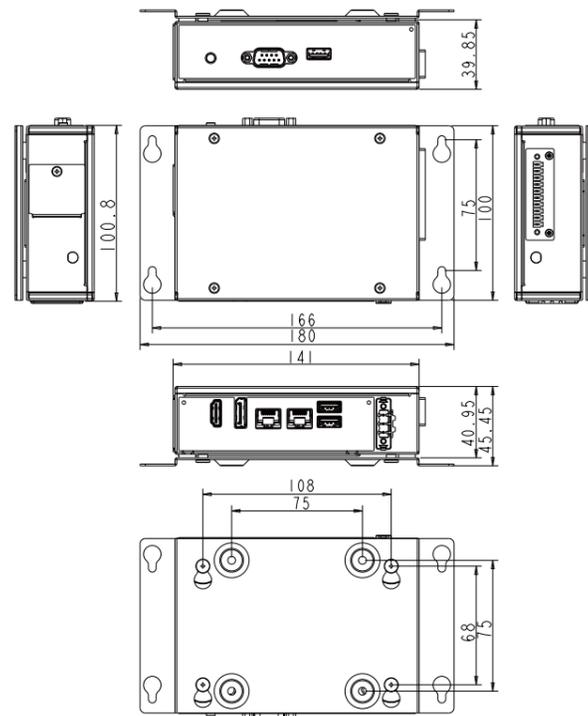


i.MX8M NXP Dual/Quad Core	GPIO	LAN X2 Dual LAN	COM	Mini PCIe	Dual Display
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## I/O Interface (mm)



## Dimension (mm)



# ME1-108T Fanless Embedded System

SYSTEM	
CPU	NXP® i.MX8M Family - 8M Quad (4 x Cortex-A53 @ 1.3GHz) - 8M Dual (2 x Cortex-A53 @ 1.3GHz)
Chipset	i.MX8M SoC Integrated
System Memory	LPDDR4 Onboard Memory with Options: 1GB (800MHz), 2GB (1600MHz), 4GB (1600MHz)
Graphics	i.MX8M SoC Integrated
Storage	Onboard eMMC with Options for 8GB / 16GB / 32GB 1 x Micro SD card slot (Up to 256GB)
Ethernet	2 x Realtek Giga LAN (1st LAN: RTL8211FD; 2nd LAN: RTL8111H)
Audio	Realtek ALC5660
Expansion Slot	Mini PCIe Full / Half Size (PCIe / USB)
Front I/O	1 x USB 2.0 Type A 1 x COM port (RS232/422/485) 1 x Power button 1 x Power LED
Side I/O	1 x Micro SD/SIM card slot 1 x GPIO 10-pin (4in/4out/5V/GND, Terminal Block)
Rear I/O	2 x USB 3.0 2 x RJ-45 1 x HDMI2.0 1 x 3-pin Terminal Block Power Connector
POWER REQUIREMENT	
Power Input	12V 36W Power Adapter
MECHANICAL	
Thermal Design	Fanless & Ventless
Mounting	Wallmount & VESA Mount (75 x 75mm) 2-in-1 Bracket
Antenna	2 x SMA Antenna (Optional for WiFi/LTE function)
Dimension	140*100*38.75mm
Material	Enclosure: Sheet Metal
ENVIRONMENTAL	
Operating Temperature	0°C to 55°C
Storage Temperature	-20°C ~ 70°C
Operating Humidity	10% ~ 90% R/H (Non-condensing)
Storage Humidity	10% ~ 95% @85°C non-condensing
Certification	CE / FCC Class B
OS	
OS Support	Yocto Sumo (Kernel version 4.14.98) BSP Support (Remark: Android is suggested for 2G or 4G memory MB SKU) Android 9 Pie (Kernel version 4.14.98) BSP Support

## Ordering Information

Model Number	Processor	DDR4	eMMC	Display	LAN	COM
ME1-8MQ-4G32G-DP	i.MX8M Quad Core	4GB	32GB	HDMI + DisplayPort	1	0

## Packing List

Packing			
• 1 x ME1-108T Embedded System	• 1 x Wallmount & VESA Mount	• 1 x 10P terminal block male plug	• 1 x Quick Installation Guide

# ME1-118T

Fanless Embedded System with NXP® i.MX8M Processor

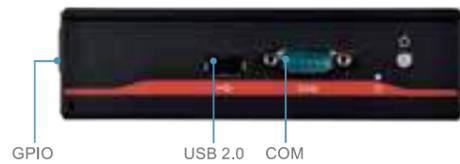
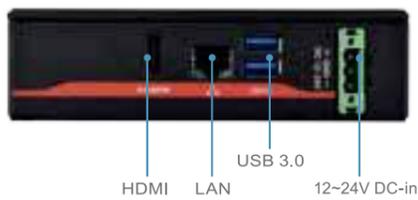
## Introduction

- NXP® i.MX8M Dual Core & Quad Core Processor
- LPDDR4 Memory (Options for 1GB / 2GB / 4GB)
- eMMCStorage (Options for 8GB / 16GB / 32GB)
- Support up to x1 Giga LAN
- Support up to x1 HDMI (4K)
- Support x1 Mini PCIe expansion slot
- Up to 2 x USB 3.0, 1 x USB 2.0, 1 x COM port (x RS232/422/485), 4in-4out GPIO
- 12~24V DC Power Input

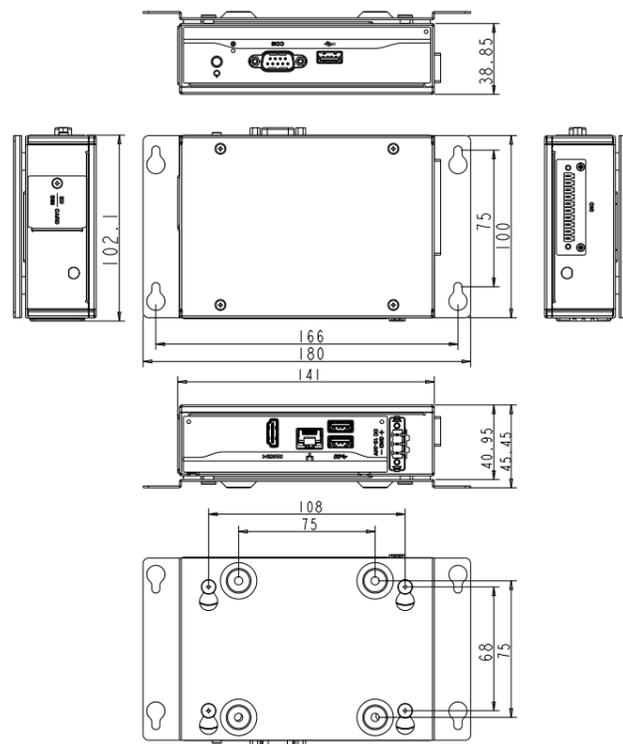


i.MX8M NXP Dual/Quad Core	GPIO	LAN	COM	Mini PCIe	Dual Display
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## I/O Interface (mm)



## Dimension (mm)



# ME1-118T Fanless Embedded System

SYSTEM	
CPU	NXP® i.MX8M Family - 8M Quad (4 x Cortex-A53 @ 1.3GHz) - 8M Dual (2 x Cortex-A53 @ 1.3GHz)
Chipset	i.MX8M SoC Integrated
System Memory	LPDDR4 Onboard Memory with Options: 1GB (800MHz), 2GB (1600MHz), 4GB (1600MHz)
Graphics	i.MX8M Integrated
Storage	Onboard eMMC with options for 8GB / 16GB / 32GB 1 x Micro SD card slot (Up to 256GB)
Ethernet	1 x Realtek Giga LAN (LAN: RTL8211FD)
Audio	Realtek ALC5660
Expansion Slot	Mini PCIe Full / Half Size (PCIe / USB)
Front I/O	1 x USB 2.0 Type A 1 x COM port (RS232/422/485) 1 x Power button 1 x Power LED
Side I/O	1 x Micro SD/SIM card slot 1 x GPIO 10-pin (4 in/4 out/5V/GND, Terminal Block)
Rear I/O	2 x USB 3.0 1 x RJ-45 1 x HDMI2.0 1 x 3-pin Terminal Block Power Connector
POWER REQUIREMENT	
Power Input	DC12~24V / 3A / 36W Power Adapter
MECHANICAL	
Thermal Design	Fanless & Ventless
Mounting	Wallmount & VESA Mount (75 x 75mm) 2-in-1 Bracket
Antenna	2 x SMA Antenna (Optional for WiFi/LTE function)
Dimension	140*100*38.75mm
Material	Enclosure: Sheet Metal
ENVIRONMENTAL	
Operating Temperature	0°C to 55°C (32 ~131°F)
Storage Temperature	-20°C ~ 70°C (-4 ~158°F)
Operating Humidity	10% ~ 90% R/H (Non-condensing)
Storage Humidity	10% ~ 95% @85°C non-condensing
Certification	CE / FCC Class B
OS	
OS Support	Yocto Sumo (Kernel version 4.14.98) BSP Support Android 9 Pie (Kernel version 4.14.98) BSP Support (Remark: Android is suggested for 4G memory MB SKU)

## Ordering Information

Model Number	Processor	DDR4	eMMC	Display	LAN	COM
ME1-1-8MQ-4G32G	i.MX8M Quad Core	4GB	32GB	HDMI	1	1

## Packing List

Packing			
• 1 x ME1-118T Embedded System	• 1 x Wall Mount Brackets	• 1 x 10P terminal block male plug	• 1 x Quick Installation Guide

Rugged

Fanless

Fanned

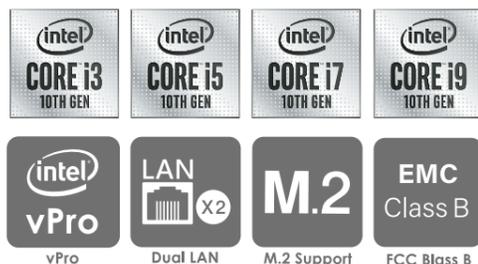
Rackmount

# E420

Intel Raptor Lake-S 13th/  
Alder Lake-S 12th Core-i processor, up to 35W

## Introduction

- Intel® H610 Chipset
- 2x DDR5 SO-DIMM up to 64GB
- Support Dual Display for HDMI, DisplayPort
- 1x M.2 2280 M-key (NVME), 1 x M.2 2230 E-key (CNVi), 1 x M.2 3042 B-Key
- 4 x USB3.2 Gen1, 2 x USB2.0, 2 x COM, 8-bit GPIO
- Hailo-8™ AI chip for AI acceleration up to 26TOPS (Optional)

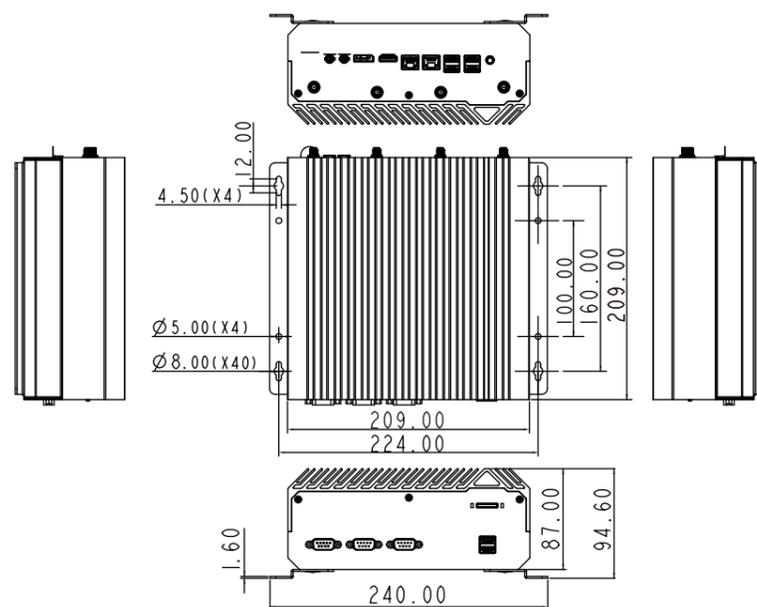


## I/O Interface

### I/O Placement



## Dimension (mm)



## E420 Fanless Embedded System

SYSTEM	
CPU	13th/12th Gen Intel® Raptor Lake-S Alder Lake-S LGA1700 Socket Processor Core i9/i7/i5/i3 Processor (TDP Max 35W)
Chipset	Intel® H610
System Memory	DDR5 4800 MHz / 2 x 262-pin SO-DIMM / Max. 64 GB (Non-ECC)
Graphics	Intel® UHD Graphics
Display Interface	DisplayPort 1.2 / HDMI 1.4
Storage Slot	1 x 2.5" HDD/SSD bracket
Ethernet	Intel® I219-LM Giga LAN + Intel® I225V 2.5 Giga LAN
Audio	Realtek® ALC888S
TPM	TPM Header / (support optional TPM 2.0 module)
I/O Chipset	Nuvoton NCT6126D
Expansion Slot	1x M.2 2230 E key (PCIe X1 , USB2.0, SMBus, CNVi) 1x M.2 2280 M key (PCIe3.0 X4, SATAIII) 1x M.2 3042 B key (USB2.0, PCIe3.0 X1, SATAIII)"
Indicator	Power Button / Power LED / HDD LED
Front I/O	2 x USB 2.0 8-bit GPIO (DB9 Connector) 1 x RS232 1 x RS232 / 422 / 485"
Rear I/O	4 x SMA hole with rubber cap (for optional wireless module) / 1 x HDMI 1.4 1 x DisplayPort 1.2 2 x RJ-45 4 x USB 3.2 Gen1 1 x Mic-in 1 x Line-out"
H/W Monitor	Temperature Monitor / Voltage Monitor
Watchdog Timer	1~255 steps by software program
POWER REQUIREMENT	
Power Input	12V DC-in Jack (Default)
MECHANICAL	
Thermal Design	Fanless
Dimensions (W X D X H)	209mm x 209mm x 87mm
Material	Cold rolled steel and extruded aluminum front panel
ENVIRONMENTAL	
Operating Temperature	-20 ~ 50°C
Storage Temperature	-40 ~ 85°C (-40 ~185°F)
Operating Humidity	10% ~ 95% R/H (Non-condensing)
Vibration Resistance	Operating Random Vibration, PSD (0.25 - GRMS) minimum axis, 3 axes - Test up to 0.50 GRMS Non-operating Random Vibration, 3 axes, 15 min per axis, 2.09Grms
Shock Resistance	Operating (without package) – Half sine wave shock: 40G, 2.5ms duration Non-operating (without package) – Half sine wave shock: 120G, 2ms duration
Certification	CE / FCC Class B
OS	
OS Support	Windows®10 64-bit / Windows® 11 64bit

## Ordering Information

Model Number	Chipset	DP	HDMI	USB 3.2 / 2.0	LAN	M.2 E key / M.2 M key / M.2 B key	Power
E420	RPL-S/ADL-S	H610	1	1	4/2	2	1 / 1 / 1

\*Option: TPM, WIFI / BT

## Packing List

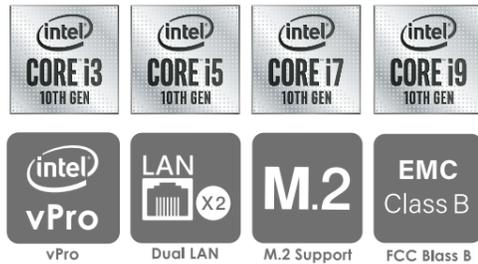
Packing		
• 1 x Embedded System	• 1 x SATA Cable	• 1 x SATA Power Cable
• 1 x CPU Heatspreader	• 1 x 12V, 90W AC adaptor with US + EU power cords	• 1 x Wall Mount Brackets

# E410-13CMI

Fanless Embedded System with Intel® Comet Lake TDP up to 35W

## Introduction

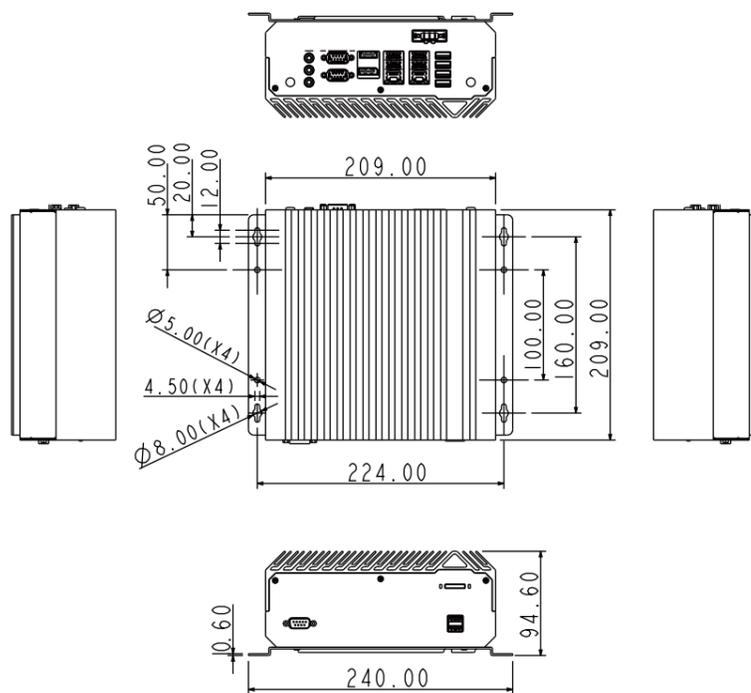
- 10th Comet Lake LGA Processor, up to i9 35W
- Intel® H420E Chipset
- 2 x DDR4 SO-DIMM up to 64GB
- Support Dual Display for HDMI, DisplayPort
- 1 x M.2 2280M-key, 1 x M.2 2230 E-key (CNVi), 1 x mPCIe Full size
- 6 x USB2.0, 5 x USB3.0, 2 x COM, 8-bit GPIO



## I/O Interface



## Dimension (mm)



# E410 Fanless Embedded System

SYSTEM	
CPU	10th Gen Intel® Comet Lake LGA1200 Socket Processor 10core TDP Max 35W
Chipset	Intel® H420E
System Memory	DDR4 2933/2666/2400MHz / 2 x 260-pin SO-DIMM / Max. 64GB (Non-ECC)
Graphics	Intel® HD Graphics
Display Interface	HDMI, DisplayPort
Storage Slot	1 x 2.5" HDD/SSD BKT 1 x M.2 2280/2262/2242 SSD slot 1 x mSATA slot
Ethernet	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN
Audio	Realtek® ALC888S
TPM	Nuvoton NPCT750AAAYX TPM2.0 (Optional)
I/O Chipset	Nuvoton NCT6126D
Expansion Slot	M.2 2242 / 2280 M key (SATA) Mini PCIe Full size (USB2.0 / SATAIII / PCIe x1) M.2 2230 E KEY (USB / PCIe x1)
Indicator	Power Button, Power LED, HDD LED
Front I/O	2 x USB2.0 8-bit GPIO in DB9 type
Rear I/O	1 x Mic-in, 1 x Line-out, 1 x Line-in 4 x USB 2.0, 4 x USB 3.2 Gen1 1 x HDMI 1.4, 1 x DisplayPort 1.2 2 x Giga LAN DC-in 12V in 3-pin terminal block connector 2 x SMA hole with rubber cap
Edge AI Engine(Optional)	Hailo-8™ M.2 2242 M key
Others	1 x USB 3.2 Gen1 typeA
POWER REQUIREMENT	
Power Input	1 x AT/ATX Jumper; 1 x Buzzer
Power Adapter	12V / 90W AD to DC Adaptor
MECHANICAL	
Thermal Design	Fanless
Mounting	Wall mount
Dimensions (W X D X H)	209mm x 209mm x 87mm
Material	Cold rolled steel and extruded aluminum front panel
ENVIRONMENTAL	
Operating Temperature	-20 ~ 50°C
Storage Temperature	-40 ~ 85°C
Operating Humidity	10%~95% R/H (Non-condensing)
Certification	CE & FCC Class A
OS	
OS Support	Windows® 10 64bit (2019 LTSC / 2021 LTSC)/Windows® 11 64bit Ubuntu 20.04

## Ordering Information

Model Number	Processor	DisplayPort / HDMI	USB 3.1 / 2.0	LAN	M.2 2230 E key	mPCIe Full size	M.2 M Key	Line-out / Mic-in Line-in	Power
E400-13CMI	H420E	1 / 1	5 / 6	2	1	1	1	1 / 1 / 1	12V DC-in

\*Option: TPM, WIFI / BT

## Packing List

Packing		
• 1 x Embedded System	• 1 x 90W, 12V AC adaptor and US+ EU power cords	• 1 x CPU Heatspreader
• 1 x SATA Cable	• 1 x 3-pin terminal block to 6530 DC Jack cable	• 1 x Wall Mount Brackets

Rugged

Fanless

Fanned

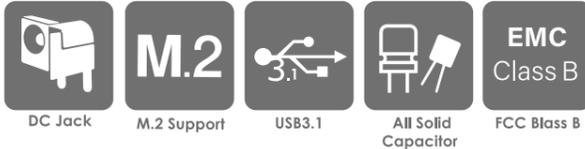
Rackmount

# E310-10EHI

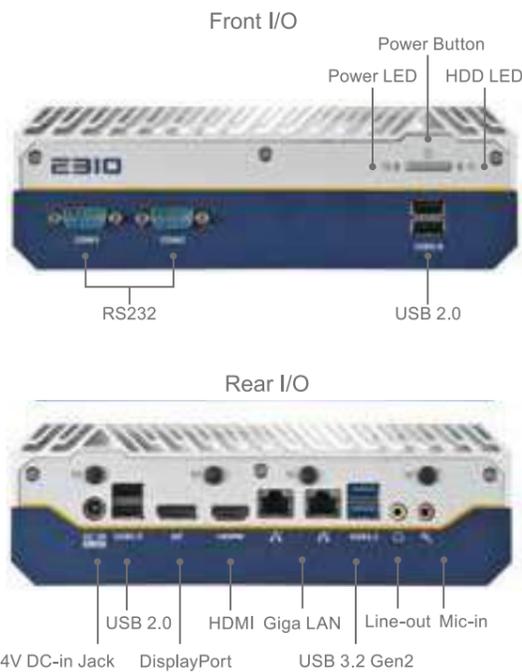
Fanless Embedded System with Intel® Elkhart Lake Atom/Celeron/Pentium TDP up to 12W

## Introduction

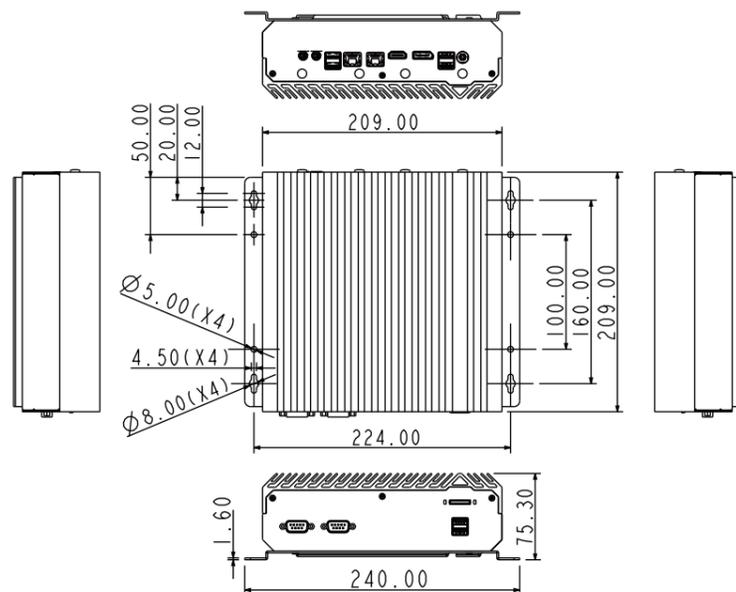
- Intel® Elkhart Lake ATOM/Celeron/Pentium BGA Processor (TDP up to 12W)
- Support 2 x DDR4 SO-DIMM (Up to 32GB)
- Compatible with M.2 3042/3052 + SIM slot for 5G cellular network connectivity
- Support Dual Display for HDMI, DisplayPort
- 4 x USB2.0, 2 x USB3.1 Gen2, 2 x COM (Max. 6 x COM by Option)
- 8~24V wide range DC input



## I/O Interface



## Dimension (mm)



# E310 Fanless Embedded System

SYSTEM	
CPU	11th Gen Intel® Elkhart Lake Celeron J6413 Option: Pentium N6415, Celeron N6211, Celeron N6210, and Atom x6413E (Up to 12W)
Chipset	Intel® SoC Integrated
System Memory	DDR4 3200, 2 x 260-pin SO-DIMM, Max. 32 GB (Non-ECC)
Graphics	Intel® HD Graphics
Display Interface	HDMI, DisplayPort
Storage Slot	1 x 2.5" HDD/SSD BKT 1 x M.2 2280/2262/2242 SSD slot 1 x mSATA slot
Ethernet	2 x Intel® I211-AT Giga LAN
Audio	Realtek® ALC888S
TPM	Nuvoton NPCT750AAAYX TPM2.0 (Optional)
I/O Chipset	Nuvoton NCT6126D
Expansion Slot	M.2 2280/2242/3042 B Key(USB / PCIe x1 / SATA) Mini PCIe Full size (USB2.0 / SATAIII / PCIe x1) M.2 2230 E KEY (USB / PCIe x1) 1 x NanoSIM slot to M.2 B Key slot
Indicator	Power Button, Power LED, HDD LED
Front I/O	2 x USB 2.0 2 x RS232 (Extra 1 x RS232/422/485 + 3 x RS232 for Option)
Rear I/O	1 x Mic-in, 1 x Line-out 2 x USB 2.0, 2 x USB 3.2 Gen2 2 x i211ATGiga LAN 1 x HDMI 1.4, 1 x DisplayPort 1.4 4 x SMA hole with rubber cap
Edge AI Engine (Optional)	Hailo-8™ M.2 2242 B+M key
POWER REQUIREMENT	
Power Input	1 x AT/ATX Jumper; 1 x Buzzer
Power Adapter	65W, 19V AC adaptor
MECHANICAL	
Thermal Design	Fanless
Mounting	Wall mount
Dimensions (W X D X H)	209mm x 209mm x 68mm
Material	Cold rolled steel and extruded aluminum front panel
ENVIRONMENTAL	
Operating Temperature	-20 ~ 60°C
Storage Temperature	-40 ~ 85°C
Operating Humidity	10%~95% R/H (Non-condensing)
Certification	CE & FCC Class A
OS	
OS Support	Windows® 10 IoT 64bit (2019 LTSC / 2021 LTSC)/Windows® 11 64bit Ubuntu 20.04

## Ordering Information

Model Number	Processor	DisplayPort / HDMI	USB 3.1 / 2.0	LAN	M.2 2230 E key	mPCIe Full size	M.2 B Key	Line-out / Mic-in	Power
E310-10EHI-J6413	J6413	1 / 1	2 / 4	2	1	1	1	1 / 1	8~24V DC Jack

\*Option: TPM, WIFI / BT

## Packing List

Packing		
• 1 x Embedded System	• 1 x 65W, 19V AC adaptor and US+ EU power cords	• 1 x 18 cm SATA Power Cable
• 1 x M.2 3052/2260 adapter plate	• 1 x 18 cm SATA Cable	• 1 x Wall Mount Brackets

Rugged

Fanless

Fanned

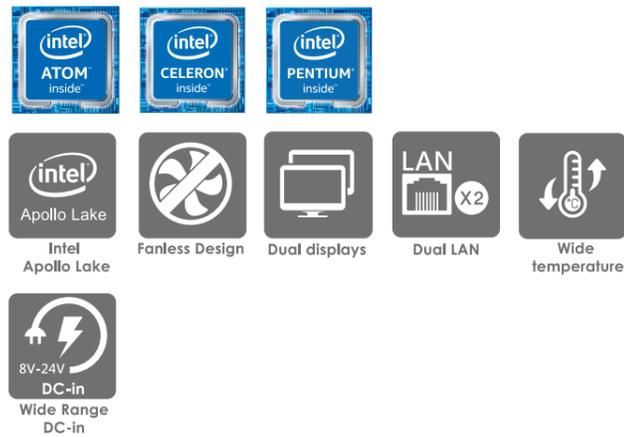
Rackmount

# S300-10AS

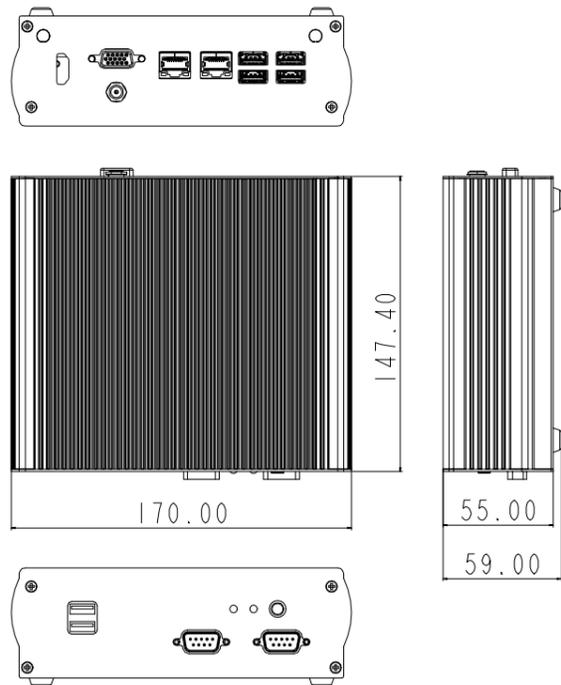
Fanless Embedded System with Intel® Apollo Lake-I/M Processor (up to 2.5GHz)

## Introduction

S300 is a fanless embedded system, powered by the latest Intel Apollo Lake performance-enhanced processor. The whole system is less than 1.4 liter size but still with versatile I/O aiming to adapt it in different environments and wide applications.



## Dimension (mm)



## I/O Interface



## S300-10AS Fanless Embedded System

SYSTEM	
CPU	Intel® Apollo Lake-M N4200 / N3350 Processor Intel® Apollo Lake-I E3930 / E3940 / E3950 Processor
Chipset	Intel® SoC Integrated
System Memory	DDR3L 1867, 1 x 204-pin SO-DIMM, Max. 8 GB (Non-ECC)
Graphics	Intel® HD Graphics
Display Interface	VGA, HDMI
Storage Slot	1 x mSATA
Ethernet	2 x Intel® I210-IT Giga LAN
Audio	Realtek ALC888
I/O Chipset	Nuvoton NCT6116D
Expansion Slot	Storage: Mini PCIe Full size (USB / PCIe / SATA) Wireless: M.2 2230 E key (PCIe / USB)
Indicator	Power Button, Power LED, HDD LED
Front I/O	2 x USB 2.0 1 x RS232, 1 x RS232/422/485 4 x USB 3.0
Rear I/O	2 x RJ-45 1 x VGA 1 x HDMI 1.4 1 x DC-in 2 x SMA Antenna (Optional for WiFi function)
H/W Monitor	Temperature Monitor, Voltage Monitor
Watchdog Timer	1~255 Steps by Software Program
POWER REQUIREMENT	
Power Input	8~24V Wide Range DC-in Jack Connectivity
Power Adapter	AC to DC, DC19V/ 3.4A, 65W adapter
MECHANICAL	
Thermal Design	Fanless
Mounting	Wallmount and VESA Mount Kit (Optional)
Dimensions (W X D X H)	6.7" x 5.8" x 2.2" (170mm x 147mm x 55mm)
Material	Top cover: Aluminum Alloy, Bezel and chassis: Steel
ENVIRONMENTAL	
Operating Temperature	Normal Temp.: 0 ~ 50°C (32 ~ 122°F) Wide Temp. (Optional*) -40 ~ 60°C (-40 ~ 140°F) w/ 0.7 m/s Air Flow & Wide Temp. Memory / Storage
Operating Humidity	10%~90% R/H (Non-condensing)
Vibration Resistance	5Hz~500Hz / 2Grms / 3Axis (Non-operating)
Shock Resistance	120G, 2ms Duration (Non-operating)
Certification	CE & FCC Class A
OS	
OS Support	Windows® 10 64-bit Linux (support by request)

\*Must use the wide-temp modules for wide temperature SKU.

## Ordering Information

Model Number	Processor	Operating Temperature	Model Number	Processor	Operating Temperature
S300-10AS-N3350-NT	N3350	0 ~ 50°C	* S300-10AS-E3930-WT	E3930	-40 ~ 60°C
			* S300-10AS-E3930-NT	E3930	0 ~ 50°C

\* This is a build-to-order model, please contact our sales team for more sampling or shipping details

## Packing List

Packing					
1 x Embedded System	1 x Quick Installation Guide	1 x Power Adapter (19V, 65W, DC Jack Type)	1 x US + EU Power Cord		

Rugged

Fanless

Fanned

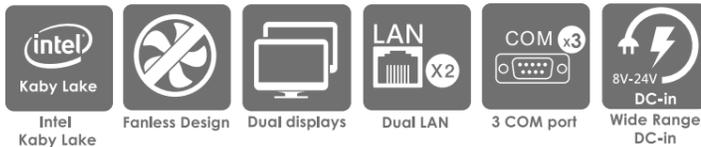
Rackmount

# S310-11KS

Fanless Embedded System with Intel® KabyLake/Skylake Processor (up to 3.9GHz)

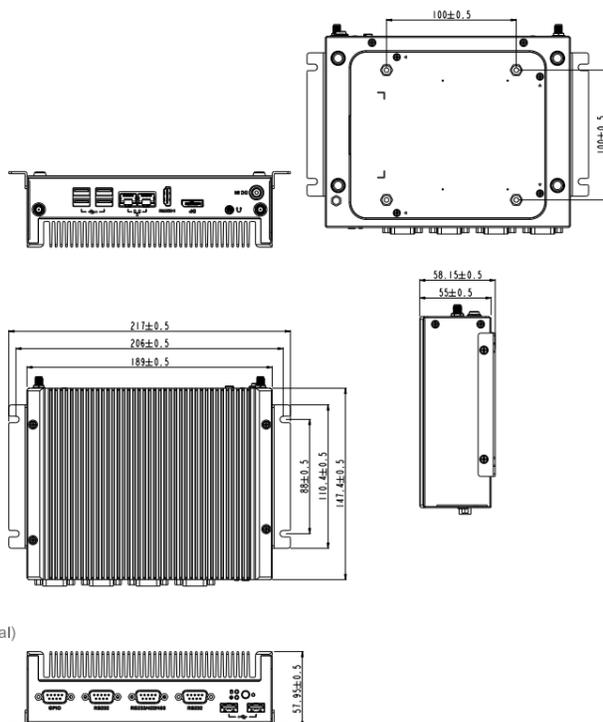
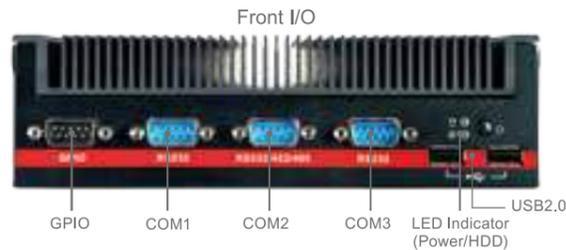
## Introduction

- Intel® Kaby Lake / Skylake Core i7/i5/i3/Celeron ULV processors
- Intel® vPro technology support (SKUs i5 & i7)
- 1 x DDR4 SO-DIMM and support up to 32GB
- Support Dual display for HDMI, and DisplayPort
- 1 x 2.5" SSD/HDD slot
- 2 x Intel® Gigabit Ethernet
- 2 x USB 2.0, 4 x USB 3.1 Gen2 and 3 x COM
- 8V~24V wide voltage power input



## I/O Interface

## Dimension (mm)



Terminal Block (Optional)



# S310-11KS Fanless Embedded System

SYSTEM	
CPU	7th Gen KabyLake Intel® Core™ i ULV Processor (Default: i3-7100U; Compatible with i7-7600U, i5-7300U, Celeron 3965U) Option: 6th Gen Skylake Intel® Core™ i ULV Processor (Compatible with i7-6600U, i5-6300U, i3-6100U, Celeron 3955U)
Chipset	Intel® SoC Integrated
System Memory	DDR4 2133/2400, 2 x 260-pin SO-DIMM, Max. 32 GB (Non-ECC)
Graphics	Intel® HD Graphics
Display Interface	DisplayPort 1.2, HDMI 1.4
Storage Slot	1 x 2.5 HDD/SSD (Default w/SATA and SATA Power Cable in Accessories) 1 x mSATA
Ethernet	Intel® I219LM Giga LAN + I211AT Giga LAN
Audio	Realtek ALC256
I/O Chipset	Nuvoton NCT6104D
TPM	Nuvoton NPCT650ABCYX TPM2.0
Expansion Slot	Storage: Mini PCIe Full size (USB / PCIe / SATA) Wireless: M.2 2230 E key (PCIe / USB)
Indicator	Power LED, HDD LED GPIO 8-bit (DB9 Connector)
Front I/O	2 x RS232 1 x RS232/422/485 2 x USB 2.0 1 x DC Jack
Rear I/O	1 x Audio Combo Jack (Mic-in & Line-out) 1 x DisplayPort 1.2 1 x HDMI 1.4 2 x RJ-45 4 x USB 3.0 2 x SMA Antenna (Optional for WiFi function)
H/W Monitor	Temperature Monitor, Voltage Monitor
Watchdog Timer	1~255 Steps by Software Program
POWER REQUIREMENT	
Power Input	8~24V Wide Range DC-in Jack Connectivity (Default)
Power Adapter	8~24V Wide Range DC Input w/ Terminal Block Connectivity (Optional) AC to DC, DC19V/3.4A, 65W adapter
MECHANICAL	
Thermal Design	Fanless
Mounting	100mm x 100mm VESA holes / Wallmount Kit (Default in Accessories) 100mm x 100mm VESA Mount Kit (Optional)
Dimensions (W X D X H)	7.4" x 5.8" x 2.2" (189.0mm x 147.4mm x 55.0mm)
Material	Top cover: Aluminum Alloy, Bezel and chassis: Steel
ENVIRONMENTAL	
Operating Temperature	-10~50°C with 0.7m/s Air Flow (w/Extended Temp. SSD / mSATA / RAM) 0~40°C with 0.7m/s Air Flow (w/Standard Temp.)
Storage Temperature	-20~80°C
Operating Humidity	10%~90% (Non-condensing)
Vibration Resistance	5Hz~500Hz / 2Grms / 3Axis (Non-operating)
Shock Resistance	120G, 2ms Duration (Non-operating)
Certification	CE & FCC
OS	
OS Support	Kaby Lake-U: Windows® 10, Linux support by request Skylake: Windows® 10, Windows® 7, Linux (support by request)

## Ordering Information

Model Number	Processor	Power	Model Number	Processor	Operating Temperature
S310-11KS-3965U	Celeron 3965U	8~24V DC Jack	S310-11KS-7300U	i5-7300U	8~24V DC Jack
S310-11KS-7100U	i3-7100U	8~24V DC Jack	S310-11KS-7600U	i7-7600U	8~24V DC Jack

## Packing List

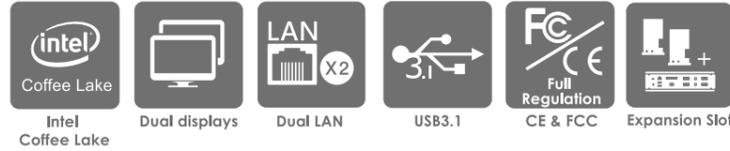
Packing	
• 1 x Wall Mount Brackets (2PCS in 1 set)	• 1 x Quick Installation Guide
• 1 x 11 cm SATA Cable	• 1 x Power Adapter (19V, 65W, DC Jack Type)
• 1 x 25 cm SATA Power Cable	• 1 x Embedded System
	• 1 x US + EU Power Cord

# E500-14FEI

**Embedded System**  
with Intel® Coffee Lake Core-i Powerful Processor  
& reserve versatile I/O card space

## Introduction

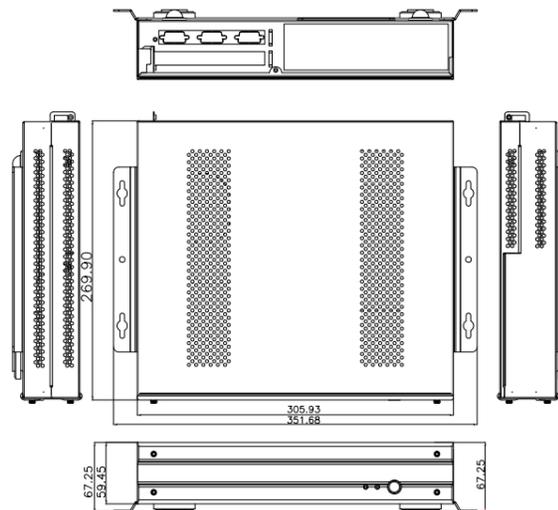
E500 is a embedded system, powered by the 8th & 9th Intel® core i Coffee Lake processor. The whole system is compact size and with dual LAN to provide more stable internet environments. Reserve versatile I/O card space can also satisfy the various embedded applications.



## I/O Interface



## Dimension (mm)



## E500 Embedded System

SYSTEM	
CPU	9th & 8th Gen Intel® Coffee Lake LGA1151 Socket Processor, Corei9/ i7/i5/i3
Chipset	Intel® H310
System Memory	DDR4 2666MHz , 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Graphics	Intel® HD Graphics
Display Interface	HDMI, DisplayPort
Storage Slot	1 x 2.5 HDD / SSD (Default w/ HDD Bracket, SATA, and SATA Power Cable in Accessories)
Ethernet	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN
Audio	Realtek® ALC888
I/O Chipset	Nuvoton NCT6116D
Expansion Slot	Wireless: M.2 E key 2230 (PCIe / USB)
Indicator	Power Button, Power LED, HDD LED
Front I/O	-
Rear I/O	1 x HDMI
	1 x Displayport
	2 x RJ-45
	4 x USB 3.1
	1 x Line-out 1 x Mic-in 1 x DC-in Jack
POWER REQUIREMENT	
Power Input	12V DC-in Jack
Power Adapter	DC12V / 15A / AC to DC / 180W adapter
MECHANICAL	
Thermal Design	65W CPU cooler
Mounting	Wall mount
Dimensions (W X D X H)	270mm x 306mm x 67.25mm
Material	Cold rolled steel and extruded aluminum front panel
ENVIRONMENTAL	
Operating Temperature	0~40°C (32~104°F)
Operating Humidity	10%~95% R/H (Non-condensing)
Certification	CE & FCC Class A
OS	
OS Support	Windows® 10, Linux (Support by request)

## Ordering Information

Model Number	Processor	DisplayPort / HDMI	USB 3.1	LAN	M.2 2230 E key	mPCIe Full size	PCIe X16	Line-out / Mic-in	Power
E500-14FEI	H310	1 / 1	4	2	1	1	1	1 / 1	12V DC Jack

Remark: This is a build-to-order model, please contact our sales team for more sampling or shipping details  
\*Option: TPM, WIFI / BT

## Packing List

Packing		
• 1 x Embedded System	• 1 x Power Adapter (12V, 180W, DC Jack Type)	• 1 x 18 cm SATA Power Cable
• 1 x Quick Installation Guide	• 1 x US + EU Power Cord	• 1 x 18 cm SATA Cable

Rugged

Fanless

Fanned

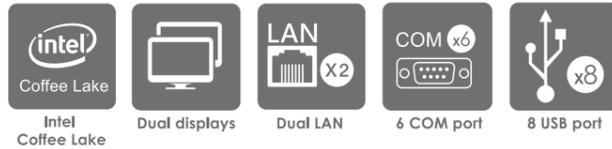
Rackmount

# E600-13FEI

Embedded System  
with Intel® Coffee Lake Core Processor

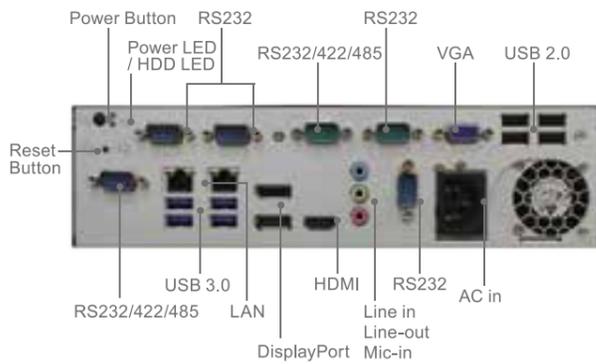
## Introduction

- Intel® Coffee Lake Core i7/i5/i3 / Pentium / Celeron LGA1151 processors
- Intel® H310 Chipset
- Support dual display from 2 x DisplayPort, HDMI, VGA
- 2 x RS232/422/485 and 4 RS232, total 6 x COM Port
- 4 x USB3.0 and 4 x USB2.0, total 8 x USB Port
- 100~240V AC-in directly with built-in 250W PSU

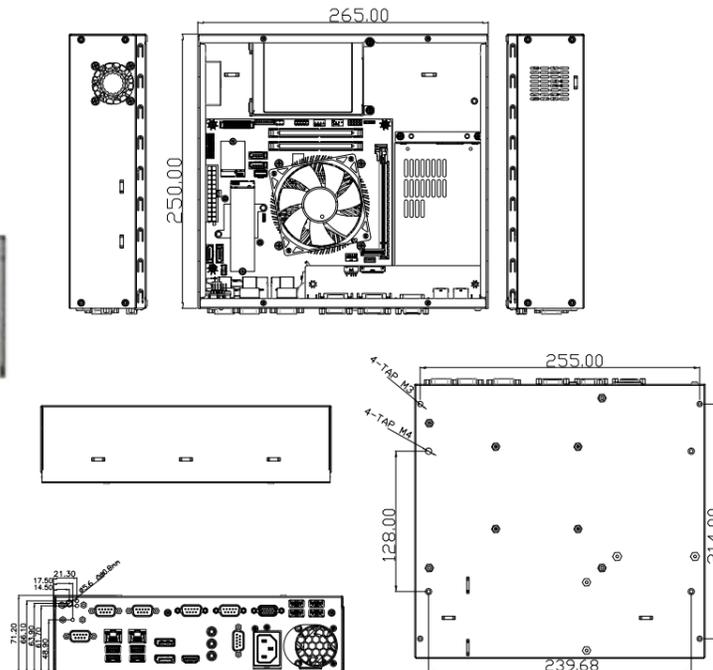


## I/O Interface

Rear I/O



## Dimension (mm)



## E600 Embedded System

SYSTEM	
CPU	9th & 8th Gen Intel® Coffee Lake LGA1151 Socket Processor, Corei9/ i7/i5/i3
Chipset	Intel® H310
System Memory	DDR4 2666MHz , 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Graphics	Intel® HD Graphics
Display Interface	VGA / DisplayPort 1.4 / HDMI 1.4 *Only dual display at the same time. H310 doesn't support triple display
Storage Slot	1 x 2.5 HDD / SSD (Default w/ HDD Bracket, SATA Cable in Accessories)
Ethernet	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN
Audio	Realtek® ALC888
I/O Chipset	Nuvoton NCT6116D
TPM	Nuvoton NPCT750AAAYX TPM2.0 (Optional)
Expansion Slot	M.2 2260 / 2280 M key (PCIe X2, SATA) / M.2 2230 E key (PCIe, USB 2.0)
Indicator	Power Button / Reset Button / Power LED / HDD LED
Front I/O	-
Rear I/O	1 x VGA 1 x HDMI 1.4 2 x DisplayPort 1.2 4 x USB 3.0 4 x USB2.0 2 x RJ-45 2 x RS232/422/485 4 x RS232 1 x Mic-in & 1 x Line-out & 1 x Line-in 1 x AC-in *Only dual display at the same time. H310 doesn't support triple display
POWER REQUIREMENT	
Power Input	100~240V AC-in
Power Adapter	Built-in 250W Flex ATX PSU with AC Plug
MECHANICAL	
Thermal Design	Fan
Mounting	Desktop
Dimensions (W X D X H)	10.4" x 9.8" x 2.8" (265 x 250 x 71.2 mm)
Material	Bezel and chassis: Steel
ENVIRONMENTAL	
Operating Temperature	0~ 45°C (32 ~ 113°F)
Operating Humidity	5% ~ 95% R/H (Non-condensing)
Vibration Resistance	5Hz~500Hz / 2Grms / 3Axis (Non-operating)
Shock Resistance	120G, 2ms Duration (Non-operating)
Certification	CE / FCC Class A
OS	
OS Support	Windows® 10, Linux (Support by request)

## Ordering Information

Model Number	Processor	DisplayPort/ HDMI/VGA	USB3.0/ USB2.0	LAN	COM	M.2 2230 E Key/ M.2 2280 M Key	Mic-in/Line-out/Line-in	Power
E600-13FEI	H310	2 / 1 / 1	4 / 4	2	6	1 / 1	1 / 1 / 1	100~240V AC-in

This is a build-to-order model, please contact our sales team for more sampling or shipping details

## Packing List

Packing			
• 1 x Embedded System	• 1 x US + EU Power Cord	• 1 x 18 cm SATA Cable	• 1 x Quick Installation Guide

Rugged

Fanless

Fanned

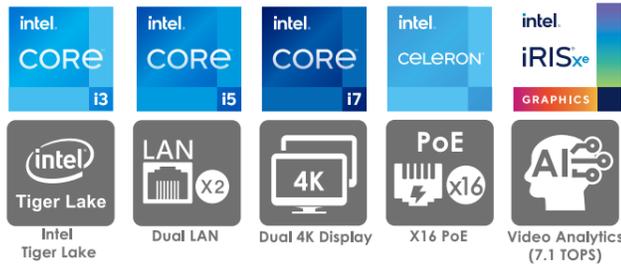
Rackmount

# NV1

1U Smart NVR System  
with Intel® Tiger Lake-UP3 Processor

## Introduction

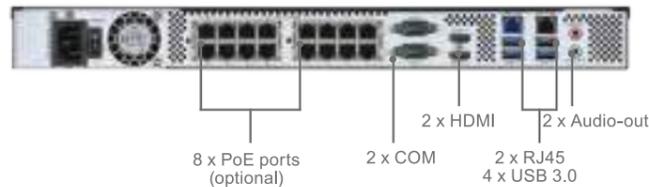
- Intel® Tiger Lake-UP3 Core i7/i5/i3/Celeron ULV processors
- 16-CH H.265/H.264 decoding ability & simultaneous playback
- 16-CH AI video analytics (7.1 TOPS)
- Equipped 0/8/16 802.3 at/af PoE ports
- Support 2 x HDD RAID 0/1 storage



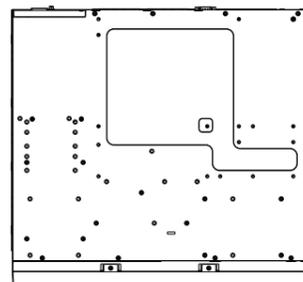
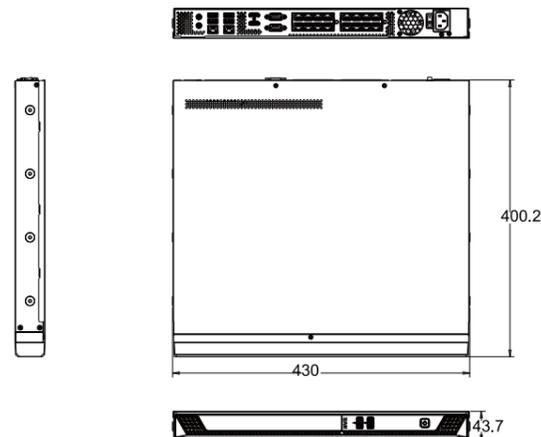
## I/O Interface

Front I/O

Rear I/O



## Dimension (mm)



## NV1 NVR System

SYSTEM	
CPU	11th Gen Tiger Lake-UP3 Intel® Celeron 6305E ULV Processor, 1.80 GHz, TDP:15W option: Core i3-1115G4E/ i5-1145G7E / i7-1185G7E, TDP: up to 28W
Chipset	Intel® SoC Integrated
System Memory	DDR4 3200MHz, 2 x 260-pin SO-DIMM, Max. 64GB (Non-ECC)
Graphics & AI	Celeron 6305E: Intel® UHD Graphics / Core i7-1185G7E: Intel® Iris Xe Graphics Video Decoding (1080P,H264 / H.265): up to 64 channels Video Recoding (1080P,H264 / H.265): up to 64 channels Video Playback(1080P): up to 64 channels Video Analytics / Deep Learning (1080P): 16 channels (7.1 TOPS)
Display Interface	2 x HDMI 1.4 (Up to 4K@30 Hz)
Storage Slot	2 x 3.5" internal HDD (RAID 0/1)
Ethernet	Intel® I219-LM Giga LAN, Intel® I225-LM 2.5GbE LAN
Audio	Realtek® ALC888S
I/O Chipset	Nuvoton NCT6126D
TPM	Nuvoton NPCT750AABYX TPM2.0
Expansion Slot	1 x M.2 224/2260/2280 M Key (PCIe X1, SATA) 1 x Mini PCIe full/ half size slot (PCIe, SATA, USB)
Internal Speaker	1 x Buzzer
Indicator	Power LED, HDD LED, Alarm LED, Power button
Front I/O	2 x USB 2.0 4 x USB 3.2 Gen2
Rear I/O	2 x DisplayPort 1.4 1 x Line-out, 1 x Line in 2 x RJ-45 1 x RS232, 1 x RS485
IP Camera Input (Optional)	Options#1: 8 x PoE ports (IEEE 802.3 af/at, Max 25.5W for single port, 80W in total) Options#2: 16 x PoE ports (IEEE 802.3 af/at, Max 25.5W for single port, 150W in total)
Edge AI Engine (Optional)	1 x Movidius Myriad X VPU, and Intel® Open VINO™ toolkit supported (optional)
POWER REQUIREMENT	
Power Input	100~240V AC-in
Power Adapter	Built-in 280W Flex ATX PSU with AC Plug
MECHANICAL	
Thermal Design	With Fan
Material	Bezel: Plastic / Chassis: Steel
Weight	3.5kg
Mounting	Rackmount
Dimensions (W X D X H)	19" 1U Chassis : 427 x 381 x 44.4 mm
ENVIRONMENTAL	
Operating Temperature	0 ~ 50°C (32 ~122°F)
Storage Temperature	-20 ~ 70°C (-4 ~158°F)
Operating Humidity	10% ~ 90% R/H (Non-condensing)
Vibration Resistance	5Hz~500Hz / 2Grms / 3Axis (Non-operating)
Shock Resistance	120G, 2ms Duration (Non-operating)
Certification	CE / FCC Class B
OS	
OS Support	Windows® 10 64-bit/Windows® 11 64bit, Linux (support by request)

## Ordering Information

Model Number	Processor	PoE	HDD	Power
NV1-6305E-8POE	Celeron 6305E	8	2	100~240V AC-in
NV1-1185G7E-16POE	Core-i7 1185G7E	16	2	100~240V AC-in

## Packing List

Packing		
• 1 x NV1 System	• 1 x Quick Installation Guide	• 1 x Rackmount Kit
• 1 x Screw Pack	• 2 x AC Power Cord (US & EU)	

# Industrial Panel PC



## Industrial Panel PC

## P & D Series

Powered by Intel Core i and Atom platform with reliable, flexible, long-term supported in fanless slim chassis design. Easy to access in different application.



Ultra Slim Frame



Front Panel IP65



Fanless Design



Harsh Environment



Sleek yet Ruggedized

## S Series



### Panel Mount

P100-10AS	10"/16:10	P130
P150-11TGS	15"/4:3	P132
P150-11KS	15"/4:3	P134
P150-10AI	15"/4:3	P136
P156-11TGS	15.6"/16:9	P138
P156-11KS	15.6"/16:9	P140
P156-10AI	15.6"/16:9	P142
P210-11TGS	21"/16:9	P144
P210-11KS	21"/16:9	P146
P210-10AI	21"/16:9	P148

## D Series

### VESA Mount

D151-11TGS	15.6"/16:9	P150
D151-11KS	15.6"/16:9	P152
D210-11TGS	21"/16:9	P154
D210-11KS	21"/16:9	P156
D210-10RI	21"/16:9	P158



# MiTAC Panel PC Antibacterial & Antivirus

Due to the risk of covid-19 infectious diseases transferred indoors, customers begin to pay attention on the application of IPC to be protected to reduce the growth and spread of microorganisms. Whether it is factory automation or retail automation, protective devices can stay themselves clean to avoid the bacterial and keep operators in a safer environment.

MiTAC offer Panel PC with front side Anti-Bacterial touch panel in Hybrid Optical coating through physical anti-bacterial mechanism.



## Panel Mount P Series



▪ P100-10AS P130

▪ P150-11TGS P132  
▪ P150-11KS P134  
▪ P150-10AI P136

▪ P156-11TGS P138  
▪ P156-11KS P140  
▪ P156-10AI P142

▪ P210-11TGS P144  
▪ P210-11KS P146  
▪ P210-10AI P148

## Anti-Bacterial mechanism

Caused by the interactive of the molecular structure with the similar bacteria cell membrane phospholipid composition, thus disrupt the bacterial cell membrane, exposure the inside cytoplasm, result in the lack of protection, to achieve the purpose of anti bacterial and sterilization.

## The benefit from coating material:



Not induce bacterial resistance

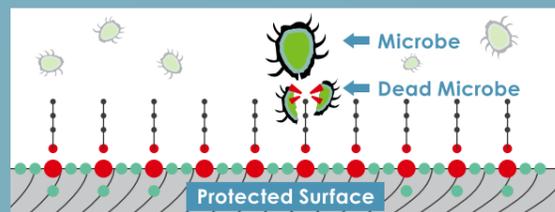


Non-Toxic excellent biocompatibility



Stable mass production capability

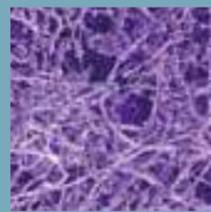
Anti bacterial and sterilization:



Bacterial resistance as below:



MRSA



Streptococcus Pneumoniae



Candida Albicans

## Antibacterial test report

### Escherichia Coli

JIS Z 2801, the Antibacterial activity value R= 5.33  
Antibacterial rate > 99.999%

### MRSA (Methicillin-resistant Staphylococcus aureus)

JIS Z 2801, the Antibacterial activity value R= 5.87  
Antibacterial rate > 99.999%

### Pseudomonas aeruginosa

Streptococcus Pneumoniae  
JIS Z 2801, the Antibacterial activity value R= 5.33  
Antibacterial rate > 99.999%

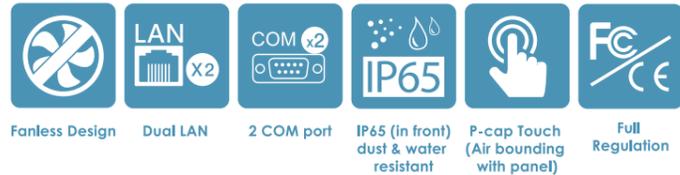


# P100-10AS

10.1" Panel PC  
Intel® Apollo Lake Celeron Processor

## Feature

- 10.1" TFT LCD with 30,000 hrs backlight lifetime
- Front panel IP65-rated, fanless design
- Inside Intel® Apollo Lake-M N3350 Processor

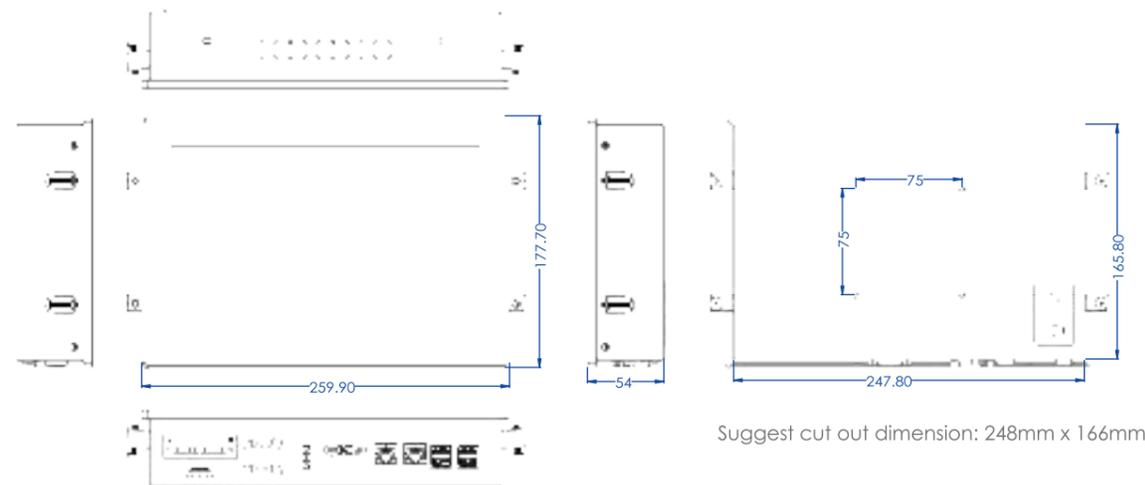


## I/O Interface



- 1 Power
- 2 Reset
- 3 8 bit GPIO
- 4 DC-in
- 5 COM
- 6 HDMI
- 7 VGA
- 8 Giga LAN
- 9 Giga LAN
- 10 USB 3.0
- 11 USB 3.0

## Dimension (mm)



Suggest cut out dimension: 248mm x 166mm



# P100-10AS Industrial Panel PC

LCD	
Display Type	10.1" TFT-LCD
Max. Resolution	1280 x 800
Max. Colors	16.7M (8 bit/color)
Luminance	400
Viewing Angle	170°/170°
Led Backlight (Hours)	30,000
Brightness	Option

TOUCH SCREEN	
Type	P-CAP
Touch Screen	True-flat 10 points
AR/AG	Option

SYSTEM	
Processor	Intel® Apollo Lake-M N3350 Processor Option: N4200
Chipset	Intel® SoC integrated
System Memory	DDR3L 1866 MHz, 204-pin SO-DIMM x 1, Max. 8GB (Non-ECC)
Ethernet	2 x Intel® I210-AT Giga LAN
I/O Port	1 x 3-pin Phoenix type terminal block DC input
	4 x USB3.0
	2 x RS232 (one supports RS232/422/485)
	1 x VGA
Watchdog Timer	1 x HDMI
	1 x 8bit GPIO terminal block
Storage Disk Drive	1~255 steps by software program
Expansion Slot	1 x SATA 2.5" HDD/SSD bay
	1 x mPCIe Full size (USB / PCIe / SATA)
Stereo Speaker	1 x M.2 2230 E key (PCIe / USB)
Os Support	-
	Windows 10 64bit (UEFI only no legacy support), Linux (support by request)

POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V 65W adapter

MECHANICAL	
Dimension	259.9 x 177.7 x 54 mm
Weight	1.65kg

ENVIRONMENTAL	
Operating Temperature	-10°C ~ 50°C
Storage Temperature	-20°C ~ 60°C
Storage Humidity	10% ~ 95% @40°C non-condensing
Vibration Resistance	Operating Random vibration Test 5-500Hz, 0.3Grms@with HDD
Shock Resistance	Operating 50 G peak (3 ms duration)
EMC	CE, FCC Class A
Front Panel Protection	IP65 Compliant

## Ordering Information

System I/O									
Model Number	CPU	VGA	HDMI	USB 3.0 / 2.0	8bit GPIO	RS-232	LAN	Wifi / BT	Power
P100-10AS-N3350	N3350	1	1	4 / 0	1	2	2	Optional	8~24V
P100-10AS-N4200	N4200	1	1	4 / 0	1	2	2	Optional	8~24V

## Packing List

Packing		
1 x Panel PC	1 x Power Adapter (19V, 65W, DC Jack Type)	1 x Quick Installation Guide
1 x Screws kit	1 x 10 pin Terminal Male Connector	1 x Mounting kit
US + EU Power Cord	1 x 3 pin Terminal Block Power Connector	

# P150-11TGS

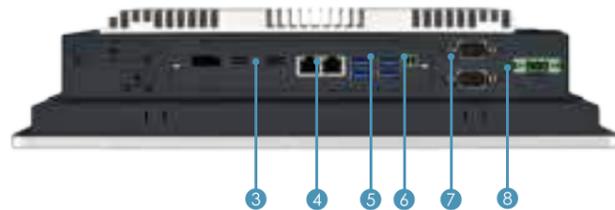
15" Panel PC / Intel® Tiger Lake UP3 Processor

## Feature

- 15" TFT LCD with 70,000 hrs backlight lifetime
- Front panel IP65-rated, fanless design
- Inside Intel® Tiger Lake UP3 Core i7/i5/i3 / Celeron ULV processors

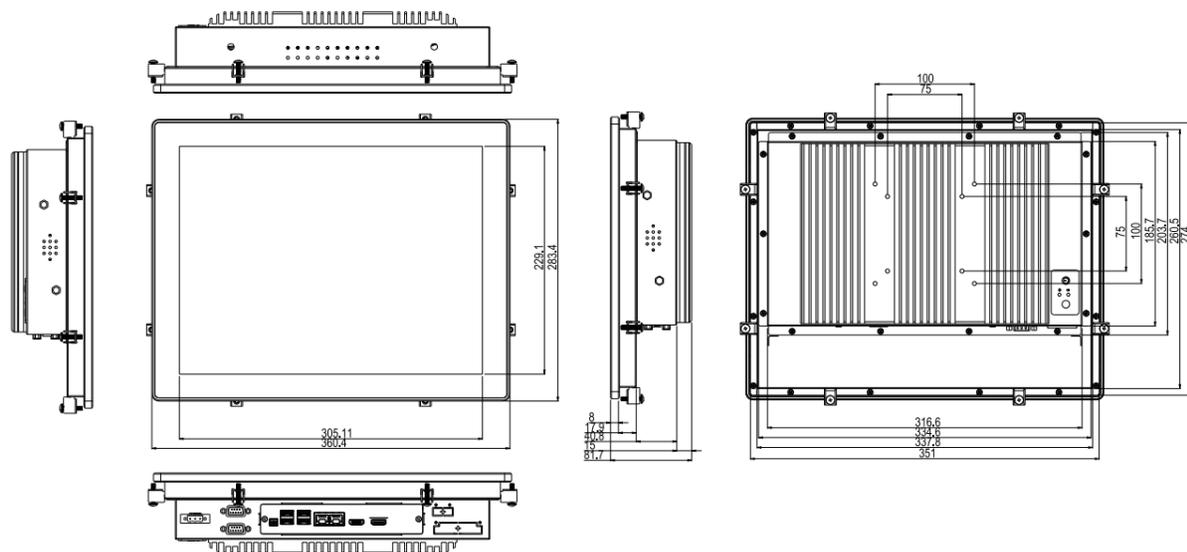


## I/O Interface



- 1 Power
- 2 Reset
- 3 HDMI
- 4 Giga LAN
- 5 USB 3.0
- 6 Remote Power on/ off
- 7 COM
- 8 DC-in (terminal block)

## Dimension (mm)



## P150-11TGS Industrial Panel PC

LCD		
Display Type	15" TFT-LCD	
Max. Resolution	1024 x 768	
Max. Colors	16.7M (8 bit/color)	
Luminance	300 cd/m2	
Viewing Angle	176°/176°	
Led Backlight (Hours)	70000	
TOUCH SCREEN		
Type	P-CAP	
Touch Screen	True-flat 10 points / Single point	
SYSTEM		
Processor	Intel® Tiger Lake-UP3 i3-1115G4E (Dual Core, 6MB Cache, up to 3.90 GHz) option: 11th Gen Tiger Lake-UP3 Celeron 6305E / i5-1145G7E / i7-1185G7E	
Chipset	Intel® SoC Integrated	
System Memory	DDR4 3200MHz / 1 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)	
Ethernet	Intel® I219-LM Giga LAN / Intel® I225-LM 2.5GbE LAN	
I/O Port	2 x RJ45, 4 x USB 3.1 Gen2, 2 x HDMI 1.4, 1 x 2-pin remote power on/off, 1 x 3-pin Phoenix type terminal block DC input 1 x RS232 / 1 x RS232 / 422 / 485	
Watchdog Timer	1~255 steps by software program	
Storage Disk Drive	1 x SATA 2.5" HDD/SSD bay	
Expansion Slot	M.2 3042 / 3052 / 2242 / 2260 / 2280 B key (USB2.0, SATAIII, *PClex1) *Not support M.2 M Key NVMe SSD / Wireless: M.2 2230 E key (PCIe, USB)	
Stereo Speaker	2 x 3W	
Os Support	Windows® 11 64bit	

POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V/ 3.4A, 65W adapter

MECHANICAL	
Mounting	VESA 75/100 mm Stand (support M4/L6) / Panel Mount
Dimension	360.4 x 283.1 x 81.7 (mm)
Weight	5kg (11.1 lb)

ENVIRONMENTAL	
Operating Temperature	-20°C ~ 55°C (-4 ~ 131°F)
Storage Temperature	-20°C ~ 70°C (-4 ~ 158°F)
Storage Humidity	10% ~ 90% @40°C non-condensing
Vibration Resistance	Operating Random Vibration Test 5 ~ 500Hz; 2Grms @with SSD, follow IEC 60068-2-64
Shock Resistance	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
EMC	CE, FCC Class B
Front Panel Protection	IP65 Compliant
ESTD	E star 7.0, ErP test

## Ordering Information

System I/O							
Model Number	CPU	HDMI	USB 3.1 / 2.0	RS232	LAN	Wifi / BT	Power
P150-11TGS-UP3Ce	Celeron 6305E	2	4 / 0	3	2	Optional	DC-in 8~24V
P150-11TGS-UP3i3	i3-1115G4E	2	4 / 0	3	2	Optional	DC-in 8~24V
P150-11TGS-UP3i5	i5-1145G7E	2	4 / 0	3	2	Optional	DC-in 8~24V
P150-11TGS-UP3i7	i7-1185G7E	2	4 / 0	3	2	Optional	DC-in 8~24V

## Packing List

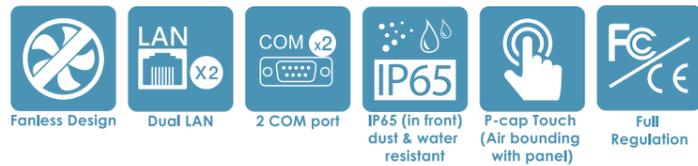
Packing			
• 1 x Panel PC	• 1 x 3 pin Terminal Block Power Connector	• 1 x Quick Installation Guide	• 1 x US + EU Power Cord
• 1 x Screws kit	• 1 x Power Adapter (19V, 65W, DC Jack Type)	• 1 x Mounting kit	

# P150-11KS

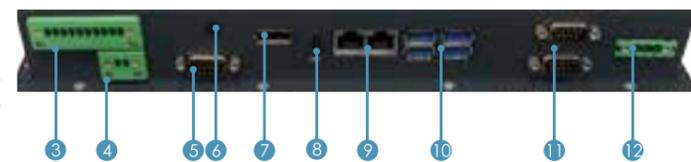
15" Panel PC / Intel® Kaby Lake Processor

## Feature

- 15" TFT LCD with 70,000 hrs backlight lifetime
- Inside Intel® 7th & 6th Gen Core i Processor

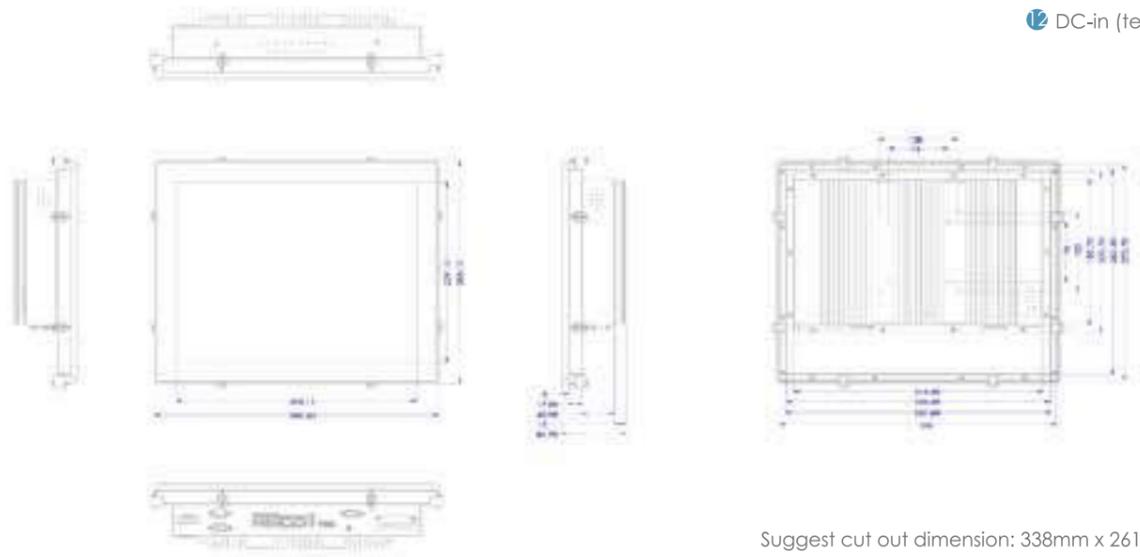


## I/O Interface



- 1 Power
- 2 Reset
- 3 8bit GPIO
- 4 Remote Power on/ off
- 5 COM
- 6 Audio Combo Jack (Mic-in & Line-out)
- 7 DisplayPort
- 8 HDMI
- 9 Giga LAN
- 10 USB 3.0
- 11 COM
- 12 DC-in (terminal block)

## Dimension (mm)



Suggest cut out dimension: 338mm x 261mm



## P150-11KS Industrial Panel PC

LCD	
Display Type	15" TFT-LCD
Max. Resolution	1024 x 768
Max. Colors	16.7M (8 bit/color)
Luminance (cd/m2)	300
Viewing Angle (H/V)	176°/176°
Led Backlight (Hours)	70,000
High Brightness	Option

TOUCH SCREEN	
Type	P-CAP
Touch Screen	True-flat 10 points
AR/AG	Option

SYSTEM		
Processor	7th Gen Intel® Kaby Lake-U i3-7100U (Dual Core, 3MB Cache, 2.40 GHz) option: 7th Gen Kaby Lake celeron 3965U / i5-7300U / i7-7600U 6th Gen Skylake celeron 3955U / i3-6100U / i5-6300U / i7-6600U	
Chipset	Intel® SoC integrated	
System Memory	DDR4 2133 MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)	
Ethernet	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN	
I/O Port	1 x DC in terminal block	
	4 x USB3.0	
	3 x RS232	
	2 x RJ45	
	1 x DisplayPort	
	1 x HDMI	
	1 x Audio Jack (combo Mic-in & Line-out)	
	1 x 8bit GPIO terminal block	
	Watchdog Timer	1~255 steps by software program
	Storage Disk Drive	1 x SATA 2.5" HDD/SSD bay
Expansion Slot	1 x Mini PCIe Full size	
	1 x M.2 2230 E key	
Stereo Speaker	2 x 2W	
Os Support	Windows® 10 64 bit	

POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V 65W adapter

MECHANICAL	
Dimension	360.4 x 283.1 x 81.7mm (W x D x H)
Weight	5 kg
Mounting	VESA 75/100mm / Panel Mount

ENVIRONMENTAL	
Operating Temperature	-20°C ~ 55°C
Storage Temperature	-20°C ~ 70°C
Storage Humidity	10% ~ 90% @40°C non-condensing
Vibration Resistance	Operating Random Vibration Test 5 ~ 500Hz; 2Grms @with SSD, follow IEC 60068-2-64
Shock Resistance	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
EMC	CE, FCC Class B
Front Panel Protection	IP65 Compliant

## Ordering Information

System I/O										
Model Number	CPU	VGA	DisplayPort	HDMI	USB 3.0 / 2.0	Line-out / Mic-in	RS232	LAN	Wifi / BT	Power
P150-11KS-3965U	Celeron 3965U	0	1	1	4 / 0	1 combo jack	3	2	Optional	DC-in 8~24V
P150-11KS-7100U	Core i3-7100U	0	1	1	4 / 0	1 combo jack	3	2	Optional	DC-in 8~24V
P150-11KS-7300U	Core i5-7300U	0	1	1	4 / 0	1 combo jack	3	2	Optional	DC-in 8~24V
P150-11KS-7600U	Core i7-7600U	0	1	1	4 / 0	1 combo jack	3	2	Optional	DC-in 8~24V

## Packing List

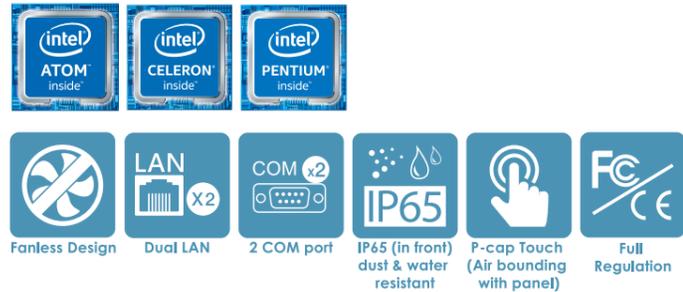
Packing			
• 1 x Mounting kit	• 1 x Panel PC	• 1 x 3 pin Terminal Block Power Connector	• 1 x US + EU Power Cord
• 1 x 10 pin Terminal Male Connector	• 1 x Screws kit	• 1 x Power Adapter (19V, 65W, DC Jack Type)	• 1 x Quick Installation Guide

# P150-10AI

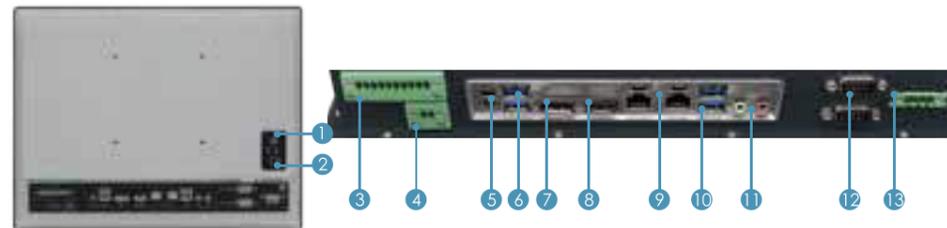
15" Panel PC / Intel® Apollo Lake Celeron Processor

## Feature

- 15" TFT LCD with 70,000 hrs backlight lifetime
- True-flat touchscreen with projected capacitive
- Front panel IP65-rated, fanless design
- Inside Intel® Apollo Lake-M N3350 Processor

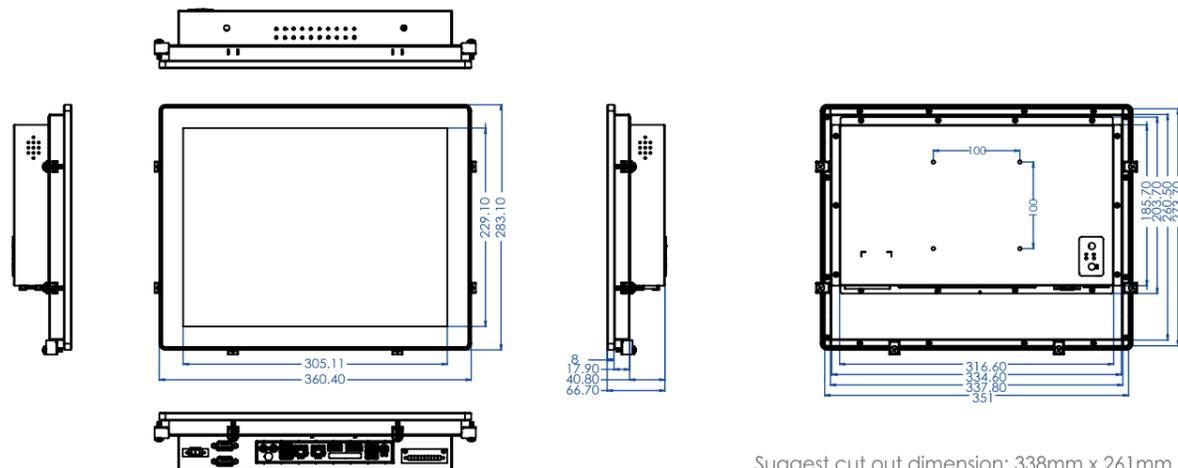


## I/O Interface



- 1 Power
- 2 Reset
- 3 8bit GPIO
- 4 Remote Power on/off
- 5 DC-in (DC Jack)
- 6 USB 3.0
- 7 DisplayPort
- 8 HDMI
- 9 Giga LAN
- 10 USB 3.0
- 11 Mic-in, Line-out
- 12 COM
- 13 DC-in (terminal block)

## Dimension (mm)



Suggest cut out dimension: 338mm x 261mm



# P150-10AI Industrial Panel PC

LCD	
Display Type	15" TFT-LCD
Max. Resolution	1024 x 768
Max. Colors	16.7M (8 bit/color)
Luminance (cd/m2)	300
Viewing Angle (H/V)	176°/176°
Led Backlight (Hours)	70,000
High Brightness	Option
TOUCH SCREEN	
Type	P-CAP
Touch Screen	True-flat 10 points
AR/AG	Option
SYSTEM	
Processor	Intel® Apollo Lake-M N3350 Processor Option: N4200
Chipset	Intel® SoC integrated
System Memory	DDR3L 1866 MHz, 2 x 204-pin SO-DIMM, Max. 8GB (Non-ECC)
Ethernet	2 x Intel® I211-AT Giga LAN
I/O Port	1 x DC in terminal block
	1 x DC Jack
	4 x USB3.0
	2 x RS232
	2 x RJ45
	1 x DisplayPort
	1 x HDMI
	1 x Mic-in, 1 x Line-out
	1 x 8bit GPIO terminal block
	1 x 8bit GPIO terminal block
Watchdog Timer	1~255 steps by software program
Storage Disk Drive	1 x SATA 2.5" HDD/SSD bay
Expansion Slot	1 x M.2 2280 B key 1 x M.2 2230 E key (PCIe / USB)
Stereo Speaker	2 x 2W
Os Support	Windows® 10 64 bit
POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V 65W adapter
MECHANICAL	
Dimension	360.4 x 283.1 x 66.7 mm (W X D X H)
Weight	4.3 kg
Mounting	VESA 100mm / Panel Mount
ENVIRONMENTAL	
Operating Temperature	-20°C ~ 60°C
Storage Temperature	-20°C ~ 70°C
Storage Humidity	10% ~ 95% @40°C non-condensing
Vibration Resistance	Operating Random Vibration Test 5 ~ 500Hz; 2Grms @with SSD, follow IEC 60068-2-64
Shock Resistance	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
EMC	CE, FCC Class B
Front Panel Protection	IP65 Compliant

## Ordering Information

System I/O									
Model Number	CPU	DisplayPort	HDMI	USB 3.0 / 2.0	GPIO	RS-232	LAN	Wifi / BT	Power
P150-10AI- N3350	N3350	1	1	4 / 0	1	2	2	Optional	8~24V
P150-10AI- N4200	N4200	1	1	4 / 0	1	2	2	Optional	8~24V

## Packing List

Packing			
• 1 x Panel PC	• 1 x Mounting Kit	• 1 x US + EU Power Cord	• 1 x Power Adapter (19V, 65W, DC Jack Type)
• 1 x Screws kit	• 1 x 10 pin Terminal Male Connector	• 1 x Quick Installation Guide	• 1 x 3 pin Terminal Block Power Connector

# P156-11TGS

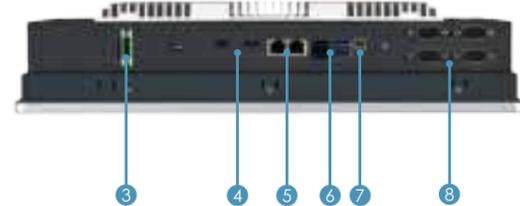
15.6" Panel PC / Intel® Tiger Lake UP3 Processor

## Feature

- Inside Intel® Tiger Lake UP3 Core i7/i5/i3 / Celeron ULV processors
- Front panel IP65-rated, fanless design
- 15.6" TFT LCD with 50,000 hrs backlight lifetime

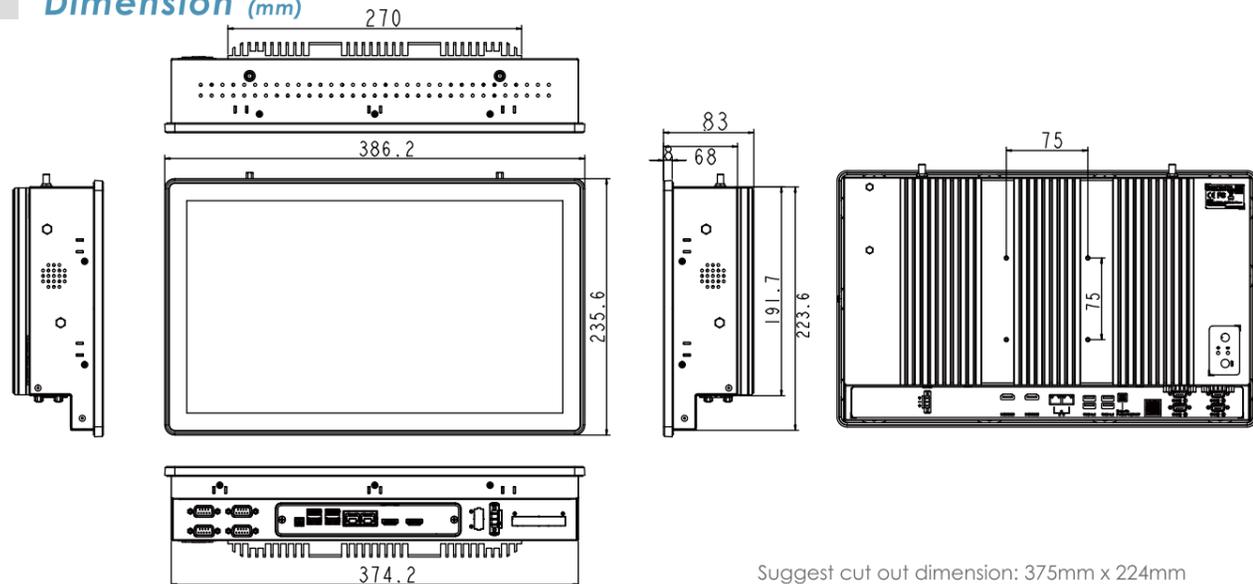


## I/O Interface



- 1 Power
- 2 Reset
- 3 DC-in (terminal block)
- 4 HDMI
- 5 Giga LAN
- 6 USB 3.0
- 7 Remote Power on/ off
- 8 COM

## Dimension (mm)



Suggest cut out dimension: 375mm x 224mm



# P156-11TGS Industrial Panel PC

LCD	
Display Type	15.6" TFT-LCD
Max. Resolution	1920 x 1080
Max. Colors	16.2M (8 bit/color)
Luminance	450 cd/m2
Viewing Angle	170°/170°
Led Backlight (Hours)	50000

TOUCH SCREEN	
Type	P-CAP
Touch Screen	True-flat 10 points

SYSTEM		
	Processor	Intel® Tiger Lake-UP3 i3-1115G4E (Dual Core, 6MB Cache, up to 3.90 GHz) option: 11th Gen Tiger Lake-UP3 Celeron 6305E / i5-1145G7E / i7-1185G7E
	Chipset	Intel® SoC Integrated
	System Memory	DDR4 3200MHz, 1 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
	Ethernet	Intel® I219-LM Giga LAN / Intel® I225-LM 2.5GbE LAN
PD11TGS	I/O Port	2 x RJ45, 3 x RS232 / 1 x RS232 / 422 / 485, 1 x 2-pin remote power on/off 1 x 3-pin Phoenix type terminal block DC input, 4 x USB 3.1 Gen2, 2 x HDMI 1.4
	Watchdog Timer	1~255 steps by software program
	Storage Disk Drive	1 x SATA 2.5" HDD/SSD bay
	Expansion Slot	M.2 3042 / 3052 / 2242 / 2260 / 2280 B key (USB2.0, SATAIII, *PCIex1) *Not support M.2 M Key NVMe SSD / Wireless: M.2 2230 E key (PCIe, USB)
	Stereo Speaker	2 x 3W
	Os Support	Windows® 11 64bit

POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V/ 3.4A, 65W adapter

MECHANICAL	
Mounting	VESA 75/100 mm Stand (support M4/L6)
Dimension	393.5 x 247.1 x 83 (mm)
Weight	5kg

ENVIRONMENTAL	
Operating Temperature	-20°C ~ 55°C
Storage Temperature	-20°C ~ 70°C
Storage Humidity	10% ~ 95% @40°C non-condensing
Vibration Resistance	Operating Random Vibration Test 5 ~ 500Hz; 2Grms @with SSD, follow IEC 60068-2-64
Shock Resistance	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
EMC	CE, FCC Class B
Front Panel Protection	IP65 Compliant
ESTD	E star 7.0, ErP test

## Ordering Information

System I/O							
Model Number	CPU	HDMI	USB 3.1 / 2.0	RS232	LAN	Wifi / BT	Power
P156-11TGS-UP3Ce	Celeron 6305E	2	4 / 0	4	2	Optional	DC-in 8~24V
P156-11TGS-UP3i3	i3-1115G4E	2	4 / 0	4	2	Optional	DC-in 8~24V
P156-11TGS-UP3i5	i5-1145G7E	2	4 / 0	4	2	Optional	DC-in 8~24V
P156-11TGS-UP3i7	i7-1185G7E	2	4 / 0	4	2	Optional	DC-in 8~24V

## Packing List

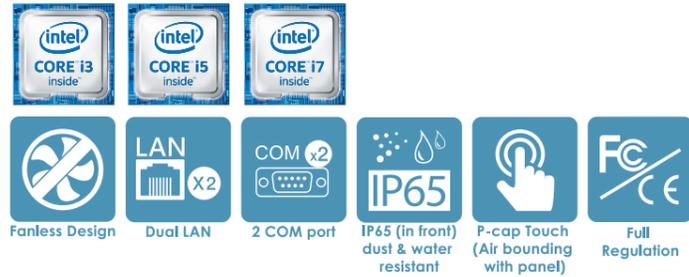
Packing			
• 1 x Panel PC	• 1 x 3 pin Terminal Block Power Connector	• 1 x Quick Installation Guide	• 1 x US + EU Power Cord
• 1 x Screws kit	• 1 x Power Adapter (19V, 65W, DC Jack Type)	• 1 x Mounting kit	

# P156-11KS

15.6" Panel PC / Intel® Kaby Lake Processor

## Feature

- 15.6" TFT LCD with 50,000 hrs backlight lifetime
- Inside Intel® 7th & 6th Gen Core i Processor

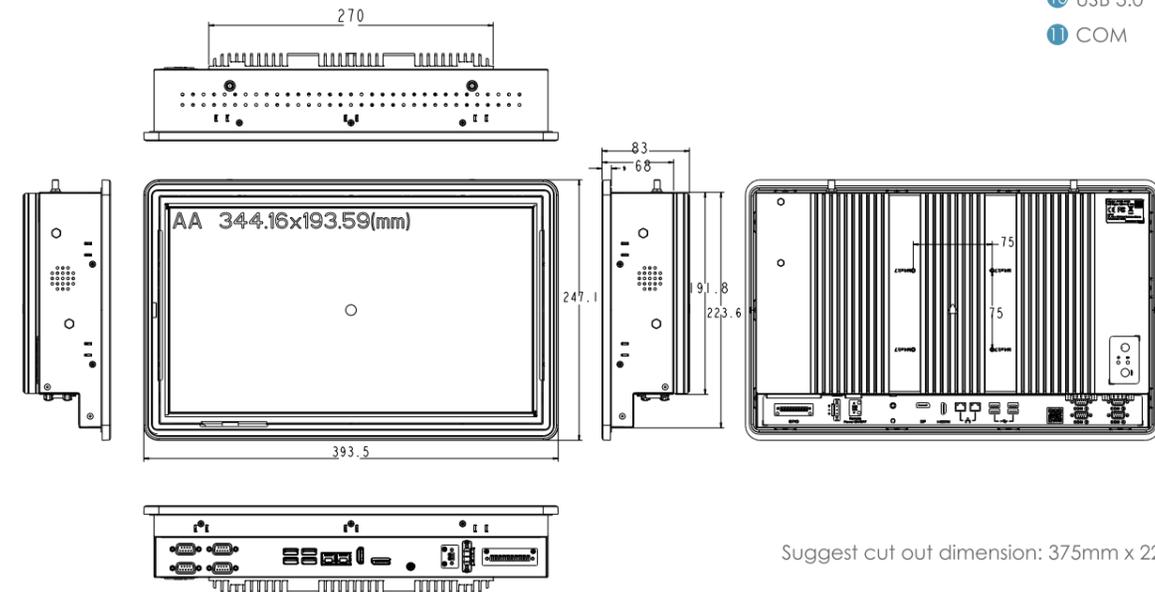


## I/O Interface



- 1 Power
- 2 Reset
- 3 8 bit GPIO
- 4 DC-in (terminal block)
- 5 Remote Power on/off
- 6 Audio Jack
- 7 DisplayPort
- 8 HDMI
- 9 Giga LAN
- 10 USB 3.0
- 11 COM

## Dimension (mm)



Suggest cut out dimension: 375mm x 224mm



# P156-11KS Industrial Panel PC

LCD	
Display Type	15.6" TFT-LCD
Max. Resolution	1920 x 1080
Max. Colors	16.2M (8 bit/color)
Luminance (cd/m2)	450
Viewing Angle (H/V)	170°/170°
Led Backlight (Hours)	50,000
Brightness	Option

TOUCH SCREEN	
Type	P-CAP
Touch Screen	True-flat 10 points
AR/AG	Option

SYSTEM	
Processor	7th Gen Intel® Kaby Lake-U i3-7100U (Dual Core, 3MB Cache, 2.40 GHz) option: 7th Gen Kaby Lake celeron 3965U / i5-7300U / i7-7600U 6th Gen Skylake celeron 3955U / i3-6100U / i5-6300U / i7-6600U
Chipset	Intel® SoC integrated
System Memory	DDR4 2133 MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Ethernet	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN
I/O Port	1 x DC in terminal block
	4 x USB3.0
	4 x RS232
	2 x RJ45
	1 x DisplayPort
	1 x HDMI
Watchdog Timer	1 x Audio Jack (combo Mic-in & Line-out)
	1 x 8bit GPIO terminal block
Storage Disk Drive	1~255 steps by software program
Expansion Slot	1 x SATA 2.5" HDD/SSD bay
	1 x Mini PCIe Full size
Stereo Speaker	2 x 2W
Os Support	Windows® 10 64 bit

POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V 65W adapter

MECHANICAL	
Dimension	393.5 x 247.1 x 83mm (W X H X D)
Weight	5 kg (11.1lb)
Mounting	VESA 75mm / Panel Mount

ENVIRONMENTAL	
Operating Temperature	-20°C ~ 55°C
Storage Temperature	-20°C ~ 70°C
Storage Humidity	10% ~ 90% @40°C non-condensing
Vibration Resistance	Operating Random Vibration Test 5 ~ 500Hz; 2Grms @with SSD, follow IEC 60068-2-64
Shock Resistance	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
EMC	CE, FCC Class B
Front Panel Protection	IP65 Compliant

## Ordering Information

System I/O										
Model Number	CPU	VGA	DisplayPort	HDMI	USB 3.0 / 2.0	Line-out / Mic-in	RS232	LAN	Wifi / BT	Power
P156-11KS-3965U	Celeron 3965U	0	1	1	4 / 0	1 combo jack	4	2	Optional	DC-in 8~24V
P156-11KS-7100U	Core i3-7100U	0	1	1	4 / 0	1 combo jack	4	2	Optional	DC-in 8~24V
P156-11KS-7300U	Core i5-7300U	0	1	1	4 / 0	1 combo jack	4	2	Optional	DC-in 8~24V
P156-11KS-7600U	Core i7-7600U	0	1	1	4 / 0	1 combo jack	4	2	Optional	DC-in 8~24V

## Packing List

Packing			
• 1 x Panel PC	• 1 x 3 pin Terminal Block Power Connector	• 1 x Quick Installation Guide	• 1 x US + EU Poower Cord
• 1 x Screws kit	• 1 x Power Adapter (19V, 65W, DC Jack Type)	• 1 x 10 pin Terminal Male Connector	• 1 x Mounting kit

# P156-10AI

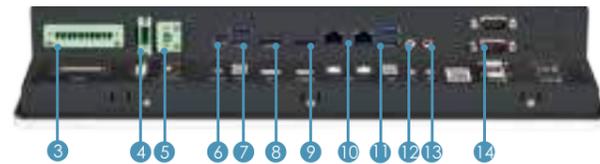
15.6" Panel PC / Intel® Apollo Lake Celeron Processor

## Feature

- 15.6" TFT LCD with 50,000 hrs backlight life-time
- True-flat touchscreen with projected capacitive
- Front panel IP65-rated, fanless design  
Inside Intel® Apollo Lake-M N3350 Processor

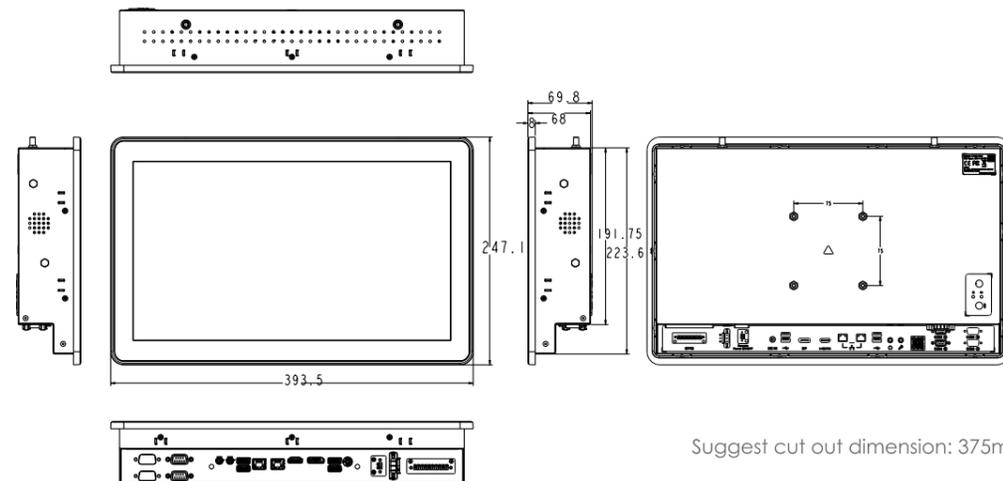


## I/O Interface



- 1 Power
- 2 Reset
- 3 8bit GPIO
- 4 DC in
- 5 Remote power on/off
- 6 DC in
- 7 USB 3.0
- 8 DisplayPort
- 9 HDMI
- 10 LAN
- 11 USB 3.0
- 12 Line-out
- 13 Mic-in
- 14 COM

## Dimension (mm)



Suggest cut out dimension: 375mm x 224mm



# P156-10AI Industrial Panel PC

LCD	
Display Type	15.6" TFT-LCD
Max. Resolution	1920 x 1080
Max. Colors	16.2M (8 bit/color)
Luminance (cd/m2)	450
Viewing Angle (H/V)	170°/170°
Led Backlight (Hours)	50,000
Brightness	Option
TOUCH SCREEN	
Type	P-CAP
Touch Screen	True-flat 10 points
AR/AG	Option
SYSTEM	

Processor	Intel® Apollo Lake-M N3350 Processor Option: N4200
Chipset	Intel® SoC integrated
System Memory	DDR3L 1866 MHz, 2 x 204-pin SO-DIMM, Max. 8GB (Non-ECC)
Ethernet	2 x Intel® I211-AT Giga LAN
I/O Port	1 x DC in terminal block
	1 x DC Jack
	4 x USB3.0
	2 x RS232
	2 x RJ45
	1 x DisplayPort
Watchdog Timer	1 x HDMI
	1 x Mic-in, 1 x Line-out
	1 x 8bit GPIO terminal block
Storage Disk Drive	1 x SATA 2.5" HDD/SSD bay
Expansion Slot	1~255 steps by software program
	1 x M.2 2280 B key
Stereo Speaker	1 x M.2 2230 E key (PCIe / USB)
Os Support	2 x 2W
	Windows® 10 64bit

POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V 65W adapter

MECHANICAL	
Dimension	393.5 x 247.1 x 69.8 mm (W X D X H)
Weight	4.3 kg
Mounting	VESA 75mm / Panel Mount

ENVIRONMENTAL	
Operating Temperature	-20°C ~ 55°C
Storage Temperature	-20°C ~ 70°C
Storage Humidity	10% ~ 95% @40°C non-condensing
Vibration Resistance	Operating Random Vibration Test 5 ~ 500Hz; 2Grms @with SSD, follow IEC 60068-2-64
Shock Resistance	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
EMC	CE, FCC Class B
Front Panel Protection	IP65 Compliant

## Ordering Information

System I/O									
Model Number	CPU	DisplayPort	HDMI	USB 3.0 / 2.0	GPIO	RS-232	LAN	Wifi / BT	Power
P156-10AI- N3350	N3350	1	1	4 / 0	1	2	2	Optional	8~24V
P156-10AI- N4200	N4200	1	1	4 / 0	1	2	2	Optional	8~24V

## Packing List

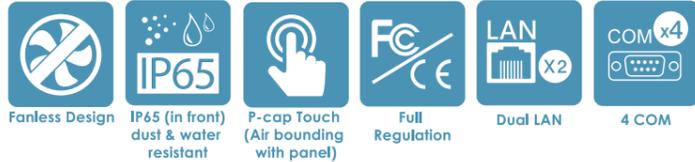
Packing		
1 x Mounting kit	1 x 3 pin Terminal Block Power Connector	1 x US + EU Poower Cord
1 x Panel PC	1 x Power Adapter (19V, 65W, DC Jack Type)	1 x Quick Installation Guide
1 x Screws kit	1 x 10 pin Terminal Male Connector	

# P210-11TGS

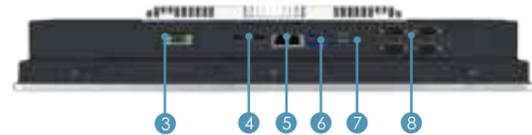
21.5" Panel PC / Intel® Tiger Lake UP3 Processor

## Feature

- 21.5" TFT LCD with 30,000 hrs backlight lifetime
- Front panel IP65-rated, fanless design
- Inside Intel® Tiger Lake UP3 Core i7/i5/i3 / Celeron ULV processors

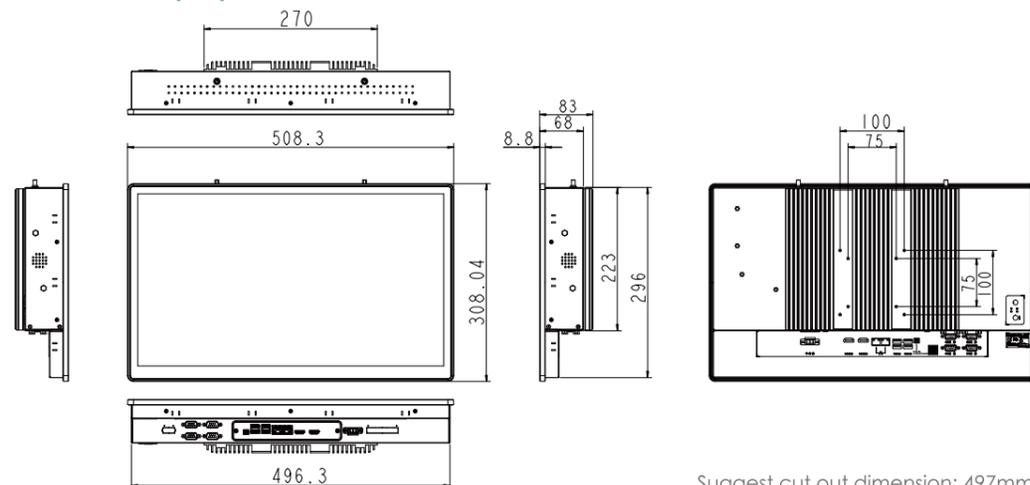


## I/O Interface



- 1 Power
- 2 Reset
- 3 DC-in (terminal block)
- 4 HDMI
- 5 Giga LAN
- 6 USB 3.0
- 7 Remote Power on/off
- 8 COM

## Dimension (mm)



Suggest cut out dimension: 497mm x 297mm



# P210-11TGS Industrial Panel PC

LCD	
Display Type	21.5" TFT-LCD
Max. Resolution	1920 x 1080
Max. Colors	16.7M (8 bit/color)
Luminance (cd/m2)	250
Viewing Angle (H/V)	170°/160°
Led Backlight (Hours)	30,000
Brightness	Option

TOUCH SCREEN	
Type	P-CAP, 5 Wire Resistive(True-flat)
Touch Screen	True-flat 10 points
AR/AG	Option

SYSTEM	
Processor	11th Gen Intel® Tiger Lake-UP3 i3-1115G4E (Dual Core, 6MB Cache, up to 3.90 GHz) option: 11th Gen Tiger Lake-UP3 Celeron 6305E / i5-1145G7E / i7-1185G7E
Chipset	Intel® SoC integrated
System Memory	DDR4 3200MHz, 1 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Ethernet	Intel® I219-LM Giga LAN + Intel® I225-LM 2.5GbE LAN
I/O Port	1 x 2-pin remote power on/off
	4 x USB 3.1 Gen 2
	3 x RS232 / 1 x RS232 / 422 / 485
	2 x RJ45
	2 x HDMI 1.4
Watchdog Timer	1 x 3-pin Phoenix type terminal block DC input
	1~255 steps by software program
Storage Disk Drive	1 x SATA 2.5" HDD/SSD bay
Expansion Slot	M.2 3042 / 3052 / 2242 / 2260 / 2280 B key (USB2.0, SATAIII, *PCIex1)
	*Not support M.2 M Key NVMe SSD / Wireless: M.2 2230 E key (PCIe, USB)
Stereo Speaker	2 x 3W
Os Support	Windows® 11 64bit

POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V 3.4A 65W adapter

MECHANICAL	
Dimension	508.3 x 308 x 83 mm (W X D X H)
Weight	8kg
Mounting	VESA 75 / 100mm (support M4/L6)

ENVIRONMENTAL	
Operating Temperature	0°C ~ 50°C
Storage Temperature	-20°C ~ 60°C
Storage Humidity	10% ~ 90% @40°C non-condensing
Vibration Resistance	Operating Random Vibration Test 5 ~ 500Hz; 2Grms @with SSD, follow IEC 60068-2-64
Shock Resistance	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
EMC	CE, FCC Class A
Front Panel Protection	IP65 Compliant
ESTD	E star 7.0, ErP test

## Ordering Information

System I/O							
Model Number	CPU	HDMI	USB 3.0 / 2.0	RS232	LAN	Wifi / BT	Power
P210-11TGS-UP3Ce	Celeron 6305E	2	4 / 0	4	2	Optional	DC-in 8~24V
P210-11TGS-UP3i3	i3-1115G4E	2	4 / 0	4	2	Optional	DC-in 8~24V
P210-11TGS-UP3i5	i5-1145G7E	2	4 / 0	4	2	Optional	DC-in 8~24V
P210-11TGS-UP3i7	i7-1185G7E	2	4 / 0	4	2	Optional	DC-in 8~24V

## Packing List

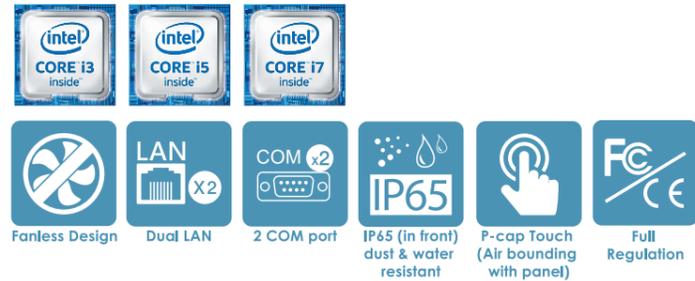
Packing			
• 1 x Screws kit	• 1 x Mounting kit	• 1 x 3 pin Terminal Block Power Connector	• 1 x Quick Installation Guide
• 1 x Panel PC	• 1 x US + EU Poower Cord	• 1 x Power Adapter (19V, 65W, DC Jack Type)	

# P210-11KS

21.5" Panel PC / Intel® Kaby Lake Processor

## Feature

- 21.5" TFT LCD with 30,000 hrs backlight life-time
- Front panel IP65-rated, fanless design
- Inside Intel® 7th & 6th Gen Core i Processor

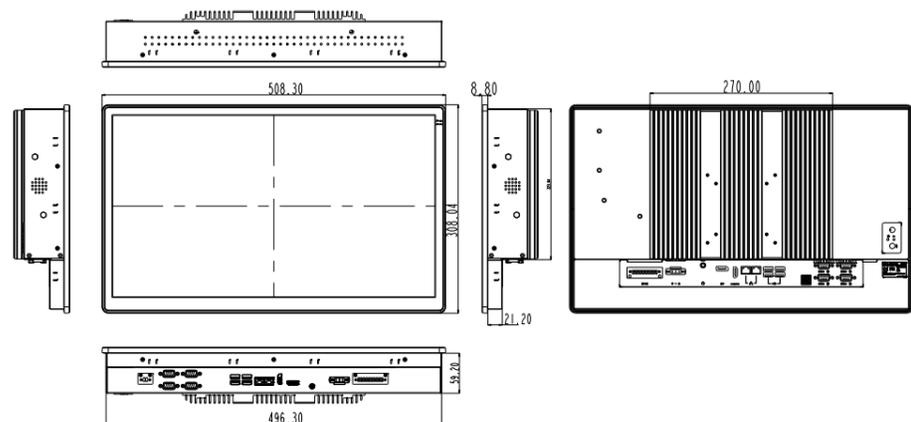


## I/O Interface



- 1 Power
- 2 Reset
- 3 8bit GPIO
- 4 DC-in (terminal block)
- 5 Audio Jack
- 6 DisplayPort
- 7 HDMI
- 8 Giga LAN
- 9 USB 3.0
- 10 COM
- 11 Remote Power (on/off)

## Dimension (mm)



Suggest cut out dimension: 497mm x 297mm



# P210-11KS Industrial Panel PC

LCD	
Display Type	21.5" TFT-LCD
Max. Resolution	1920 x 1080
Max. Colors	16.7M (8 bit/color)
Luminance (cd/m2)	250
Viewing Angle (H/V)	170°/160°
Led Backlight (Hours)	30,000
Brightness	Option

TOUCH SCREEN	
Type	P-CAP
Touch Screen	True-flat 10 points
AR/AG	Option

SYSTEM	
Processor	7 <sup>th</sup> Gen Intel® Kaby Lake-U i3-7100U (Dual Core, 3MB Cache, 2.40 GHz) option: 7 <sup>th</sup> Gen Kaby Lake celeron 3965U / i5-7300U / i7-7600U 6 <sup>th</sup> Gen Skylake celeron 3955U / i3-6100U / i5-6300U / i7-6600U
Chipset	Intel® SoC integrated
System Memory	DDR4 2133 MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Ethernet	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN
I/O Port	1 x DC in terminal block
	4 x USB3.0
	4 x RS232
	2 x RJ45
	1 x DisplayPort
Watchdog Timer	1 x HDMI
	1 x Audio Jack (combo Mic-in & Line-out)
	1 x 8bit GPIO terminal block
Storage Disk Drive	1~255 steps by software program
Expansion Slot	1 x SATA 2.5" HDD/SSD bay
Stereo Speaker	1 x Mini PCIe Full size
	1 x M.2 2230 E key
Os Support	2 x 2W
	Windows® 10 64bit

POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V 65W adapter

MECHANICAL	
Dimension	508.3 x 308 x 83 mm (W X D X H)
Weight	8 kg
Mounting	VESA 75/100mm / Panel Mount

ENVIRONMENTAL	
Operating Temperature	0°C ~ 50°C
Storage Temperature	-20°C ~ 60°C
Storage Humidity	10% ~ 90% @40°C non-condensing
Vibration Resistance	Operating Random Vibration Test 5 ~ 500Hz; 2Grms @with SSD, follow IEC 60068-2-64
Shock Resistance	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
EMC	CE, FCC Class A
Front Panel Protection	IP65 Compliant

## Ordering Information

System I/O										
Model Number	CPU	VGA	DisplayPort	HDMI	USB 3.0 / 2.0	Line-out / Mic-in	RS232	LAN	Wifi / BT	Power
P210-11KS-3965U	Celeron 3965U	0	1	1	4 / 0	1 combo jack	4	2	Optional	DC-in 8~24V
P210-11KS-7100U	Core i3-7100U	0	1	1	4 / 0	1 combo jack	4	2	Optional	DC-in 8~24V
P210-11KS-7300U	Core i5-7300U	0	1	1	4 / 0	1 combo jack	4	2	Optional	DC-in 8~24V
P210-11KS-7600U	Core i7-7600U	0	1	1	4 / 0	1 combo jack	4	2	Optional	DC-in 8~24V

## Packing List

Packing			
• 1 x Screws kit	• 1 x Mounting kit	• 1 x Quick Installation Guide	• 1 x 3 pin Terminal Block Power Connector
• 1 x Panel PC	• 1 x US + EU Power Cord	• 1 x 10 pin Terminal Male Connector	• 1 x Power Adapter (19V, 65W, DC Jack Type)

# P210-10AI

21.5" Panel PC / Intel® Apollo Lake Celeron Processor

## Feature

- 21.5" TFT LCD with 30,000 hrs backlight life-time
- Front panel IP65-rated, fanless design
- Inside Intel® Apollo Lake-M N3350 Processor

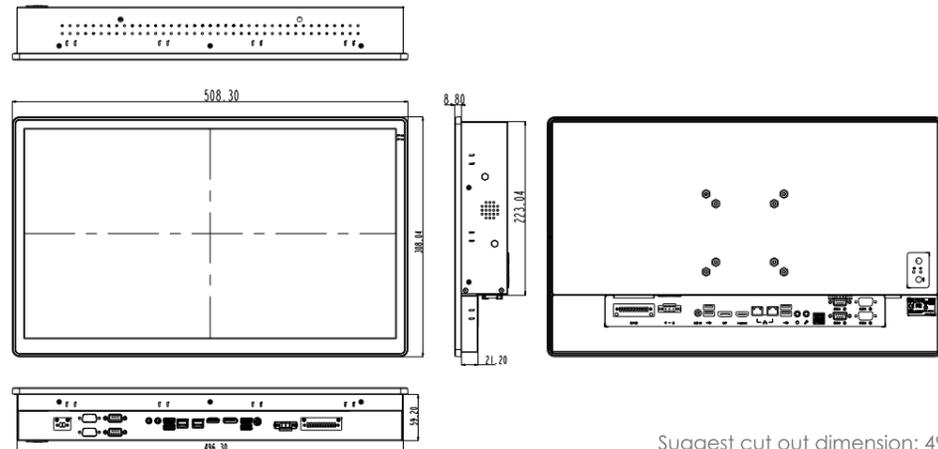


## I/O Interface



- 1 Power
- 2 Reset
- 3 COM
- 4 Mic-in, Line-out
- 5 USB 3.0
- 6 Giga LAN
- 7 HDMI
- 8 DisplayPort
- 9 USB 3.0
- 10 DC-in (DC Jack)
- 11 DC-in (terminal block)
- 12 8bit GPIO

## Dimension (mm)



Suggest cut out dimension: 497mm x 297mm



## P210-10AI Industrial Panel PC

LCD		
Display Type	21.5" TFT-LCD	
Max. Resolution	1920 x 1080	
Max. Colors	16.7M (8 bit/color)	
Luminance (cd/m2)	250	
Viewing Angle (H/V)	170°/160°	
Led Backlight (Hours)	30,000	
Brightness	Option	
TOUCH SCREEN		
Type	P-CAP	
Touch Screen	True-flat 10 points	
Brightness	Option	
SYSTEM		
Processor	Intel® Apollo Lake-M N3350 Processor Option: N4200	
Chipset	Intel® SoC integrated	
System Memory	DDR3L 1866 MHz, 2 x 204-pin SO-DIMM, Max. 8GB (Non-ECC)	
Ethernet	2 x Intel® I211-AT Giga LAN	
I/O Port	1 x DC in terminal block	
	1 x DC Jack	
	4 x USB3.0	
	2 x RS232	
	2 x RJ45	
	1 x DisplayPort	
	1 x HDMI	
	1 x Mic-in & 1 x Line-out	
	1 x 8bit GPIO terminal block	
	Watchdog Timer	1~255 steps by software program
Storage Disk Drive	1 x SATA 2.5" HDD/SSD bay	
Expansion Slot	1 x M.2 2280 B key	
	1 x M.2 2230 E key(PCIe / USB)	
Stereo Speaker	2 x 2W	
Os Support	Windows® 10 64 bit	
POWER REQUIREMENT		
Power Input	DC 8 ~ 24V	
Power Adapter	AC to DC, DC19V 65W adapter	
MECHANICAL		
Dimension	508.3 x 308 x 68 mm (W X D X H)	
Weight	5.9 kg	
Mounting	VESA 75/100mm / Panel Moun	
ENVIRONMENTAL		
Operating Temperature	-10°C ~ 50°C	
Storage Temperature	-20°C ~ 60°C	
Storage Humidity	10% ~ 90% @40°C non-condensing	
Vibration Resistance	Operating Random Vibration Test 5 ~ 500Hz; 2Grms @with SSD, follow IEC 60068-2-64	
Shock Resistance	Operating 10 G peak acceleration (11 ms duration) / follow IEC 60068-2-27	
EMC	CE, FCC Class A	
Front Panel Protection	IP65 Compliant	

## Ordering Information

System I/O									
Model Number	CPU	DisplayPort	HDMI	USB 3.0 / 2.0	GPIO	RS-232	LAN	Wifi / BT	Power
P210-10AI- N3350	N3350	1	1	4 / 0	1	2	2	Optional	8~24V
P210-10AI- N4200	N4200	1	1	4 / 0	1	2	2	Optional	8~24V

## Packing List

Packing			
1 x Panel PC	1 x Screws kit	1 x 3 pin Terminal Block Power Connector	1 x US + EU Poower Cord
1 x Mounting kit	1 x 10 pin Terminal Male Connector	1 x Power Adapter (19V, 65W, DC Jack Type)	1 x Quick Installation Guide

# D151-11TGS

15.6" Touch Panel PC / Intel® Tiger Lake UP3 Core i

## Feature

- 15.6" HD TFT LCD with 50,000 hrs backlight life-time
- True-flat touchscreen with projected capacitive multi-touch control
- Front panel IP65-rated, fanless design
- Support multiple mounting modules(webcam, NFC/RFID, barcode)



intel  
CELERON

intel  
CORE  
i3

intel  
CORE  
i5

intel  
CORE  
i7

intel  
IRIS<sup>xe</sup>  
GRAPHICS

Fanless Design

Dual LAN

2 COM

IP65 (in front)  
dust & water  
resistant

P-cap Touch  
(Air bounding  
with panel)

Full  
Regulation

## Peripheral Options

Model Number Part Number	Description
 MSRD151210-R10 5412D7680002	Compact Intelligent MagStripe Swipe Reader
 MSRSC151210-R10 5412D7680007	Secure EMV Chip Card and Magnetic Stripe Reader
 NRFID151210-R10 5412D7680006	HF RFID / 13.56MHz NFC reader
 CAM50P151210-R10 5412D7680005	5M webcam
 BS151210-R10 5412D7680002	2D barcode Scanner

## I/O Interface



- 1 Power
- 2 DC Input
- 3 Remote Power on/off
- 4 USB 3.0
- 5 Giga LAN
- 6 HDMI
- 7 COM

## Dimension (mm)



# D151-11TGS Industrial Panel PC

LCD	
Display Type	15.6" TFT-LCD
Max. Resolution	1366 x 768
Max. Colors	16.2M (8 bit/color)
Luminance	500 cd/m2
Viewing Angle	170°/160°
Led Backlight (Hours)	50000
TOUCH SCREEN	
Type	P-CAP
Touch Screen	True-flat 10 points
SYSTEM	
Processor	11th Gen Intel® Tiger Lake-UP3 i3-1115G4E (Dual Core, 6MB Cache, up to 3.90 GHz) option: 11th Gen Tiger Lake-UP3 Celeron 6305E / i5-1145G7E / i7-1185G7E
Chipset	Intel® SoC Integrated
System Memory	DDR4 3200MHz / 1 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)
Ethernet	Intel® I219-LM Giga LAN / Intel® I225-LM 2.5GbE LAN 2 x RJ45, 1 x RS232, 1 x RS232 / 422 / 485, 1 x 2-pin remote power on/off
I/O Port	1 x DC Jack, 4 x USB 3.1 Gen2, 2 x HDMI 1.4
Watchdog Timer	1~255 steps by software program
Storage Disk Drive	1 x SATA 2.5" HDD/SSD bay
Expansion Slot	M.2 3042 / 3052 / 2242 / 2260 / 2280 B key (USB2.0, SATAIII, *PCIex1) *Not support M.2 M Key NVMe SSD / Wireless: M.2 2230 E key (PCIe, USB)
Stereo Speaker	2 x 2W
Os Support	Windows® 10 64bit/Windows® 11 64bit
POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V/ 3.4A, 65W adapter
MECHANICAL	
Mounting	VESA 100/ Stand
Dimension	401.6 x 250.9 x 44 (mm)
Weight	4.8kg (10.58 lb)
ENVIRONMENTAL	
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-20°C ~ 60°C (-4°F ~ 140°F)
Storage Humidity	10% ~ 95% @40°C non-condensing
Vibration Resistance	Operating Random vibration Test 5-500Hz, 0.3Grms@with HDD
Shock Resistance	Operating 50 G peak (3 ms duration)
EMC	CE, FCC Class B
Front Panel Protection	IP65 Compliant

## Ordering Information

System I/O							
Model Number	CPU	HDMI	USB 3.2 / 2.0	RS232	LAN	Wifi / BT	Power
D151-11TGS-UP3Ce	Celeron 6305E	2	4 / 0	2	2	Optional	DC-in 8~24V
D151-11TGS-UP3i3	i3-1115G4E	2	4 / 0	2	2	Optional	DC-in 8~24V
D151-11TGS-UP3i5	i5-1145G7E	2	4 / 0	2	2	Optional	DC-in 8~24V
D151-11TGS-UP3i7	i7-1185G7E	2	4 / 0	2	2	Optional	DC-in 8~24V

## Packing List

Packing			
1 x Panel PC	1 x Power Adapter (19V, 65W, DC Jack Type)	US + EU Power Cord	1 x Quick Installation Guide
1 x Screws kit	1 x Cable Cover	2 x Antenna	

# D151-11KS

15.6" Touch Panel PC / Intel® Kabylake ULV Core i

## Feature

- Industrial-grade 15.6" HD TFT LCD with 50,000 hrs backlight lifetime
- True-flat touchscreen with projected capacitive multi-touch control
- Front panel IP65-rated, fanless design
- Support multiple mounting modules(webcam, NFC/RFID, barcode)



CORE i3  
inside

CORE i5  
inside

CORE i7  
inside

Skylake

Kaby Lake

IP65 (In front)  
dust & water  
resistant

Fanless Design

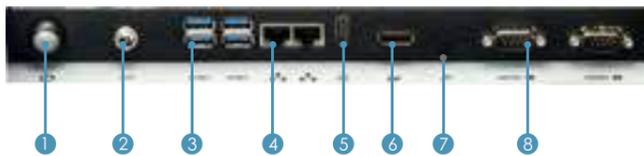
2 COM port

Wide Range  
DC-in

## Peripheral Options

Model Number Part Number	Description
 MSRD151210-R10 5412D7680002	Compact Intelligent MagStripe Swipe Reader
 MSRSC151210-R10 5412D7680007	Secure EMV Chip Card and Magnetic Stripe Reader
 NRFID151210-R10 5412D7680006	HF RFID / 13.56MHz NFC reader
 CAM50P151210-R10 5412D7680005	5M webcam
 BS151210-R10 5412D7680002	2D barcode Scanner

## I/O Interface



- |            |               |              |
|------------|---------------|--------------|
| 1 Power    | 4 Giga LAN    | 7 Audio Jack |
| 2 DC Input | 5 HDMI        | 8 COM        |
| 3 USB 3.0  | 6 DisplayPort |              |

## Dimension (mm)



# D151-11KS Industrial Panel PC

LCD		
Display Type	15.6" TFT-LCD	
Max. Resolution	1366 x 768	
Max. Colors	16.2M (8 bit/color)	
Luminance	500 cd/m2	
Viewing Angle	170°/160°	
Led Backlight (Hours)	50000	
TOUCH SCREEN		
Type	P-CAP	
Touch Screen	True-flat 10 points	
SYSTEM		
PD11KS	Processor	Intel® Kaby Lake-U i3-7100U(Dual Core, 3MB Cache, 2.40 GHz) option: Kaby Lake celeron 3965U / i5-7300U / i7-7600U Skylake celeron 3955U / i3-6100U / i5-6300U / i7-6600U
	Chipset	Integrated
	System Memory	DDR4 2133/2400MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
	Ethernet	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN
	I/O Port	1 x DC Jack , 4 x USB 3.0, 2 x RJ-45, 1 x DisplayPort 1.2, 1 x HDMI 1.4 1 x Audio Jack (combo Line-out + Mic-in), 1 x RS232, 1 x RS232/422/485
	Watchdog Timer	1~255 steps by software program
	Storage Disk Drive	1 x SATA 2.5" HDD/SSD bay
	Expansion Slot	1 x Mini PCIe Full size 1 x M.2 2230 E key slot
	Stereo Speaker	2 x 2W
	Os Support	Kaby Lake: Windows 10 64bit, Linux (support by request) Skylake: Windows 7 32/64bit, Windows 10 64bit, Linux (support by request)

POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V/ 3.4A, 65W adapter
MECHANICAL	
Mounting	VESA 100/ Stand
Dimension	400 x 250 x 44 (mm)
Weight	4.8kg (10.58 lb)
ENVIRONMENTAL	
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-20°C ~ 60°C (-4°F ~ 140°F)
Storage Humidity	10% ~ 95% @40°C non-condensing
Vibration Resistance	Operating Random vibration Test 5-500Hz, 0.3Grms@with HDD
Shock Resistance	Operating 50 G peak (3 ms duration)
EMC	CE, FCC Class A
Front Panel Protection	IP65 Compliant

## Ordering Information

System I/O										
Model Number	CPU	VGA	DisplayPort	HDMI	USB 3.0 / 2.0	Line-out / Mic-in	RS232	LAN	Wifi / BT	Power
D151-11KS-3965U	Celeron 3965U	0	1	1	4 / 0	1 combo jack	2	2	Optional	DC-in 8~24V
D151-11KS-7100U	Core i3-7100U	0	1	1	4 / 0	1 combo jack	2	2	Optional	DC-in 8~24V
D151-11KS-7300U	Core i5-7300U	0	1	1	4 / 0	1 combo jack	2	2	Optional	DC-in 8~24V
D151-11KS-7600U	Core i7-7600U	0	1	1	4 / 0	1 combo jack	2	2	Optional	DC-in 8~24V

## Packing List

Packing			
1 x Panel PC	1 x Power Adapter (19V, 65W, DC Jack Type)	US + EU Power Cord	1 x Quick Installation Guide
1 x Screws kit	1 x Cable Cover	2 x Antenna	

# D210-11TGS

21.5" Panel PC / Intel® Tiger Lake UP3 Processor

## Feature

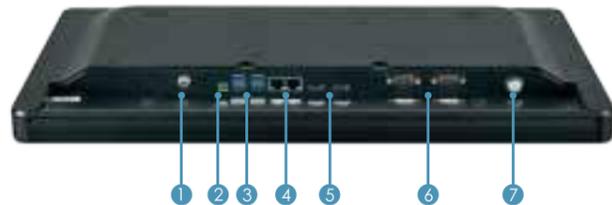
- 21.5" Full HD TFT LCD with 40,000 backlight lifetime
- True-flat touchscreen with projected capacitive multi-touch control
- Front panel IP65-rated, fanless design
- Support multiple mounting modules(webcam, NFC/RFID, barcode)



## Peripheral Options

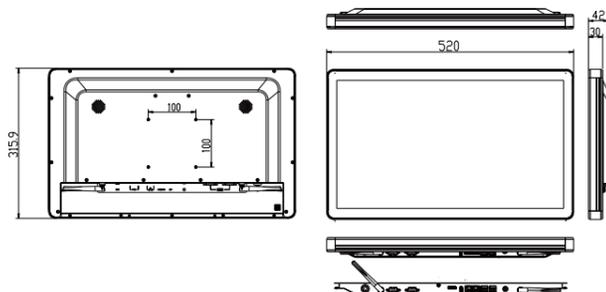
Model Number Part Number	Description
 MSRD151210-R10 5412D7680002	Compact Intelligent MagStripe Swipe Reader
 MSRSC151210-R10 5412D7680007	Secure EMV Chip Card and Magnetic Stripe Reader
 NRFID151210-R10 5412D7680006	HF RFID / 13.56MHz NFC reader
 CAM50P151210-R10 5412D7680005	5M webcam
 BS151210-R10 5412D7680002	2D barcode Scanner

## I/O Interface



- 1 DC Input
- 2 Remote Power on/off
- 3 USB 3.0
- 4 Giga LAN
- 5 HDMI
- 6 COM
- 7 Power

## Dimension (mm)



# D210-11TGS Industrial Panel PC

LCD	
Display Type	21.5" TFT-LCD
Max. Resolution	1920 x 1080
Max. Colors	16.7M (8 bit/color)
Luminance	250 cd/m2
Viewing Angle	178°/178°
Led Backlight (Hours)	40000
TOUCH SCREEN	
Type	P-CAP
Touch Screen	True-flat 10 points
SYSTEM	
Processor	11th Gen Intel® Tiger Lake-UP3 i3-1115G4E (Dual Core, 6MB Cache, up to 3.90 GHz) option: 11th Gen Tiger Lake-UP3 Celeron 6305E / i5-1145G7E / i7-1185G7E
Chipset	Intel® SoC Integrated
System Memory	DDR4 3200MHz / 1 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)
Ethernet	Intel® I219-LM Giga LAN / Intel® I225-LM 2.5GbE LAN
I/O Port	2 x RJ45, 1 x RS232 / 422 / 485, 1 x RS232
Watchdog Timer	1 x DC Jack, 4 x USB 3.1 Gen2, 2 x HDMI 1.4
Storage Disk Drive	1~255 steps by software program
Expansion Slot	1 x SATA 2.5" HDD/SSD bay
Stereo Speaker	M.2 3042 / 3052 / 2242 / 2260 / 2280 B key (USB2.0, SATAIII, *PCIex1)
Os Support	*Not support M.2 M Key NVMe SSD / Wireless: M.2 2230 E key (PCIe, USB)
POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V/ 3.4A, 65W adapter
MECHANICAL	
Mounting	VESA 100/ Stand
Dimension	520 x 315.9 x 45.2 mm
Weight	10kg (22.04 lb)
ENVIRONMENTAL	
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-20°C ~ 60°C (-4°F ~ 140°F)
Storage Humidity	10% ~ 95% @40°C non-condensing
Vibration Resistance	Operating Random vibration Test 5-500Hz, 0.3Grms@with HDD
Shock Resistance	Operating 50 G peak (3 ms duration)
EMC	CE, FCC Class B
Front Panel Protection	IP65 Compliant

## Ordering Information

System I/O							
Model Number	CPU	HDMI	USB 3.1 / 2.0	RS232	LAN	Wifi / BT	Power
D210-11TGS-UP3Ce	Celeron 6305E	2	4 / 0	2	2	Optional	DC-in 8~24V
D210-11TGS-UP3i3	i3-1115G4E	2	4 / 0	2	2	Optional	DC-in 8~24V
D210-11TGS-UP3i5	i5-1145G7E	2	4 / 0	2	2	Optional	DC-in 8~24V
D210-11TGS-UP3i7	i7-1185G7E	2	4 / 0	2	2	Optional	DC-in 8~24V

## Packing List

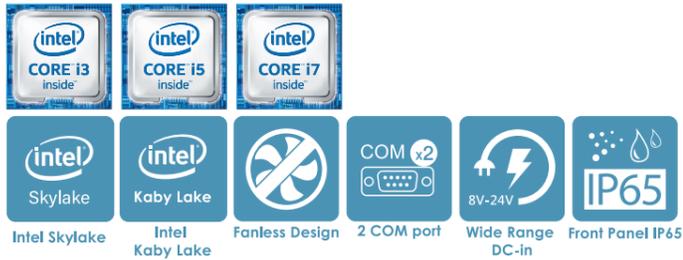
Packing			
1 x Panel PC	1 x Power Adapter (19V, 65W, DC Jack Type)	US + EU Power Cord	1 x Quick Installation Guide
1 x Screws kit	1 x Cable Cover	2 x Antenna	

# D210-11KS

21.5" Touch Panel PC / Intel® KabyLake ULV Core i

## Feature

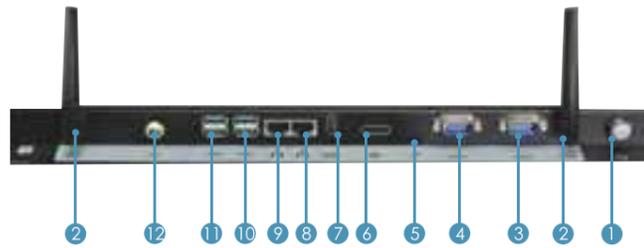
- Industrial-grade 21.5" Full HD TFT LCD with 40,000 backlight lifetime
- True-flat touchscreen with projected capacitive multi-touch control
- Front panel IP65-rated, fanless design
- Support multiple mounting modules(webcam, NFC/RFID, barcode)



## Peripheral Options

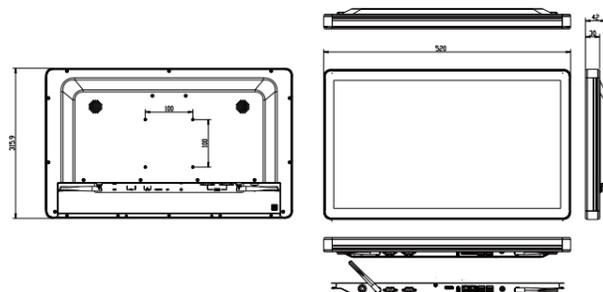
Model Number Part Number	Description
MSRD151210-R10 5412D7680002	Compact Intelligent MagStripe Swipe Reader
MSRSC151210-R10 5412D7680007	Secure EMV Chip Card and Magnetic Stripe Reader
NRFID151210-R10 5412D7680006	HF RFID / 13.56MHz NFC reader
CAM50P151210-R10 5412D7680005	5M webcam
BS151210-R10 5412D7680002	2D barcode Scanner

## I/O Interface



- |           |               |             |
|-----------|---------------|-------------|
| 1 Power   | 5 Audio Jack  | 9 Giga LAN  |
| 2 Antenna | 6 DisplayPort | 10 USB 3.0  |
| 3 COM     | 7 HDMI        | 11 USB 3.0  |
| 4 COM     | 8 Giga LAN    | 12 DC input |

## Dimension (mm)



# D210-11KS Industrial Panel PC

LCD	
Display Type	21.5" TFT-LCD
Max. Resolution	1920 x 1080, FHD
Max. Colors	16.7M (8 bit/color)
Luminance	250 cd/m2
Viewing Angle	178°/178°
Led Backlight (Hours)	40000

TOUCH SCREEN	
Type	P-CAP
Touch Screen	True-flat 10 points

SYSTEM		
PD11KS	Processor	7th Gen Intel® Kaby Lake-U i3-7100U (Dual Core, 3MB Cache, 2.40 GHz) option: Kaby Lake celeron 3965U / i5-7300U / i7-7600U Skylake celeron 3955U / i3-6100U / i5-6300U / i7-6600U
	Chipset	Integrated
	System Memory	2 x DDR4 2133/2400MHz, 260-pin SO-DIMM, Max. 32GB (Non-ECC)
	Ethernet	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN
	I/O Port	1 x DC Jack, 4 x USB 3.0, 2 x RJ45, 1 x DisplayPort 1.2, 1 x HDMI 1.4 1 x Audio Jack (combo Line-out + Mic-in), 1 x RS232, 1 x RS232/422/485
	Watchdog Timer	1~255 steps by software program
	Storage Disk Drive	1 x SATA 2.5" HDD/SSD bay, 1 x mSATA (through expansion slot)
	Expansion Slot	1 x Mini PCIe Full size 1 x M.2 2230 E key slot
	Stereo Speaker	2 x 3W
	OS Support	7th Gen Kaby Lake: Windows 10 64bit, Linux (support by request) 6th Gen Skylake: Windows 7 32 / 64bit, Windows 10 64bit, Linux (support by request)

POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V/ 3.4A, 65W adapter

MECHANICAL	
Mounting	VESA 100/ Stand
Dimension	520 x 315 x 42 (mm)
Weight	10kg (22.04 lb)

ENVIRONMENTAL	
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-20°C ~ 60°C (-4°F ~ 140°F)
Storage Humidity	10% ~ 95% @40°C non-condensing
Vibration Resistance	Operating Random vibration Test 5-500Hz, 0.3Grms@with HDD
Shock Resistance	Operating 50 G peak (3 ms duration)
EMC	CE, FCC Class A
Front Panel Protection	IP65 Compliant

## Ordering Information

System I/O										
Model Number	CPU	VGA	DisplayPort	HDMI	USB 3.0 / 2.0	Line-out / Mic-in	RS232	LAN	Wifi / BT	Power
D210-11KS-3965U	Celeron 3965U	0	1	1	4 / 0	1 combo jack	2	2	Optional	DC-in 8~24V
D210-11KS-7100U	Core i3-7100U	0	1	1	4 / 0	1 combo jack	2	2	Optional	DC-in 8~24V
D210-11KS-7300U	Core i5-7300U	0	1	1	4 / 0	1 combo jack	2	2	Optional	DC-in 8~24V
D210-11KS-7600U	Core i7-7600U	0	1	1	4 / 0	1 combo jack	2	2	Optional	DC-in 8~24V

## Packing List

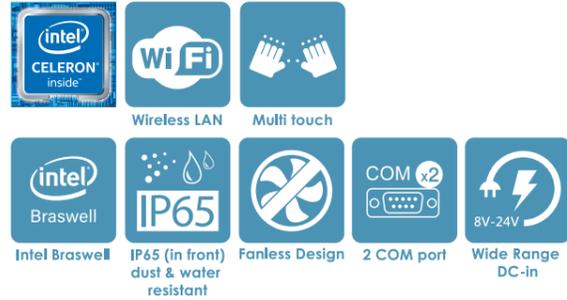
Packing			
1 x Panel PC	1 x Power Adapter (19V, 65W, DC Jack Type)	US + EU Power Cord	1 x Quick Installation Guide
1 x Screws kit	1 x Cable Cover	2 x Antenna	

# D210-10RI

21.5" Touch Panel PC / D210 with Intel® Platform

## Feature

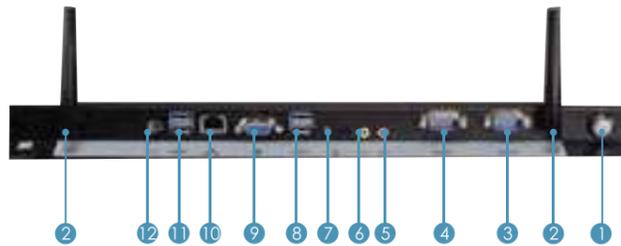
- Industrial-grade 21.5" Full HD TFT LCD with 40,000 backlight lifetime
- True-flat touchscreen with projected capacitive multi-touch control
- Front panel IP65-rated, fanless design
- Support multiple mounting modules (webcam, NFC/RFID, barcode)



## Peripheral Options

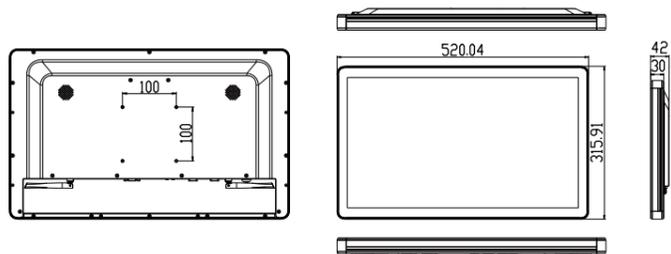
Model Number Part Number	Description
 MSR151210-R10 5412D7680002	Compact Intelligent MagStripe Swipe Reader
 MSRSC151210-R10 5412D7680007	Secure EMV Chip Card and Magnetic Stripe Reader
 NRFID151210-R10 5412D7680006	HF RFID / 13.56MHz NFC reader
 CAM50P151210-R10 5412D7680005	5M webcam
 BS151210-R10 5412D7680002	2D barcode Scanner

## I/O Interface



- |           |            |             |
|-----------|------------|-------------|
| 1 Power   | 5 Mic-in   | 9 VGA       |
| 2 Antenna | 6 Line-out | 10 RJ45     |
| 3 COM     | 7 HDMI     | 11 USB 3.0  |
| 4 COM     | 8 USB 3.0  | 12 DC input |

## Dimension (mm)



# D210-10RI Industrial Panel PC

LCD		
Display Type	21.5" TFT-LCD	
Max. Resolution	1920 x 1080	
Max. Colors	16.7M (8 bit/color)	
Luminance	250 cd/m2	
Viewing Angle	178°/178°	
Led Backlight (Hours)	40000	
TOUCH SCREEN		
Type	P-CAP	
Touch Screen	True-flat 10 points	
SYSTEM		
Processor	Intel® Celeron® Processor N3160 (Quad Core, 2M Cache, up to 2.24GHz)	
Chipset	Integrated	
System Memory	DDR3L 1866MHz, 2 x 204-pin SO-DIMM, Max. 8GB (Non-ECC)	
Ethernet	Realtek RTL8111G Giga LAN	
I/O Port	1 x DC Jack , 4 x USB 3.0, 1 x RJ45 , 1 x VGA , 1 x HDMI, 1 x Line-out 1 x Mic-in, 2 x RS232 (RS232/RS422/RS485)	
Watchdog Timer	1~255 steps by software program	
Storage Disk Drive	1 x SATA 2.5" HDD/SSD bay	
Expansion Slot	1 x Mini PCIe Full/Half size 1 x Mini PCIe Half size	
Stereo Speaker	2 x 3W	
OS Support	Windows 7 32bit / 64bit Windows 10 64bit Linux (support by request)	

POWER REQUIREMENT	
Power Input	DC 8 ~ 24V
Power Adapter	AC to DC, DC19V/ 3.4A, 65W adapter

MECHANICAL	
Mounting	VESA 100/ Stand
Dimension	520 x 315 x 42 (mm)
Weight	10kg (22.04 lb)

ENVIRONMENTAL	
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-20°C ~ 60°C (-4°F ~ 140°F)
Storage Humidity	10% ~ 95% @40°C non-condensing
Vibration Resistance	Operating Random vibration Test 5-500Hz, 0.3Grms@with HDD
Shock Resistance	Operating 50 G peak (3 ms duration)
EMC	CE, FCC Class A
Front Panel Protection	IP65 Compliant

## Ordering Information

System I/O										
Model Number	CPU	VGA	DisplayPort	HDMI	Line-out / Mic-in	USB 3.0 / 2.0	RS232	LAN	Wifi / BT	Power
D210-10RI-N3160	Celeron N3160	1	0	1	1 / 1	4 / 0	2	1	Optional	DC-in 8~24V

## Packing List

Packing			
1 x Panel PC	1 x Screws kit	2 x Antenna	1 x Cable Cover
1 x Quick Installation Guide	US + EU Power Cord	1 x Power Adapter (19V, 65W, DC Jack Type)	

## Point of Service



## Kiosk – Neon Series

15.6" to 32"  
Interactive Self-Service Kiosk

### Feature

- Selectable built-in 15.6" to 32" open-frame panel PC
- Selectable Intel® Client Platform 15W-65W CPUs
- Selectable Intel® Entry Platform 4.5W-12W CPUs
- 16:9 widescreen display with 1920 x 1080 resolution
- 10 points capacitive touch screen
- Front access for easy management
- Support pole and wall mounting
- Support Windows and Linux operating systems
- Optional accessory: HD camera, thermal printer, barcode scanner and MiAir-touch solution



Utilizing touchless technology to make customer not only get used to post COVID-19 life seamlessly but also in a safe manner, namely ComiSmartAirTouch

### K32F Fully-Rugged Tablet

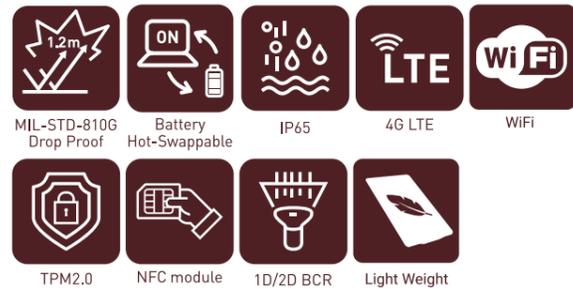
DISPLAY	
Size	15.6", 21.5", 32" TFT-LCD
Max. Resolution	1920 x 1080
Max. Colors	16.7M
Luminance (cd/m2)	332nits (Typ.)
View Angle	178° / 178°
LED Backlight (hours)	30000
TOUCH SCREEN	
Type	P-CAP
Touch	10 point capacitive multi-touchscreen supporting glove mode and rain mode
TABLET	
Motherboard Selectable	Intel® Comet Lake Core i7/ i5/ i3/ Pentium / Celeron LGA1151 processors Intel® Coffee Lake Core i7/ i5/ i3/ Pentium / Celeron LGA1151 processors Intel® Sky Lake/ Kaby Lake Core i7/ i5/ i3/ Pentium / Celeron LGA1151 processors Intel® Elkhart Lake ATOM/ Celeron/ Pentium BGA Processor Intel® Tiger Lake UP3 Core i7/ i5/ i3 / Celeron ULV processors
Memory	Supported by request
Storage	Supported by request
OS supported	Windows® 10 64-bit/ Linux (support by request)
Stereo Speaker	2 x 3W
Wireless	IEEE 802.11 ac/a/b/g/n (2.4GHz/5GHz)
Bluetooth	BT V4.2
Barcode Scanner	2D imager module, 1D/ 2D barcode supported
Camera	5M, AF camera
Printer	Integrated 58mm thermal printer, auto/ partial cut
Touchless solution	ComiSmartAirTouch
Color	Supported by request
Power Switch	Yes
Infusion switch	Yes
Maintenance USB	1 x USB (front access)
Weight	115Kg
Dimension	729*600*1777mm (include stand footprint)
Operating Temperature	0~ 40°C (32 ~ 104°F)
Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)
Storage Humidity	10% ~ 95% @60°C non-condensing

# Cappuccino

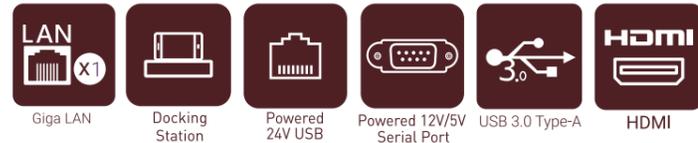
Intel® Apollo Lake Pentium N4200E

## Feature

- 11.6" Windows® Tablet w/ 2K Resolution
- Extra Light (<900g w/ entry SKU)
- IP65
- MIL-STD-810G on 1.2m Drop Proof, S&V, High/Low Temperature
- Hot-Swappable Battery
- Honeywell Software Decode Scanner 1D/2D (Optional)
- WiFi ac/a/b/g/n, NFC Module
- Support by Request: GPS & LTE
- HW TPM2.0 FIPS 140-2 Level 2 Compliance
- Accessory for Cable Cover w/ Docking Station
- Adjustable View-angle Docking Station
- Accessory for I/O Connectivity
- Accessory for Vehicle Mounting VESA 75mm
- Accessory for charging battery



## Accessory Feature



Accessory Model
Cappuccino Docking Station(with additional Cable Cover)
Cappuccino Extension Cover (w/ VESA 75mm mounting)
2 slots Battery Charger

## Ordering Information

Model Number	OS	CPU	LCD Brightness	RAM	Storage	WiFi/BT	TPM	Main Battery	Operating Temperature	Power Supply	NFC
Tablet Standard Config	Win10 IoT 2019	Intel N4200	300nits	4GB	64GB SSD	ac/a/b/g/n BT V5.0	HW TPM 2.0	19.53Whr	-10°C ~ 50°C	19V/65W Adapter +Power Cord	NFC Reader (NXP NPC300)

Model Number	LCD Brightness	RAM	Storage	GPS	LTE	MainBattery (Spare Hardpack Battery)	Barcode Scanner	Model Number	Docking Station	Extension Cover	Battery Charger
Tablet Optional Config	500nits	8GB	256GB SSD	Ublox IC	CAT6 (Sierra Module)	19.53Whr	* Software Decode (Honeywell SwiftDecode)	Accessory	Docking Station with additional Cable Cover	Extension Cover with VESA 75mm Mounting	2 Slots

Note: Optional Config Support by Request  
 \* SDK Solution only. (SDK + Integration Guide).  
 Further integration with customer's proprietary application would be mandatory.

Note: Including additional 24V/180W



# Cappuccino Fully-Rugged Tablet

DISPLAY	
Size	11.6" TFT-LCD
Max. Resolution	1920 x 1080
Luminance (cd/m2)	300nits (Option: 500nits)
Glass Type	Gorilla® Glass 3 and Direct Bonding
TOUCH SCREEN	
Type	P-CAP
Touch	10 point capacitive multi-touchscreen supporting glove mode and rain mode
TABLET	
Operating System	Windows® 10 IoT Enterprise 2019 LTSB
Processor	Intel® Apollo Lake Pentium N4200E (Quad-Cores) 1.1GHz with turbo frequency to 2.5GHz, 2MB L2 Cache (4 Threads)
Chipset	Intel® SoC Integrated
System RAM	LPDDR4 3733MHz 4GB (Option: 8GB)
System ROM	M.2 SSD 64GB (Option: 256GB)
Wireless	IEEE 802.11 ac/a/b/g/n (2.4GHz/5GHz)
Bluetooth	BT V5.0
LTE/GPS	Support by Request : GPS (UBX-G8020-KT) & LTE CAT6 w/ M.2 Slot Comp. w/ regular M.2 card
NFC	NFC Reader (NXP NPC300)
Barcode Scanner	Option: SW Decode: Honeywell SwiftDecoder (1D/2D Support)*SDK Solution only. (SDK + Integration Guide). Further integration with customer's proprietary application would be mandatory.
Rear Camera	8MP Auto-Focus CMOS built-in module with Flash LED
Switch Key	1 x Dump Switch ; 1 x Reset Switch
Sensor	Ambient Light Sensor, Gyro Sensor & G-sensor
Speaker	2 x 0.8W
Microphone	Yes
LED Indicator	Charging LED, Power LED
Main Battery	19.53Whr Removable lithium battery with latch lock (2570mAh, 7.6V) *with JEITA2.0 Test Report 4.2hrs
Hot-Swappable Battery	Yes, 2.66Whr back-up battery (700mAh*1, 3.8V, 1S1P)
I/O Port	1 x USB 3.0 Type-A
	1 x Nano-SIM w/ LTE only (Support by Request)
	1 x Audio Jack
	1 x DC Jack
	1 x POGO Connector
Keypad	1 x Power Key
	2 x Volume Key
	3 x Capacitive Function Key (on front side)
Fully Rugged Feature	IP65 MIL-STD-810G: - 1.2M Drop - Shock & Vibration - Sand & Dust-Blowing Sand - High/Low Temperature – Operation - High/Low temperature – Storage - Freeze/thaw –Rapid temperature change - Thermal Shock
Dimension	299 x 199 x 17.7 mm (w/o bumpers & hand-strap) / 307.9 x 207.9 x 29.3 mm (w/ bumpers & hand-strap)
Weight	895g (Entry WiFi SKU)
Operating Temperature	-10°C ~ 50°C
Storage Temperature	-20°C ~ 60°C
Storage Humidity	10% ~ 90% @40°C non-condensing
Security	HW TPM 2.0 FIPS 140-2 Level 2 Compliance
Certification	CB/CE/FCC/VCCI
Hand-strap	Yes
Shoulder-strap	Yes
Power Adapter	AC to DC, DC 19V 65W Adaptor

## Peripheral

Docking Station		Extension Cover	
Key Feature	Desktop Cradle with Power Charging Battery Charging Bay and I/O Expansion	Key Feature	Vehicle Mounting VESA mount support 75 mm x 75mm Power Charging and I/O Expansion Clip-Fix Design for Pick-up Tablet by Tool-Less
I/O	1 x Powered 24V USB 1 x USB 3.0 Type-A 2 x USB 2.0 Type-A 1 x HDMI 1.3 1 x Powered 5V/12V Serial Port 1 x Giga LAN 1 x Battery Charging Slot 1 x DC Jack	I/O	1 x Powered 24V USB 1 x USB 3.0 Type-A 1 x HDMI 1.3 1 x Powered 5V/12V Serial Port 1 x Giga LAN (Optional) 3 x SMA ( 2 x LTE and 1 x GPS) for RF Antenna Path (Optional) 1 x Nano-SIM (support by request)
Power Adapter	AC to DC, DC 24V 180W Adaptor	Power Adapter	1 x DC Jack AC to DC, DC 24V 180W Adaptor
Battery Charger			
Battery Charger	SKU1: with 1 battery pack; SKU2: with 2 battery packs		



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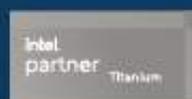
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Your Success is Our Ambition



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