



MITAC COMPUTING TECHNOLOGY CORP.

Embedded Products

Your Success is Our Ambition



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Product

Industrial Motherboard ----- 32

Micro ATX	Thin Mini-iTX	Mini-iTX	3.5" SBC	2.5" SBC
PH10CMU P34	PH12ADI P40	PD10EHI P54	PH13CMI P62	PD11TGS P70
PH10FEU P36	PH11CMI P42	PD10AI P56	PH13FEI P64	PD10KS P72
PH10SU P38	PH12CMI P44	PD10BI P58	PD14RI P66	PD11KS P74
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	PH14FEI P48			COMe
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Embedded System ----- 84

Rugged system	Fanless system	Fanned system	Rackmount system
MX1-10FEP P88	MB1-10AP P96	E310-10EHI P102	E500-14FEI P114
MX1-10FEP-D P90	ME1-108T P98	E410-13CMI P104	E600-13CMI P116
MP1-11TGS P92	ME1-118T P100	E300 P106	NV1 P118
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Industrial Panel PC ----- 118

Panel Mount : P Series	VESA Mount : D Series	Commercial : M Series
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Point of Service ----- 156

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Kiosk – Neon P157	Cappuccino P158

Comparison

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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.

40 YEAR

IN-DEPTH EXPERIENCE
IN-COMPUTER SOLUTION

1000+ R&D

OUTSTANDING
ENGINEERS

100%

IN-HOUSE PRODUCTION

>7 YEAR

PRODUCT LIFE
CYCLE SUPPORT

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

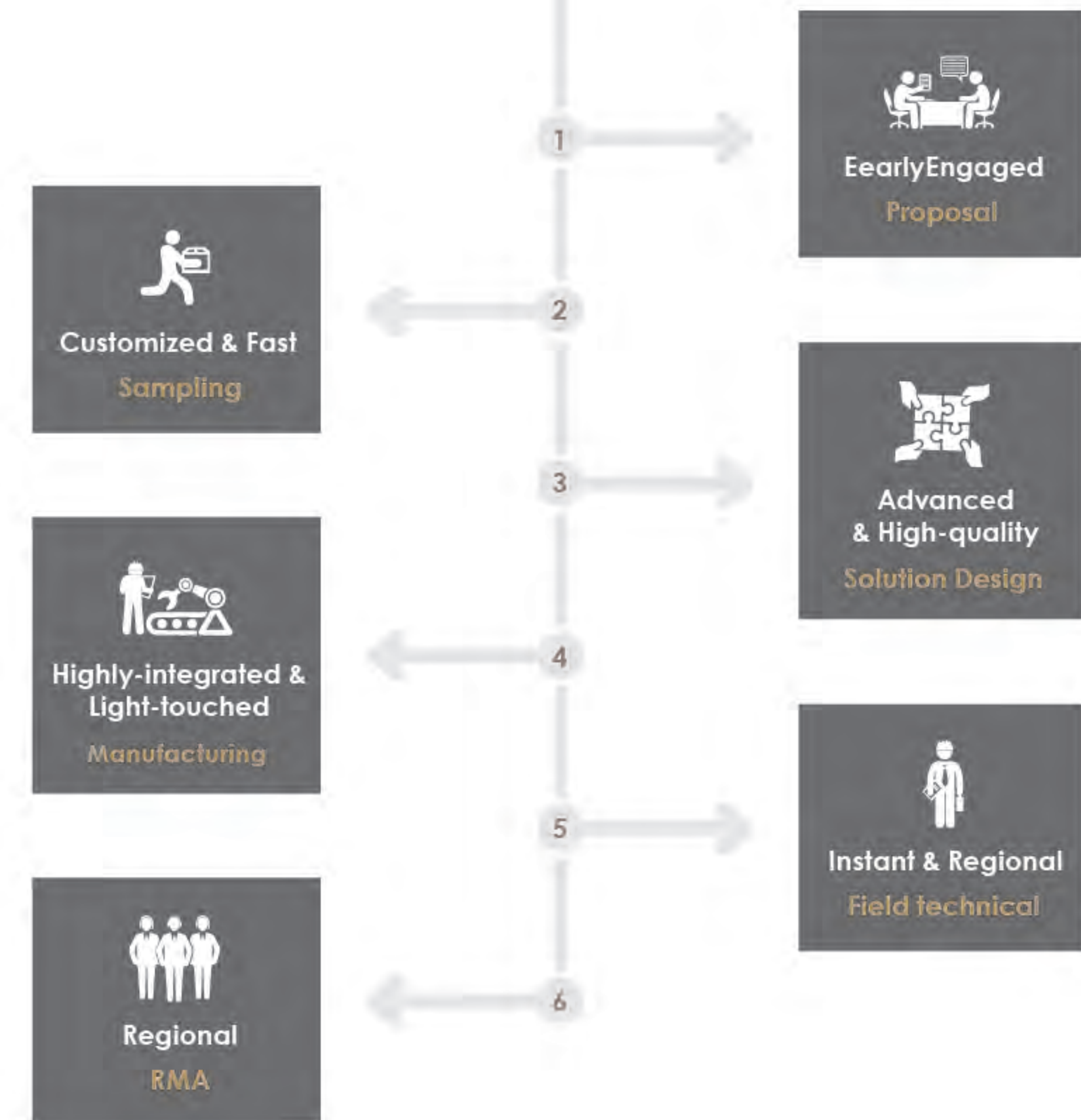
Certifications



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



Newark, CA USA
237K ft2

- Supply chain Management
- BTO / CTO & Rack integration
- Forward / Reverse logistics services
- Repair / Refurbish management

Tabor, Czech

- Supply chain management
- BTO / CTO & Rack integration
- Forward / Reverse logistics services
- Repair / Refurbish management

Shunde, China
1,667K ft2

- Supply chain management
- Server, storage, systems
- HPC, IPDC systems
- Industrial Products: rPOS, mPOS, Tablet, AIO, WS
- Automotive electronics

Hsinchu Taiwan (HOU)
200K ft2

- Supply chain management
- Server, DC Systems
- Embedded
- Automotive electronics

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.

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.



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.



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.

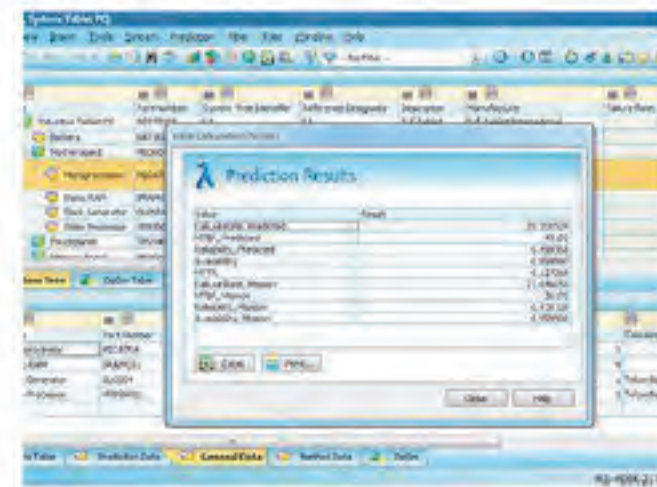
Robust & Reliable

Design Quality Assurance

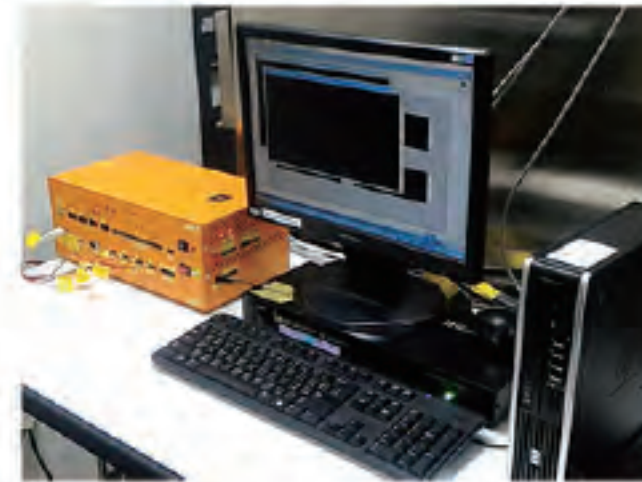
Professional design and comprehensive validation

Reliability Test

MTBF Prediction



Power Cycling Test



Temperature Humidity Test



MTBF Demonstration



HALT Test

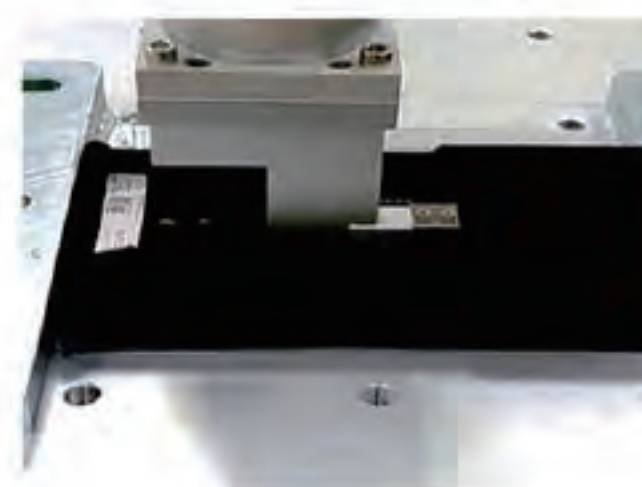


Durability Test

Surface Endurance Test



I/O Connector Life Test



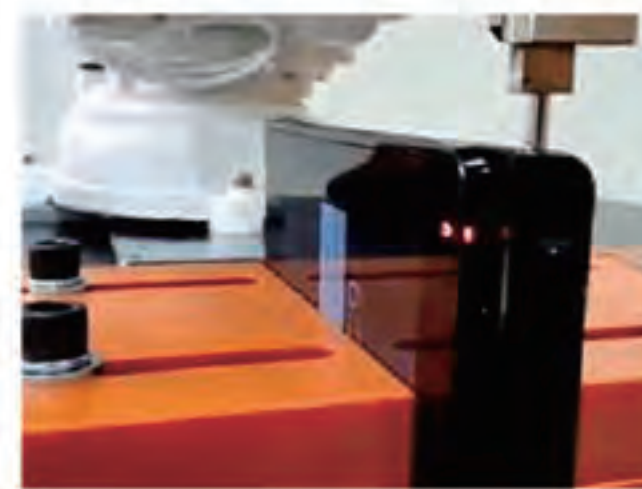
Touch Panel Life Test



Card Swipe Test

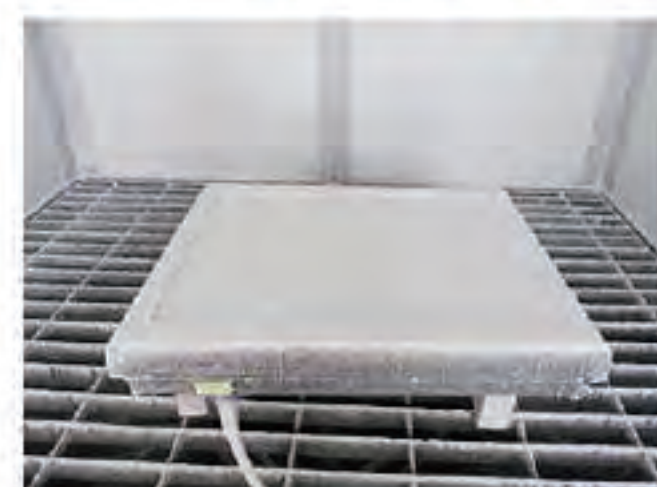


Power Button Test



Water & Dust Proof Test

Anti-Dust IP-6X Testing

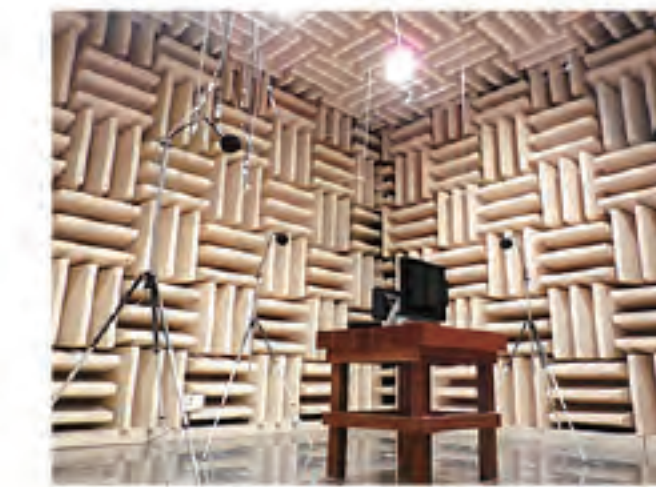


Anti-Water IP-X4 Testing



Acoustic Test

Acoustic-Sound Pressure Test



Acoustic-Sound Power Test



Package Test

Single Package Vibration Test



Pallet Package Vibration Test



Package Temperature Humidity Test



Single Package Drop Test



Pallet Package Drop Test

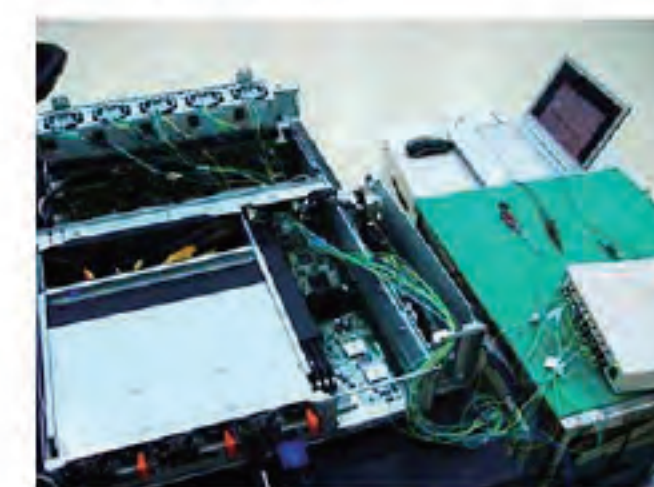


S & V Test

Vibration and Op Shock Test



Rotational Vibration Test



Non Op Shock Test



Free Fall Test



Worldwide ENV Marks & Ecolabels

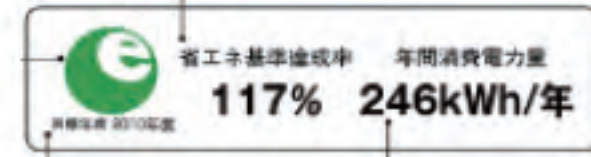
European WEEE



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 mobaile 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 thru
- 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.

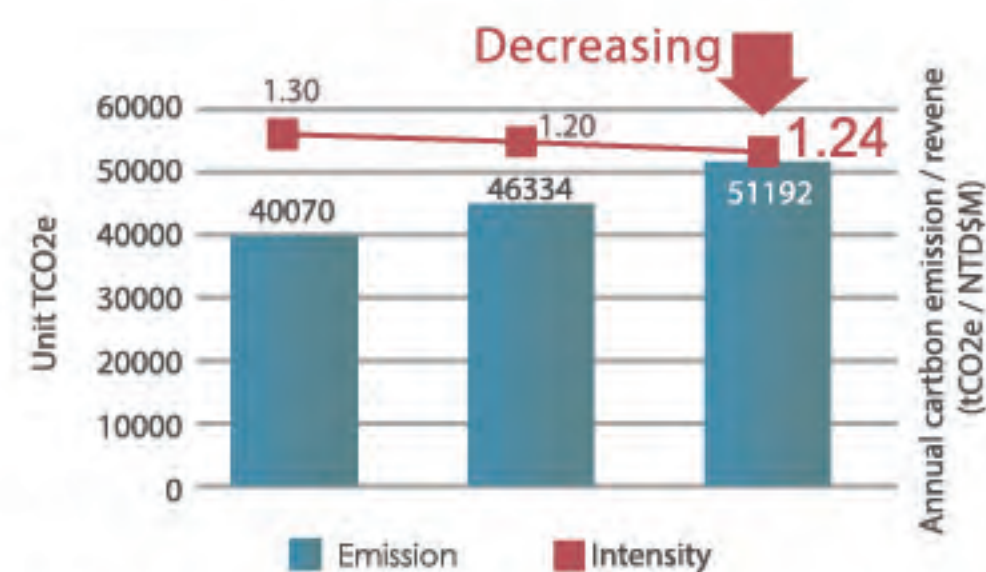
■ MiTAC has created a green product management platform (eGP System) and high efficiency supply chain management system (eSCM System) ensure that our products comply with the latest environmental regulations.

■ 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

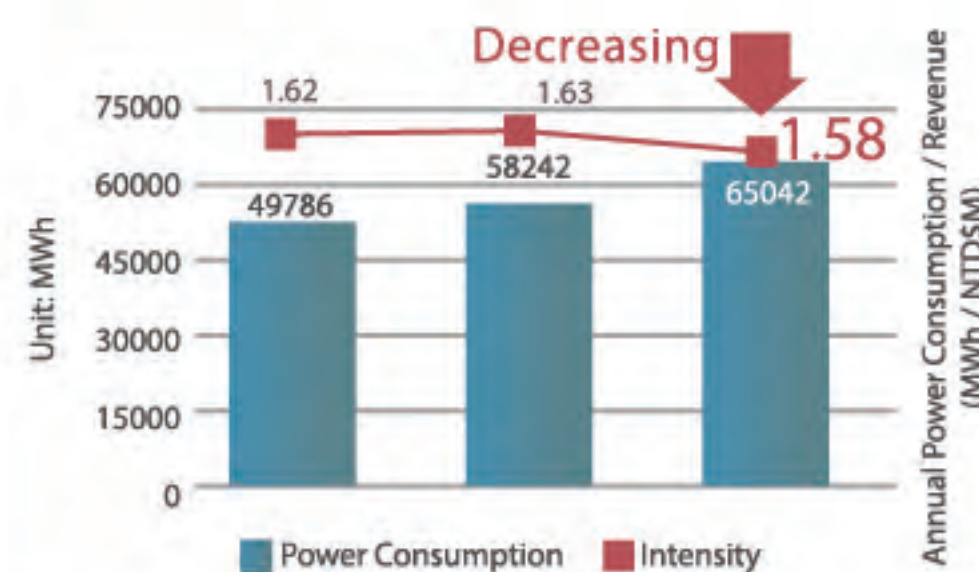
In response to accelerating climate change, MiTAC holdings corp. set an carbon reduction goal for moving toward a cleaner and more sustainable business.

Greenhouse gas (GHG) emission and intensity



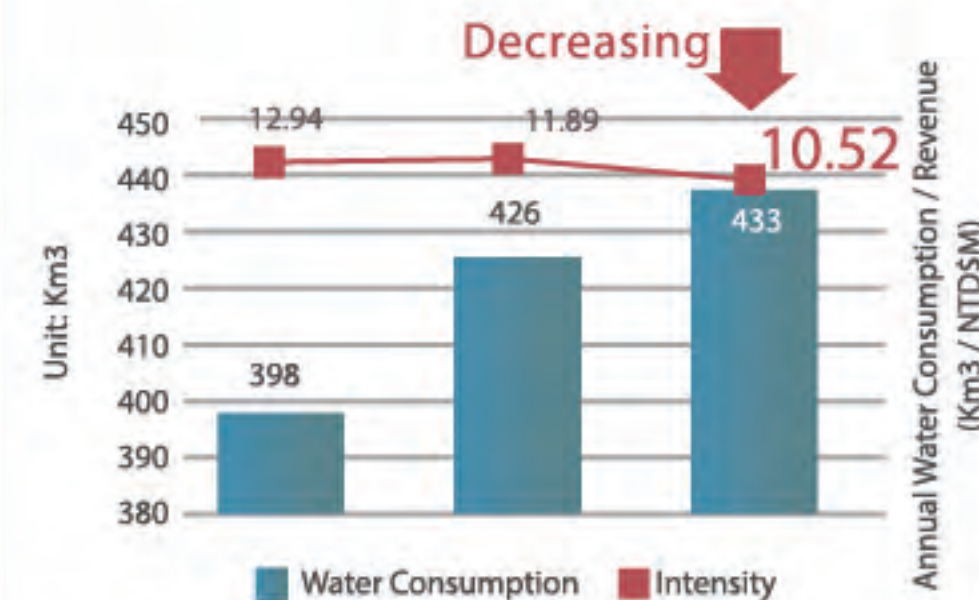
Besides setting legal compliance as the basic requirement, we make constant adjustments to lower environmental impact for environment (DFE) of products and enhancement of equipment efficiency.

Power Consumption Intensity

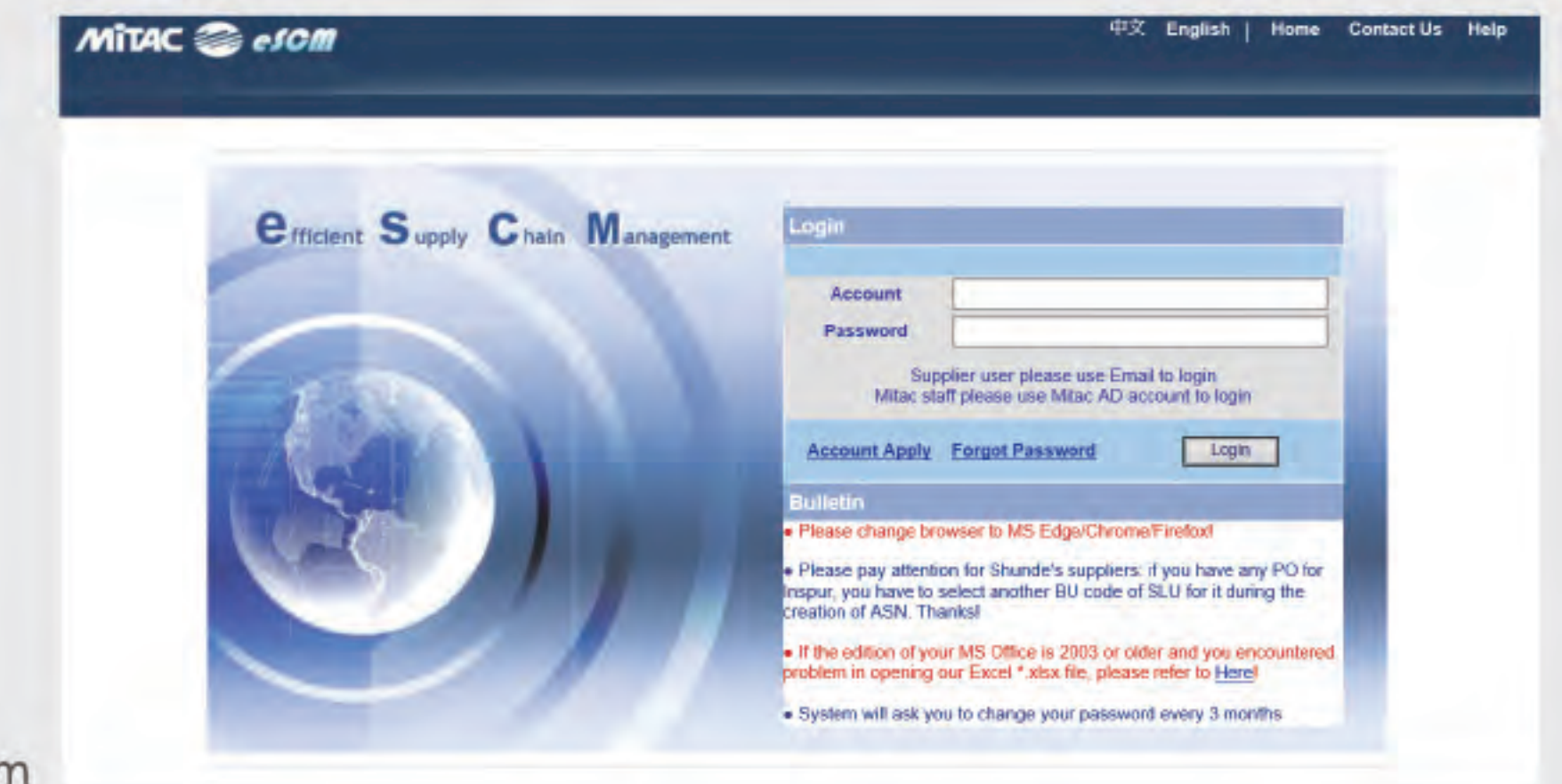


The office and plant energy conservation activities in 2020 enhanced energy efficiency to reduce electricity consumption by 2,540kWh/year.

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.

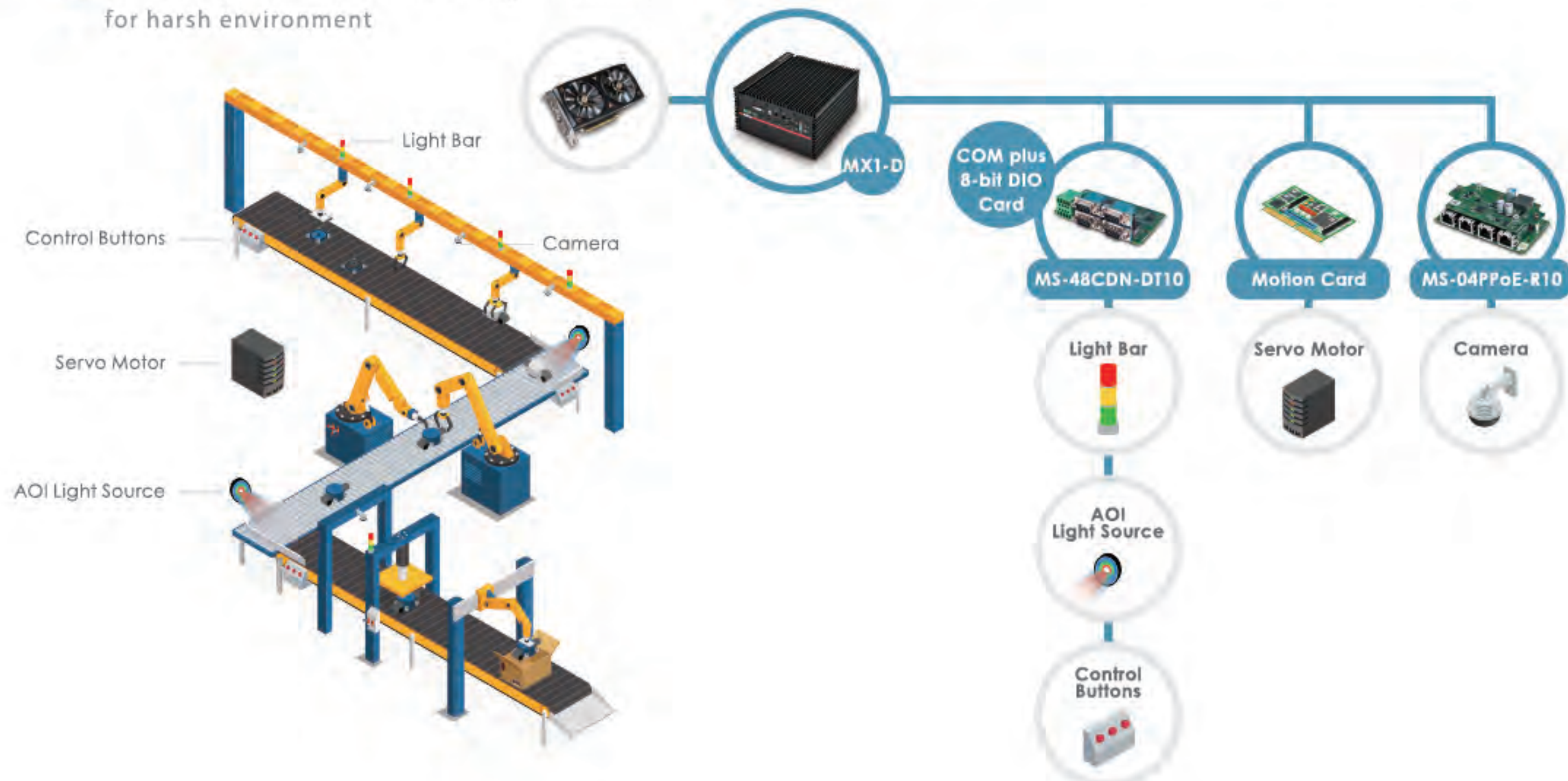
- Edge AI provides:**
- Increase Productivity
 - Improve Security
 - Enhance Safety
 - Faster Response



Smart Factory Control Unit

Solutions: MX1-10FEP-D

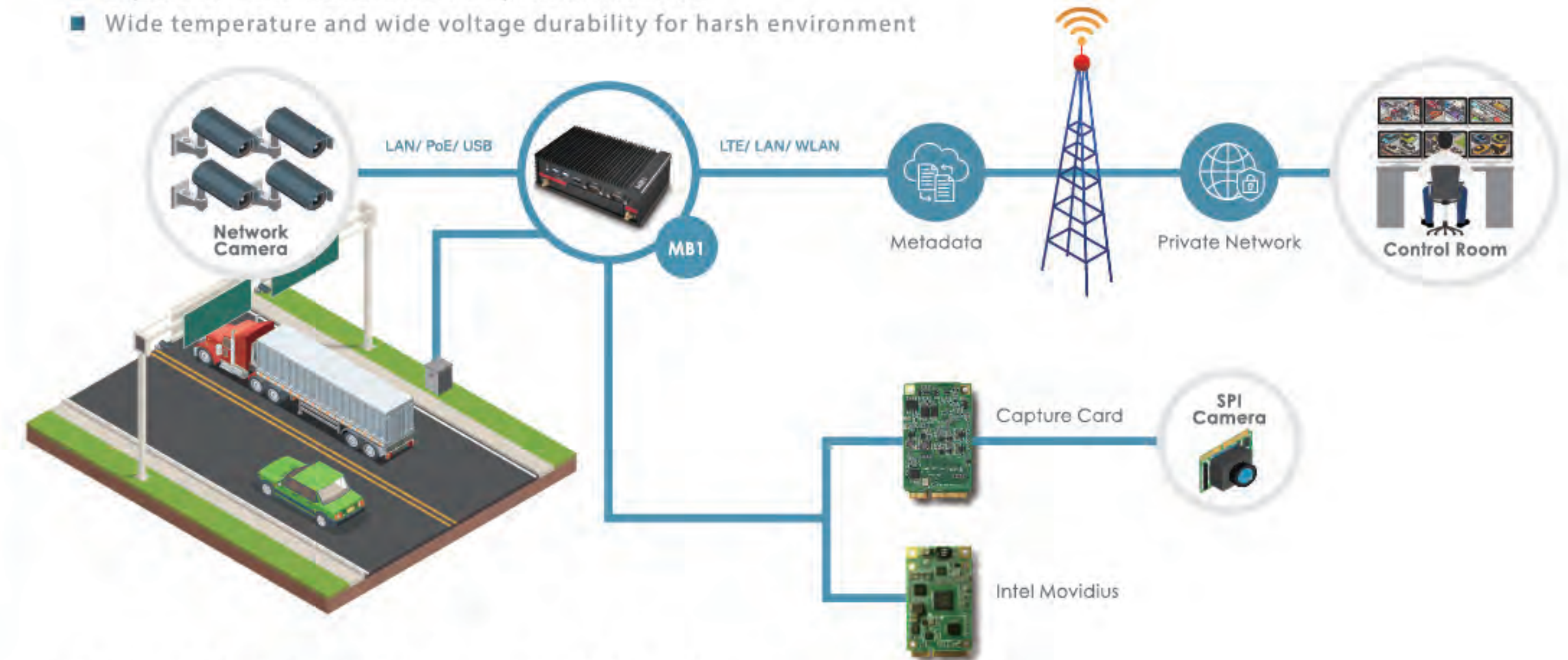
- Intel Xeon/Core-i7 processor for no latency computing power and center control
- Nvidia Tesla T4/P4 graphic card for machine vision application
- Up to 10 PoE for AOI camera connectivity
- Expandable legacy I/O for rich sensors and devices control
- Wide temperature and wide voltage durability for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



Traffic Flow Monitoring

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

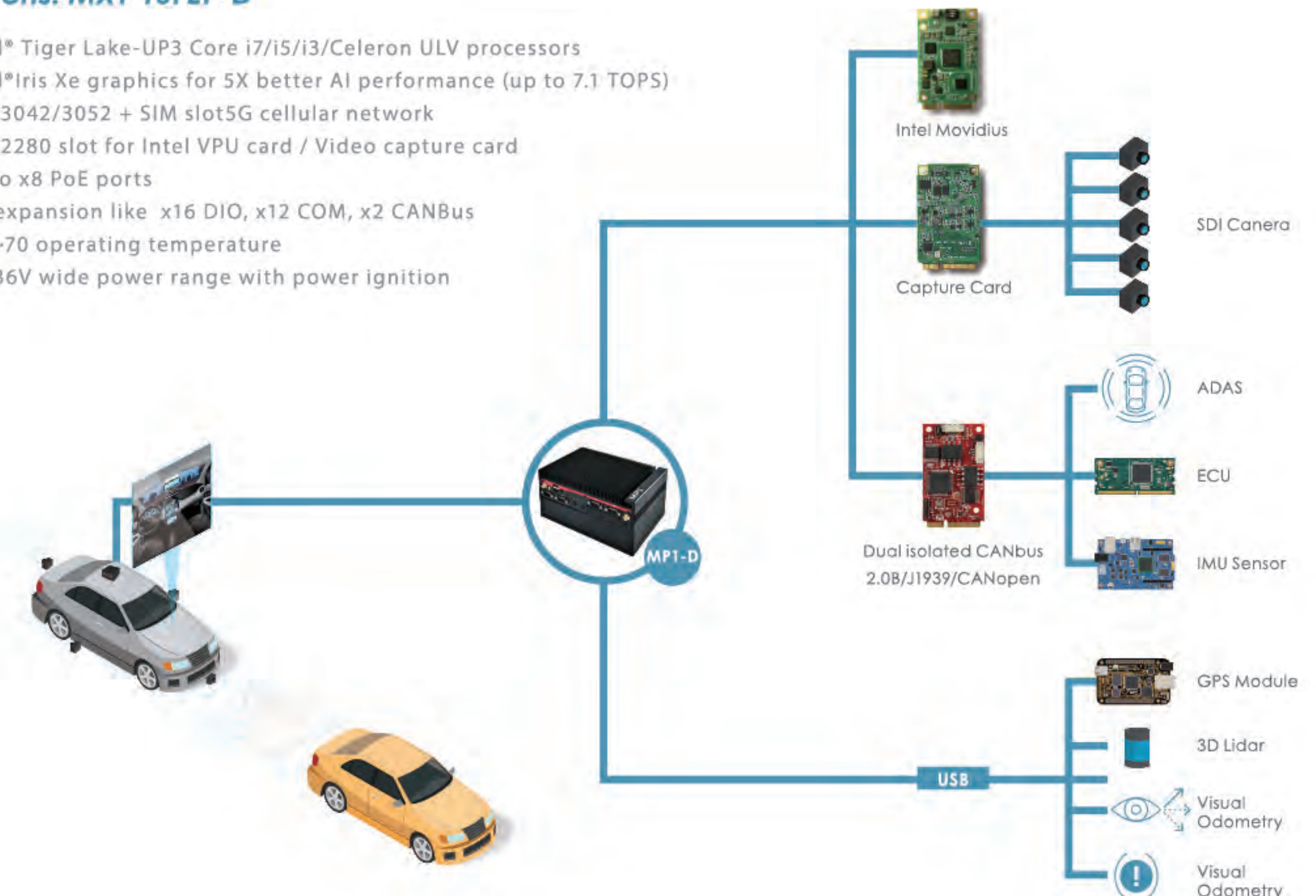
- Intel Apollo Lake Efficient 4C4T or 2C2T Processor for real-time traffic flow monitoring
- Equipped with Intel® Movidius™ Myriad™ X to enhance arithmetic capability for AI metadata computing
- 4 x USB3.0 and 3 x LAN Port for IP Camera connectivity
- 2 x mPCIe Slot for AI accelerator card or video capture 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

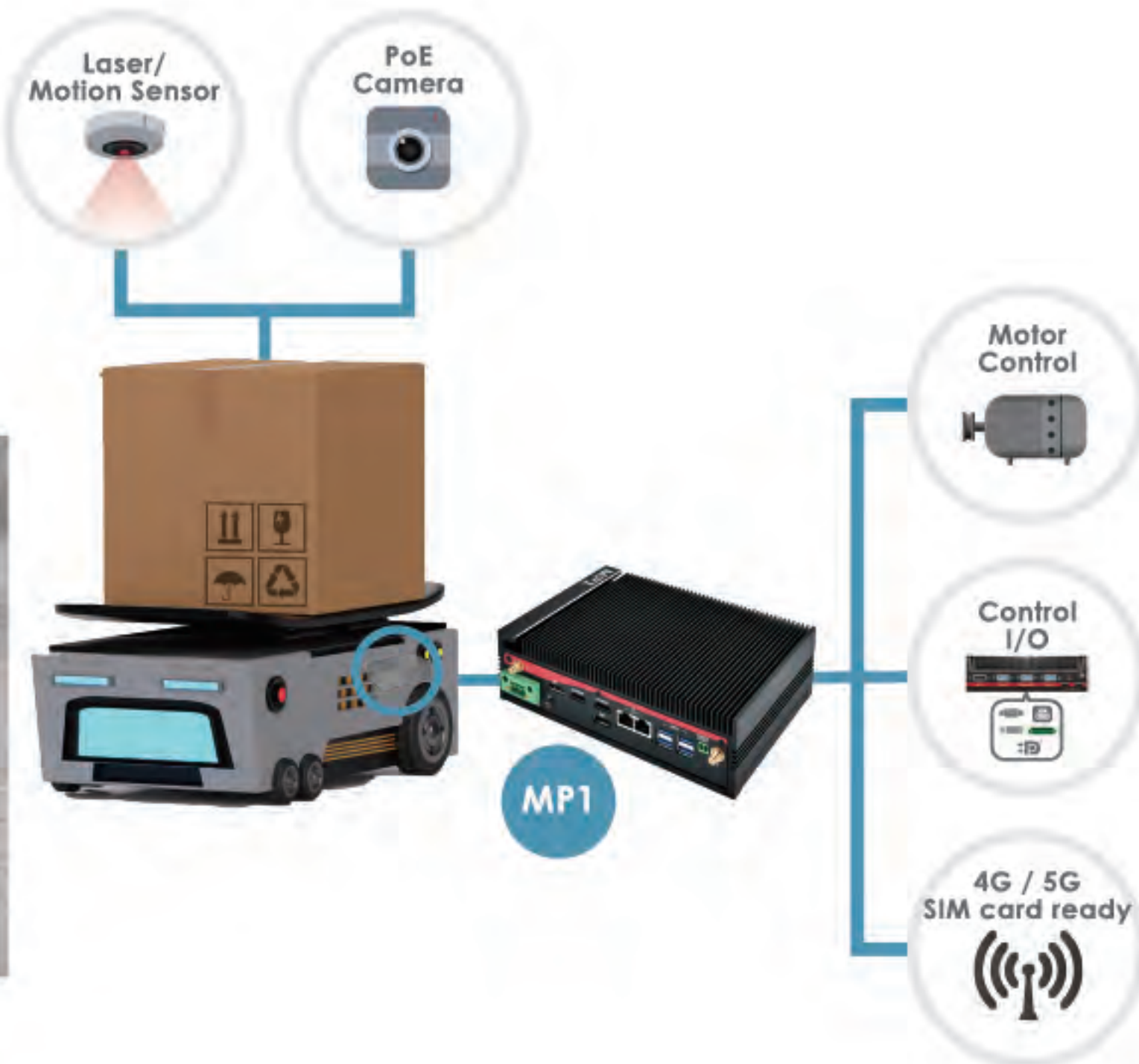
- Intel® Tiger Lake-UP3 Core i7/i5/i3/Celeron ULV processors
- Intel® Iris Xe graphics for 5X better AI performance (up to 7.1 TOPS)
- M.2 3042/3052 + SIM slot 5G cellular network
- M.2 2280 slot for Intel VPU card / Video capture card
- UP to x8 PoE ports
- I/O expansion like x16 DIO, x12 COM, x2 CANbus
- -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

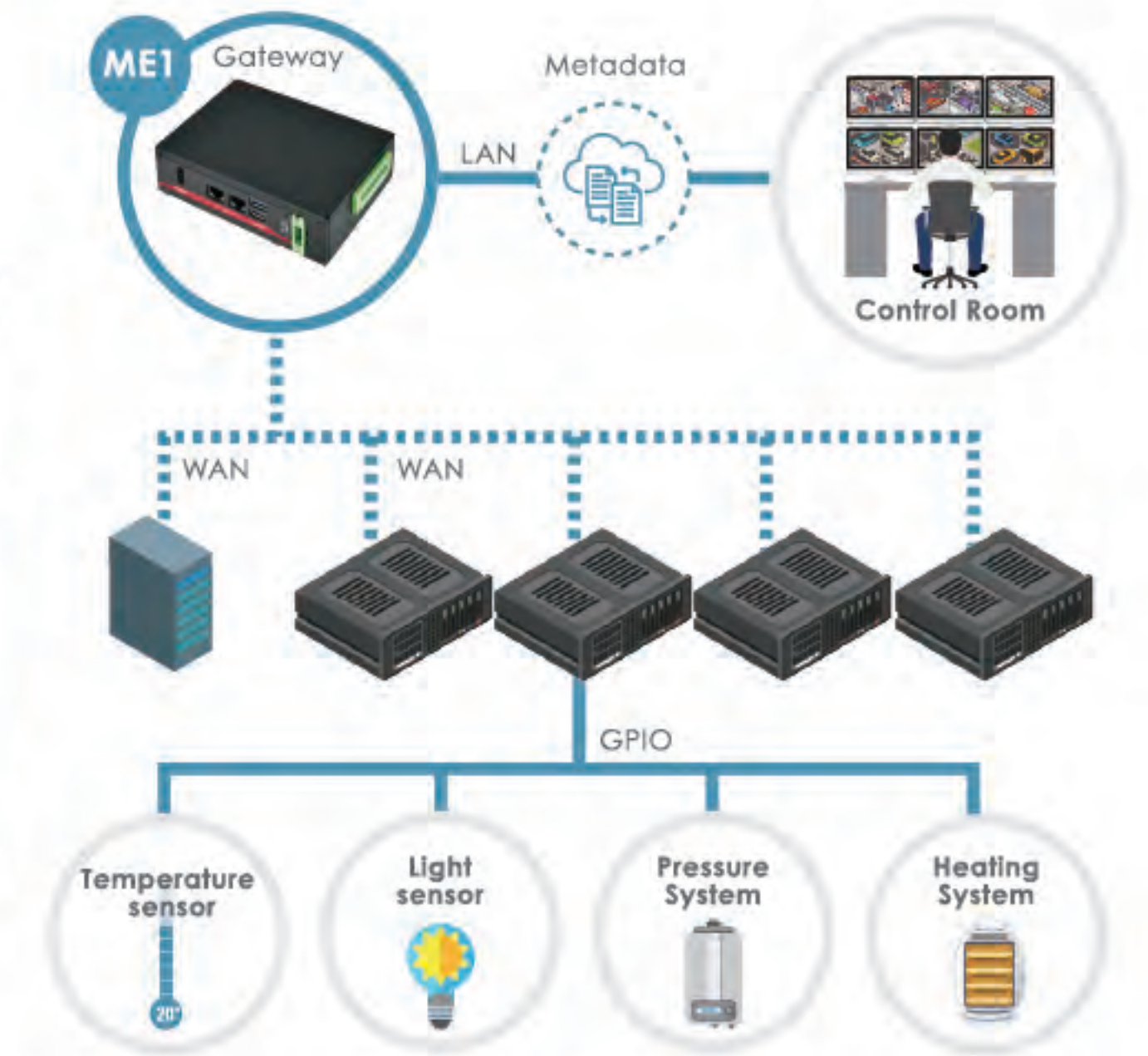
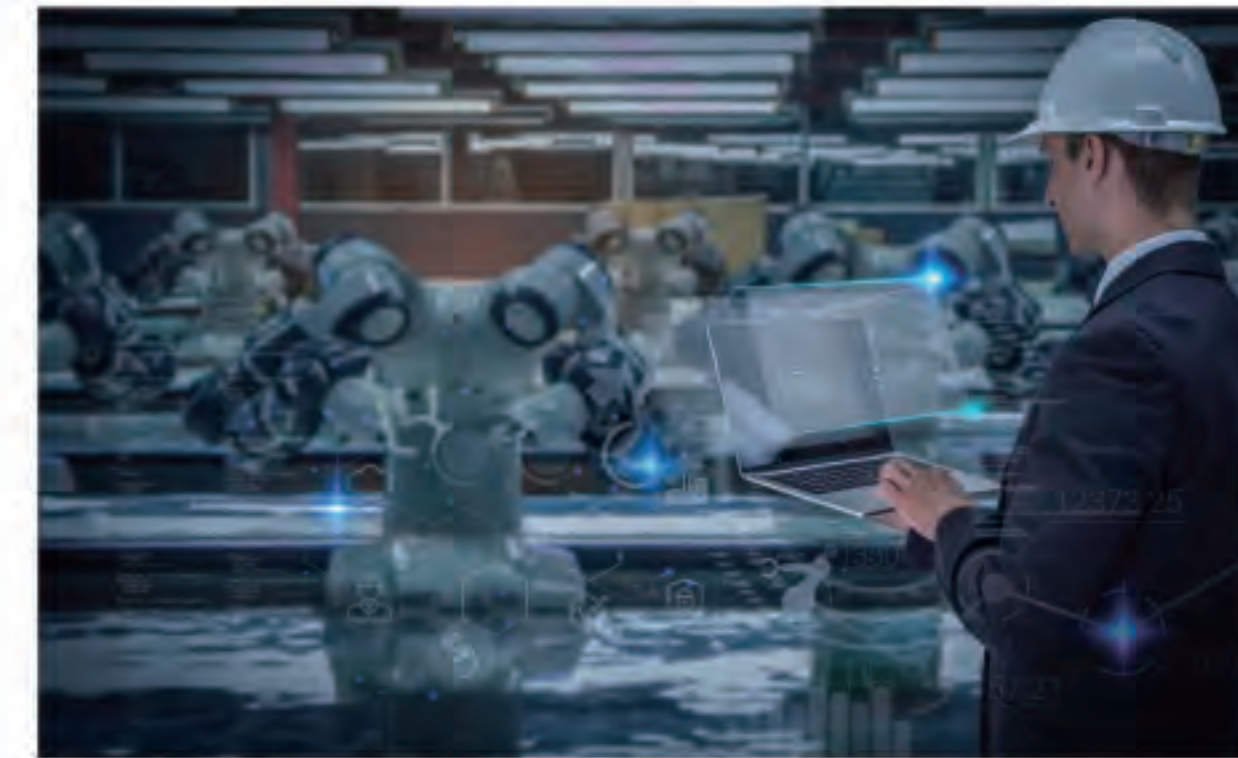
- High performance embedded system by Intel Coffee Lake Core i / Xeon processor
- Provide rich I/O connections for multiple COM, USB and PoE ports
- Features with triple/dual display ports for real-time monitoring
- LAN and WLAN (optional) for cloud & edge computing



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

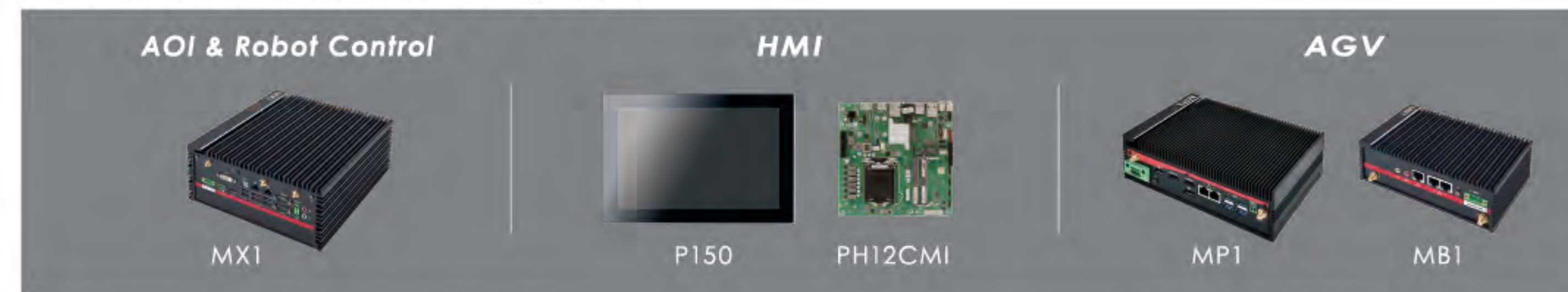


Factory Automation

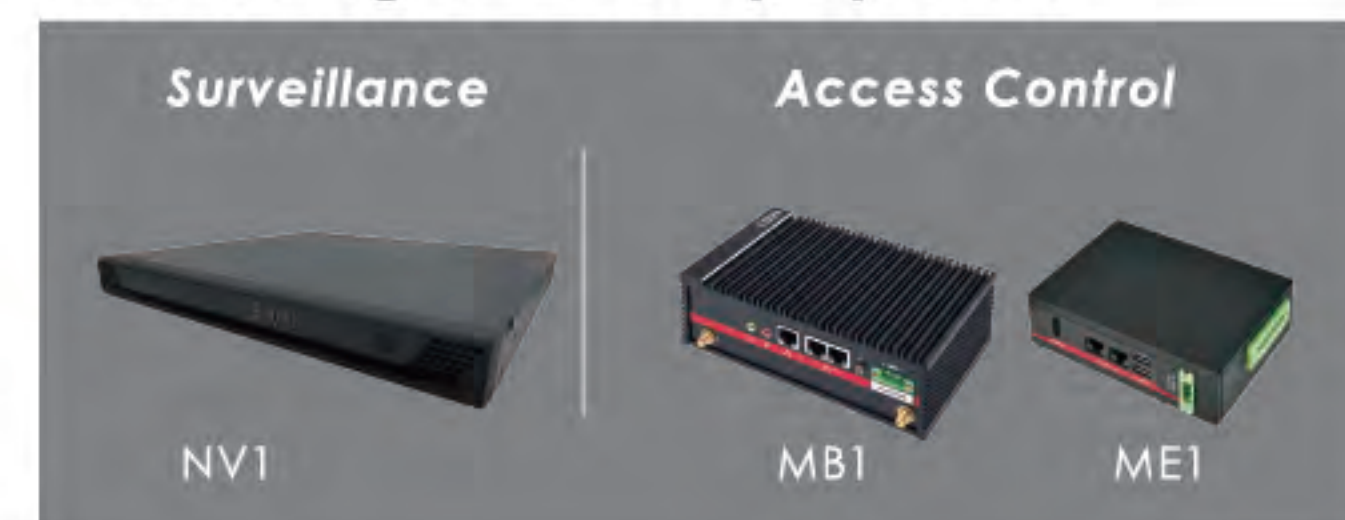
Industry 4.0 brings industry automation to a new intelligent era. This represents both a trend and also a challenge to industrial manufacturing companies. To support our customers' demand requires that we make machines more intelligently communicate with each other and perform complex tasks perfectly.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



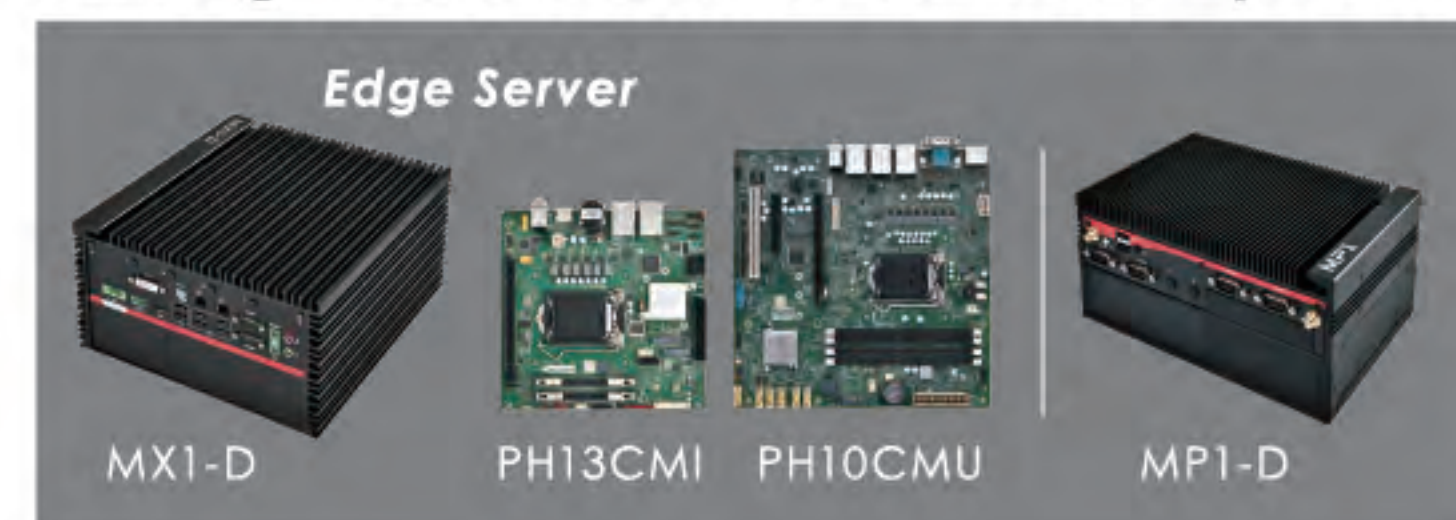
Operation & Automation System



Monitoring & Security System



Management & Communication System



AGV (Automated Guided Vehicle)

Solutions: MPI-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

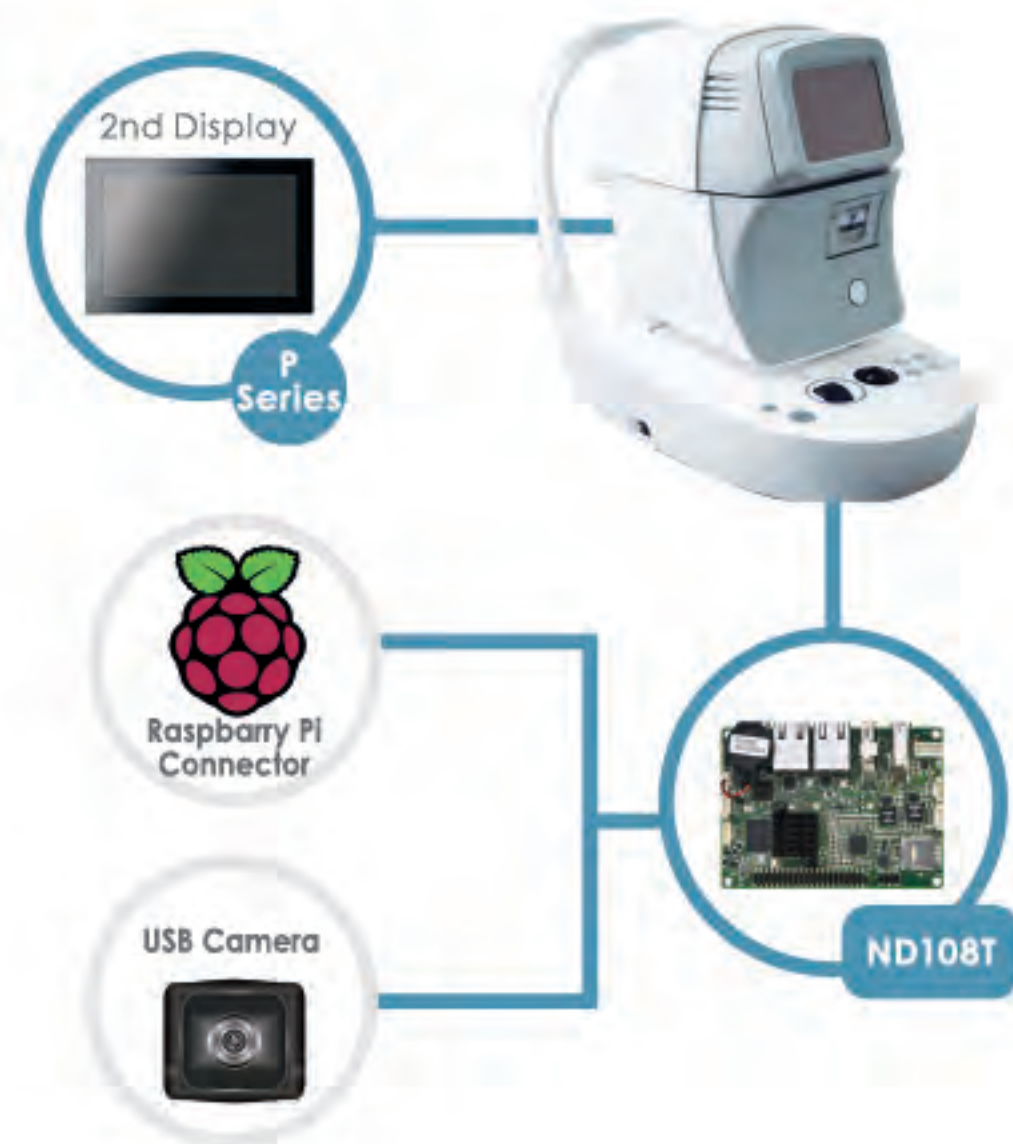
- Intel® Tiger Lake-UP3 Core i7/i5/i3/Celeron ULV processors
- 64-CH H.265/H.264 decoding ability and simultaneous playback
- Support up to 16 PoE ports
- Dual 4K display for clear monitoring
- Support 2 x HDD RAID 0/1 storage



Inspection

Solutions: ND108T

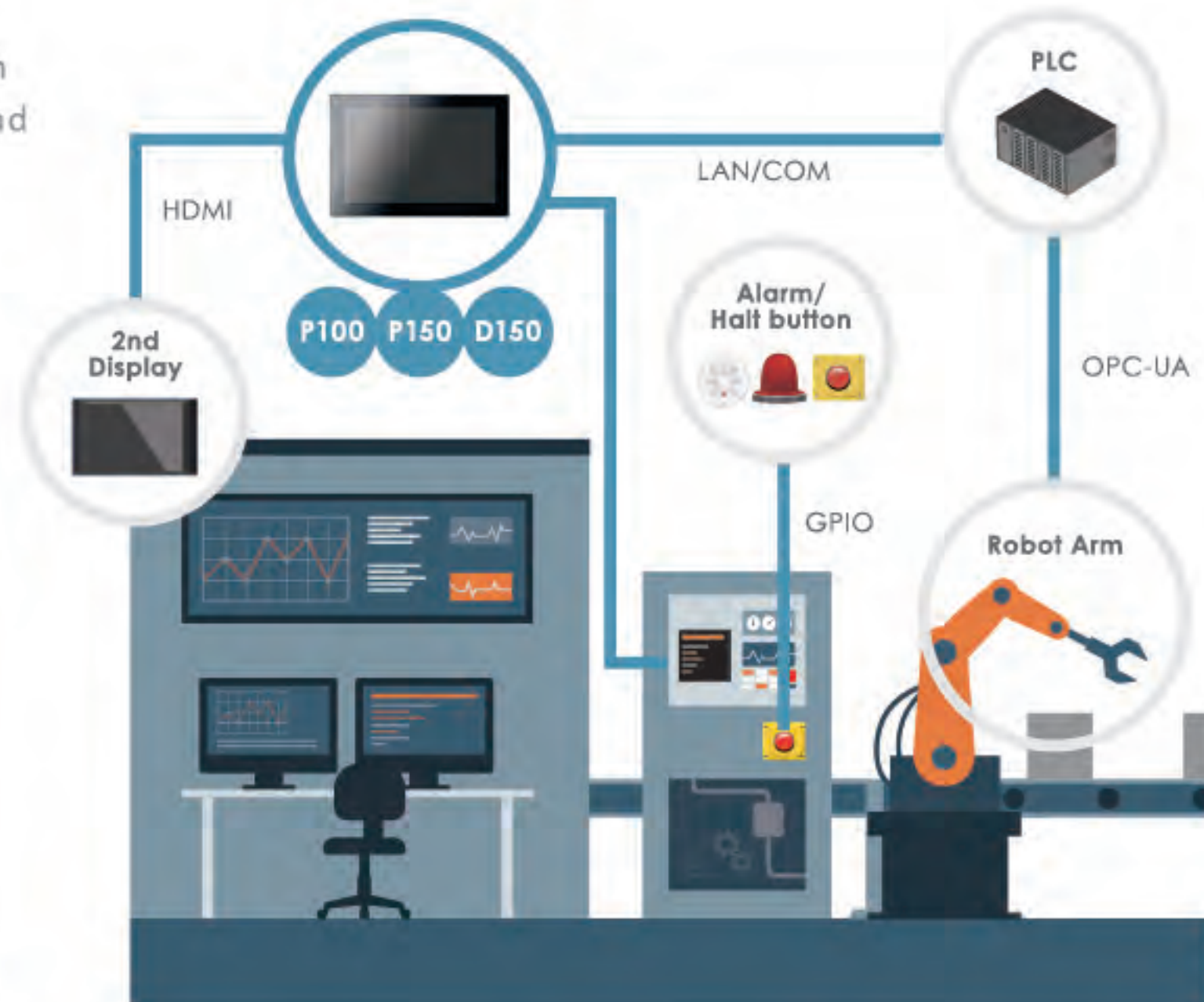
- Powered by NXP I.MX8M Quad Core Arm-based processor
- Featured with both LVDS and HDMI for internal and external display
- Raspberry Pi 40 pin compatible connector for easy I/O expansion
- Complete Linux BSP support for quick SW customization and development



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

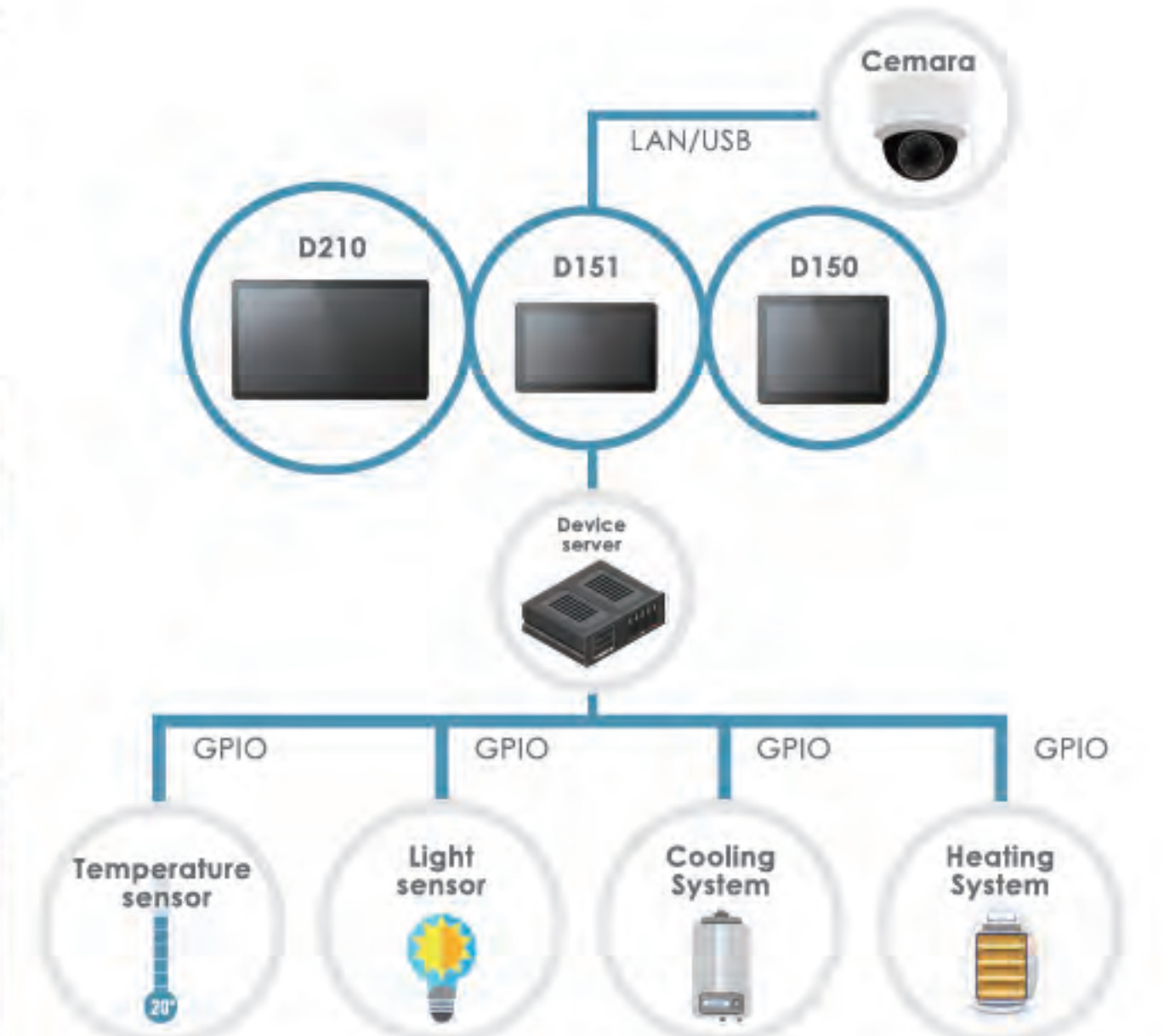
- High performance embedded system by Intel Coffee Lake Core i / Xeon processor
- Provide rich I/O connections for multiple COM, USB and PoE ports
- Features with triple/dual display ports for real-time monitoring
- LAN and WLAN (optional) for cloud & edge computing



Smart Building - Environment Control

Solutions: D210/D151/D150

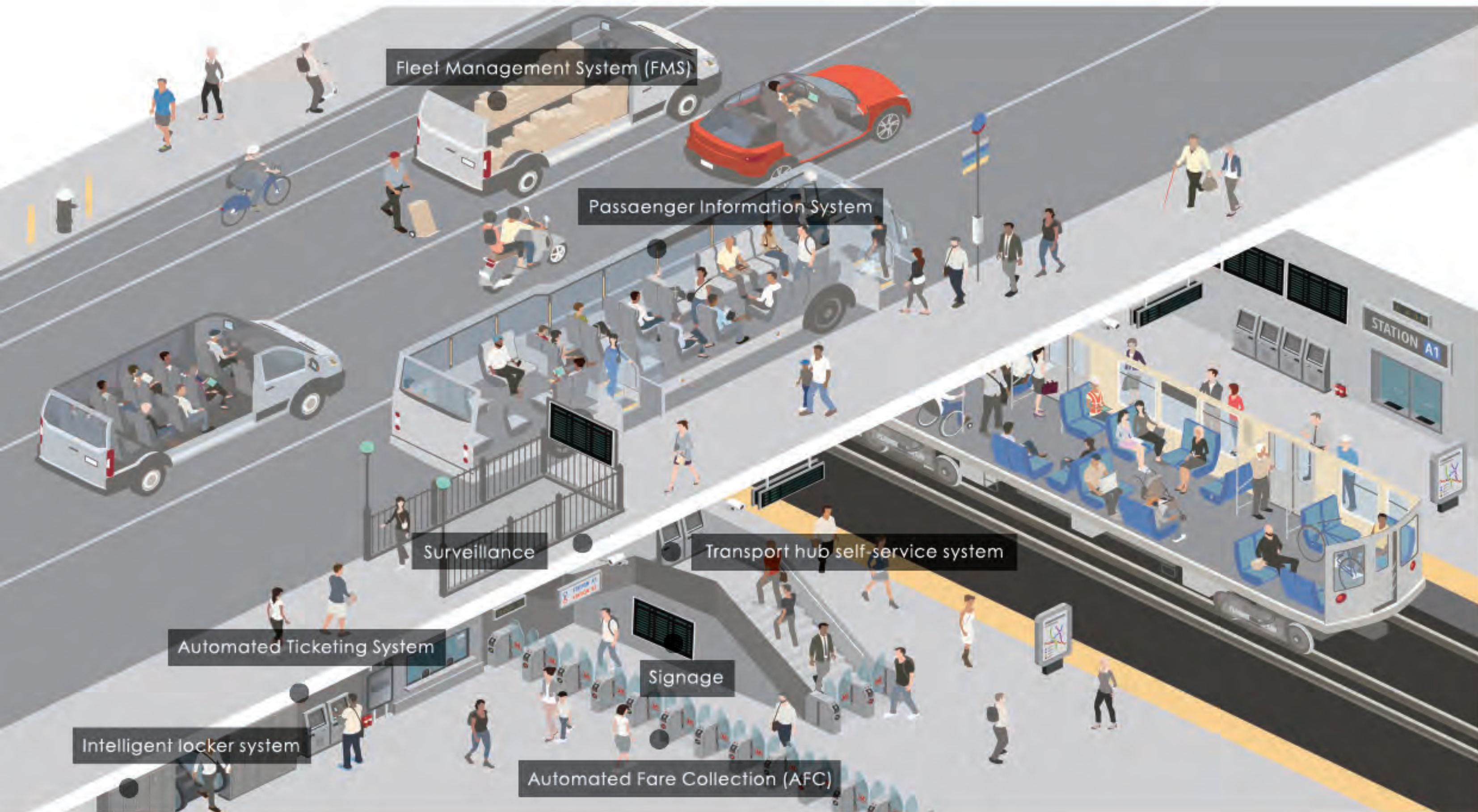
- Provide I/O connection in both serial port (RS232/422/485) and GPIO function
- Industrial operating temperature and IP rating support
- Optional WLAN for restricted area information and data transfer



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



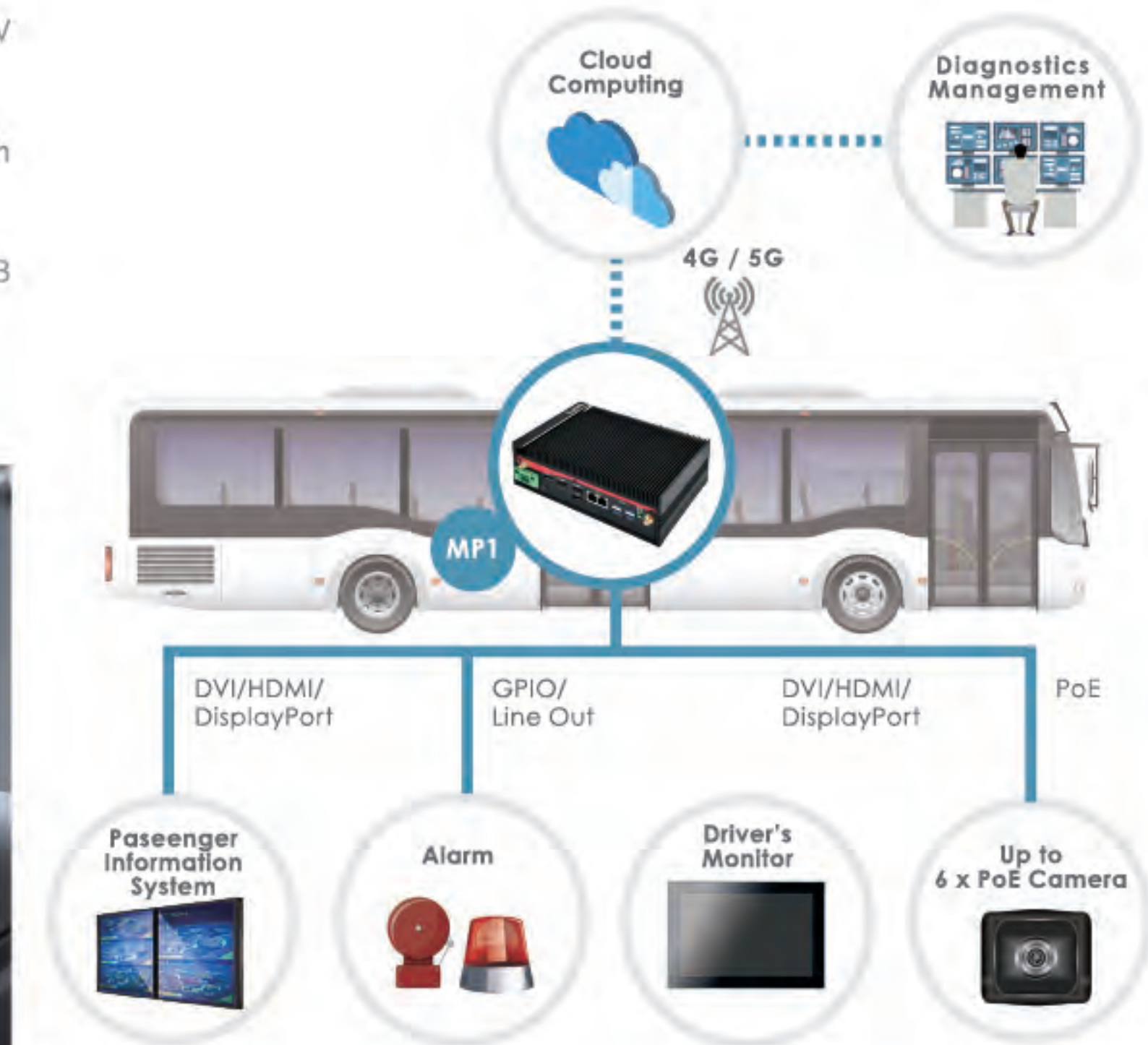
Traveler Information System



Embedded NVR (Network Video Recorder)

Solutions: MPI-11TGS

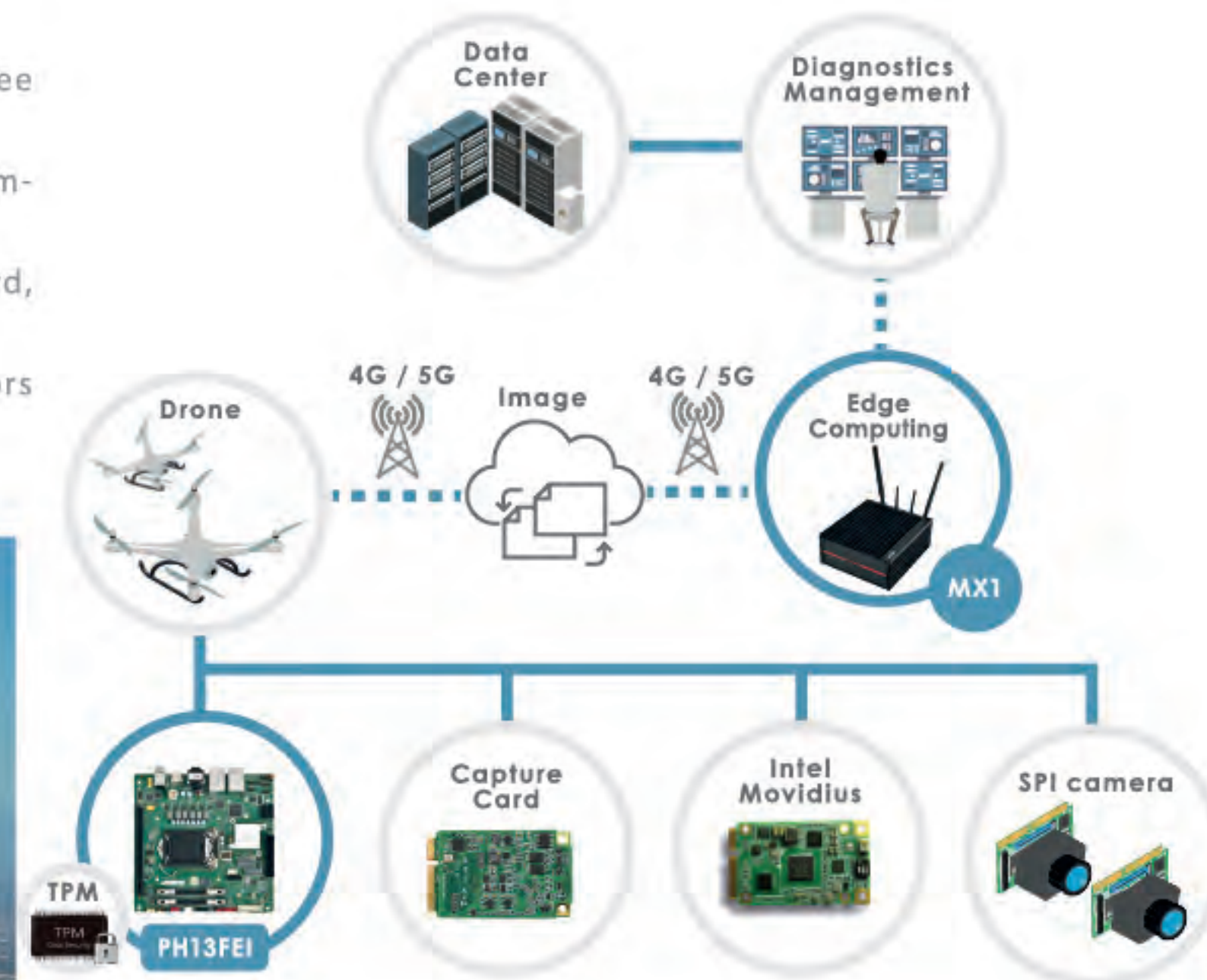
- Intel® Tiger Lake-UP3 Core i7/i5/i3/Celeron ULV processors
- Outstanding graphic computing capability with Integrated Intel® Iris Xe graphics
- Provide rich I/O connections for multiple COM, USB for Camera, Sensor and motor control connection
- 4G/5G/SIM card ready for wireless connectivity



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

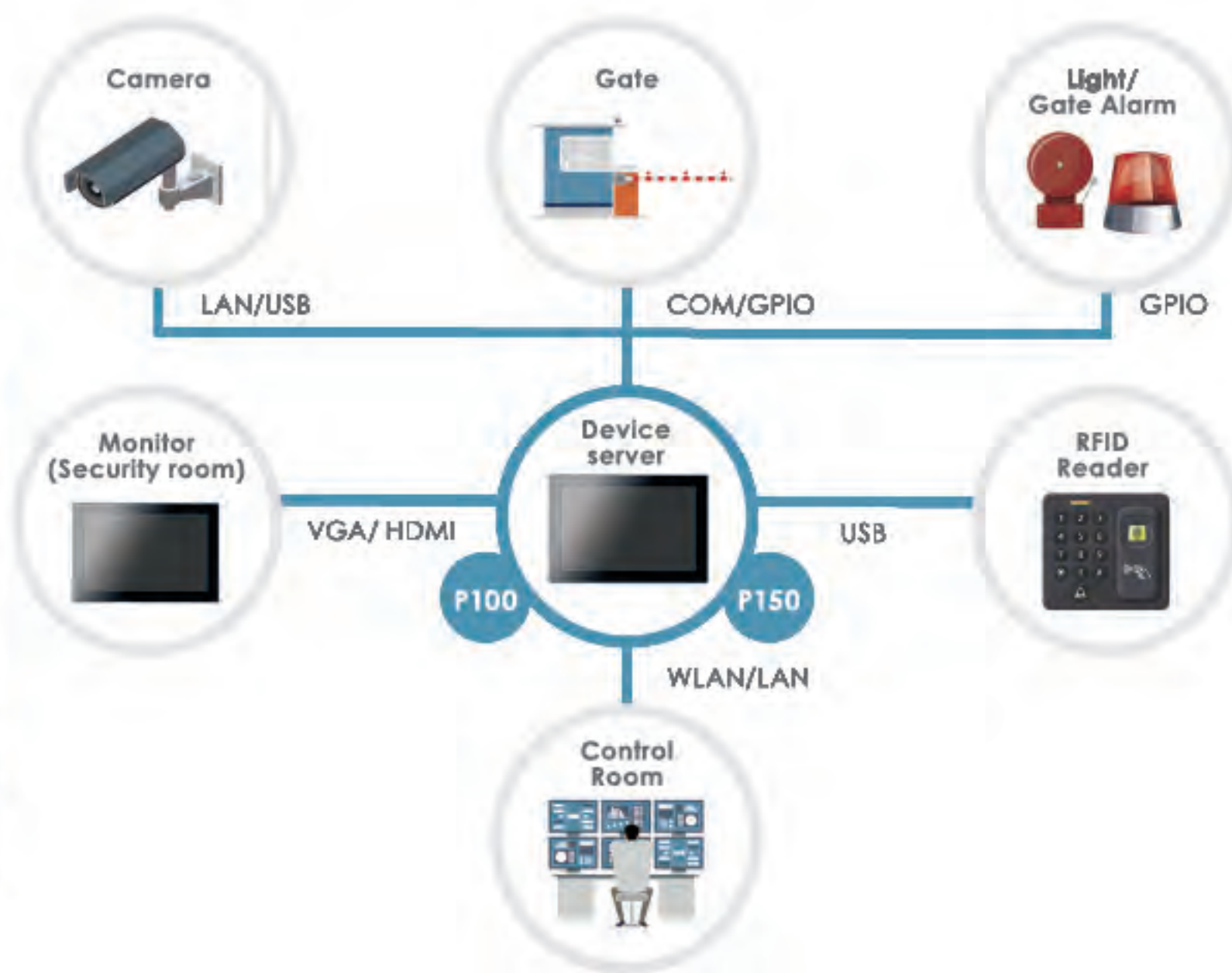
- Capacitive hotkey (F1/F2/F3) on front side for intuitive operation
- Featured with TPM 2.0, powerful anti-tampering device, able to detect potential intrusion during system boot-up
- Built-in NFC reader to authenticate users' credentials
- Featured with WiFi/BT/GPS/WWAN(optional) and rich I/O connections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



Access Control

Solutions: P100 / P150

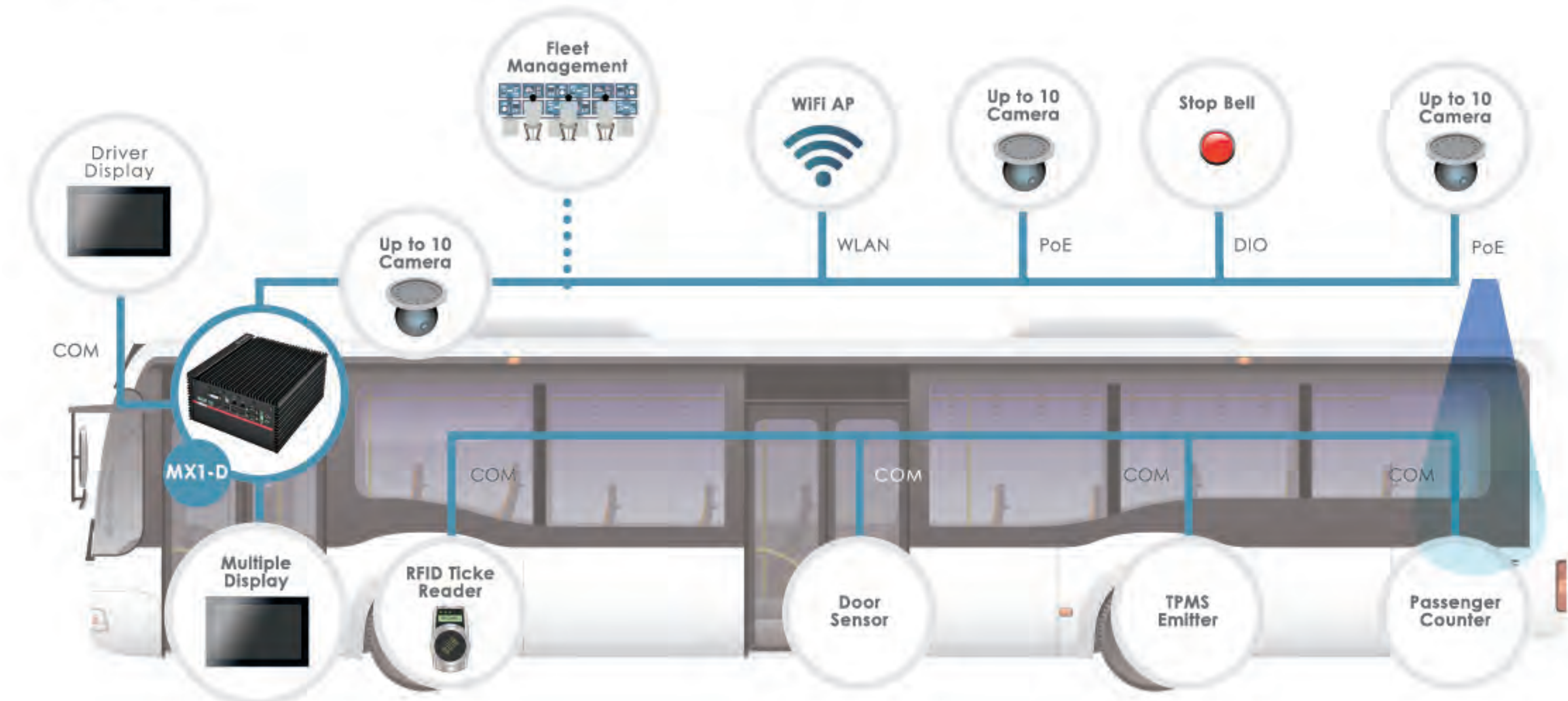
- COM & GPIO interface for gate control
- LAN and WLAN (optional) for real-time data transmission



Real-time In-Vehicle Surveillance

Solution: MX1-10FEP-D

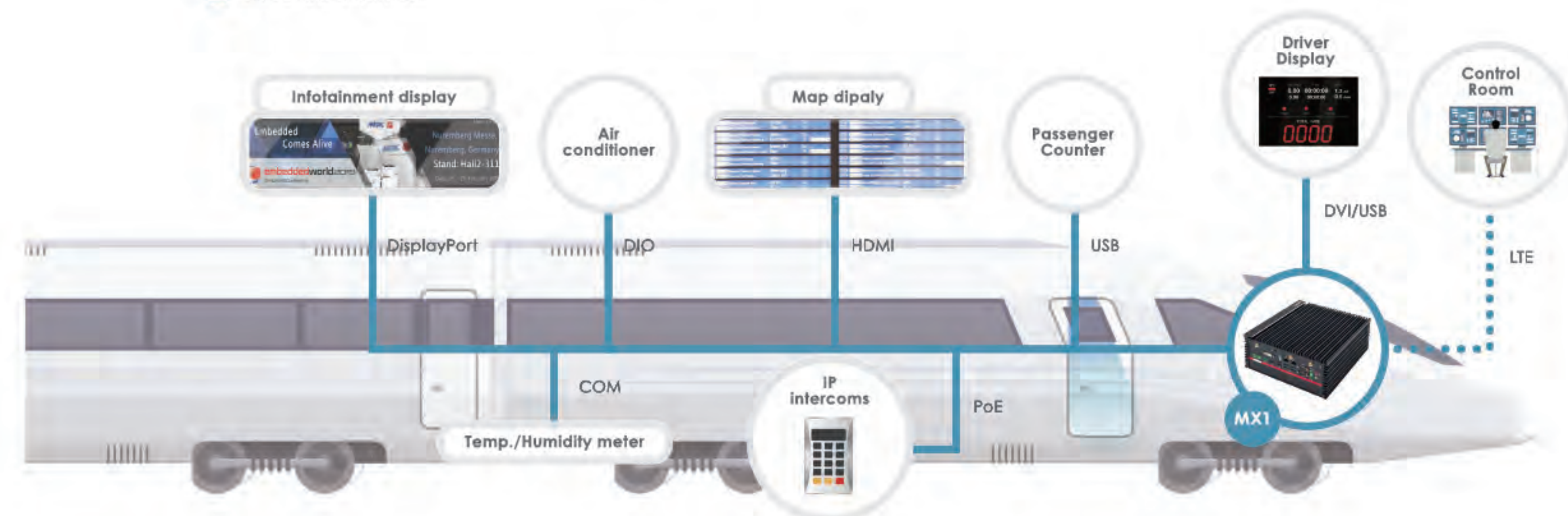
- Features with maximum 10 ports PoE (Power over Ethernet) for safety and surveillance applications, such as facial recognition
- Rich I/O connectivities for multiple sensing and control in-vehicle devices
- Multiple display for monitoring and passenger information displays
- Optional WLAN for passenger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



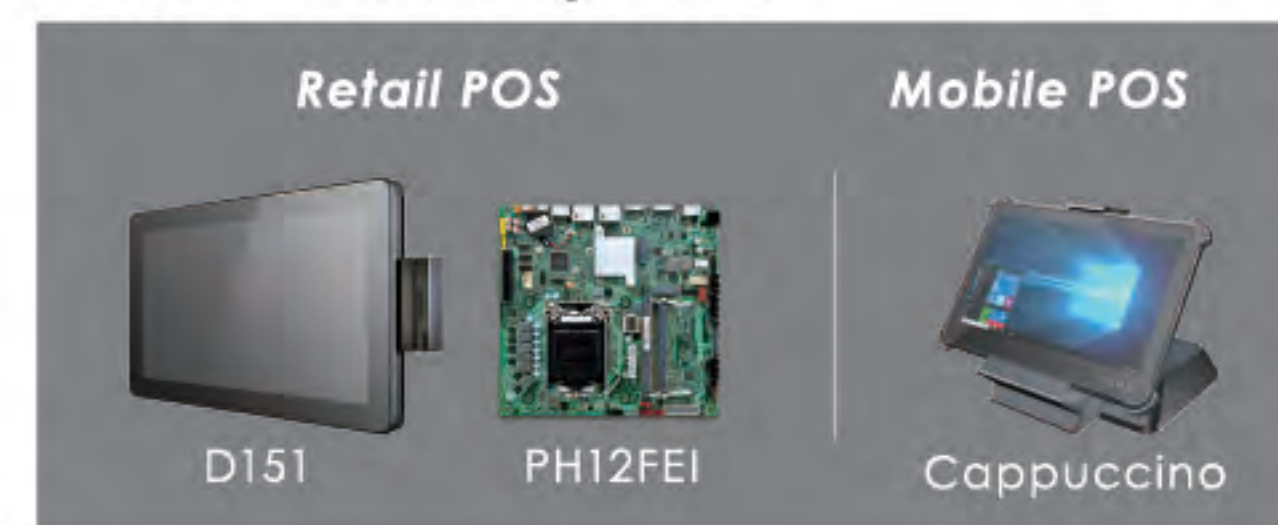
Self Service System



Display System



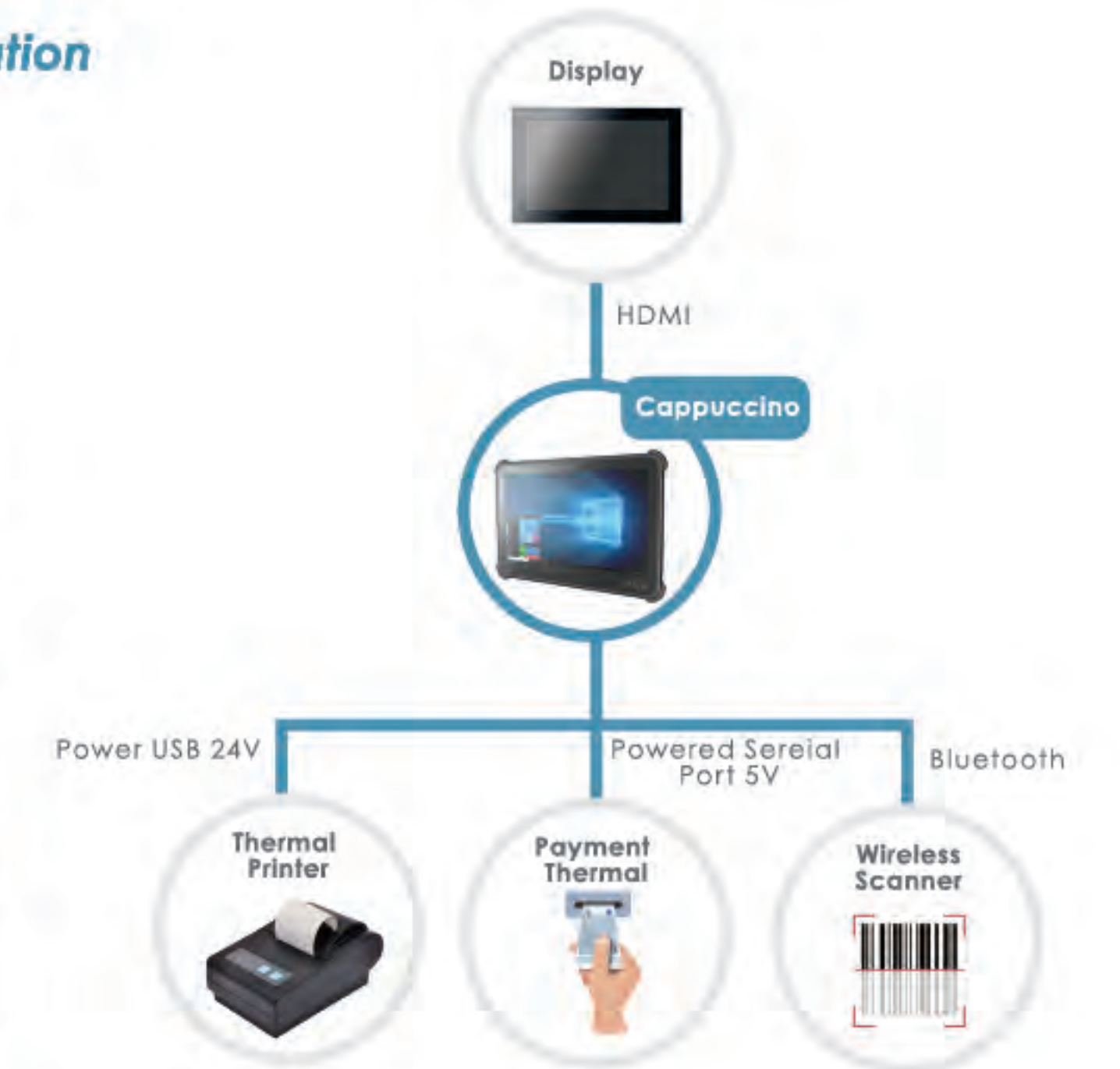
Point of Sales System



Hospitality in Restaurant

Solutions: Cappuccino Tablet + Docking Station

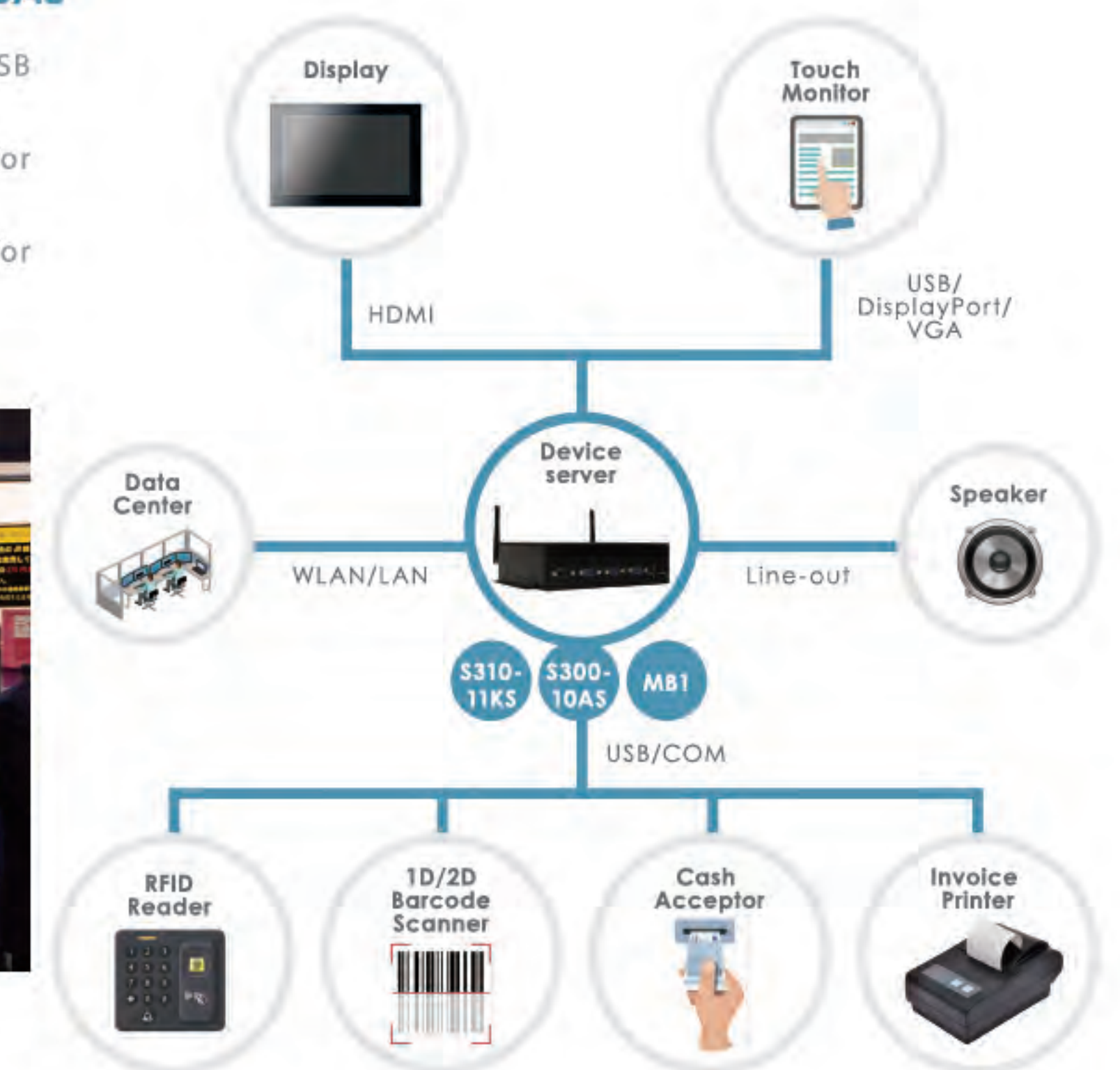
- The lightest 11.6" rugged tablet < 900g
- Dual OS compatibility with Windows® 10 IoT and Linux CentOS7
- Crystal clear display with 2K resolution
- Trouble-free scanning with built-in Honeywell software decoder
- Featured with WiFi/BT and rich I/O connections for display monitor, cash drawer, thermal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



Smart Vending Machine

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

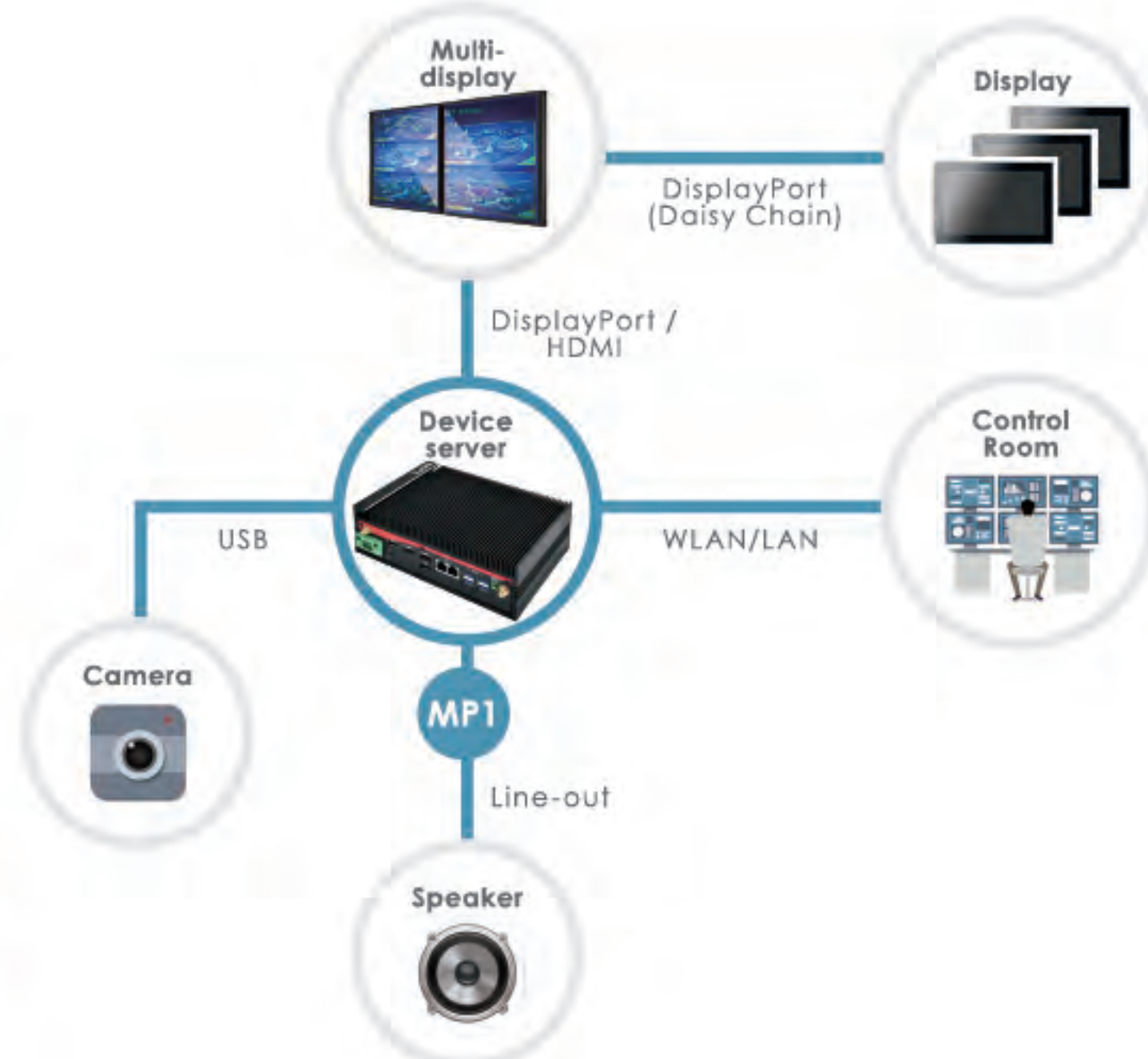
- Provide rich I/O connections in both serial and USB ports for expansion devices
- Featured with HDMI and DP dual display ports for high resolution application
- LAN/WLAN (optional) for internet connection for customer analysis and immediate feedback



Compact Digital Signage Solution

Solution: MPI-11TGS

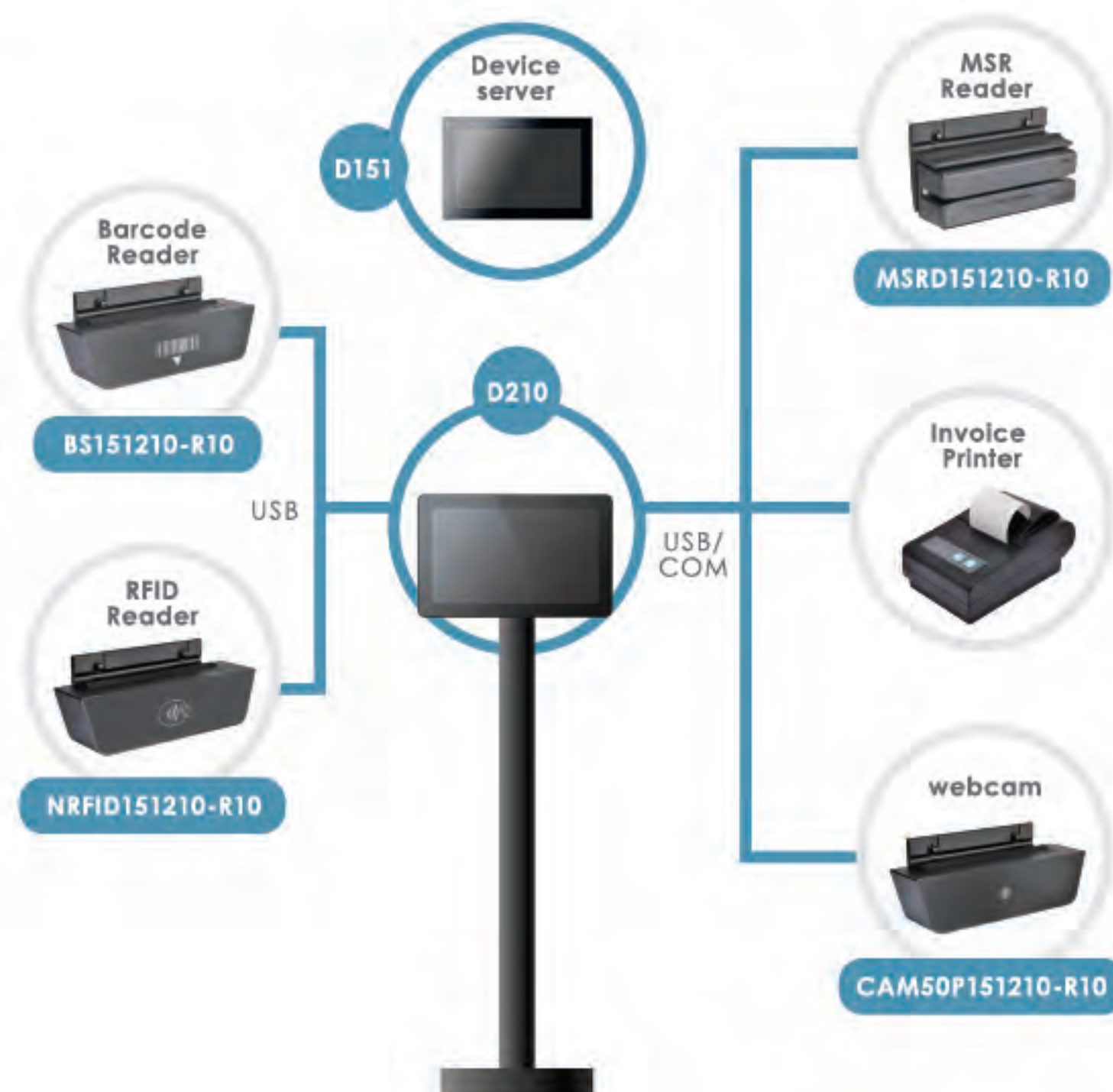
- High performance slim embedded system powered by Intel Kaby Lake Core-i Processor
- Features with high resolution 4K HDMI & 4K Display-Port for multi-display
- LAN/WLAN (optional) for internet connection and data control
- USB ports connectivity for facial recognition via cameras



Interactive Kiosk/ Hospitality

Solutions: D210 / D151

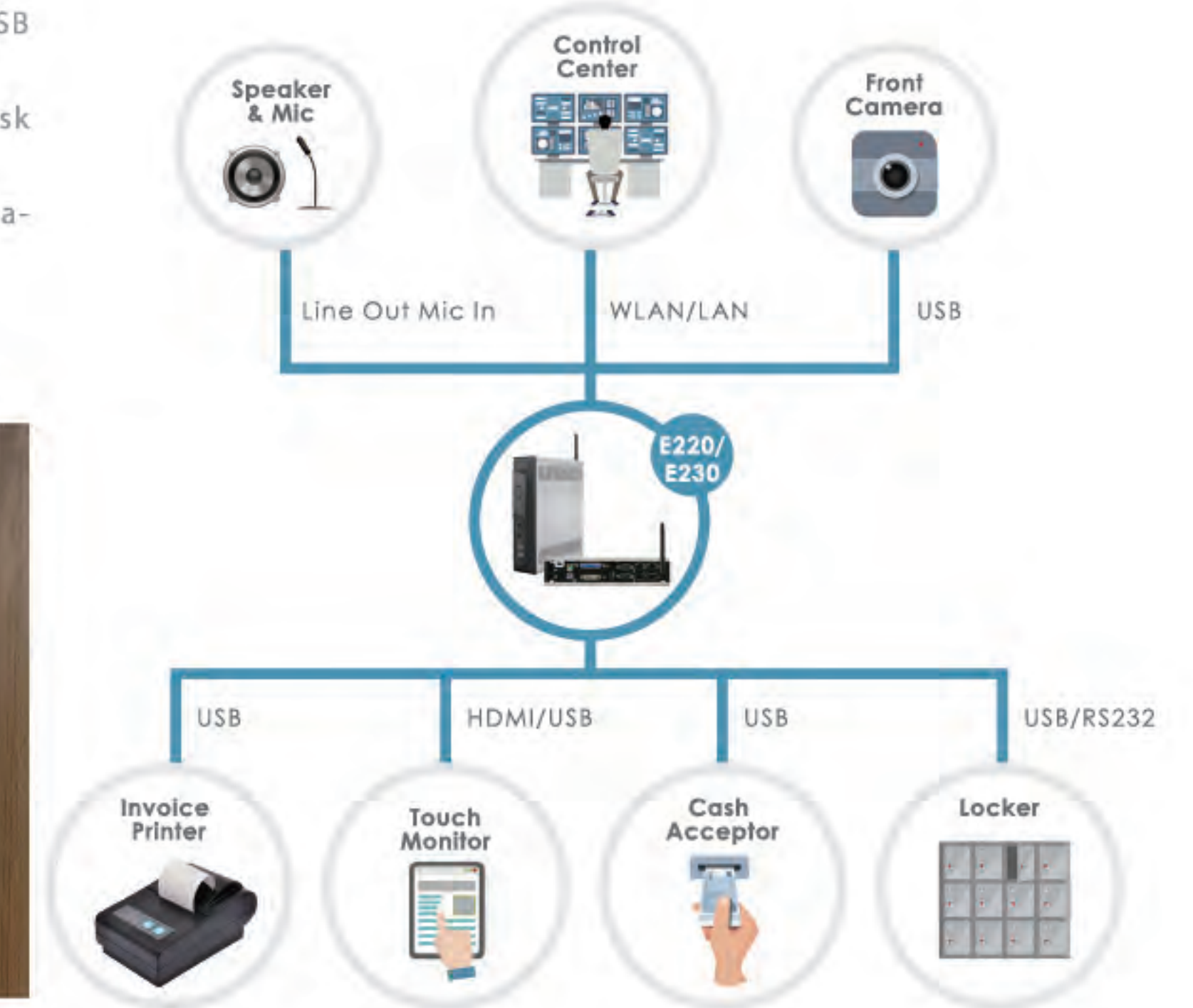
- Support multiple easy-attached mounting modules via USB ports
- IP65 rated multi-touch front panel
- Optional agile WLAN for area information and data transfer



Smart Charging Station for Stores

Solutions: E220 / E230

- Provide rich I/O connectivity in both serial and USB ports (2 x COM + 6 x USB)
- Feature with dual display interface for multi-kiosk application
- Optional WLAN feature for more IoT Kiosk applications



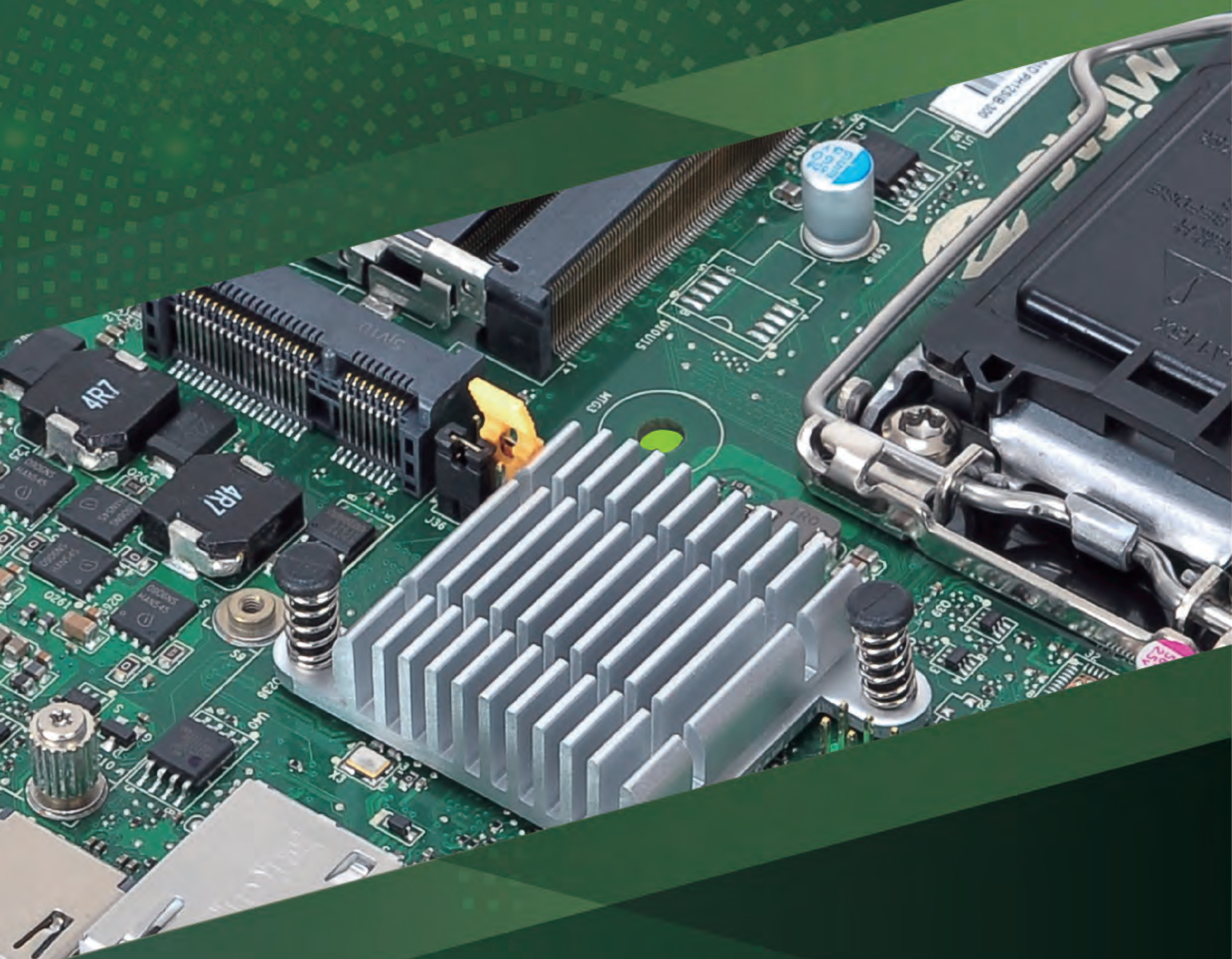
Interactive Kiosk/ Self-ordering

Solution: K32F

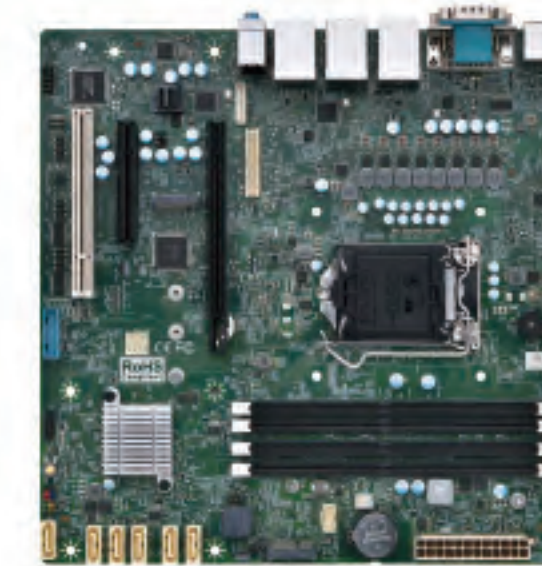
- Replacing conventional manual operation by MiFace™ facial biometric recognition
- Enabling personalized recommendation on customer's ordering selection by AI-driven solution
- Encouraging more incentives on approaching interactive kiosk in post COVID-19 by MiAirTouch™
- Allowing business users conscious 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

Comet Lake	PH10CMU	P34
Coffee Lake	PH10FEU	P36
Kaby Lake / Skylake	PH10SU	P38

Mini-iTX



Thin Mini-iTX

Alder Lake	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
Apollo Lake	PD10AI	P58
Braswell	PD10BI	P60
Bay Trail	PD10RI	P62

Mini-iTX

Comet Lake	PH13CMI	P64
Coffee Lake	PH13FEI	P66
Braswell	PD14RI	P68
Bay Trail	PD11BI	P70

SBC



3.5"

Tiger Lake	PD11TGS	P72
Kaby Lake / Skylake	PD10KS	P74
	PD11KS	P76
Apollo Lake	PD10AS	P78

2.5"

NXP I.MX8M	ND108T	P80
	ND118T	P82

COMe



COMe

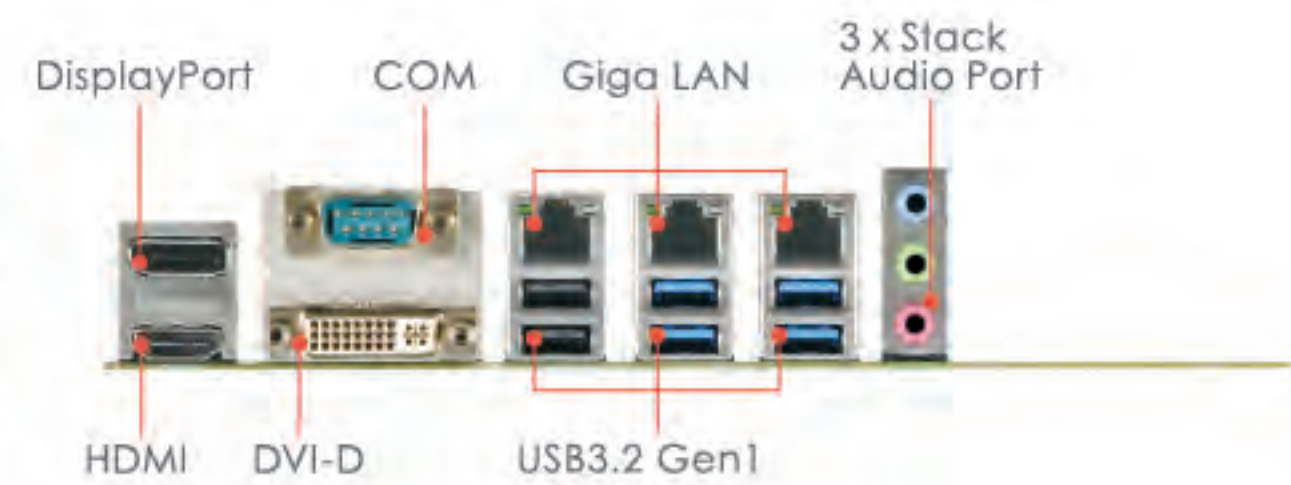
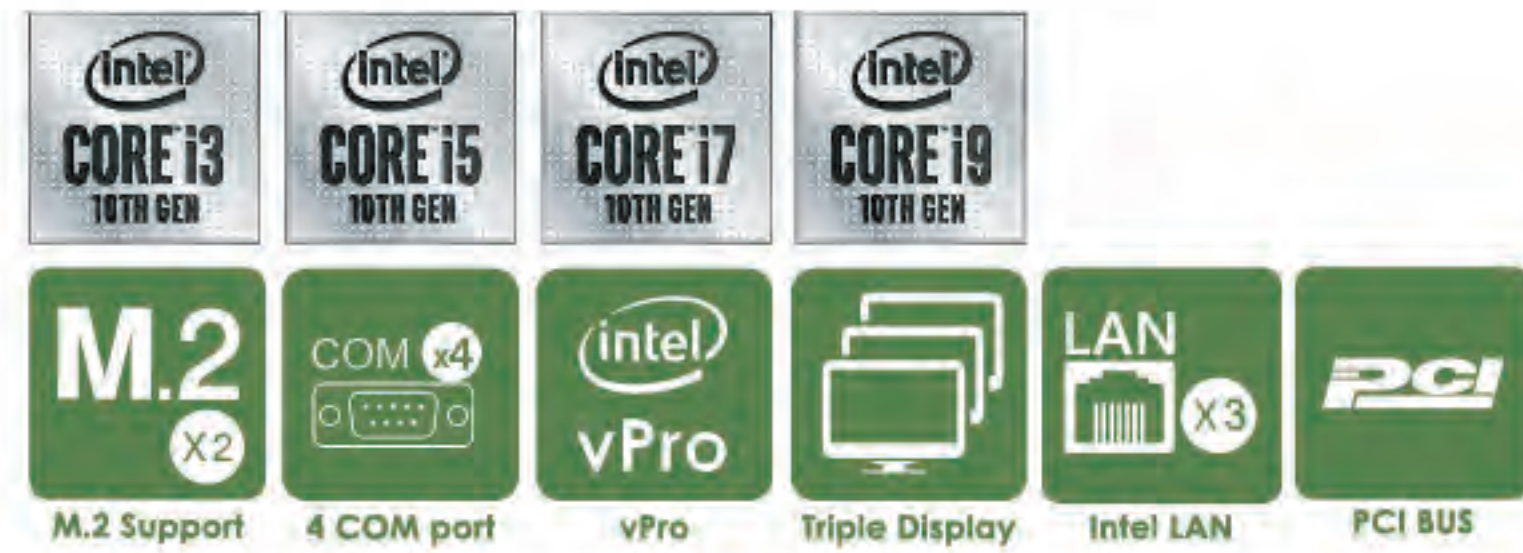
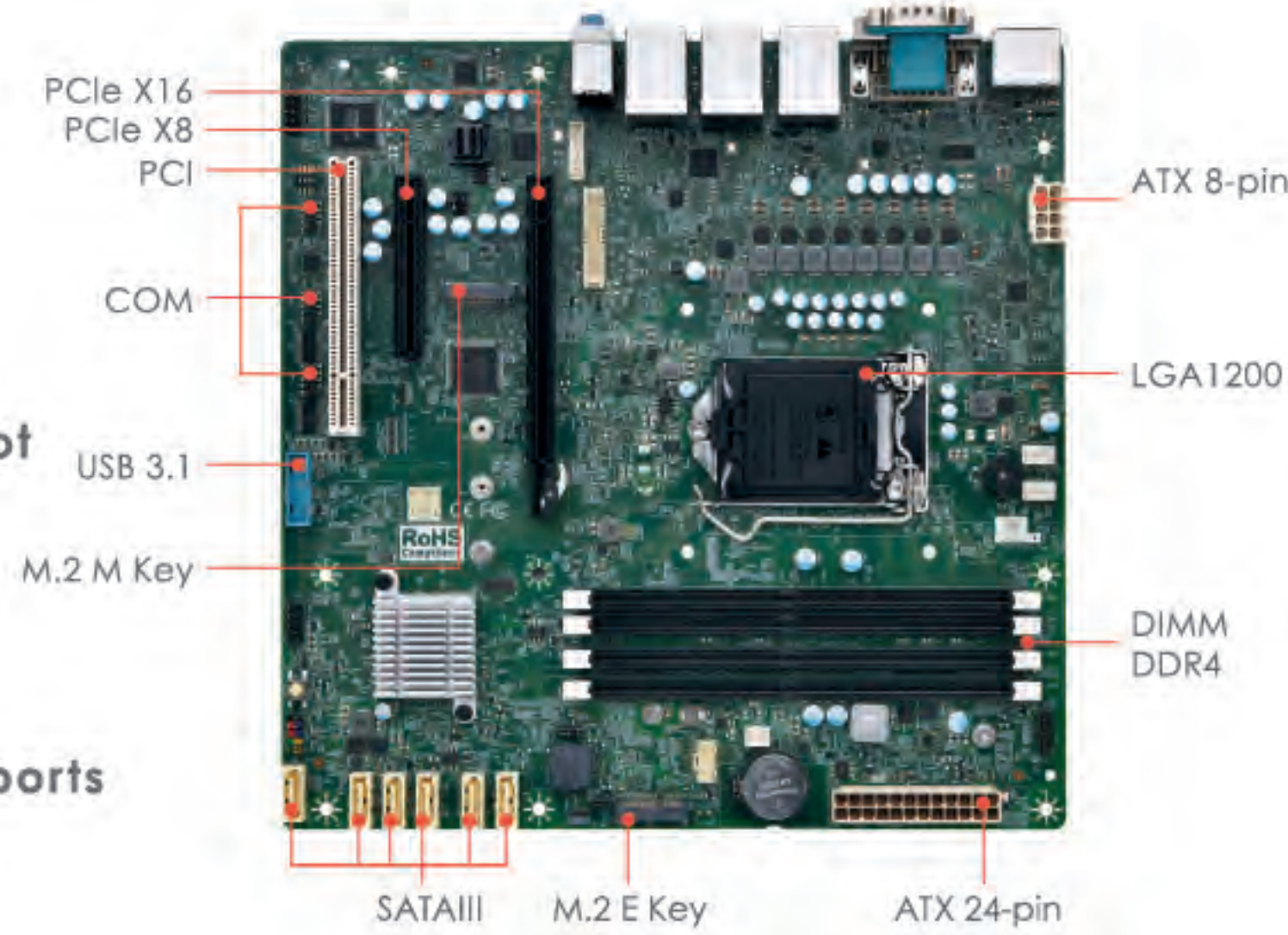
Kaby lake / Skylake	PD10KC	P84
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PH10CMU

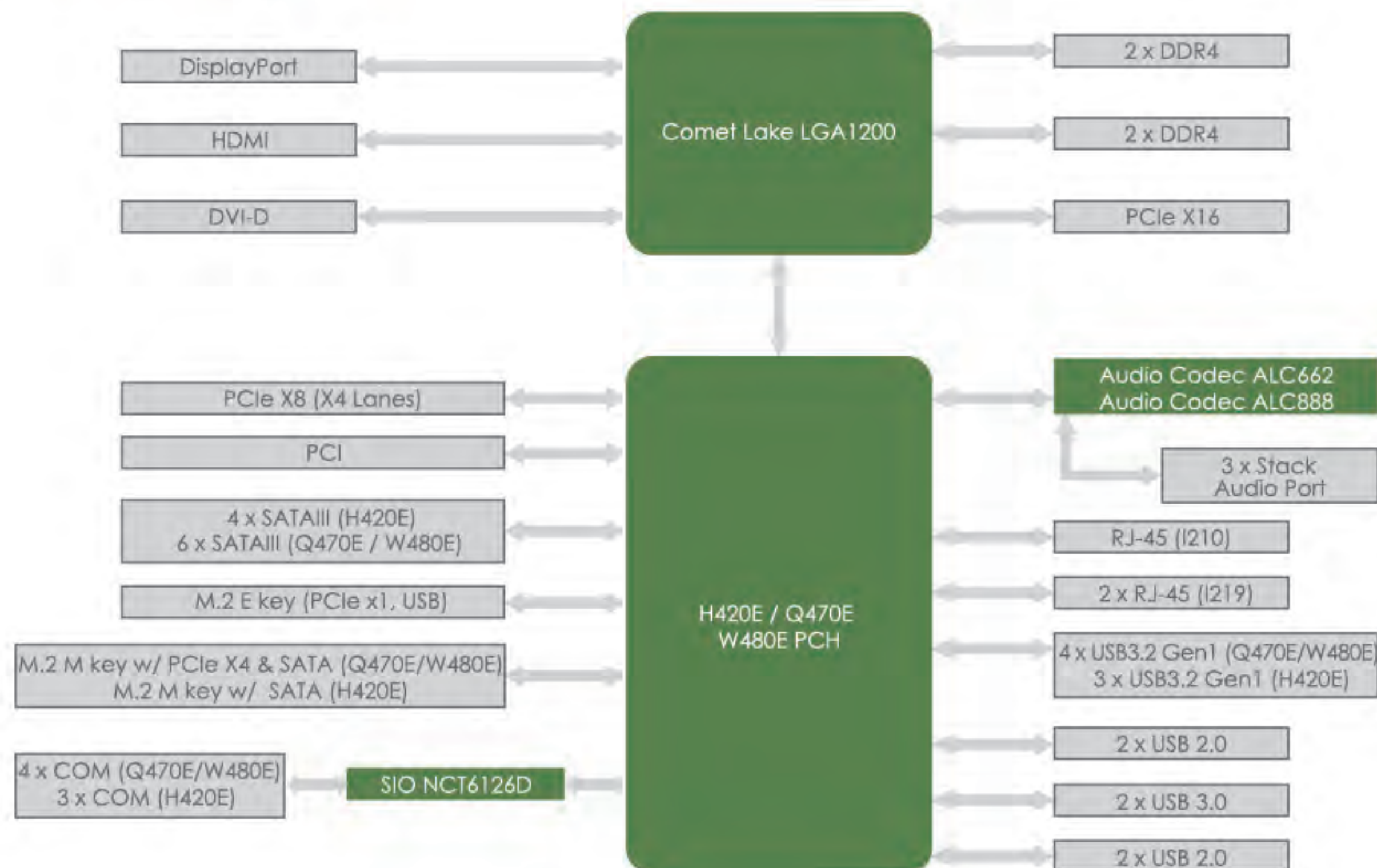
Micro-ATX Form Factor
Intel® Comet Lake Processor with H420E / Q470E / W480E Chipset

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® I219-LM Giga LAN + Intel® I210-AT Giga LAN + Intel® I210-AT Giga LAN (optional)
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 DVI-I
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/ DVI-I	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

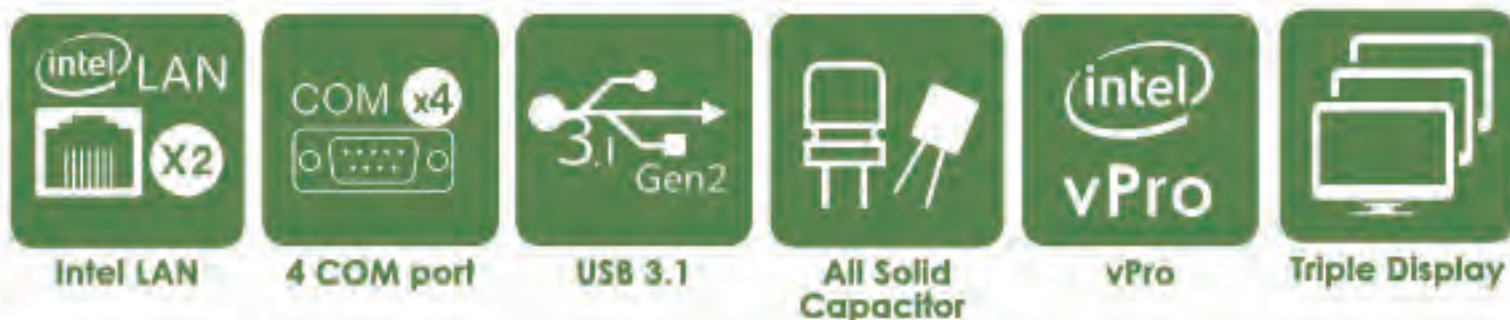
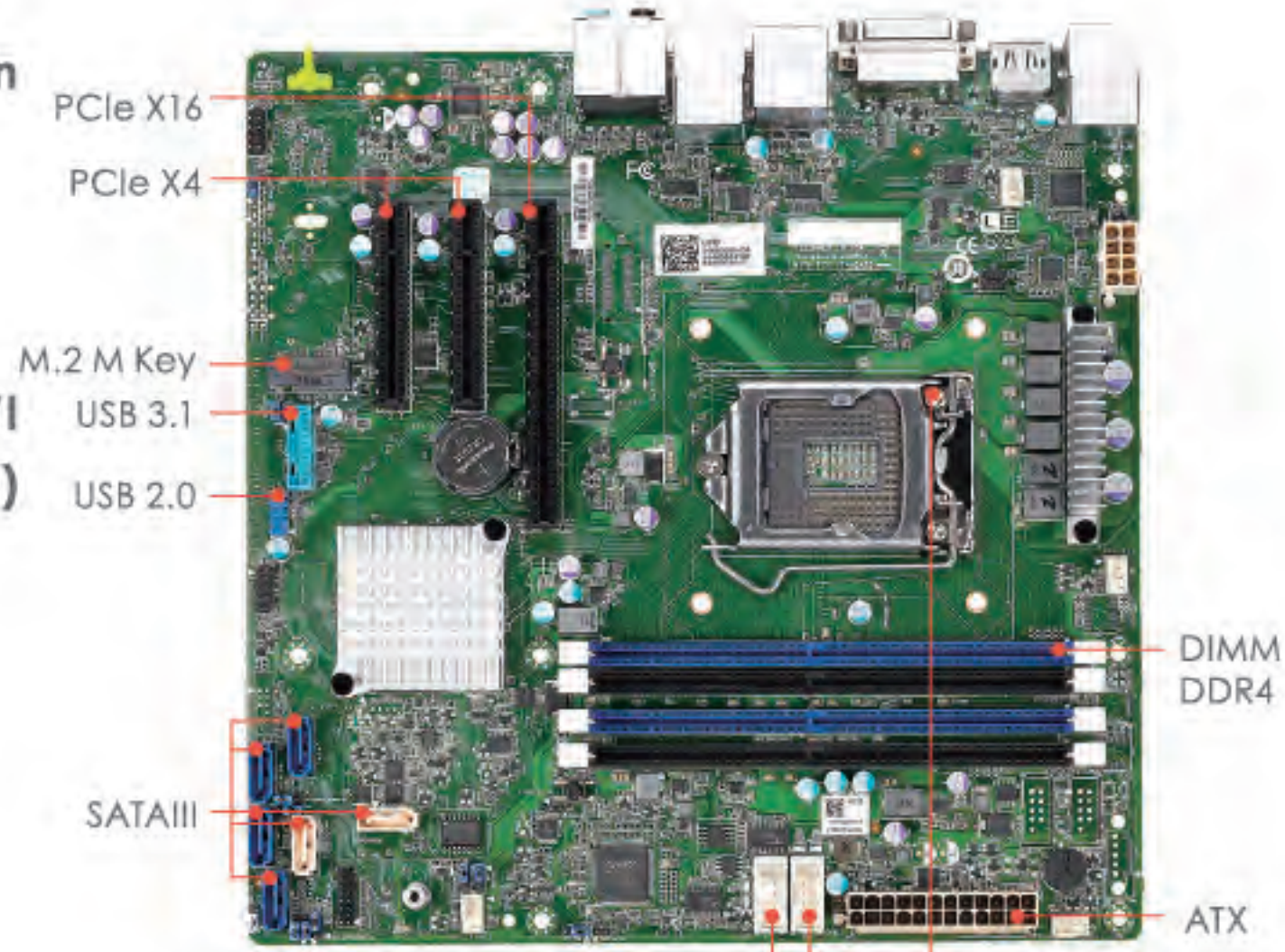
Packing		
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 1 x I/O Bracket

PH10FEU

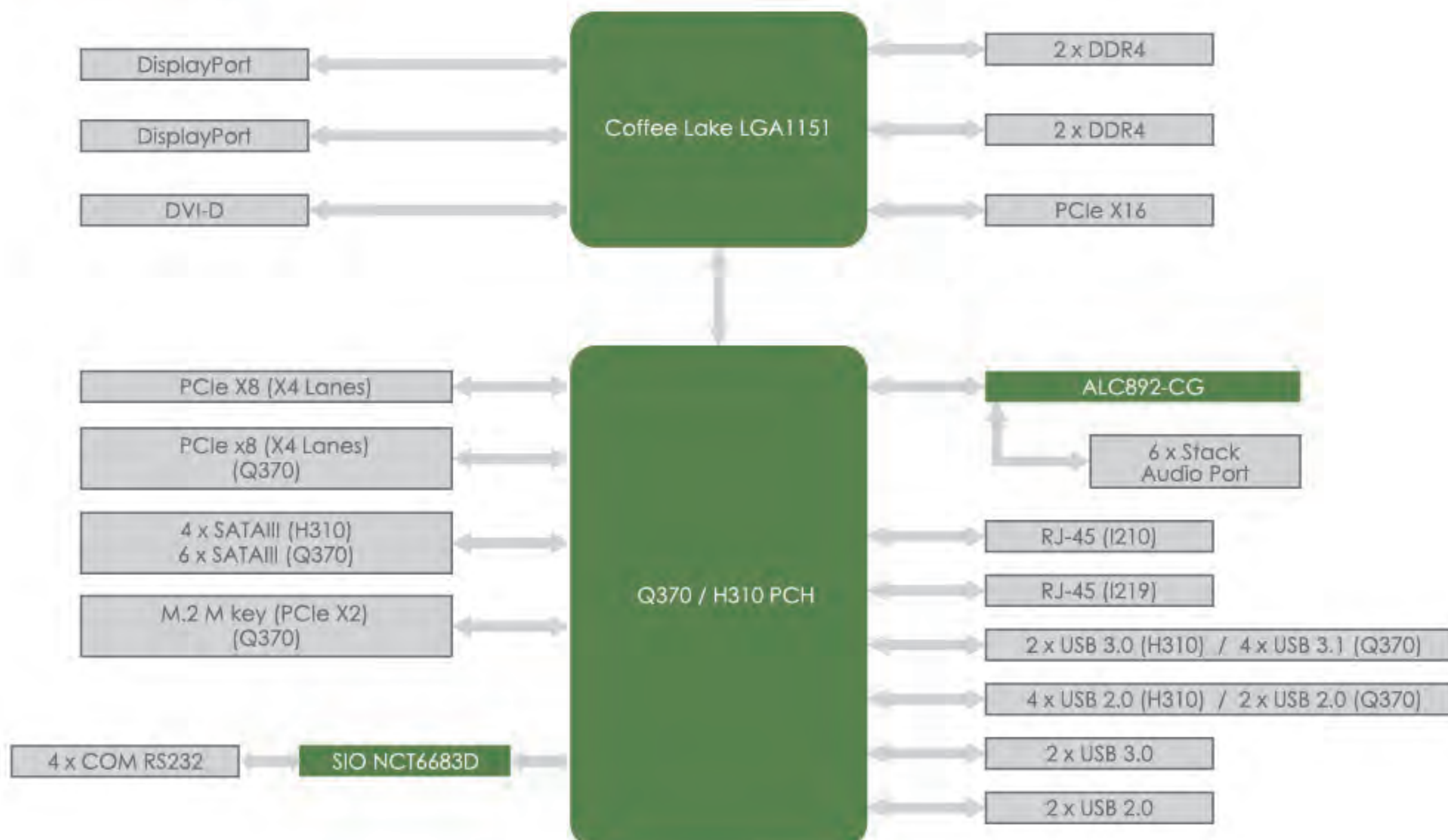
Micro-ATX Form Factor
Intel® Coffee Lake Processor with Q370 / H310 Chipset

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, 1 x 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

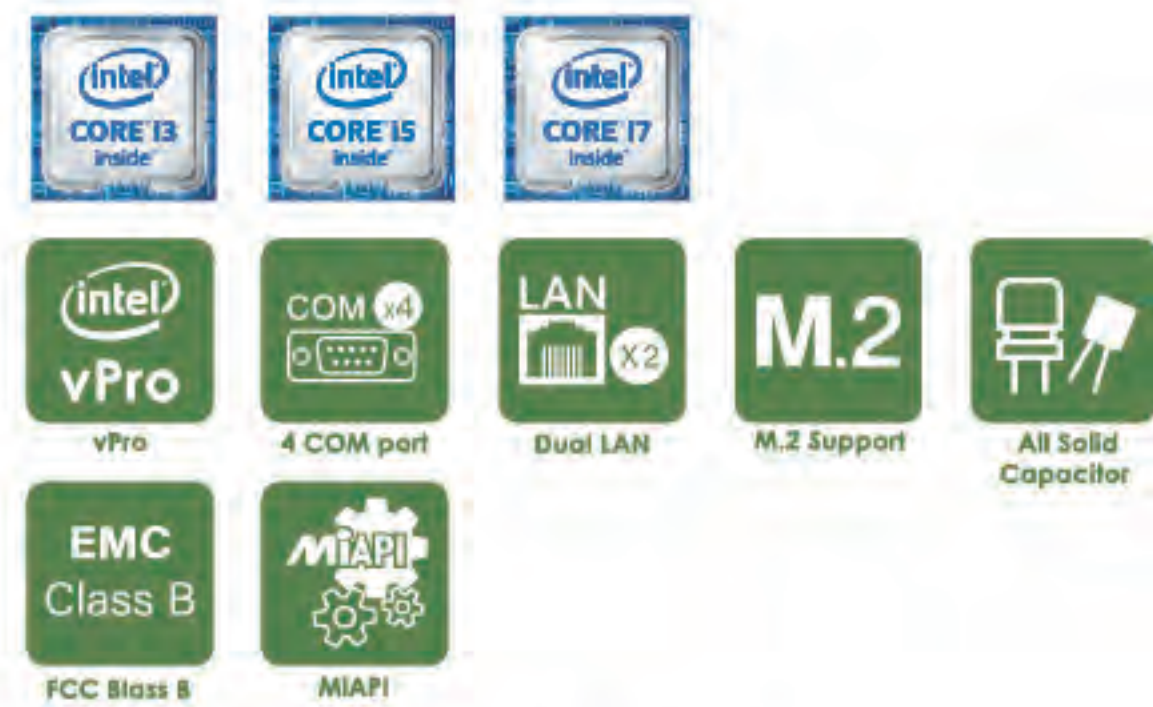
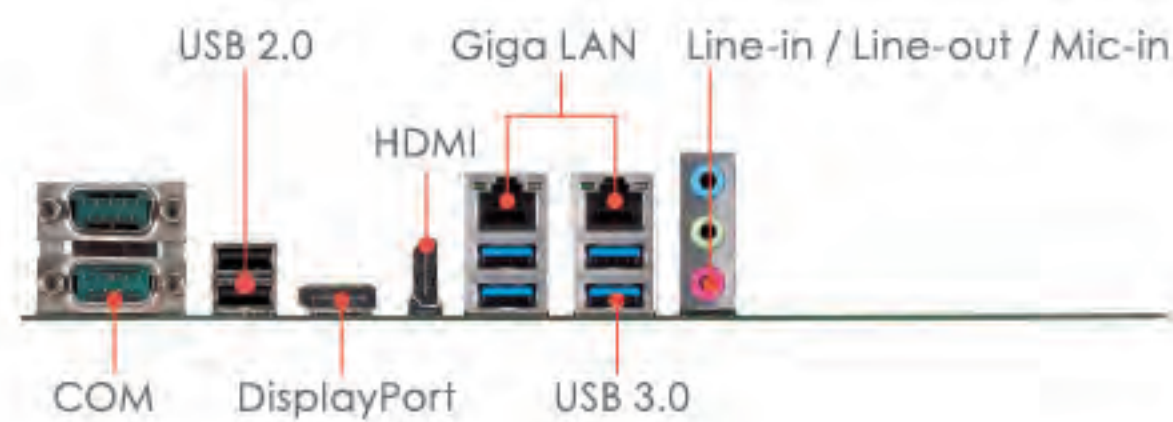
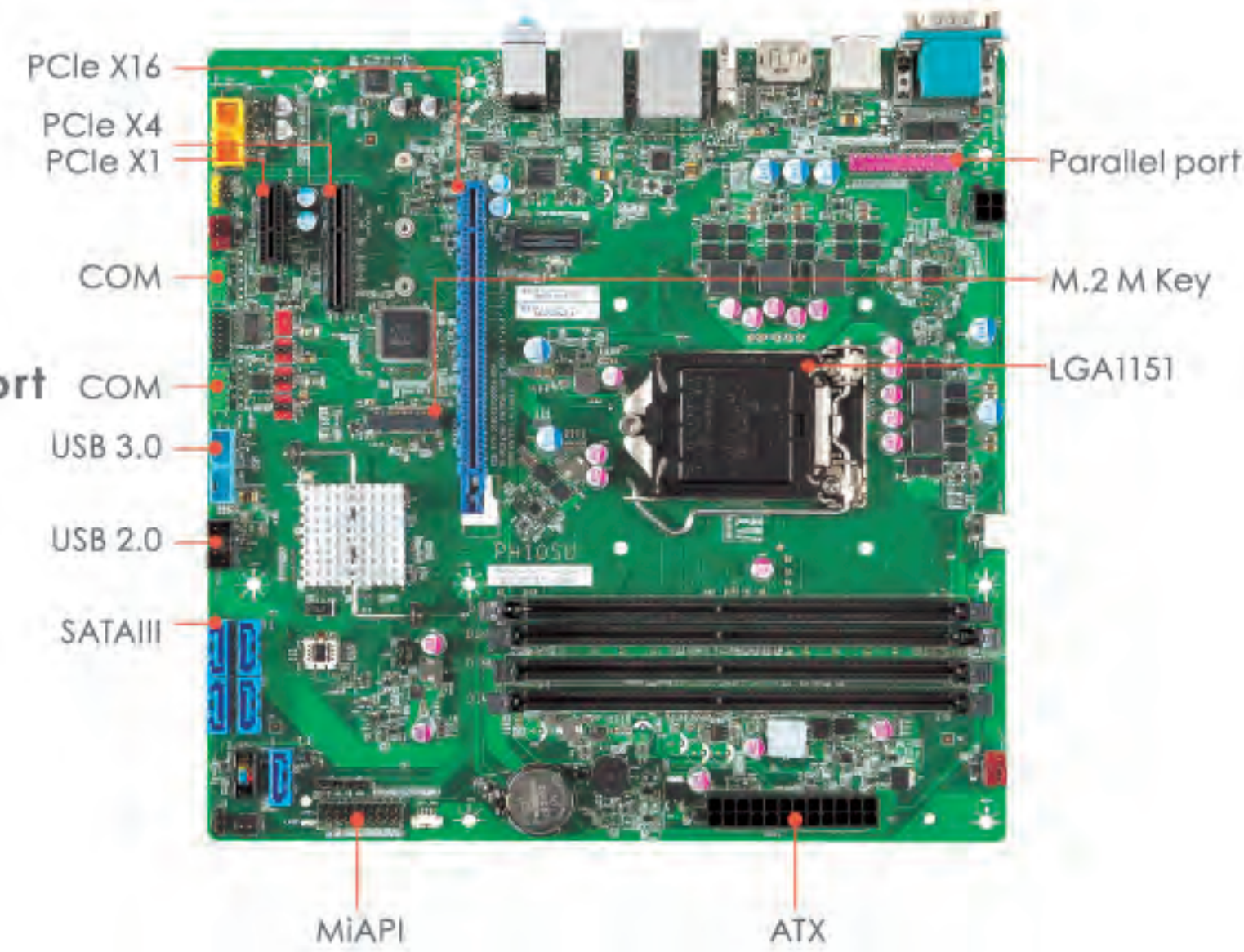
Packing		
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 1 x I/O Bracket

PH10SU

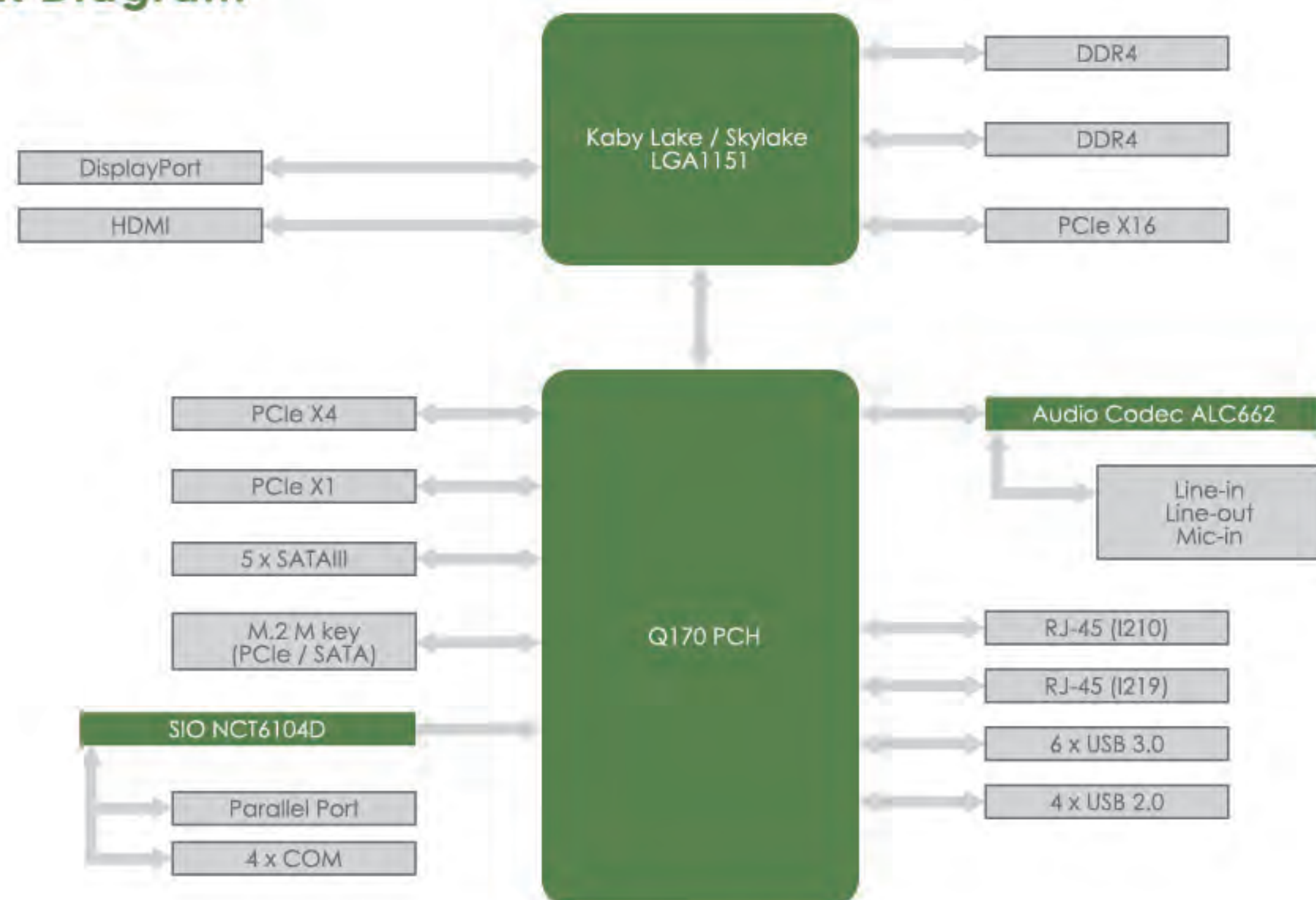
Micro-ATX Form Factor
Intel® Kaby Lake / Skylake Processor with Q170 Chipset

Features

- Intel® Skylake / Kaby Lake Core i7/i5/i3 / Pentium / Celeron LGA1151 processors
- Intel® Q170 Chipset
- Intel® vPro technology supported
- 4 x DDR4 DIMM, support up to 64GB
- Support dual display for HDMI and DisplayPort
- Support 1 x PCIe X16 (Gen 3) slot, 1 x PCIe X4 (Gen 2) slot
- 1 x PCIe X1 (Gen 2) slot and M.2 slot
- 5 x SATAIII, RAID 0, 1, 5, 10
- 2 x Intel® Gigabit Ethernet
- 4 x USB 2.0, 6 x USB 3.0, 4 x COM and 1 x Parallel Port
- ATX power input



Block Diagram



PH10SU Micro ATX

MECHANICAL	
Form Factor	Micro-ATX 9.6" x 9.6" (244mm x 244mm)
SYSTEM	
Processor	7th/6th Gen Intel® Core™ i Series LGA1151 Socket Processor, TDP Max. 91W
Chipset	Intel® Q170 Chipset (Support RAID 0/1/5/10)
Memory	DDR4 2133, 4 x 288-pin U-DIMM, Max. 64 GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I219LM Giga LAN + I210AT Giga LAN
Audio	Realtek® ALC662
I/O Chipset	Nuvoton NCT6104D
TPM	Nuvoton NPCT650AAAWX TPM2.0
Expansion Slot	1 x PCIe 3.0 X16 slot 1 x PCIe 2.0 X4 slot 1 x PCIe 2.0 X1 slot 1 x M.2 2280/2260/2242 M key (PCIe / SATA)
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 (4096 x 2160) @24 Hz
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
LVDS	—
eDP (Option)	—
REAR I/O	
USB	4 x USB 3.0, 2 x USB 2.0
Display I/O	1 x HDMI 1.4, 1 x DisplayPort 1.2
Audio I/O	1 x Audio Jack (Mic-in, Line-in, and Line-out)
LAN I/O	2 x RJ-45
Serial Port	2 x RS232 (Configurable for power RS232)
PS/2 Port	—
Others	—
INTERNAL CONNECTORS	
Storage	5 x SATAIII, 1 x 4-pin SATA power for DOM
USB	2 x USB 3.0, 2 x USB 2.0
Display I/O	—
Audio I/O	1 x Audio Header (Front Panel Mic-in / Line-out) 1 x S/PDIF Out Audio Header (4-pin)
Serial Port	2 x RS232 (Configurable for RS232/422/485)
PS/2 Port	—
Parallel Port	1 x Parallel Port Header
GPIO	1 x MiAPI Header (Programmable, Support 10 x GPIO)
Fan	1 x 4-pin CPU Fan Header, 1 x 4-pin System Fan Header
Power	1 x ATX 24-pin, 1 x ATX 4-pin
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 1 x CMOS Jumper
POWER REQUIREMENT	
Power Input	ATX Power (24-pin + 4-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	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	Chipset	DisplayPort	HDMI	3-Stack Audio Jack	LAN	USB3.0 / 2.0	Serial Port	M.2 2280	PCIe X1/ X4/ X16	SATA	Power
PH10SU-Q170	Q170	1	1	1	2	6 / 4	4	1	1 / 1 / 1	5	ATX Power (24-pin + 4-pin)

Packing List

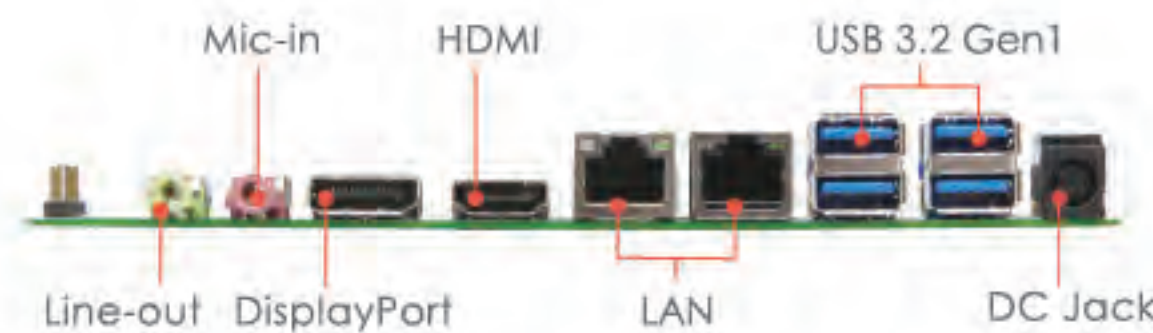
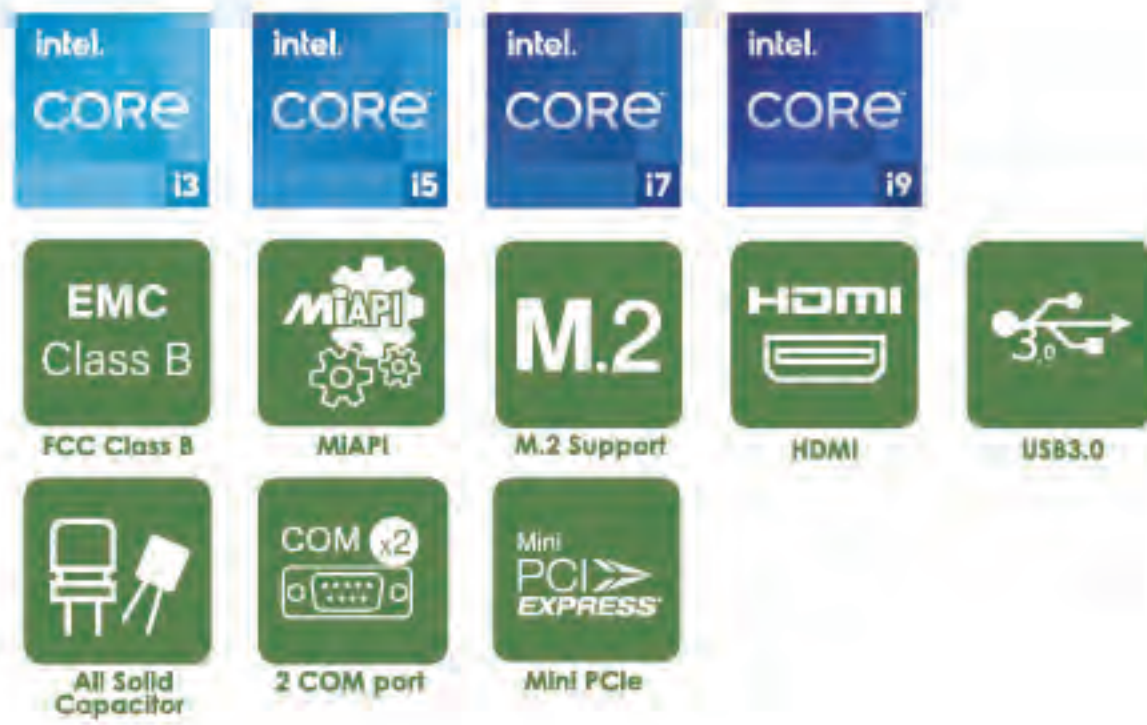
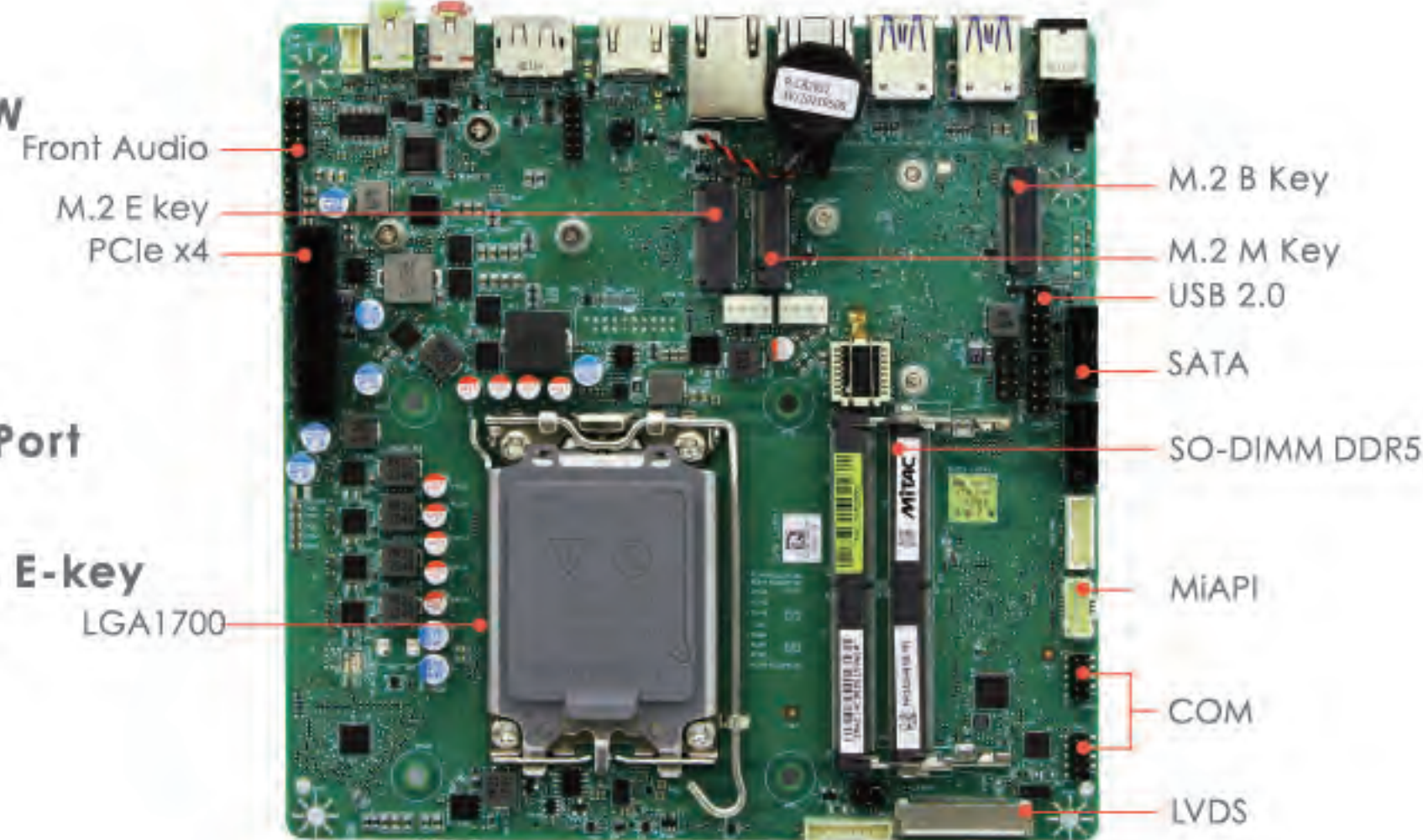
Packing	
• 1 x Motherboard	• 1 x 50cm SATA Cable
	• 1 x I/O Bracket

PH12ADI

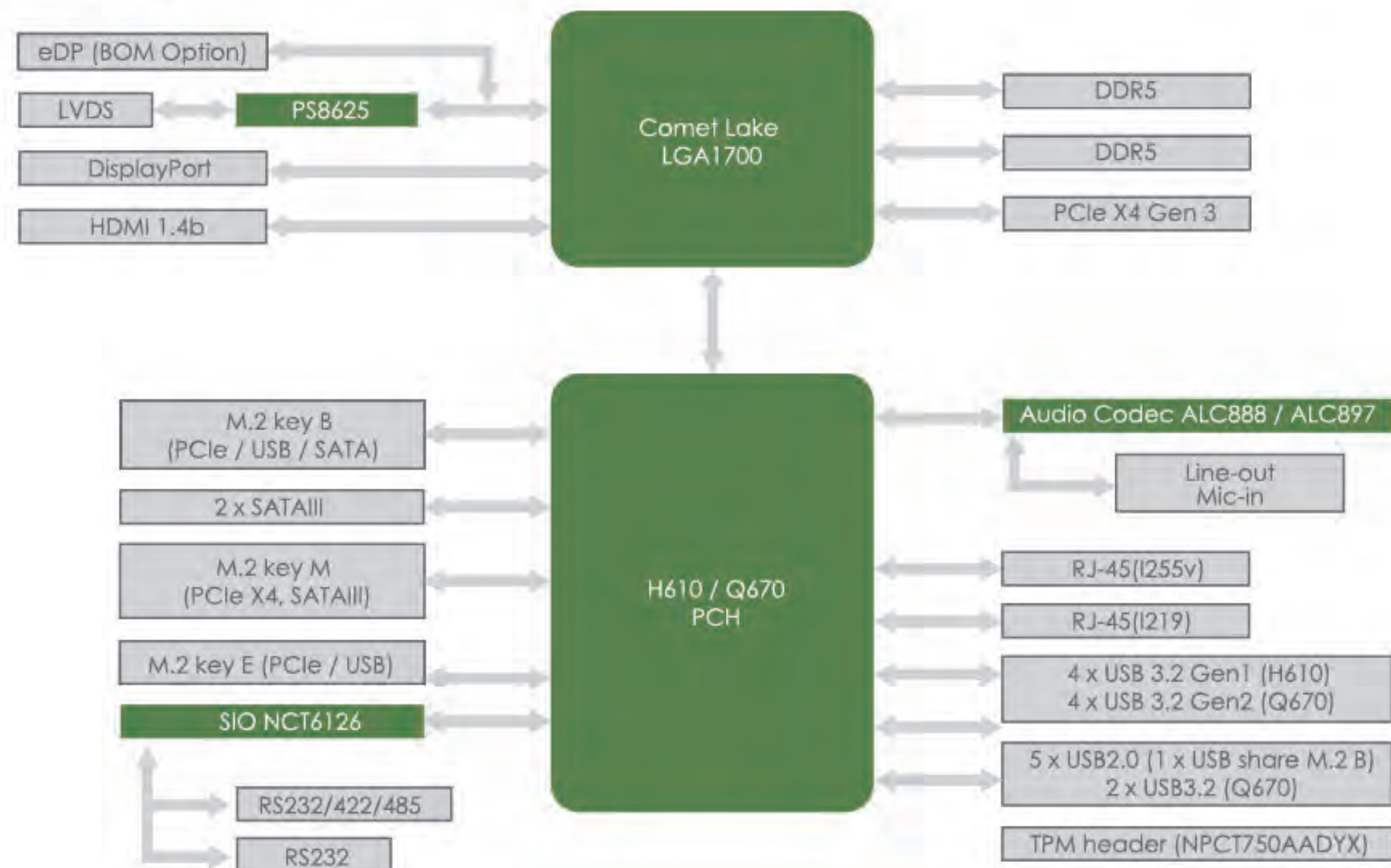
Thin Mini-ITX Form Factor
Intel® Alder Lake 12th Processor with H610/Q670 Chipset

Features

- Intel® Alder Lake 12th i9/i7/i5/i3 LGA 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	12th Gen Intel® Alder Lake 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

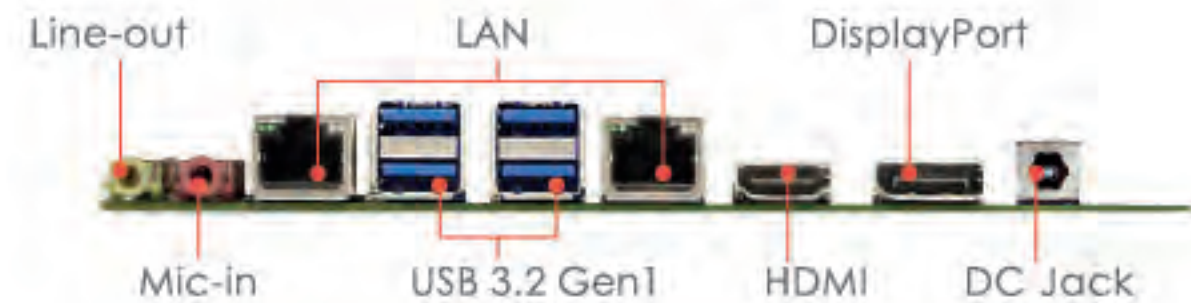
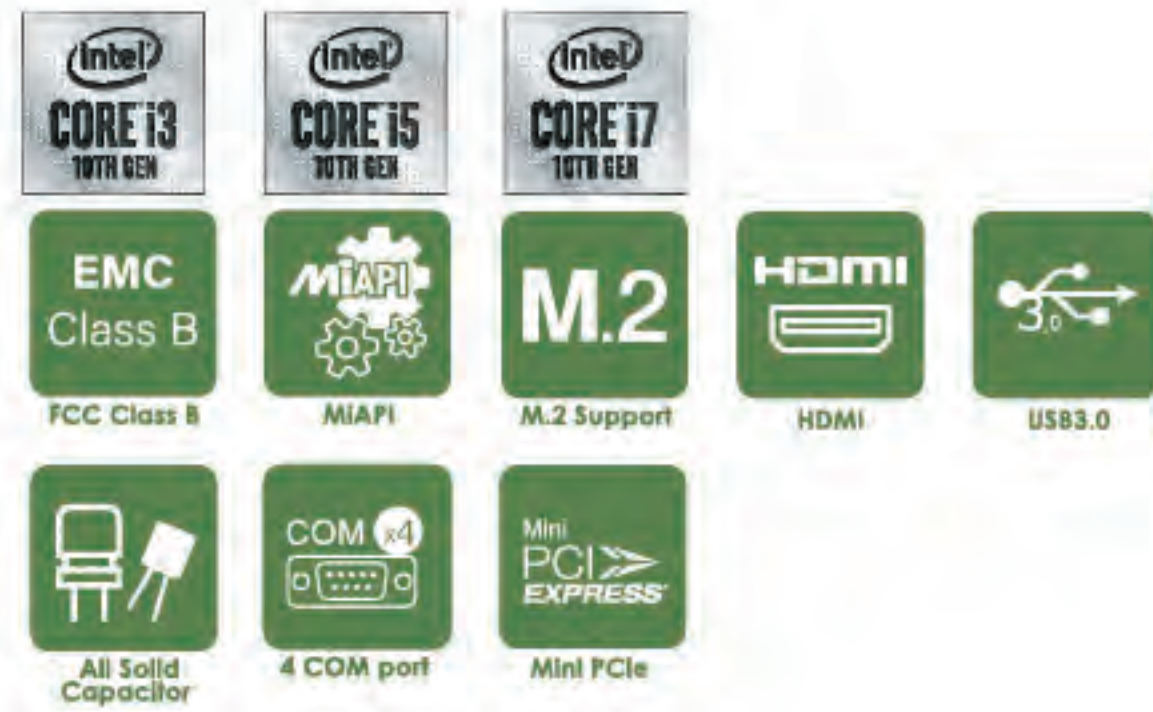
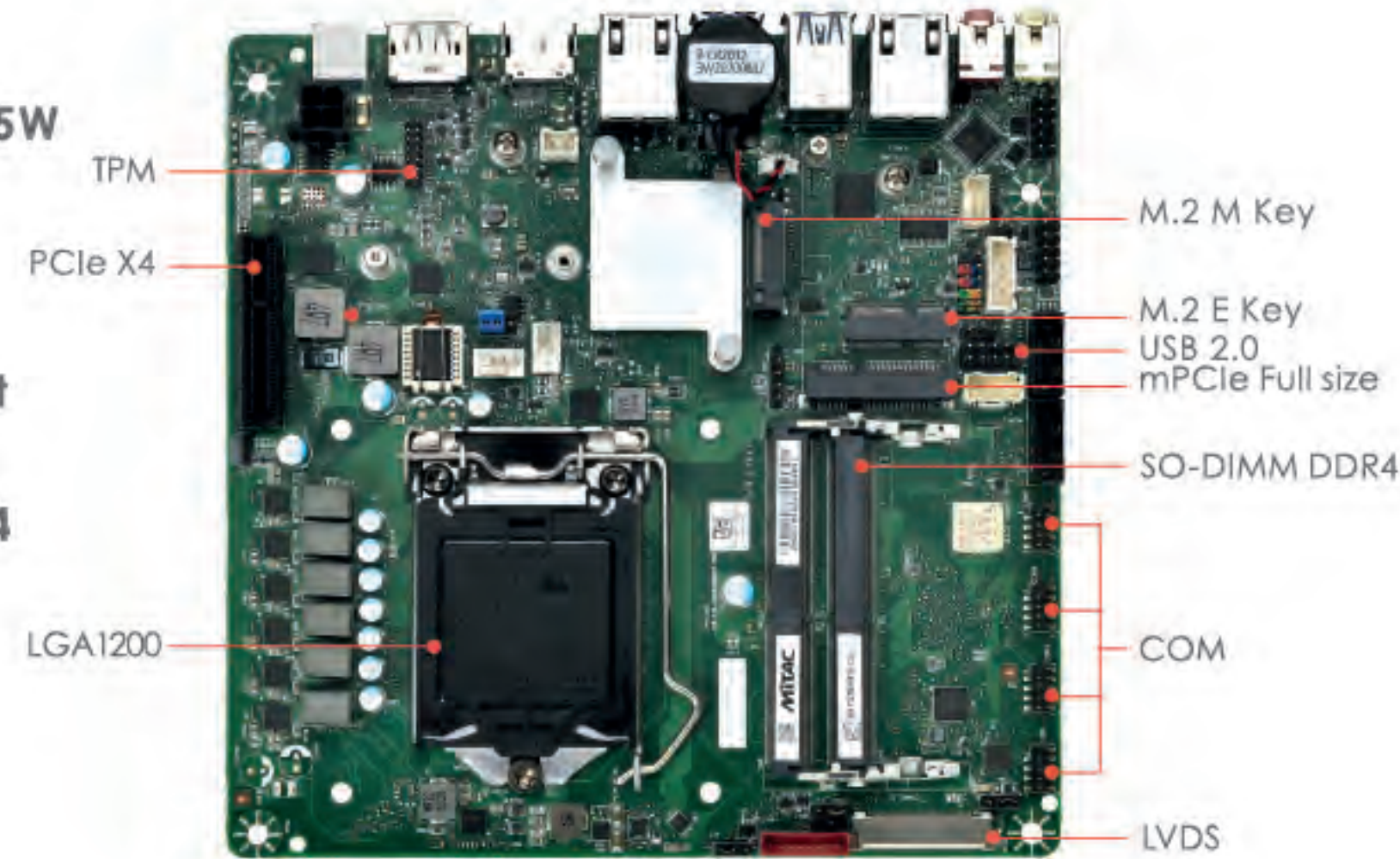
Packing		
• 1 x Mainboard	• 1 x SATA & SATA Power Cable	• 2 x I/O Bracket (Half and Full Height)

PH11CMI

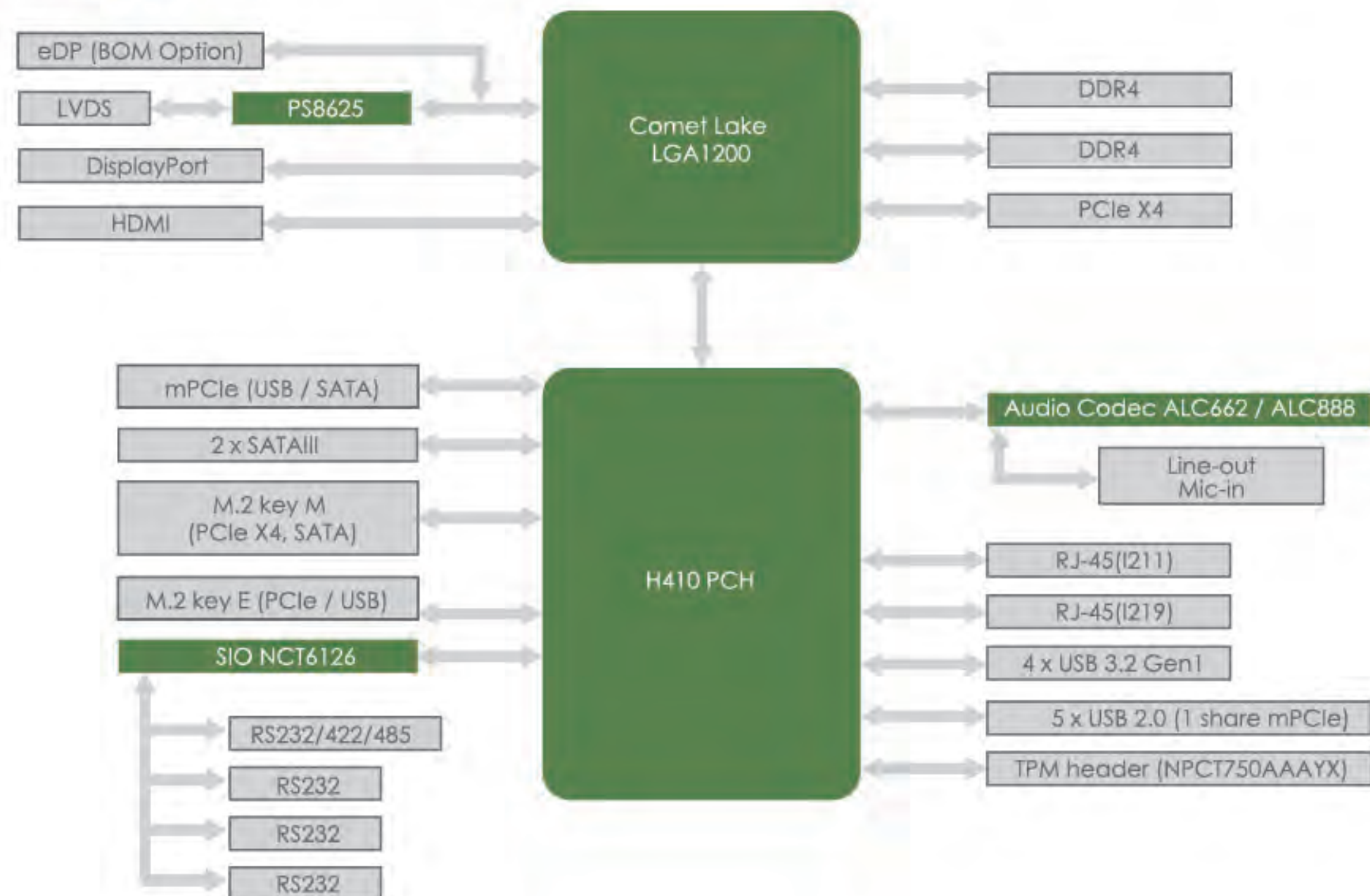
Thin Mini-ITX Form Factor
Intel® Comet Lake 10th Processor with H410 Chipset

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	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 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

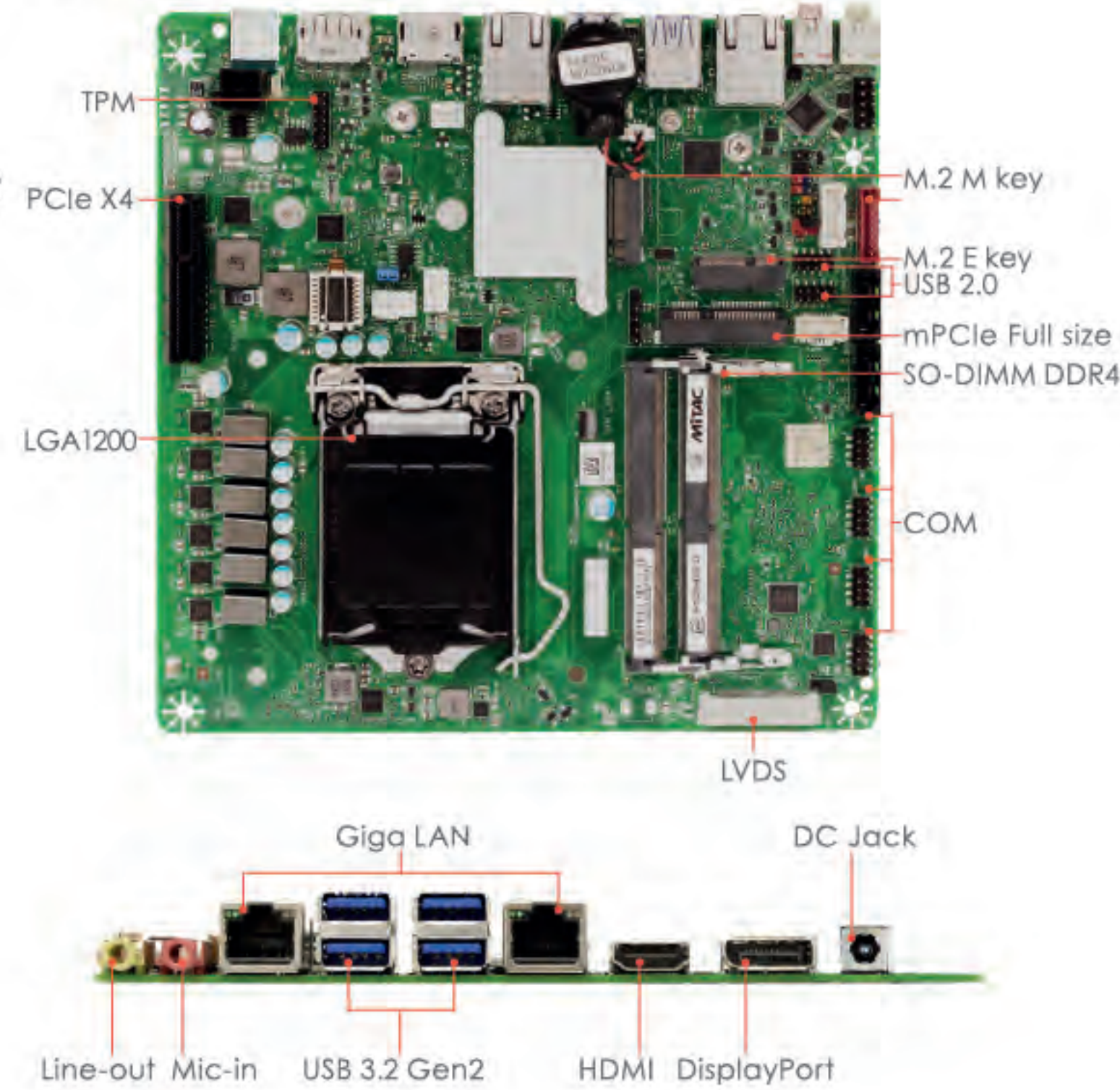
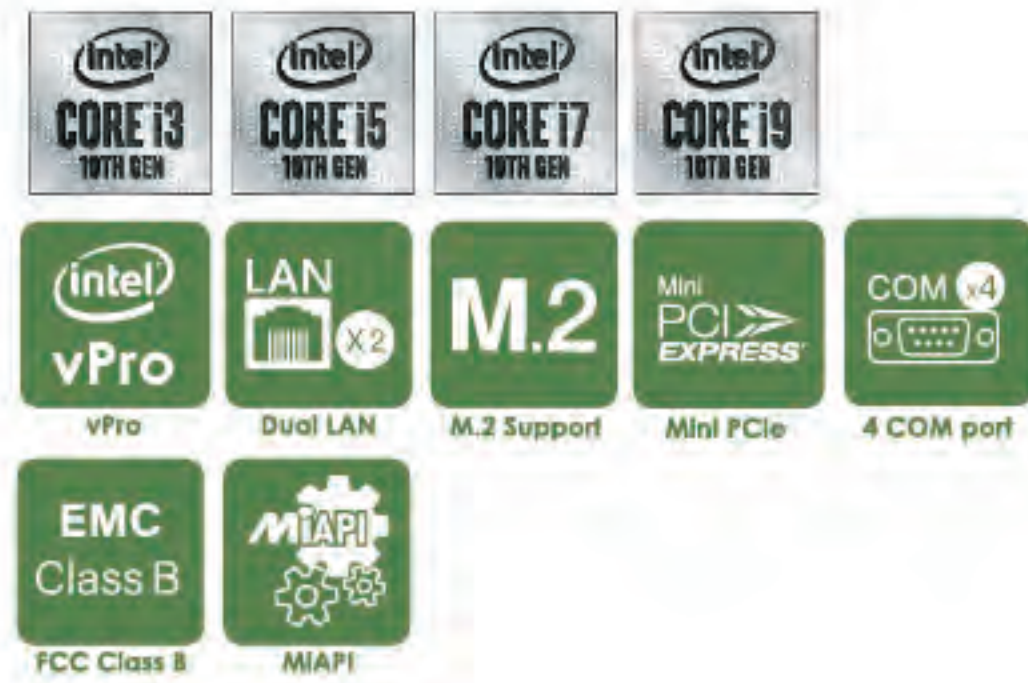
Packing	• 1 x Mainboard	• 1 x SATA & SATA Power Cable	• 2 x I/O Bracket (Half and Full Height)
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PH12CMI

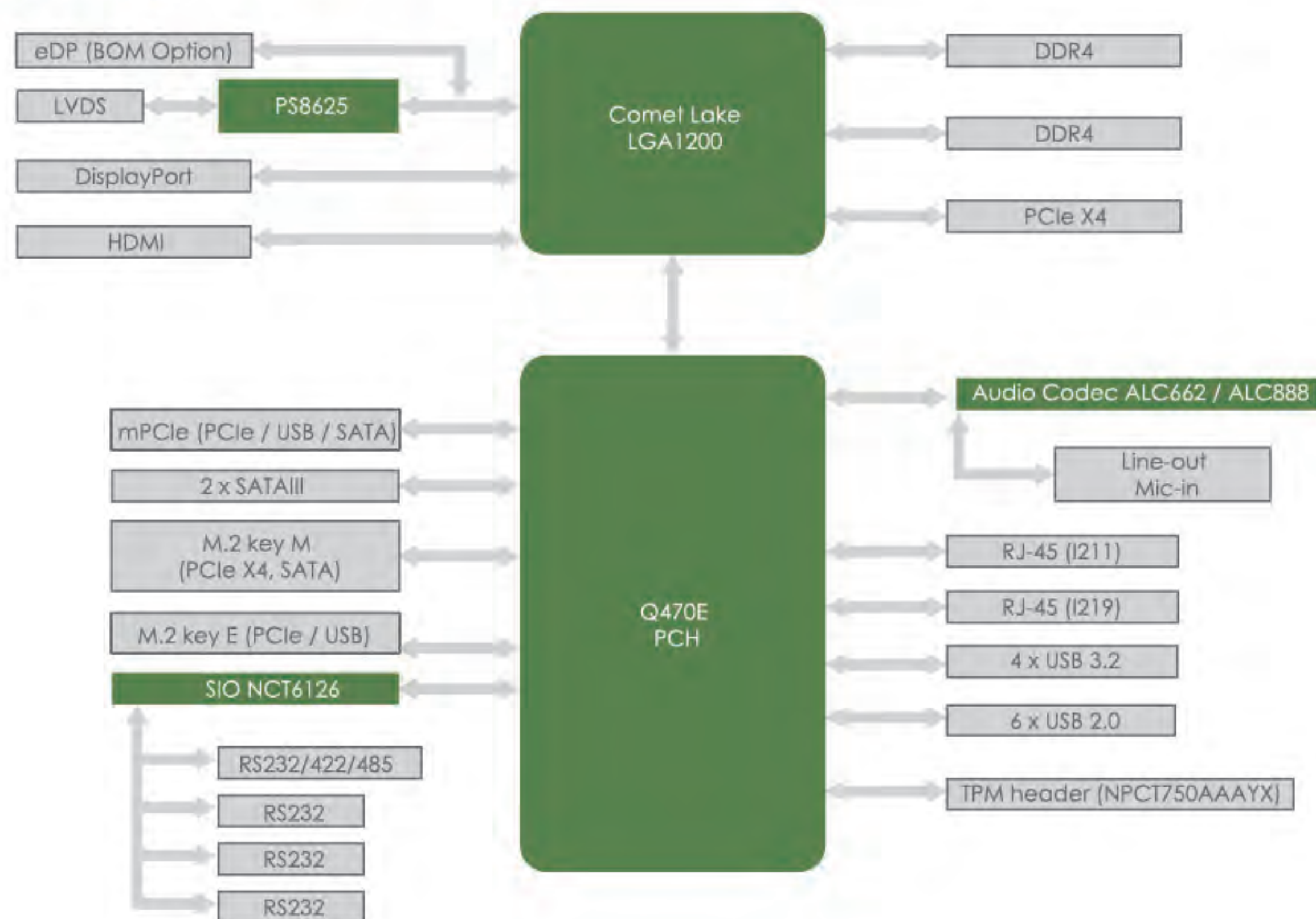
Thin Mini-ITX Form Factor
Intel® Comet Lake Processor with Q470E Chipset

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® I211-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, 1 x 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

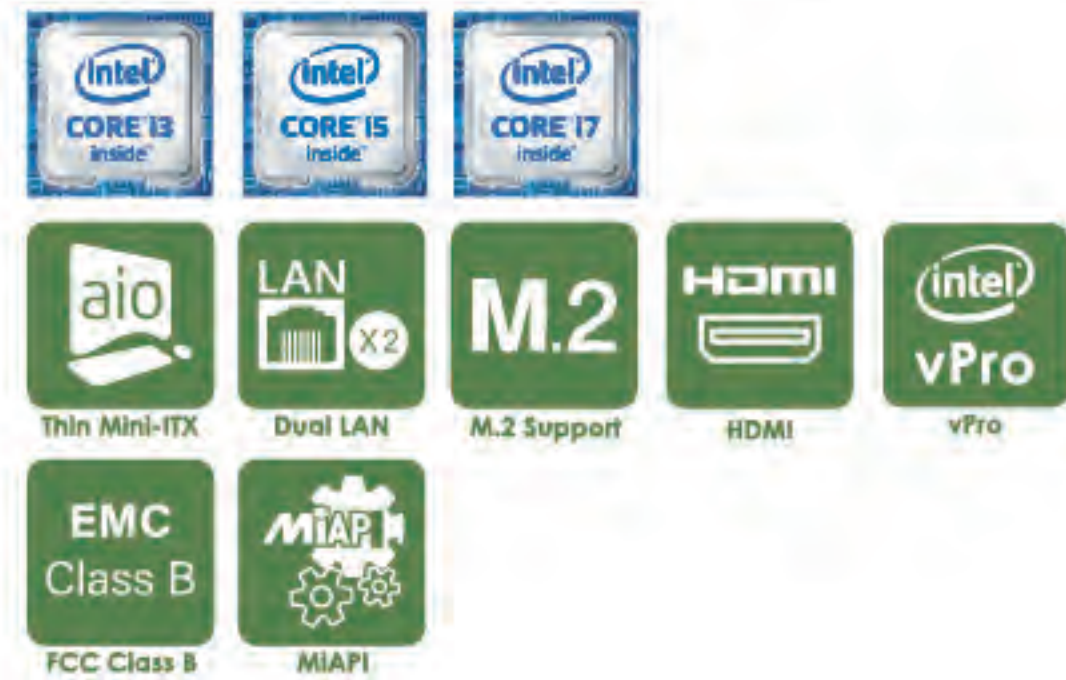
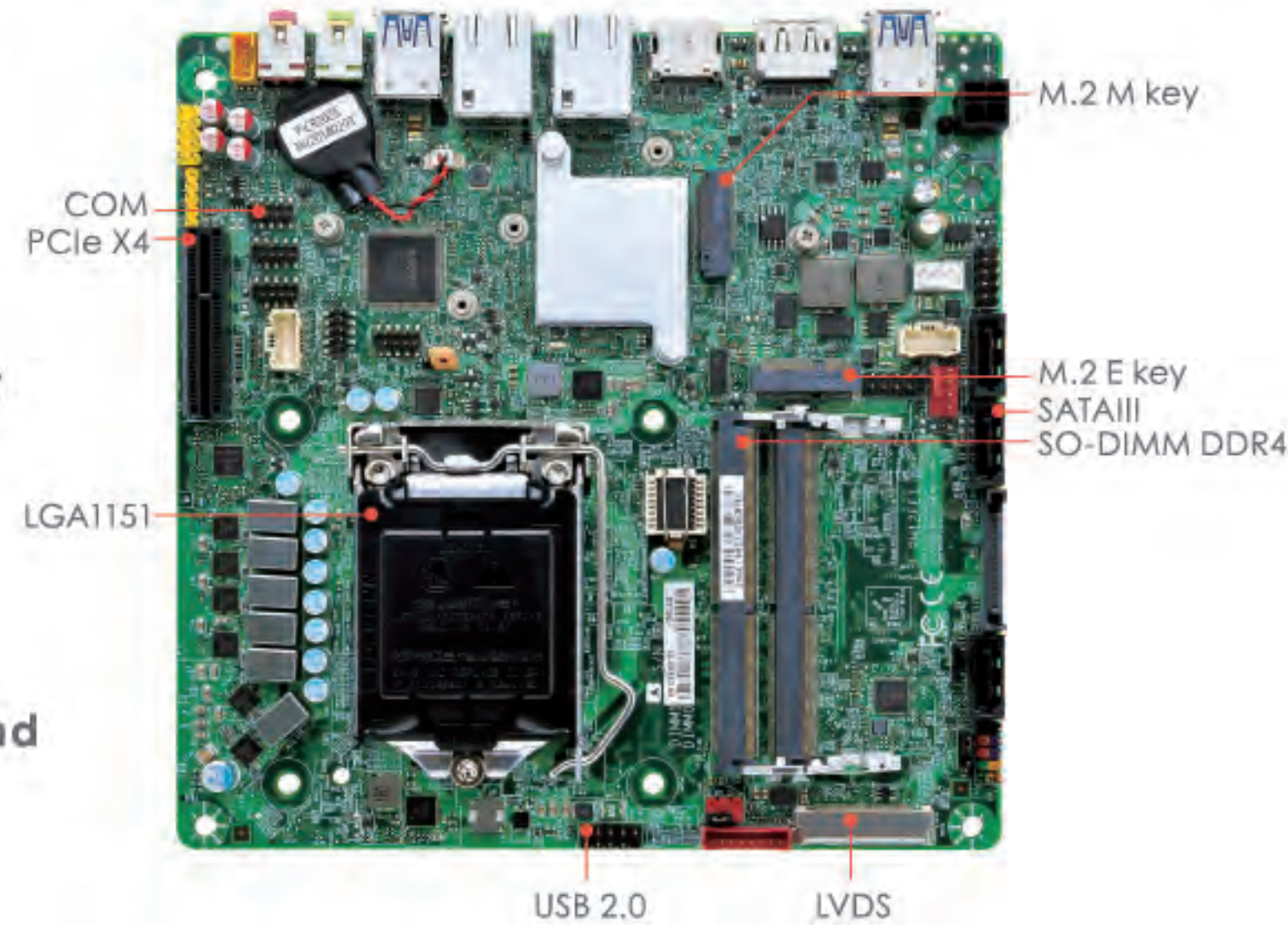
Packing	
• 1 x Motherboard	• 1 x SATA & SATA Power Cable
	• 1 x I/O Bracket (Full Height)

PH12FEI

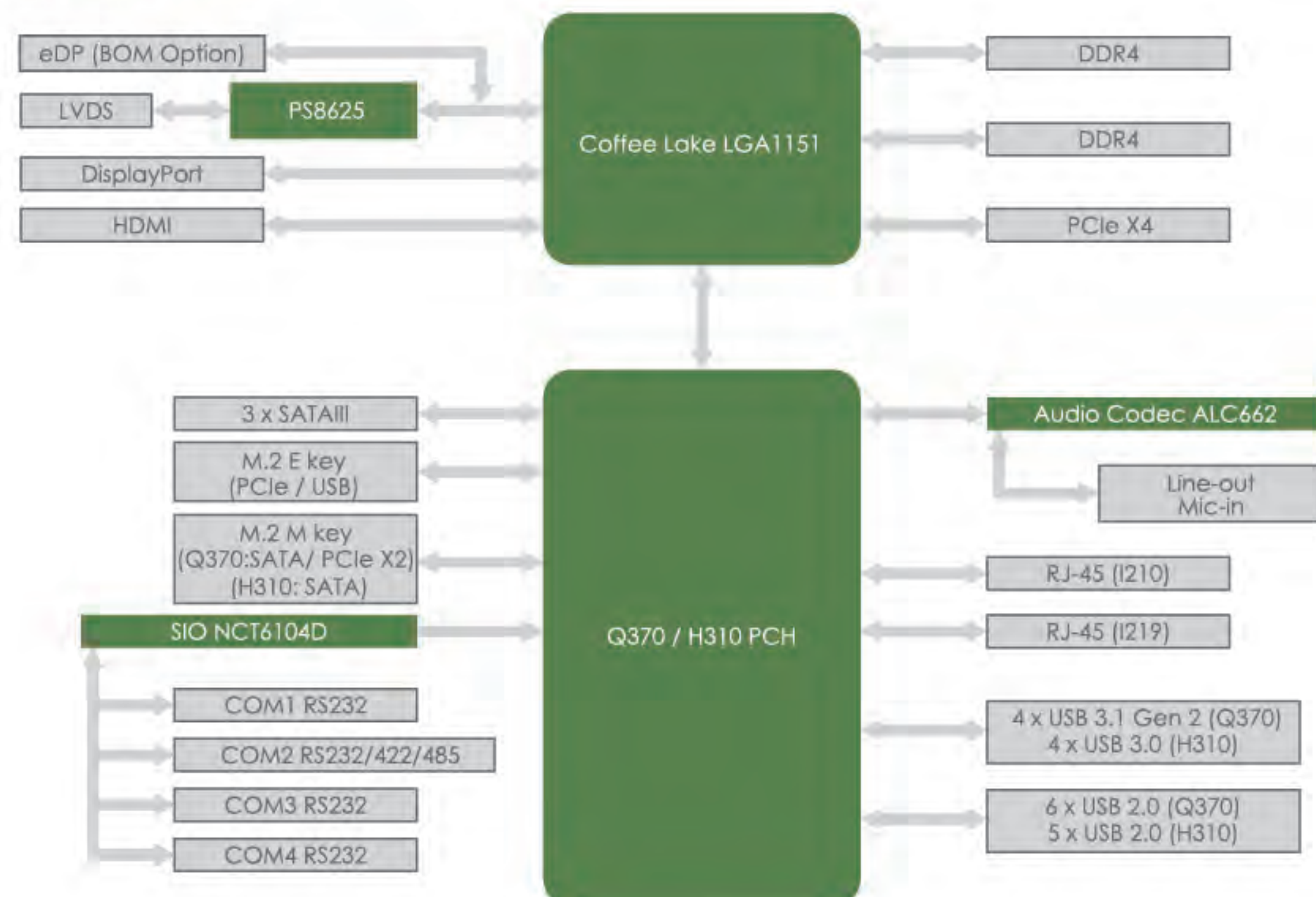
Thin Mini-ITX Form Factor
Intel® Coffee Lake Processor with Q370 / H310 Chipset

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-H310-12V	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

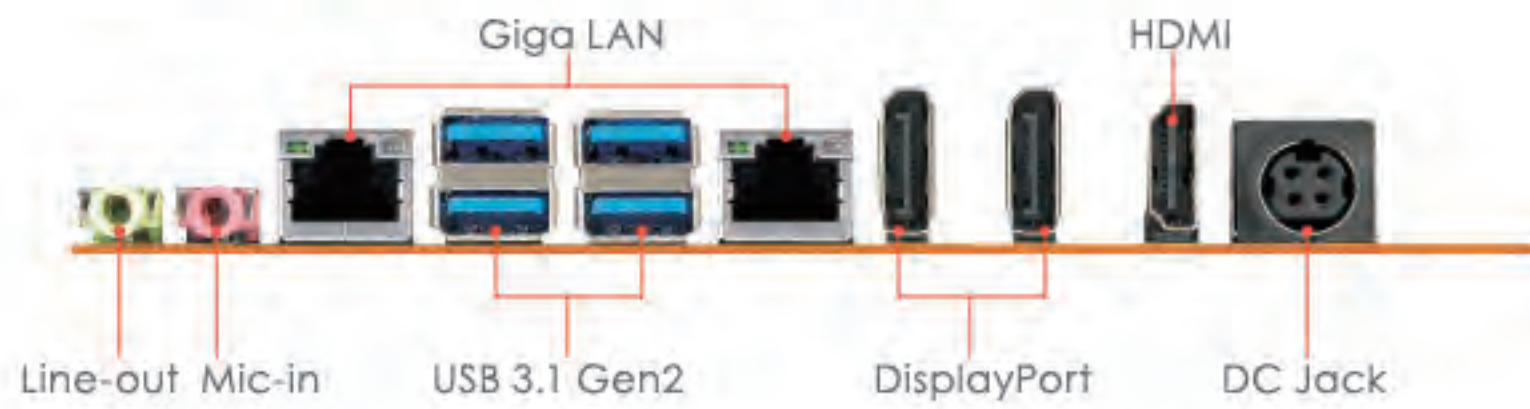
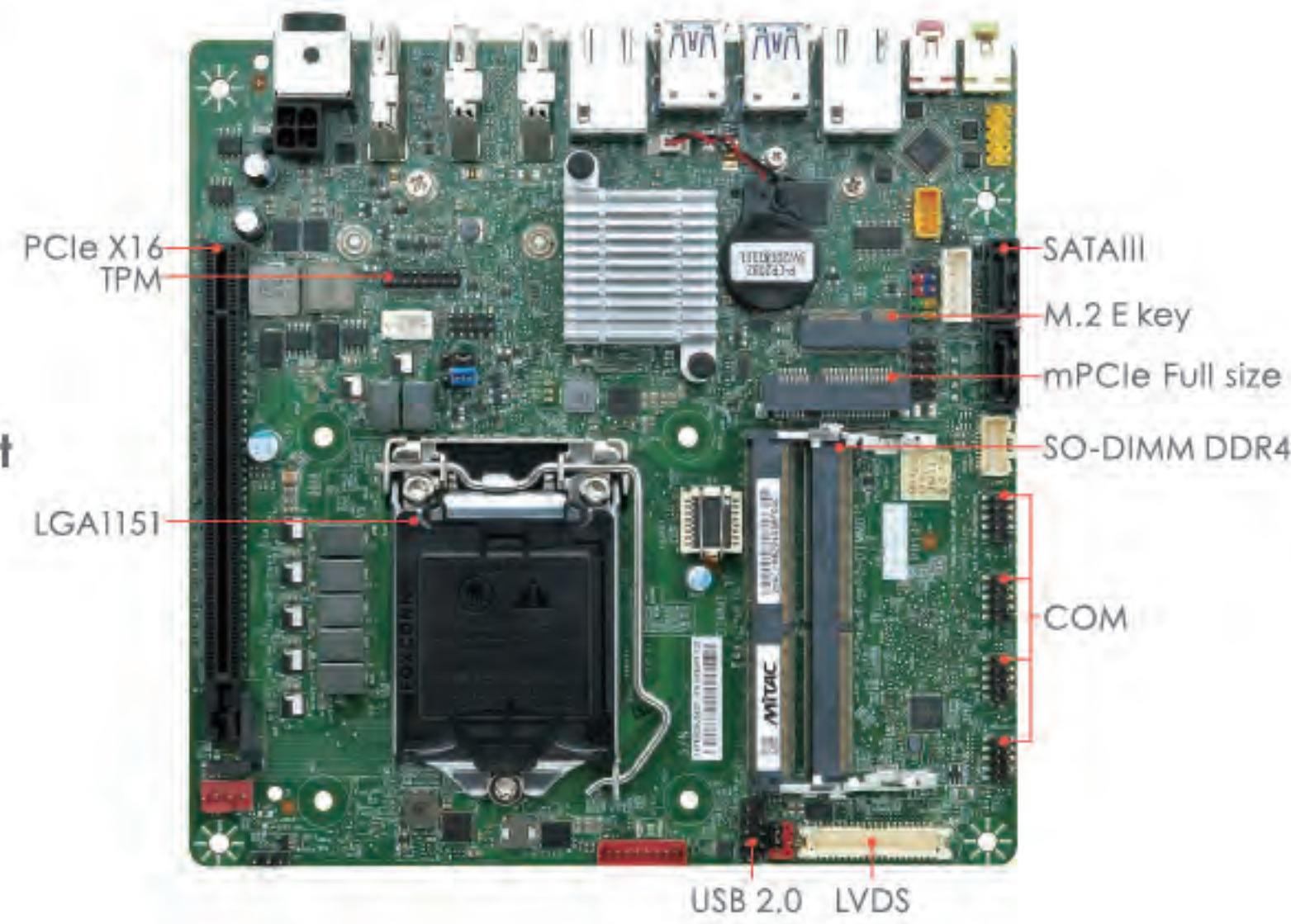
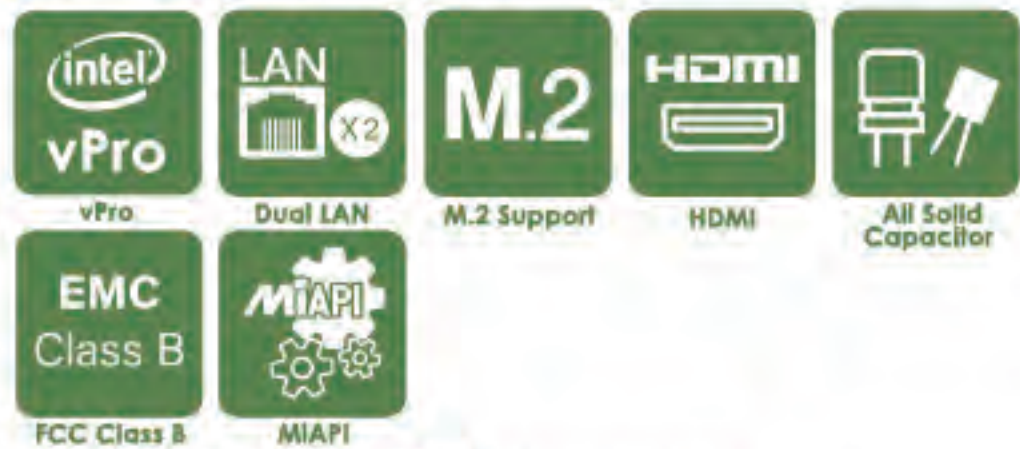
1 x Motherboard	1 x 50cm SATA Cable	1 x 45cm SATA Power Cable
1 x ATX 4-pin to DIN 4-pin Cable (12V SKU Only)	2 x I/O Bracket (Half and Full Height)	

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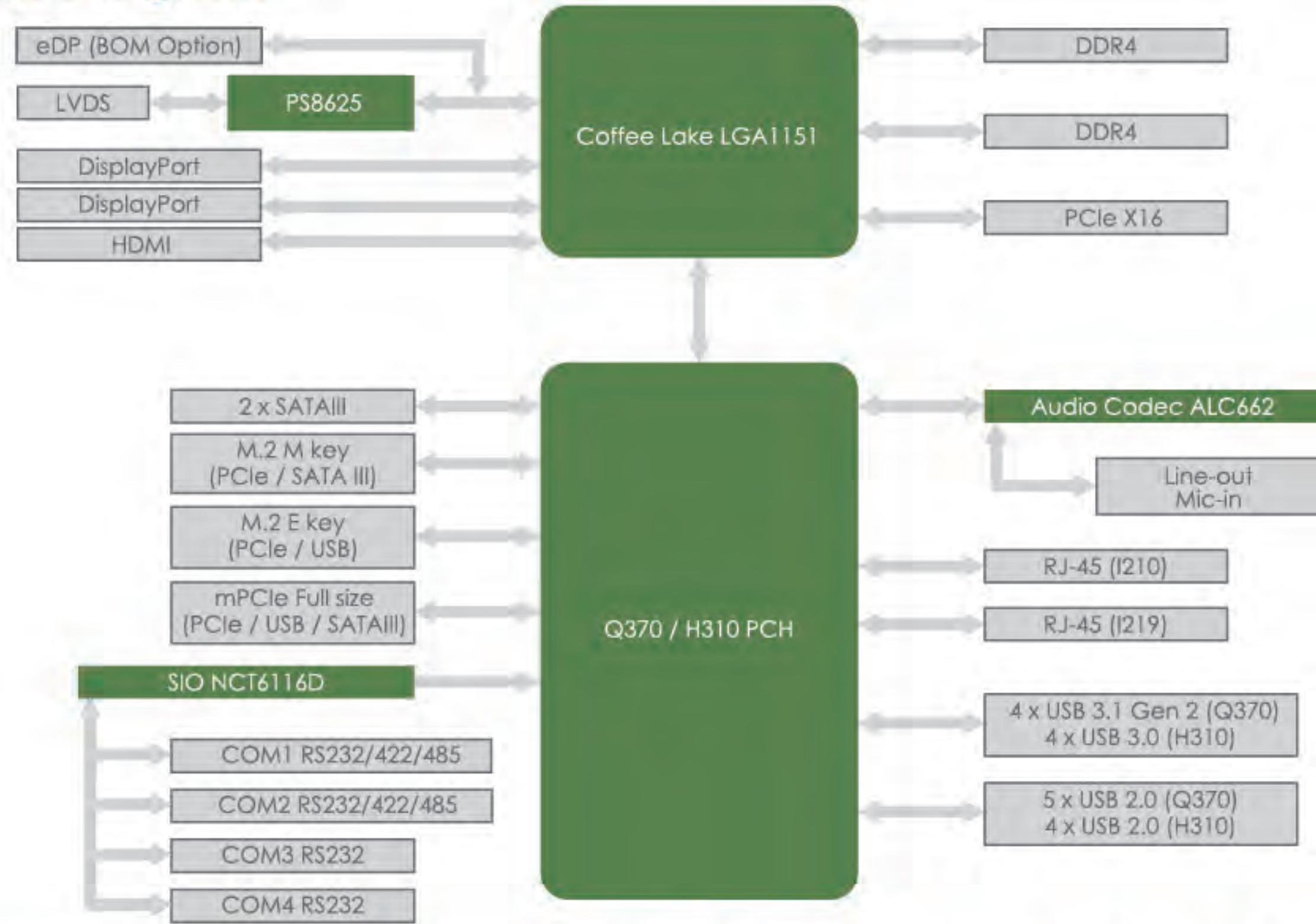
Thin Mini-ITX Form Factor
Intel® Coffee Lake Processor with H310/Q370 Chipset

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)

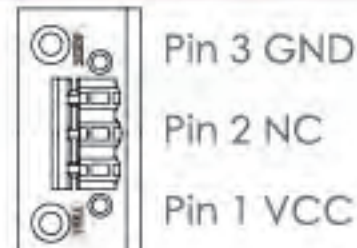
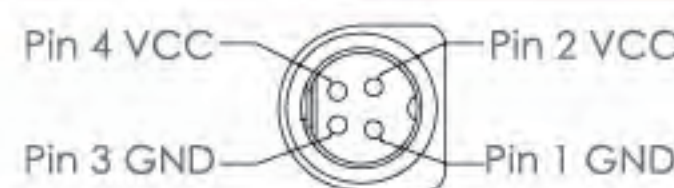


Block Diagram



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	Realtek® ALC662
I/O Chipset	Nuvoton NCT6116D
TPM	TPM Header (option TPM-SPI-NPCT750)
Expansion Slot	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	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	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

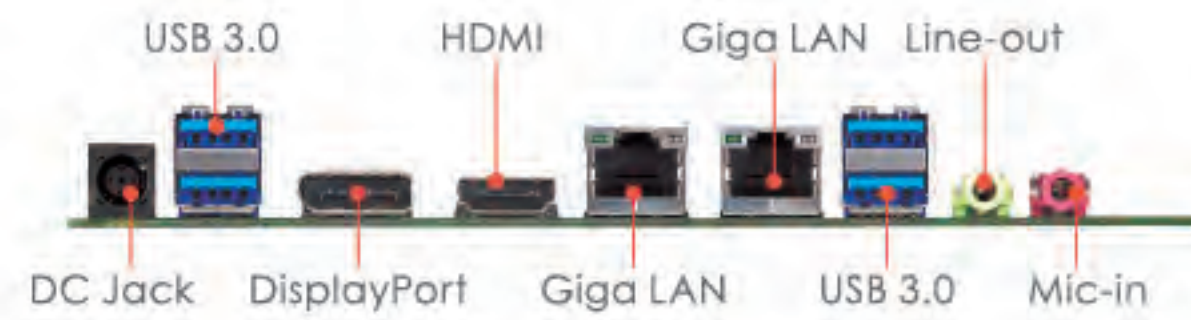
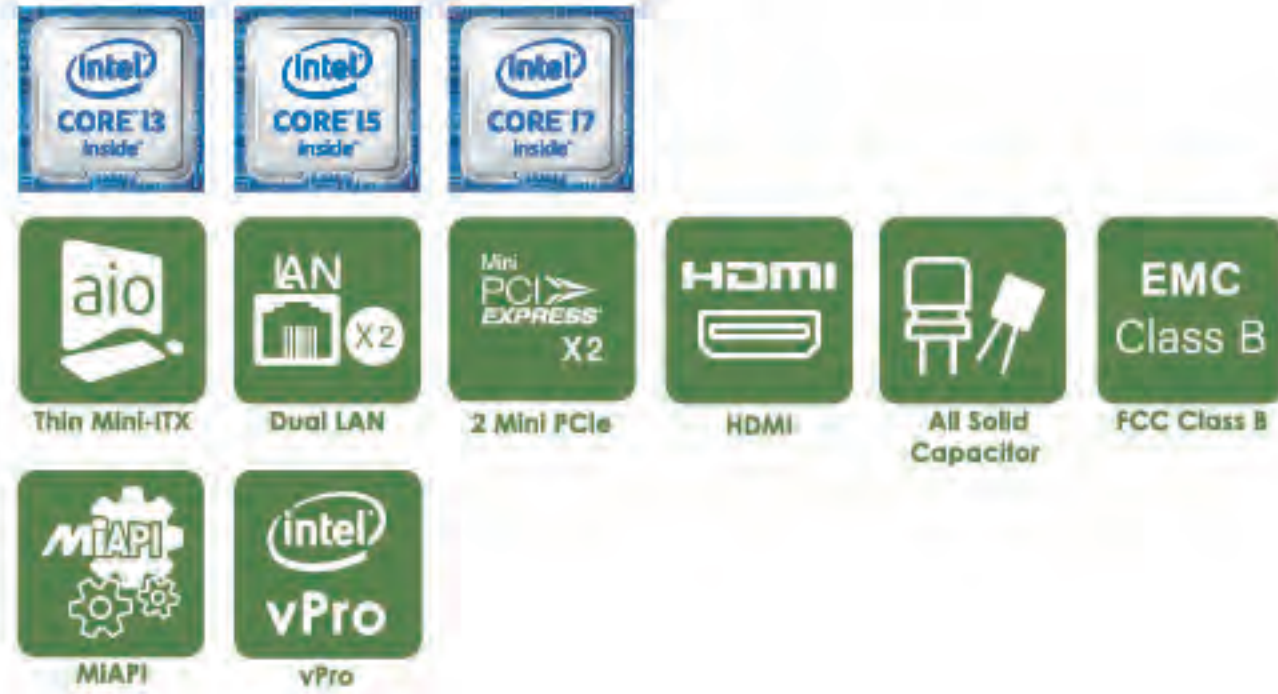
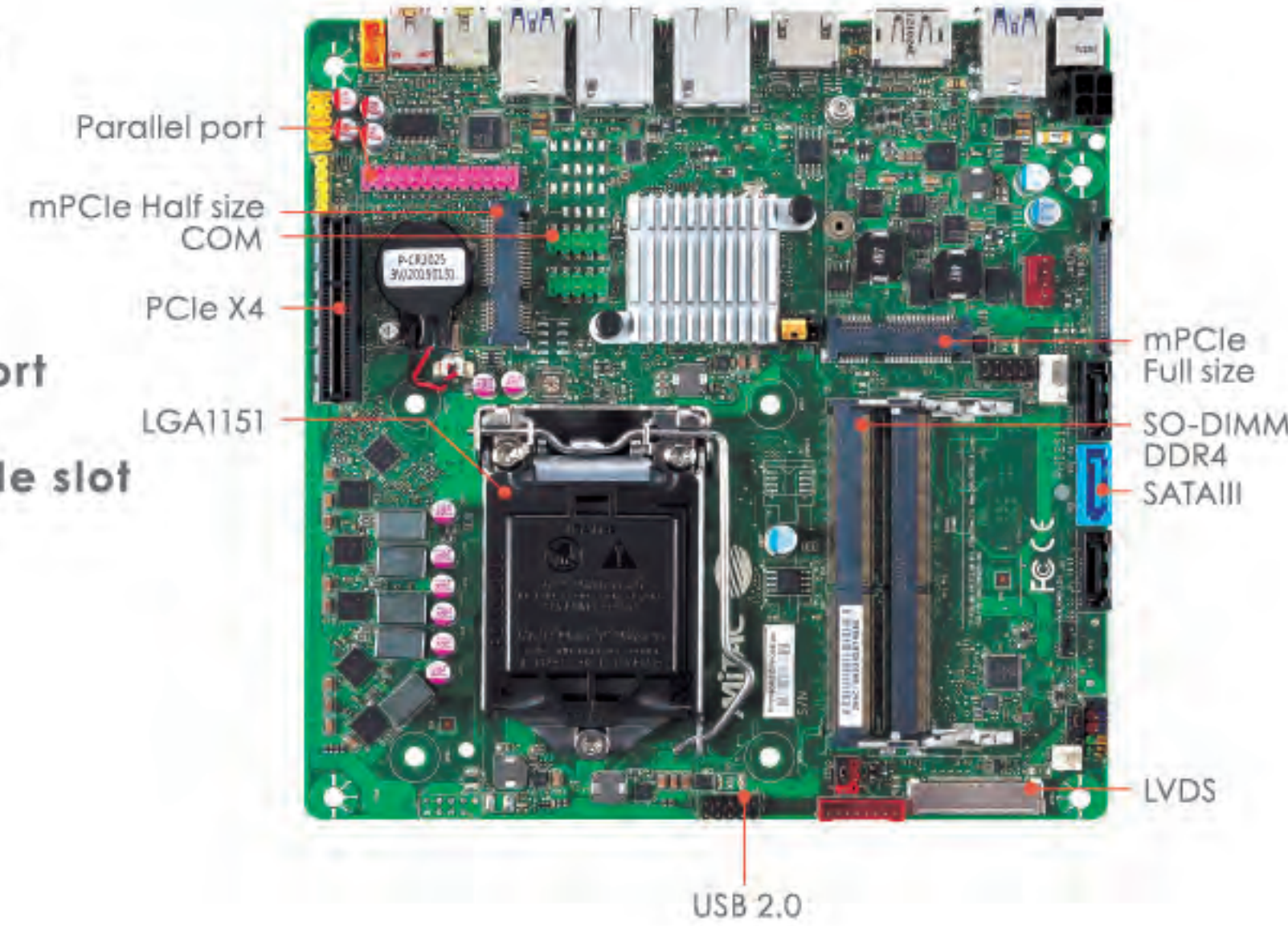
Packing
• 1 x Motherboard
• 1 x 50cm SATA Cable
• 2 x I/O Bracket (Half and Full Height)

PH12SI

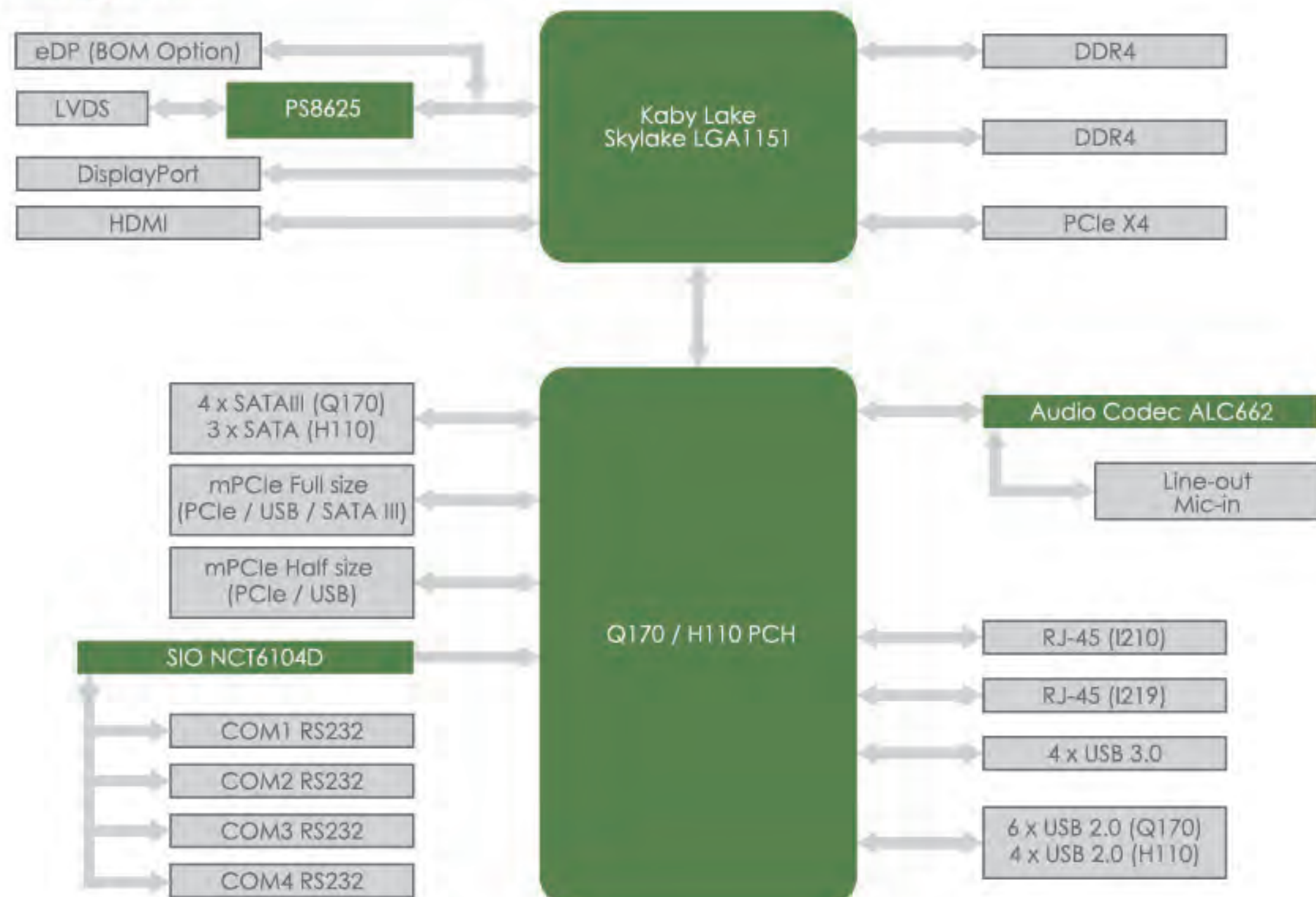
Thin Mini-ITX Form Factor
Intel® Kaby Lake / Skylake Processor with Q170 / H110 Chipset

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, 1 x 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

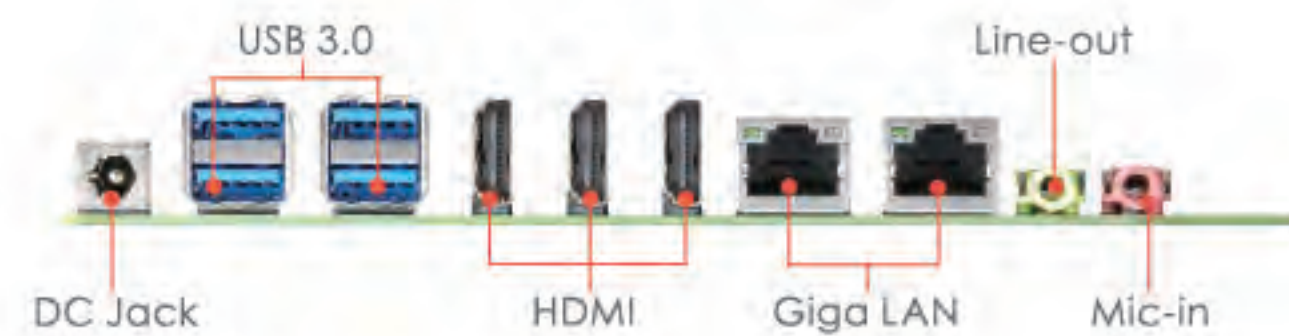
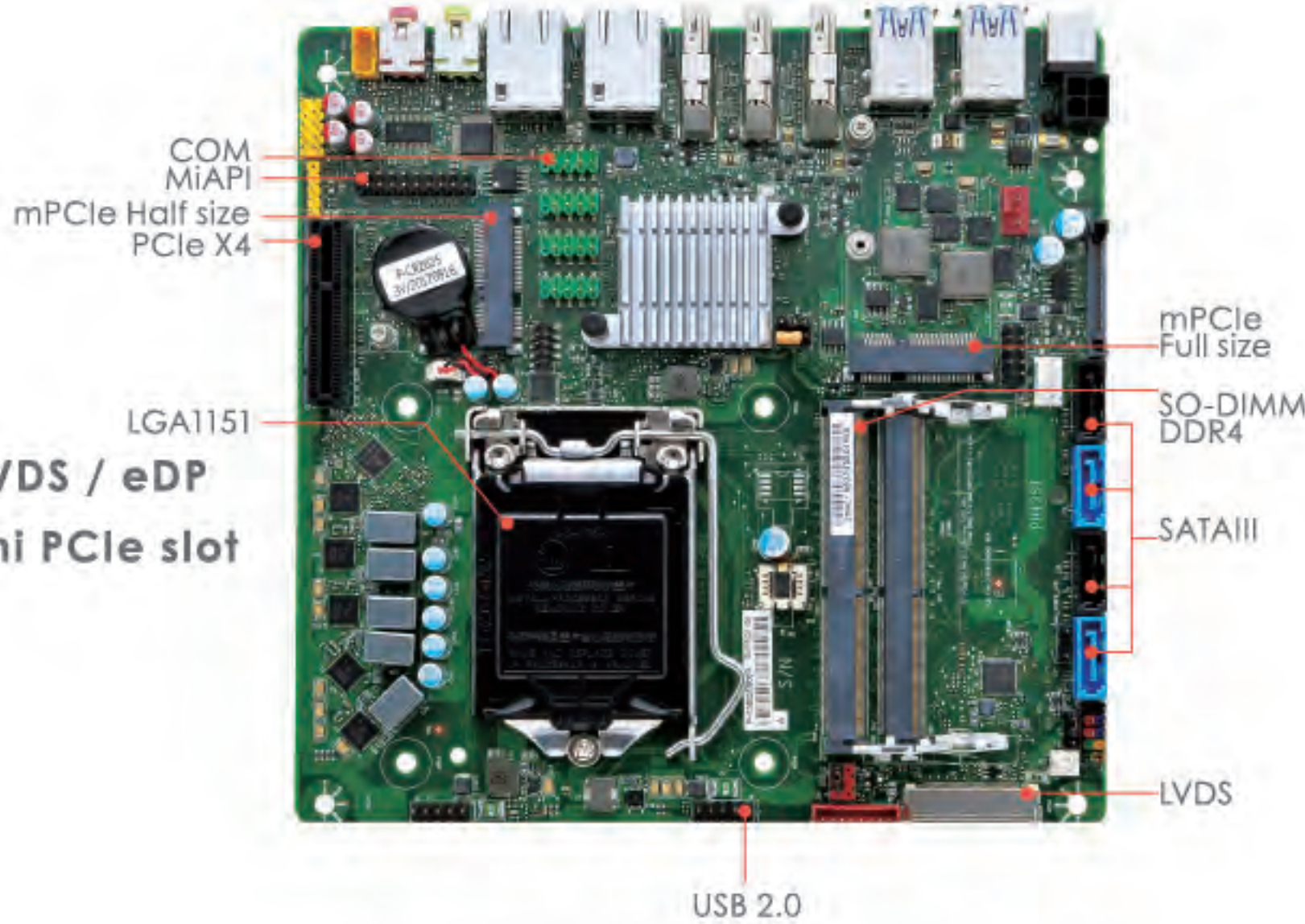
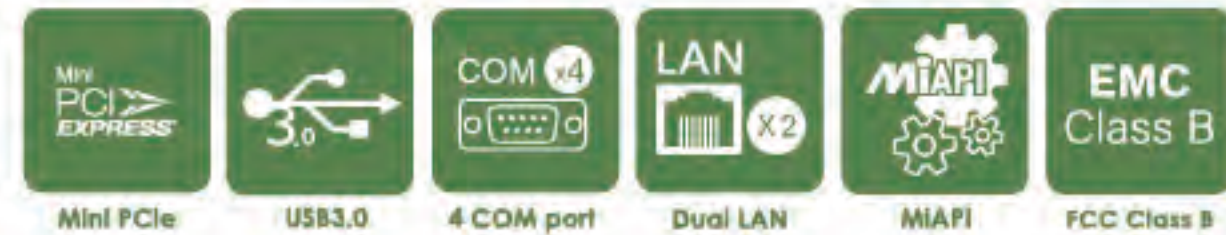
Packing			
• 1 x Motherboard	• 2 x I/O Bracket (Half and Full Height)	• 1 x 50cm SATA Cable	• 1 x 45cm SATA Power Cable

PH13SI

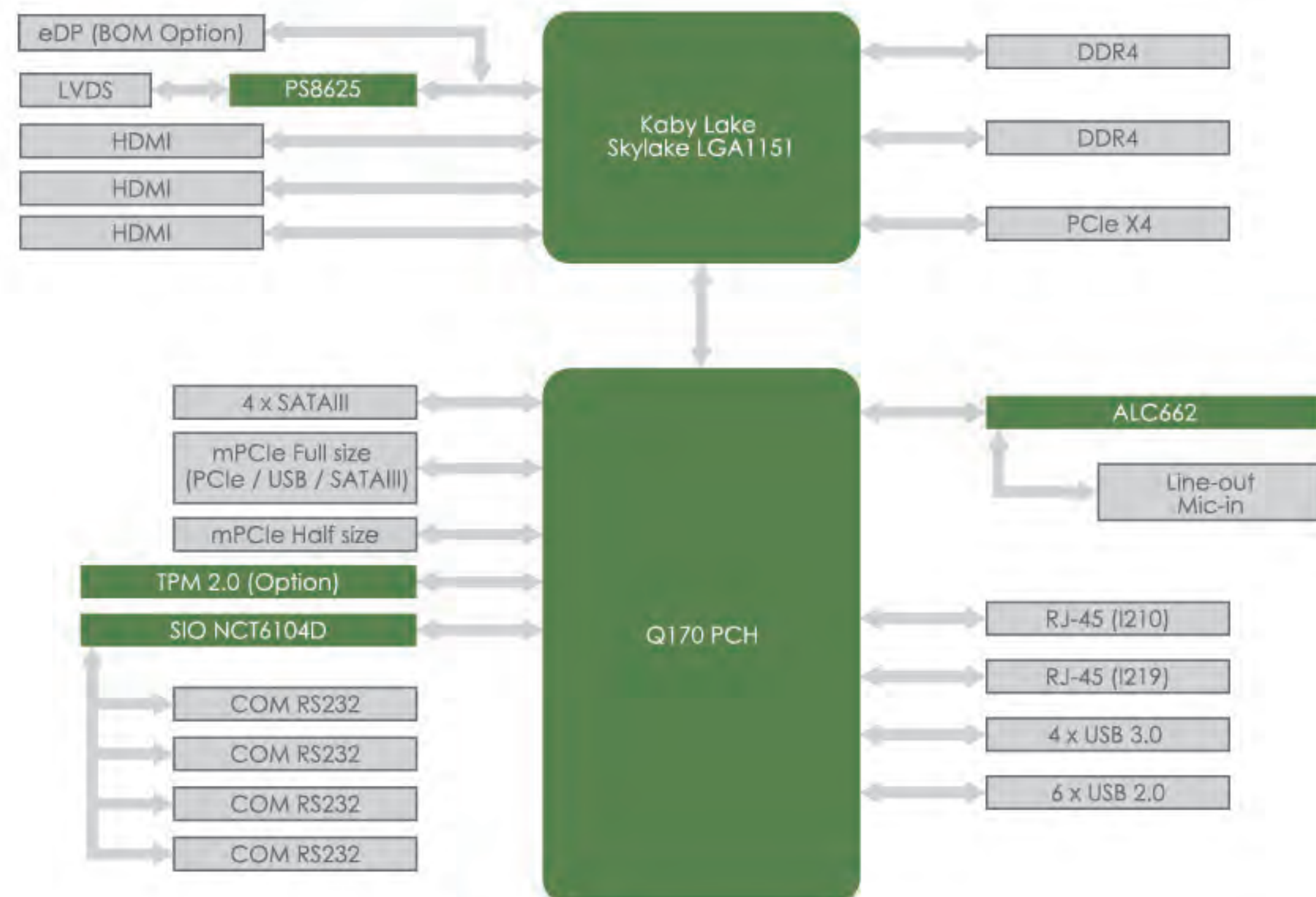
Thin Mini-ITX Form Factor
Intel® Kaby Lake / Skylake Processor with Q170 Chipset

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	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

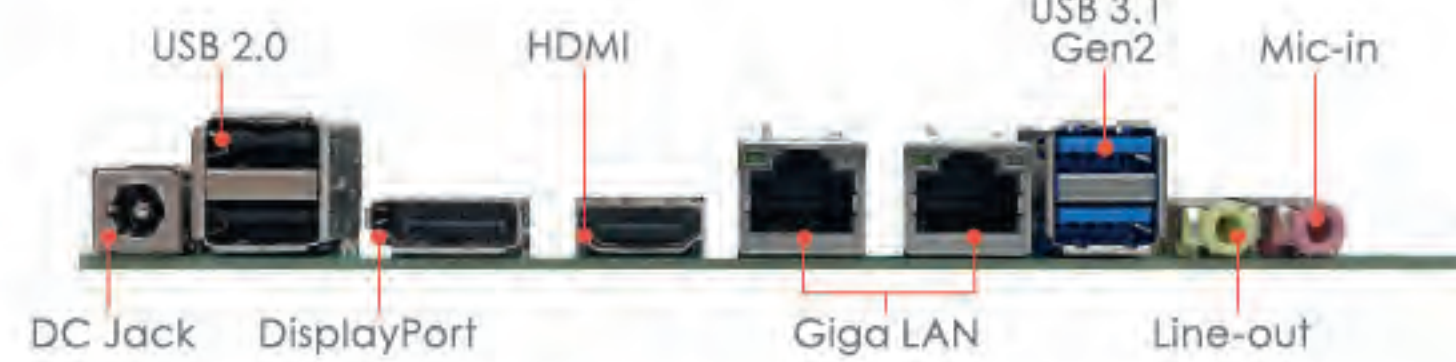
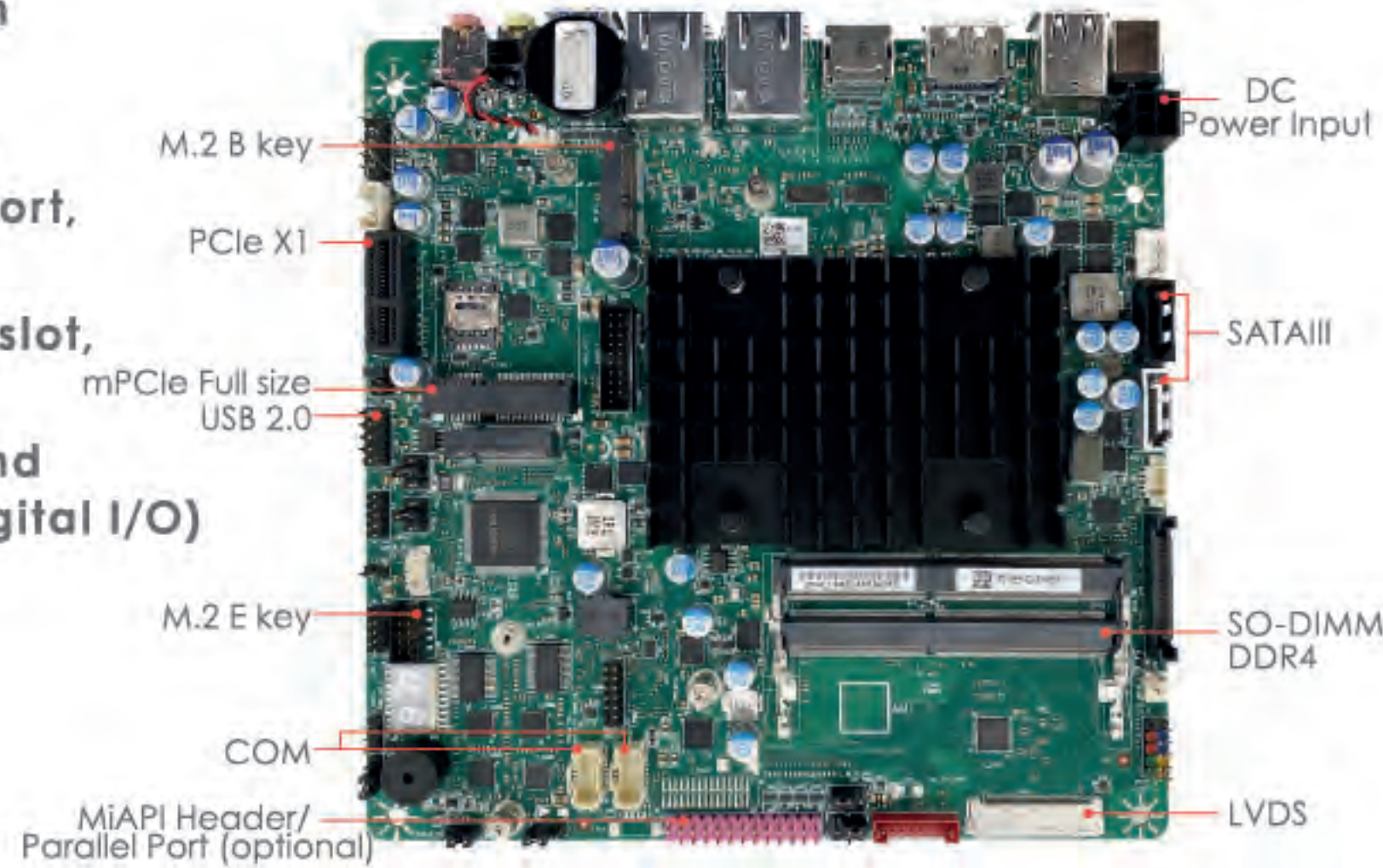
Packing			
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 2 x I/O Bracket (Half and Full Height)	• 1 x 45cm SATA Power Cable

PD10EHI

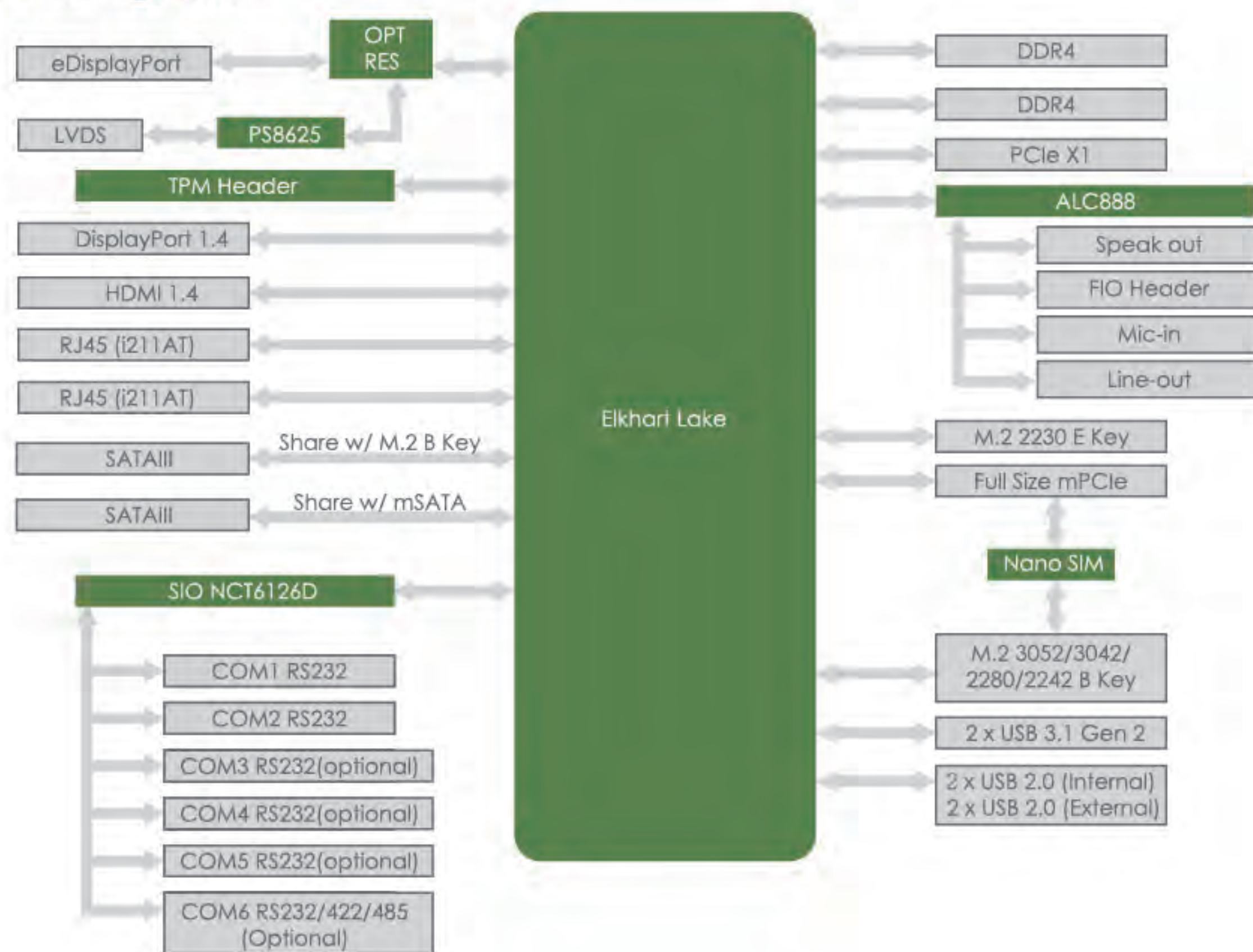
Thin Mini-ITX Form Factor
Intel® Elkhart Lake Processor

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



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 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

Packing List

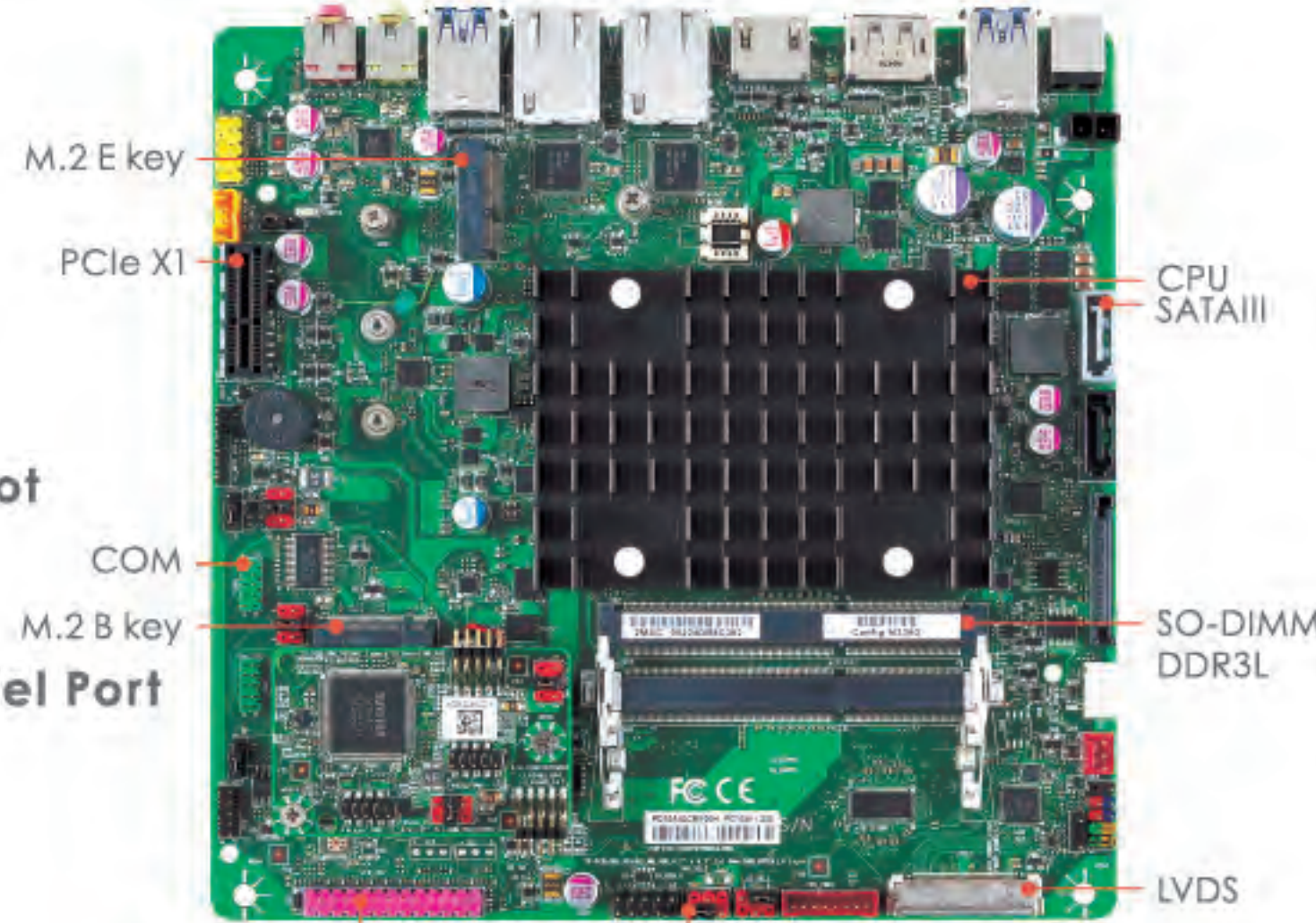
Packing			
• 1 x Motherboard	• 2 x I/O Bracket (Half and Full Height)	• 1 x 50cm SATA Cable	• 1 x 45cm SATA Power Cable

PD10AI

Thin Mini-ITX Form Factor
Intel® Apollo Lake Processor

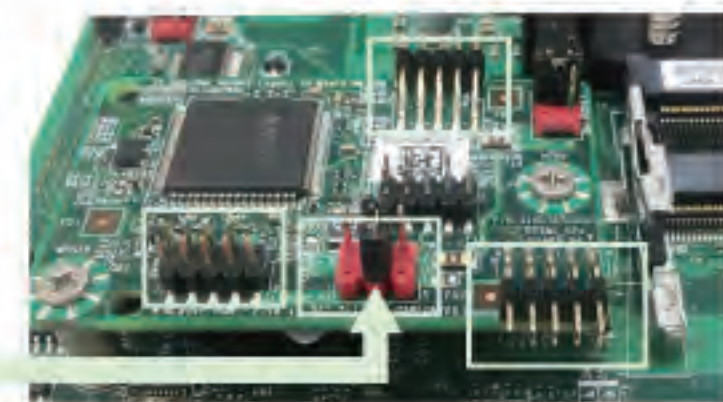
Features

- 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



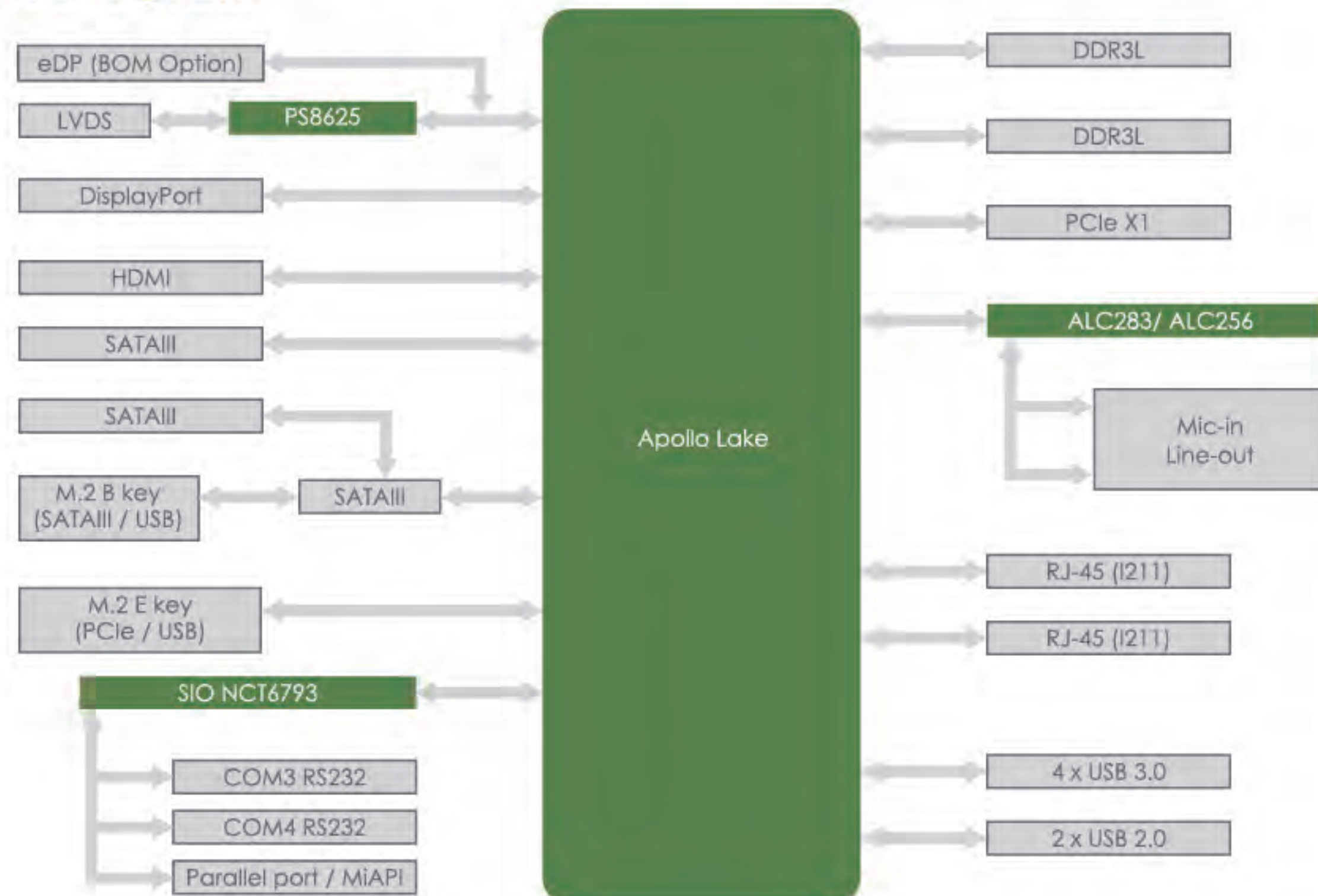
Legacy I/O Expansion

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
Others	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)
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

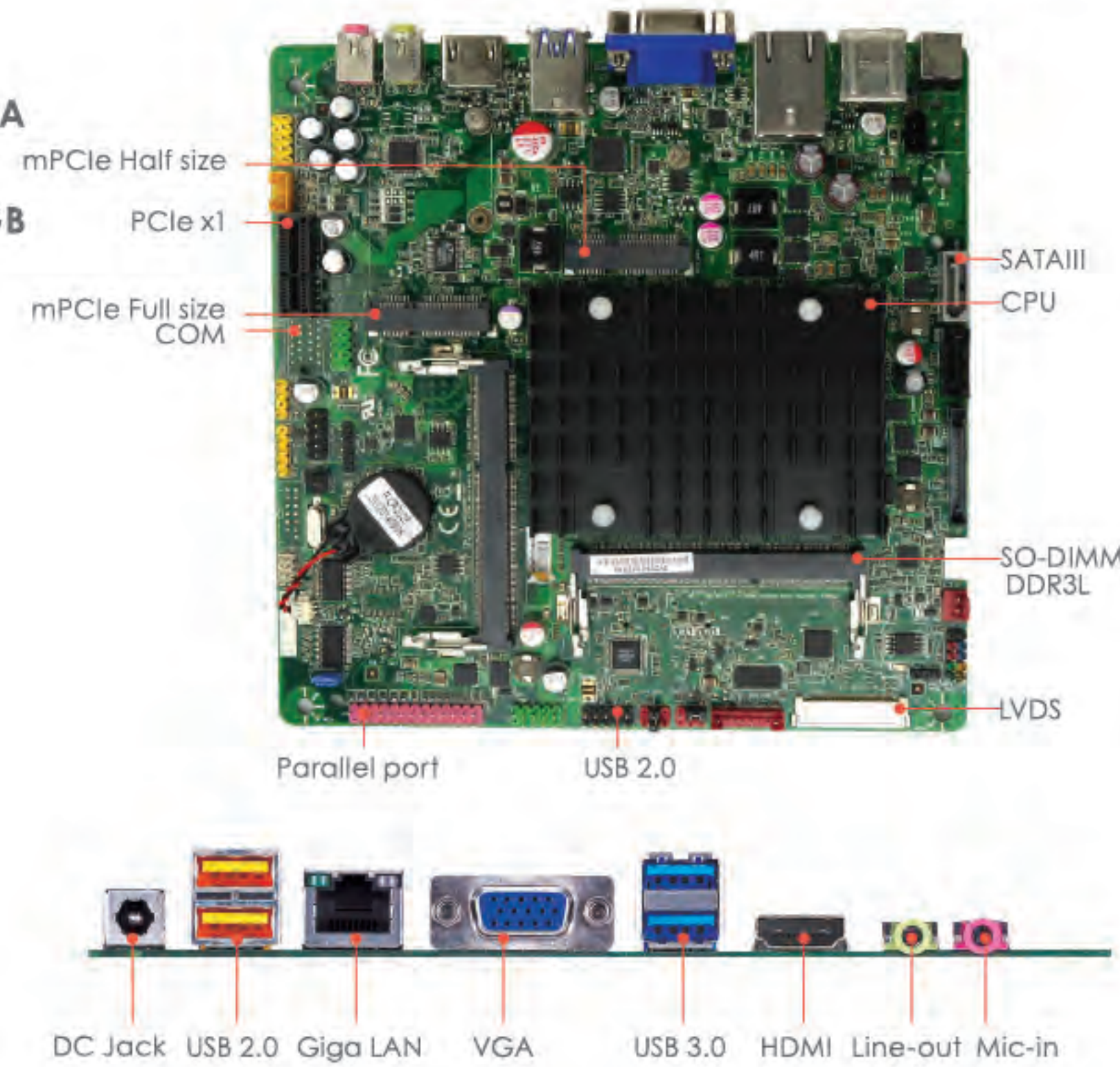
Packing	• 1 x Motherboard	• 2 x I/O Bracket (Half and Full Height)	• 1 x 50cm SATA Cable	• 1 x 45cm SATA Power Cable
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PD10BI

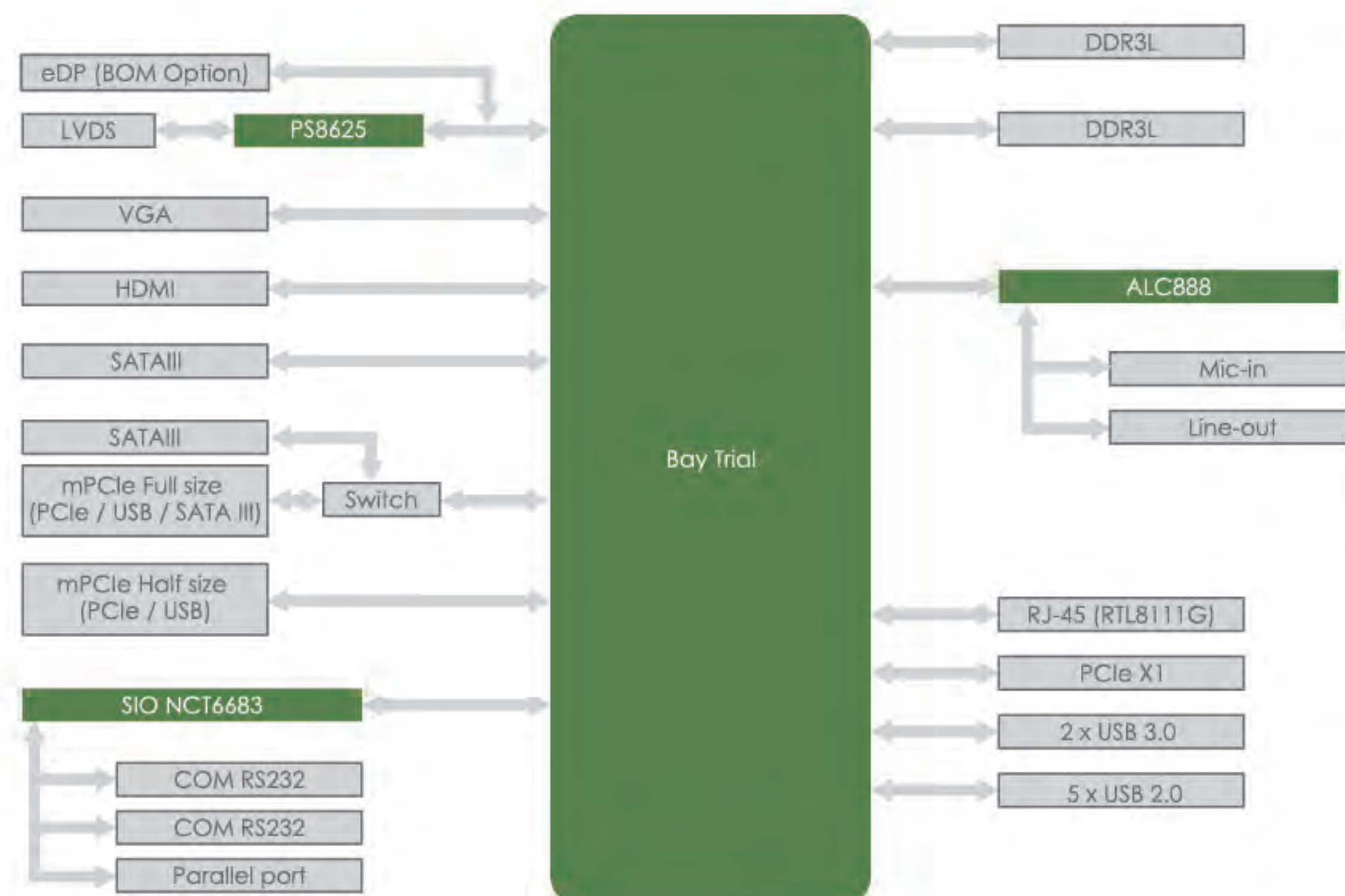
Thin Mini-ITX Form Factor
Intel® Bay Trail Processor

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)
USB	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

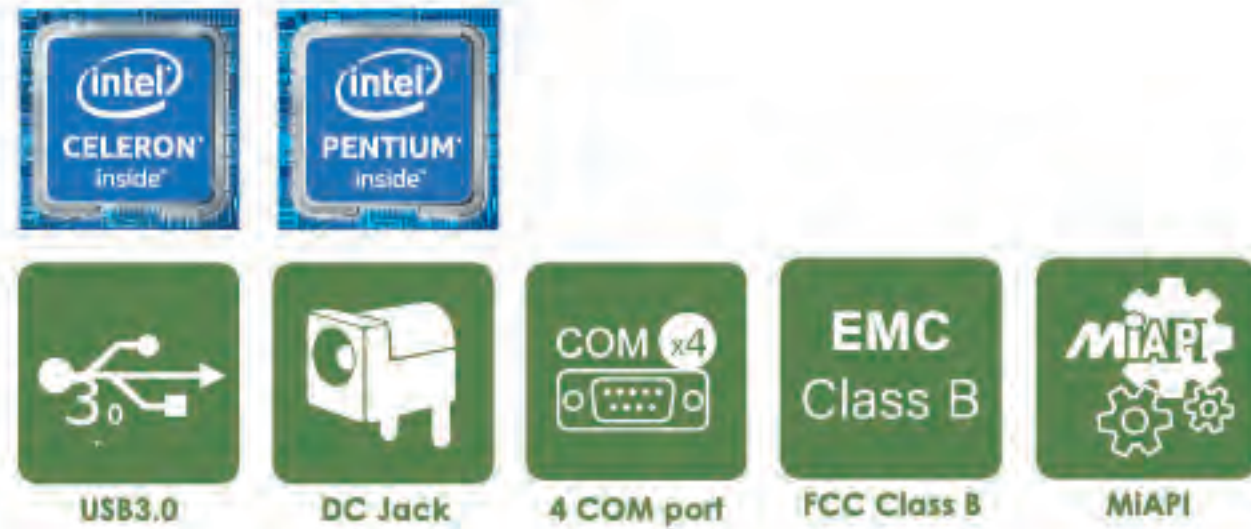
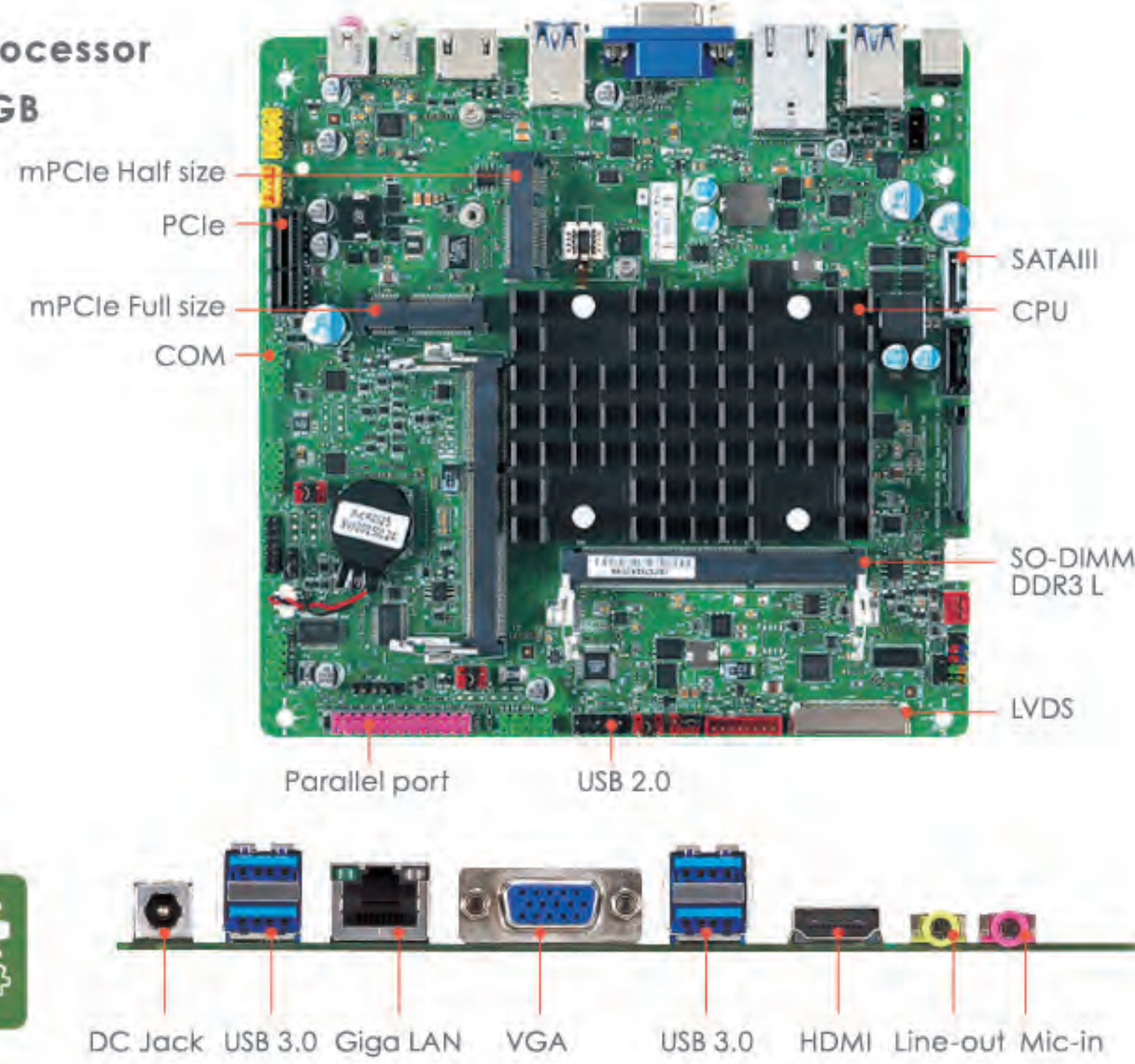
Packing	• 1 x Motherboard	• 1 x I/O Bracket	• 1 x 50 cm SATA Cable	• 1 x 45 cm SATA Power Cable
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PD10RI

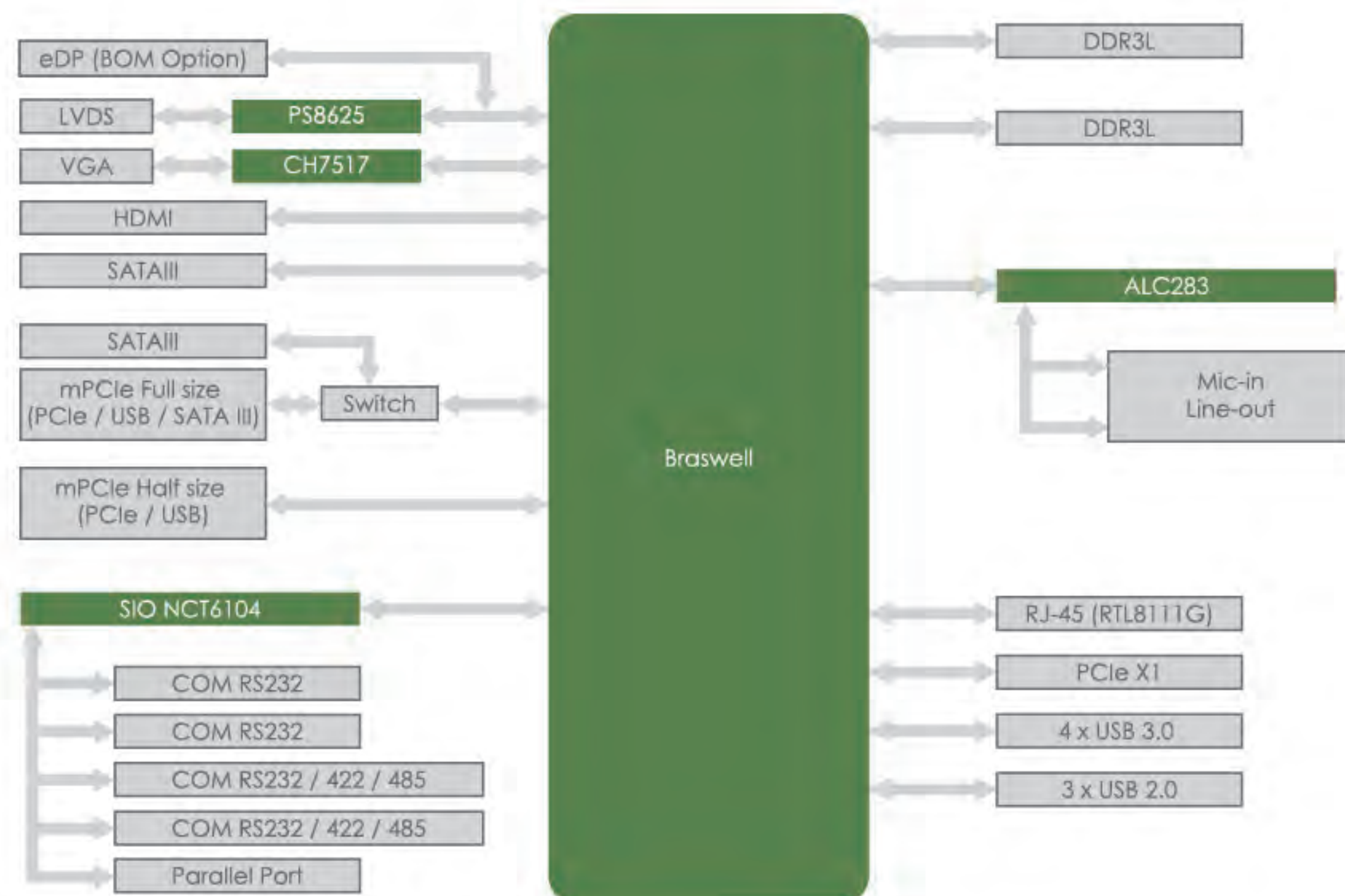
Thin Mini-ITX Form Factor
Intel® Braswell Processor

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

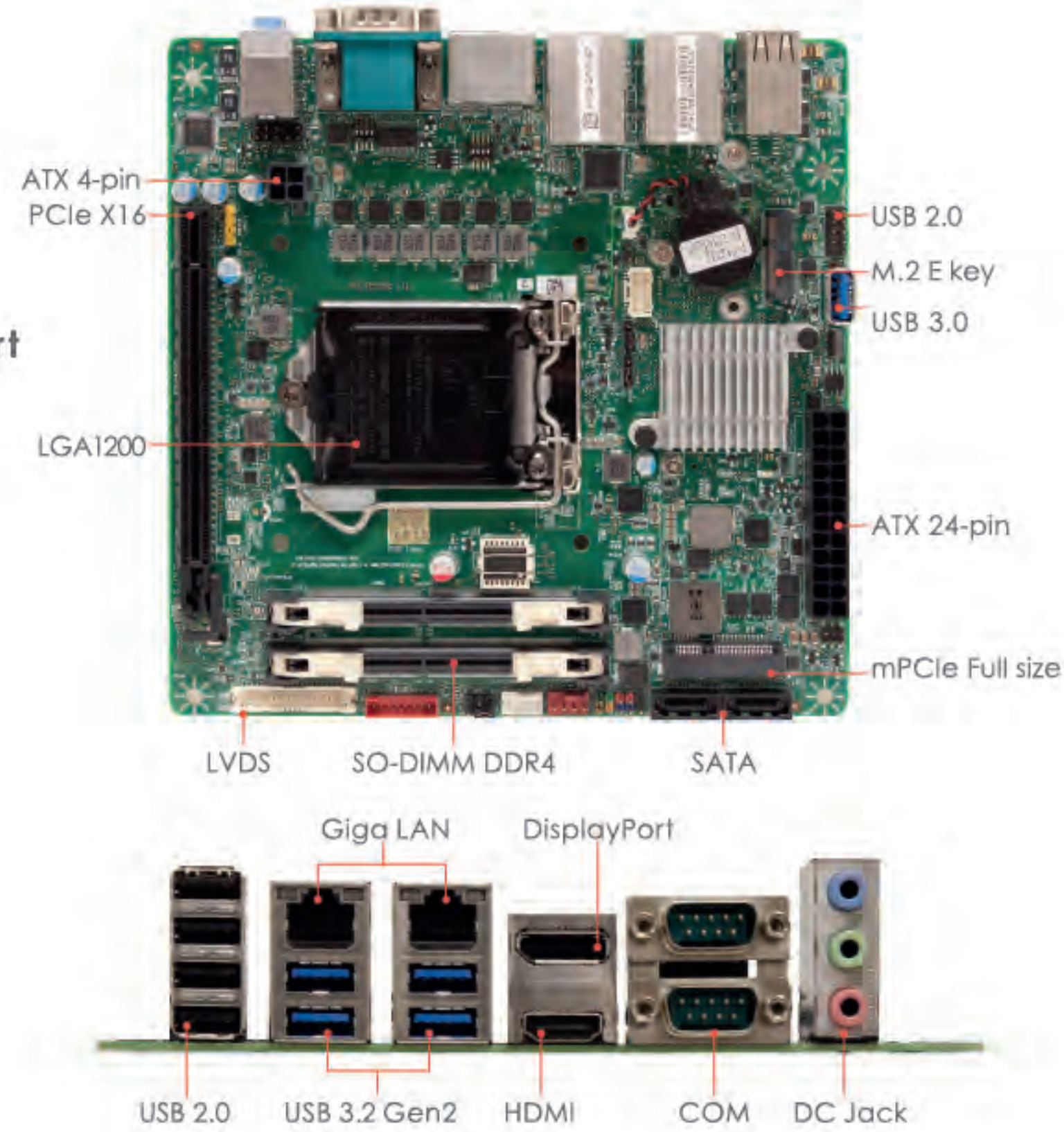
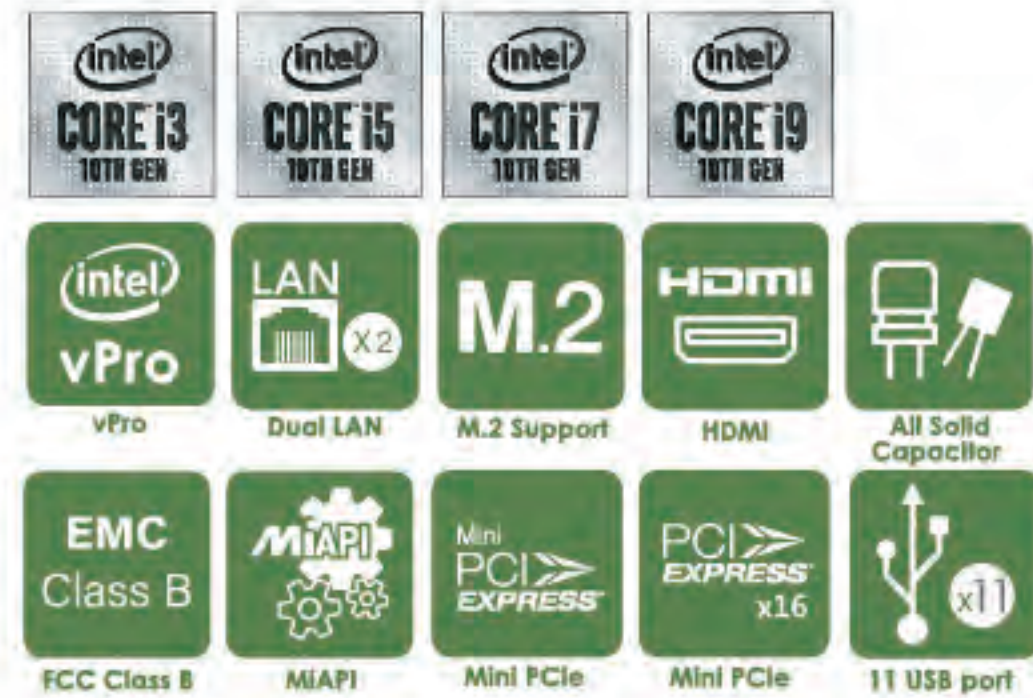
Packing			
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 2 x I/O Bracket (Half and Full Height)	• 1 x 45cm SATA Power Cable

PH13CMI

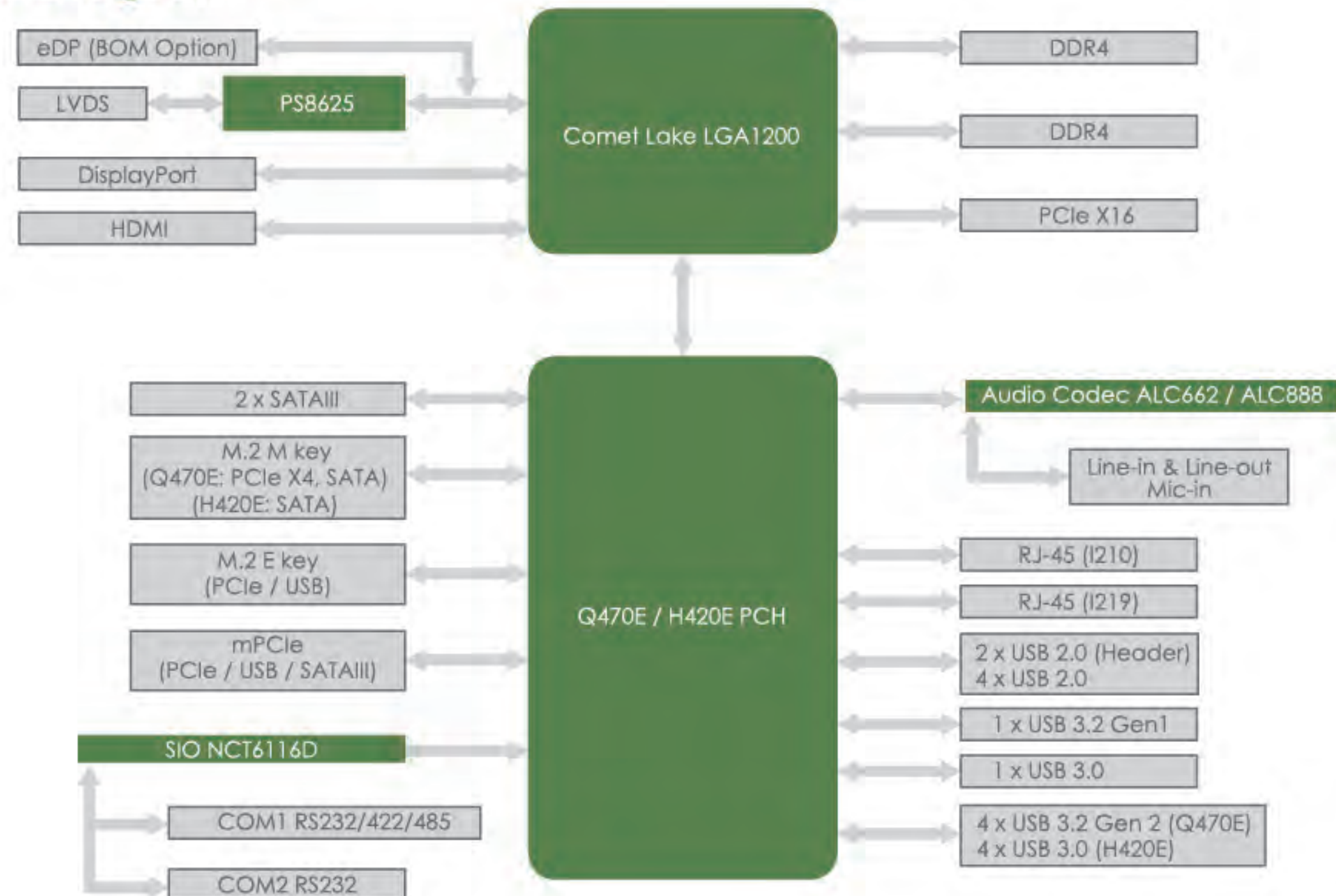
Mini-ITX Form Factor
Intel® Comet Lake Processor with Q470E/H420E Chipset

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, 1x buzzer 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

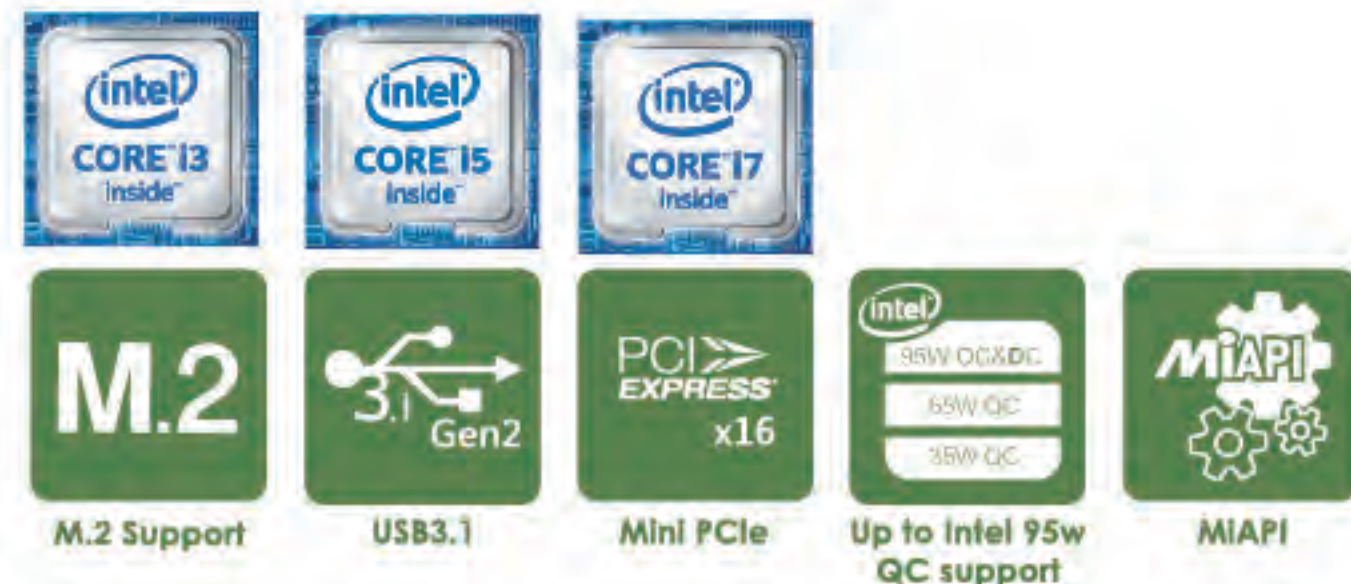
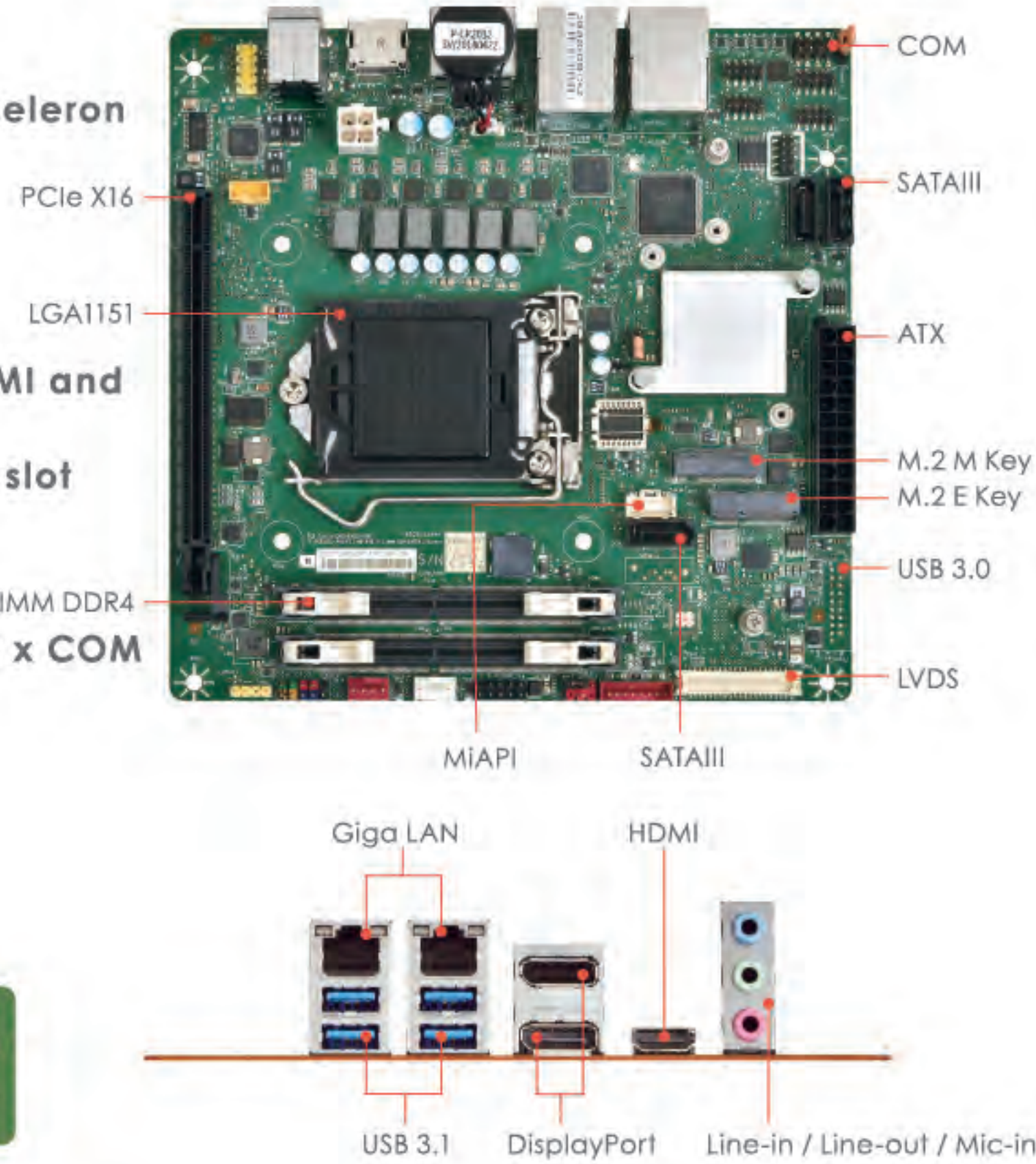
Packing		
• 1 x Motherboard	• 1 x 8-pin ATX female to 24pin ATX + 4-pin ATX + SATA power convert cable (12V SKU)	• 1 x 50cm SATA Cable
• 1 x I/O Bracket (Half and Full Height)		

PH13FEI

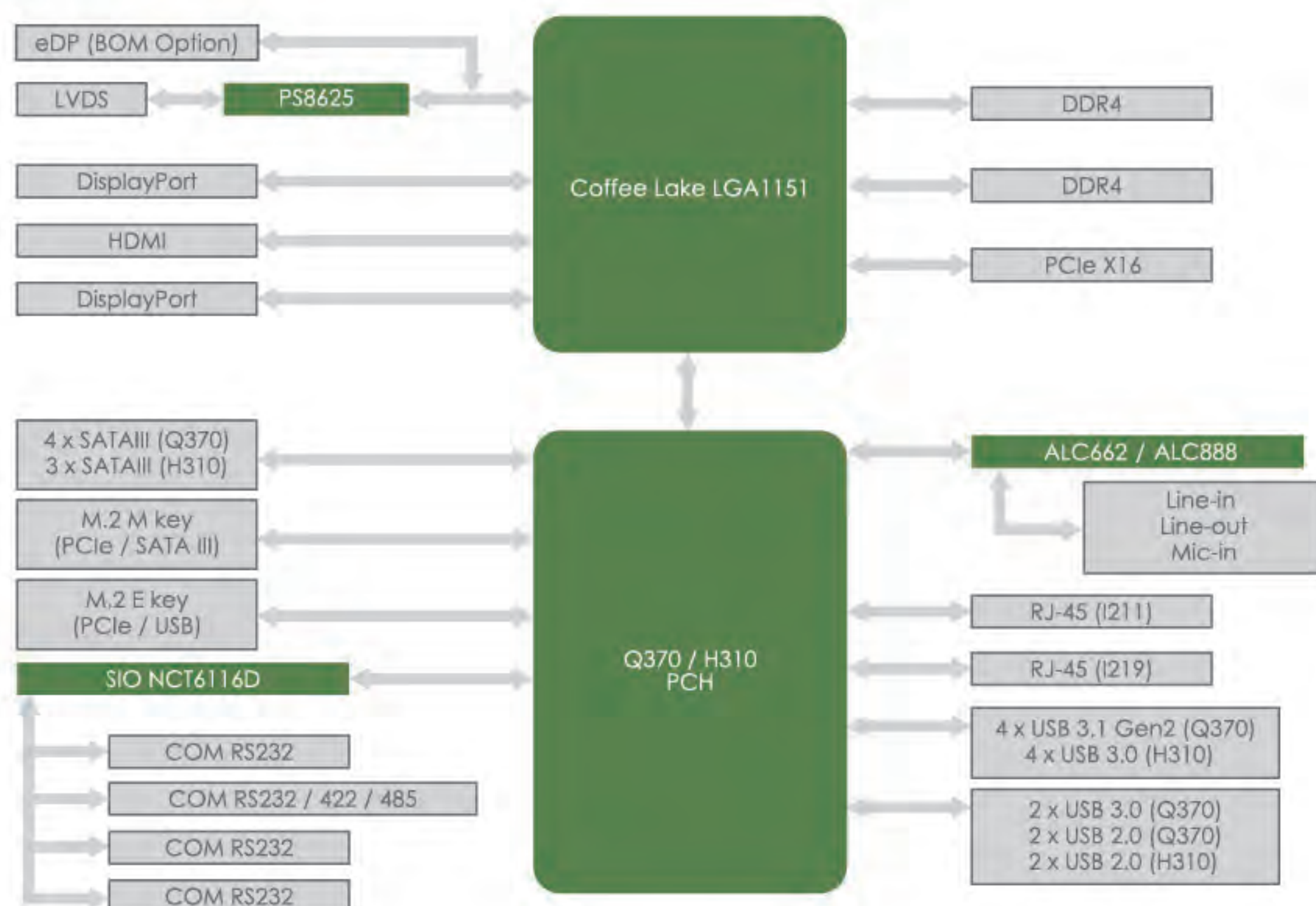
Mini-ITX Form Factor
Intel® Coffee Lake Processor with Q370 / H310 Chipset

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 MI-API (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 2240 / 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 ATX/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

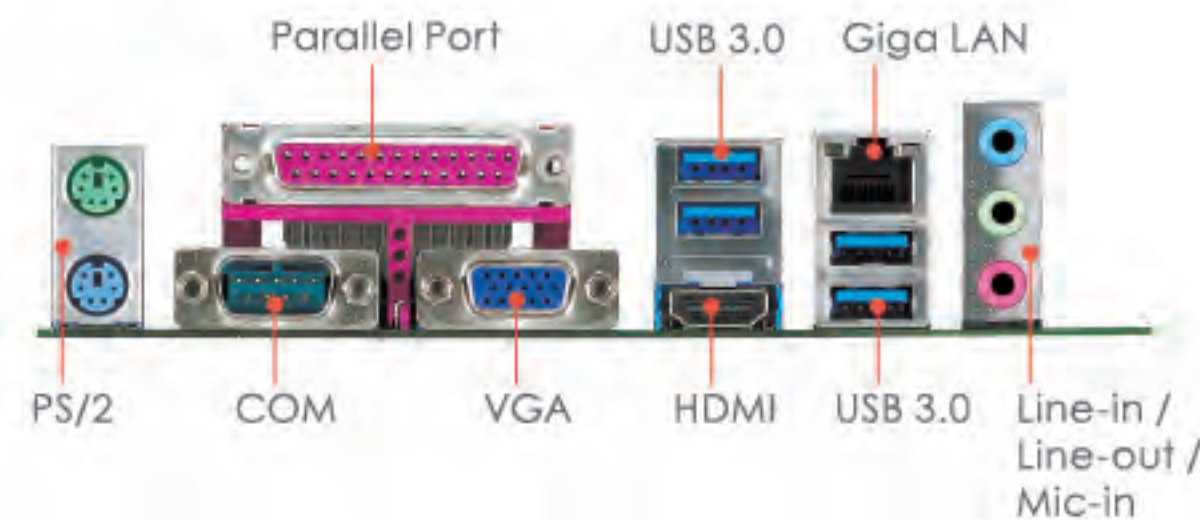
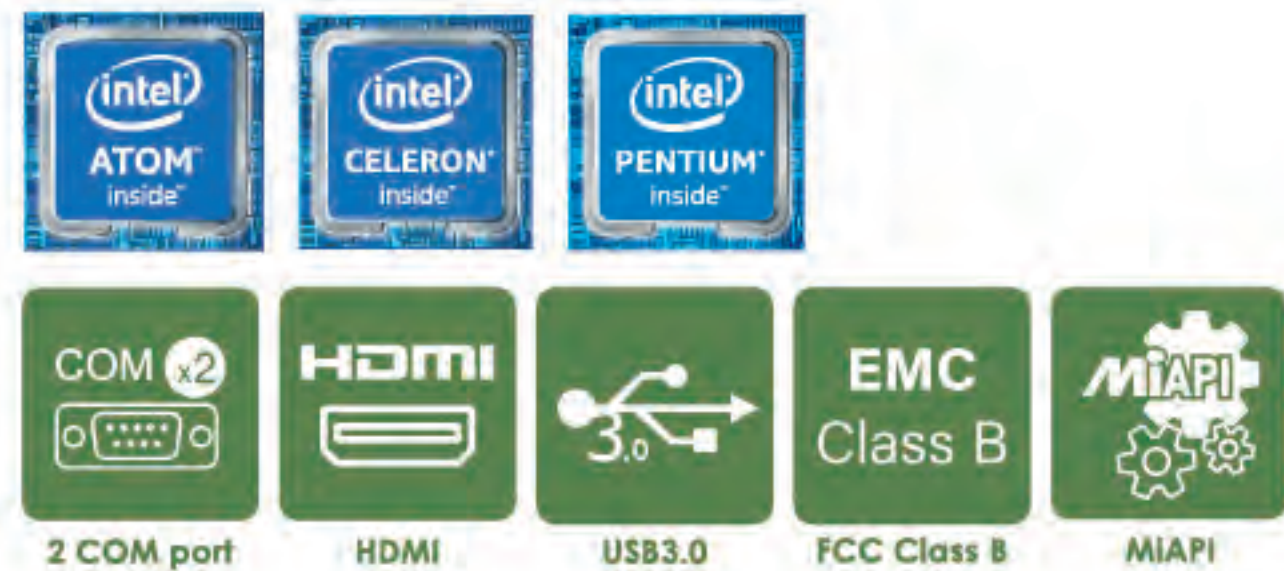
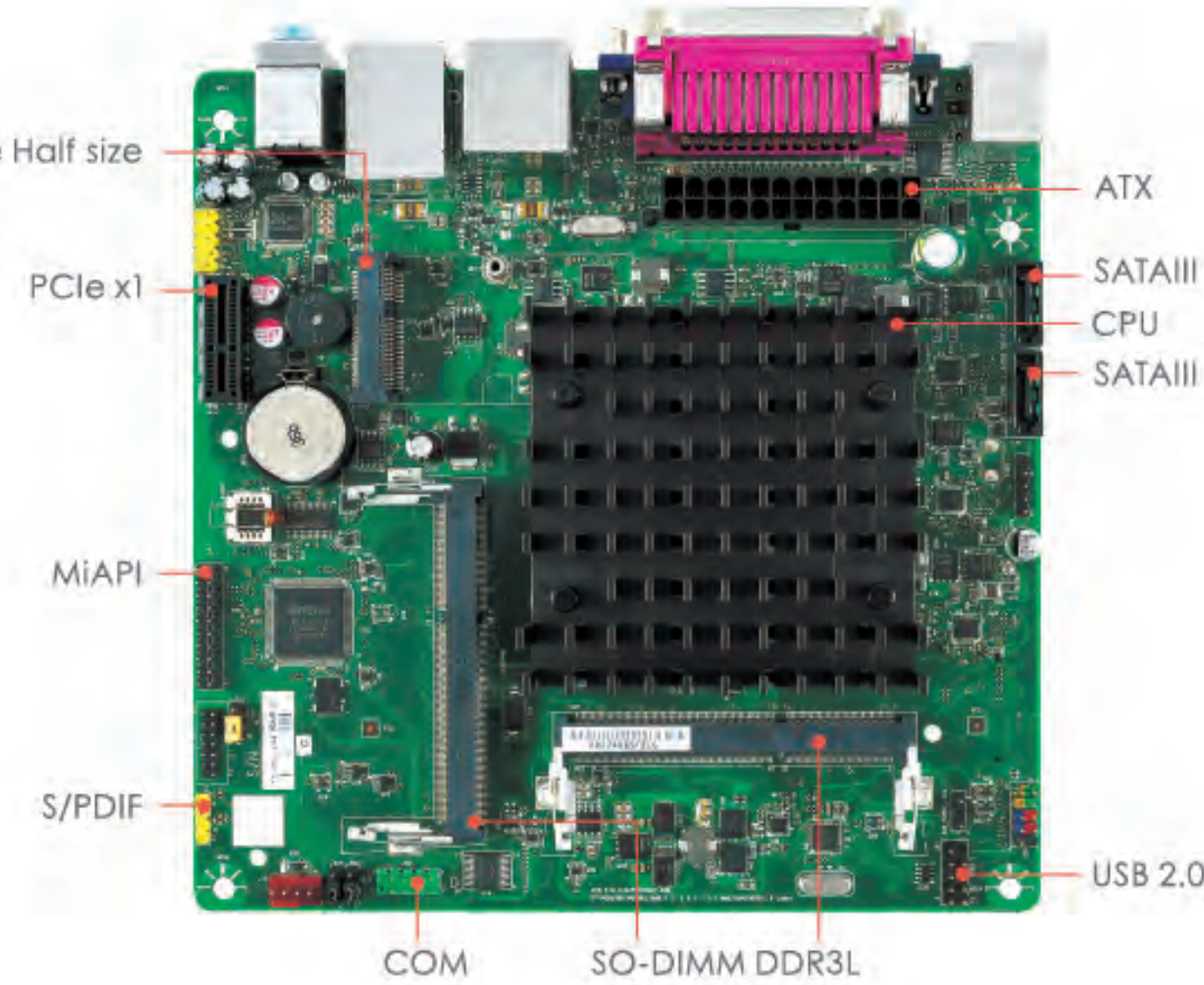
Packing	• 1 x Motherboard	• 1 x 50cm SATA Cable	• 1 x I/O Bracket (Full Height)
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PD14RI

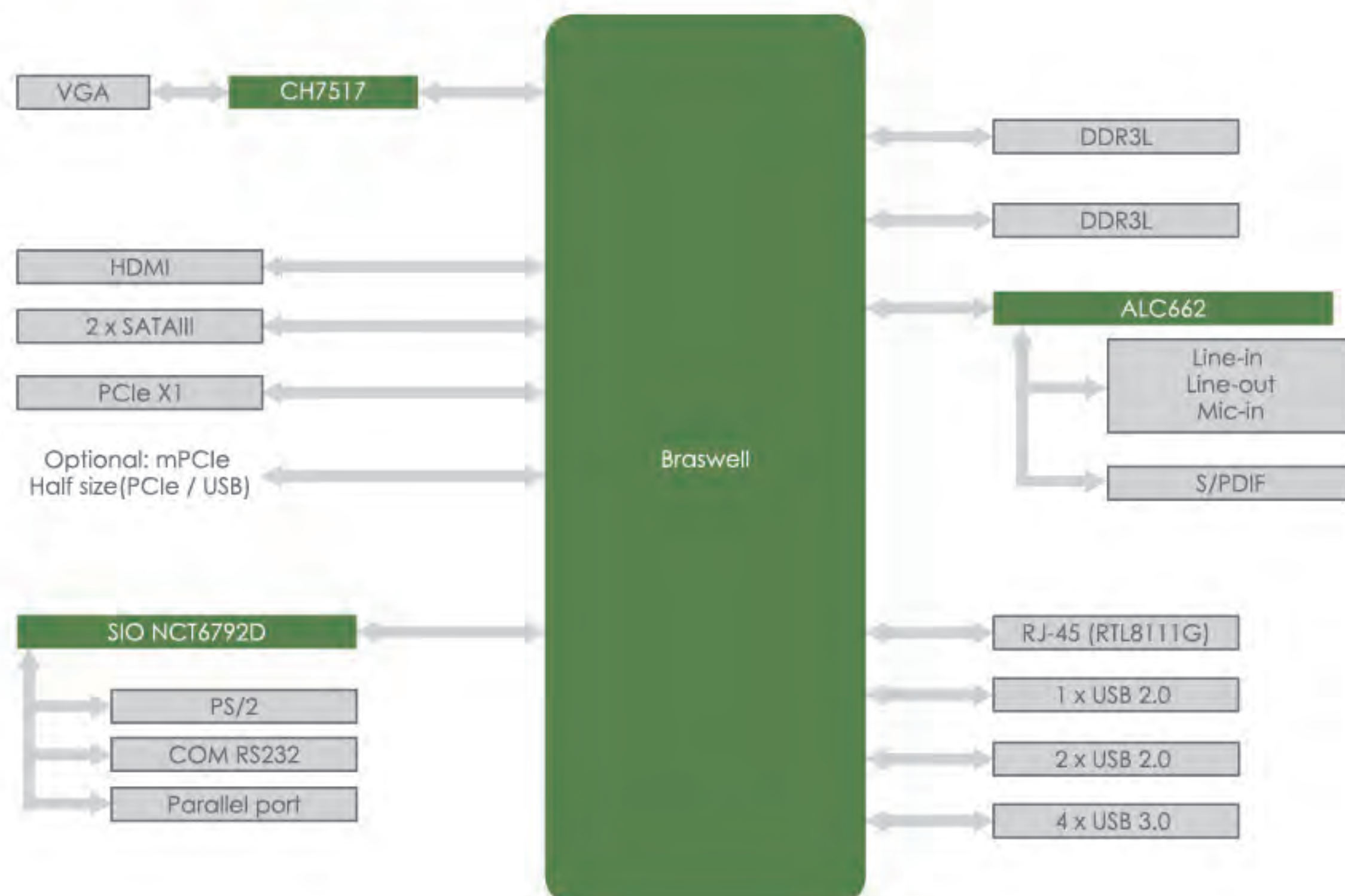
Mini-ITX Form Factor
Intel® Braswell Processor

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

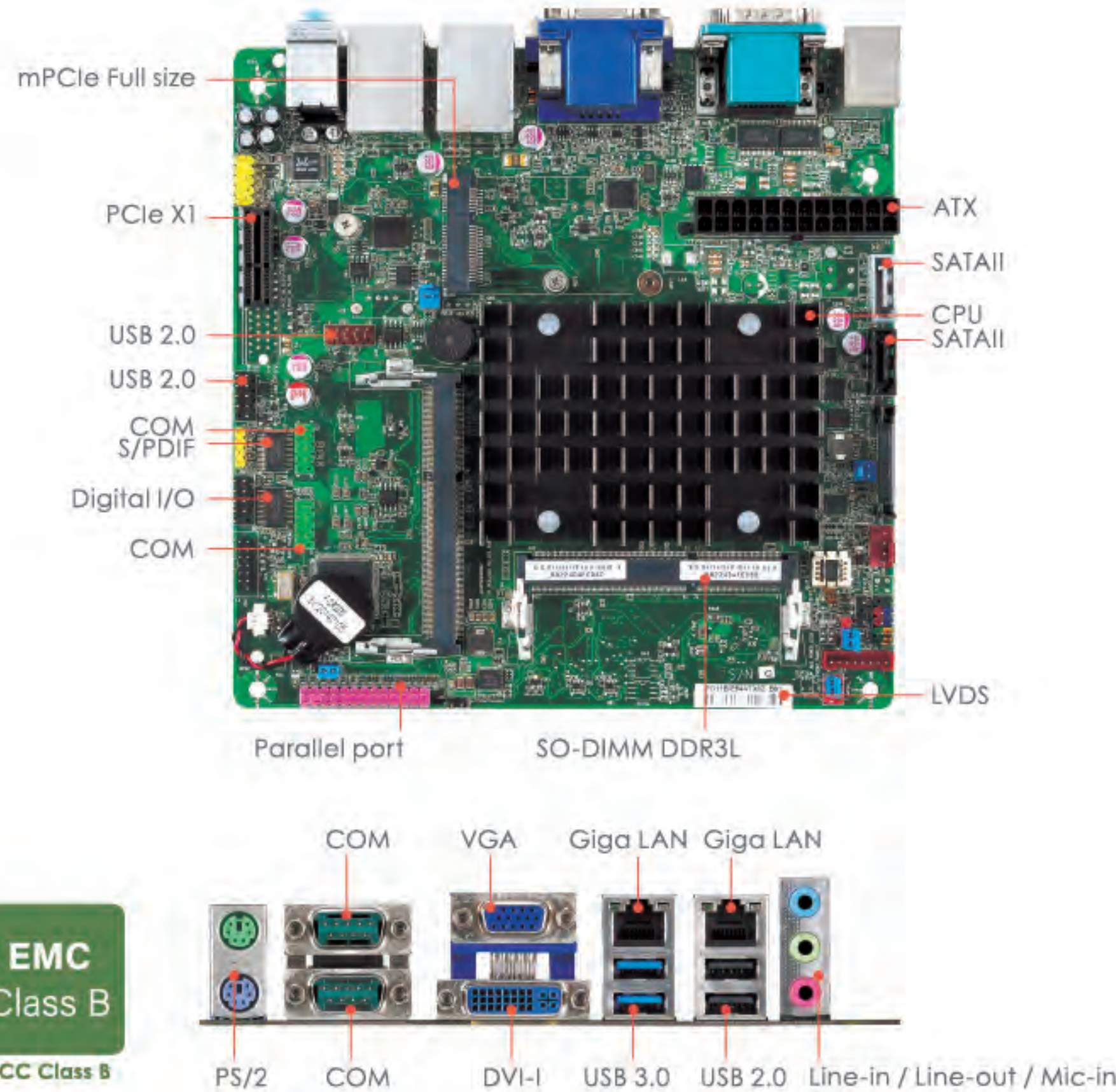
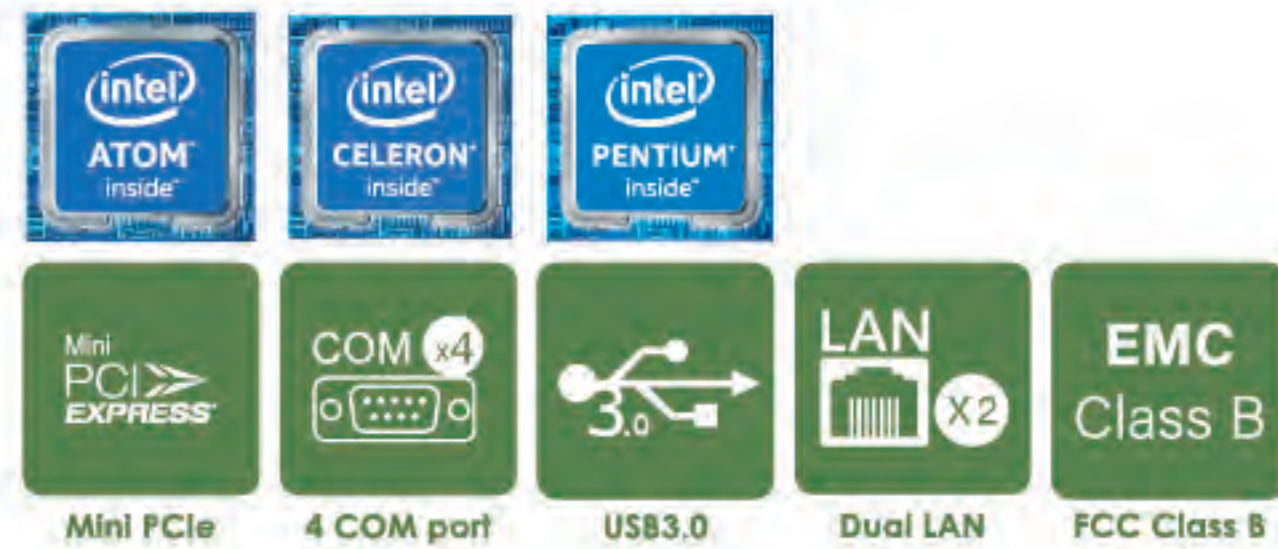
Packing		
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 1 x I/O Bracket

PD11BI

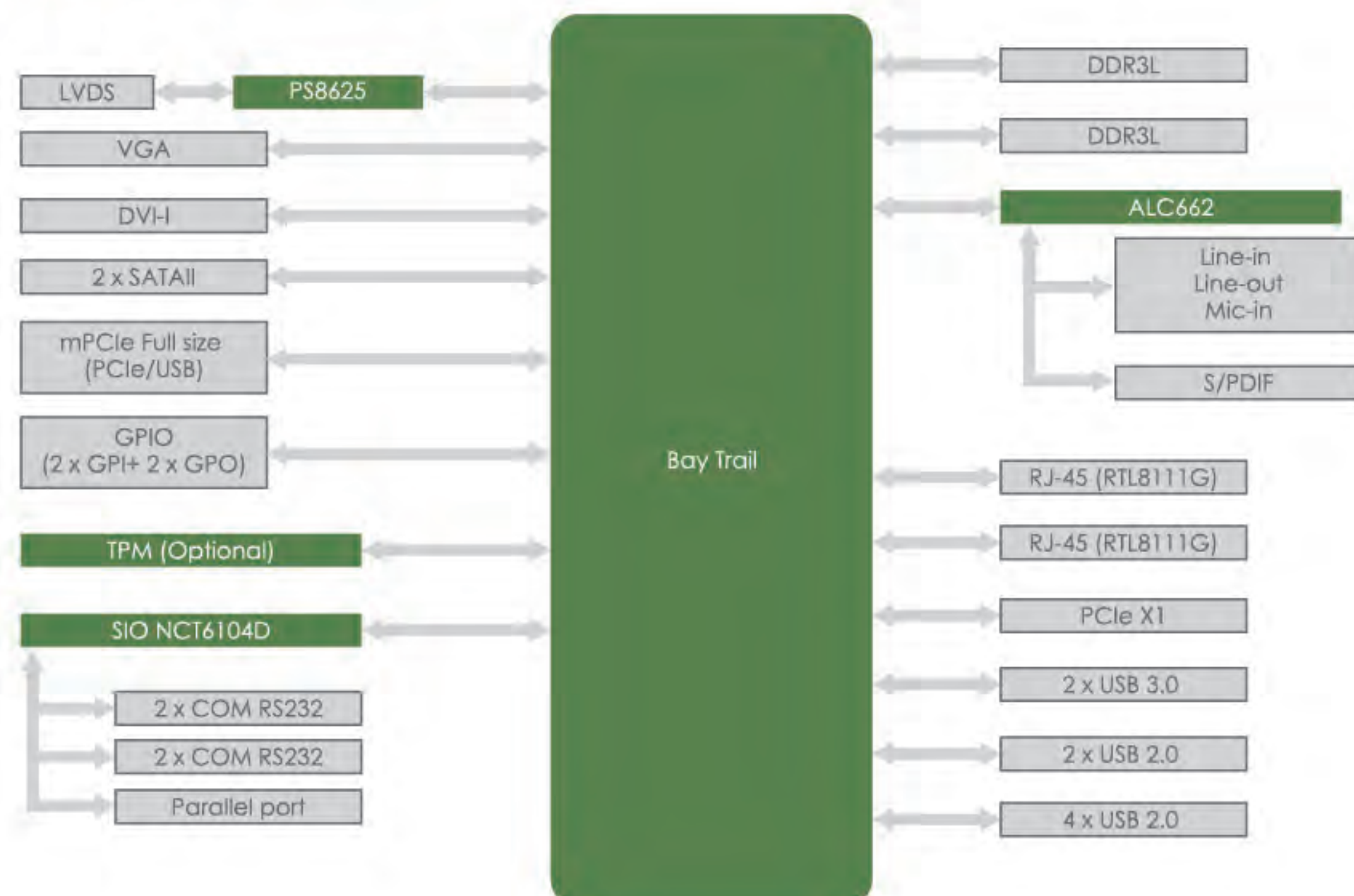
Mini-ITX Form Factor
Intel® Bay Trail Processor

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-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

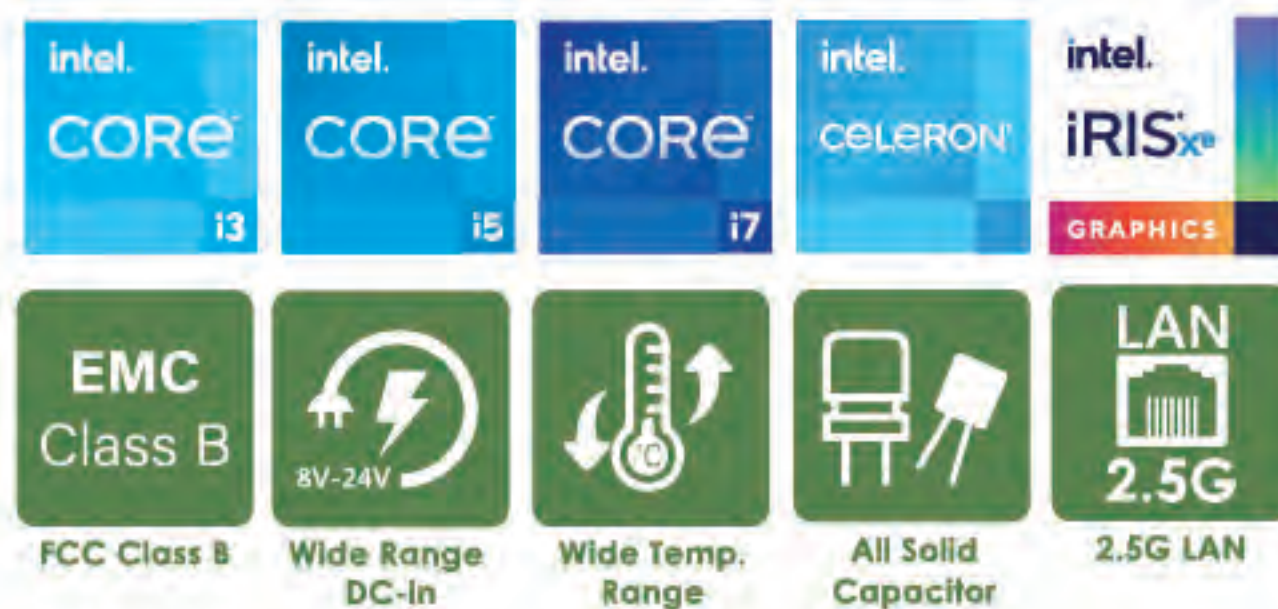
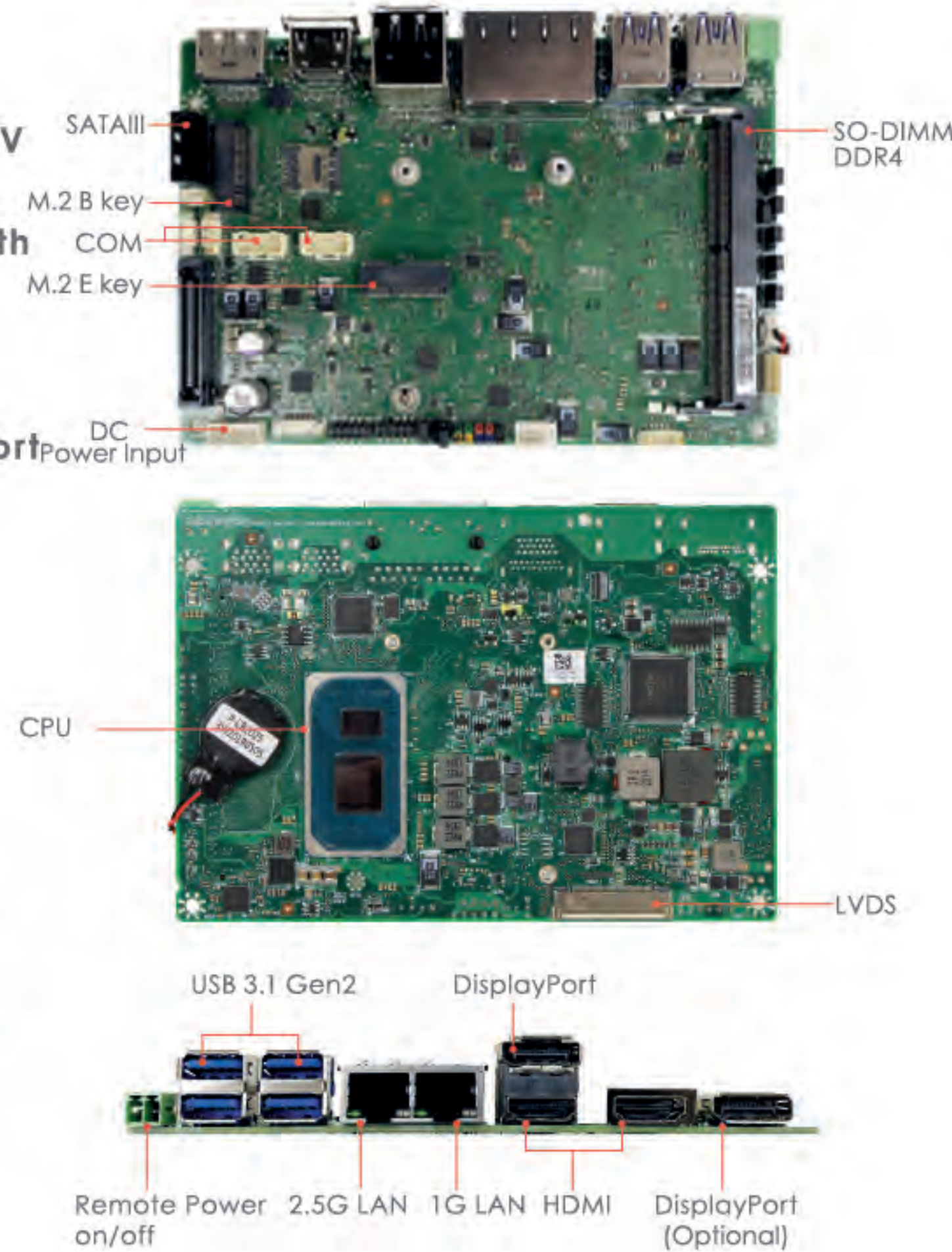
Packing	
• 1 x Motherboard	• 1 x 50cm SATA Cable
	• 1 X I/O Bracket

PD11TGS

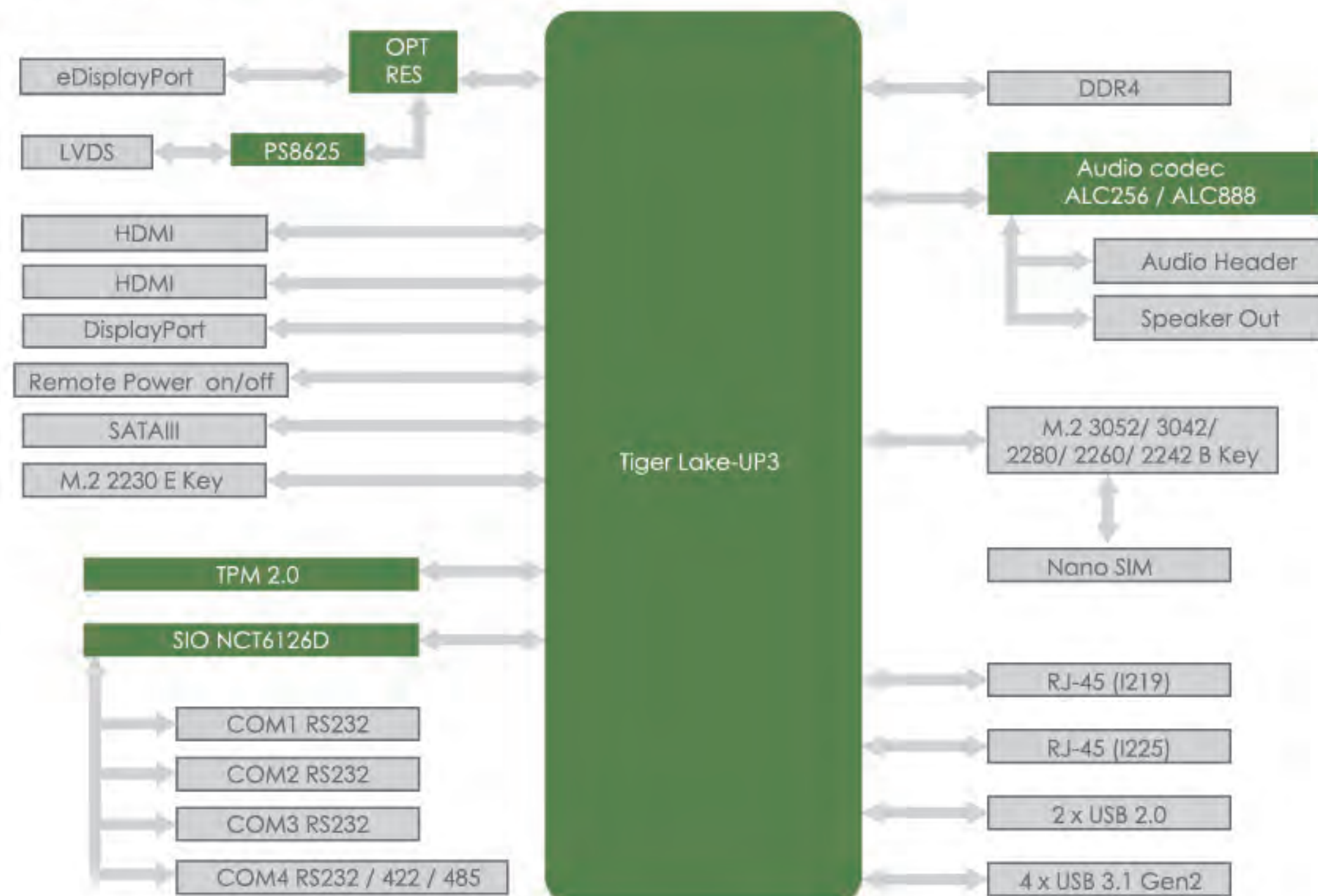
3.5" SBC Form Factor
Tiger Lake UP3 (Intel® Core™ and Celeron® TDP up to 28W)

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 2.5G LAN
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 (colony 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, 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

PD10KS

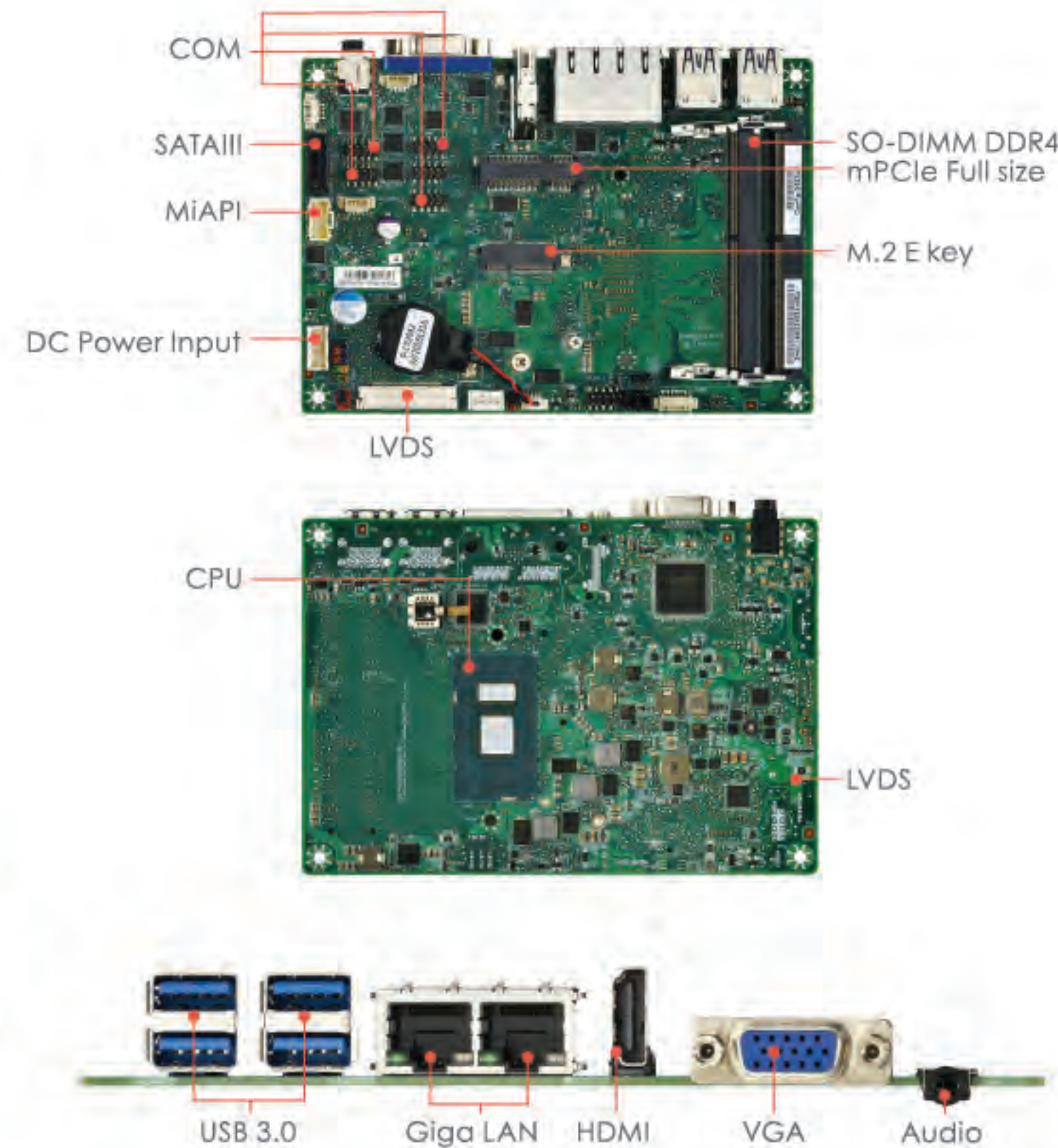
3.5" SBC Form Factor
Intel® Kaby Lake / Skylake Processor

Features

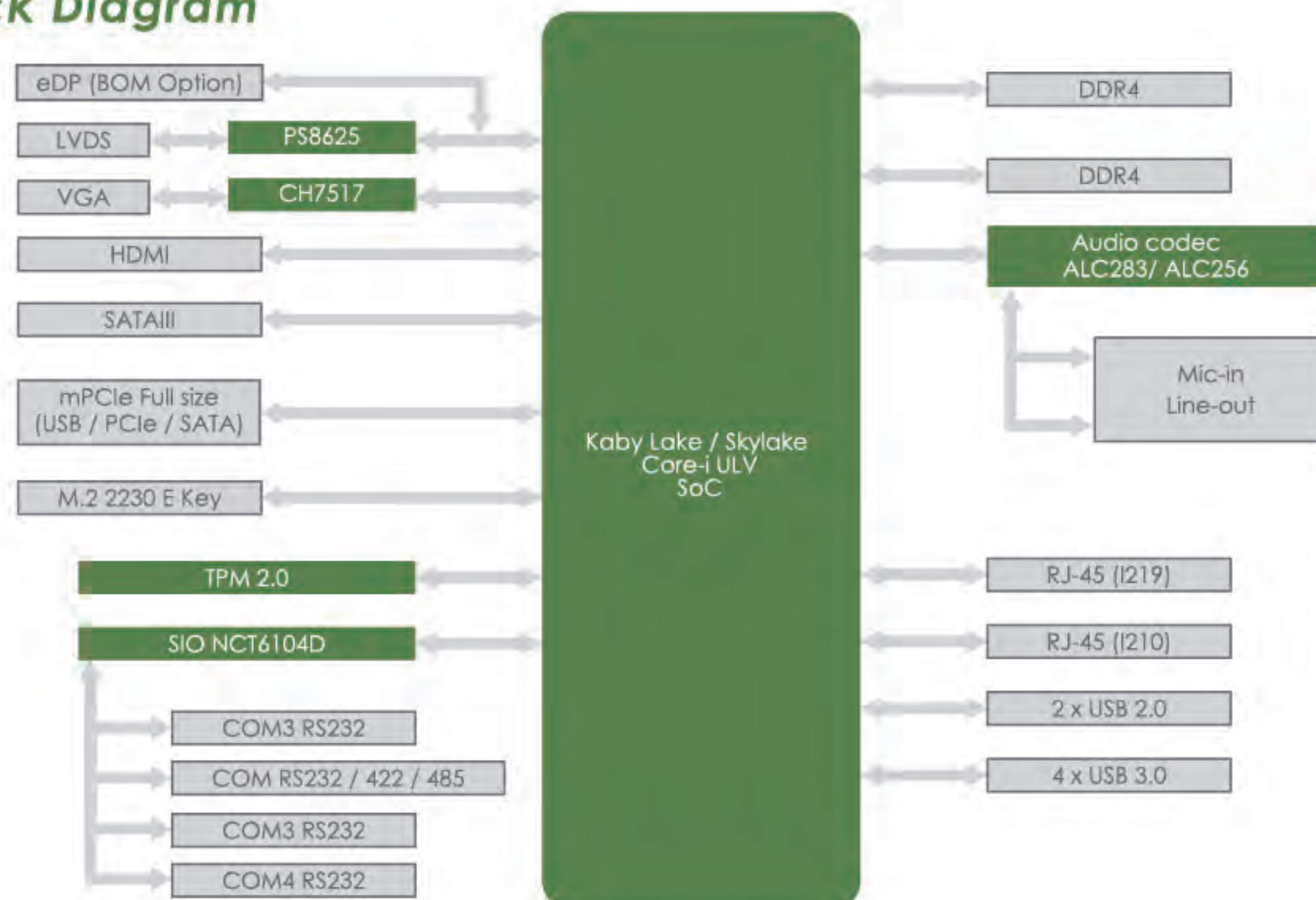
- Intel® Skylake / Kaby Lake Core i7/i5/i3 / Celeron ULV processors
- Intel® vPro technology support (SKUs i5 & i7)
- 2 x DDR4 SO-DIMM and support up to 32GB
- Support triple display for HDMI, VGA and LVDS / eDP
- 1 x SATAIII
- 2 x Intel® Gigabit Ethernet
- 2 x USB 2.0, 4 x USB 3.0 and 4 x COM
- 8V~24V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



EMC Class B
FCC Class B



Block Diagram



PD10KS 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 + I210AT Giga LAN
Audio	Realtek® ALC283 / 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)
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	Up to 1920 x 1200 @60 Hz
DVI	—
HDMI	Up to 4096 x 2160 @24 Hz
DisplayPort	—
LVDS	Up to 1920 x 1200 @60 Hz
eDP (Option)	Up to 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 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 USB 2.0
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
*PD10KS-3965U-HSK	Celeron 3965U	MB + Heatsink	*PD10KS-7300U-HSK	i5-7300U	MB + Heatsink
*PD10KS-7100U-HSK	i3-7100U	MB + Heatsink	*PD10KS-7600U-HSK	i7-7600U	MB + Heatsink

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

Packing List

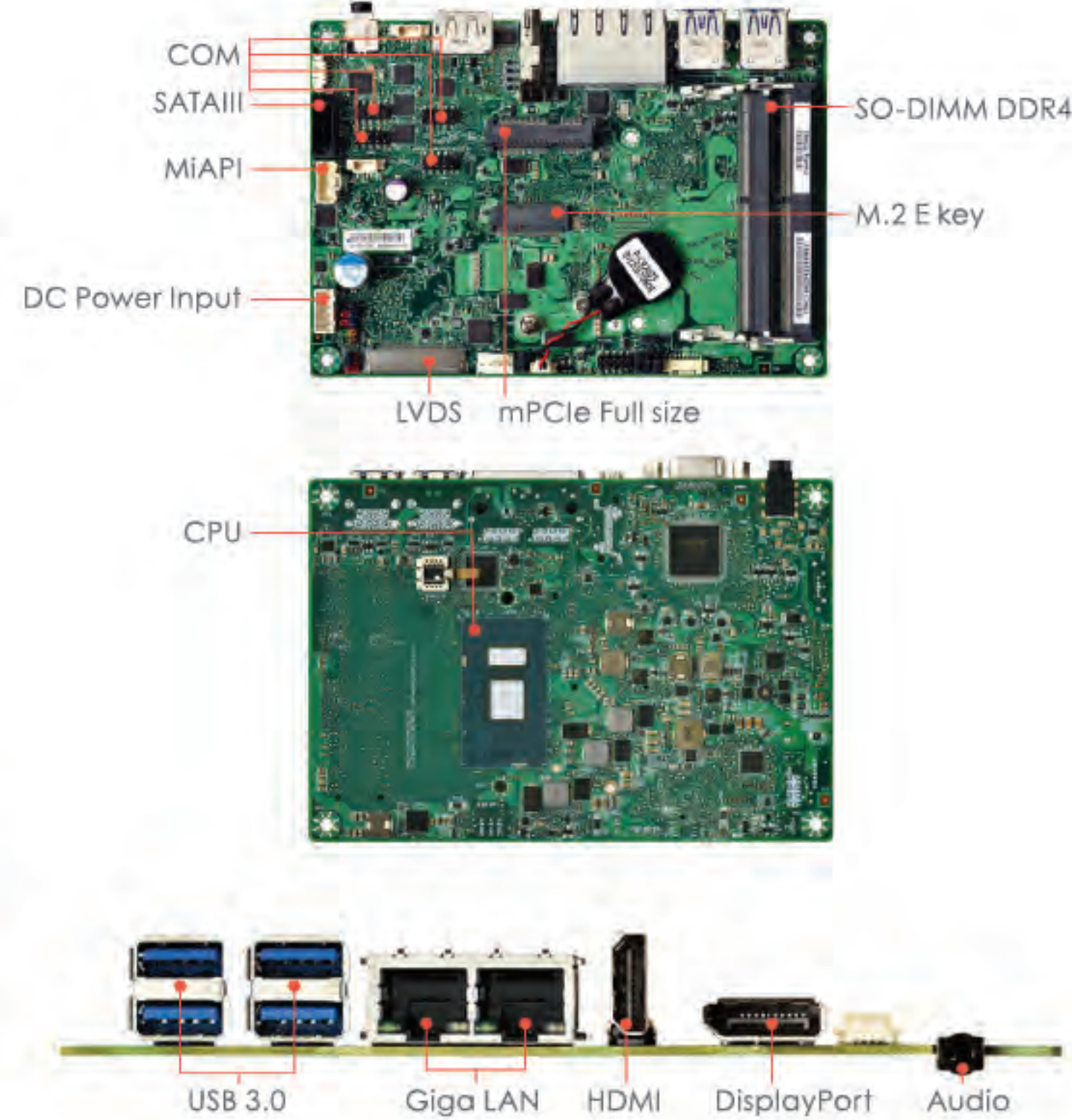
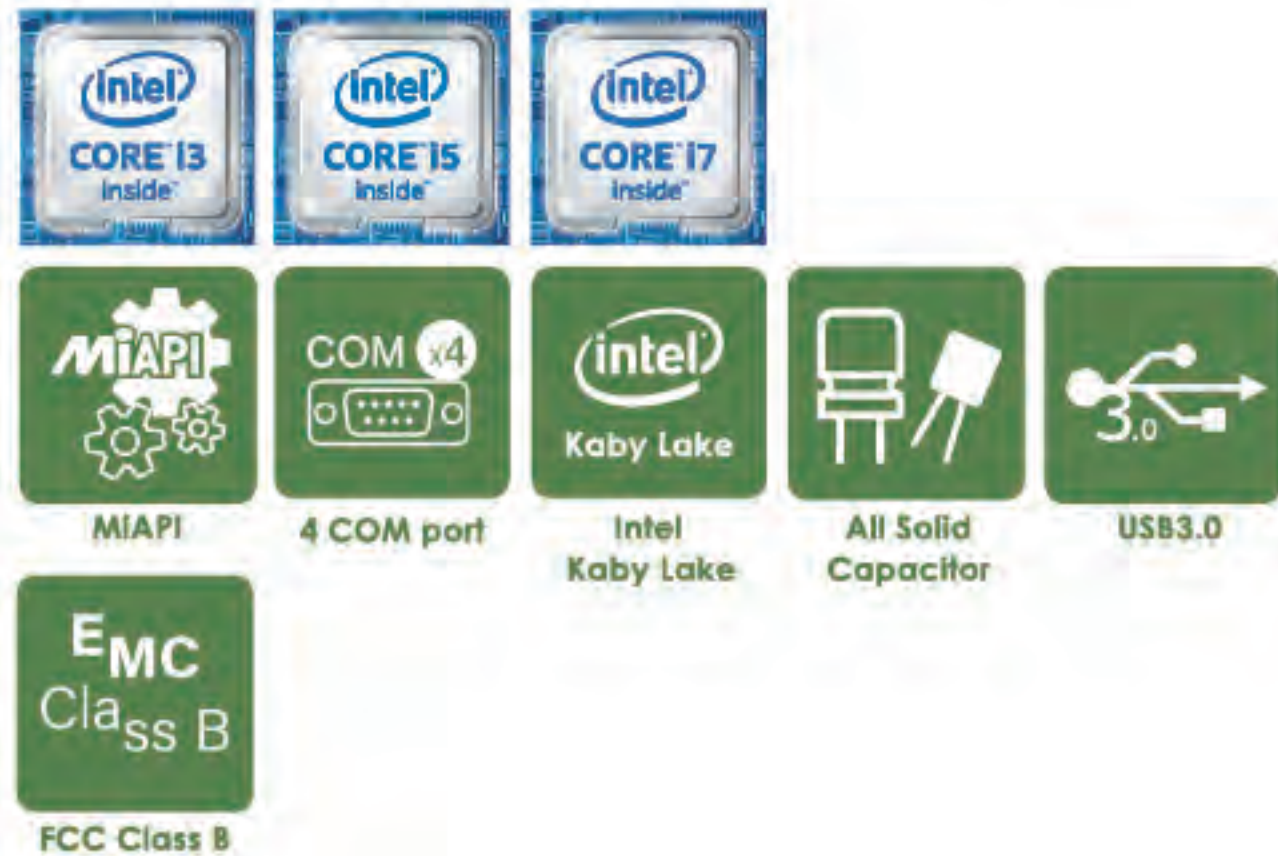
Packing		
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 1 x 45cm SATA Power Cable

PD11KS

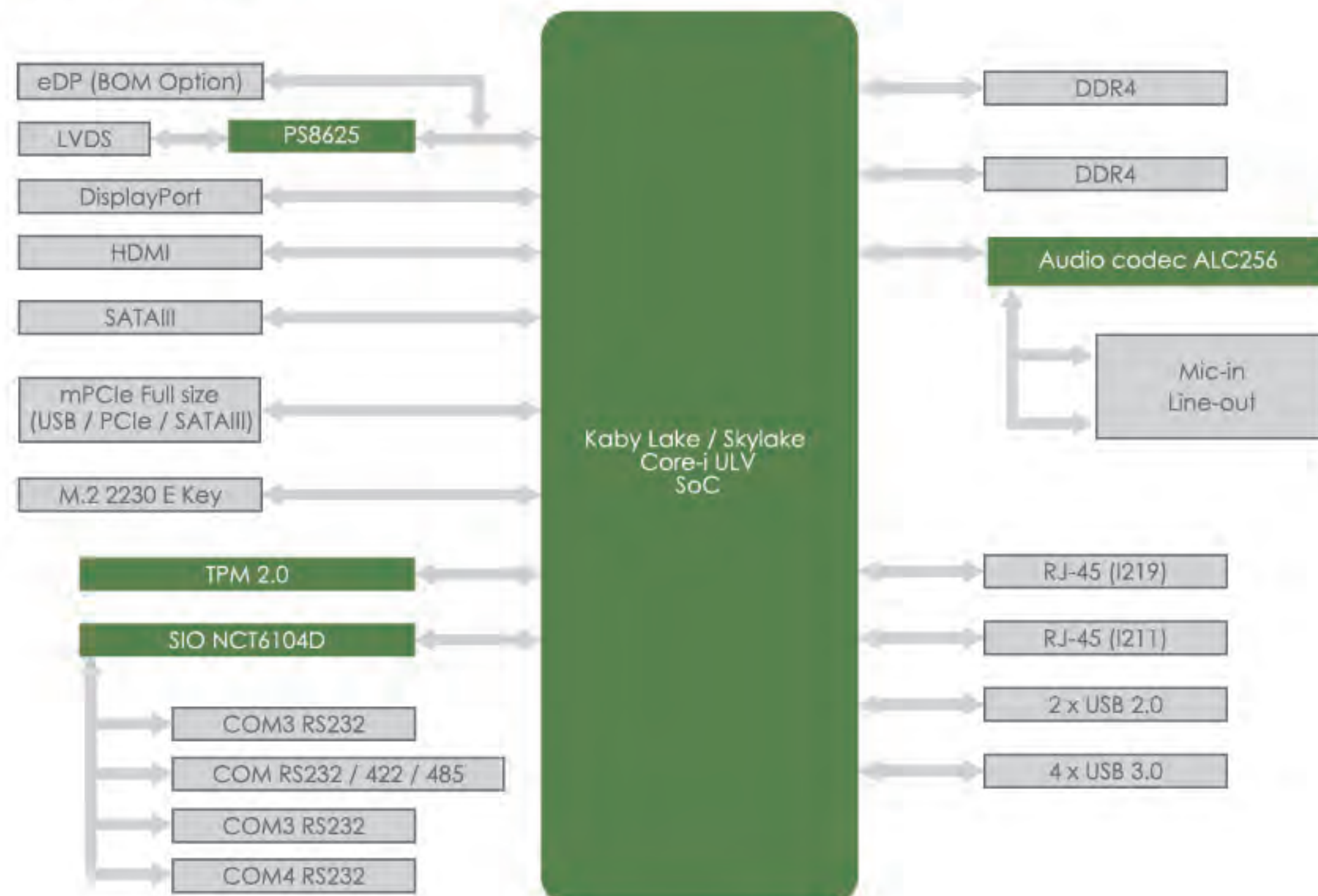
3.5" SBC Form Factor
Intel® Kaby Lake / Skylake Processor

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 NPCT650ABCYX 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 SATA III
USB	2 x USB 2.0
Display I/O	1 x LVDS (coloy 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

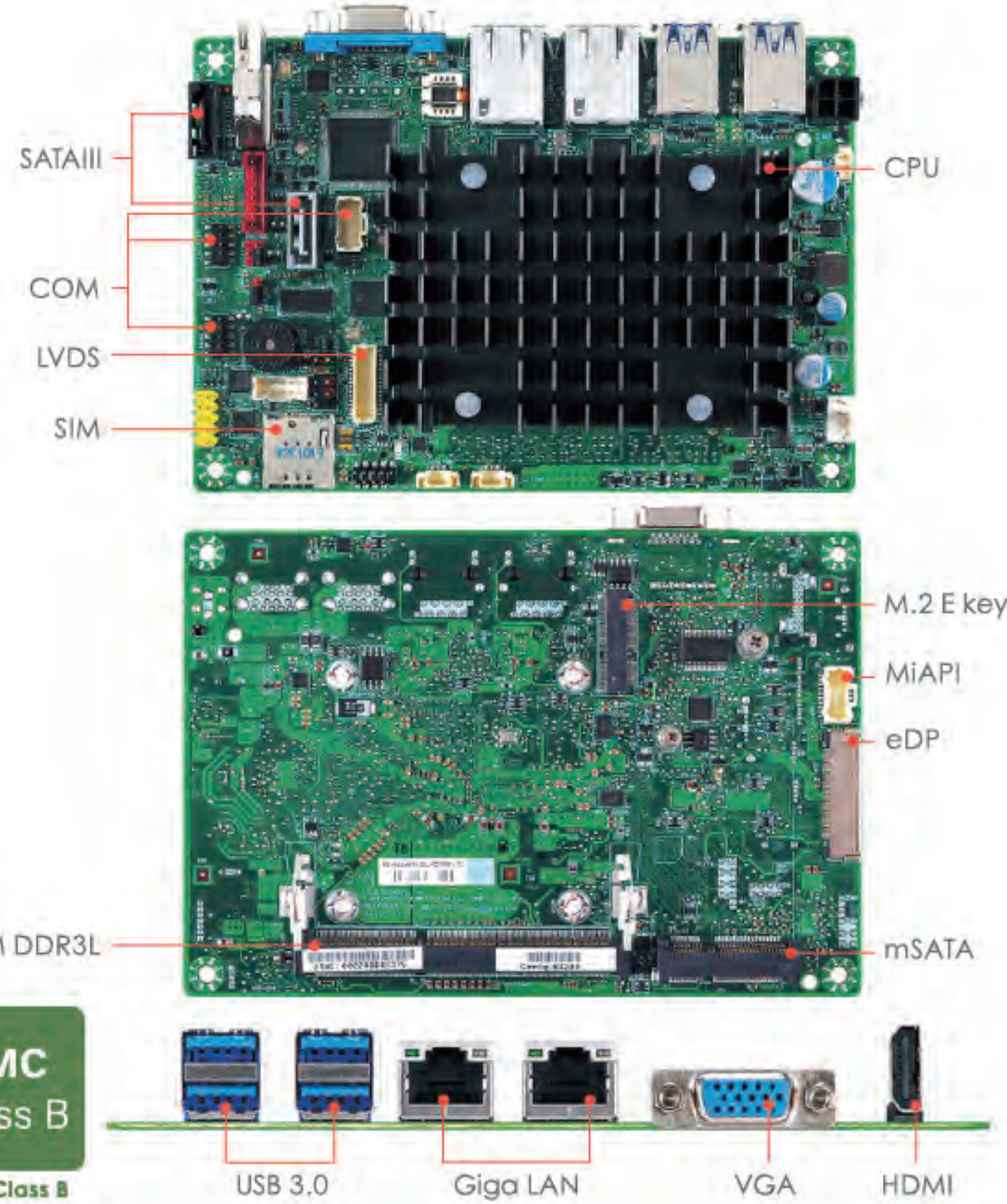
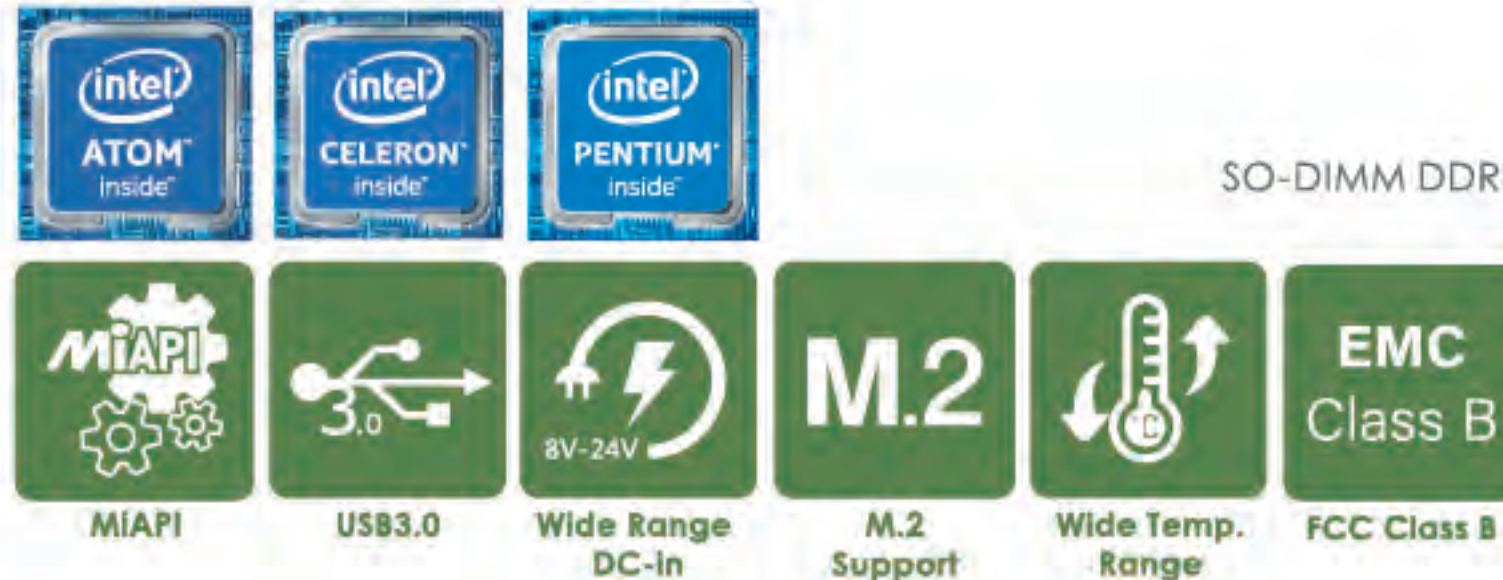
Packing	• 1 x Motherboard	• 1 x 50cm SATA Cable	• 1 x 45cm SATA Power Cable
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PD10AS

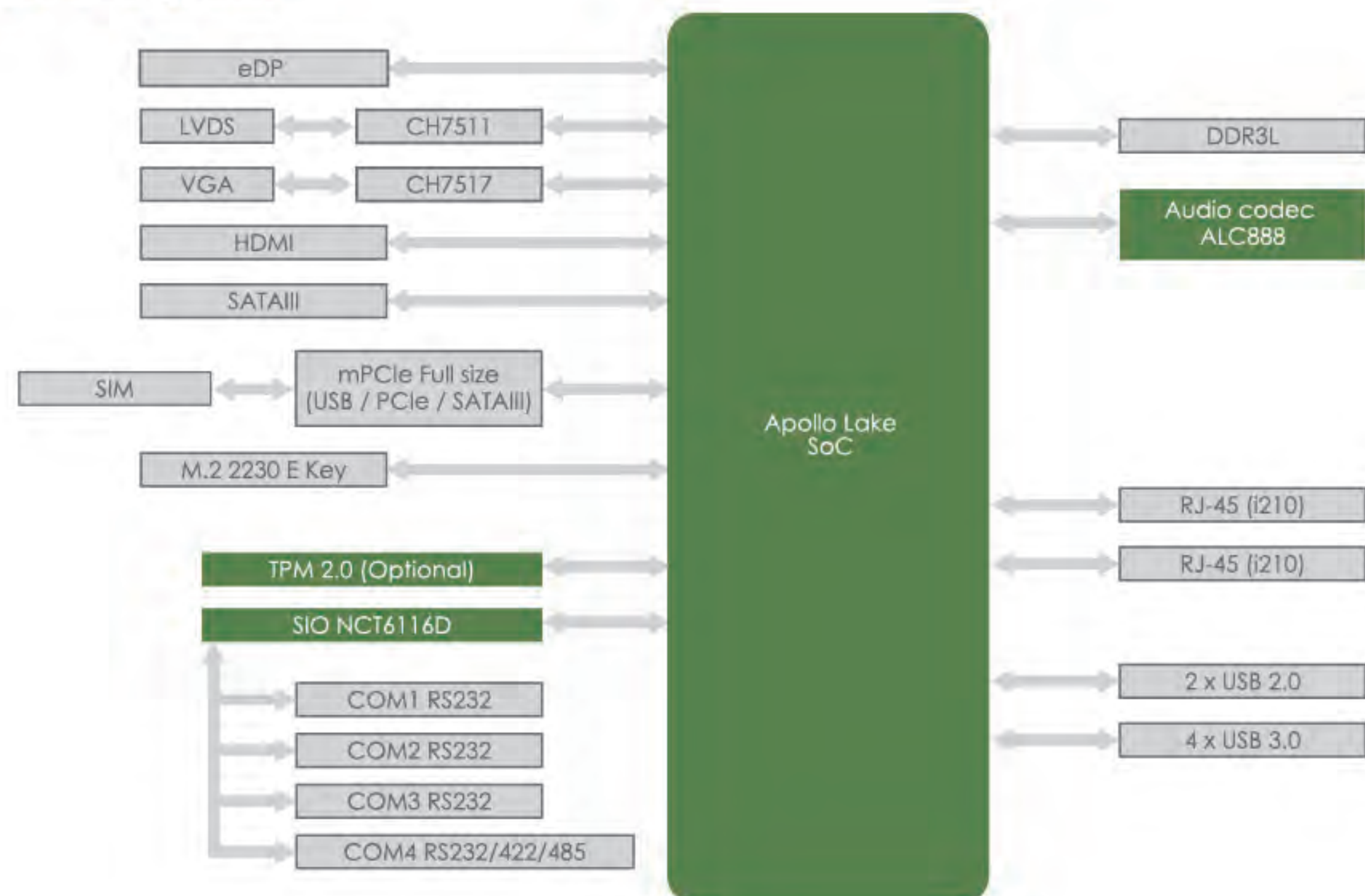
3.5" SBC Form Factor
Intel® Apollo Lake Processor

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



UATX

Mini-ITX

SBC

COMe



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)

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

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

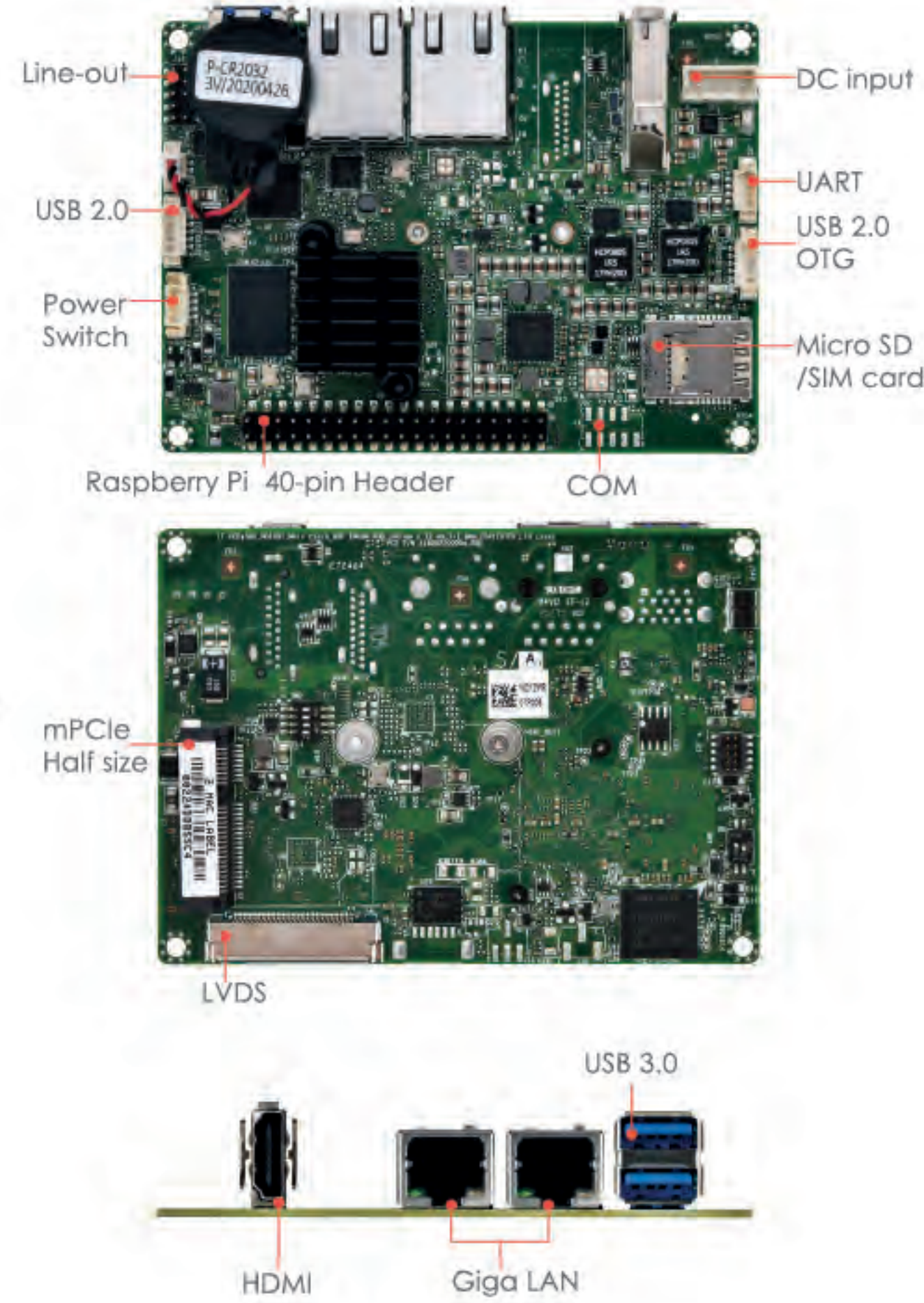
Packing	
• 1 x Motherboard	• 1 x 50cm SATA Cable
	• 1 x 45cm SATA Power Cable

ND108T

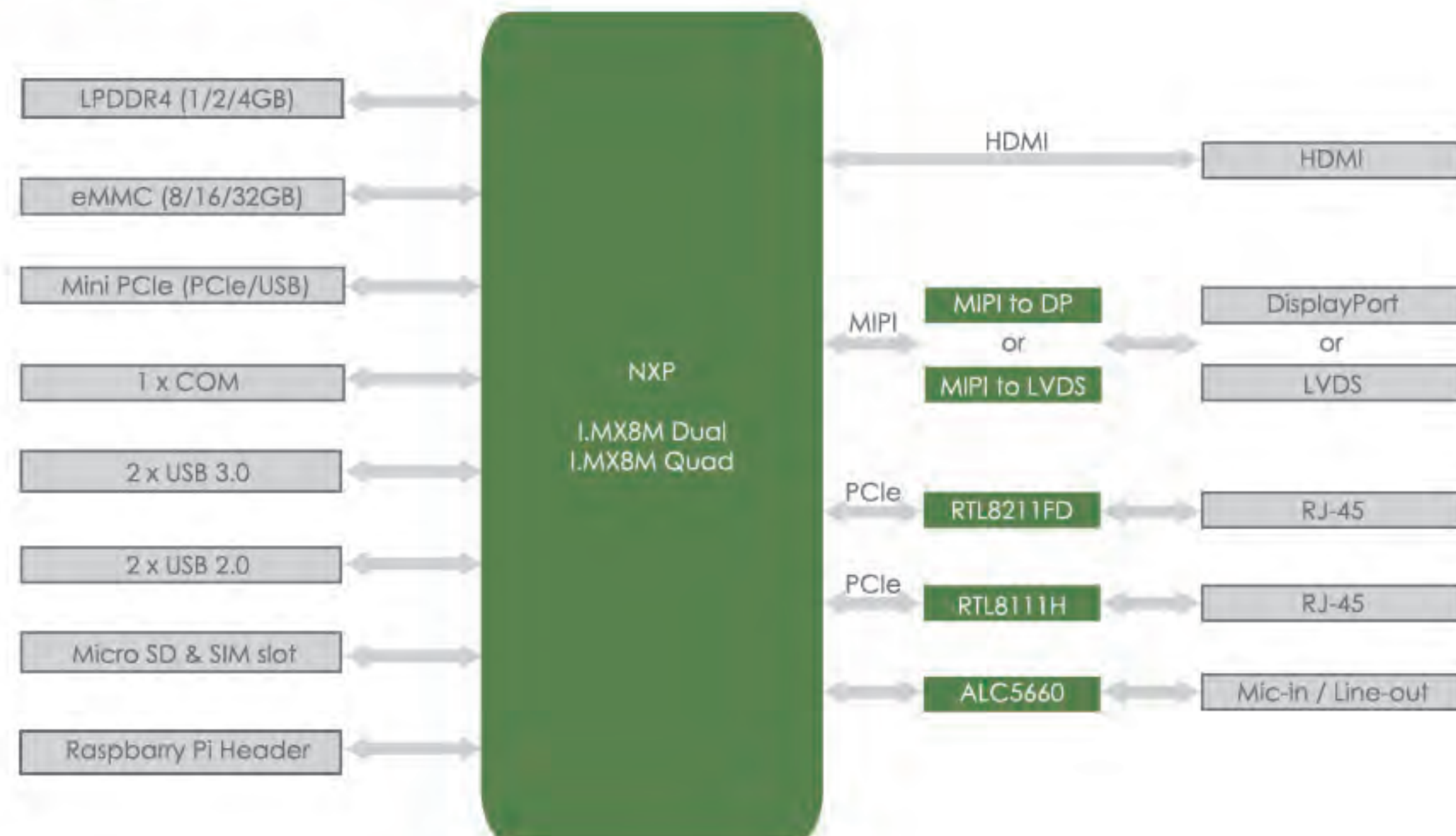
Pico-iTX Form Factor
NXP® i.MX8M Family

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	TPM Header / (support TPM module board NPCT750)
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

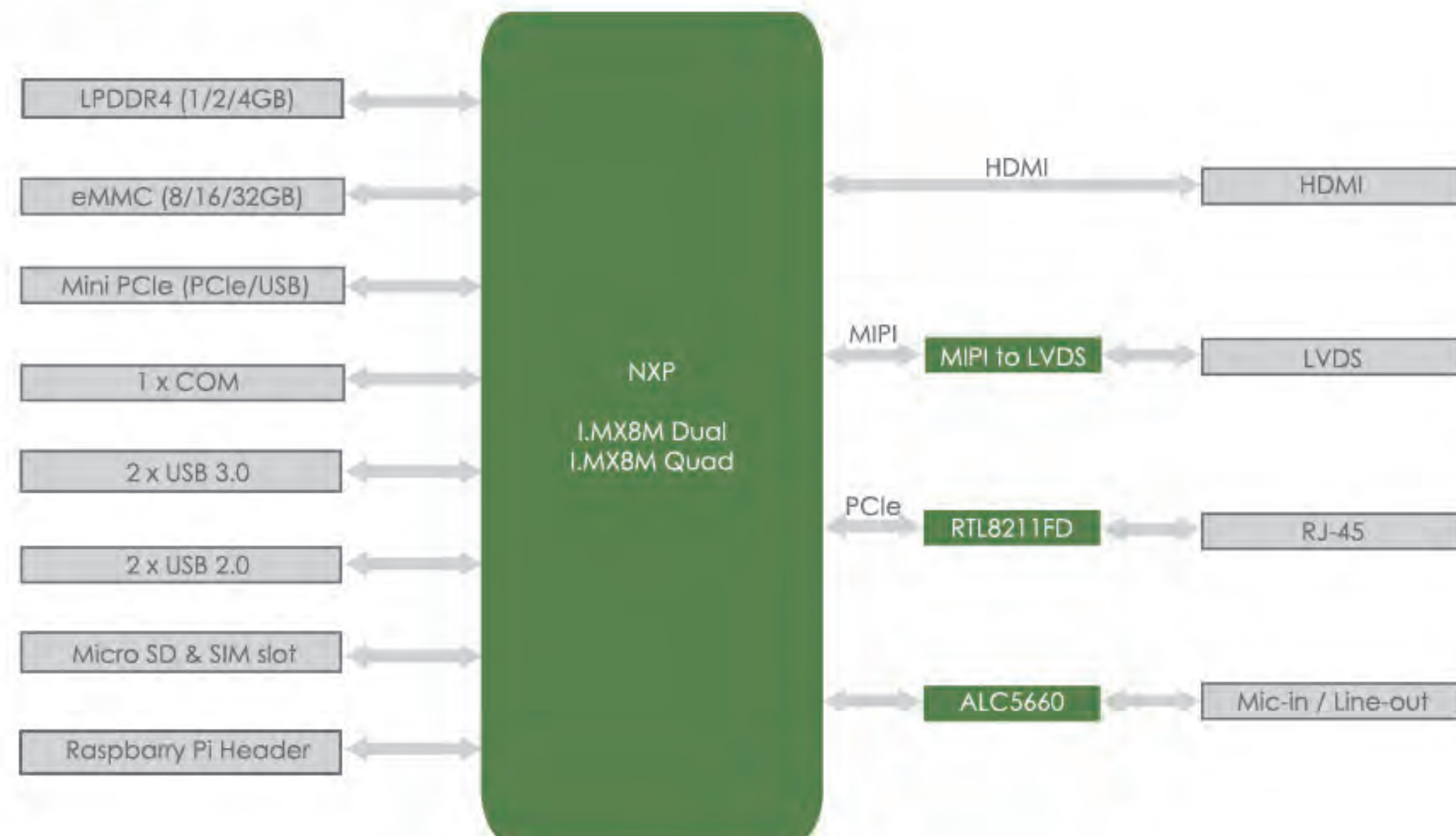
Pico-iTX Form Factor
NXP® i.MX8M Family

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.MX8M 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

Remark: Android is suggested for 4G memory MB SKU)

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

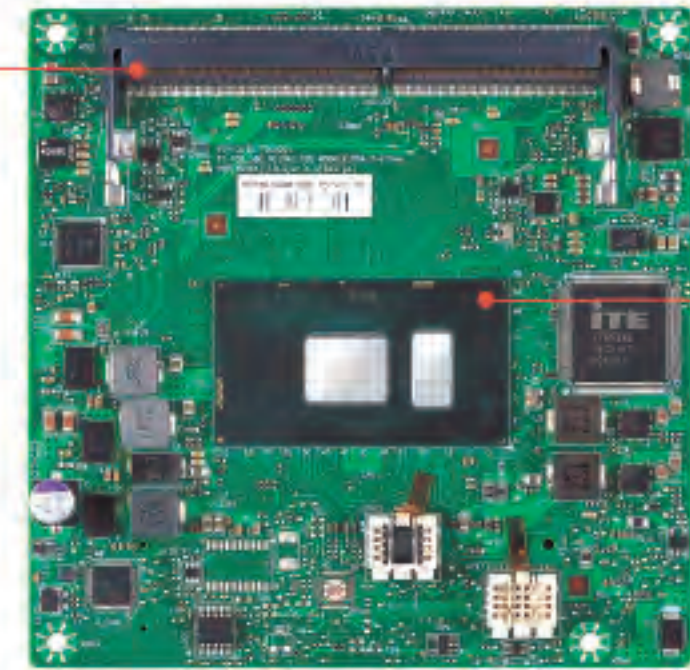
COM Express Compact Size (Type 6) Form Factor
Intel® Kaby Lake / Skylake Processor

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

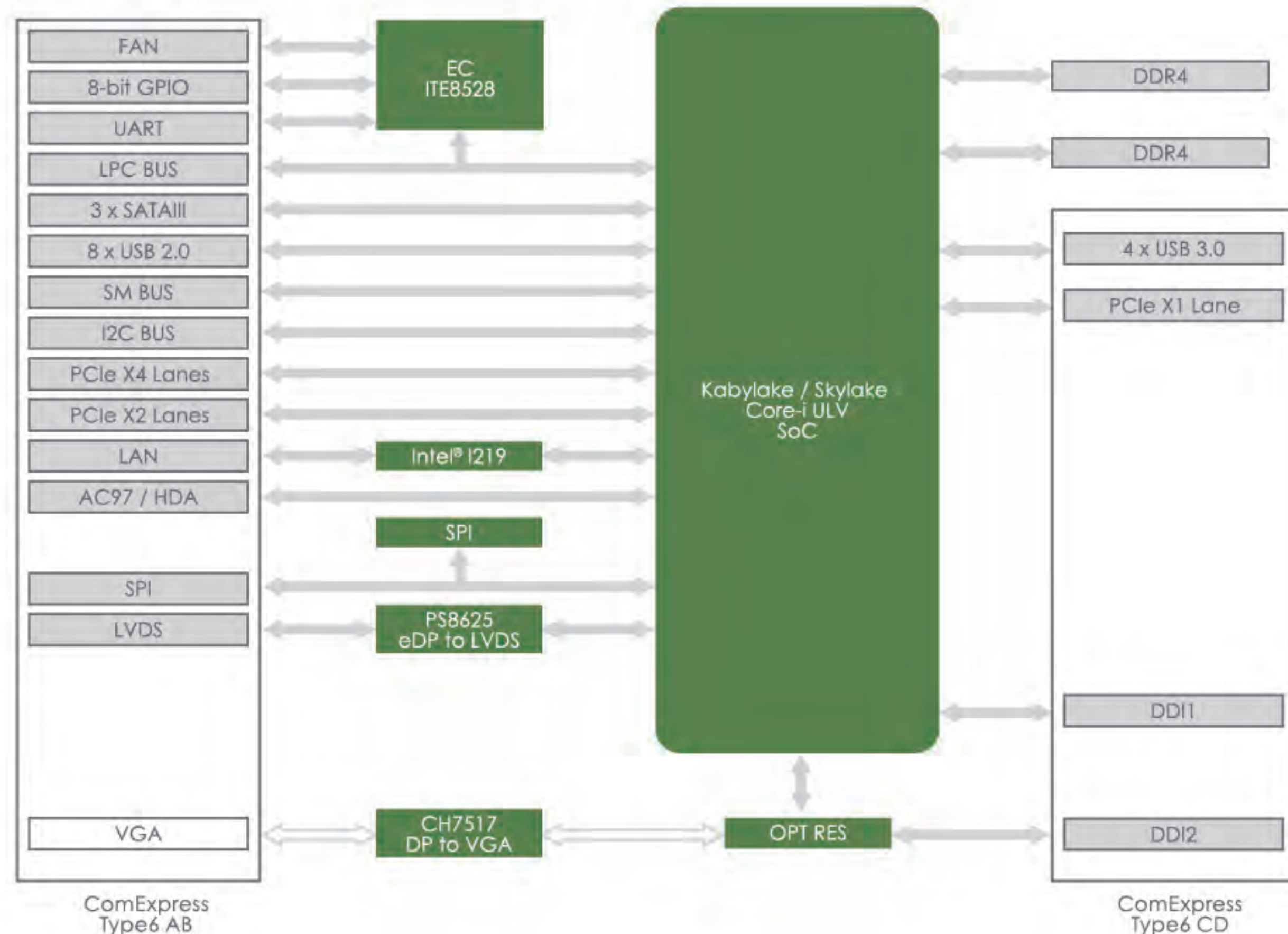


SO-DIMM DDR4 socket

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	I2C 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

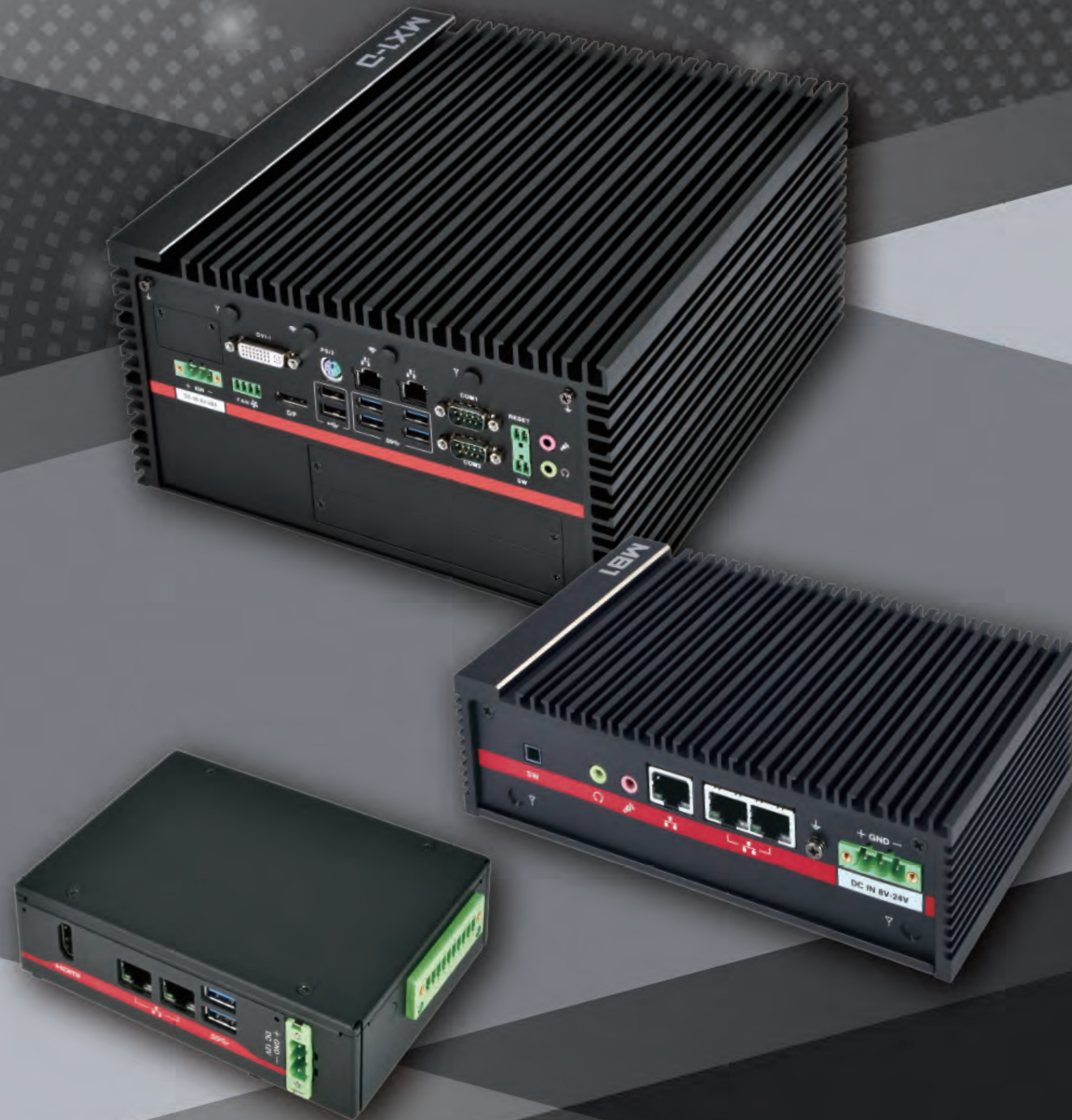
Model Number	Processor	HS Configuration
*PD10KC-3965U-HSD	Celeron 3965U	MB + Heatspreader
*PD10KC-7100U-HSD	i3-7100U	MB + Heatspreader
*PD10KC-7300U-HSD	i5-7300U	MB + Heatspreader
*PD10KC-7600U-HSD	i7-7600U	MB + Heatspreader

*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

Embedded System



Industrial Embedded System

Rugged System



Intel® Xeon, Core-i & Atom Model

MX1-10FEP	P86
MX1-10FEP-D	P88
MP1-11TGS	P90
MP1-11TGS-D	P92
MB1-10AP	P94

NXP I.MX8

ME1-108T	P96
ME1-118T	P98

Fanless Embedded System

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

E300	P100
E400	P102
E310	P104
E410	P106

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

S300	P108
S310	P110



Fanned Embedded System

Intel® Core-i Model

E500	P112
E600	P114



Rackmount System

Intel® Core-i Model

NV1	P116
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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 4G connectivity. DIO/COM/LAN/PoE/Power Ignition expansion modules extend the capability and possibility to be used in more applications.



Recommended IPC

EN-50155

Isolation I/O

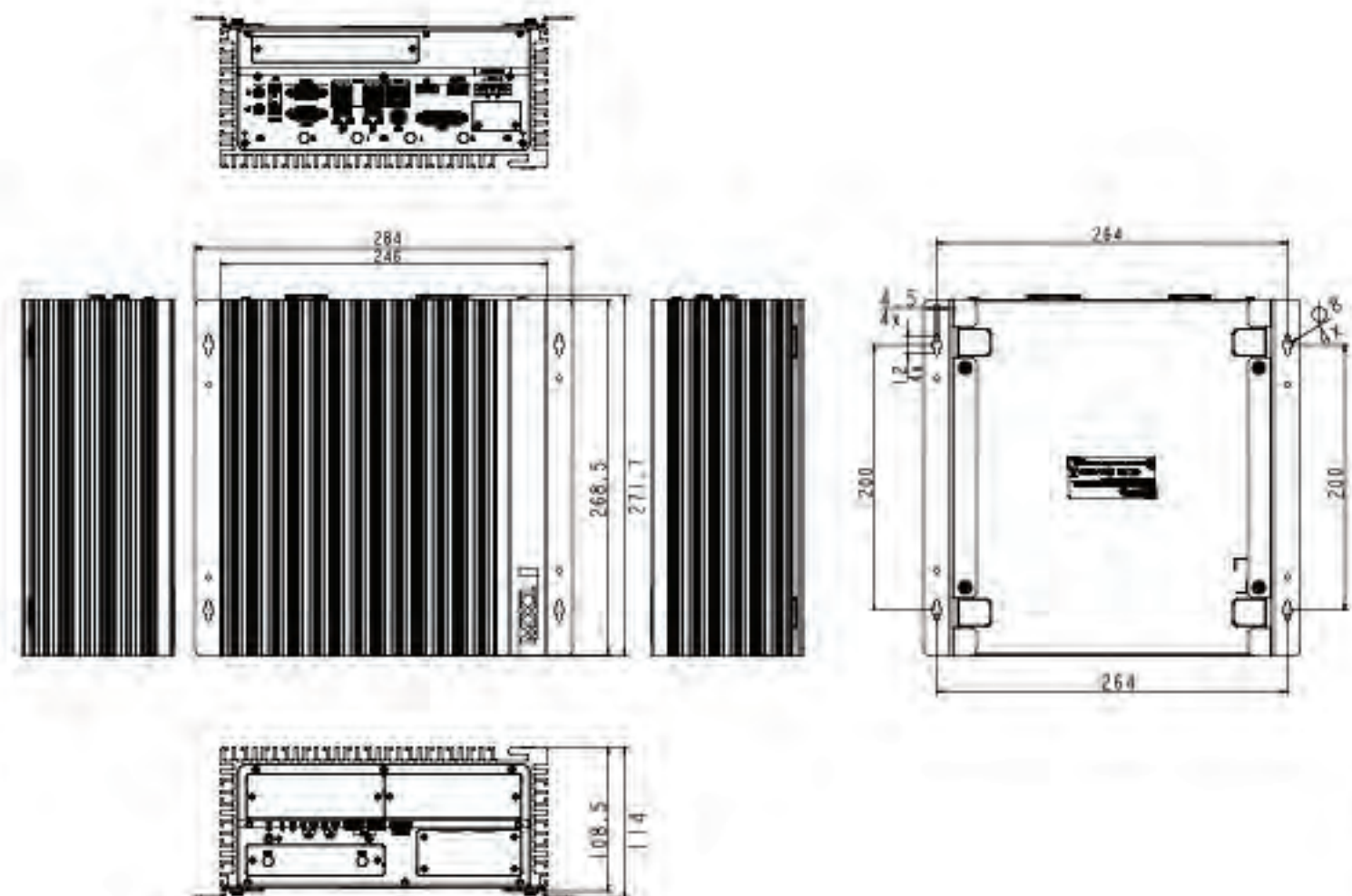
Power Ignition

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-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, 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 2 x USB 3.0 1 x HDMI 1.4
FRONT I/O	2 x SIM Card Slot w/ Cover 1 x 2.5" SATAIII HDD / SSD Bay 4 x USB 3.1 Gen 2 (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
REAR I/O	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)	1X/2X/3X/4X Movidius Myriad X VPU, and Intel® OpenVINO™ toolkit supported (Optional)
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) <small>*with 0.7m/s Air Flow and Wide Temperature Memory/Storage</small>

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	





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 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-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 Ignifoin expansion modules extend the capability and possibility to be used in more applications.



Recommended IPC

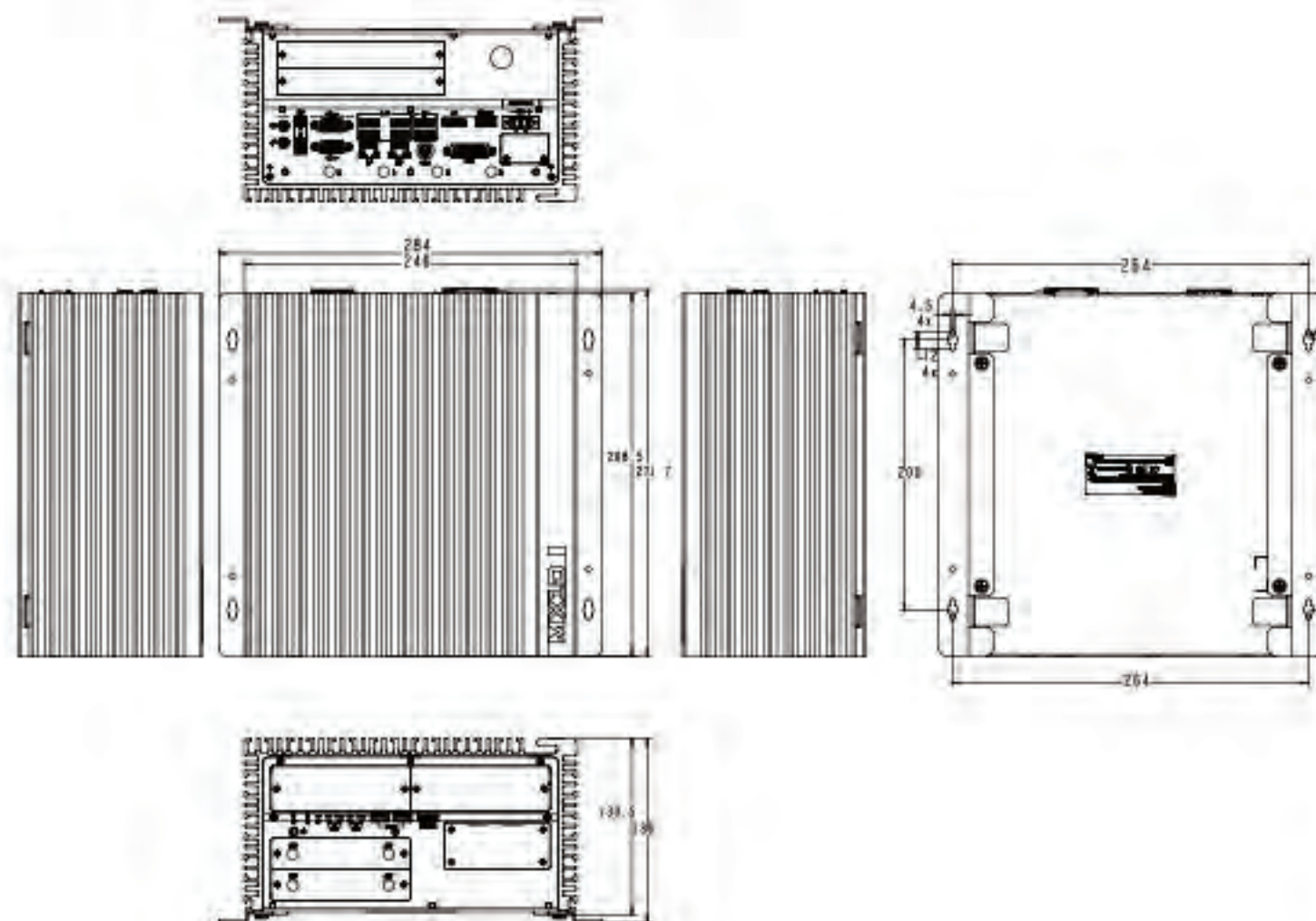
Isolation I/O

Power Ignifoin

High ESD protection

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, 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-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 2 x USB 3.0 1 x HDMI 1.4
FRONT I/O	2 x SIM Card Slot w/ Cover 1 x 2.5" SATAIII HDD / SSD Bay
REAR I/O	4 x USB 3.1 Gen 2 (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)	1X/2X/3X/4X Movidius Myriad X VPU, and Intel® OpenVINO™ toolkit supported (Optional)
POWER REQUIREMENT	
Power Input	9~48V Wide Range 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	

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 Tiger Lake

Fanless Design

Quadruple displays

2.5G LAN

4 COM port

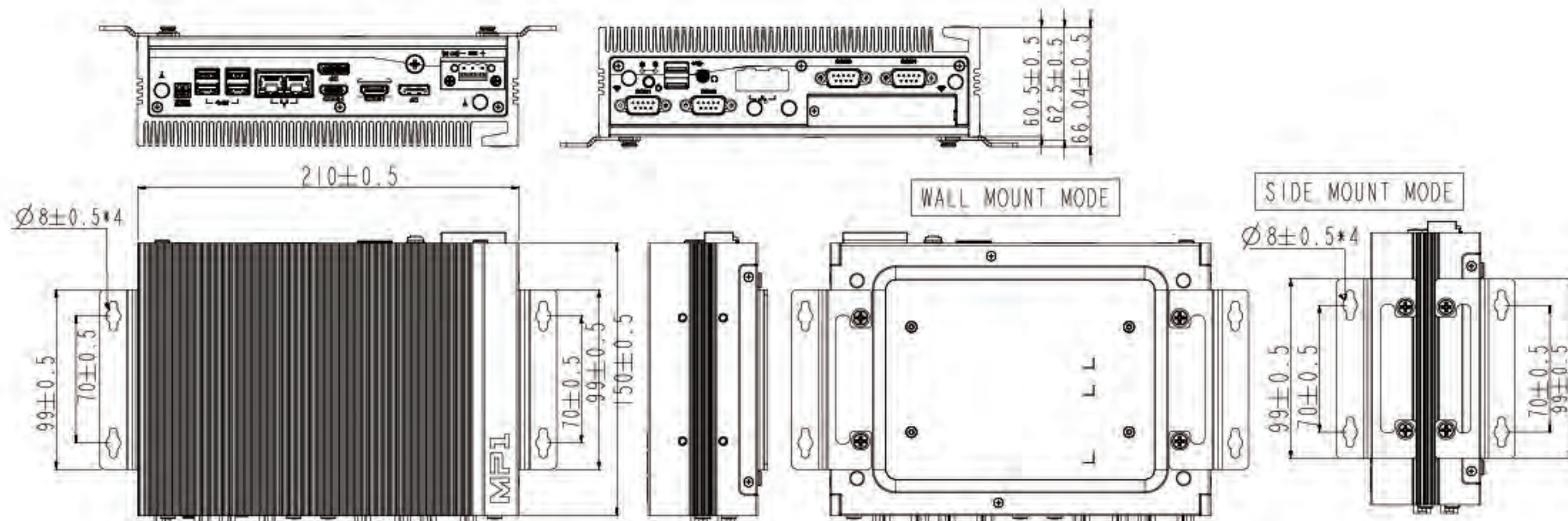
8V-24V DC-In Wide Range DC-In

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 2.0b
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/**PClex1/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 2.0b 2 x RJ-45 4 x USB 3.1 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
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, 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)	

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



intel CORE i3

intel CORE i5

intel CORE i7

intel CELERON

intel IRIS Xe GRAPHICS

EDGECROSS Recommended IPC

intel Tiger Lake

Fanless Design

Quadruple displays

LAN 2.5G

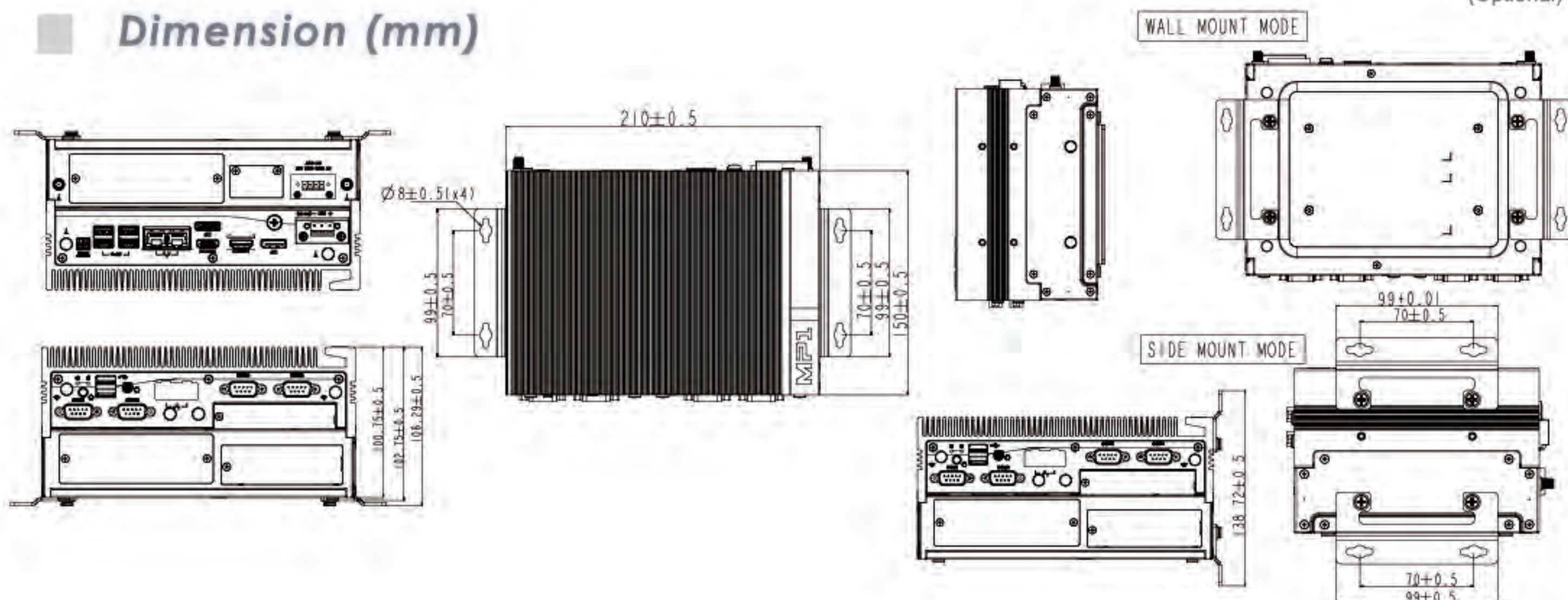
COM x4

12V-36V DC-In Wide Range DC-in

I/O Interface



Dimension (mm)



MP1-11TGS-D Fanless Embedded System

SYSTEM	
CPU	11st Gen Tiger Lake-UP3 Intel® Core™ iULV 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 2.0b
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 2x 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) 2 x DisplayPort 1.4 2 x HDMI 2.0b 2 x RJ-45 4 x USB 3.1 Gen2
Rear I/O	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
POWER REQUIREMENT	
Power Input	12~36V Wide Range DC Input w/ 3-pin Terminal Block Connectivity
Power Adapter	AC / DC / DC24V / 5A / 120W adapter in AC SKUs
MECHANICAL	
Thermal Design	Fanless
Mounting	Wallmount / Side Mount / 75 mm x 75 mm VESA Holes & Din Rail Mount Comba 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, 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 US + EU Power Cord (AC sku)	• 1 x Power Adapter (AC sku)
• 1 x Embedded System	

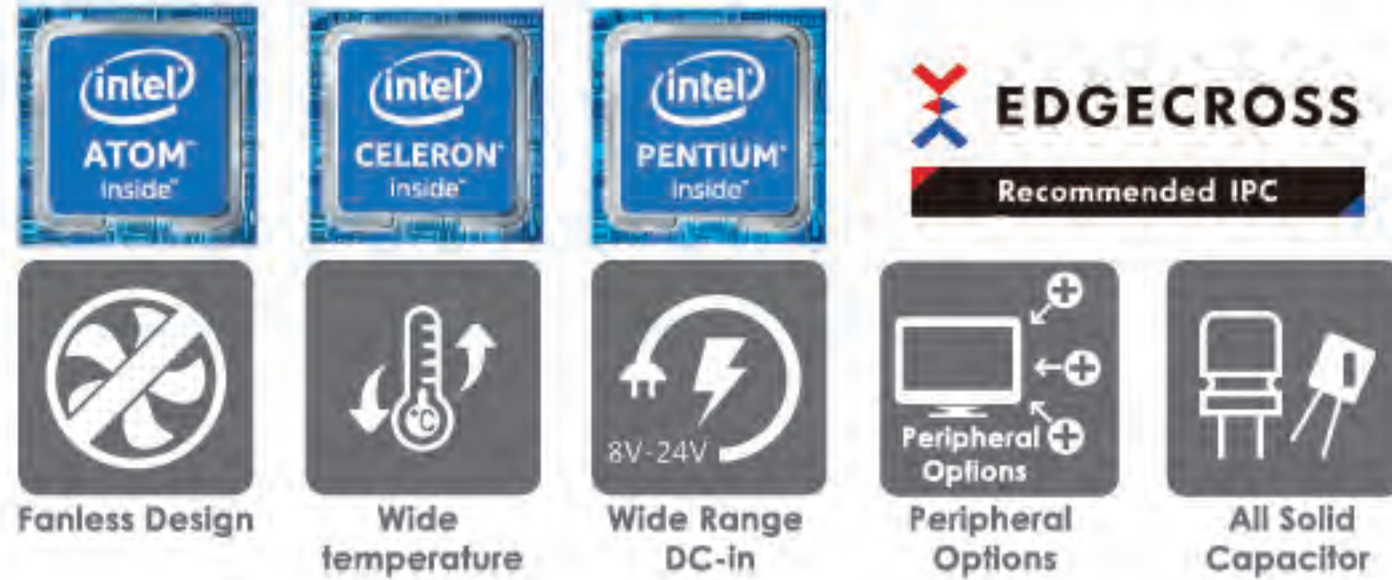
MB1-10AP

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

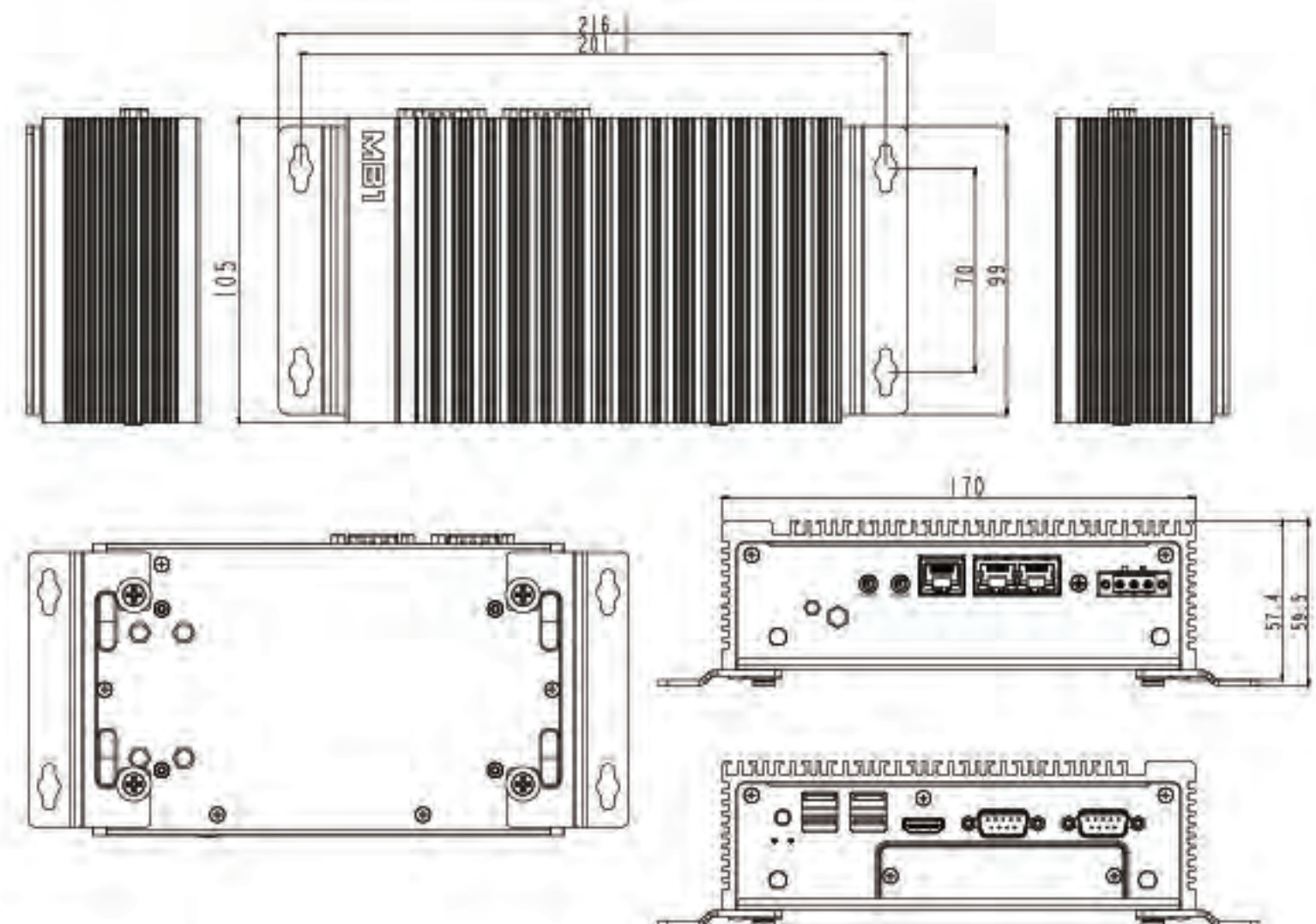
Introduction

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)

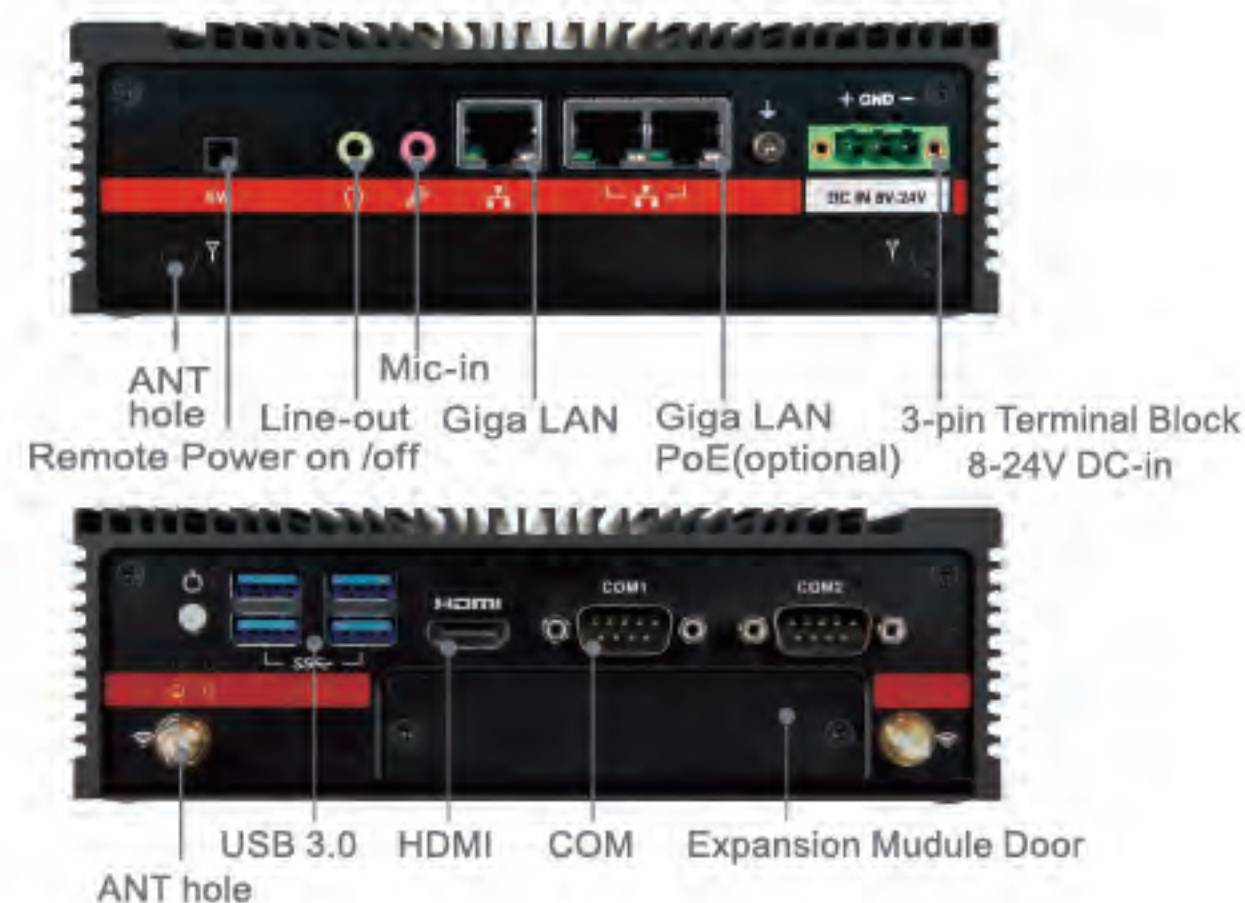


Optional Peripheral

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*

* Safely operating: For AC Adapter 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 3.0 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)	Single Movidius Myriad X VPU, and Intel® OpenVINO™ toolkit supported (Optional)
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
MB1-10AP-N4200-POE	N4200	1 / 2	-25 ~ 60°C	None
MB1-10AP-N4200-POE-AC	N4200	1 / 2	-25 ~ 60°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

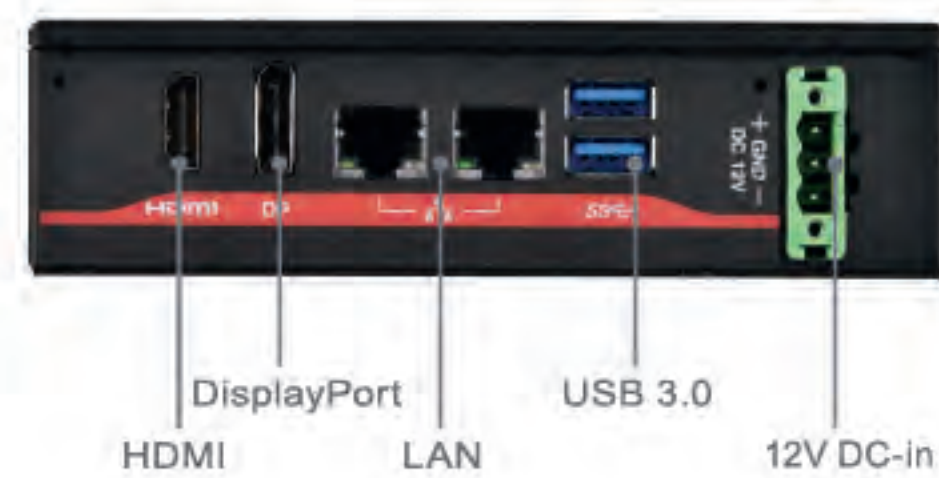
Introduction

- 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

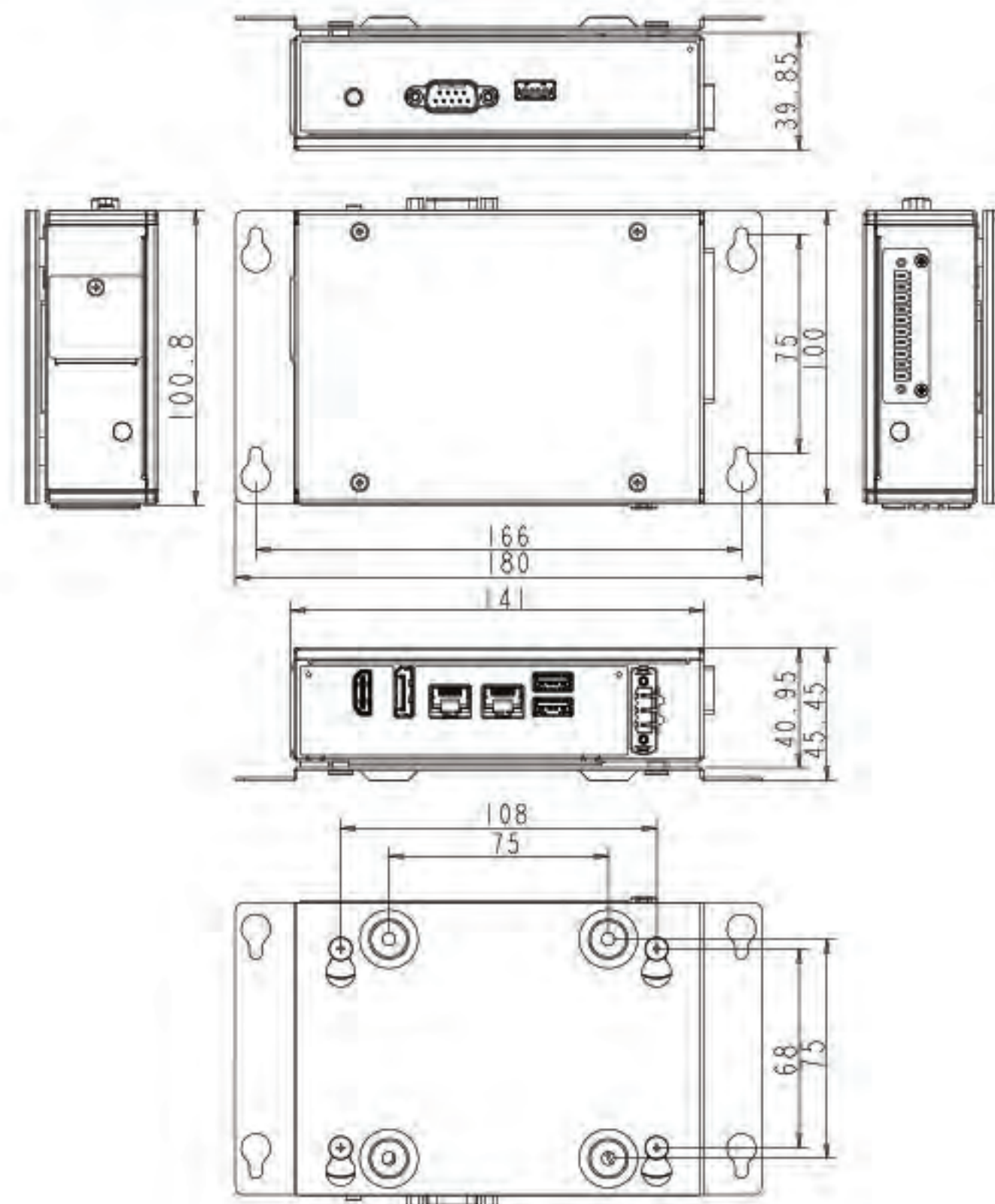


NXP Dual/Quad Core	GPIO	Dual LAN	COM	Mini PCIe	Dual Display
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I/O Interface (mm)



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

Rugged

Fanless

Fanned

Rockmount

ME1-118T

Fanless Embedded System with NXP® i.MX8M Processor

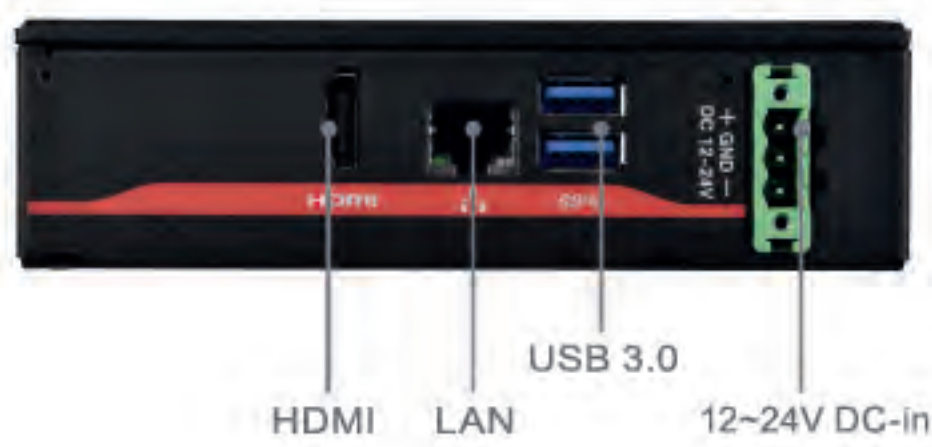
Introduction

- 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

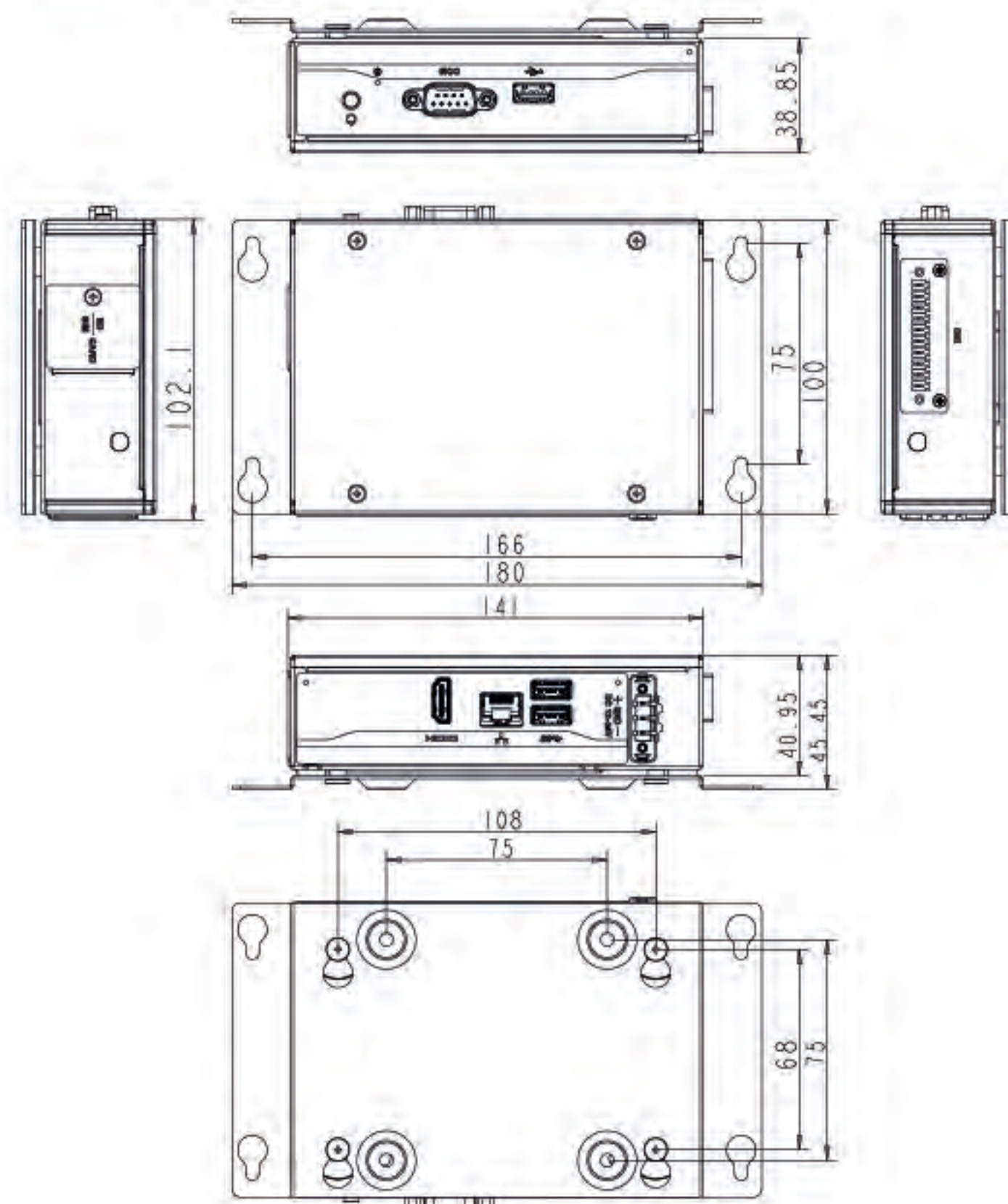


i.MX8M NXP Dual/Quad Core	GPIO	LAN	COM	Mini PCIe	Dual Display
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I/O Interface (mm)



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

Rockmount

E310-10EHI

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

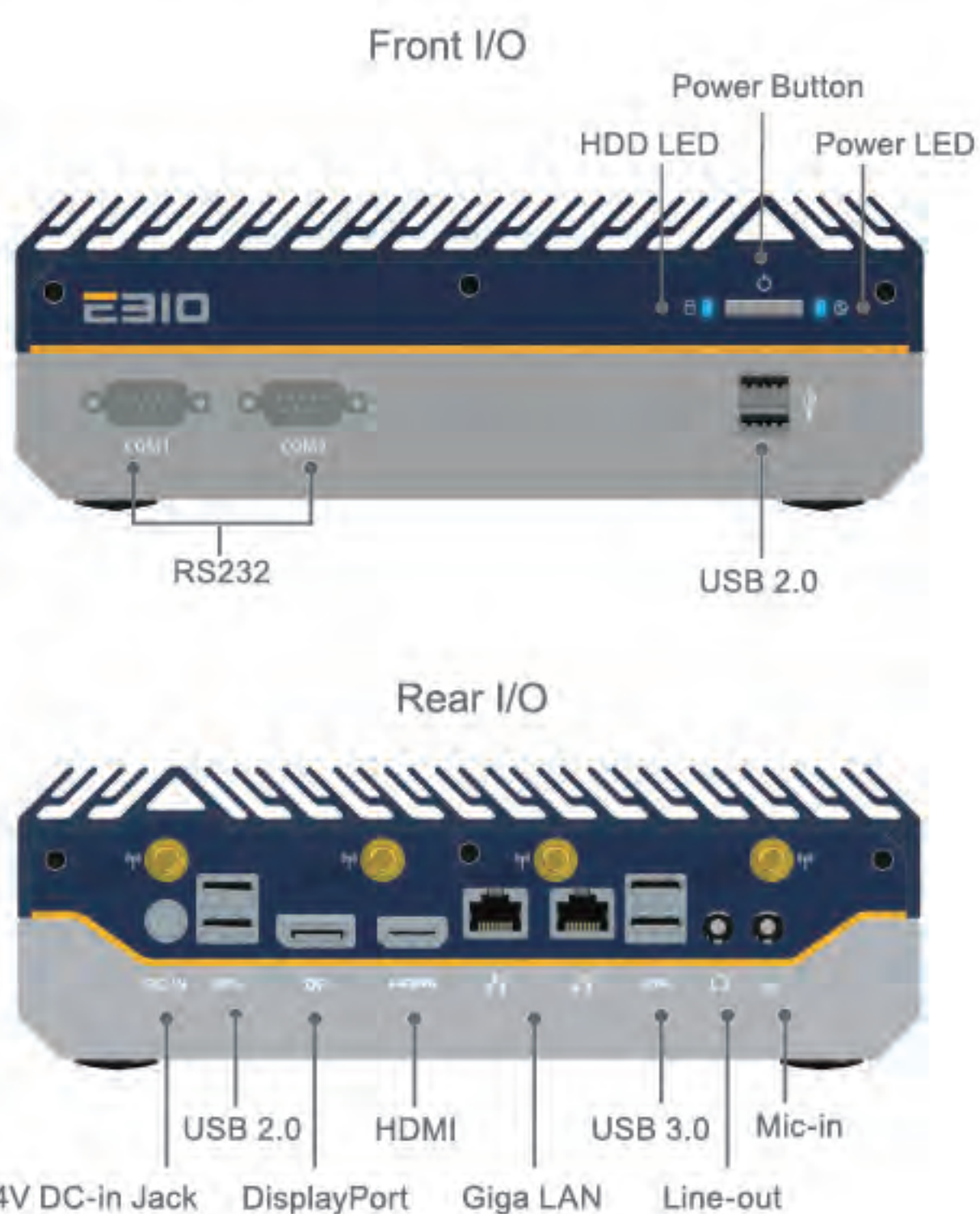
Introduction

- 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

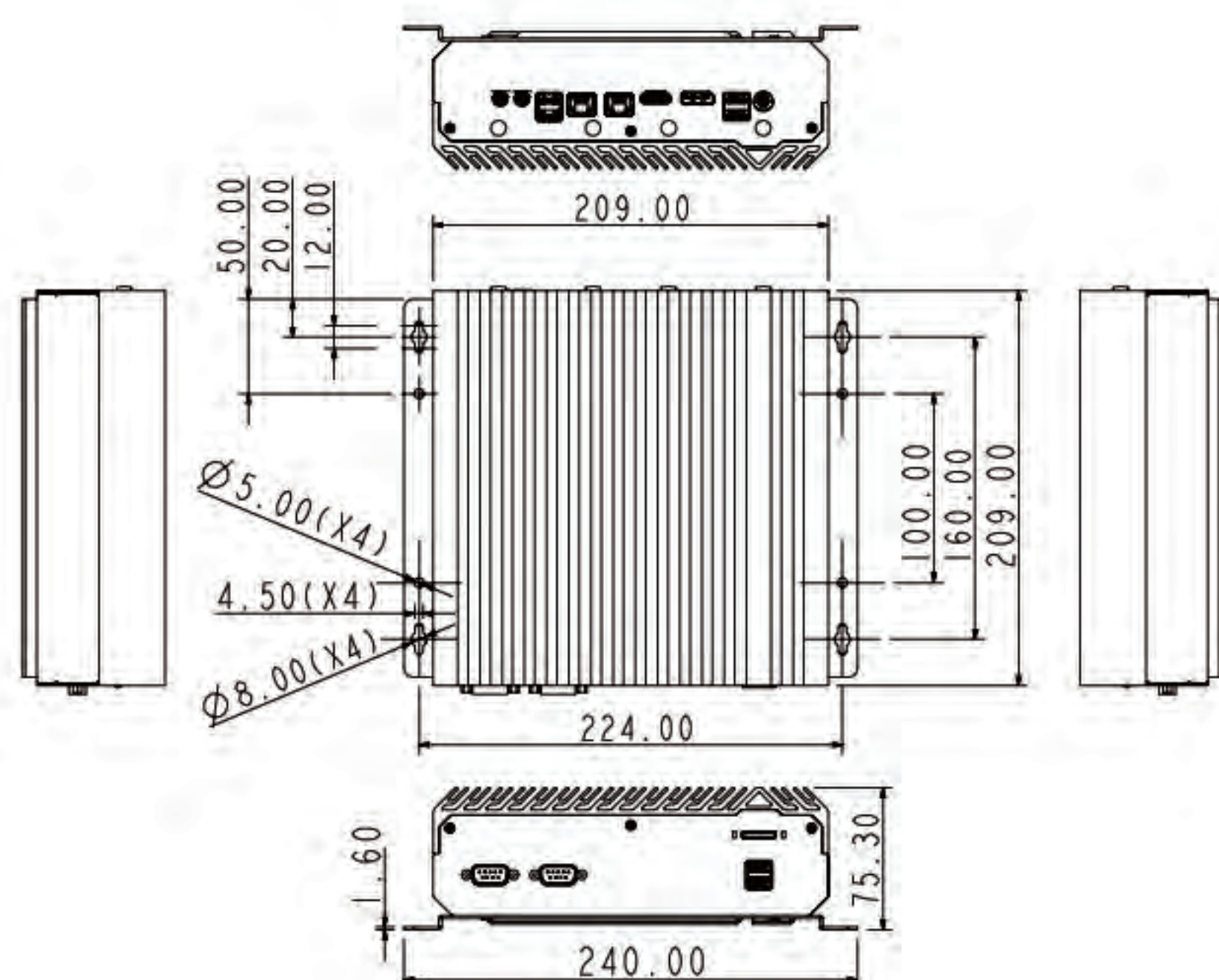


* The ID is for reference first and may subject to change based on final design.

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	2x USB2.0 2 x RS232 (Extra 1 x RS232/422/485 + 3 x RS232 for Option) 1 x Mic-in, 1 x Line-out
Rear I/O	2 x USB2.0, 2 x USB3.1 Gen2 2 x i211AT Giga LAN 1x HDMI 1.4, 1x DisplayPort 1.4 4 x SMA hole with rubber cap
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	0 ~ 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) 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	

E410-13CMI

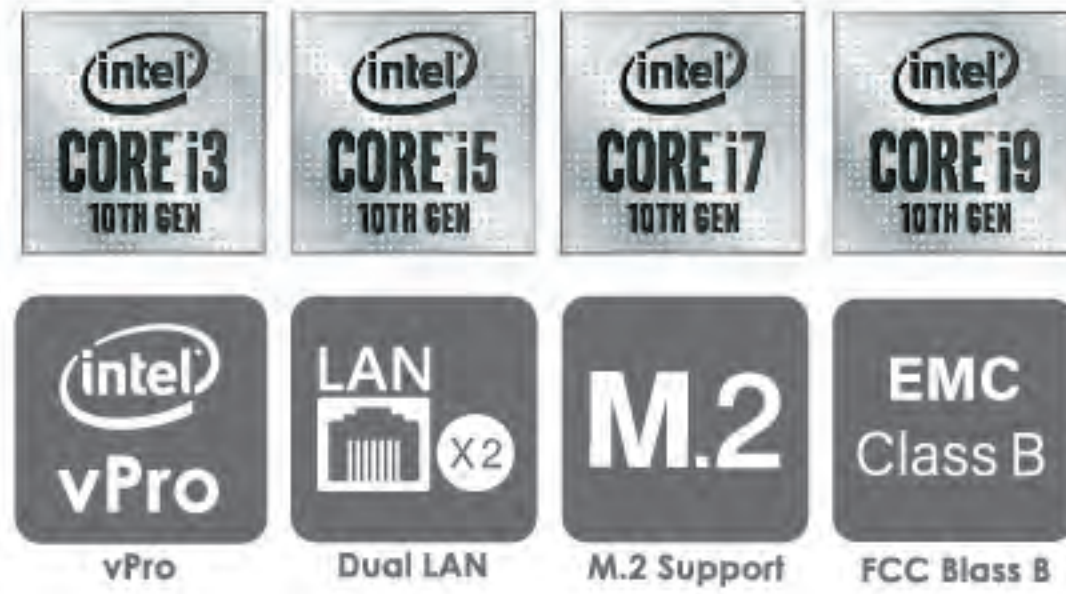
Fanless Embedded System with Intel® Comet Lake TDP up to 35W

Introduction

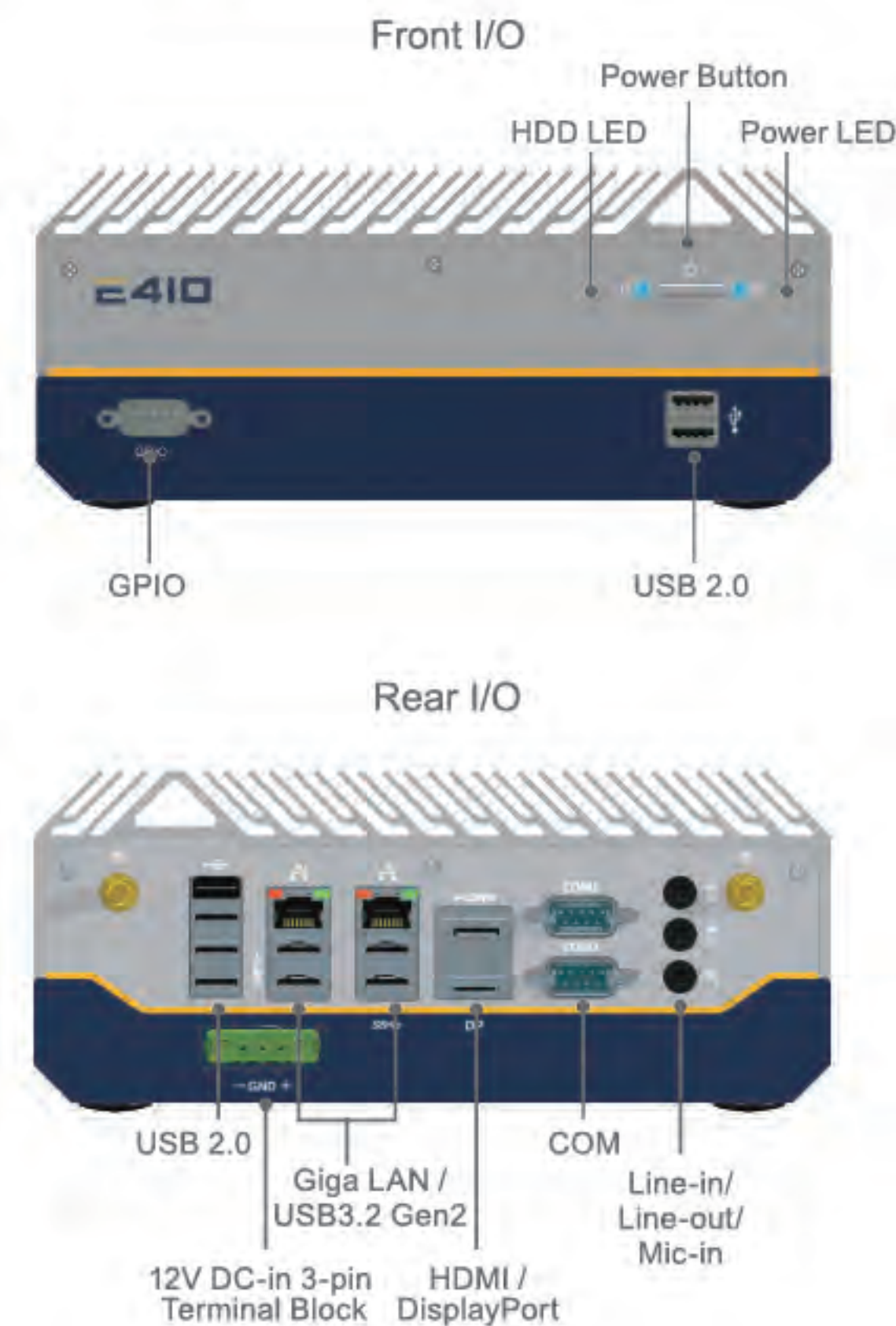
- 10th Comet Lake LGA Processor, up to i9 35W
- Intel® H420E Chipset
- 2 x DDR4 SO-DIMM up to 64GB
- Support Dual Display for HDMI, DisplayPort
- 1 x M.2 2280M-key, 1 x M.2 2230 E-key (CNVi), 1 x mPCIe Full size
- 6 x USB2.0, 5 x USB3.0, 2 x COM, 8-bit GPIO



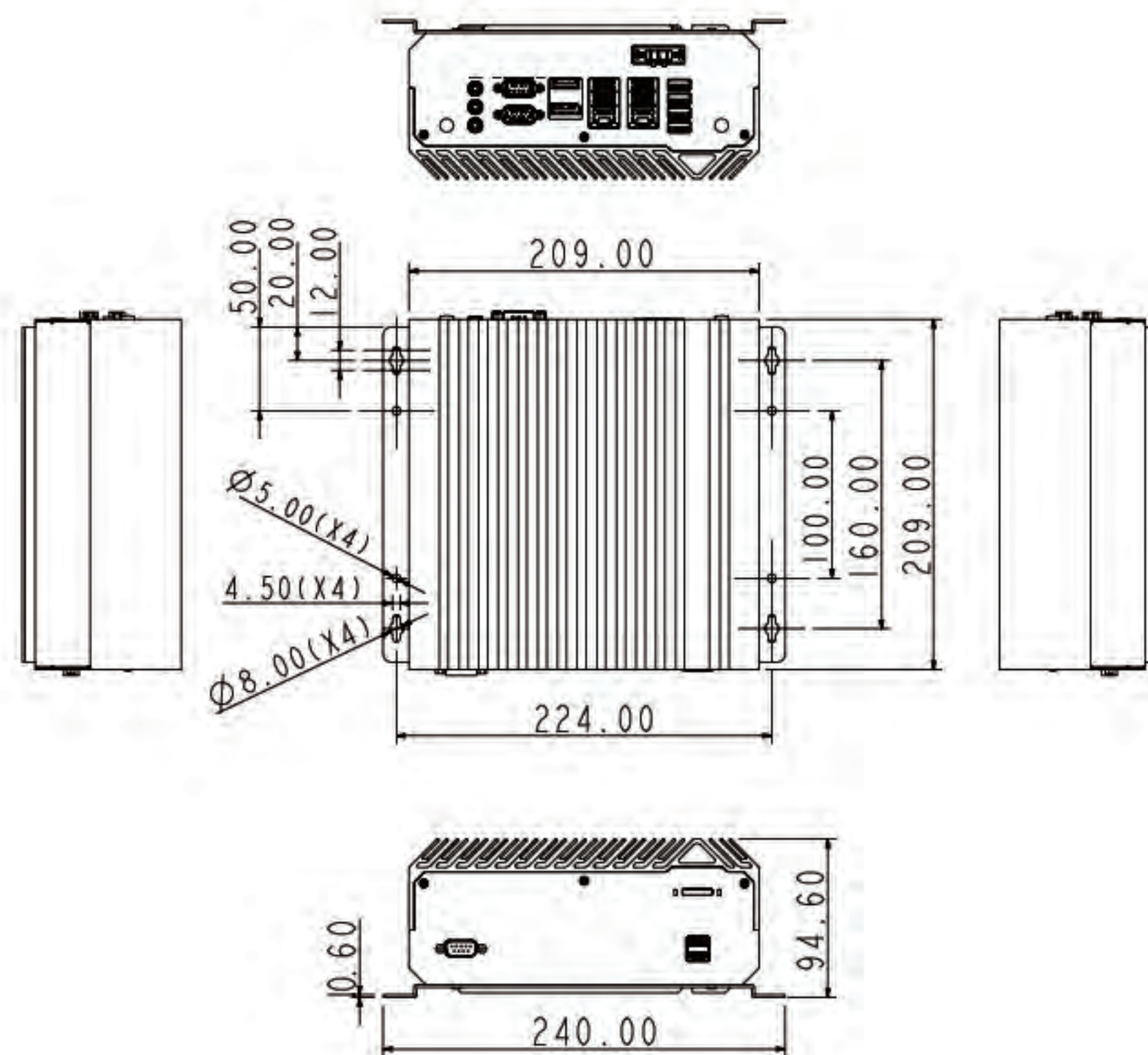
* The ID is for reference first and may subject to change based on final design.



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 3.0 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
Others	1 x USB3.0 typeA
POWER REQUIREMENT	
Power Input	1 x AT/ATX Jumper; 1 x Buzzer
Power Adaptor	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	0 ~ 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) 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	Power
E500-13CMI	H420E	1 / 1	5 / 6	2	1	1	1	1 / 1 / 1	12V DC-in

*Option: TPM, WIFI / BT

Packing List

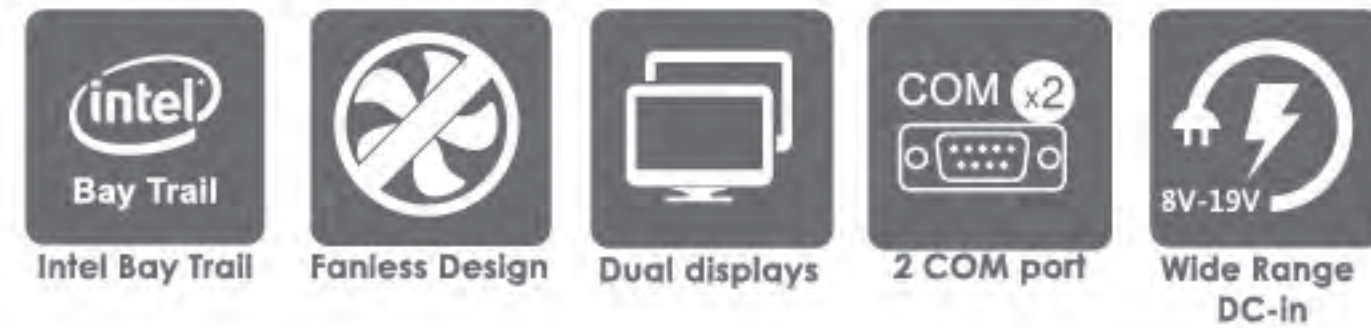
Packing		
• 1 x Embedded System	• 1 x 90W, 12V AC adaptor and US+ EU power cords	• 1 x CPU Heatspreader
• 1 x SATA Cable	• 1 x 3-pin terminal block to 6530 DC Jack cable	

E300

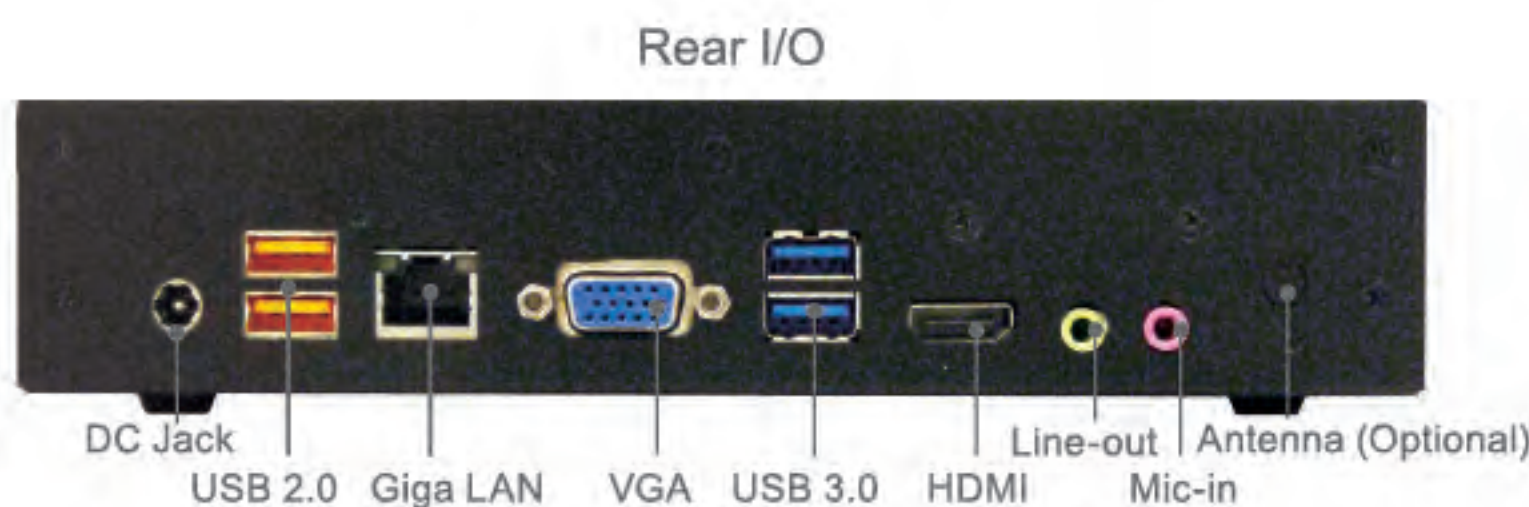
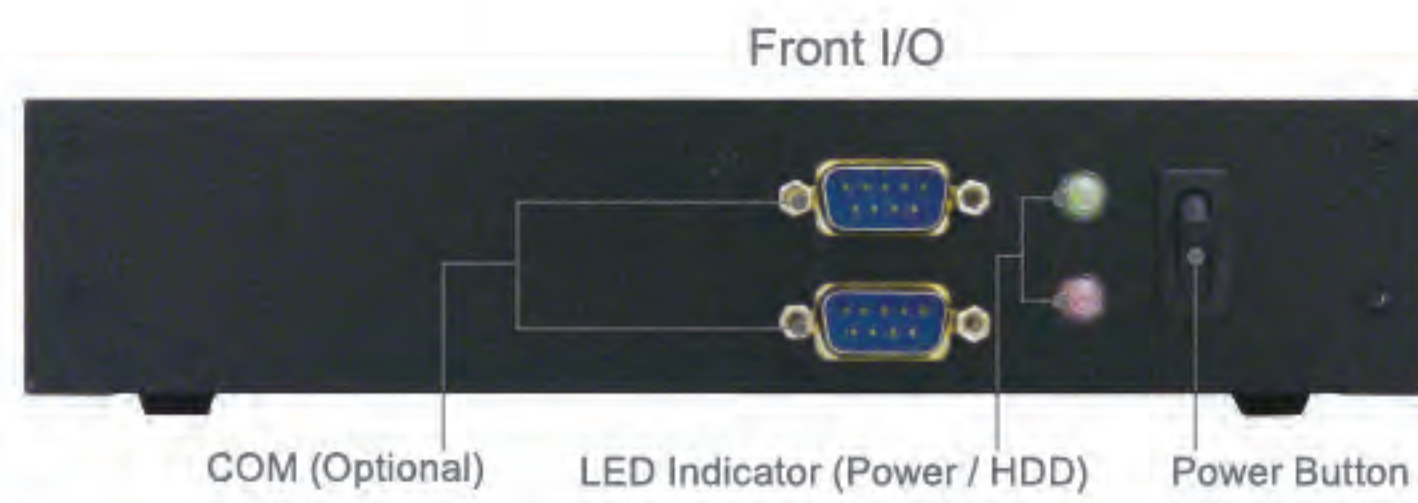
Fanless Embedded System
with Intel® Bay Trail Celeron J1900 Processor (up to 2.42GHz)

Introduction

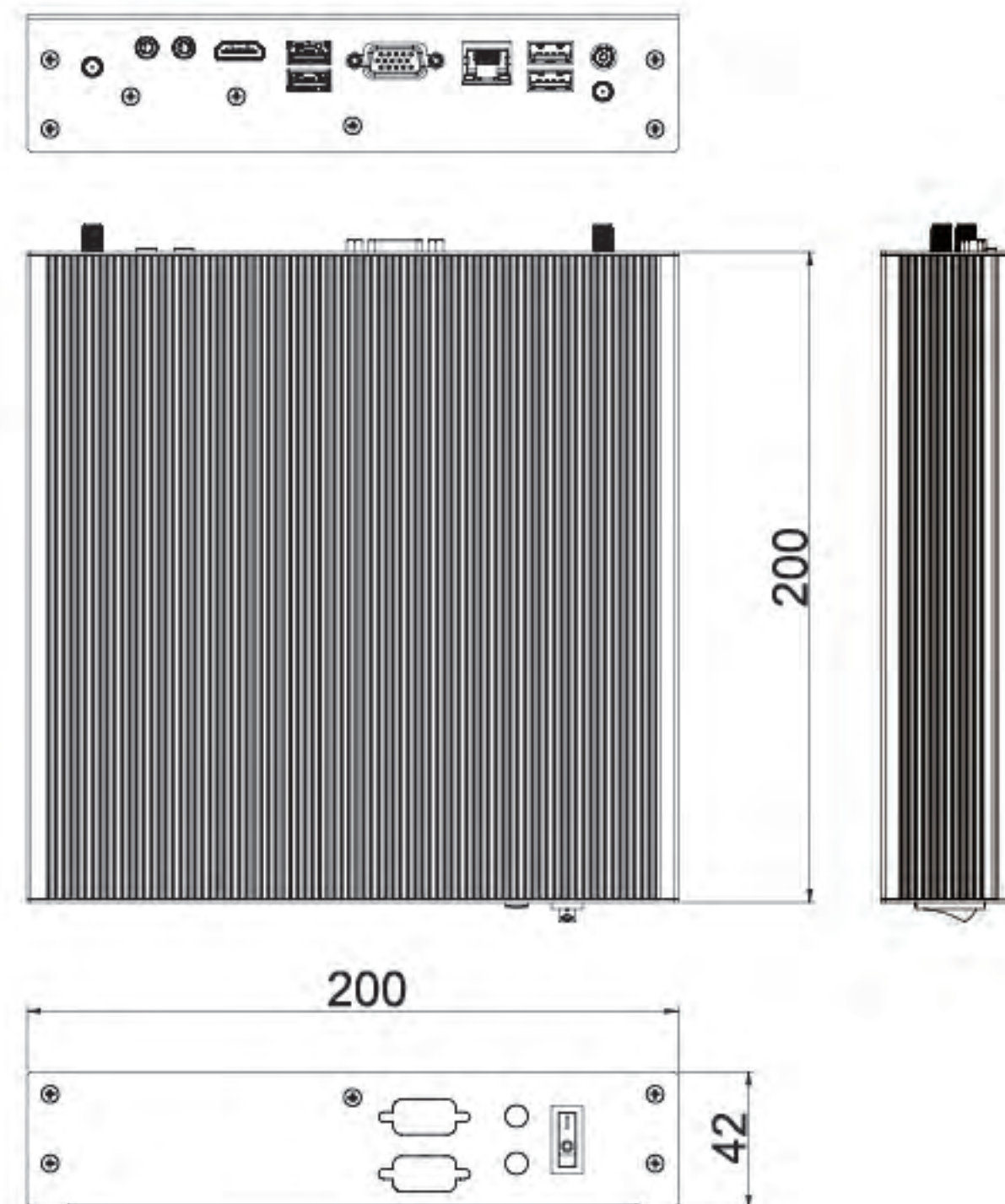
E300 is a fanless embedded system powered by the latest Intel® Bay Trail performance-enhanced processor. The whole system is less than 1.7 liter size but still with versatile I/O, HDD storage and Wall mounting capability, aiming to adapt it in different environments and wide applications.



I/O Interface



Dimension (mm)



E300 Fanless Embedded System

SYSTEM	
CPU	Intel® Bay Trail J1900 Processor (2M Cache, up to 2.42 GHz Quad Core)
Chipset	Intel® SoC Integrated
System Memory	DDR3L 1866, 2 x 204-pin SO-DIMM, Max. 8 GB (Non-ECC)
Graphics	Intel® HD Graphics
Display Interface	VGA, HDMI
Storage Slot	1 x 2.5 HDD / SSD (Default w/HDD Bracket, SATA, and SATA Power Cable in Accessories) 1 x mSATA
Ethernet	Realtek RTL8111G Giga LAN
Audio	Realtek ALC888S
I/O Chipset	Nuvoton NCT6683D
Expansion Slot	Storage: Mini PCIe Full / Half size (USB / PCIe / SATA) Wireless: Mini PCIe Half size (PCIe / USB)
Indicator	Power Button, Power LED, HDD LED
Front I/O	2 x RS232 (Optional) 1 x RJ-45 2 x USB 3.0 2 x USB 2.0
Rear I/O	1 x VGA 1 x HDMI 1.4 1 x Mic-in 1 x Line-out 1 x DC-in 2 x SMA Antenna (Optional for WiFi function)
POWER REQUIREMENT	
Power Input	8~19V Wide Rage DC-in Jack Connectivity
Power Adapter	AC to DC, DC19V / 3.4A, 65W adapter
MECHANICAL	
Thermal Design	Fanless
Mounting	VESA Mount Kit Support 75 x 75mm and 100 x 100mm (Optional)
Dimensions (W X D X H)	7.9" x 7.9" x 1.7" (200mm x 200mm x 42mm)
Material	Top cover: Aluminum Alloy , Bezel and chassis: Steel
ENVIRONMENTAL	
Operating Temperature	0~50°C (32~122°F)
Operating Humidity	10%~90% (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, Windows® 8.1, Windows® 7, Linux (Support by request)

*Motherboard Optional for PD10AI, PD11TI, PD10RI

Ordering Information

Model Number	Processor	VGA	HDMI	Mic-in / Line-out	USB 3.0 / 2.0	LAN	mSATA / mPCIe	SATA	Power
*E300-10BI-J1900	J1900	1	1	1 / 1	2 / 2	1	1 / 1	1	8~19V DC Jack

*Option: TPM, WIFI / BT
*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 Power Adapter (19V, 65W, DC Jack Type)	• 1 x 18 cm SATA Power Cable
• 1 x 18 cm SATA Cable	• 1 x Quick Installation Guide	• 1 x US + EU Power Cord

E400

Fanless Embedded System
with Intel® Bay Trail Celeron J1900 Processor (up to 2.42GHz)

Introduction

E400 is a fanless embedded system, powered by the latest Intel® Bay Trail performance-enhanced processor. The whole system is 2.8 liter size and with dual GLAN to provide more stable internet environments. Versatile optional I/O can also satisfy the various embedded applications.



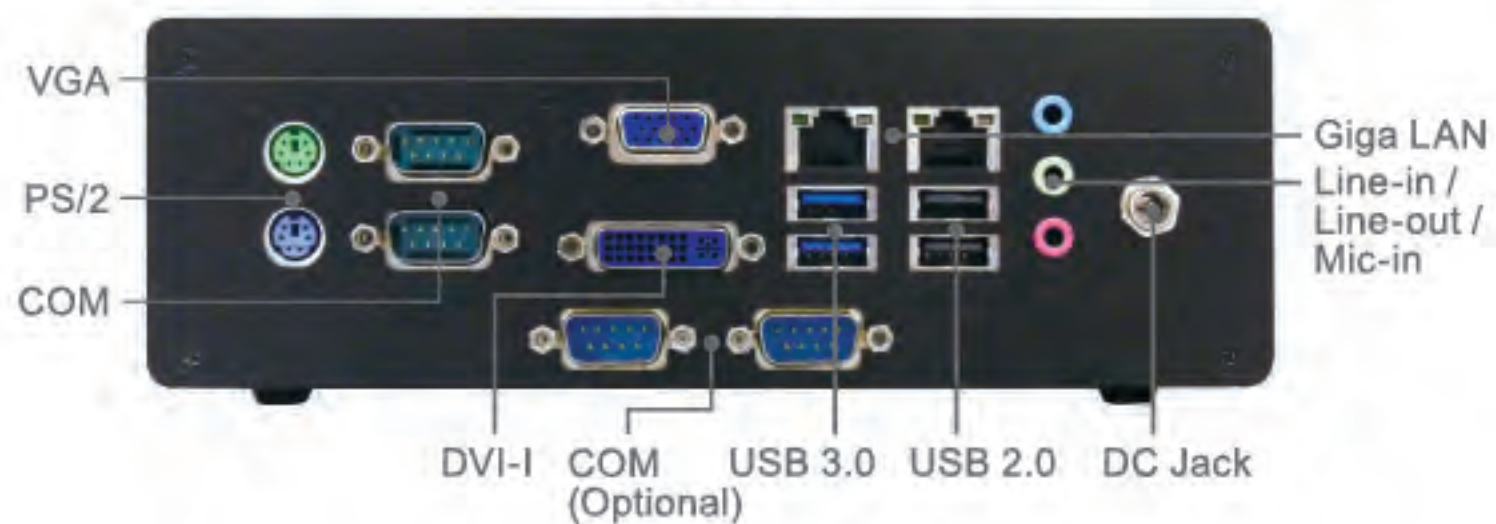
I/O Interface

Front I/O

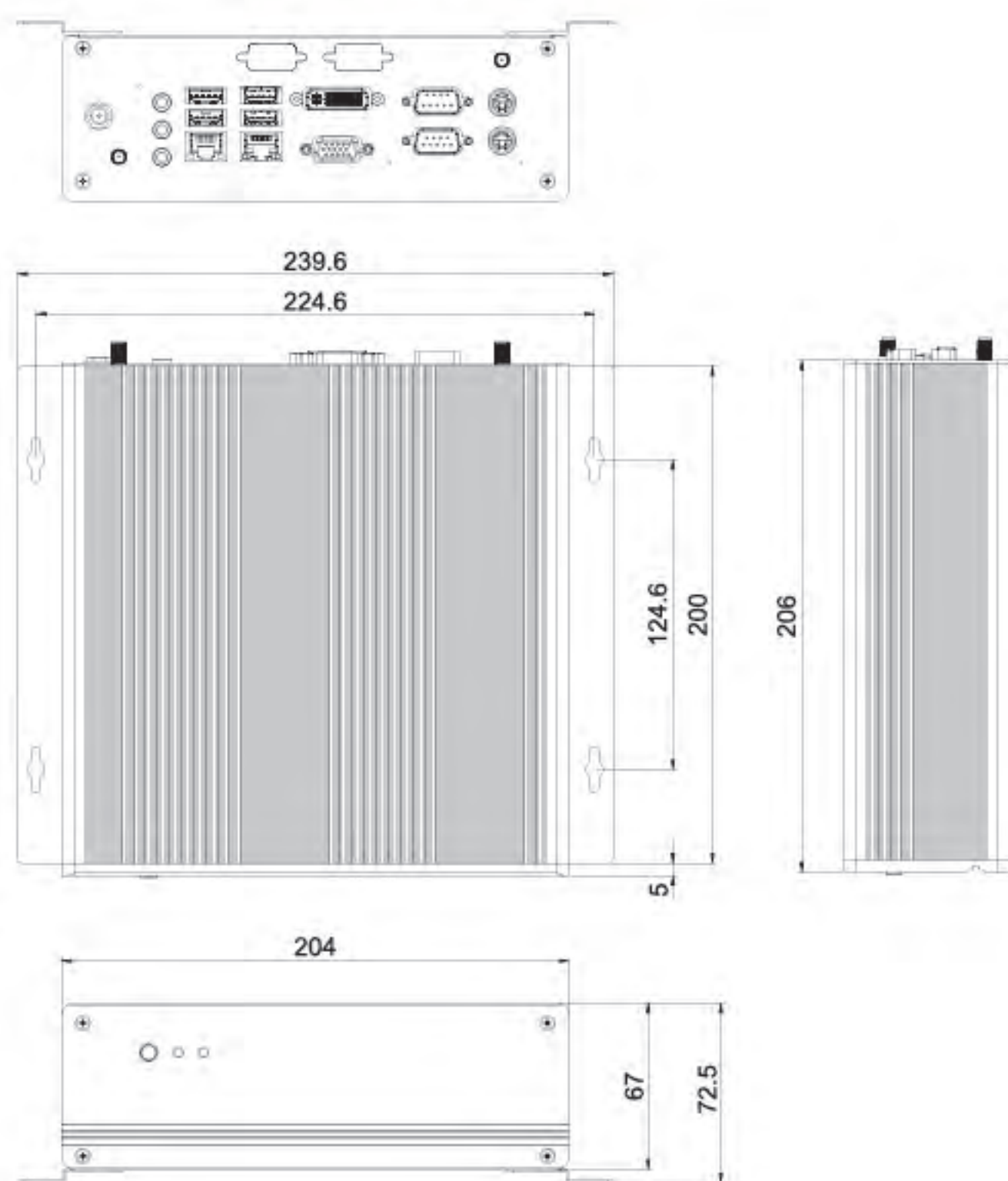


Power Button LED Indicator (Power / HDD)

Rear I/O



Dimension (mm)



E400 Fanless Embedded System

SYSTEM	
CPU	Intel® Bay Trail J1900 Processor (2M Cache, up to 2.42 GHz Quad Core)
Chipset	Intel® SoC Integrated
System Memory	DDR3L 1866, 2 x 204-pin SO-DIMM, Max. 8 GB (Non-ECC)
Graphics	Intel® HD Graphics
Display Interface	VGA, DVI-I
Storage Slot	1 x 2.5 HDD / SSD (Default w/HDD Bracket, SATA, and SATA Power Cable in Accessories)
Ethernet	2 x Realtek RTL8111G Giga LAN
Audio	Realtek ALC888
I/O Chipset	Nuvoton NCT6104D
Expansion Slot	Wireless: Mini PCIe Full / Half size (PCIe / USB)
Indicator	Power Button, Power LED, HDD LED
Front I/O	-
Rear I/O	2 x PS/2 2 x RS232 2 x RS232 (Optional) 1 x VGA 1 x DVI-I 2 x RJ-45 2 x USB 3.0 2 x USB 2.0 1 x Line-in 1 x Line-out 1 x Mic-in 1 x DC-in Jack 2 x SMA Antenna (Optional for WiFi function)
POWER REQUIREMENT	
Power Input	12V DC-in Jack Connectivity
Power Adapter	AC to DC, DC12V / 5.4A, 65W adapter
MECHANICAL	
Thermal Design	Fanless
Mounting	VESA Mount Kit Support 75 x 75mm and 100 x 100mm (Optional)
Dimensions (W X D X H)	8.0" x 8.1" x 2.6" (204mm x 206mm x 67mm)
Material	Top cover: Aluminum Alloy , Bezel and chassis: Steel
ENVIRONMENTAL	
Operating Temperature	0~50°C (32~122°F)
Operating Humidity	10%~90% (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, Windows® 8.1, Windows® 7, Linux (Support by request)

Ordering Information

*Option: TPM, WIFI / BT

Model Number	Processor	VGA	DVI-I	Mic-in / Line-in / Line-out	PS / 2	USB 3.0 / 2.0	LAN	Serial Port	mPCIe	SATA	Power
*E400-11BI-J1900	J1900	1	1	1 / 1 / 1	2	2 / 2	2	2	1	1	12V DC Jack

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

Packing List

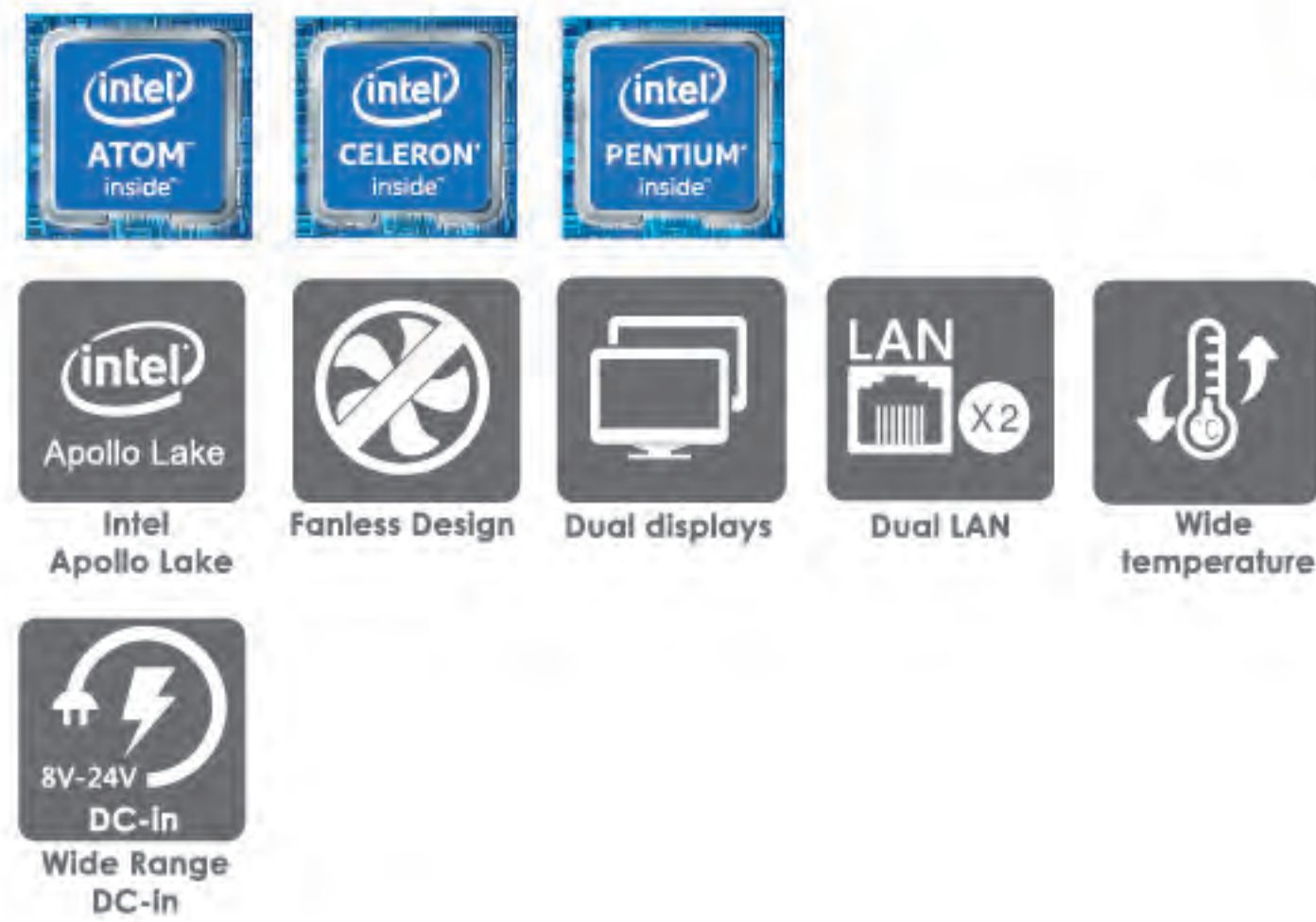
Packing		
• 1 x 18 cm SATA Cable	• 1 x Power Adapter (12V, 65W, DC Jack Type)	• 1 x 18 cm SATA Power Cable
• 1 x US + EU Power Cord	• 1 x Quick Installation Guide	• 1 x Embedded System

S300-10AS

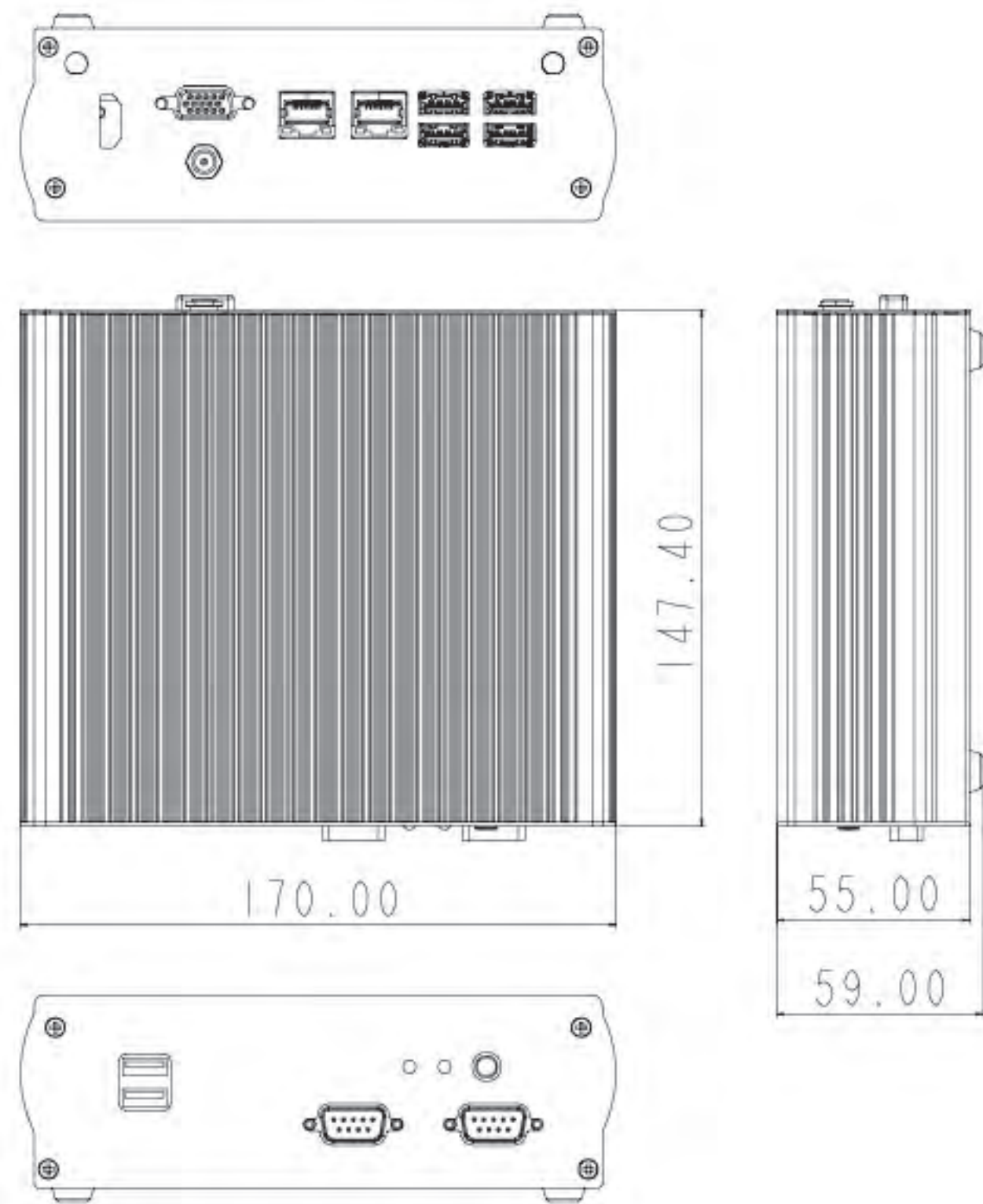
Fanless Embedded System with Intel® Apollo Lake-I/M Processor (up to 2.5GHz)

Introduction

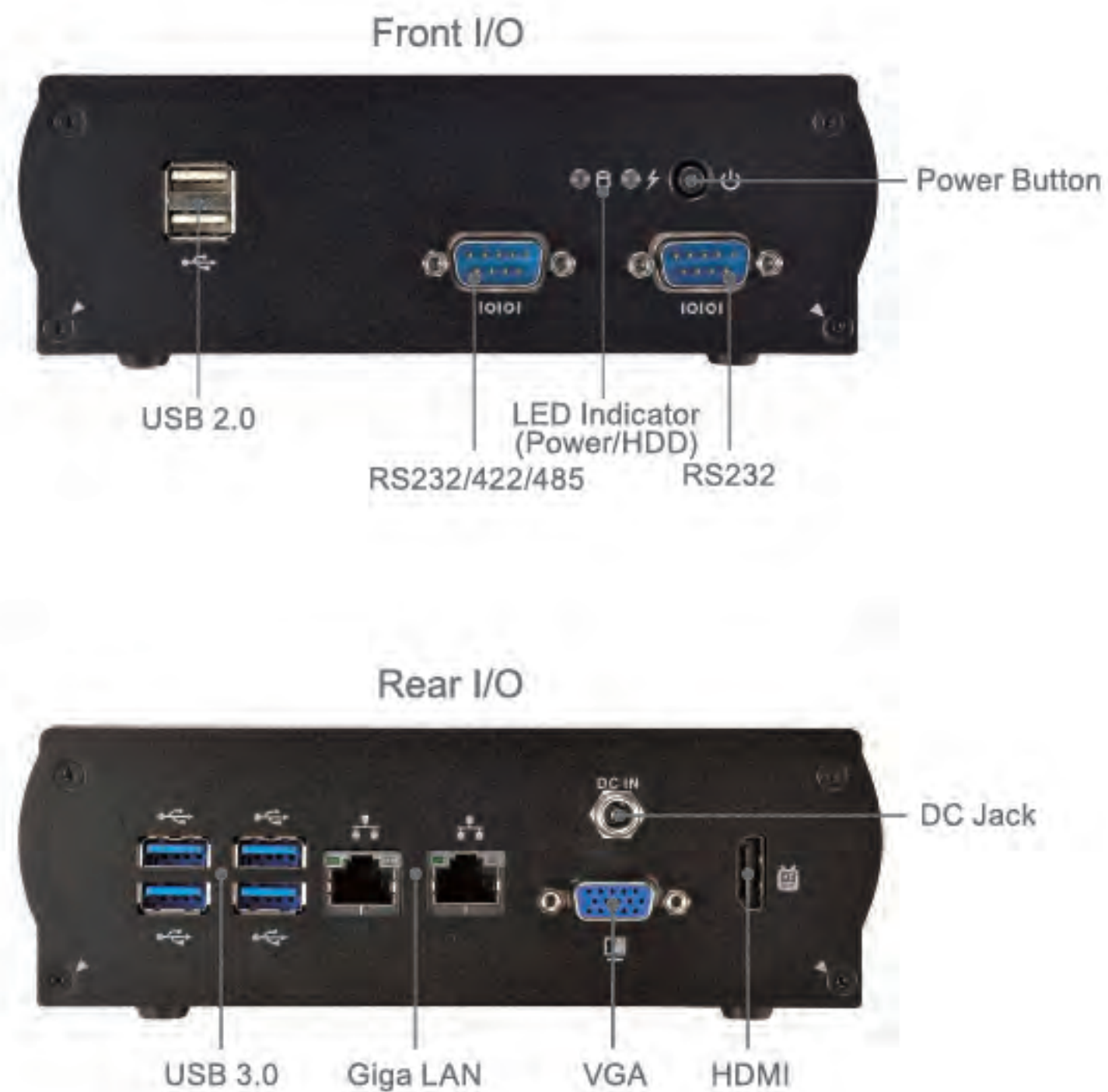
S300 is a fanless embedded system, powered by the latest Intel Apollo Lake performance-enhanced processor. The whole system is less than 1.4 liter size but still with versatile I/O aiming to adapt it in different environments and wide applications.



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

Rockmount

S310-11KS

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

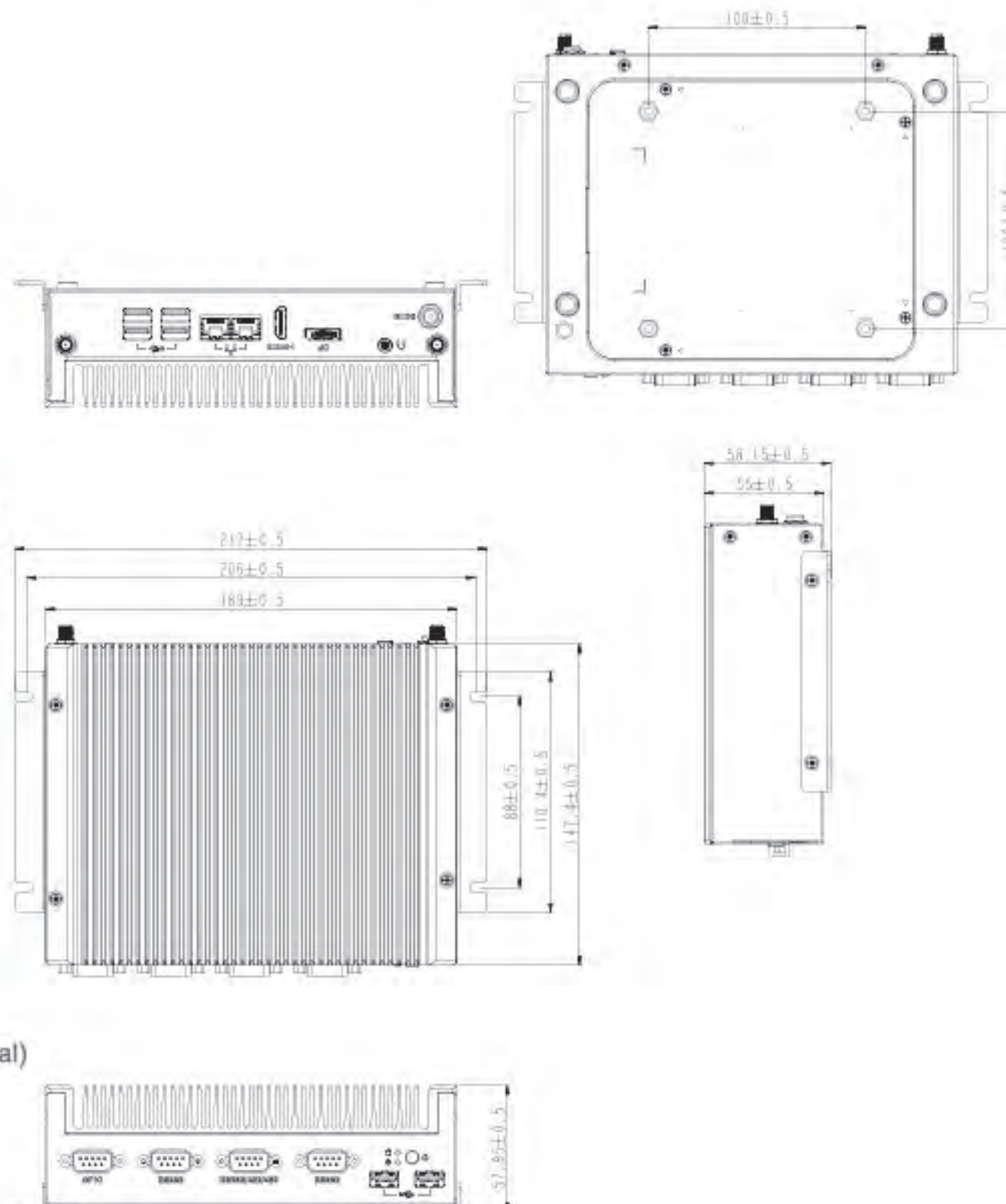
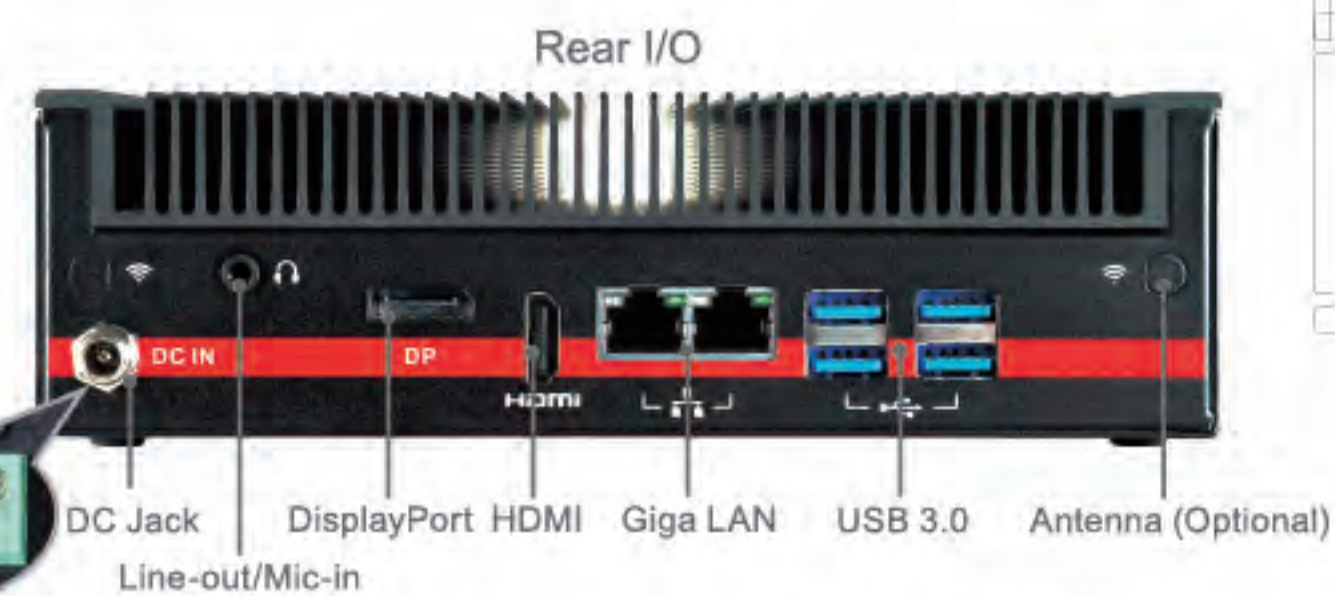
Introduction

- 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 1 x Audio Combo Jack (Mic-in & Line-out) 1 x DisplayPort 1.2
Rear I/O	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 Embedded System
• 1 x 11 cm SATA Cable	• 1 x Power Adapter (19V, 65W, DC Jack Type)	• 1 x US + EU Power Cord
• 1 x 25 cm SATA Power Cable		

E500-14FEI

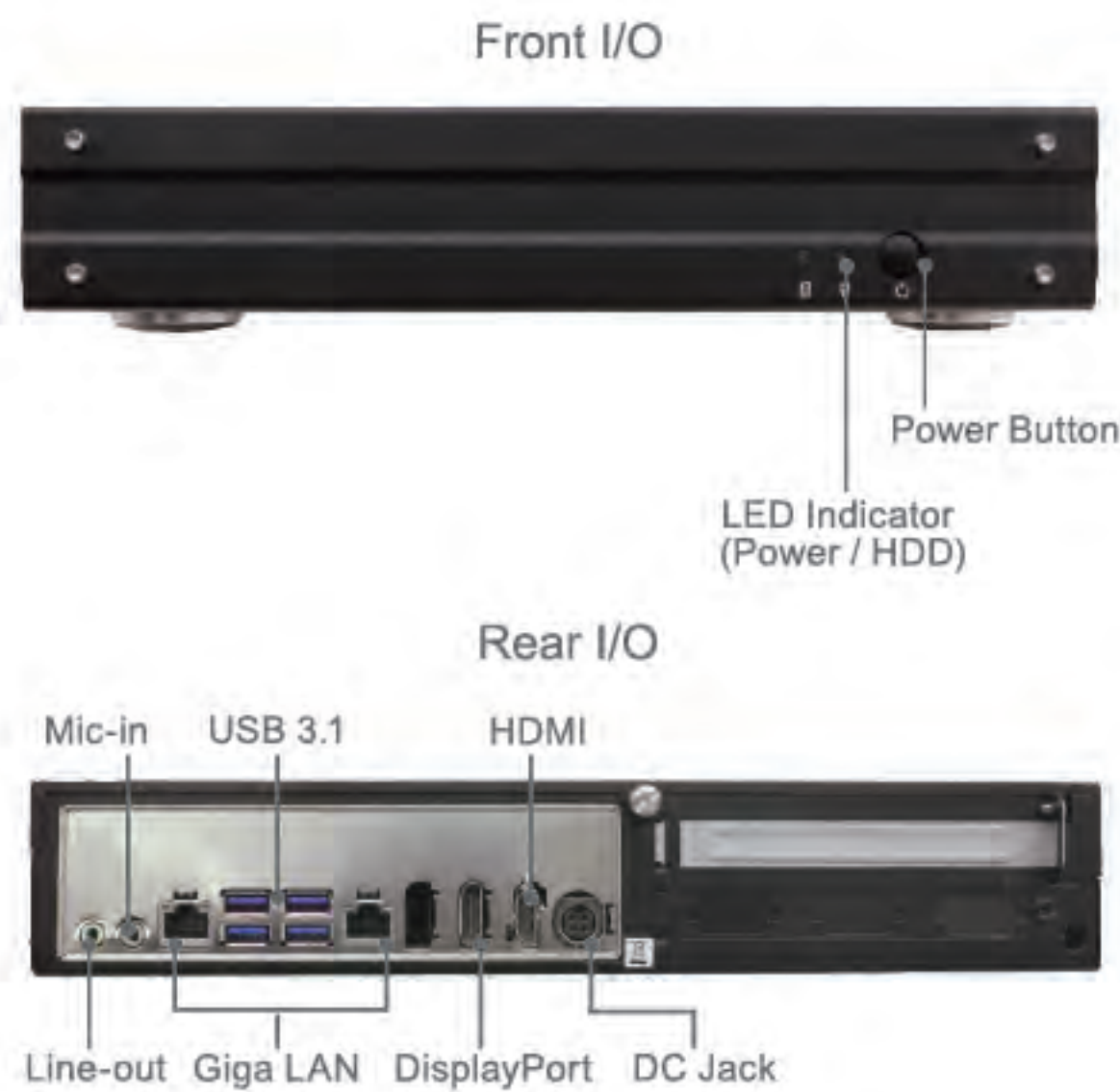
Embedded System
with Intel® Coffee Lake Core-i Powerful Processor
& reserve versatile I/O card space

Introduction

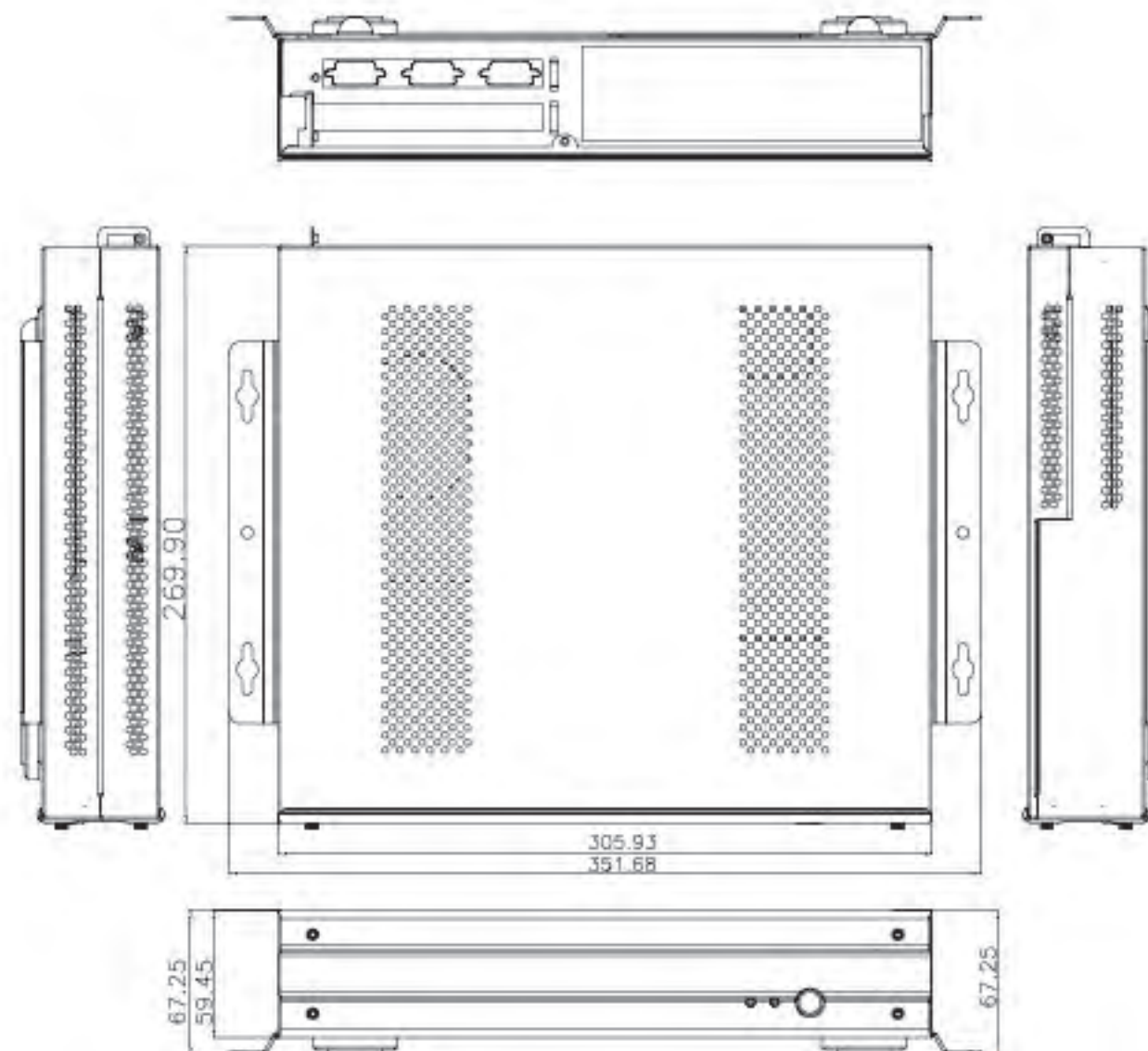
E500 is a embedded system, powered by the 8th & 9th Intel® core i Coffee Lake processor. The whole system is compact size and with dual LAN to provide more stable internet environments. Reserve versatile I/O card space can also satisfy the various embedded applications.



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

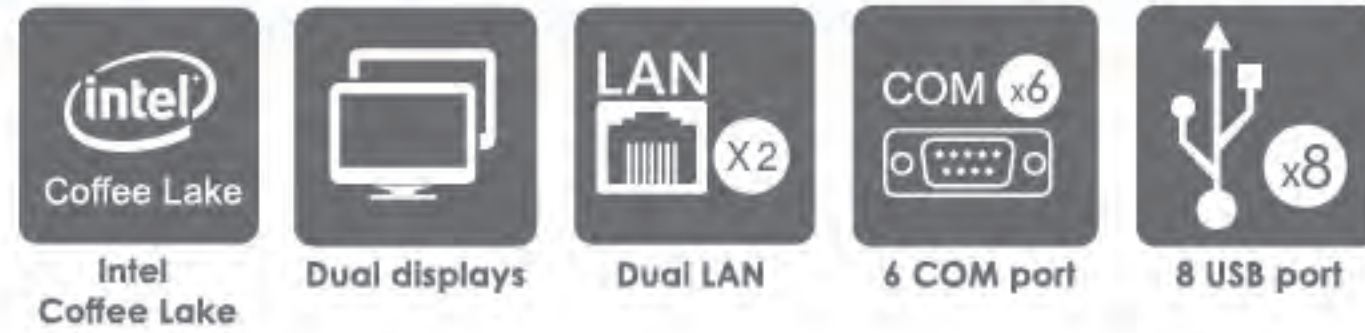
Rockmount

E600-13FEI

Embedded System
with Intel® Coffee Lake Core Processor

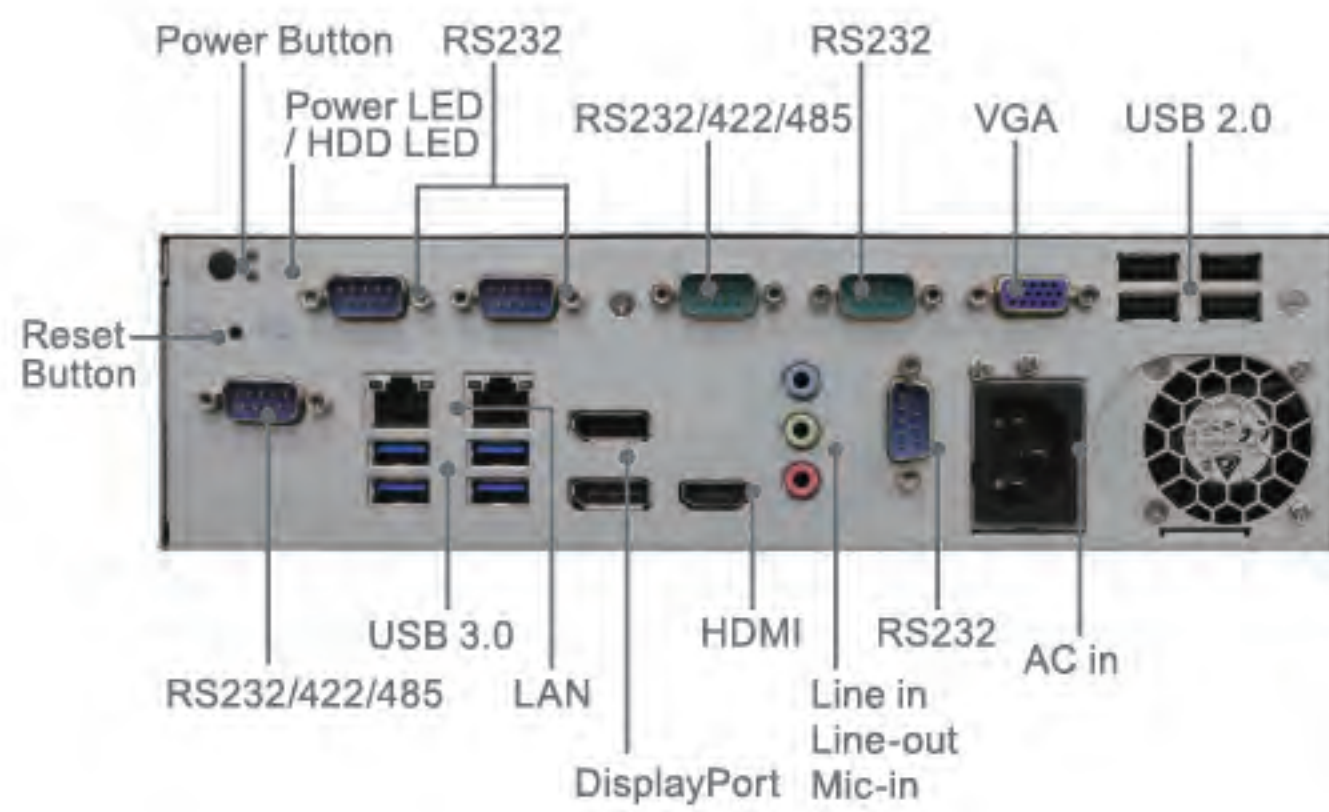
Introduction

- 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

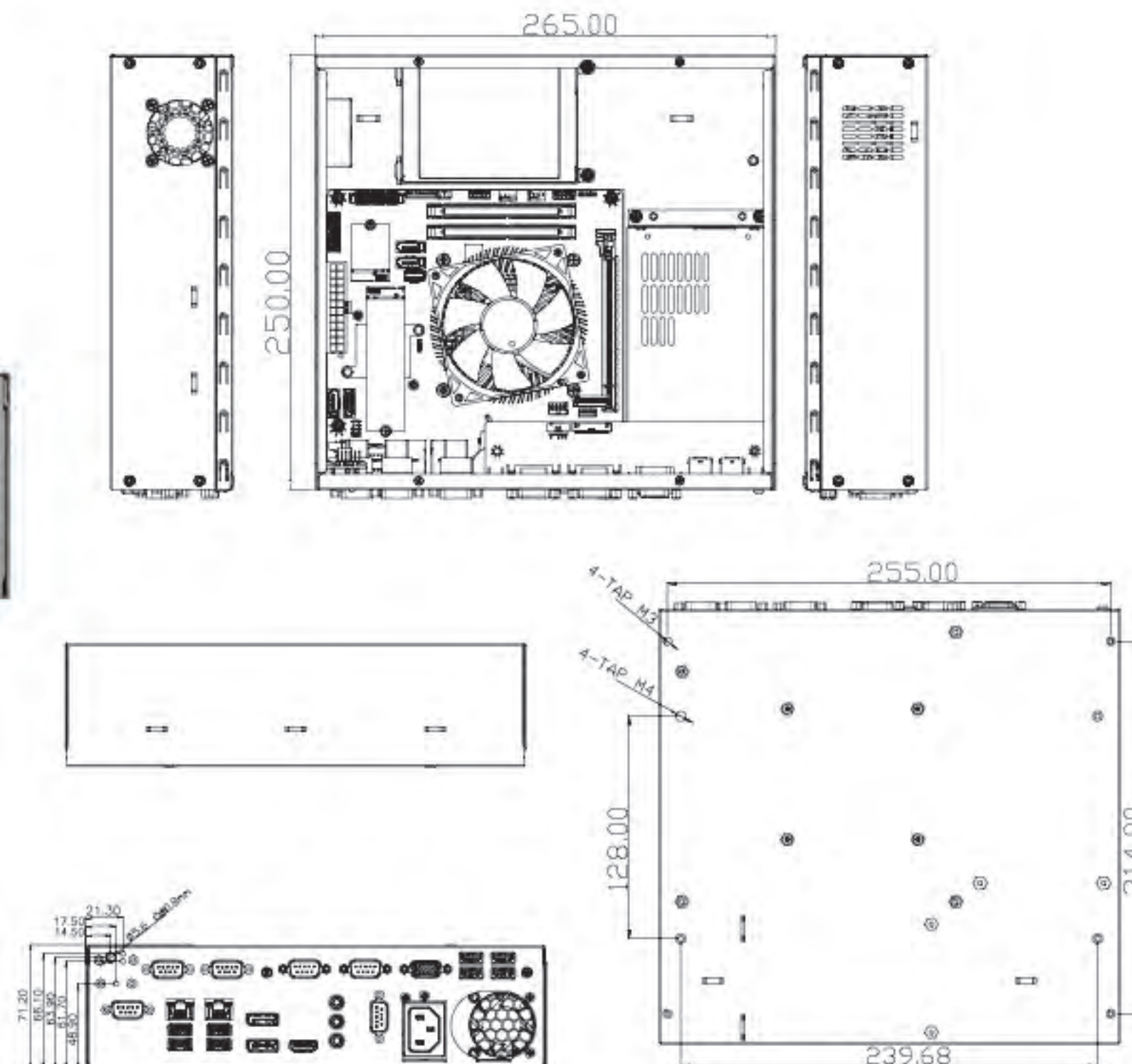


I/O Interface

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	-
	1 x VGA
	1 x HDMI 1.4
	2 x DisplayPort 1.2
	4 x USB 3.0
	4 x USB2.0
Rear I/O	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

NV1

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

Introduction

- Intel® Tiger Lake-UP3 Core i7/i5/i3/Celeron ULV processors
- 64-CH H.265/H.264 decoding ability & simultaneous playback
- 10-CH AI video analytics (7.1 TOPS)
- Equipped 0/8/16 802.3 at/af PoE ports
- Dual 4K display for clear monitoring
- Support x2 HDD RAID 0/1 storage



intel. CORE i3

intel. CORE i5

intel. CORE i7

intel. CELERON

intel. IRIS Xe GRAPHICS

intel. Tiger Lake

LAN X2

4K

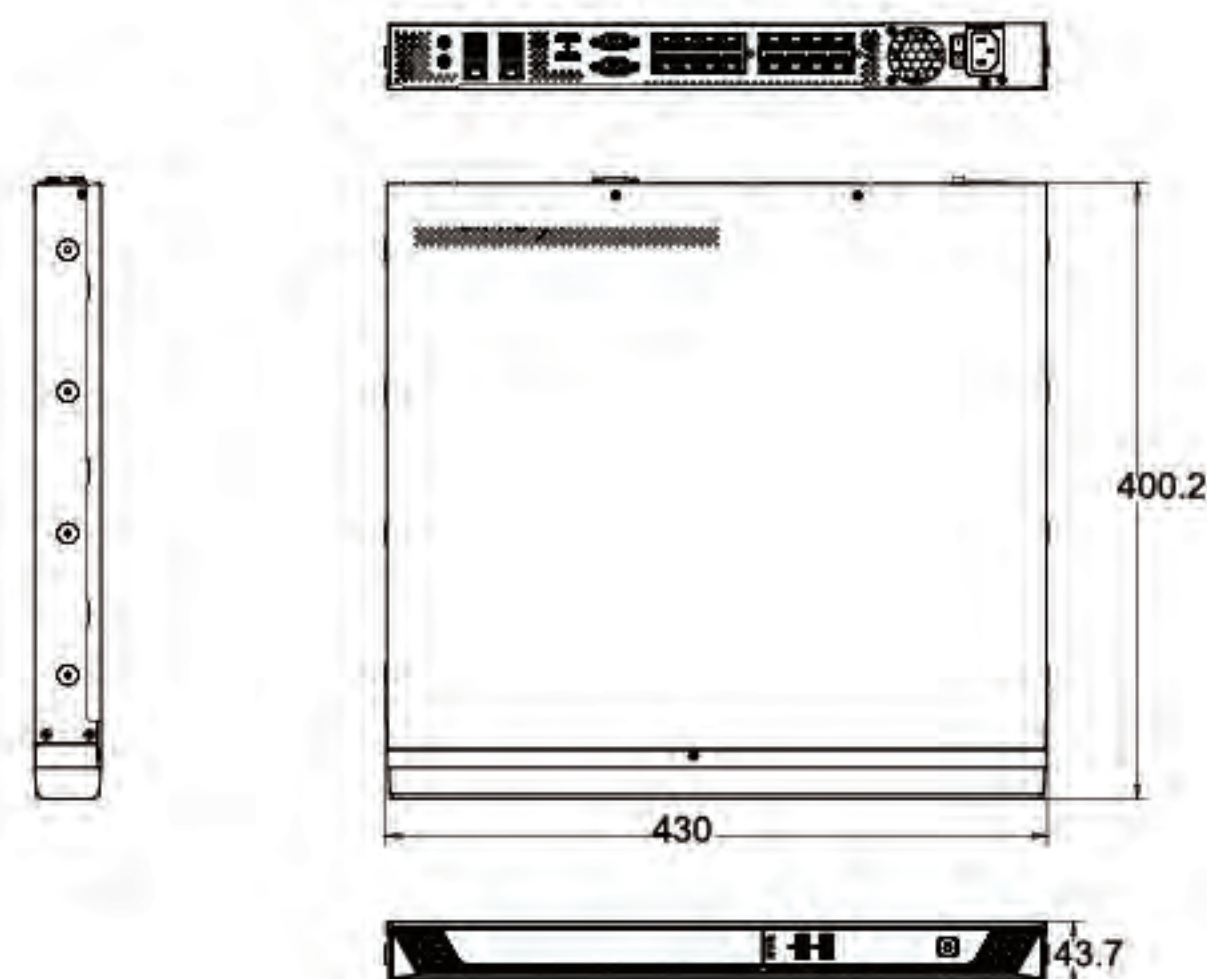
PoE X16

Video Analytics (7.1 TOPS)

I/O Interface



Dimension (mm)



NV1 NVR System

SYSTEM	
CPU	11st 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	Intel® Iris Xe Graphics Video Decoding (1080P, H.264/H.265): up to 64 Channels Video Recording (1080P, H.264/H.265): up to 64 Channels Video Playpack (1080P): up to 64 Channels Video Analytics/Deep learning (1080p): 6-10 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	11 x Intel® I225-LM 2.5GbE LAN, 1 x Intel® I219-LM Giga LAN
Audio	Realtek® ALC888S
I/O Chipset	Nuvoton NCT6126D
TPM	Nuvoton NPCT750AABYX TPM2.0
Expansion Slot	1 x M.2 2242/2260/2280 M-key slot (PCIe x1, SATA) 1 x MiniPCIe full/half size slot (PCIe x1, SATA, USB)
Internal Speaker	1 x Buzzer
Indicator	1 x Power button / 1 x Power LED / 1 x HDD Activity LED / 1 x Alarm LED
Front I/O	2 x USB 2.0 4 x USB 3.2 Gen 2
Rear I/O	2 x HDMI 1.4 1 x Line-in 1 x Line-out 2 x RJ-45 1 x RS232 port 1 x RS485 port
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)	1X Movidius Myriad X VPU, and Intel® OpenVINO™ 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 64bit, Linux (support by request)

Ordering Information

Model Number	Processor	PoE	HDD	Power	Model Number	Processor	PoE	HDD	Power
NV1-6305E-0P	Celeron 6305E	0	2	100~240V AC-in	NV1-1115G4E-16P	i3-1115G4E	16	2	100~240V AC-in
NV1-6305E-16P	Celeron 6305E	16	2	100~240V AC-in	NV1-1145G7E-0P	i5-1145G7E	0	2	100~240V AC-in
NV1-1115G4E-0P	i3-1115G4E	0	2	100~240V AC-in	NV1-1145G7E-16P	i5-1145G7E	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.



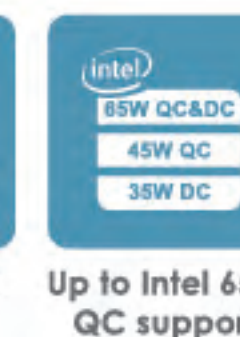
Panel Mount	P Series	
P100-10AS	10" / 16:10	P122
P150-11KS	15" / 4:3	P124
P150-10AI	15" / 4:3	P126
P156-11KS	15.6" / 16:9	P128
P156-10AI	15.6" / 16:9	P130
P210-11KS	21.5" / 16:9	P132
P210-10AI	21.5" / 16:9	P134

VESA Mount	D Series	
D150-S	15" / 4:3	P136
D150-B	15" / 4:3	P138
D151-11KS	15.6" / 16:9	P140
D210-11KS	21.5" / 16:9	P142
D210-10RI	21.5" / 16:9	P144

Commercial Panel PC

M Series

Elegant all-in-one PC design powered by standard Thin Mini-ITX and latest Intel Core i platform with best computing & delicate graphic performance.



Standalone	M Series	
M6070	21.5" / 16:9	P146
M4070	21.5" / 16:9	P148
M4080	23.6" / 16:9	P150
M860	21.5" / 16:9	P152
M850	21.5" / 16:9	P154



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 P122

▪ P150-11KS P124
▪ P150-10AI P126

▪ P156-11KS P128
▪ P156-10AI P130

▪ P210-11KS P132
▪ P210-10AI P134

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

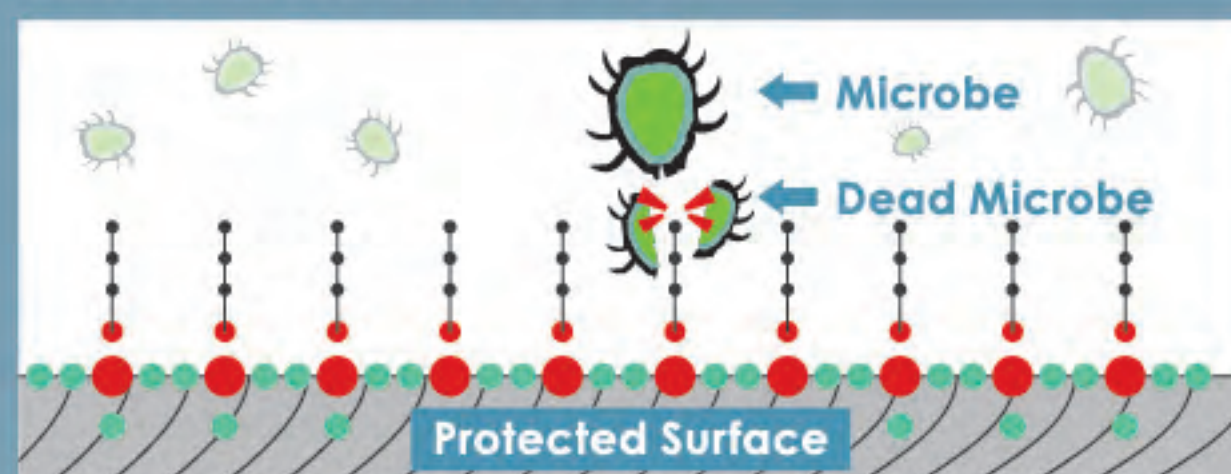


Non-Toxic excellent biocompatibility

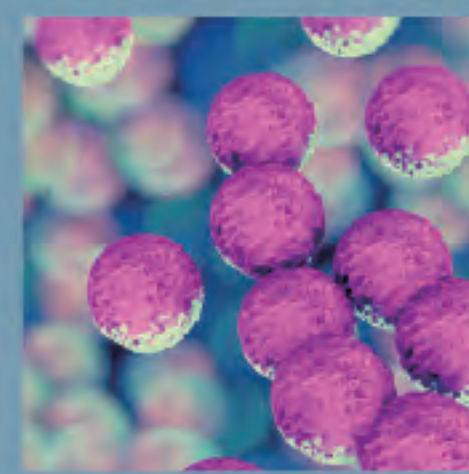


Stable mass production capability

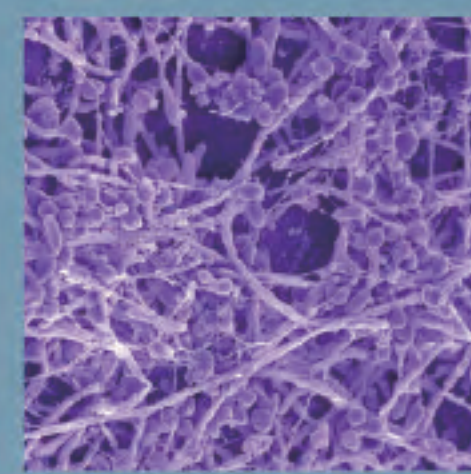
Anti bacterial and sterilization:



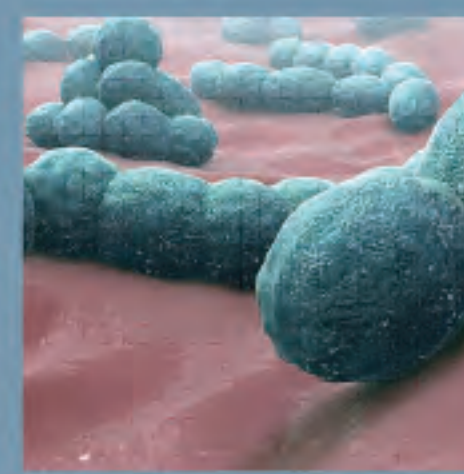
Bacterial resistance as below:



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%

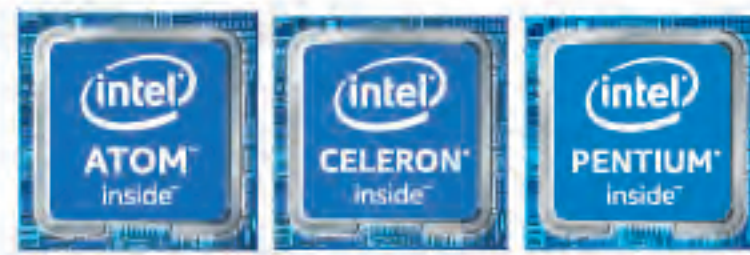


P100-10AS

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

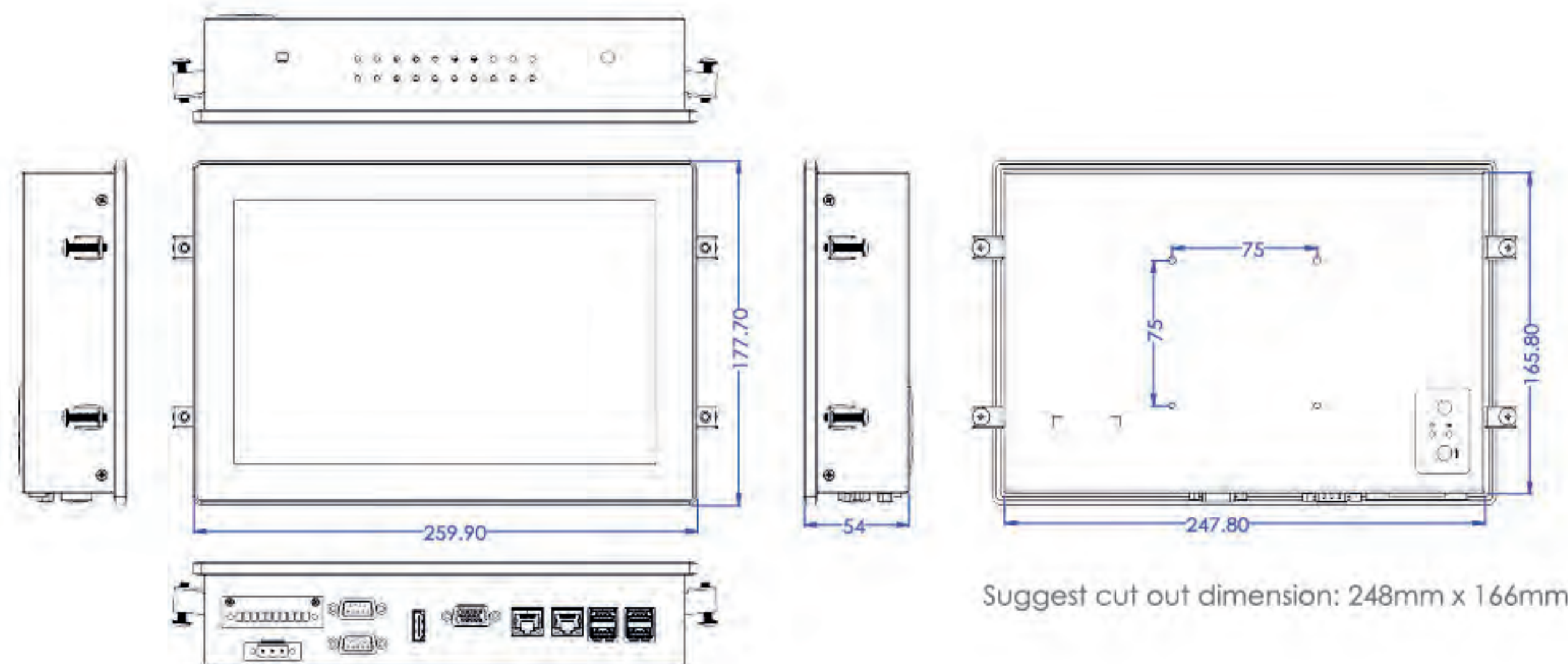


I/O Interface



- 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)



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 1 x HDMI 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 mPCIe Full size (USB / PCIe / SATA)
Stereo Speaker	-
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

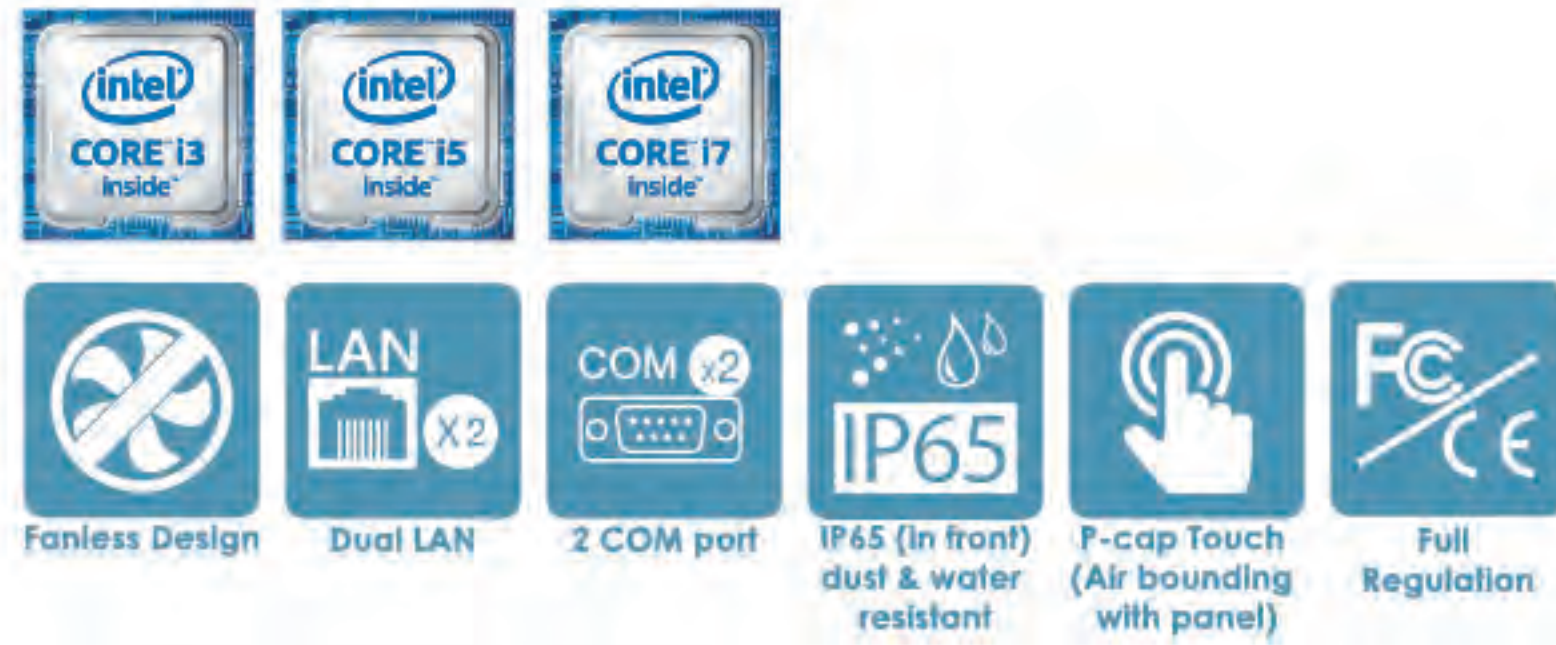
Packing		
1 x Panel PC	1 x Power Adapter (19V, 65W, DC Jack Type)	1 x Quick Installation Guide
1 x Screws kit	1 x 10 pin Terminal Male Connector	1 x Mounting kit
US + EU Power Cord	1 x 3 pin Terminal Block Power Connector	

P150-11KS

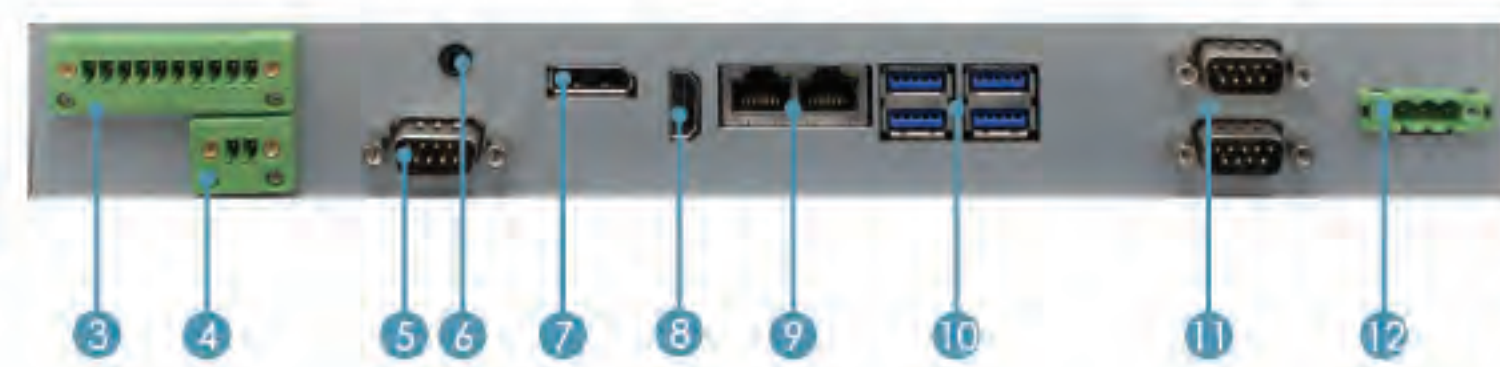
15" Panel PC / Intel® Kaby Lake Processor

Feature

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

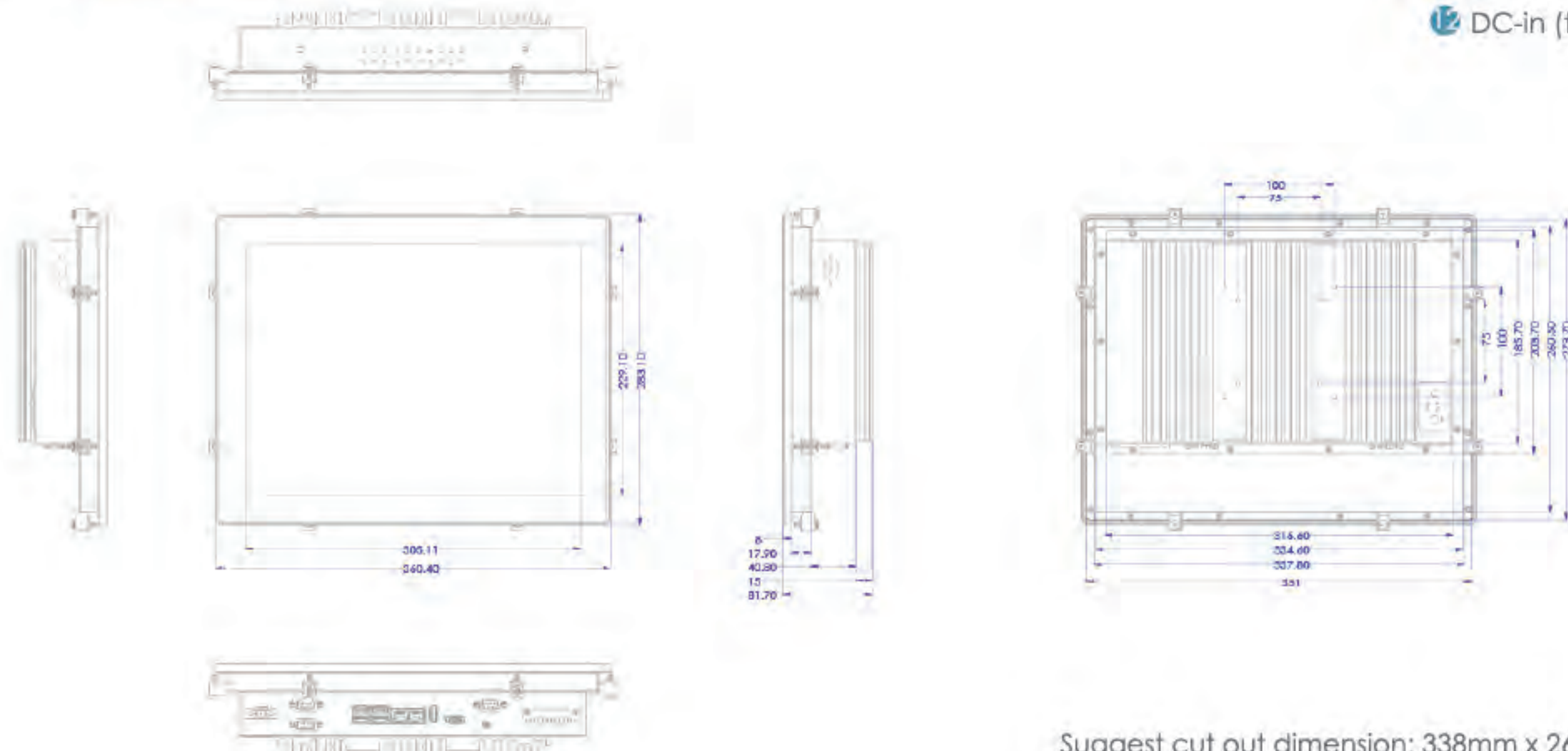


I/O Interface



- 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

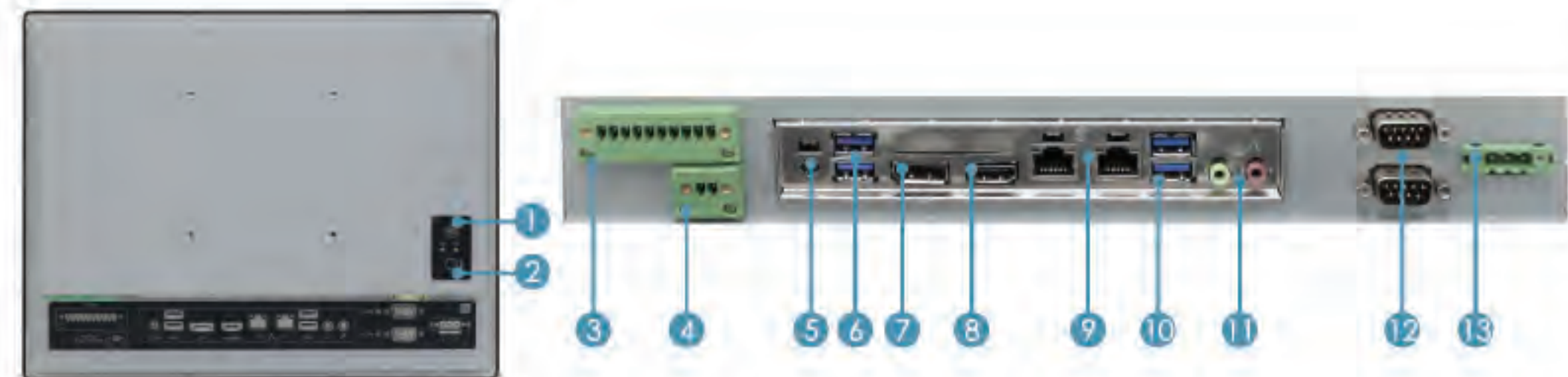
15" Panel PC / Intel® Apollo Lake Celeron Processor

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

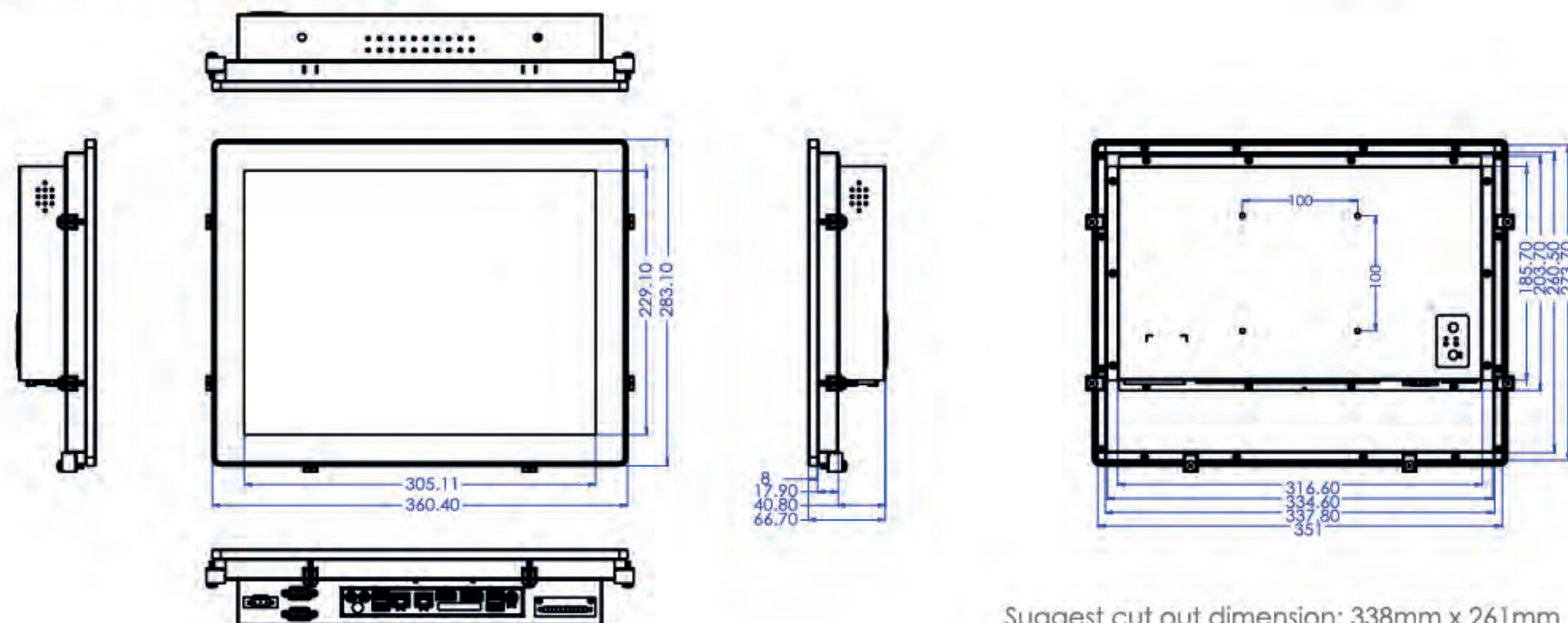


I/O Interface



- 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

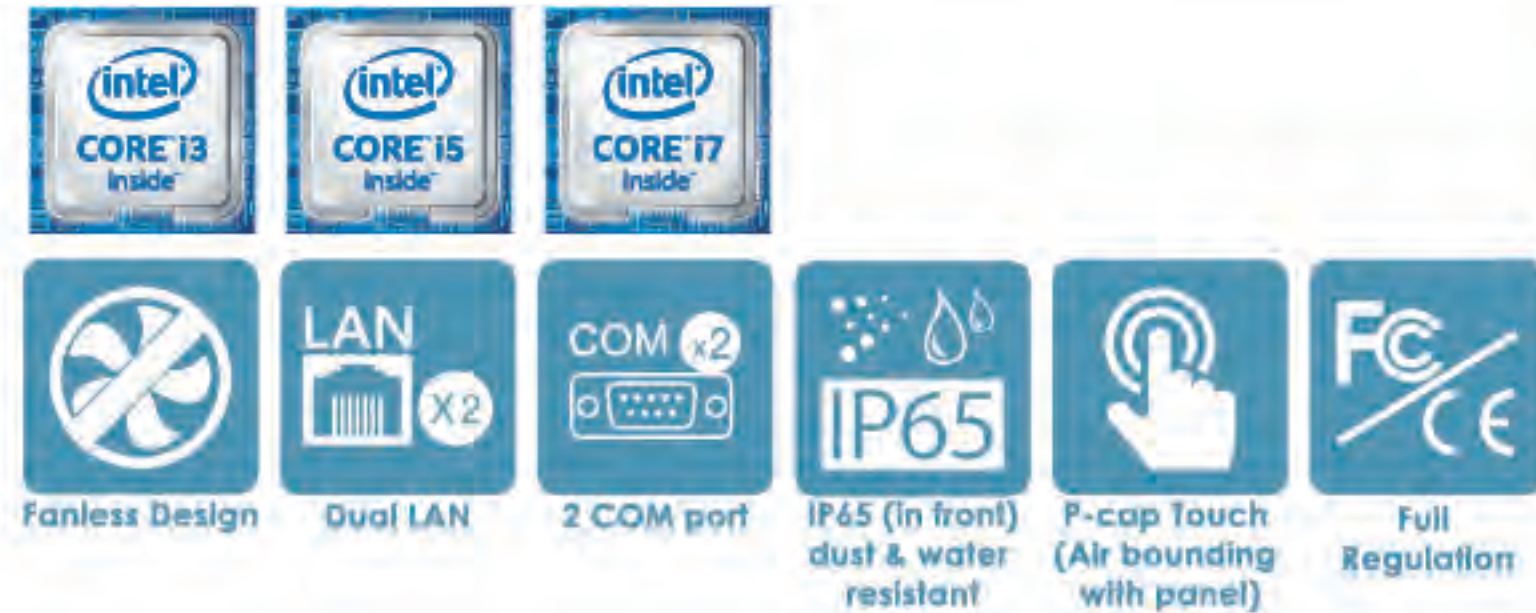
Packing			
• 1 x Panel PC	• 1 x Mounting Kit	• 1 x US + EU Poower Cord	• 1 x Power Adapter (19V, 65W, DC Jack Type)
• 1 x Screws kit	• 1 x 10 pin Terminal Male Connector	• 1 x Quick Installation Guide	• 1 x 3 pin Terminal Block Power Connector

P156-11KS

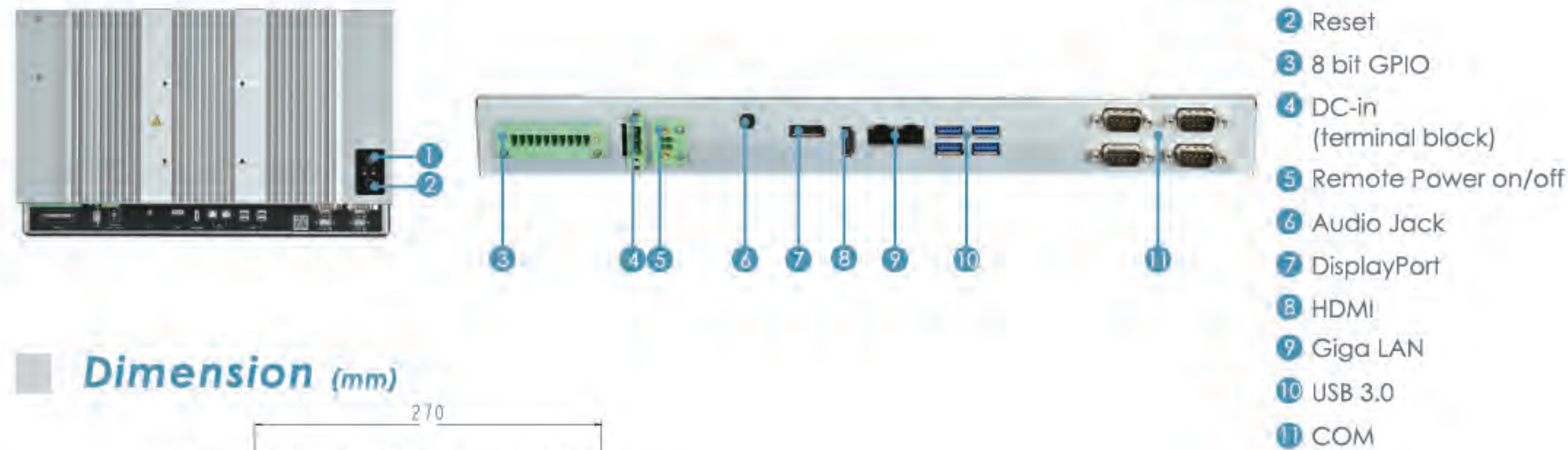
15.6" Panel PC / Intel® Kaby Lake Processor

Feature

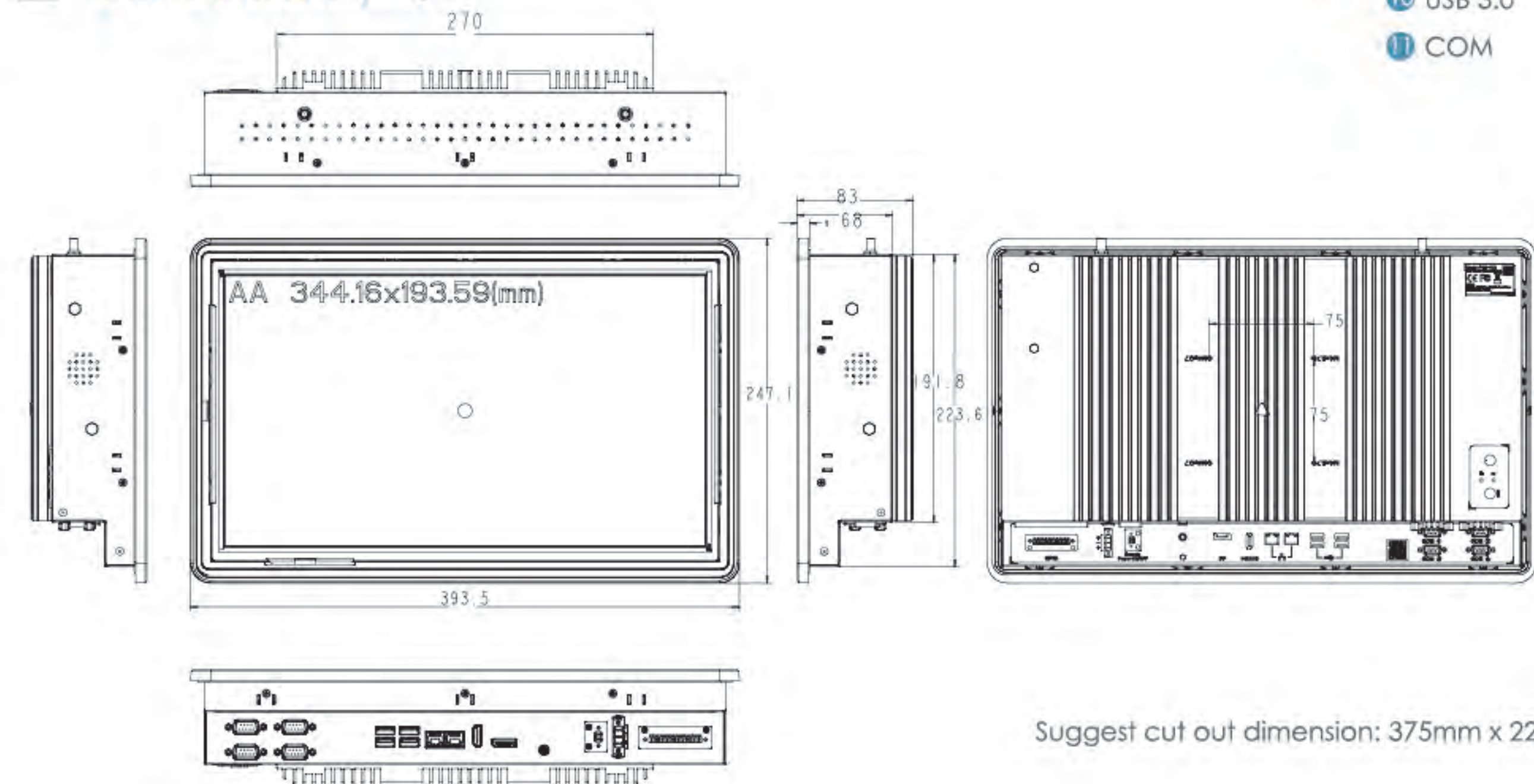
- 15.6" TFT LCD with 50,000 hrs backlight lifetime
- Inside Intel® 7th & 6th Gen Core i Processor



I/O Interface



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
Stereo Speaker	1 x Mini PCIe Full size
Os Support	1 x M.2 2230 E key
	2 x 2W
	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 Power 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

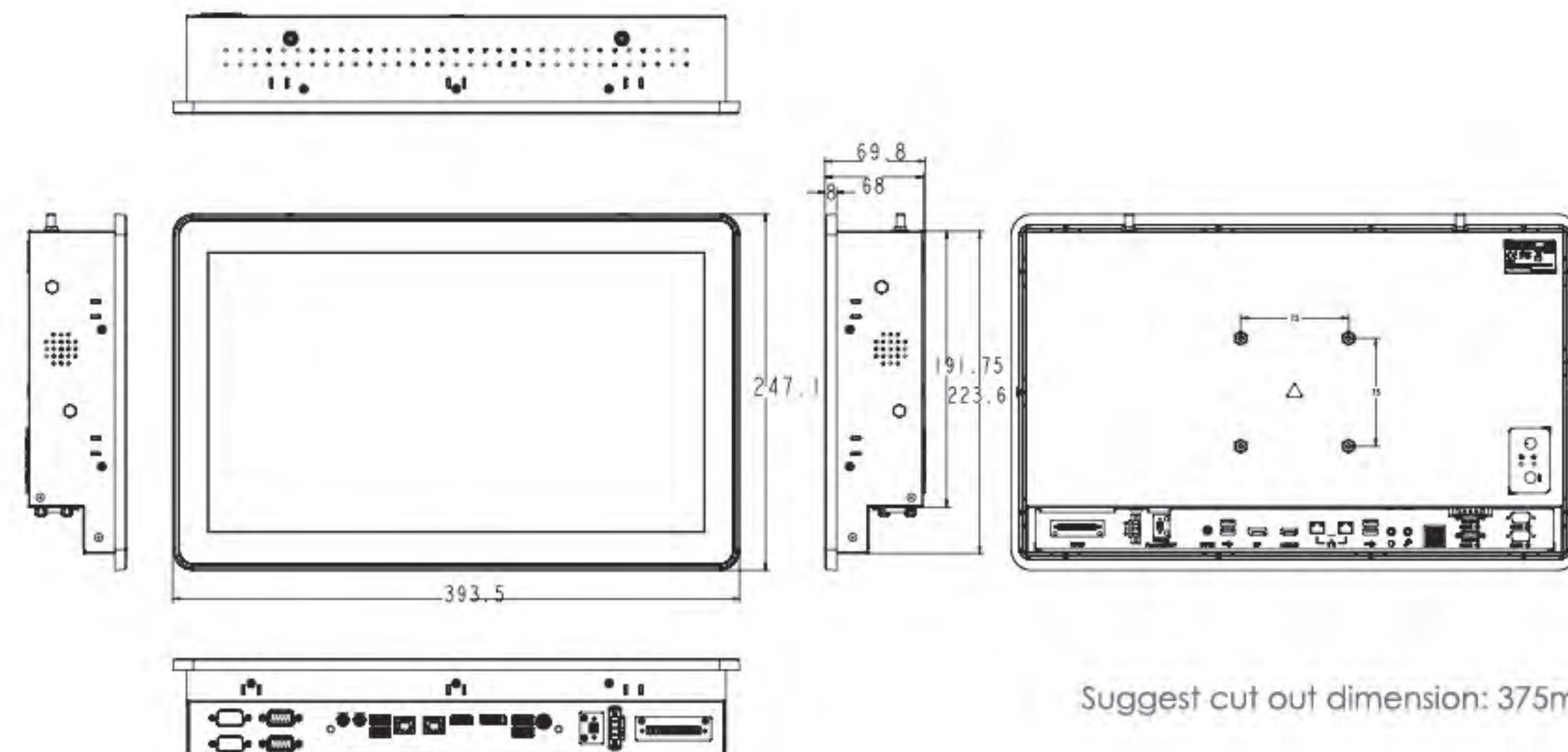


I/O Interface



- 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
Storage Disk Drive	1 x 8bit GPIO terminal block
Expansion Slot	1~255 steps by software program
Stereo Speaker	1 x SATA 2.5" HDD/SSD bay
Os Support	1 x M.2 2280 B key
	1 x M.2 2230 E key(PCIe / USB)
	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	

P210-11KS

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

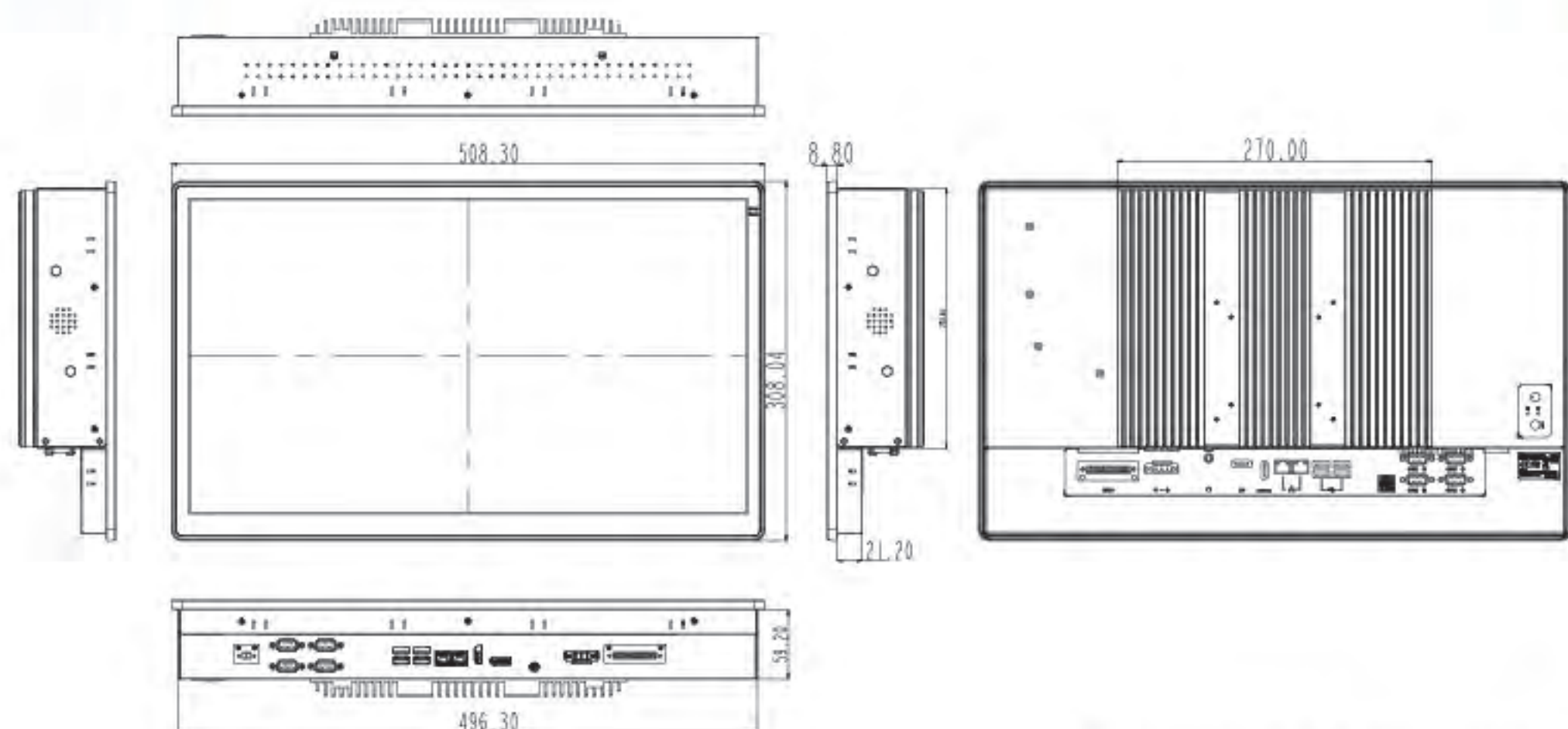


I/O Interface



- 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	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
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
Os Support	1 x M.2 2230 E key
	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



ATOM
inside

CELERON
inside

PENTIUM
inside

Fanless Design

Dual LAN

2 COM port

IP65 (in front)
dust & water
resistant

P-cap Touch
(Air bounding
with panel)

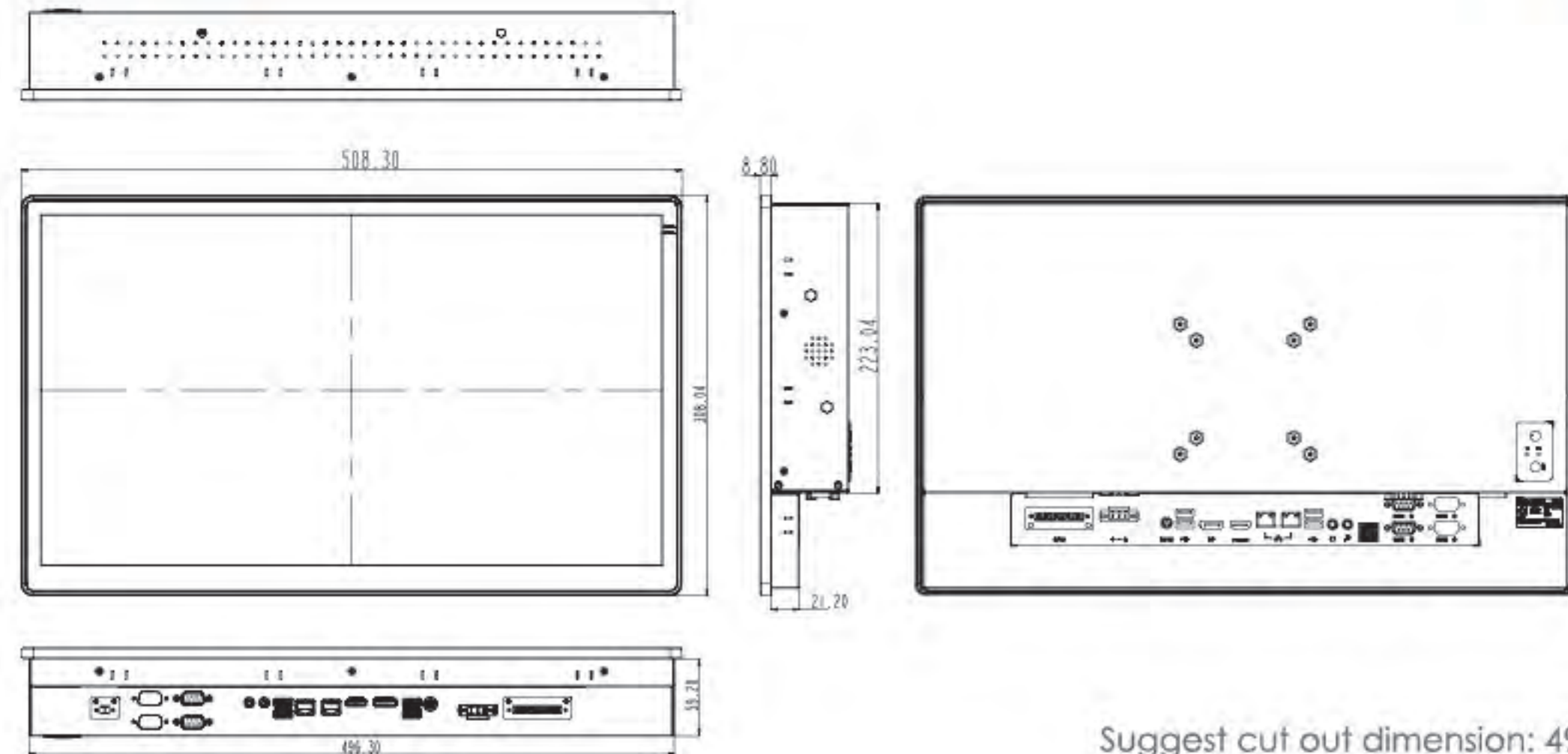
Full
Regulation

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

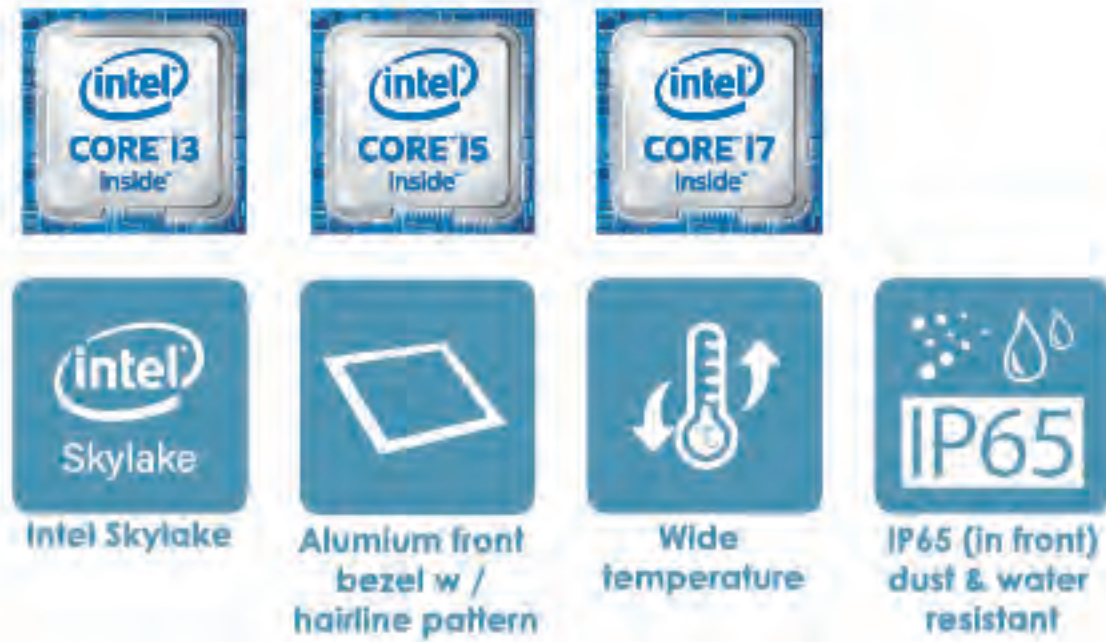
Packing			
1 x Panel PC	1 x Screws kit	1 x 3 pin Terminal Block Power Connector	1 x US + EU Poower Cord
1 x Mounting kit	1 x 10 pin Terminal Male Connector	1 x Power Adapter (19V, 65W, DC Jack Type)	1 x Quick Installation Guide

D150-S

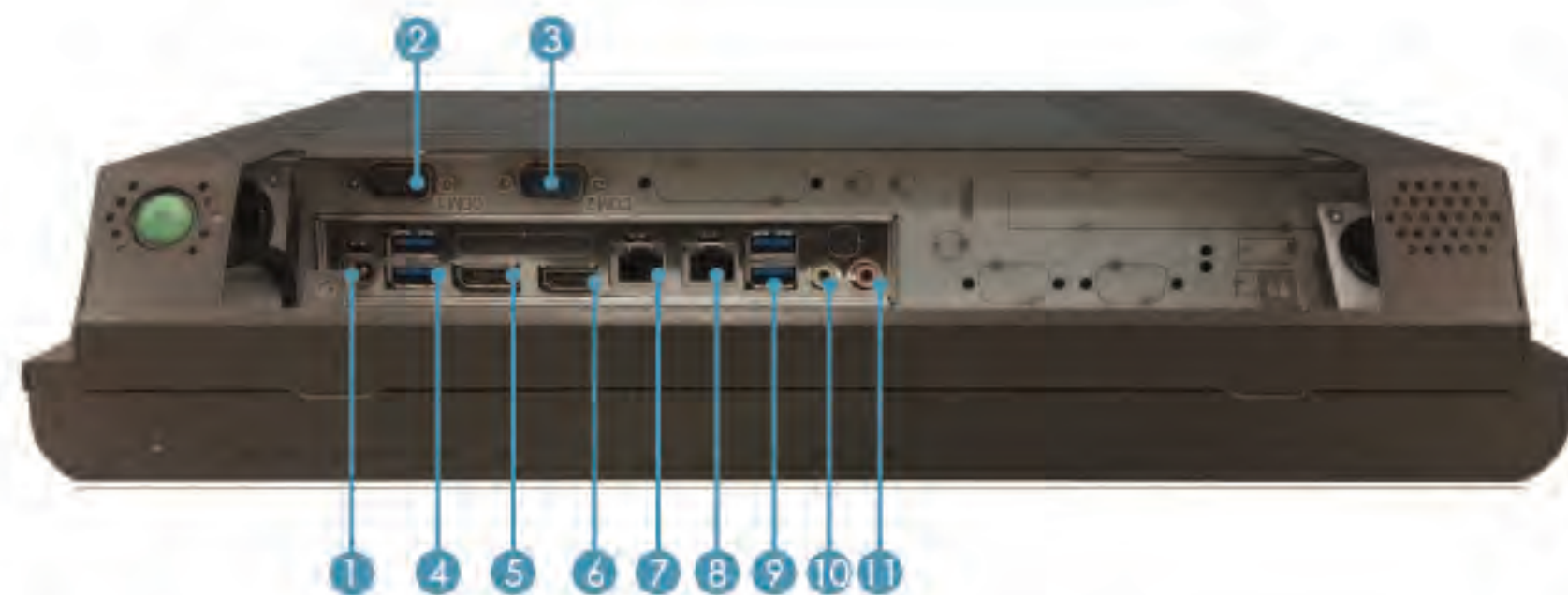
15" Panel PC / Intel® 6th & 7th core i

Feature

- Industrial-grade 15" TFT LCD with 50,000 hrs backlight lifetime
- Reliable 5 wire resistive touch control
- Front panel IP65-rated, fanless design

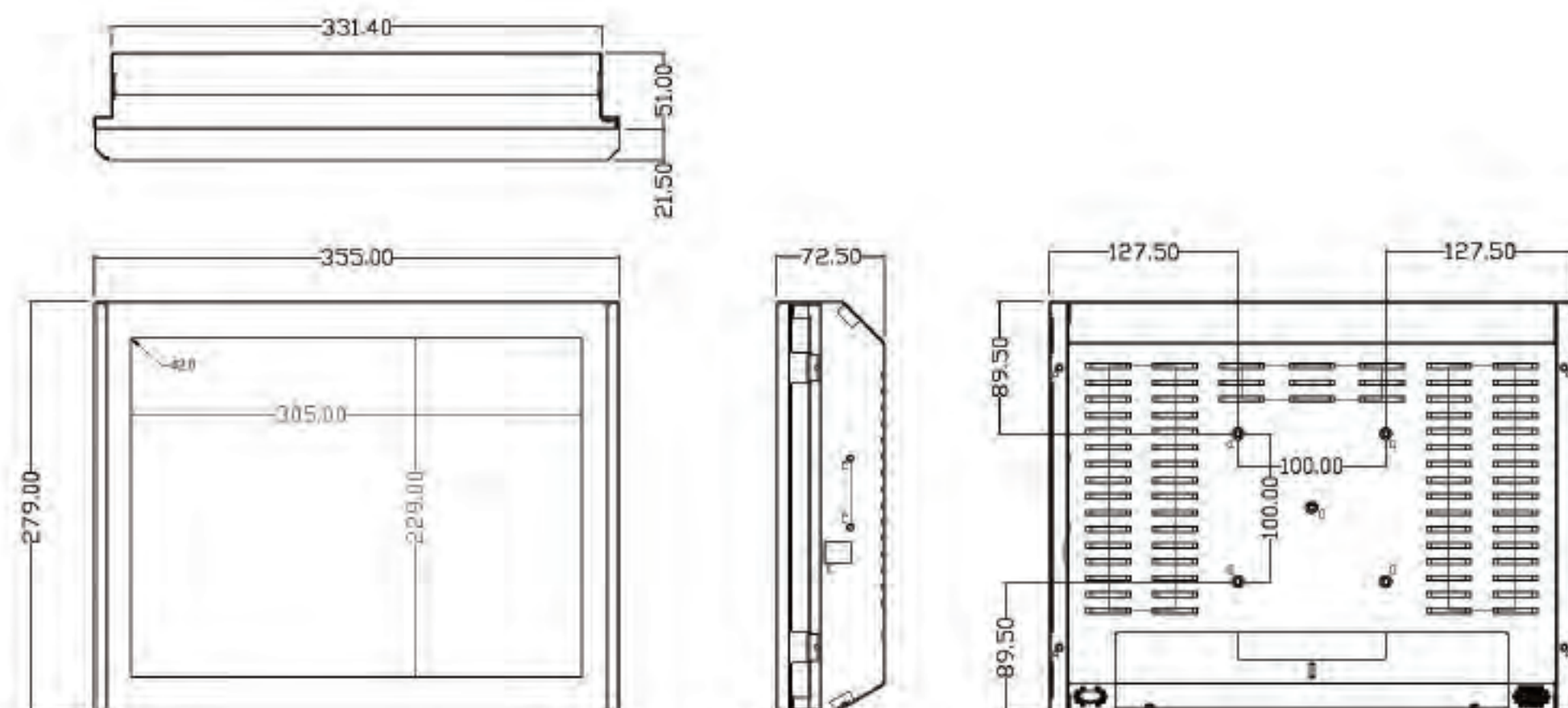


I/O Interface



- 1 DC Jack
- 2 COM
- 3 COM
- 4 USB 3.0
- 5 DisplayPort
- 6 HDMI
- 7 Giga LAN
- 8 Giga LAN
- 9 USB 3.0
- 10 Line-out
- 11 Mic-in

Dimension (mm)



D150-S Industrial Panel PC

LCD	
Display Type	15" TFT-LCD
Max. Resolution	1024 x 768
Max. Colors	16M (8 bit/color)
Luminance	350 cd/m2
Viewing Angle	160°(H), 145°(V)
Led Backlight (Hours)	50000

TOUCH SCREEN	
Type	Resistive touch (Optional: P-CAP touch)
Touch Screen	Single point touch (Optional: 10 points by P-CAP solution)

SYSTEM		
Processor	6/7th Gen Intel® Kaby Lake/Skylake LGA1151 Socket Processor, TDP Max. 35W	
Chipset	Q170	
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 RJ45	
	1 x DisplayPort 1.2	
	1 x HDMI 1.4	
	1 x Line-out , 1 x Mic-in	
	2 x RS232	
	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 Mini PCIe Half size
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 12V
Power Adapter	AC to DC, DC12V/ 7A, 84W adapter

MECHANICAL	
Mounting	VESA 100/ Stand
Dimension	280 x 355 x 55 (mm)
Weight	5kg (11.1 lb)

ENVIRONMENTAL	
Operating Temperature	-20°C ~ 50°C
Storage Temperature	-20°C ~ 70°C
Storage Humidity	10% ~ 90% @40°C non-condensing
Vibration Resistance	Operating Random vibration Test 5-500Hz, 0.3 Grms@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	Chipset	Touch	VGA/DVI	DisplayPort / HDMI	USB 3.0 / 2.0	Line-in/ Line-out / Mic-in	PS/2	RS232	LAN	Wifi / BT	Power
D150-SP (D150-12SI-Q170-PT)	Q170	Pcap	0 / 0	1 / 1	4 / 0	0 / 1 / 1	0	2	2	Optional	DC-in 12V
D150-SR (D150-12SI-Q170-RT)	Q170	Resistive	0 / 0	1 / 1	4 / 0	0 / 1 / 1	0	2	2	Optional	DC-in 12V

Packing List

Packing			
1 x Panel PC	1 x Power Adapter (12V, 84W, DC Jack Type)	1 x Quick Installation Guide	1 x Mounting Kit

D150-B

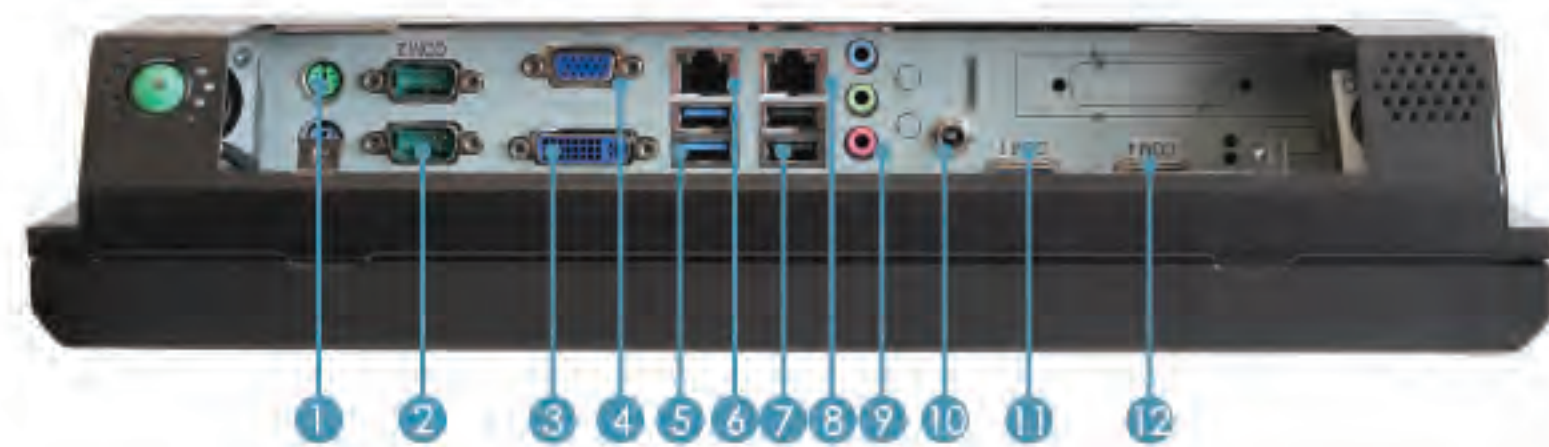
15" Panel PC / Intel® Bay Trail J1900

Feature

- Industrial-grade 15" TFT LCD with 50,000 back-light lifetime
- Front panel IP65-rated, fanless design

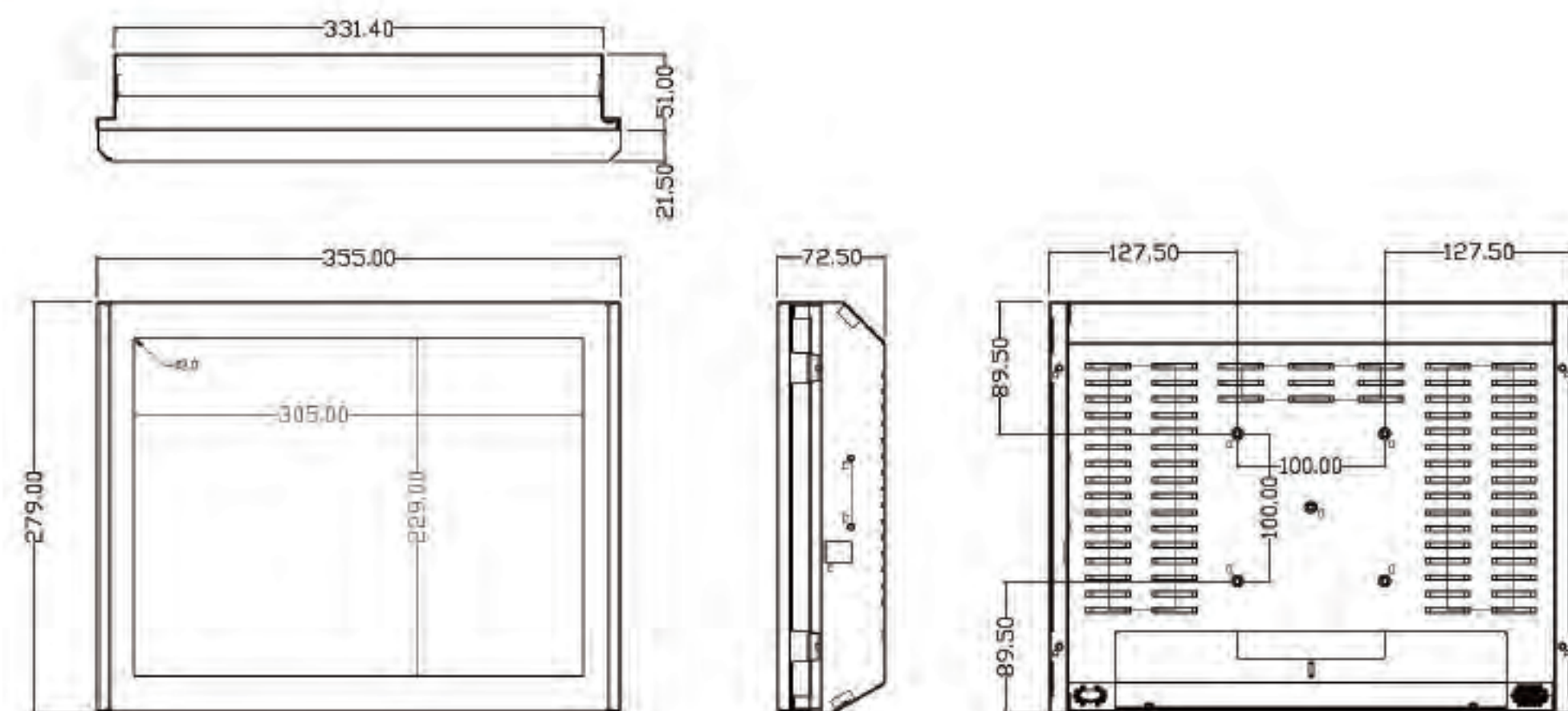


I/O Interface



- 1 PS / 2
- 2 COM
- 3 DVI
- 4 VGA
- 5 USB 3.0
- 6 Giga LAN
- 7 USB 2.0
- 8 Giga LAN
- 9 Audio Jack
- 10 DC Jack
- 11 COM
- 12 COM

Dimension (mm)



D150-B Industrial Panel PC

LCD	
Display Type	15" TFT-LCD
Max. Resolution	1024 x 768
Max. Colors	16M (8 bit / color)
Luminance	350 cd/m2
Viewing Angle	160°/145°
Led Backlight (Hours)	50000

TOUCH SCREEN	
Type	Resistive touch (Optional: P-CAP touch)
Touch Screen	Single point touch (Optional: 10 points by P-CAP solution)

SYSTEM	
Processor	Intel® Bay Trail J1900 Processor (Quad Core, 2M Cache, up to 2.24 GHz)
Chipset	Integrated
System Memory	DDR3L 1333 MHz, 2 x 204-pin SO-DIMM, Max. 8GB (Non-ECC)
Ethernet	2 x Realtek RTL8111G
I/O Port	1 x DC Jack
	2 x USB 3.0
	2 x USB 2.0
	2 x RJ-45
	1 x VGA
	1 x DVI
	1 x Line-in, 1 x Line-out, 1 x Mic-in
	4 x RS232
	2 x PS/2
	Watchdog Timer
Storage	1 x SATA 2.5" HDD / SSD bay
Expansion Slot	1 x Mini PCIe Full size
	1 x Mini PCIe Half size
Stereo Speaker	2 x 2W
OS Support	Windows 7 32 / 64bit, Windows 10 64bit, Linux (support by request)

POWER REQUIREMENT	
Power Input	DC 12V
Power Adapter	AC to DC, DC12V / 7A, 84W adapter

MECHANICAL	
Mounting	VESA 100 / Stand
Dimension	280 x 355 x 55 (mm)
Weight	5kg (11.1 lb)

ENVIRONMENTAL	
Operating Temperature	-20°C ~ 50°C
Storage Temperature	-20°C ~ 70°C
Storage Humidity	10% ~ 90% @40°C non-condensing
Vibration Resistance	Operating Random vibration Test 5-500Hz, 0.3 Grms@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	Touch	VGA	DVI	USB 3.0 / 2.0	Line-in / Line-out / Mic-in	PS / 2	RS232	LAN	Wifi / BT	Power
D150-BP	Pcap	1	1	2 / 2	1 / 1 / 1	1	4	2	Optional	DC-in 12V
D150-BR	Resistive	1	1	2 / 2	1 / 1 / 1	1	4	2	Optional	DC-in 12V

Packing List

Packing		
1 x Panel PC	1 x Power Adapter (12V, 84W, DC Jack Type)	1 x Quick Installation Guide

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

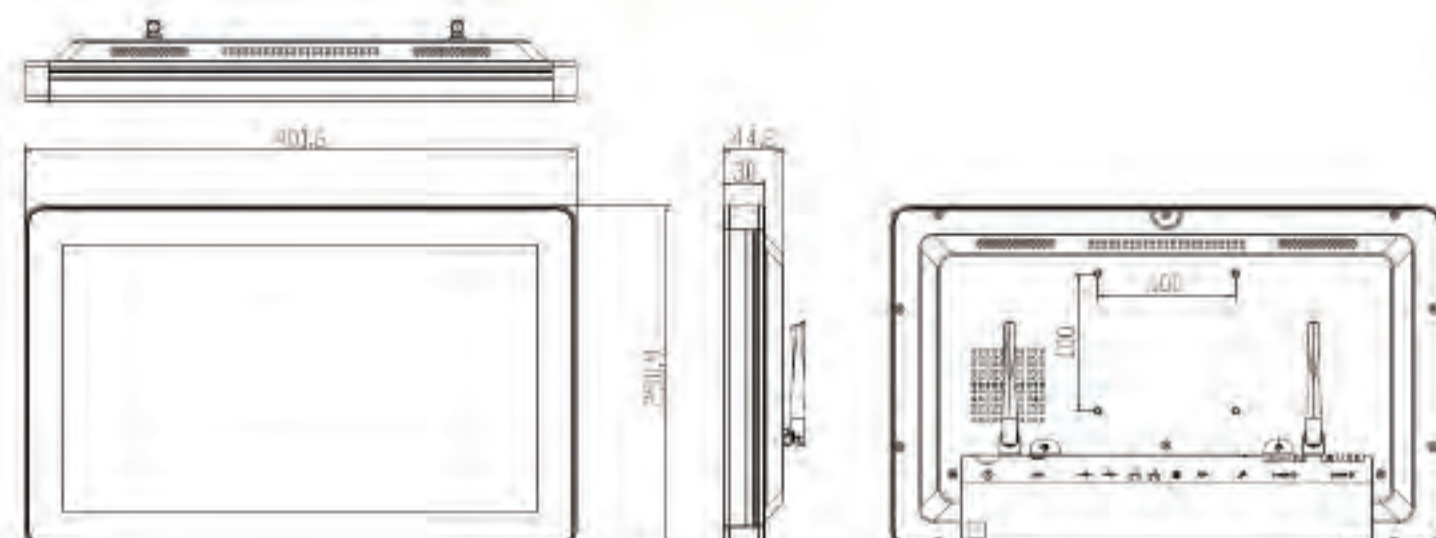
Model Number Part Number	Description
MSRD151210-R10 5412D7680002	Compact Intelligent MagStripe Swipe Reader
MSRSC151210-R10 5412D7680007	Secure EMV Chip Card and Magnetic Stripe Reader
NRFID151210-R10 5412D7680006	HF RFID / 13.56MHz NFC reader
CAM50P151210-R10 5412D7680005	5M webcam
BS151210-R10 5412D7680002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

I/O Interface



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

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	
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

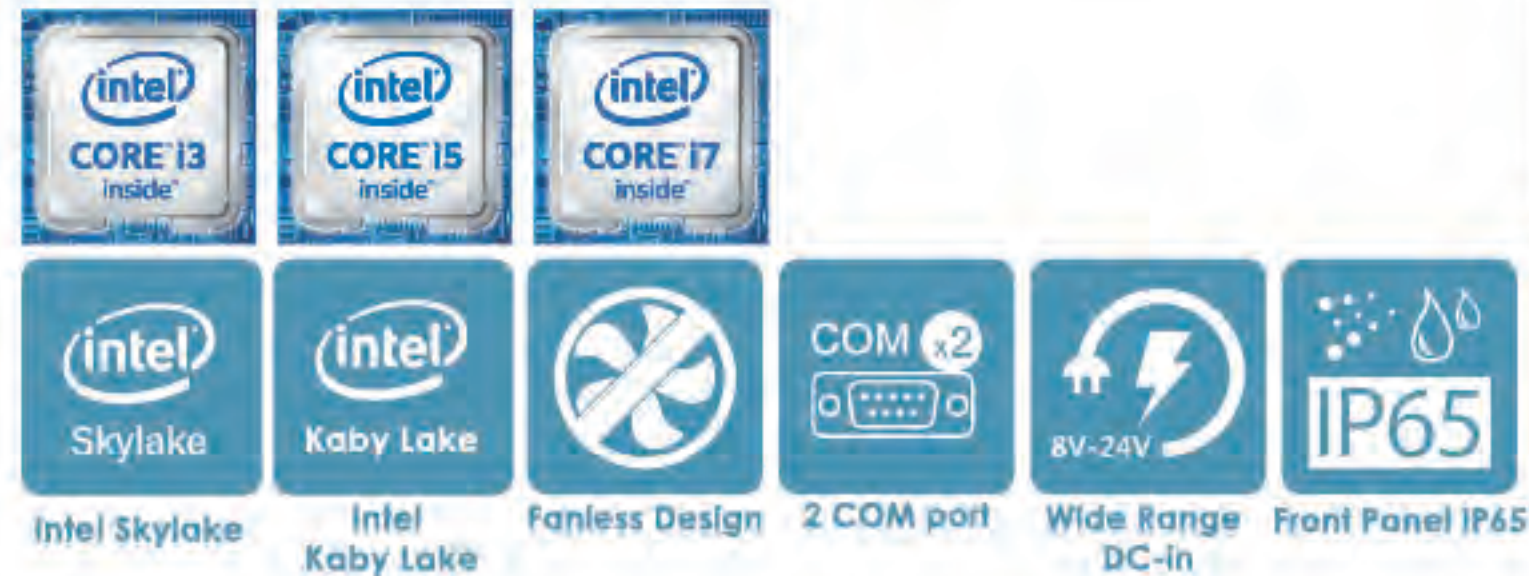
Packing			
1 x Panel PC	1 x Power Adapter (19V, 65W, DC Jack Type)	US + EU Power Cord	1 x Quick Installation Guide
1 x Screws kit	1 x Cable Cover	2 x Antenna	

D210-11KS

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

Feature

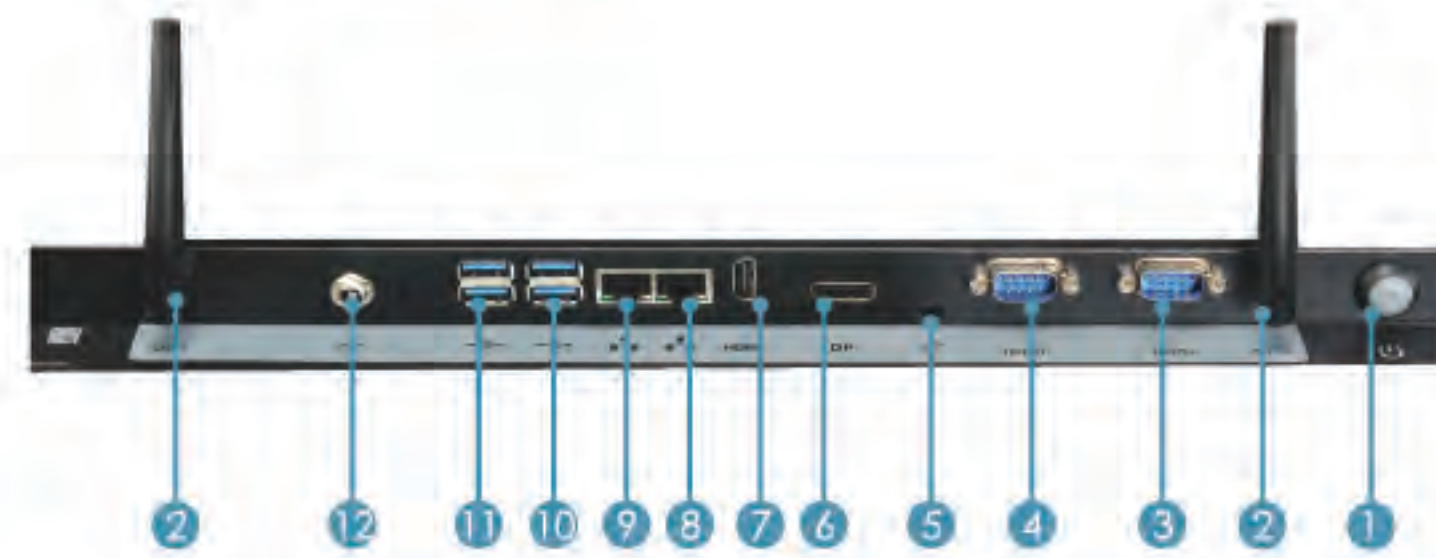
- Industrial-grade 21.5" Full HD TFT LCD with 40,000 backlight lifetime
- True-flat touchscreen with projected capacitive multi-touch control
- Front panel IP65-rated, fanless design
- Support multiple mounting modules(webcam, NFC/RFID, barcode)



Peripheral Options

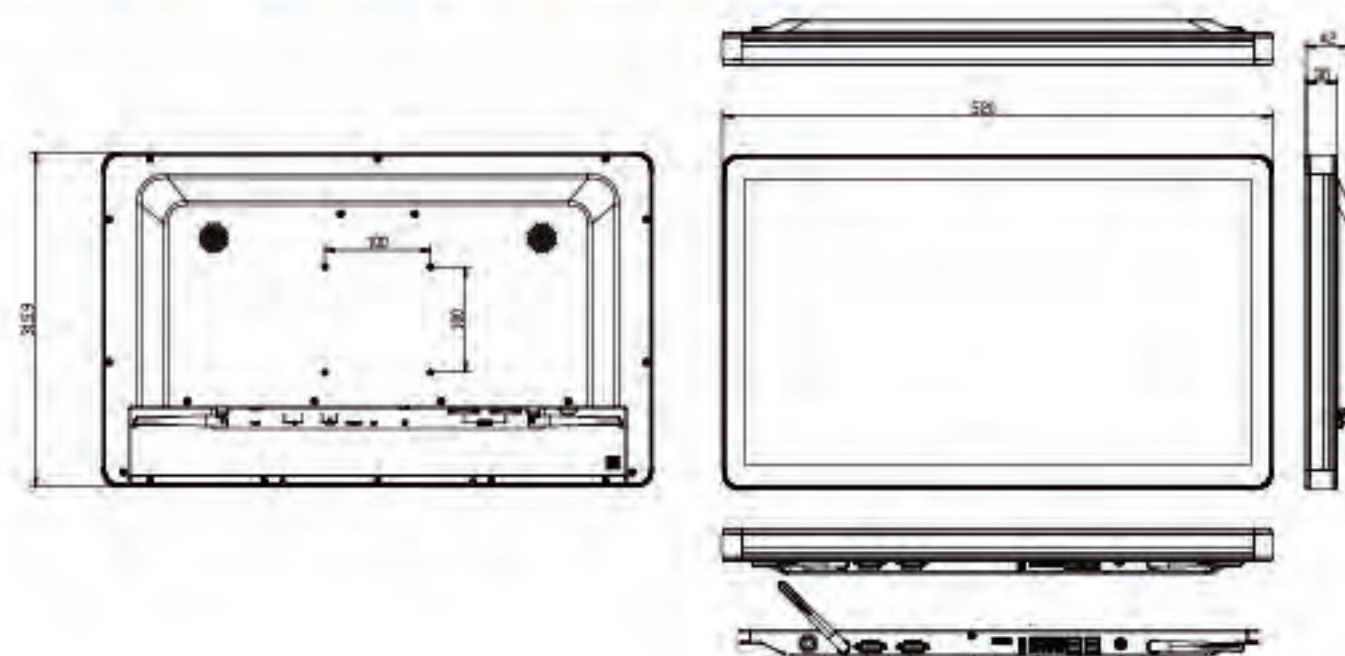
Model Number Part Number	Description
MSRD151210-R10 5412D7680002	Compact Intelligent MagStripe Swipe Reader
MSRSC151210-R10 5412D7680007	Secure EMV Chip Card and Magnetic Stripe Reader
NRFID151210-R10 5412D7680006	HF RFID / 13.56MHz NFC reader
CAM50P151210-R10 5412D7680005	5M webcam
BS151210-R10 5412D7680002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

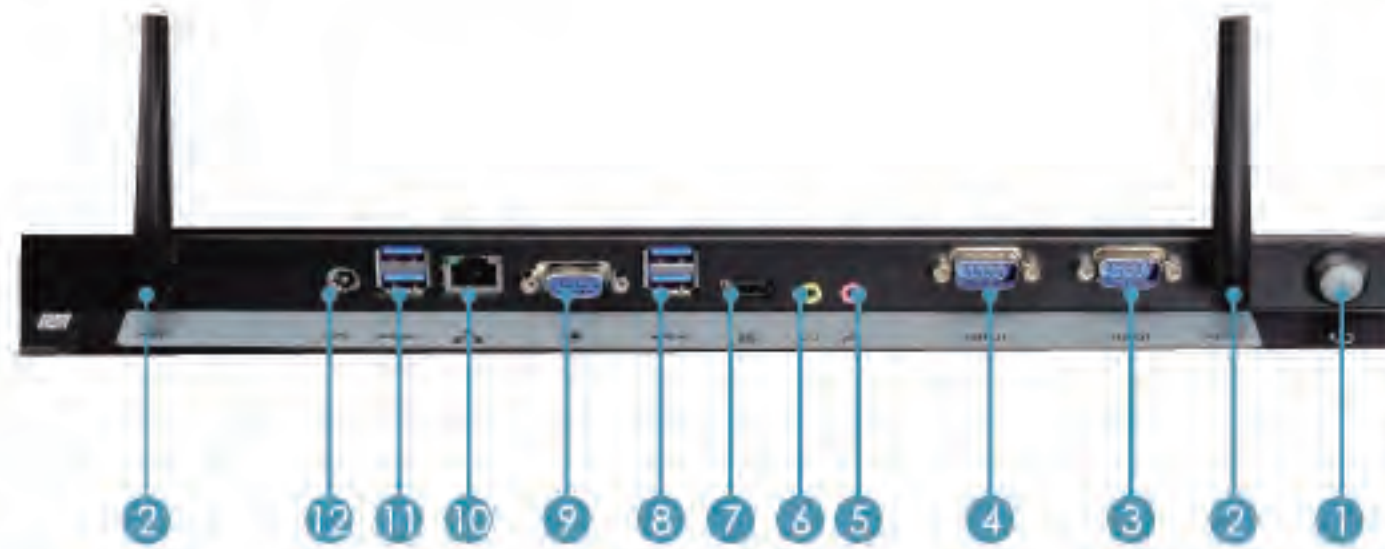
21.5" Touch Panel PC / D210 with Intel® Platform

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)

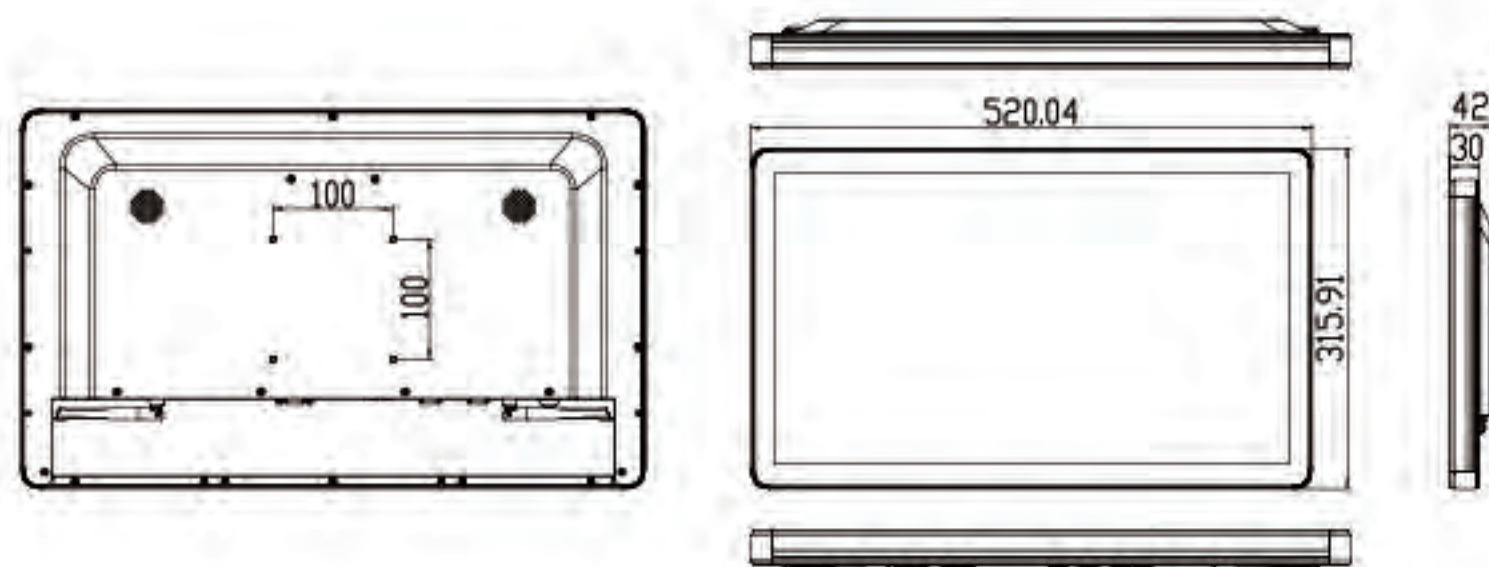


I/O Interface



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

Dimension (mm)



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



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

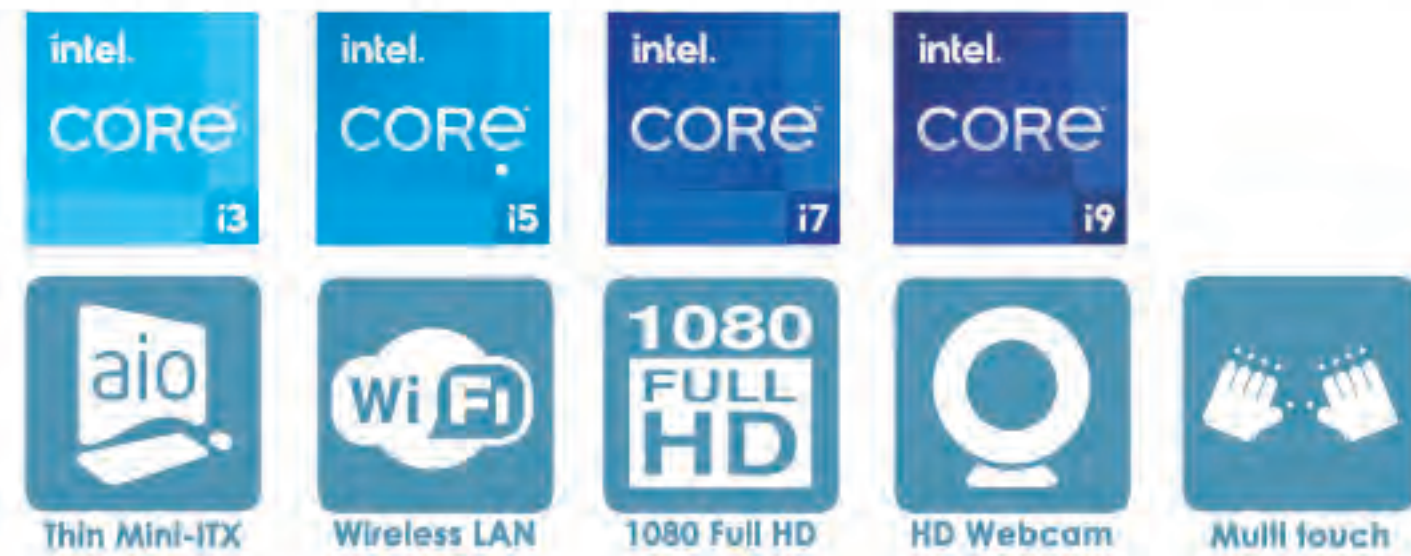
Packing			
1 x Panel PC	1 x Screws kit	2 x Antenna	1 x Cable Cover
1 x Quick Installation Guide	US + EU Power Cord	1 x Power Adapter (19V, 65W, DC Jack Type)	

M6070

21.5" All In One System / Intel® 12th core i

Feature

- 21.5" Full HD TFT LCD with 30,000 hrs backlight lifetime
- True-flat touchscreen with projected capacitive multi-touch control
- High-quality stereo sound

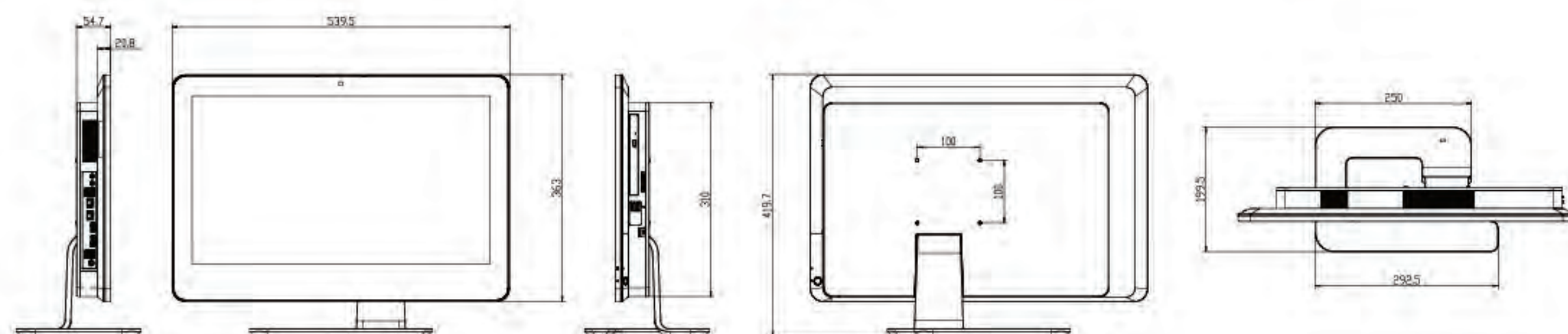


Introduction

Maestro 6070 AIO is an elegant all-in-one PC, powered by latest Intel Comet Lake platform for best computing and graphic performance along with Windows 10 compatibility.

Features like 21.5" Full HD panel, 10 point touch screen, high-quality stereo sound output, these are also all aiming at fulfilling all of your PC demands in different user scenarios, whether in your business or at home. Not only feature-rich, Maestro 6070 are also designed to deliver y the best flexibility and user-friendly experience to let user can very easily access the internal system for DIY or component upgrade. All of these to make Maestro 6070 maximize all your desires on PC in one.

Dimension (mm)



I/O Interface



- 1 ODD
- 2 Card Reader
- 3 USB 2.0
- 4 Line-out
- 5 Mic-in
- 6 DisplayPort
- 7 HDMI
- 8 Giga LAN
- 9 USB 3.2 Gen1
- 10 DC-in



M6070 Commercial Panel PC

LCD	
Display Type	21.5" TFT-LCD
Max. Resolution	1920 x 1080
Max. Colors	16.7M (6bit)
Luminance	250 cd/m2
Viewing Angle	170°/160°
Led Backlight (Hours)	30000

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

SYSTEM	
Processor	12th Gen Intel® Alder Lake LGA1700 Socket Processor TDP Max. 65W / NOTE:Don't support F spec CPU; ex ix-xxxxF
Chipset	Intel® H610
System Memory	DDR5 4800MHz / 2 x 262-pin SO-DIMM / Max. 64GB (Non-ECC)
Ethernet	Intel® I219-LM Giga LAN
PH12ADI I/O Port	1 x DC Jack
	4 x USB 3.2 Gen1
	1 x RJ45
	1 x DisplayPort 1.2
Watchdog Timer	1 x HDMI 1.4
	1 x Line-out , 1 x Mic-in
Storage Disk Drive	1~255 steps by software program
Expansion Slot	1 x SATA 2.5" / 3.5" HDD / SSD bay
	Storage: M.2 2280 M key (PCIe, SATA) Wireless: M.2 2230 E key (PCIe, USB)
Stereo Speaker	2 x 5W
Os Support	Windows 10 64bit / Linux (support by request)

SIDE I/O PORTS	
USB 2.0	2
4-in-1 Card Reader	1
ODD	DVD super-multi double layer (optional), Blu-ray ODD support (optional)
Webcam	2.0 HD mega pixel, HD 720p 16:9 lens with array digital microphone
System Button	Power, Brightness control

POWER REQUIREMENT	
Power Input	DC 19V
Power Adapter	AC to DC adapter

MECHANICAL	
Mounting	VESA mount support 100mm x 100mm (optional)
Dimension	539.5mm x 419.7mm x 199.5mm (w/ Stand)
Weight	8.9kg (19.58 lb)

ENVIRONMENTAL	
Operating Temperature	0°C ~ 40°C (32 ~ 104°F)
Storage Temperature	-20°C ~ 60°C (-4 ~ 140°F)
Storage Humidity	10% ~ 95% @60°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	-

Ordering Information

System I/O									
Model Number	Chipset	HDMI	USB 3.2 / 2.0 / CardReader	Line-out / Mic-in	M.2 2230 E key / M.2 2280 M key	LAN	Wifi/BT	Power	
M6070-12ADI-H610-M2	H610	1	4 / 2 / 1	1 / 1	1 / 1	1	optional	DC-in 19V	

Packing List

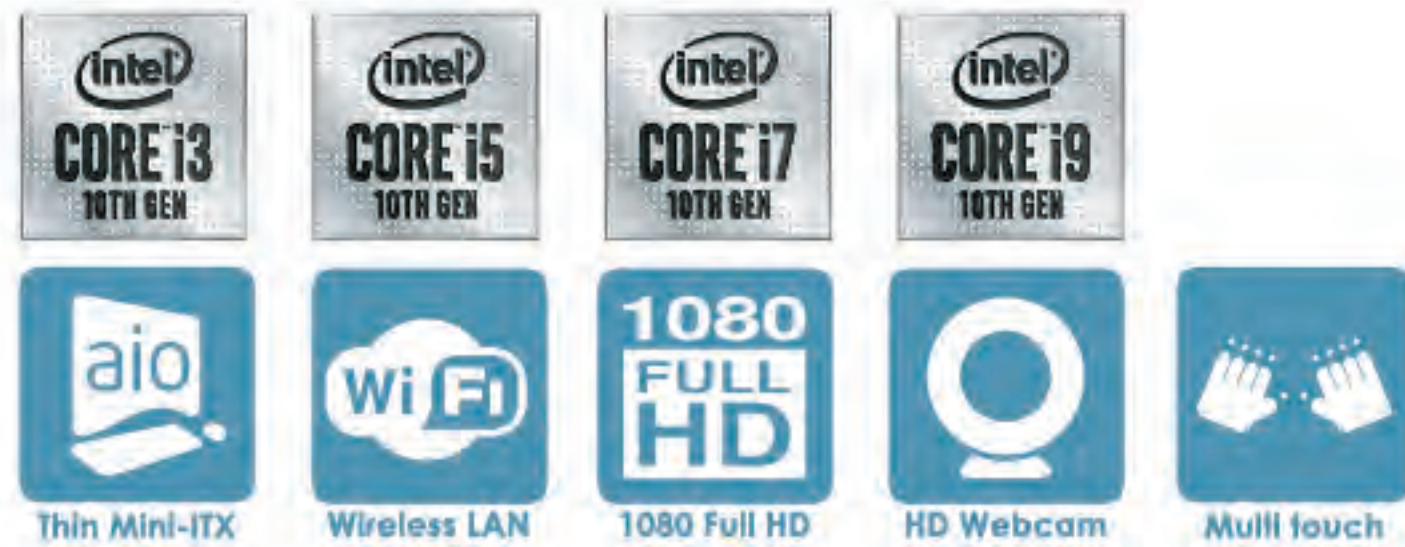
Packing			
1 x Panel PC	1 x Quick Installation Guide	1 x Power Adapter (19V, 180W, DC Jack Type)	US + EU Power Cord

M4070

21.5" All In One System / Intel® 10th core i

Feature

- 21.5" Full HD TFT LCD with 30,000 hrs backlight lifetime
- True-flat touchscreen with projected capacitive multi-touch control
- High-quality stereo sound

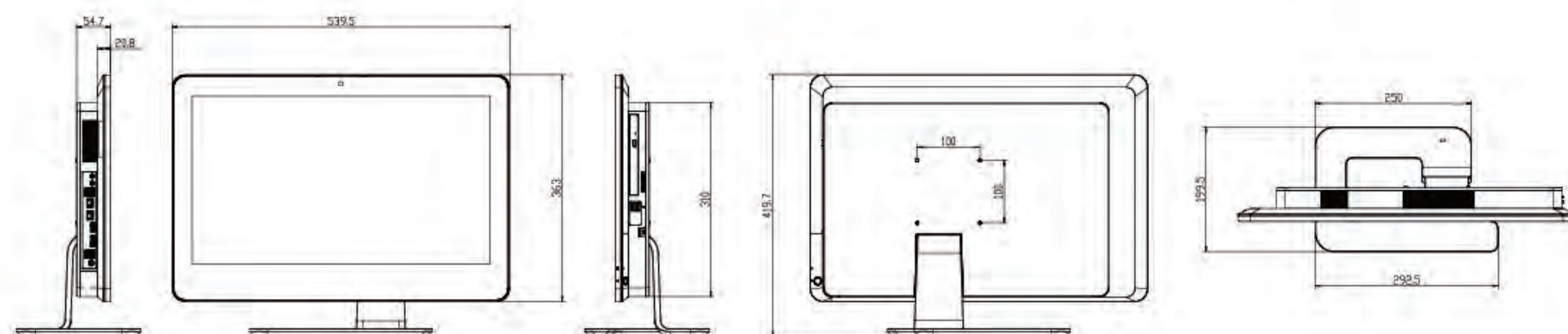


Introduction

Maestro 4070 AIO is an elegant all-in-one PC, powered by latest Intel Comet Lake platform for best computing and graphic performance along with Windows 10 compatibility. Features like 21.5" Full HD panel, 10 point touch screen, high-quality stereo sound output, these are also all aiming at fulfilling all of your PC demands in different user scenarios, whether in your business or at home.

Not only feature-rich, Maestro 4070 are also designed to delivery the best flexibility and user-friendly experience to let user can very easily access the internal system for DIY or component upgrade. All of these to make Maestro 4070 maximize all your desires on PC in one.

Dimension (mm)



I/O Interface



- 1 ODD
- 2 Card Reader
- 3 USB 2.0
- 4 DC-in
- 5 DisplayPort
- 6 HDMI
- 7 Giga LAN
- 8 USB 3.2 Gen1
- 9 Mic-in
- 10 Line-out



M4070 Commercial Panel PC

LCD	
Display Type	21.5" TFT-LCD
Max. Resolution	1920 x 1080
Max. Colors	16.7M (6bit)
Luminance	250 cd/m2
Viewing Angle	170°/160°
Led Backlight (Hours)	30000

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

SYSTEM		
Processor	10th Gen Intel® Comet Lake LGA1200 Socket Processor, TDP Max. 65W / NOTE:Don't support F spec CPU; ex ix-xxxxF	
Chipset	Intel® H410	
System Memory	DDR4 2933/2666MHz / 2 x 260-pin SO-DIMM / Max. 64GB (Non-ECC)	
Ethernet	Intel® I219-LM Giga LAN	
PH11CMI	I/O Port	1 x DC Jack 4 x USB 3.2 Gen1 1 x RJ45 1 x DisplayPort 1.2 1 x HDMI 1.4 1 x Line-out , 1 x Mic-in
	Watchdog Timer	1~255 steps by software program
	Storage Disk Drive	1 x SATA 2.5" / 3.5" HDD / SSD bay
	Expansion Slot	Storage: M.2 2280 M key (PCIe, SATA) Wireless: M.2 2230 E key (PCIe, USB)
	Stereo Speaker	2 x 5W
Os Support	Windows 10 64bit / Linux (support by request)	

SIDE I/O PORTS	
USB 2.0	2
4-in-1 Card Reader	1
ODD	DVD super-multi double layer (optional), Blu-ray ODD support (optional)
Webcam	2.0 HD mega pixel, HD 720p 16:9 lens with array digital microphone
System Button	Power, Brightness control

POWER REQUIREMENT	
Power Input	DC 19V
Power Adapter	AC to DC adapter

MECHANICAL	
Mounting	VESA mount support 100mm x 100mm (optional)
Dimension	539.5mm x 419.7mm x 199.5mm (w/ Stand)
Weight	8.9kg (19.58 lb)

ENVIRONMENTAL	
Operating Temperature	0°C ~ 40°C (32 ~ 104°F)
Storage Temperature	-20°C ~ 60°C (-4 ~ 140°F)
Storage Humidity	10% ~ 95% @60°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	-

Ordering Information

System I/O									
Model Number	Chipset	HDMI	USB 3.2 / 2.0 / CardReader	Line-out / Mic-in	M.2 2230 E key / M.2 2280 M key	LAN	Wifi/BT	Power	
M4070-11CMI-H410-M2	H410	1	4 / 2 / 1	1 / 1	1 / 1	1	optional	DC-in 19V	

Packing List

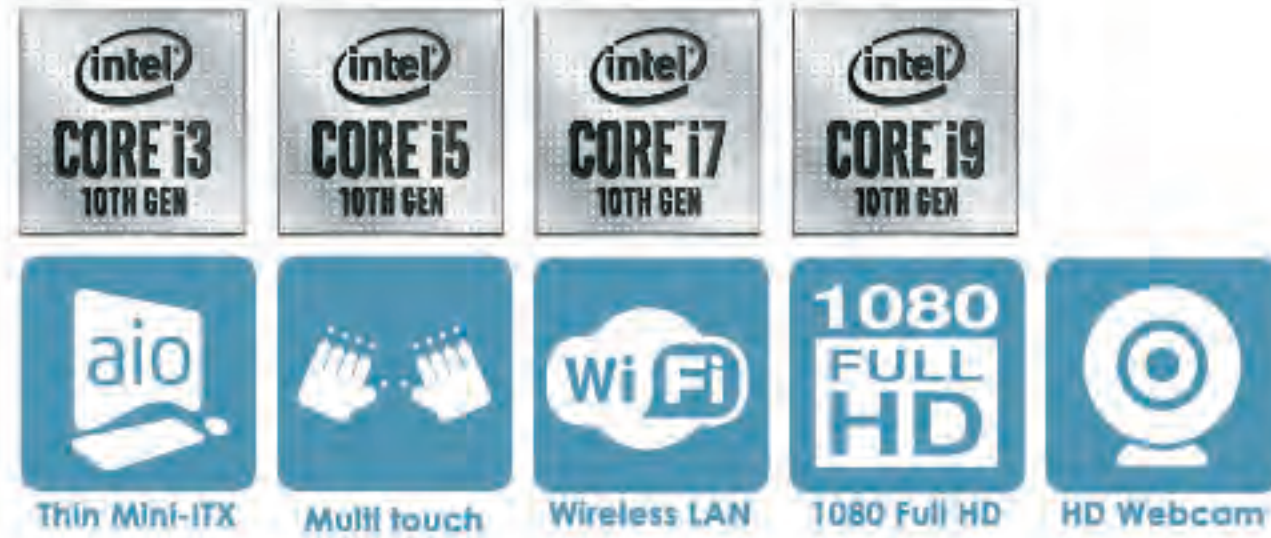
Packing			
1 x Panel PC	1 x Quick Installation Guide	1 x Power Adapter (19V, 180W, DC Jack Type)	US + EU Power Cord

M4080

23.6" All In One System / Intel® 10th core i

Feature

- 23.6" Full HD TFT LCD with 30,000 hrs backlight lifetime
- True-flat touchscreen with projected capacitive multi-touch control
- High-quality stereo sound

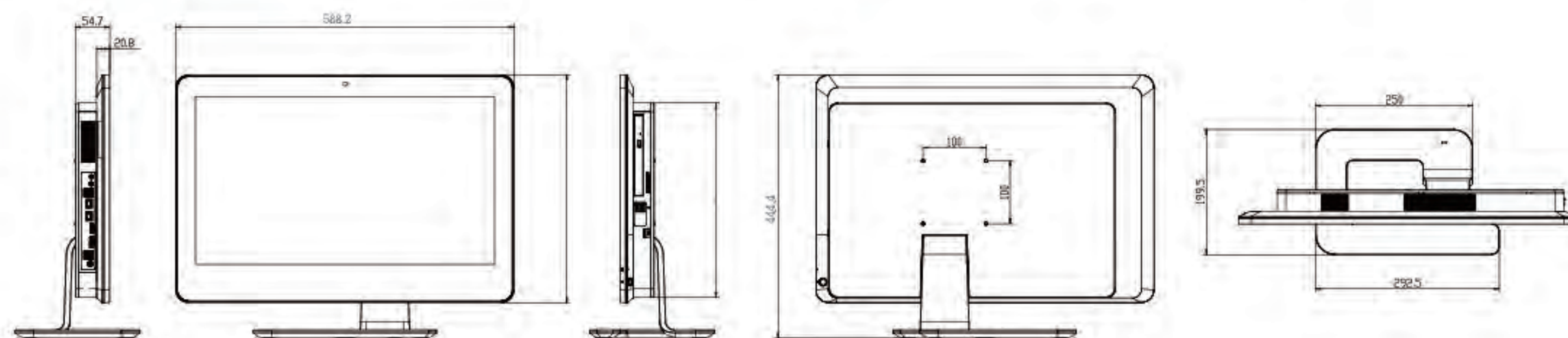


Introduction

Maestro 4080 AIO is an elegant all-in-one PC, powered by latest Intel Comet Lake platform for best computing and graphic performance along with Windows 10 compatibility. Features like 23.6" Full HD panel, 10 point touch screen, high-quality stereo sound output, these are also all aiming at fulfilling all of your PC demands in different user scenarios, whether in your business or at home.

Not only feature-rich, Maestro 4080 are also designed to delivery the best flexibility and user-friendly experience to let user can very easily access the internal system for DIY or component upgrade. All of these to make Maestro 4080 maximize all your desires on PC in one.

Dimension (mm)



I/O Interface



- | | | |
|---------------|---------------|----------------|
| 1 ODD | 5 DisplayPort | 8 USB 3.2 Gen1 |
| 2 Card Reader | 6 HDMI | 9 Mic-in |
| 3 USB 2.0 | 7 Giga LAN | 10 Line-out |
| 4 DC-in | | |

M4080 Commercial Panel PC

LCD	
Display Type	23.6" TFT-LCD
Max. Resolution	1920 x 1080
Max. Colors	16.7M (6bit)
Luminance	300 cd/m2
Viewing Angle	170°/160°
Led Backlight (Hours)	30000

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

SYSTEM	
Processor	10th Gen Intel® Comet Lake LGA1200 Socket Processor, TDP Max. 65W / NOTE:Don't support F spec CPU; ex ix-xxxxF
Chipset	Intel® H410
System Memory	DDR4 2933/2666MHz / 2 x 260-pin SO-DIMM / Max. 64GB (Non-ECC)
Ethernet	Intel® I219-LM Giga LAN
I/O Port	1 x DC Jack
	4 x USB 3.2 Gen1
	1 x RJ-45
	1 x DisplayPort 1.2
	1 x HDMI 1.4
Watchdog Timer	1~255 steps by software program
	Storage Disk Drive
Expansion Slot	Storage: M.2 2280 M key (PCIe, SATA)
	Wireless: M.2 2230 E key (PCIe, USB)
Stereo Speaker	2 x 5W
Os Support	Windows 10 64bit / Linux (support by request)

SIDE I/O PORTS	
USB 2.0	2
4-in-1 Card Reader	1
ODD	DVD super-multi double layer (optional), Blu-ray ODD support (optional)
Webcam	2.0 HD mega pixel, HD 720p 16:9 lens with array digital microphone
System Button	Power, Brightness control

POWER REQUIREMENT	
Power Input	DC 19V
Power Adapter	AC to DC adapter

MECHANICAL	
Mounting	VESA mount support 100mm x 100mm (optional)
Dimension	588.2mm x 444.4mm x 199.5mm (w/ Stand)
Weight	9.5kg (20.9 lb)

ENVIRONMENTAL	
Operating Temperature	0°C ~ 40°C (32 ~ 104°F)
Storage Temperature	-20°C ~ 60°C (-4 ~ 140°F)
Storage Humidity	10% ~ 95% @60°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	-

Ordering Information

System I/O									
Model Number	Chipset	HDMI	USB 3.2 / 2.0 / CardReader	Line-out / Mic-in	M.2 2230 E key / M.2 2280 M key	LAN	Wifi/BT	Power	
M4080-11CMI-H410-M2	H410	1	4 / 2 / 1	1 / 1	1 / 1	1	optional	DC-in 19V	

Packing List

Packing			
1 x Panel PC	1 x Quick Installation Guide	1 x Power Adapter (19V, 180W, DC Jack Type)	US + EU Power Cord

M860

21.5" All In One System / Intel® 12th core i

Feature

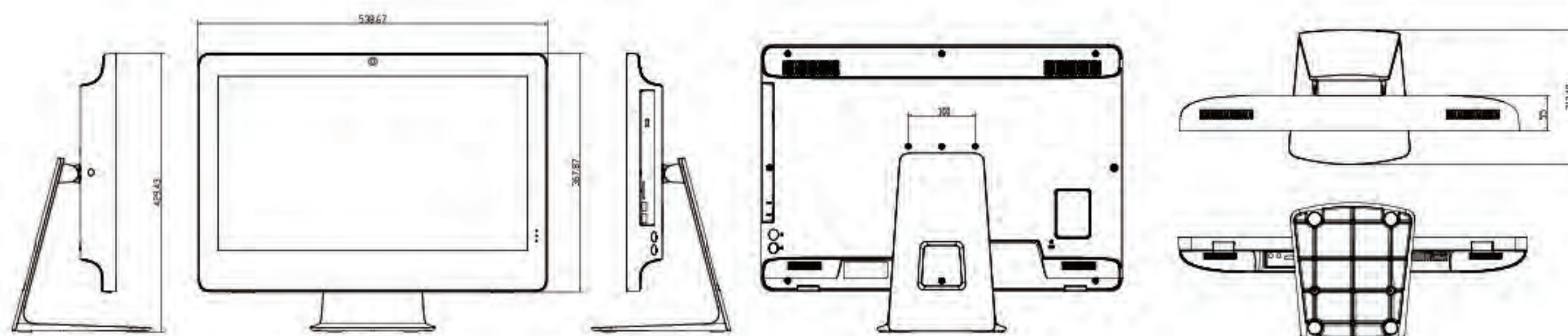
- 21.5" Full HD TFT LCD with 30,000 hrs backlight lifetime
- True-flat touchscreen with projected capacitive multi-touch control
- High-quality stereo sound



Introduction

Maestro M860 is the sleek, stylish and multi-touched panel PC, powered by latest Intel Alder Lake platform for best computing and graphic performance. It is equipped with rich features like 21.5" full HD panel, 10 point touch screen, high-quality stereo sound output, 2 system color to choose and 2 aluminium stand options. All of these are aiming at fulfilling multi-purpose applications in different environments or scenarios like self-service terminals, interactive signage, or stylish commercial and education pc.

Dimension (mm)



I/O Interface



- 1 ODD
- 2 Card Reader
- 3 USB 2.0
- 4 Line-out
- 5 Mic-in
- 6 DisplayPort
- 7 HDMI
- 8 Giga LAN
- 9 USB 3.2 Gen1
- 10 DC-in



M860 Light Industrial Panel PC

LCD	
Display Type	21.5" TFT-LCD
Max. Resolution	1920 x 1080
Max. Colors	16.7M (6bit)
Luminance	250 cd/m2
Viewing Angle	170°/160°
Led Backlight (Hours)	30,000

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

SYSTEM	
Processor	12th Gen Intel® Alder Lake LGA1700 Socket Processor, TDP Max. 65W / NOTE: Don't support F spec CPU; ex ix-xxxxF
Chipset	Intel® H610
System Memory	DDR5 4800MHz, 2 x 262-pin SO-DIMM / Max. 64GB (Non-ECC)
Ethernet	Intel® I219-LM Giga LAN
I/O Port	1 x DC Jack
	4 x USB 3.2 Gen1
	1 x RJ-45
	1 x DisplayPort 1.2
	1 x HDMI 1.4
Watchdog Timer	1~255 steps by software program
	Storage Disk Drive
Expansion Slot	Storage: M.2 2280 M key (PCIe, SATA)
	Wireless: M.2 2230 E key (PCIe, USB)
Stereo Speaker	2 x 2W
Os Support	Windows 10 64bit / Linux (support by request)

SIDE I/O PORTS	
USB 2.0	2
4-in-1 Card Reader	1
ODD	DVD super-multi double layer (optional), Blu-ray ODD support (optional)
Webcam	2.0 HD mega pixel, HD 720p 16:9 lens with array digital microphone
System Button	Power

POWER REQUIREMENT	
Power Input	19V DC-in connectivity
Power Adapter	DC19V / 9.5A / 180W adapter / AC / DC

MECHANICAL	
Mounting	VESA mount support 100mm x 100mm (optional)
Dimension	538mm x 429mm x 213mm (w/ Stand)
Weight	8.3kg (18.26 lb)

ENVIRONMENTAL	
Operating Temperature	0°C ~ 40°C (32 ~ 104°F)
Storage Temperature	-20°C ~ 60°C (-4 ~ 140°F)
Storage Humidity	10% ~ 95% @60°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	-

Ordering Information

System I/O										
Model Number	Chipset	DisplayPort	HDMI	USB 3.2 / 2.0 / CardReader	Line-out / Mic-in	RS232	M.2 2230 E key / M.2 2280 M key	LAN	Wifi/BT	Power
M860-12ADI-H610-M2	H610	1	1	4 / 2 / 1	1 / 1	0	1 / 1	1	optional	DC-in 19V

Packing List

Packing			
1 x Panel PC	1 x Quick Installation Guide	US + EU Power Cord	1 x Power Adapter (19V, 180W, DC Jack Type)

M850

21.5" All In One System / Intel® 10th core i

Feature

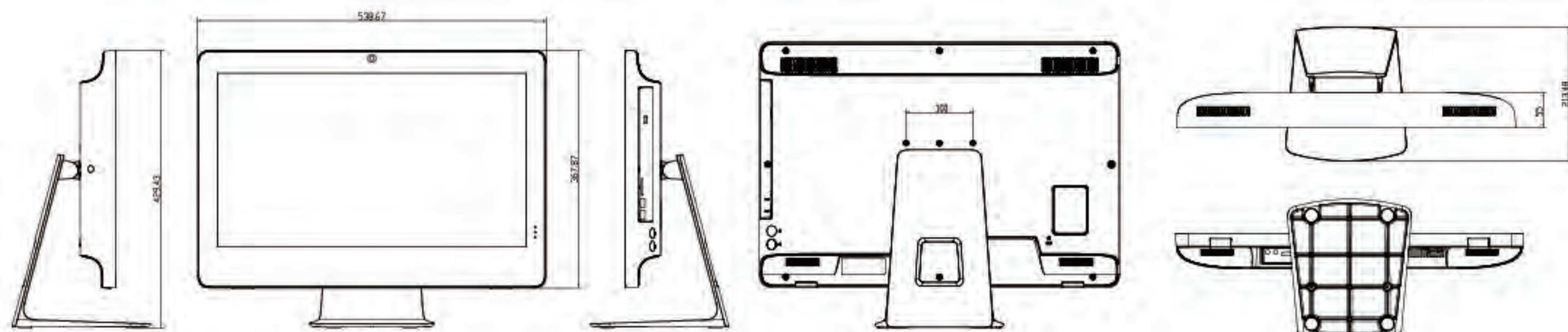
- 21.5" Full HD TFT LCD with 30,000 hrs backlight lifetime
- True-flat touchscreen with projected capacitive multi-touch control
- High-quality stereo sound



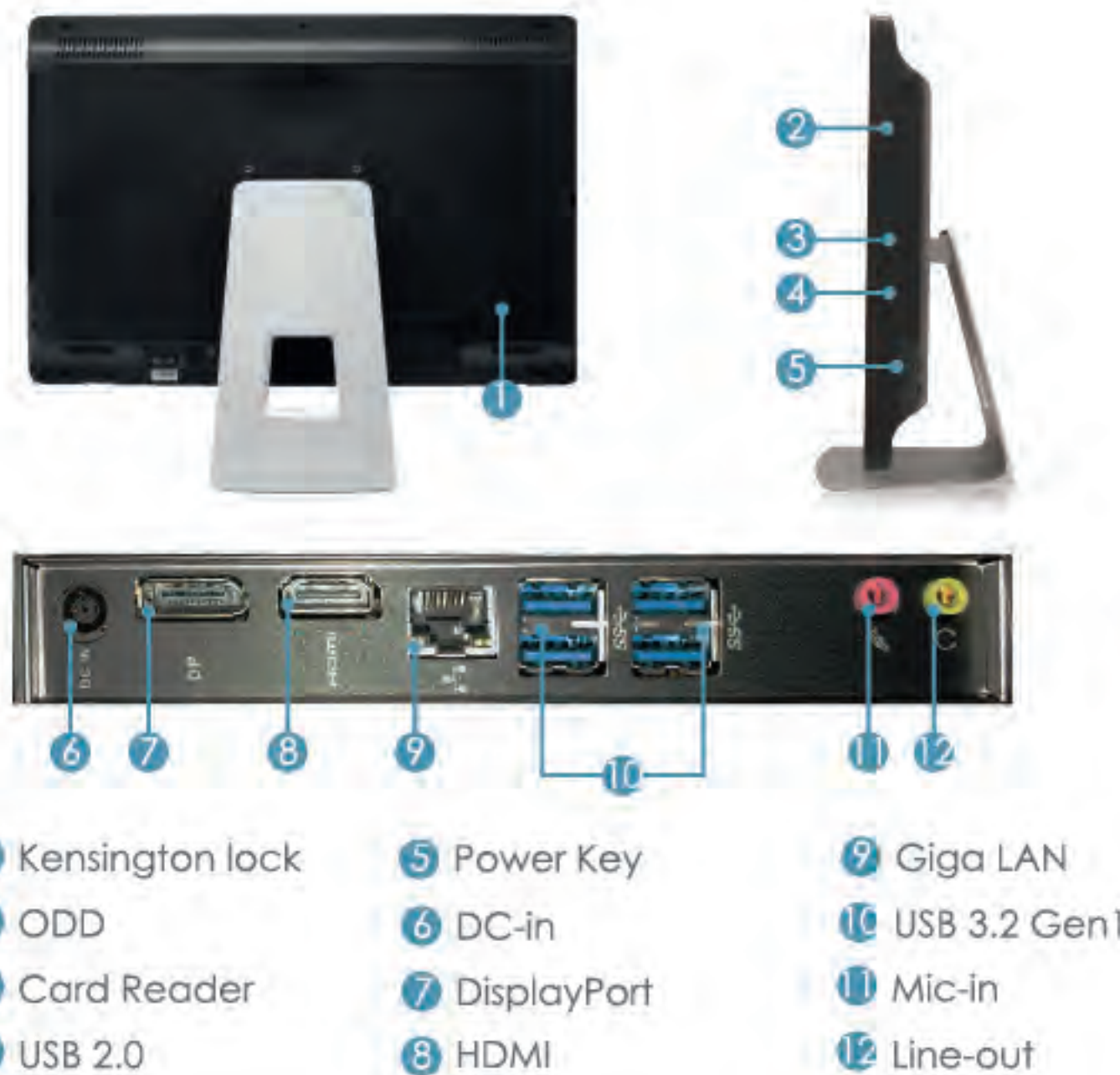
Introduction

Maestro M850 is the sleek, stylish and multi-touched panel PC, powered by latest Intel Comet Lake platform for best computing and graphic performance. It is equipped with rich features like 21.5" full HD panel, 10 point touch screen, high-quality stereo sound output, 2 system color to choose and 2 aluminium stand options. All of these are aiming at fulfilling multi-purpose applications in different environments or scenarios like self-service terminals, interactive signage, or stylish commercial and education pc.

Dimension (mm)



I/O Interface



M850 Light Industrial Panel PC

LCD	
Display Type	21.5" TFT-LCD
Max. Resolution	1920 x 1080
Max. Colors	16.7M (6bit)
Luminance	250 cd/m2
Viewing Angle	170°/160°
Led Backlight (Hours)	30,000

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

SYSTEM		
Processor	10th Gen Intel® Comet Lake LGA1200 Socket Processor, TDP Max. 65W / NOTE: Don't support F spec CPU; ex ix-xxxx	
Chipset	Intel® H410	
System Memory	DDR4 2933 / 2666MHz, 2 x 260-pin SO-DIMM / Max. 64GB (Non-ECC)	
Ethernet	Intel® I219-LM Giga LAN	
PH11CMI	I/O Port	1 x DC Jack 4 x USB 3.2 Gen1 1 x RJ-45 1 x DisplayPort 1.2 1 x HDMI 1.4 1 x Line-out , 1 x Mic-in
	Watchdog Timer	1~255 steps by software program
	Storage Disk Drive	1 x SATA 2.5"/3.5" HDD/SSD bay
	Expansion Slot	Wireless: M.2 2230 E key (PCIe, USB)
	Stereo Speaker	2 x 2W
Os Support	Windows 10 64bit / Linux (support by request)	

SIDE I/O PORTS	
USB 2.0	2
4-in-1 Card Reader	1
ODD	DVD super-multi double layer (optional), Blu-ray ODD support (optional)
Webcam	2.0 HD mega pixel, HD 720p 16:9 lens with array digital microphone
System Button	Power

POWER REQUIREMENT	
Power Input	19V DC-in connectivity
Power Adapter	DC19V / 9.5A / 180W adapter / AC / DC

MECHANICAL	
Mounting	VESA mount support 100mm x 100mm (optional)
Dimension	538mm x 429mm x 213mm (w/ Stand)
Weight	8.3kg (18.26 lb)

ENVIRONMENTAL	
Operating Temperature	0°C ~ 40°C (32 ~ 104°F)
Storage Temperature	-20°C ~ 60°C (-4 ~ 140°F)
Storage Humidity	10% ~ 95% @60°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	-

Ordering Information

System I/O										
Model Number	Chipset	DisplayPort	HDMI	USB 3.2 / 2.0 / CardReader	Line-out / Mic-in	RS232	M.2 2230 E key / M.2 2280 M key	LAN	Wifi/BT	Power
M850-11CMI-H410-M2	H410	1	1	4 / 2 / 1	1 / 1	0	1 / 1	1	optional	DC-in 19V

Packing List

Packing			
1 x Panel PC	1 x Quick Installation Guide	US + EU Power Cord	1 x Power Adapter (19V, 180W, DC Jack Type)

Point of Service

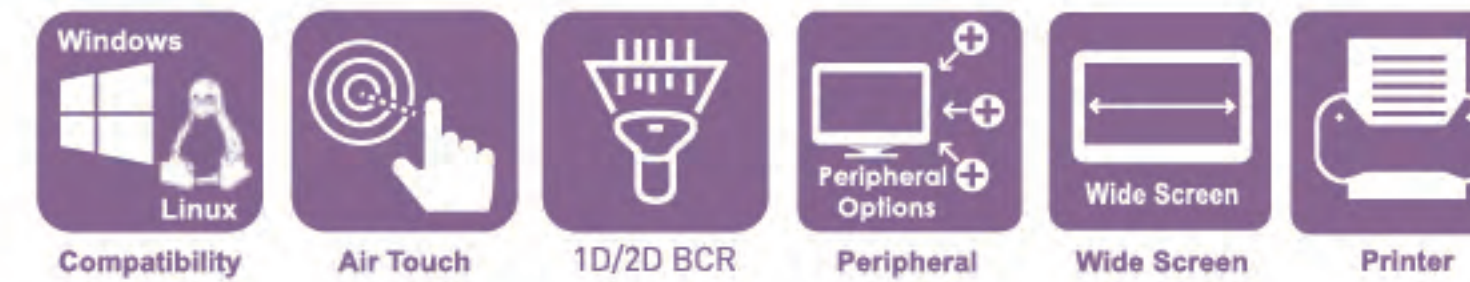


Kiosk – Neon Series

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

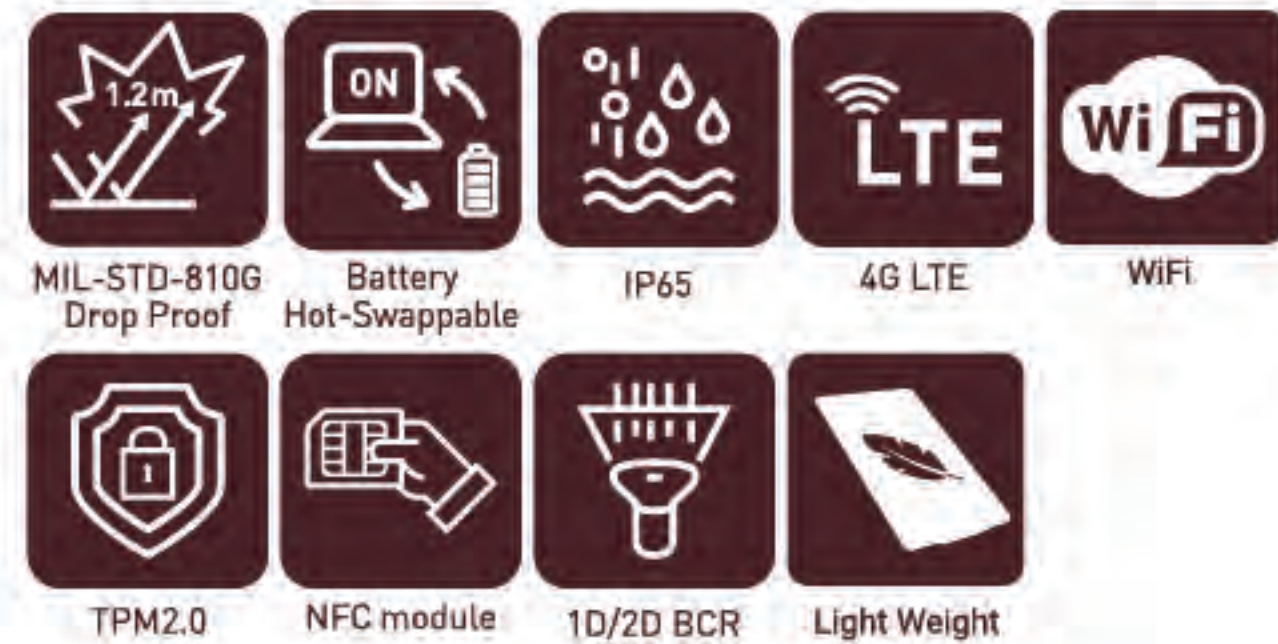
DISPLAY	
Size	15.6", 21.5", 32" TFT-LCD
Max. Resolution	1920 x 1080
Max. Colors	16.7M
Luminance (cd/m2)	332nits (Typ.)
View Angle	178° / 178°
LED Backlight (hours)	30000
TOUCH SCREEN	
Type	P-CAP
Touch	10 point capacitive multi-touchscreen supporting glove mode and rain mode
TABLET	
Motherboard Selectable	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
Instusion 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

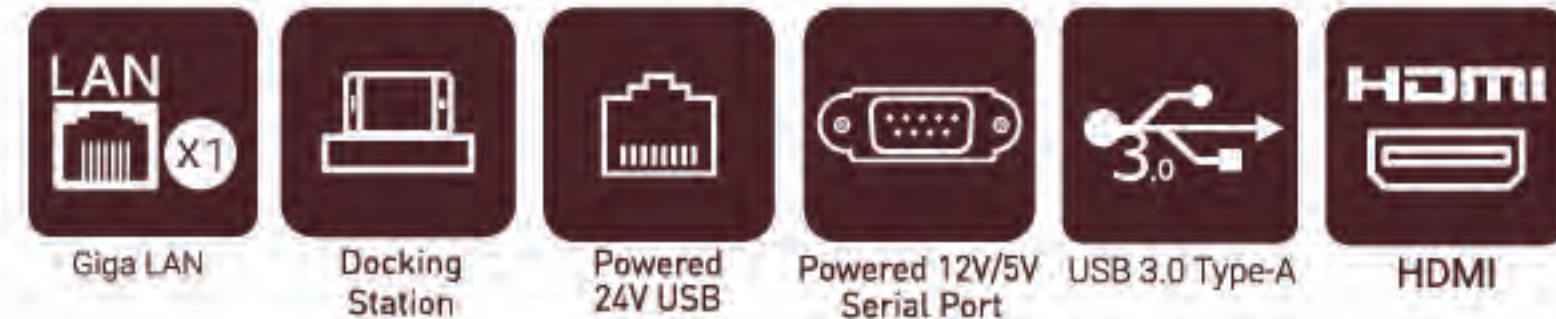
Intel® Apollo Lake Pentium N4200E

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
Tablet Optional Config	500nits	8GB	256GB SSD	Ublox IC	CAT6 (Sierra Module)	19.53Whr	* Software Decode (Honeywell SwiftDecode)

Model Number	Docking Station	Extension Cover	Battery Charger
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 1 x Powered 24V USB 1 x USB 3.0 Type-A 2 x USB 2.0 Type-A 1 x HDMI 1.3	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 1 x Powered 24V USB 1 x USB 3.0 Type-A
I/O	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 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		

NEW



uATX

	PH10CMU	PH10FEU	PH10SU
MECHANICAL	Micro-ATX: 9.6" x 9.6" (244 mm x 244 mm)		
FORM FACTOR	Micro-ATX: 9.6" x 9.6" (244 mm x 244 mm)		
SYSTEM			
PROCESSOR	10th Gen Intel® Comet Lake LGA1200 Socket Processor, TDP Max. 125W	8th Gen Intel® Coffee Lake LGA1151 Socket Processor, TDP Max. 95W	7 / 6th Gen Intel® Kaby Lake / Skylake LGA1151 Socket Processor, TDP Max. 95W
CHIPSET	Intel® H420E / Q470E / W480E (Support RAID 0 / 1 / 5 / 10)	Intel® Q370 (Support RAID 0 / 1 / 5 / 10) / Intel® H310	Intel® Q170 (Support RAID 0 / 1 / 5 / 10)
SYSTEM MEMORY	DDR4 2933MHz (ECC: W480E) / 4 x 288-pin U-DIMM	DDR4 2666MHz / 4 x 288-pin U-DIMM / Max. 64 GB (Non-ECC)	DDR4 2133MHz / 4 x 288-pin U-DIMM
GRAPHICS	Intel® HD Graphics		
ETHERNET	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN		
I/O CHIPSET	Nuvoton NCT6126D (eSPI)	Nuvoton NCT6683D	Nuvoton NCT6104D
AUDIO	Realtek® ALC888	Realtek® ALC892	Realtek® ALC662
TPM	Nuvoton NPC1750AAAYX TPM2.0 (Optional)	Nuvoton NPC1750AAAYX TPM2.0 (Optional)	Nuvoton NPC1650AAAWX TPM2.0
EXPANSION SLOT	PCIe 3.0 X16 / PCIe 2.0 X8 PCI slot M.2 2280 M Key (PCIe, SATA) M.2 2230 E Key (PCIe, USB)	PCIe 3.0 X16 / 2 x PCIe 2.0 X8 (X4 Lanes) for Q370 / PCIe 2.0 X8 (X4 Lanes) for H310 / M.2 2242 / 2280 M key (PCIe)	PCIe 3.0 X16 slot / PCIe 2.0 X4 slot / PCIe 2.0 X1 slot / M.2 2280 / 2260 / 2242 M key (PCIe, SATA)
BIOS	256 Mbit SPI		128 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	Up to 4K (4096 x 2160) @30 Hz	
HDMI	Up to 4K (4096 x 2160) @24 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)	4 x USB 3.1 Gen2 (Q370) / 2 x USB 2.0 (Q370) / 4 x USB 2.0 (H310) / 2 x USB 3.0 (H310)	4 x USB 3.0 / 2 x USB 2.0
DISPLAY I/O	1 x HDMI 1.4 / 1 x DisplayPort 1.2 / 1 x DVI-I	2 x DisplayPort 1.2 / 1 x DVI-D	
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)	2 x RJ-45	
SERIAL PORT	1 x RS232	2 x RS232 (Configurable for power RS232)	
PS/2 PORT			
OTHERS			
INTERNAL CONNECTORS			
STORAGE	6 x SATAIII / 4 x SATAIII		5 x SATAIII
USB	2 x USB 3.2 Gen1 / 2 x USB 2.0	2 x USB 2.0 / 2 x USB 3.0 (Q370)	2 x USB3.0 / 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	4 x RS232	2 x RS232 (Configurable for RS232 / 422 / 485)
PARALLEL PORT	1 x Parallel Port Header		
GPIO	1 x MiAPI Header (Programmable, Support 10-bit GPIO)		
FAN	1 x 4-pin CPU Fan Header / 1 x 4-pin System Fan Header		
POWER	1 x 8-pin ATX Power Connector / 1 x 24-pin ATX Power Connector / 1 x AT / ATX Mode Select Jumper	1 x 24-pin ATX Power Connector / 1 x 4-pin ATX Power Connector	
OTHERS	1 x Chassis Intrusion / 1 x CMOS Jumper / 1 x Front Audio Header (Mic-in & Line-out)		1 x Chassis Intrusion / 1 x CMOS Jumper
POWER REQUIREMENT			
POWER INPUT	ATX 8-pin + ATX 24-pin		ATX 24-pin + 4-pin
ENVIRONMENTAL			
OPERATING TEMPERATURE	0 ~ 60°C (32 ~ 140°F)		
STORAGE TEMPERATURE	-20 ~ 70°C (-4 ~ 158°F)		
CERTIFICATION	CE / FCC Class B		
OS			
OS SUPPORT	Windows® 10 64-bit / Linux (support by request)		

Thin Mini-ITX

NEW



	PH12ADI	PH12CMI	PH11CMI
MECHANICAL	Mini-ITX: 6.7" x 6.7" (170 mm x 170 mm)		
FORM FACTOR	Mini-ITX: 6.7" x 6.7" (170 mm x 170 mm)		
SYSTEM			
PROCESSOR	12th Gen Intel® Alder Lake LGA1700 Socket Processor, Core i9/i7/i5/i3 support 154 IA lccmax (A) and by bios support ADL-S 88 65W (compatible to 13th Raptor Lake S)	10th Gen Intel® Comet Lake LGA1200 Socket Processor / 10core TDP Max 35W / 8ccore TDP 65W	
CHIPSET	Intel® H610 / Q670	Intel® Q470 (Support RAID 0 / 1 / 5, VPro)	Intel® H410
SYSTEM MEMORY	DDR5 4800 MHz / 2 x 262-pin SO-DIMM / Max. 64GB (Non-ECC)	DDR4 2933/2666/2400MHz / 2 x 260-pin SO-DIMM / Max. 64GB (Non-ECC)	
GRAPHICS	Intel® UHD Graphics 770	Intel® HD Graphics	
ETHERNET	Intel® I219-LM Giga LAN + Intel® I225V 2.5 Giga LAN	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN	
I/O CHIPSET	Nuvoton NCT6126D (eSPI)		
AUDIO	Realtek® ALC888 Co-Lay ALC897	Realtek® ALC888	
TPM	TPM Header / (support TPM module board NPCT1750)		
EXPANSION SLOT	PCIe X4 Gen3 M.2 2242 / 2280 M key (PCIe X4, SATA) M.2 2230 E key (PCIe, USB 2.0, CNV) M.2 3042 B key (USB, PCIe, SATA)	1 x M.2 2230 E key (PCIe / USB) PCIe 3.0 X4 slot / M.2 2242 / 2280 M key (PCIe, SATA) / Mini PCIe Full size (PCIe / USB / SATA)	Mini PCIe Full size (SATA / USB) / PCIe 3.0 X4 slot / M.2 2230 E key (PCIe, USB 2.0) M.2 2242 / 2280 M key (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) / Gen2 (Q670)	4 x USB 3.2 Gen2 (Q470)	4 x USB 3.2 Gen1
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	2 x SATAIII / 1 x SATA power header	
USB	H610 & Q670: 5 x USB 2.0 (1 x USB share M.2 B) / Q670: 2 x USB 3.2	6 x USB 2.0	5 x USB2.0 (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	1 x RS232, 1 x RS232 / 422 / 485		4 x RS232 (One supports RS232 / 422 / 485)
PARALLEL PORT			
GPIO	1 x MiAPI Header (Programmable, Support 10-bit GPIO)		
FAN	1 x 4-pin CPU Fan Header / 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 CMOS Jumper / 1 x Front Audio Header (Mic-in & Line-out) / 1 x panel power select header / 1 x backlight power select header / 1 x buzzer header / 1 x Digital MIC		
POWER REQUIREMENT			
POWER INPUT	DC-in 19V (5.1 mm / ID, 7.4 mm / OD) / ATX 2-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)		
CERTIFICATION	CE / FCC Class B		
OS			
OS SUPPORT	Windows® 11 64bit, Linux (support by request) ubuntu 20.04	Windows® 10 64-bit / Linux (support by request)	



Thin Mini-ITX

MECHANICAL	PH14FEI PH12FEI PH13SI PH12SI			
FORM FACTOR	Mini-ITX: 6.7" x 6.7" (170 mm x 170 mm)			
SYSTEM				
PROCESSOR	8th Gen Intel® Coffee Lake LGA1151 Socket Processor, TDP Max. 65W		7 / 6th Gen Intel® Kaby Lake / Skylake LGA1151 Socket Processor, TDP Max. 65W	
CHIPSET	Intel® H310 / Intel® Q370 (Support RAID 0 / 1 / 5)	Intel® H310 / Intel® Q370 (Support RAID 0 / 1 & vPro)	Intel® Q170 (Support RAID 0 / 1 / 5 / 10)	
SYSTEM MEMORY	DDR4 2666MHz / 2 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)		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			
I/O CHIPSET	Nuvoton NCT6116D		Nuvoton NCT6104D	
AUDIO	Realtek® ALC888		Realtek® ALC662	Realtek® ALC888
TPM	TPM Header	Nuvoton NPCT750AAAAXX TPM2.0 (Optional)	Nuvoton NPCT650AAAAXX TPM2.0 (Optional)	
EXPANSION SLOT	H310 only support M.2 SATA SSD / PCIe 3.0 X16 slot / M.2 2230 E key (PCIe, USB 2.0) / M.2 2242 / 2280 M key (PCIe, SATA) / Mini PCIe Full size (PCIe / USB / SATA)	M.2 2260 / 2280 M key (PCIe X2, SATA) / PCIe 3.0 X4 slot / M.2 2230 E key (PCIe, USB 2.0)	PCIe 2.0 X4 slot / Mini PCIe Half size (PCIe / USB) / Mini PCIe Full / Half size (PCIe / USB / SATA)	PCIe 2.0 X4 Mini PCIe Half size (PCIe / USB) / Mini PCIe Full / Half size (PCIe / USB / SATA)
BIOS	256 Mbit SPI		AMI BIOS / 128 Mbit SPI	128 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		Up to 4K (3840 x 2160) @30 Hz	
DISPLAYPORT	Up to 4K (4096 x 2304) @60 Hz			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 / 4 x USB 3.0 (H310)		4 x USB 3.0	
DISPLAY I/O	1 x HDMI 1.4 / 2 x DisplayPort 1.2	1 x HDMI 1.4 / 1 x DisplayPort 1.2	3 x HDMI 1.4	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)	DC-in 12V (DIN 4-pin power cable) / DC-in 19V (5.1 mm / ID, 7.4 mm / OD)	DC-in Jack (2.5 mm / ID, 5.5 mm / OD)	1 x DC Jack
INTERNAL CONNECTORS				
STORAGE	2 x SATAIII		4 x SATAIII	
USB	5 x USB 2.0 (Q370) / 4 x USB 2.0 (H310)		6 x USB 2.0	
DISPLAY I/O	1 x LVDS (*Optional eDP SKU available) / 1 x Backlight Connector			
AUDIO I/O	1 x Stereo Speaker Header	1 x Audio Header (Front Panel Mic-in & Line-out)	1 x Line-out / 1 x Audio Header (Front Panel Mic-in & Line-out)	
SERIAL PORT	4 x RS232 (Two supports RS232 / 422 / 485 select by BIOS)	4 x RS232 (One supports RS232 / 422 / 485)	4 x RS232	
PARALLEL PORT				1 x Parallel Port Header
GPIO	1 x MIAPI Header (Programmable, Support 10-bit GPIO)			
FAN	1 x 4-pin CPU Fan Header / 1 x 4-pin System Fan Header			
POWER	1 x AT / ATX Mode Select Jumper / 1 x 4-pin ATX Power Connector	1 x ATX Power Connector / 1 x AT / ATX Mode Select Jumper	1 x ATX Power Connector / 1 x AT / ATX Mode Select Jumper	
OTHERS	1 x CMOS Jumper / 1 x Front Audio Header (Mic-in & Line-out) / 1 x panel power select header / 1 x backlight power select header / 1 x buzzer header	1 x Chassis Intrusion / 1 x CMOS Jumper	1 x CMOS Jumper / 1 x Front Audio Header (Mic-in & Line-out)	
POWER REQUIREMENT				
POWER INPUT	*optional 12V-24V via DC to DC power board / DC-in 12V (DIN 4-pin) / ATX 4-pin 12V	DC-in 19V (5.1 mm / ID, 7.4 mm / OD) / ATX 2-pin 19V / DC-in 12V (DIN 4-pin power cable) / ATX 4-pin 12V	DC-in 12V (2.5 mm / ID, 5.5 mm / OD) / ATX 4-pin 12V	DC-in 19V (5.1 mm / ID, 7.4 mm / OD) / ATX 2-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)		0 ~ 60°C (32 ~ 140°F)	
STORAGE TEMPERATURE	-40 ~ 85°C (-40 ~ 185°F)		-20 ~ 70°C (-4 ~ 158°F)	
CERTIFICATION	CE / FCC Class B			
OS				
OS SUPPORT	Windows® 10 64bit		Kaby Lake: Windows® 10 64bit, Linux (support by request) / Skylake: Windows® 7 32 / 64bit, Windows® 10 64bit, Linux (support by request)	



Thin Mini-ITX

MECHANICAL	PD10EHI PD10AI PD10RI PD10BI			
FORM FACTOR	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, Atom x6413E Processor	Intel® Apollo Lake-M N3350 / N4200 Processor	Intel® Celeron® Processor N3160 (Quad Core, 2M Cache, up to 2.24 GHz)	Intel® Bay Trail-D J1900 Processor
CHIPSET	Intel® SoC Integrated			
SYSTEM MEMORY	DDR4 3200 MHz / 2 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)	DDR3L 1866 MHz / 2 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)	DDR3L 1600MHz / 2 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)	DDR3L 1333 MHz / 2 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)
GRAPHICS	Intel® HD Graphics			
ETHERNET	2 x Intel® I210-AT Giga LAN		Realtek® RTL8111G Giga LAN	
I/O CHIPSET	Nuvoton NCT6126D (eSPI)	Nuvoton NCT6793D	Nuvoton NCT6104D	Nuvoton NCT6683D
AUDIO	Realtek® ALC888		Realtek® ALC283	Realtek® ALC888
TPM	Nuvoton NPCT750AABYX TPM2.0 (Optional)			Nuvoton NPCT420AA0WX (Optional)
EXPANSION SLOT	PCIe 3.0 X1 slot / M.2 3042 / 3052 / 2242 / 2260 / 2280 B key (USB, SATA, PCIe) / M.2 2230 E key (PCIe, USB 2.0) / Mini PCIe Full size (PCIe / USB / SATA)	M.2 2280 / 2260 / 2242 B key (USB, SATA) / PCIe 2.0 X1 slot / M.2 2230 E key (PCIe, USB 2.0)	PCIe 2.0 X1 slot / Mini PCIe Half size (PCIe / USB) / Mini PCIe Full / Half size (PCIe / USB / SATA)	
BIOS	AMI BIOS		AMI 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		CPU Fan / System Fan	
GRAPHICS				
VGA	Up to 1920 x 1200 @60 Hz			
DVI				
HDMI	Up to 4K (4096 x 2160) @60 Hz	Up to 4K (3840 x 2160) @30 Hz	Up to 4K (3840 x 2160) @30 Hz	Up to 1920 x 1200 @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	Up to 4K (3840 x 2160) @60 Hz	Up to 4K (4096 x 2304) @60 Hz	Up to 2560 x 1600 @60 Hz
REAR I/O				
USB	2 x USB 2.0 / 2 x USB 3.1 Gen 2		4 x USB 3.0	
DISPLAY I/O	1 x HDMI 1.4 / 1 x DisplayPort 1.4	1 x HDMI 1.4 / 1 x DisplayPort 1.2	1 x HDMI 1.4 / 1 x VGA	
AUDIO I/O	1 x Mic-in / 1 x Line-out			
LAN I/O	2 x RJ-45		1 x RJ-45	
SERIAL PORT				
PS/2 PORT				
OTHERS	DC-in Jack 8-24V (2.5 mm / ID, 5.5 mm / OD)			
INTERNAL CONNECTORS				
STORAGE	1 x SATA power header / 2 x SATAIII (Multiplexed with M.2 and mSATA ports)	2 x SATAIII (1 x SATA is multiplexed with M.2 ports)	2 x SATAIII	2 x SATAIII (1 x SATA is multiplexed with 1 x mSATA port)
USB	2 x USB 2.0		3 x USB 2.0	
DISPLAY I/O	1 x Backlight Connector / 1 x LVDS / 1 x eDP			1 x LVDS (*Optional eDP SKU available) / 1 x Backlight Connector
AUDIO I/O	1 x Stereo Speaker Header / 1 x Audio Header (Front Panel Mic-in & Line-out)		1 x Audio Header (Front Panel Mic-in & Line-out) / 1 x Audio Header (Front Panel Mic-in & Line-out) / 1 x Digital Mic / 1 x S/PDIF Out Audio Header (4-pin)	
SERIAL PORT	2 x RS232 / (Extra 1 x RS232/422/485 Header + 3 x RS232 Header for Option, Max. 6 x COM by Option)	2 x RS232		2 x RS232 (Configurable for RS232 / 422 / 485)
PARALLEL PORT	1 x Parallel Port Header (Optional)		1 x Parallel Port Header (Default); Option change to MIAPI Header	
GPIO	1 x MIAPI Header (Programmable, Support 10-bit GPIO)			
FAN	1 x 4-pin CPU Fan Header	1 x 4-pin CPU Fan Header / 1 x 4-pin System Fan Header		1 x 4-pin CPU Fan Header / 1 x 3-pin System Fan Header
POWER	1 x AT / ATX Mode Select Jumper / 1 x 8-24V 4-pin ATX Power Connector	1 x AT / ATX Mode Select Jumper / 1 x 2-pin Power Connector	1 x AT / ATX Mode Select Jumper / 1 x 2-pin Power Connector	
OTHERS	1 x CMOS Jumper / MIAPI: Programmable header (support 10 x GPIO, 1 x I2C, 1 x SMBUS, 1 x UART, 1 x Watchdog) with API library supported for Windows OS / 1 x panel power select header	1 x CMOS Jumper / 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 Legacy I/O Board Header (Optional legacy I/O Board for extra 2 x RS232 and 2 x RS232 / 422 / 485 expansion)		1 x CMOS Jumper
POWER REQUIREMENT				
POWER INPUT	DC-in 8-24V (2.5 mm / ID, 5.5 mm / OD) / ATX 4-pin	DC-in 8-24V / 2-pin Internal Power Connector + DC Jack	DC-in 8-24V (2.5 mm / ID, 5.5 mm / OD) / ATX 2-pin	2-pin Internal Power Connector + DC Jack / DC-in 8-19V
ENVIRONMENTAL				
OPERATING TEMPERATURE	0 ~ 60°C (32 ~ 140°F)			
STORAGE TEMPERATURE	-40 ~ 85°C (-40 ~ 185°F)		-20 ~ 70°C (-4 ~ 158°F)	
CERTIFICATION	CE / FCC Class B			
OS				
OS SUPPORT	Windows® 10 64-bit / Ubuntu 20.04 / Kernel 5.4 / Linux (support by request)		Windows® 7 32 / 64bit, Windows® 10 64bit, Linux (support by request)	
			Windows® 10 64-bit / Windows® 7 32 / 64bit / Linux (support by request)	

Mini ITX



MECHANICAL				
FORM FACTOR				
Mini-ITX: 6.7" x 6.7" (170 mm x 170 mm)				
SYSTEM				
PROCESSOR	10th Gen Intel® Comet Lake LGA1200 Socket Processor / 10core TDP Max 35W / 8core TDP 65W / (ATX support 6core 95W)	8th Gen Intel® Coffee Lake LGA1151 Socket Processor, TDP Max. 95W	Intel® Celeron® Processor N3060 (2M Cache, up to 2.48 GHz)	Intel® Bay Trail-D J1900 Processor
CHIPSET	Intel® Q470 (Support RAID 0 / 1 / 5 / VPro) / colay H420E	Intel® Q370 (Support RAID 0 / 1 / 5 / 10) / Intel® H310	Intel® SoC Integrated	
SYSTEM MEMORY	DDR4 2933/2666/2400MHz / 2 x 260-pin SO-DIMM / Max. 64GB (Non-ECC)	DDR4 2666MHz / 2 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)	DDR3L 1600MHz / 2 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)	DDR3L 1333 MHz / 2 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)
GRAPHICS	Intel® HD Graphics			
ETHERNET	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN	Realtek® RTL8111G Giga LAN	2 x Realtek® RTL8111G Giga LAN
I/O CHIPSET	Nuvoton NCT6126D (eSPI)			
AUDIO	Realtek® ALC888			
TPM	Nuvoton NPCT750AAAYX TPM2.0 (Optional)		Nuvoton NPCT420AA0WX (Optional)	
EXPANSION SLOT	1 x M.2 2230 E key (PCIe / USB) / PCIe 3.0 X16 slot / M.2 2242 / 2280 M key (PCIe, SATA) / Mini PCIe Full size (PCIe / USB / SATA)	M.2 2260 / 2280 M key (PCIe X2, SATA) / PCIe 3.0 X16 slot / M.2 2230 E key (PCIe, USB 2.0)	PCIe 2.0 X1 slot / Mini PCIe Half size (PCIe / USB)	PCIe 2.0 X1 slot / Mini PCIe Full / Half size (PCIe / USB / 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	Up to 1920 x 1200 @60 Hz			
DVI	Up to 1920 x 1200 @60 Hz			
HDMI	Up to 4K (4096 x 2160) @30 Hz	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 2.0 / 4 x USB 3.2 Gen 2 (Q470)	4 x USB 3.0 (H310) / 4 x USB 3.1 Gen 2 (Q370)	4 x USB 3.0	2 x USB 2.0 / 2 x USB 3.0
DISPLAY I/O	1 x HDMI 1.4 / 1 x DisplayPort 1.2		1 x HDMI 1.4 / 1 x VGA	1 x VGA / 1 x DVI-I
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)		1 x RS232	2 x RS232
PS/2 PORT	2 x PS/2 (MS / KB Combo)			
OTHERS				
INTERNAL CONNECTORS				
STORAGE	2 x SATAIII	4 x SATAIII (Q370) / 3 x SATAIII (H310)	2 x SATAIII	2 x SATAIII
USB	1 x USB 3.0 / 2 x USB 2.0	2 x USB3.0 (Q370) / 2 x USB 2.0 (Q370) / 2 x USB 2.0 (H310)	3 x USB 2.0	4 x USB 2.0
DISPLAY I/O	1 x LVDS (*Optional eDP SKU available) / 1 x Backlight Connector			1 x Backlight Connector / 1 x LVDS
AUDIO I/O	1 x Audio Header		1 x Audio Header (Front Panel Mic-in & Line-out)	1 x Audio Header (Front Panel Mic-in & Line-out)
SERIAL PORT		4 x RS232 (One supports RS232 / 422 / 485)	1 x RS232	2 x RS232
PARALLEL PORT			1 x MIAPI Header	1 x Parallel Port Header
GPIO	1 x MIAPI Header (Programmable, Support 10-bit GPIO)			
FAN	1 x 4-pin CPU Fan Header / 1 x 4-pin System Fan Header			
POWER	1 x ATX Power Connector / 1 x AT / ATX Mode Select Jumper / ATX 12V Power Connector (24-pin + 4-pin)	1 x 24-pin ATX Power Connector / 1 x AT / ATX Mode Select Jumper / 1 x 4-pin ATX Power Connector	1 x ATX Power Connector / 1 x AT / ATX Mode Select Jumper	1 x 24-pin ATX Power Connector
OTHERS	1 x CMOS Jumper / 1 x Front Audio Header (Mic-in & Line-out) / 1 x panel power select header / 1 x buzzer header / 1 x SPDIF	1 x CMOS Jumper / 1 x Front Audio Header (Mic-in & Line-out)		1 x CMOS Jumper
POWER REQUIREMENT				
POWER INPUT	ATX 24-pin + 4-pin / 12V DC (3pin terminal connector via cable by connecting to ATX 24-pin + 4-pin)	ATX 24-pin + 4-pin	ATX 24-pin	ATX 24-pin / (Optional: ATX Power 12V 4-pin)
ENVIRONMENTAL				
OPERATING TEMPERATURE	0 ~ 60°C (32 ~ 140°F)			
STORAGE TEMPERATURE	-40 ~ 85°C (-40 ~ 185°F)	-20 ~ 80°C (-4 ~ 176°F)	-20 ~ 70°C (-4 ~ 158°F)	
CERTIFICATION	CE / FCC Class B			
OS				
OS SUPPORT	Windows® 10 64-bit / Linux (support by request)		Windows® 7 32 / 64bit, Windows® 10 64bit, Linux (support by request)	Windows® 7 32 / 64bit / Windows® 8.1 64-bit / Linux (support by request)

SBC



MECHANICAL				
FORM FACTOR				
3.5" SBC: 4" x 5.8" (102 mm x 147 mm)				
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	7th Gen Intel® Kaby Lake-U i3-7100U / option: 3965U / i5-7300U / i7-7600U / option: 6th Gen Skylake celeron 3955U / i3-6100U / i5-6300U / i7-6600U		Intel® Apollo Lake N3350 / N4200 option: E3940 / E3950
CHIPSET	Intel® SoC Integrated			
SYSTEM MEMORY	DDR4 3200 MHz / 1 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)	DDR4 2133 / 2400MHz / 2 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)		DDR3L 1866 MHz / 1 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)
GRAPHICS	Intel® HD Graphics			
ETHERNET	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN			2 x Intel® I210-IT Giga LAN
I/O CHIPSET	Nuvoton NCT6126D (eSPI)		Nuvoton NCT6104D	
AUDIO	Realtek® ALC256 / ALC888		Realtek® ALC283	
TPM	Nuvoton NPCT750AAAYX TPM2.0		Nuvoton NPCT650ABCYX TPM2.0	
EXPANSION SLOT	M.2 3042 / 3052 / 2242 / 2260 / 2280 B key (USB, SATA, PCIe) / Wireless: M.2 2230 E key (PCIe, USB)	Storage: mPCIe Full size (USB / PCIe / SATA) / Wireless: M.2 2230 E key (PCIe, USB)		Storage/LTE/Wireless: mPCIe 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 / Fan Monitor			
WATCHDOG TIMER	1-255 steps by software program			
SMART FAN CONTROL	CPU Fan			
GRAPHICS				
VGA/DisplayPort	Up to 4K (4096 x 2160) @60 Hz	Up to 1920 x 1200 @60 Hz	Up to 4K (4096 x 2160) @24 Hz	Up to 1920 x 1200 @60 Hz
HDMI	Up to 5120 x 3200 @60 Hz			
LVDS	Up to 1920 x 1200 @60 Hz			
eDP (Option)	Up to 5120 x 3200 @60 Hz	Up to 4K (4096 x 2304) @60 Hz	Up to 4K (4096 x 2160) @60 Hz	Up to 4K (3840 x 2160) @60 Hz
REAR I/O				
USB	4 x USB 3.1 Gen 2		4 x USB 3.0	
DISPLAY I/O	1 x DisplayPort 1.2 / 2 x HDMI 2.0b		1 x HDMI 1.4 / 1 x VGA	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			
INTERNAL CONNECTORS				
STORAGE	1 x SATAIII / 1 x SATA power header		1 x SATAIII	
USB	2 x USB 2.0			
DISPLAY I/O	1 x Backlight Connector / 1 x LVDS			1 x Backlight Connector / 1 x LVDS / 1 x eDP
AUDIO I/O	1 x Audio Header Supporting System Stereo Speaker or Buzzer		1 x Audio Header Supporting System Stereo Speaker or Buzzer / 1 x Audio Header without Amplifier	
SERIAL PORT	3 x RS232 / 1 x RS232 / 422 / 485			
GPIO	1 x MIAPI Header (Programmable, Support 10-bit GPIO)			1 x MIAPI Header (Programmable, Support 10-bit GPIO)
FAN	1 x 4-pin CPU Fan Header			
POWER	1 x AT / ATX Mode Select Jumper / 1 x 8-24V ATX Power Connector			
OTHERS	1 x Front Audio Header (Mic-in & Line-out) / 1 x buzzer	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 CMOS Jumper
POWER REQUIREMENT				
POWER INPUT	8-24V Wide Range DC Input w/ 4-pin Power Header (Pitch: 2.5mm)			8-24V Wide Range DC Input w/ 4-pin ATX connector (Pitch: 4.2mm)
ENVIRONMENTAL				
OPERATING TEMPERATURE	28W TDP: -40~50°C	0 ~ 60°C (32 ~ 140°F)		
POWER INPUT	-40 ~ 85°C (-40 ~ 185°F)			
CERTIFICATION	CE / FCC Class B			
OS				
OS SUPPORT	Windows® 10 64-bit / Ubuntu 20.04 / Kernel 5.4 / Linux (support by request)		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)	



MECHANICAL		ND108T		ND118T	
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				
SYSTEM MEMORY	LPDDR4 Onboard Memory with Options: 1GB (800MHz), 2GB (1600MHz), 4GB (1600MHz)				
GRAPHICS	i.MX8 Integrated				
ETHERNET	1 x Realtek® RTL8111H Giga LAN / 1 x Realtek® RTL8211FD Giga LAN		1 x Realtek® RTL8211FD Giga LAN		
I/O CHIPSET	-				
AUDIO	Realtek® ALC5660				
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) @30 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				
AUDIO I/O	-				
LAN I/O	2 x RJ-45		1 x RJ-45		
SERIAL PORT	-				
PS/2 PORT	-				
OTHERS	-				
INTERNAL CONNECTORS					
STORAGE	1 x Micro-SIM & Micro SD combo card slot				
USB	1 x USB 2.0 Port Header / 1 x USB 2.0 OTG port Header				
DISPLAY I/O	1 x Backlight Connector / 1 x LVDS / 1 x LCD PWR Selection Header				
AUDIO I/O	1 x Audio Header (Mic-in & Line-out)				
SERIAL PORT	1 x RS232 / 422 / 485				
PARALLEL PORT	-				
GPIO	-				
FAN	-				
POWER	1 x 12V 4-pin Power Connector		DC-in 12V~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 12V (4-pin Power Connector)		DC-in 12V~24V (4-pin Power Connector)		
ENVIRONMENTAL					
OPERATING TEMPERATURE	-10°C~65°C (14~149°F)				
STORAGE TEMPERATURE	-20 ~ 70°C (-4 ~ 158°F)				
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)				



Mechanical		PD10KC	
Form Factor	COM Express: 3.74" x 3.74" (95mm x 95mm)		
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 / option: 6th Gen Skylake celeron 3955U / i3-6100U / i5-6300U / i7-6600U		
CHIPSET	Intel® SoC Integrated		
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	Intel® i219-LM Giga LAN		
AUDIO	Realtek® ALC283		
EMBEDDED CONTROLLER	ITE8528		
TPM	Nuvoton NPCT650AAAWX TPM2.0		
SOLID CAPACITOR	All Solid Capacitors		
ENVIRONMENTAL			
OPERATING TEMPERATURE	0 ~ 60°C (32 ~ 140°F)		
STORAGE TEMPERATURE	-20 ~ 70°C (-4 ~ 158°F)		
CERTIFICATION	CE / FCC Class B		
I/O SUPPORT			
PCI EXPRESS	PCIe3.0 X7 Lanes		
SATA	3 x SATAIII (can be configured as RAID)		
USB	4 x USB 3.0 / 8 x USB 2.0		
Pin-Out TYPE	COM Express Type 6 Connector		
LPC	LPC bus (no DMA)		
I2C	PC bus (fast mode, 400 kHz, multi-master)		
Others	8-bit GPIO / SMBus / 2-pin UART		
OS			
OS SUPPORT	Windows® 10 64-bit / Linux (support by request)		



SYSTEM	MX1-10FEP-D	MX1-10FEP	MP1-11TGS-D	MP1-11TGS
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 / *Please see the CPU Options in Docs / Manuals		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® C246		Intel® SoC Integrated	
SYSTEM MEMORY	Max. 64GB (Xeon: ECC / Non-ECC; Core-i: Non-ECC) / DDR4 2666MHz / 2 x 260-pin SO-DIMM		DDR4 3200 MHz / 1 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)	
GRAPHICS	Intel® HD Graphics			
DISPLAY INTERFACE	DisplayPort 1.2 / DVI-I / HDMI 1.4		HDMI 2.0b / DisplayPort 1.4	
STORAGE SLOT	3 x 2.5 HDD / SSD (1 w/ Removable HDD Bay, 2 w/ Internal HDD Bracket) / 2 x mSATA		2 x Hot Swappable 2.5 HDD / SSD / 1 x M.2 B Key 2280/2260/2242 Slot / 1 x mSATA	1 x Hot Swappable 2.5 HDD / SSD / 1 x M.2 B Key 2280/2260/2242 Slot
ETHERNET	Intel® I219-LM Giga LAN + I210-IT Giga LAN			
I/O CHIPSET	Nuvoton NCT6116D			
AUDIO	Realtek® ALC888			
TPM	Nuvoton NPCT750AAAAX TPM2.0			
EXPANSION SLOT	Storage: M.2 2280 / 2260 / 2242 M key (PCIe, SATA) / Storage/LTE/ Wireless: 2 x mPCIe Full / Half size (USB / PCIe / SATA), w/ SIM Card Holder / Wireless: M.2 2230 E key (PCIe, USB) / PCIe Slot: PCIe 3.0 X16, PCIe 3.0 X1 (Option: 2 x PCIe 3.0 X8)	Storage: M.2 2280 / 2260 / 2242 M key (PCIe X4, SATA) / Storage/LTE/ Wireless: 2 x mPCIe Full / Half size (USB / PCIe / SATA), w/ SIM Card Holder / Wireless: M.2 2230 E key (PCIe, USB)	Storage/LTE/5G Slot: M.2 2280/2260/2242/3042/3052 B Key (USB/PCIe1/SATA) / 2 x Expansion slot (PoE/LAN/COM/DIO/IGN/CANBus Options) / Mini PCIe Full size (PCIe / USB / SATA) / Wireless: M.2 2230 E key (PCIe, USB)	Storage/LTE/5G Slot: M.2 2280/2260/2242/3042/3052 B Key (USB/PCIe1/SATA) / Wireless: M.2 2230 E key (PCIe, USB)
INTERNAL SPEAKER	1 x Buzzer			
INDICATOR	DIO LED / LAN1 & 2 ACT / SPEED / Power LED / HDD LED		Power LED / HDD LED	
FRONT I/O	1 x HDMI 1.4 / 2 x USB 3.0 / 2 x SIM Card Slot w/ Cover / 1 x 2.5" SATAIII HDD / SSD Bay		2 x SMA Antenna (Optional for WiFi/LTE function) / 3 x RS232 / 2 x Hot Swappable 2.5" SSD / HDD slot / 1 x Audio Combo Jack (Mic-in and Line-out) / 1 x Hot Swappable 2.5" SSD/HDD slot / 2 x USB 2.0 / 1 x RS232 / 422 / 485 / HDD LED / Power Button w/ Power Indicator	
REAR I/O	1 x DisplayPort 1.2 / 1 x DVI-I / 2 x RJ-45 / 4 x USB 3.1 Gen 2 (10 Gbps) / 2 x USB 2.0 / 2 x RS232 / 422 / 485 (Support Power 5V / 12V) / 1 x Mic-in / 1 x Line-out / 1 x PS/2 / 1 x 2-pin Terminal Block Remote Power Reset / 1 x 3-pin Terminal Block Power Input / 1 x 4-pin Terminal Block External Fan Connector / 1 x 2-pin Terminal Block Remote Power on / off / 4 x SMA Antenna (Optional for WiFi/LTE function)		1 x 4-pin Terminal Block Power Output (12V/5V) / 2 x DisplayPort 1.2 / 2 x HDMI 1.4 / 2 x RJ-45 / 4 x USB 3.1 Gen 2 (10 Gbps) / 1 x 3-pin Terminal Block Power Input / 1 x 2-pin Terminal Block Remote Power on / off / 4 x SMA Antenna (Optional for WiFi/LTE function)	
EDGE AI ENGINE (Optional)	1X/2X/3X/4X Movidius Myriad X VPU, and Intel® OpenVINO™ toolkit supported (Optional)		1X/2X Movidius Myriad X VPU, and Intel® OpenVINO™ toolkit supported (Optional)	
POWER REQUIREMENT	9~48V Wide Range DC Input w/ Terminal Block Connectivity			
POWER INPUT	9~48V Wide Range DC Input w/ Terminal Block Connectivity		8~24V Wide Range DC Input w/ Terminal Block Connectivity (Optional)	
POWER ADAPTER	Optional		DC24V / 3A / AC / DC / 120W adapter (For AC SKU)	
MECHANICAL	Fanless			
THERMAL DESIGN	Fanless w/o Venting Holes / Options with 2 x Internal 40x40x20 System Fan (Supporting NVIDIA GTX1650/GTX1660 Graphic Cards); Options with 2 x Internal 40x40x28 System Fan and Fan Duct (Supporting NVIDIA Tesla T4/P4 GPU Cards)		Fanless	
MOUNTING	Wallmount		Wallmount / Side Mount / 75 mm x 75 mm VESA Holes & Din Rail Mount Combo Kit (Optional)	
DIMENSIONS (W x D x H)	10.6" x 9.7" x 5.0" (268 x 246 x 128 mm)	10.6" x 9.7" x 4.3" (268 x 246 x 108 mm)	8.3" x 5.9" x 4" (210 x 150 x 103 mm)	8.3" x 5.9" x 2.5" (210 x 150 x 63 mm)
WEIGHT	7.7kg (17 lb)	6kg (13.2 lb)	3.2kg (7.1 lb)	2.1kg (4.6 lb)
Material	Top cover: Aluminum Alloy / Bezel and chassis: Steel			
ENVIRONMENTAL	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 / *Please consult with your sales contact window about the Operating Temperature of GPU Card Configurations / with 0.7m/s Air Flow and Wide Temperature Memory/Storage			
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 / *Please consult with your sales contact window about the Operating Temperature of GPU Card Configurations / with 0.7m/s Air Flow and Wide Temperature Memory/Storage		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)	
OPERATING HUMIDITY	10% ~ 90% R/H (Non-condensing)			
VIBRATION RESISTANCE	Operating: 5Hz~500Hz / 5Grms / 3Axis (w/ SSD, according to IEC60068-2-64)		Operating: 5Hz~500Hz / 3Grms / 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 / Compliant with EN50155 & EN50121 / E-mark		CE / FCC Class A / Compliant with EN50155 & EN50121 / E-mark	
OS	Windows® 10 64-bit / Ubuntu 20.04 / Kernel 5.4 / Linux (support by request)			



SYSTEM	MB1-10AP	ME1-108T	ME1-118T
CPU	Intel® Apollo Lake-M N4200 / N3350 Processor	NXP® i.MX8M Family 8M Quad (4 x Cortex-A53 @ 1.3GHz) 8M Dual (2 x Cortex-A53 @ 1.3GHz)	
CHIPSET	Intel® SoC Integrated	i.MX8M SoC Integrated	
SYSTEM MEMORY	DDR3L 1866 MHz / 1 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)	LPDDR4 Onboard Memory with Options: 1GB (800MHz), 2GB (1600MHz), 4GB (1600MHz)	
GRAPHICS	Intel® HD Graphics		
DISPLAY INTERFACE	HDMI 1.4 / Optional DisplayPort / VGA / DVI-D by Expansion Modul	HDMI 1.4	
STORAGE SLOT	1 x 2.5 HDD / SSD (Default w/ HDD Bracket) / 1 x mSATA	1 x Micro SD card slot (Up to 256GB) / Onboard eMMC with Options for 8GB / 16GB / 32GB	
ETHERNET	2 x Intel® I210-IT Giga LAN (Optional 2 x Output PoE LAN support 802.3af and 802.3at. Maximum Power Budget 30W for dual port) / 1 x Realtek RTL8154 LAN (Up to 480Mbps)	1 x Realtek® RTL8111H Giga LAN / 1 x Realtek® RTL8211FD Giga LAN	1 x Realtek® RTL8211FD Giga LAN
I/O CHIPSET	Nuvoton NCT6116D		
AUDIO	Realtek® ALC888		
TPM	Nuvoton NPCT750AAAAX TPM2.0 (Optional)		
EXPANSION SLOT	LTE/Wireless: Mini PCIe Full size (USB / PCIe), w/ SIM Card Holder (w/ Full to Half size adapter plate) / Storage: mPCIe Full size (USB / PCIe / SATA)	1 x Micro SD/SIM card slot / 1 x GPIO 10-pin (4 in / 4 out / 5V / GND, Terminal Block) Mini PCIe Full / Half size (PCIe / USB)	
INTERNAL SPEAKER	1 x Buzzer		
INDICATOR	Power Button / Power LED / HDD LED		
FRONT I/O	1 x HDMI 1.4 / 4 x USB 3.0 / 2 x SMA Antenna (Optional for WiFi/LTE function) / 1 x Expansion Module Door / 2 x RS232 / 422 / 485 (Support Power 5V / 12V)		1 x USB 2.0 / 1 x RS232 / 422 / 485
REAR I/O	1 x 2-pin Header Remote Power on / off / 3 x RJ-45 / 1 x Mic-in / 1 x Line-out / 1 x 3-pin Terminal Block Power Input / 2 x SMA Antenna (Optional for WiFi/LTE function)	1 x HDMI 2.0 / 1 x DisplayPort 1.2 / 2 x RJ-45 / 2 x USB 3.0 / 1 x 3-pin Terminal Block Power Input	1 x HDMI 2.0 / 1 x RJ-45 / 2 x USB 3.0 / 1 x 3-pin Terminal Block Power Input
EDGE AI ENGINE (Optional)	Single Movidius Myriad X VPU, and Intel® OpenVINO™ toolkit supported (Optional)		
POWER REQUIREMENT	8~24V Wide Range DC Input w/ Terminal Block Connectivity		
POWER INPUT	8~24V Wide Range DC Input w/ Terminal Block Connectivity		
POWER ADAPTER	Optional		
MECHANICAL	Fanless		
THERMAL DESIGN	Fanless & Ventless		
MOUNTING	Wallmount / 75 mm x 75 mm VESA Holes & Din Rail Mount Combo Kit (Optional)		Wallmount / VESA Mount (75 x 75mm) 2-in-1 Bracket
DIMENSIONS (W x D x H)	6.9" x 4.1" x 2.2" (170 x 105 x 57 mm)		140 x 100 x 38.75mm
WEIGHT	1.3kg (2.8 lb)		TBD
MATERIAL	Top cover: Aluminum Alloy / Bezel and chassis: Steel		
ENVIRONMENTAL	-25°C to 70°C (For non-PoE SKU) / -25°C to 60°C (For PoE SKU) / with 0.7m/s Air Flow and Wide Temperature Memory/Storage		
OPERATING TEMPERATURE	-25°C to 70°C (For non-PoE SKU) / -25°C to 60°C (For PoE SKU) / with 0.7m/s Air Flow and Wide Temperature Memory/Storage		
OPERATING HUMIDITY	10% ~ 90% R/H (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	Windows® 10 64-bit / Linux (support by request)		
OS SUPPORT	Windows® 10 64-bit / Linux (support by request)	Yocto Sumo (Kernel version 4.14.98) BSP Support / Android 9 Pie (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) / Yocto Gatesgarth 3.2 BSP Support

Fanless



SYSTEM	E410	E310	E400	E300	S310	S300	
CPU	10th Gen Intel® Comet Lake LGA1200 Socket Processor 10core TDP Max 35W	11th Gen Intel® Elkhart Lake Celeron J6413, Pentium N6415, Celeron N6211, Celeron N6210, and Atom x6413E (Up to 12W)	Intel® Bay Trail Desktop J1900 Processor (2M Cache, up to 2.42 GHz Quad Core)		7th Gen Kaby Lake Intel® Core™ i ULV Processor Option: 6th Gen Skylake Intel® Core™ i ULV Processor	Intel® Apollo Lake-M N4200 / N3350 Processor / Intel® Apollo Lake-L E3930 / E3940 / E3950 Processor	
CHIPSET	Intel® H420E	Intel® H310	Intel® SoC Integrated				
SYSTEM MEMORY	DDR4 2933/2666/2400MHz / 2 x 260-pin SO-DIMM / Max. 64GB (Non-ECC)	DDR4 3200, 2 x 260-pin SO-DIMM, Max. 32 GB (Non-ECC)	DDR3L 1866 MHz / 2 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)		DDR4 2133 / 2400MHz / 2 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)	DDR3L 1866 MHz / 1 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)	
GRAPHICS	Intel® HD Graphics						
DISPLAY INTERFACE	HDMI, DisplayPort		VGA / DVI-I	VGA / HDMI 1.4	DisplayPort 1.2 / HDMI 1.4	VGA / HDMI 1.4	
STORAGE SLOT	1 x 2.5" HDD/SSD BKT 1 x M.2 2280/2262/2242 SSD slot 1 x mSATA slot		1 x 2.5 HDD / SSD (Default w/ HDD Bracket, SATA, and SATA Power Cable in Accessories) / 1 x mSATA	SATA DOM or 1 x 2.5 HDD / SSD (Default w/ HDD Bracket, SATA, and SATA Power Cable in Accessories) / 1 x mSATA	1 x 2.5 HDD / SSD (Default w/ SATA and SATA Power Cable in Accessories) / 1 x mSATA	1 x mSATA	
ETHERNET	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN	2 x Intel® I211-AT Giga LAN	2 x Realtek® RTL8111G Giga LAN	Realtek® RTL8111G Giga LAN	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN	2 x Intel® I210-IT Giga LAN	
I/O CHIPSET	Nuvoton NCT6126D		Nuvoton NCT6104D	Nuvoton NCT6683D	Nuvoton NCT6104D	Nuvoton NCT6116D	
AUDIO	Realtek® ALC888S		Realtek® ALC283 / 256		Realtek® ALC662		
TPM	Nuvoton NPCT750AAAYX TPM2.0 (Optional)	Nuvoton NPCT420AA0WX (Optional)		Nuvoton NPCT650ABCYX TPM2.0 (Optional)			
EXPANSION SLOT	M.2 2242 / 2280 M key (SATA) mPCIeFull size (USB2.0 / SATAIII / PCIe x1) M.2 2230 E KEY (USB / PCIe x1)	M.2 2280/2242/3042 B Key (USB / PCIe x1) / SATA mPCIeFull size (USB2.0 / SATAIII / PCIe x1) M.2 2230 E KEY (USB / PCIe x1)	Wireless: mPCIe Full / Half size (PCIe / USB)	Storage: mPCIe Full / Half size (USB / PCIe / SATA) / Wireless: mPCIe Half size (PCIe / USB)	Storage: mPCIe 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 8-bit GPIO In DB9 type	2 x USB 2.0 2 x RS232 (Extra 1 x RS232/422/485 + 3 x RS232 for Option)	1 x DVH / 1 x VGA / 2 x RJ-45 / 2 x USB 3.0 / 2 x RS232 (Optional) / 1 x Mic-in / 1 x Line-out / 1 x Line-in / 2 x PS/2 / 1 x DC-in Jack / 2 x SMA Antenna (Optional for WiFi/LTE function)	2 x RS232 (Optional)	2 x USB 2.0 / 2 x RS232 / 1 x RS232 / 422 / 485 / 8-bit GPIO (DB9 Connector)	2 x USB 2.0 / 2 x RS232	
REAR I/O	1 x Mic-in, 1 x Line-out, 1 x Line-in 4 x USB 2.0, 4 x USB 3.0 2 x Giga LAN DC-in 12V In 3-pin 2 x SMA hole with rubber cap	1 x Mic-in, 1 x Line-out 2 x USB2.0, 2 x Giga LAN 2 x USB3.1 Gen2 1x HDMI 1.4, 1x DisplayPort 1.4, 4 x SMA hole with rubber cap	12V DC-in Jack (Default) / 12V DC Input w/ Terminal Block Connectivity (Optional)	1 x HDMI 1.4 / 1 x VGA / 1 x RJ-45 / 2 x USB 3.0 / 2 x USB 2.0 / 1 x Mic-in / 1 x Line-out / 1 x DC-in Jack / 2 x SMA Antenna (Optional for WiFi/LTE function)	1 x HDMI 1.4 / 1 x DisplayPort 1.2 / 2 x RJ-45 / 4 x USB 3.0 / 1 x Audio Combo Jack (Mic-in and Line-out) / 1 x DC-in Jack / 2 x SMA Antenna (Optional for WiFi/LTE function)	1 x HDMI 1.4 / 1 x VGA / 2 x RJ-45 / 4 x USB 3.0 / 1 x DC-in Jack / 2 x SMA Antenna (Optional for WiFi/LTE function)	
POWER REQUIREMENT	1 x AT/ATX Jumper; 1 x Buzzer		12V DC-in connectivity	8-19V DC-in connectivity	8-24V Wide Range DC Input w/ Terminal Block Connectivity (Optional) / 8-24V Wide Range DC-in Jack Connectivity		
POWER ADAPTER	DC-in 12V in 3-pin	DC-in Jack 8-24V	AC to DC / DC19V / 3.4A / 65W adapter				
MECHANICAL	Fanless						
THERMAL DESIGN	Fanless						
MOUNTING	Wall mount		VESA Mount Kit Support 75 x 75mm and 100 x 100mm (Optional)	100 mm x 100 mm VESA Holes / Wallmount Kit (Default in Accessories) / 100 mm x 100 mm VESA Mount Kit (Optional)	Wallmount and VESA Mount Kit (Optional)		
DIMENSIONS (W X D X H)	209mm x 209mm x 87mm	209mm x 209mm x 68mm	8.0" x 8.1" x 2.6" (204 x 206 x 67mm)	7.9" x 7.9" x 1.7" (200 x 200 x 42 mm)	7.4" x 5.8" x 2.2" (189 x 147.4 x 55 mm)	6.7" x 5.8" x 2.2" (170 x 147 x 55 mm)	
MATERIAL	Cold rolled steel and extruded aluminum front panel		Top cover: Aluminum Alloy / Bezel and chassis: Steel				
ENVIRONMENTAL	0 ~ 50°C (32 ~ 122°F)						
OPERATING TEMPERATURE	0 ~ 50°C (32 ~ 122°F)		0~40°C with 0.7m/s Air Flow (w/ Standard Temp. SSD/mSATA/RAM) / -10~50°C with 0.7m/s Air Flow (w/ Extended Temp. SSD/mSATA/RAM)		0 ~ 50°C (32 ~ 122°F) / Wide Temperature (Optional*) : -40 ~ 60°C (-40 ~ 140°F) / with 0.7m/s Air Flow and Wide Temperature Memory/Storage		
STORAGE TEMPERATURE	-40 ~ 85°C		-20 ~ 80°C (-4 ~ 176°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 A						
OS	Windows® 10 IoT LTSC / Ubuntu 20.04						
OS SUPPORT	Windows® 10 IoT LTSC 64bit (2019 / 2021 LTSC) / Ubuntu 20.04	Windows® 10 / Windows® 8.1 / Windows® 7 / Linux (support by request)	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)		Windows® 10 64-bit / Linux (support by request)		

Fanned



SYSTEM	E600	E500	NV1
CPU	9th & 8th Gen Intel® Coffee Lake LGA1151 Socket Processor, Core i9/i7/i5/i3		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® H310		Intel® SoC Integrated
SYSTEM MEMORY	DDR4 2666MHz / 2 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)		DDR4 3200MHz, 2 x 260-pin SO-DIMM, Max. 64GB (Non-ECC)
GRAPHICS	Intel® HD Graphics		
DISPLAY INTERFACE	VGA / DisplayPort 1.2 / HDMI 1.4 *Only dual display at the same time. H310 doesn't support triple display	DisplayPort 1.2 / HDMI 1.4	2 x HDMI 1.4 (Up to 4K@30Hz)
STORAGE SLOT	1 x 2.5 HDD / SSD (Default w/ HDD Bracket, SATA, and SATA Power Cable in Accessories)	1 x 2.5 HDD / SSD (Default w/ HDD Bracket, SATA, and SATA Power Cable in Accessories)	2 x 3.5" Internal HDD (RAID 0/1)
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)			iX Movidius Myriad X VPU, and Intel® OpenVINO™ toolkit supported (Optional)
ETHERNET	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN	1 x Intel® I225-LM 2.5GbE LAN, 1 x Intel® I219-LM Giga LAN
I/O CHIPSET	Nuvoton NCT6116D		
AUDIO	Realtek® ALC888		
TPM	Nuvoton NPCT750AAAYX TPM2.0 (Optional)		Nuvoton NPCT750AABYX TPM2.0
EXPANSION SLOT	M.2 2260 / 2280 M key (PCIe X2, SATA) / M.2 2230 E key (PCIe, USB 2.0)	M.2 2230 E key (PCIe, USB 2.0)	1 x M.2 2242/2260/2280 M-key slot (PCIe x1, SATA) / 1 x MiniPCIe full/half size slot (PCIe x1, SATA, USB)
INDICATOR	Power Button / Reset Button / Power LED / HDD LED	Power Button / Power LED / HDD LED	1 x Power button / 1 x Power LED / 1 x HDD Activity LED / 1 x Alarm LED
FRONT I/O		1 x HDMI 1.4 / 1 x DisplayPort 1.2 / 2 x RJ-45 / 4 x USB 3.1 Gen 2 (10 Gbps) / 1 x Mic-in / 1 x Line-out / 1 x DC-in Jack	2 x USB 2.0
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	12V DC-in Jack (Default)	4 x USB 3.1 Gen-2 / 2 x HDMI 1.4 / 1 x Line-in / 1 x Line-out / 2 x RJ-45 / 1 x RS232 port / 1 x RS485 port
POWER REQUIREMENT	100-240V AC-in	180W adapter / DC12V / 15A / AC to DC	100-240V AC-in
POWER ADAPTER	Built-in 250W Flex ATX PSU with AC Plug	AC to DC / DC12V / 15A / 180W adapter	Built-in 280W Flex ATX PSU with AC Plug
MECHANICAL	Fan		
THERMAL DESIGN	65W CPU cooler		Fan
MOUNTING	Desktop	Wall mount	Rackmount
DIMENSIONS (W X D X H)	10.4" x 9.8" x 2.8" (265 x 250 x 71.2 mm)	10.6" x 12.5" x 2.7" (270 x 306 x 67.25mm)	19" 1U Chassis : 427 x 381 x 44.4 mm
MATERIAL	Bezel and chassis: Steel		Bezel: Plastic / Chassis: Steel
ENVIRONMENTAL	0 ~ 45°C (32 ~ 113°F)		
OPERATING TEMPERATURE	0 ~ 45°C (32 ~ 113°F)		0 ~ 50°C (32 ~ 122°F)
OPERATING HUMIDITY	5% ~ 95% R/H (Non-condensing)		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	Windows® 10 / Linux (support by request)		
OS SUPPORT	Windows® 10 / Linux (support by request)		

P Series



LCD	P210-11KS	P210-10AI	P156-11KS	P156-10AI
DISPLAY TYPE	21.5" TFT-LCD		15.6" TFT-LCD	
MAX. RESOLUTION	1920 x 1080			
MAX. COLORS	16.7M (8 bit / color)		16.2M (8 bit / color)	
LUMINANCE (cd/m ²)	250		450	
VIEWING ANGLE (H/V)	170° / 160°		170° / 170°	
LED BACKLIGHT LIFETIME (hrs)	30000		50000	
TOUCH SCREEN	P-CAP			
TOUCH SCREEN	True-flat 10 points			
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 / option: 6th Gen Skylake celeron 3955U / i3-6100U / i5-6300U / i7-6600U	Intel® Apollo Lake-M N3350 Processor / Option: N4200	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 / option: 6th Gen Skylake celeron 3955U / i3-6100U / i5-6300U / i7-6600U	Intel® Apollo Lake-M N3350 Processor / Option: N4200
CHIPSET	Intel® SoC Integrated			
SYSTEM MEMORY	DDR4 2133MHz / 2 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)	DDR3L 1866 MHz / 2 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)	DDR4 2133MHz / 2 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)	DDR3L 1866 MHz / 2 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)
ETHERNET	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN	2 x Intel® I211-AT Giga LAN	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN	2 x Intel® I211-AT Giga LAN
I/O PORT	1 x 3-pin Phoenix type terminal block DC input / 2 x RJ45 / 1 x Audio Jack (combo Line-out + Mic-in) / 1 x 8bit GPIO terminal block / 4 x RS232 / 1 x DisplayPort 1.2 / 1 x 2-pin remote power on/off / 4 x USB 3.0 / 1 x HDMI 1.4	1 x 3-pin Phoenix type terminal block DC input / 2 x RS232 / 2 x RJ45 / 1 x 8bit GPIO terminal block / 1 x DisplayPort 1.2 / 1 x 2-pin remote power on/off / 1 x DC Jack / 4 x USB 3.0 / 1 x HDMI 1.4 / 1 x Mic-in	1 x 3-pin Phoenix type terminal block DC input / 2 x RJ45 / 1 x Audio Jack (combo Line-out + Mic-in) / 1 x 8bit GPIO terminal block / 4 x RS232 / 1 x DisplayPort 1.2 / 1 x 2-pin remote power on/off / 4 x USB 3.0 / 1 x HDMI 1.4	1 x 3-pin Phoenix type terminal block DC input / 2 x RS232 / 2 x RJ45 / 1 x 8bit GPIO terminal block / 1 x DisplayPort 1.2 / 1 x 2-pin remote power on/off / 1 x DC Jack / 4 x USB 3.0 / 1 x HDMI 1.4 / 1 x Line-out / 1 x Mic-in
EXPANSION SLOT	Wireless: M.2 2230 E key (PCIe, USB)	1 x M.2 2280 B key / 1 x M.2 2230 E key (PCIe / USB)	Wireless: M.2 2230 E key (PCIe, USB)	1 x M.2 2280 B key / 1 x M.2 2230 E key (PCIe / USB)
STORAGE	1 x SATA 2.5" HDD / SSD bay			
STEREO SPEAKER	2 x 2W			
OS SUPPORT	Windows® 10 64 bit			
WATCHDOG TIMER	1-255 steps by software program			
POWER REQUIREMENT	DC-in 8-24V			
POWER ADAPTER	AC to DC / DC19V / 3.4A / 65W adapter			
MECHANICAL	VESA 75mm / Stand / Panel mount			
MOUNTING	VESA 75 / 100mm			
DIMENSIONS (W x D x H)	508 x 308 x 83 mm	508.3 x 308 x 68 mm	393.5 x 247.1 x 83mm	393.5 x 247.1 x 69.8 mm
WEIGHT	8kg	5.9kg	5kg (11.1 lb)	4.3kg
ENVIRONMENTAL				
OPERATING TEMPERATURE	0 ~ 50°C (32 ~ 122°F)		-10~50°C (14 ~ 122°F)	
STORAGE TEMPERATURE	-20 ~ 60°C (-4 ~ 140°F)		-20 ~ 70°C (-4 ~ 158°F)	
STORAGE HUMIDITY	10% ~ 90% @40°C non-condensing			
VIBRATION RESISTANCE	Operating Random vibration Test 5-500Hz, 0.3 Grms@with HDD / 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		CE / FCC Class B	
FRONT PANEL PROTECTION	IP65 Compliant			

P Series



LCD	P150-11KS	P150-10AI	P100
DISPLAY TYPE	15" TFT-LCD		10.1" TFT-LCD
MAX. RESOLUTION	1024 x 768		1280 x 800
MAX. COLORS	16.7M (8 bit / color)		
LUMINANCE (cd/m ²)	300		400
VIEWING ANGLE (H/V)	176° / 176°		170° / 170°
LED BACKLIGHT LIFETIME (hrs)	70000		30000
TOUCH SCREEN	P-CAP		
TOUCH SCREEN	True-flat 10 points		
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 / option: 6th Gen Skylake celeron 3955U / i3-6100U / i5-6300U / i7-6600U		Intel® Apollo Lake-M N3350 / N4200 Processor
CHIPSET	Intel® SoC Integrated		
SYSTEM MEMORY	DDR4 2133MHz / 2 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)		DDR3L 1866 MHz / 1 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)
ETHERNET	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN	2 x Intel® I211-AT Giga LAN	2 x Intel® I210-IT Giga LAN
I/O PORT	1 x 3-pin Phoenix type terminal block DC input / 2 x RJ45 / 1 x Audio Jack (combo Line-out + Mic-in) / 1 x 8bit GPIO terminal block / 4 x RS232 / 1 x DisplayPort 1.2 / 1 x 2-pin remote power on/off / 4 x USB 3.0 / 1 x HDMI 1.4	1 x 3-pin Phoenix type terminal block DC input / 2 x RS232 / 2 x RJ45 / 1 x 8bit GPIO terminal block / 1 x DisplayPort 1.2 / 1 x 2-pin remote power on/off / 1 x DC Jack / 4 x USB 3.0 / 1 x HDMI 1.4 / 1 x Line-out / 1 x Mic-in	1 x 3-pin Phoenix type terminal block DC input / 1 x 8bit GPIO terminal block / 2 x COM (RS232 / RS485) / 4 x USB 3.0 / 1 x VGA / 1 x HDMI 1.4
EXPANSION SLOT	Wireless: M.2 2230 E key (PCIe, USB)	1 x M.2 2280 B key / 1 x M.2 2230 E key (PCIe / USB)	M.2 2230 E key (PCIe, USB 2.0) / Mini PCIe Full size (PCIe / USB / SATA)
STORAGE	1 x SATA 2.5" HDD / SSD bay		
STEREO SPEAKER	2 x 2W		
OS SUPPORT	Windows® 10 64 bit		Windows 10 64bit (UEFI only no legacy support) / Linux (support by request)
WATCHDOG TIMER	1-255 steps by software program		
POWER REQUIREMENT	DC-in 8-24V		
POWER ADAPTER	AC to DC / DC19V / 3.4A / 65W adapter		
MECHANICAL	VESA 75mm / Stand / Panel mount		
MOUNTING	VESA 75 / 100mm		
DIMENSIONS (W x D x H)	360.4 x 283.1 x 81.7mm	360.4 x 283.1 x 66.7 mm	7.0" x 10.2" x 1.8" (178 x 260 x 46.5 mm)
WEIGHT	5kg (11.1 lb)	TBD	1.65kg (3.6 lb)
ENVIRONMENTAL			
OPERATING TEMPERATURE	-20~55°C (-4 ~ 131°F)		-10~50°C (14 ~ 122°F)
STORAGE TEMPERATURE	-20 ~ 70°C (-4 ~ 158°F)		-20 ~ 60°C (-4 ~ 140°F)
STORAGE HUMIDITY	10% ~ 90% @40°C non-condensing		10% ~ 95% @40°C non-condensing
VIBRATION RESISTANCE	Operating Random vibration Test 5-500Hz, 0.3 Grms@with HDD / 2Grms @with SSD, follow IEC 60068-2-64		Operating Random Vibration Test 5-500Hz, 0.3 Grms@with HDD
SHOCK RESISTANCE	Operating 10 G peak acceleration (11 ms duration) / follow IEC 60068-2-27		Operating 50 G peak (3 ms duration)
EMC	CE / FCC Class B		
FRONT PANEL PROTECTION	IP65 Compliant		



LCD	D210-10RI	D210-11KS	D151-11KS
DISPLAY TYPE	21.5" TFT-LCD		15.6" TFT-LCD
MAX. RESOLUTION	1920 x 1080		1366 x 768
MAX. COLORS	16.7M (8 bit / color)		16.2M (8 bit / color)
LUMINANCE (cd/m ²)	300		400
VIEWING ANGLE (H/V)	178° / 178°		170° / 160°
LED BACKLIGHT LIFETIME (hrs)	40000		50000
TOUCH SCREEN			
TYPE	P-CAP		
TOUCH SCREEN	True-flat 10 points		
SYSTEM			
PROCESSOR	Intel® Celeron® Processor N3160 (Quad Core, 2M Cache, up to 2.24 GHz)	7th Gen Intel® Kaby Lake-U i3-7100U (Dual Core, 3MB Cache, 2.40 GHz) / option: 7th Gen Kaby Lake celeron 3945U / i5-7300U / i7-7600U / option: 6th Gen Skylake celeron 3955U / i3-6100U / i5-6300U / i7-6600U	
CHIPSET	Intel® SoC Integrated		
SYSTEM MEMORY	DDR3L 1866 MHz / 2 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)	DDR4 2133 / 2400MHz / 2 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)	
ETHERNET	Realtek® RTL8111G Giga LAN	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN	
I/O PORT	1 x DC Jack / 4 x USB 3.0 / 1 x RJ-45 / 1 x VGA / 1 x HDMI 1.4 / 1 x Line-out / 1 x Mic-in / 2 x COM (RS232 / RS422 / RS485)	2 x RJ45 / 1 x Audio Jack (combo Line-out + Mic-in) / 1 x RS232 / 1 x RS232 / 422 / 485 / 1 x DisplayPort 1.2 / 1 x DC Jack / 4 x USB 3.0 / 1 x HDMI 1.4	
EXPANSION SLOT	Mini PCIe Half size (PCIe / USB) / Mini PCIe Full size (PCIe / USB / SATA)	M.2 2230 E key (PCIe, USB 2.0) / Mini PCIe Full size (PCIe / USB / SATA)	
STORAGE	1 x SATA 2.5" HDD / SSD bay		
STEREO SPEAKER	2 x 3W		2 x 2W
OS SUPPORT	7th Gen Kaby Lake: Windows 10 64bit, Linux (support by request) / 6th Gen Skylake: Windows 7 32 / 64bit / Windows 10 64bit	Windows 10 64bit / Linux (support by request)	7th Gen Kaby Lake: Windows 10 64bit, Linux (support by request) / 6th Gen Skylake: Windows 7 32 / 64bit / Windows 10 64bit
WATCHDOG TIMER	1-255 steps by software program		
POWER REQUIREMENT			
POWER INPUT	DC-in 8-24V		
POWER ADAPTER	AC to DC / DC19V / 3.4A / 65W adapter		
MECHANICAL			
MOUNTING	VESA 100 / Stand		
DIMENSIONS (W x D x H)	520 x 315 x 42 mm		400 x 250 x 44 mm
WEIGHT	10kg (22.04 lb)		4.8kg (10.58 lb)
ENVIRONMENTAL			
OPERATING TEMPERATURE	0~ 40°C (32 ~ 104°F)		
STORAGE TEMPERATURE	-20 ~ 60°C (-4 ~ 140°F)		
STORAGE HUMIDITY	10% ~ 95% @40°C non-condensing		
VIBRATION RESISTANCE	Operating Random vibration Test 5-500Hz, 0.3 Grms@with HDD		
SHOCK RESISTANCE	Operating 50 G peak (3 ms duration)		
EMC	CE / FCC Class A		
FRONT PANEL PROTECTION	IP65 Compliant		



LCD	D150-B	D150-S
DISPLAY TYPE	15" TFT-LCD	
MAX. RESOLUTION	1024 x 768	
MAX. COLORS	16M (8 bit / color)	
LUMINANCE (cd/m ²)	350	
VIEWING ANGLE (H/V)	160° / 145°	
LED BACKLIGHT LIFETIME (hrs)	50000	
TOUCH SCREEN		
TYPE	Resistive	
TOUCH SCREEN	Single point	
SYSTEM		
PROCESSOR	Intel® Bay Trail Celeron® Processor J1900 (Quad Core, 2M Cache, up to 2.24 GHz)	7 / 6th Gen Intel® Kaby Lake / Skylake LGA1151 Socket Processor, TDP Max. 35W
CHIPSET	Intel® SoC Integrated	Intel® Q170 (Support RAID 0 / 1 / 5 / 10)
SYSTEM MEMORY	DDR3L 1333 MHz / 2 x 204-pin SO-DIMM / Max. 8GB (Non-ECC)	DDR4 2133 / 2400MHz / 2 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)
ETHERNET	2 x Realtek® RTL8111G Giga LAN	Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN
I/O PORT	2 x USB 3.0 / 2 x RJ45 / 2 x USB 2.0 / 1 x DVI / 1 x Line-in / 2 x PS/2 / 4 x RS232 / 1 x DC Jack / 1 x VGA / 1 x Line-out / 1 x Mic-in	2 x RS232 / 2 x RJ45 / 1 x DisplayPort 1.2 / 1 x DC Jack / 4 x USB 3.0 / 1 x HDMI 1.4 / 1 x Line-out / 1 x Mic-in
EXPANSION SLOT	Mini PCIe Half size (PCIe / USB) / Mini PCIe Full size (PCIe / USB / SATA)	
STORAGE	1 x SATA 2.5" HDD / SSD bay	
STEREO SPEAKER	2 x 2W	
OS SUPPORT	Windows 7 32bit / 64bit / Windows 10 64bit (UEFI only no legacy support) / Linux (support by request)	7th Gen Kaby Lake: Windows 10 64bit, Linux (support by request) / 6th Gen Skylake: Windows 7 32 / 64bit
WATCHDOG TIMER	1-255 steps by software program	
POWER REQUIREMENT		
POWER INPUT	12V DC-in Jack (Default)	
POWER ADAPTER	84W adapter / DC12V / 7A / AC / DC	
MECHANICAL		
MOUNTING	VESA 100 / Stand	
DIMENSIONS (W x D x H)	280 x 355 x 55 mm	
WEIGHT	5kg (11.1 lb)	
ENVIRONMENTAL		
OPERATING TEMPERATURE	-20~50°C (4 ~ 122°F)	
STORAGE TEMPERATURE	-20 ~ 70°C (-4 ~ 158°F)	
STORAGE HUMIDITY	10% ~ 95% @40°C non-condensing	
VIBRATION RESISTANCE	Operating Random vibration Test 5-500Hz, 0.3 Grms@with HDD	
SHOCK RESISTANCE	Operating 50 G peak (3 ms duration)	
EMC	CE / FCC Class A	
FRONT PANEL PROTECTION	IP65 Compliant	

M series



	M6070	M4080	M4070
LCD	21.5" TFT-LCD		
DISPLAY TYPE	21.5" TFT-LCD	23.6" TFT-LCD	21.5" TFT-LCD
MAX. RESOLUTION	1920 x 1080		
MAX. COLORS	16.7M (6bit)		
LUMINANCE (cd/m ²)	250	300	250
VIEWING ANGLE (H/V)	170° / 160°		
LED BACKLIGHT LIFETIME (hrs)	30000		
TOUCH SCREEN	P-CAP		
TYPE	True-flat 10 points		
SYSTEM	12th Gen Intel® Alder Lake LGA1700 Socket Processor, TDP Max. 65W / NOTE:Don't support F spec CPU; ex ix-xxxxF		
PROCESSOR	12th Gen Intel® Alder Lake LGA1700 Socket Processor, TDP Max. 65W / NOTE:Don't support F spec CPU; ex ix-xxxxF	10th Gen Intel® Comet Lake LGA1200 Socket Processor / TDP Max. 65W / NOTE:Not support F spec CPU; ex ix-xxxxF	8th Gen Intel® Coffee Lake LGA1151 Socket Processor, TDP Max. 65W
CHIPSET	Intel® H610	Intel® H410	Intel® H310
SYSTEM MEMORY	DDR5 4800MHz, 2 x 262-pin SO-DIMM Max. 64GB (Non-ECC)	DDR4 2933MHz / DDR4 2666MHz / 2 x 260-pin SO-DIMM / Max. 64 GB (Non-ECC)	DDR4 2666MHz / 2 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)
ETHERNET	Intel® I219-LM Giga LAN		
I/O PORT	1 x DC Jack 4 x USB 3.2 Gen1 1 x RJ-45 1 x DisplayPort 1.2 1 x HDMI 1.4 1 x Line-out, 1 x Mic-in	1 x DisplayPort 1.2 / 4 x USB 3.2 Gen1 / 1 x DC Jack / 1 x RJ-45 / 1 x HDMI 1.4 / 1 x Line-out / 1 x Mic-in	1 x DisplayPort 1.2 / 1 x DC Jack / 4 x USB 3.0 / 1 x RJ-45 / 1 x HDMI 1.4 / 1 x Line-out / 1 x Mic-in
EXPANSION SLOT	Storage: M.2 2280 M key (PCIe, SATA) / Wireless: M.2 2230 E key (PCIe, USB)		
STORAGE	1 x SATA 2.5" / 3.5" HDD / SSD bay		
STEREO SPEAKER	2 x 5W		
OS SUPPORT	Windows 10 64bit / Linux (support by request)		
WATCHDOG TIMER	1-255 steps by software program		
SIDE I/O PORT	2		
USB 2.0	2		
4-IN-1 CARD READER	1		
ODD	DVD super-multi double layer (optional) / Blu-ray ODD support (optional)		
WEBCAM	2.0 HD mega pixel, HD 720p 16:9 lens with array digital microphone		
SYSTEM BOTTOM	Power / Brightness control		
POWER REQUIREMENT	19V DC-in connectivity		
POWER INPUT	DC19V / 9.5A / 180W adapter / AC to DC		
POWER ADAPTER	DC19V / 9.5A / 180W adapter / AC to DC		
MECHANICAL	100 mm x 100 mm VESA Mount Kit (Optional)		
MOUNTING	100 mm x 100 mm VESA Mount Kit (Optional)		
DIMENSIONS (W X D X H)	539.5 x 419.7 x 199.5 mm (w/ Stand)	588.2 x 444.4 x 199.5 mm (w/ Stand)	539.5 x 419.7 x 199.5 mm (w/ Stand)
WEIGHT	8.9kg (19.58 lb)	9.5kg (20.9 lb)	8.9kg (19.58 lb)
ENVIRONMENTAL	0-40°C (32-104°F)		
OPERATING TEMPERATURE	0-40°C (32-104°F)		
STORAGE TEMPERATURE	-20-60°C (-4-140°F)		
STORAGE HUMIDITY	10% - 95% @60°C non-condensing		
VIBRATION RESISTANCE	Operating Random vibration Test 5-500Hz, 0.3 Grms@with HDD		
SHOCK RESISTANCE	Operating 50 G peak (3 ms duration)		
EMC	CE / FCC Class B		
FRONT PANEL PROTECTION	-		

Panel PC

M series



	M860	M850
LCD	21.5" TFT-LCD	
DISPLAY TYPE	21.5" TFT-LCD	
MAX. RESOLUTION	1920 x 1080	
MAX. COLORS	16.7M (6 bit)	
LUMINANCE (cd/m ²)	250	
VIEWING ANGLE (H/V)	170° / 160°	
LED BACKLIGHT LIFETIME (hrs)	30000	
TOUCH SCREEN	P-CAP	
TYPE	True-flat 10 points	
SYSTEM	12th Gen Intel® Alder Lake LGA1700 Socket Processor, TDP Max. 65W / NOTE:Don't support F spec CPU; ex ix-xxxxF	
PROCESSOR	12th Gen Intel® Alder Lake LGA1700 Socket Processor, TDP Max. 65W / NOTE:Don't support F spec CPU; ex ix-xxxxF	10th Gen Intel® Comet Lake LGA1200 Socket Processor / TDP Max. 65W / NOTE:Not support F spec CPU; ex ix-xxxxF
CHIPSET	Intel® H610	Intel® H410
SYSTEM MEMORY	DDR5 4800MHz, 2 x 262-pin SO-DIMM Max. 64GB (Non-ECC)	DDR4 2933MHz / DDR4 2666MHz / 2 x 260-pin SO-DIMM Max. 64 GB (Non-ECC)
ETHERNET	Intel® I219-LM Giga LAN	
I/O PORT	1 x DC Jack 4 x USB 3.2 Gen1 1 x RJ-45 1 x DisplayPort 1.2 1 x HDMI 1.4 1 x Line-out, 1 x Mic-in	1 x DisplayPort 1.2 / 4 x USB 3.2 Gen1 / 1 x DC Jack / 1 x RJ-45 / 1 x HDMI 1.4 / 1 x Line-out / 1 x Mic-in
EXPANSION SLOT	Storage: M.2 2280 M key (PCIe, SATA) / Wireless: M.2 2230 E key (PCIe, USB)	
STORAGE	1 x SATA 2.5" / 3.5" HDD / SSD bay	
STEREO SPEAKER	2 x 2W	
OS SUPPORT	Windows 10 64bit / Linux (support by request)	
WATCHDOG TIMER	1-255 steps by software program	
SIDE I/O PORT	2	
USB 2.0	2	
4-IN-1 CARD READER	1	
ODD	DVD super-multi double layer (optional) / Blu-ray ODD support (optional)	
WEBCAM	2.0 HD mega pixel, HD 720p 16:9 lens with array digital microphone	
SYSTEM BOTTOM	Power	
POWER REQUIREMENT	19V DC-in connectivity	
POWER INPUT	DC19V / 9.5A / 180W adapter / AC / DC	
POWER ADAPTER	DC19V / 9.5A / 180W adapter / AC / DC	
MECHANICAL	100 mm x 100 mm VESA Mount Kit (Optional)	
MOUNTING	100 mm x 100 mm VESA Mount Kit (Optional)	
DIMENSIONS (W X D X H)	538 x 429 x 213 mm (w/ Stand)	
WEIGHT	8.3kg (18.26 lb)	
ENVIRONMENTAL	0-40°C (32-104°F)	
OPERATING TEMPERATURE	0-40°C (32-104°F)	
STORAGE TEMPERATURE	-20-60°C (-4-140°F)	
STORAGE HUMIDITY	10% - 95% @60°C non-condensing	
VIBRATION RESISTANCE	Operating Random vibration Test 5-500Hz, 0.3 Grms@with HDD	
SHOCK RESISTANCE	Operating 50 G peak (3 ms duration)	
EMC	CE / FCC Class B	
FRONT PANEL PROTECTION	-	