

EMBEDDED SOLUTIONS

Cocreate an Intelligent World

2020.1H



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ABOUT ASROCK INDUSTRIAL

Cocreate an Intelligent World

ASRock Industrial Computer was established as an independent company in July 2018, focusing on the fields of motherboards, edge computers and cameras, and other products for the manufacturing, business and retail industries. It is the world's leader in Industrial PC motherboards, with customers located around the globe. Previously, it had been a business unit of ASRock Inc. (est. 2002) which was set up in 2011.

By becoming an independent company ASRock Industrial can devote all its resources to B2B activities. Our vision is to Cocreate an Intelligent World, and our products serve the CARES (Commerce/ Automation/ Robot / Entertainment/ Security) industries. With a core R&D design team of almost 65% of total staff, ASRock Industrial has the resources to develop reliable, leading-edge products for your business needs. All products can be bought off-the shelf or customized to the demands of OEMs/ODMs.

ASRock Industrial is a **PEGATRON Corp. Group** Company

PEGATRON Revenue
USD\$ 44 Billion (2018)

Fortune Global 500
259 (2019)



PRODUCT CATEGORY



INDUSTRIAL & EMBEDDED MB

INDUSTRIAL COMPUTER SYSTEM



COMMERCE

- POS
- KIOSK
- Digital Signage

Cocreate an Intelligent World for C.A.R.E.S applications

Commerce / Automation / Robot / Entertainment / Security



AUTOMATION

- Manufacture automation
- Machine vision



NETWORK APPLIANCE



AI EDGE COMPUTER



SECURITY

- Video surveillance
- Network security



ROBOT

- Robot
- Robot arm
- Robot pet



ENTERTAINMENT

- Slot machine
- Gambling
- Lottery



athena A1

Faned AIoT BOX PC

KEY FEATURES



- Intel® Apollo Lake J3455 Processor
- 1 x IP camera (2MP, 1080P@30fps, H.264)
- 1 x Movidius Myriad X (Optional)
- Supports LPDDR4 2400MHz 4GB, up to 8GB
- 1 x USB 3.1 Gen1, 1 x M.2 Key B, 1 x M.2 Key E
- 1 x Realtek 1 Gigabit LAN
- 1 x micro-HDMI 1.4b
- 1 x micro SD card slot
- 1 x 32GB EMMC
- 1 x SIM socket
- 1 x DMIC (Optional)
- TPM 2.0 onboard IC
- 12V DC-In / PoE (PD) with 25.5W
- 220 x 117.6 x 58.6 mm (8.7" x 4.6" x 2.3"), Faned Barebone

SPECIFICATIONS

Processor System

CPU	Intel® Atom Apollo Lake J3455 processor
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Onboard LPDDR4 2400 MHz
Capacity	4 GB, up to 8GB
Socket	N/A

Graphics

Controller	SoC integrated graphics
HDMI	micro-HDMI 1.4b Max resolution up to 3840x2160@30Hz
DisplayPort	N/A
VGA	N/A
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	N/A

Expansion Slot

mini-PCIe/ mSATA	N/A
mini-PCIe	N/A
USB	1 x USB 3.1 (Gen 1) Connector for Movidius module
M.2	1 x M.2 (Key E, 2230) with PCIe x1 and USB 2.0 for Wireless
SIM Socket	1 x micro SIM Socket connected to M.2 Key B 3042

Audio

Interface	N/A
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Ethernet

Controller/ Speed	LAN: 1 x Realtek® RTL8111G with 10/100/1000 Mbps (PoE (PD) with 25.5W)
Connector	1 x RJ-45

Storage

M.2	1 x M.2 (Key B, 3042) with PCIe x1 and shared SATA3 for SSD, and USB 3.0, USB 2.0
mSATA	N/A
SATA	N/A
eMMC	Onboard eMMC 32GB

Rear I/O

HDMI	1 x micro-HDMI 1.4b
DisplayPort	N/A
VGA	N/A
DVI	N/A
Ethernet	1 x 1 Gigabit LAN, PoE (PD) with 25.5W
USB	1 x USB 3.1 (Gen1)
Audio	N/A
COM	N/A
PS2	N/A
others	1 x Micro SD connector

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V DC-In (DC Jack) PoE (PD) with 25.5W (LAN Port)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 50°C
Storage Temp	-40°C ~ 85°C
Operating Humidity	10% ~ 90%
Storage Humidity	10% ~ 90%

Mechanical

Material	Plastic
Dimensions (W x H x D)	8.7-in x 4.6-in x 2.3-in
Weight	Net Weight : 1.0kg
Mounting	Bracket (not included)

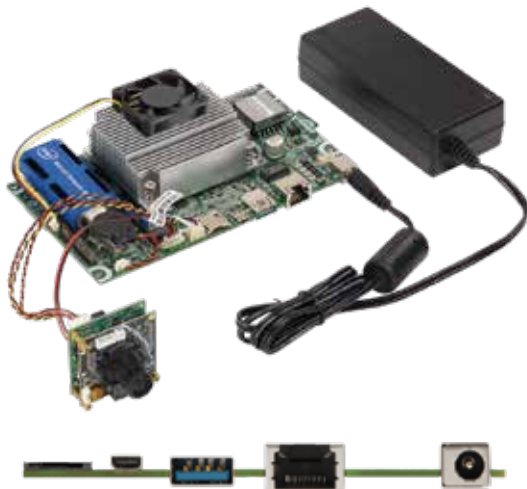
Others

OS Support	Linux Ubuntu 16.04
TPM	TPM 2.0 onboard IC
Certifications	CE, FCC Class A
IP camera	2MP, 1080P @30fps, H.264
Movidius	1 x USB Type A Myriad X (Optional)
Mic-in	1 x DMIC (Optional)
Adapter	1 x AC-in 100-240V, DC-out 12V



athena A1 Kit

AIoT Kit



KEY FEATURES

- Intel® Apollo Lake J3455 Processor
- 1 x IP camera (2MP, 1080P@30fps, H.264)
- 1 x Movidius Myriad X (Optional)
- Supports LPDDR4 2400MHz 4GB, up to 8GB
- 2 x USB 3.1 Gen1, 1 x M.2 Key B, 1 x M.2 Key E
- 1 x Realtek 1 Gigabit LAN
- 1 x micro-HDMI 1.4b
- 1 x micro SD card slot
- 1 x 32GB EMMC
- 1 x SIM socket
- 1 x DMIC (Optional)
- TPM 2.0 onboard IC
- 12V DC-In / PoE (PD) with 25.5W

SPECIFICATIONS

Form Factor

Dimensions	6.5-in x 3.8-in
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Processor System

CPU	Intel® Atom Apollo Lake J3455 processor
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Onboard LPDDR4 2400 MHz
Capacity	4 GB, up to 8GB
Socket	N/A

Graphics

Controller	SoC integrated graphics
HDMI	micro-HDMI 1.4b Max resolution up to 3840x2160@30Hz
DisplayPort	N/A
VGA	N/A
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	N/A

Expansion Slot

PCIe	N/A
PCI	N/A
mini-PCIe	N/A
M.2	1 x M.2 (Key E, 2230) with PCIe x1 and USB 2.0 for Wireless
SIM Socket	1 x micro SIM Socket connected to M.2 Key B 3042

Audio

Interface	N/A
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Ethernet

Controller/ Speed	LAN: 1 x Realtek® RTL8111G with 10/100/1000 Mbps (PoE (PD) with 25.5W)
Connector	1 x RJ-45

Rear I/O

HDMI	1 x micro-HDMI 1.4b
DisplayPort	N/A
VGA	N/A
DVI	N/A
Ethernet	1 x 1 Gigabit LAN, PoE (PD) with 25.5W
USB	1 x USB 3.1 (Gen1)
Audio	N/A
COM	N/A
PS2	N/A
others	1 x Micro SD connector

Internal Connector

USB	1 x USB 2.0 header 1 x USB 3.1 (Gen 1) Connector for Movidius module
COM	N/A
Parallel	N/A
GPIO	N/A
TPM	TPM 2.0 onboard IC
LVDS	N/A
eDP	N/A
VGA	N/A
SATA PWR Output	N/A
Speaker Header	N/A
IPCAM interface	LAN signal 1x6 header Power 1x2 header

Storage

M.2	1 x M.2 (Key B, 3042) with PCIe x1 and shared SATA3 for SSD, and USB 3.0, USB 2.0
mSATA	N/A
SATA	N/A
eMMC	Onboard eMMC 32GB

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V DC-In (DC Jack) PoE (PD) with 25.5W (LAN Port)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 50°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	10% ~ 90%
Storage Humidity	10% ~ 90%

Others

IP camera	2MP, 1080P @30fps, H.264
Movidius	1 x USB Type A Myriad X (Optional)
Mic-in	1 x DMIC (Optional)
Adapter	1 x AC-in 100~240V, DC-out 12V
OS Support	Linux Ubuntu 16.04
Accessories	1 x USB 2.0 Extension Cable 1 x micro-HDMI Converter Cable 1 x Heatsink Fan 8 x Standoffs



IMB-1216

Mini-ITX Motherboard



KEY FEATURES

- Intel® 8th Gen (Whiskey Lake-U) Core™ MCP Processors
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2400MHz (16GB per DIMM)
- 5 x USB 3.2 Gen1, 3 x USB 2.0, 1 x M.2 Key E, 1 x M.2 Key B, 1 x M.2 Key M, 6 x COM, 2 x SATA3
- 1 x Intel 1 Gigabit LAN, 1 x Realtek 1 Gigabit LAN
- Supports triple display, 1 x HDMI 2.0a, 1 x DP 1.2 or VGA, 1 x LVDS or eDP
- TPM Header (IMB-1216V)
- TPM 2.0 onboard IC (IMB-1216M/IMB-1216P)
- 12V~28V DC-In

SPECIFICATIONS

Form Factor

Dimensions	Mini-ITX (6.7-in x 6.7-in)
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Processor System

CPU	Intel® 8 th Gen (Whiskey Lake-U) Core™ MCP Processors IMB-1216V (i3-8145UE, DC, 2.2GHz, 15W) IMB-1216M (i5-8365UE, QC, 1.6GHz, 15W) IMB-1216P (i7-8665UE, QC, 1.7GHz, 15W)
Chipset	MCP
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2400 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 11/12
HDMI	HDMI 2.0a Max resolution up to 4096x2160@60Hz
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2304@60Hz
VGA	Max resolution up to 1920x1200@60Hz
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	eDP 1.4 Max resolution up to 4096x2304@60Hz
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

PCIe	N/A
PCI	N/A
mini-PCIe	N/A
M.2	1 x M.2 (Key E, 2230) with PCIe x1, USB2.0 and CNVi for Wireless 1 x M.2 (Key B, 3042) with PCIe x1, USB 3.0 and UIM for 4G
SIM Socket	1 x Socket connected to M.2 Key_B

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	IMB-1216V LAN1: 1 x Intel I219V with 10/100/1000 Mbps LAN2: 1 x Realtek RTL8111G with 10/100/1000 Mbps IMB-1216M/IMB-1216P LAN1: 1 x Intel I219LM with 10/100/1000 Mbps, supports AMT/vPro LAN2: 1 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O

HDMI	1 x HDMI 2.0a
DisplayPort	1 x DP 1.2 (shared with internal VGA, by BIOS setting)
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	4 x USB 3.2 (Gen1)
Audio	2 (Mic-in, Line-out)
COM	N/A
PS2	N/A

Internal Connector

USB	1 x USB 3.2 (Gen1) (1 x Type-A vertical con) 3 x USB 2.0 (2 x 2.54 pitch header)
COM	COM1, 2(RS232/422/485), COM3, 4, 5, 6 (RS-232)
Parallel	1 (shared with GPIO)
GPIO	8 x GPI, 8 x GPO (shared with LPT header)
TPM	IMB-1216V: TPM Header IMB-1216M/IMB-1216P: TPM 2.0 IC onboard
LVDS	1 (shared with eDP, by BIOS setting)
eDP	1 (shared with LVDS, by BIOS setting)
VGA	1 x Header (shared with DP port, by BIOS setting)
SATA PWR Output	1
Speaker Header	1

Storage

M.2	1 x M.2 (Key M, 2242/2260/2280) with PCIe x4 and SATA3 for SSD
mSATA	N/A
SATA	2 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V~28V DC-In with 4-pin plug PWR cable or DC Jack
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



IMB-198/ IMB-199

Mini-ITX Motherboard



D Sku

V Sku

KEY FEATURES

- Intel® 7th/ 6th Gen (Kabylake-U/Skylake-U) Core™ MCP Processors
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2133 MHz (16GB per DIMM)
- 4 x USB 3.0, 4 x USB 2.0, 1 x mini-PCIe, 1 x M.2 Key E, 1 x mSATA, 6 x COM, 2 x SATA3
- 1 x Intel 1 Gigabit LAN, 1 x Realtek 1 Gigabit LAN
- Supports triple display, 1 x HDMI 2.0, 1x VGA, 1 x LVDS (For V sku)
- Supports triple display, 1 x HDMI 2.0, 1 x DP 1.2, 1 x eDP (For D sku)
- TPM Header
- 12V/ 19V~24V DC-In

SPECIFICATIONS

Form Factor

Dimensions	Mini-ITX (6.7-in x 6.7-in)
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Processor System

CPU	Intel® 7 th / 6 th Gen (Kabylake-S/Skylake-S) Core™ MCP Processors -IMB-199V (i3-6100U, DC, 2.30 GHz, 15W) -IMB-198M (i5-6300U, DC, 2.40 GHz, 15W) -IMB-198P (i7-6600U, DC, 2.40 GHz, 15W)
Chipset	MCP
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2133 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 11/12
HDMI	HDMI 2.0 Max resolution up to 4096x2160@60Hz
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2304@60Hz
VGA	Max resolution up to 1920x1200@60Hz
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	eDP 1.3 Max resolution up to 4096x2304@60Hz
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

PCIe	N/A
PCI	N/A
mini-PCIe	1 x Full/Half size with PCIe x1 and USB 2.0
M.2	1 x M.2 (Key E, 2230) with PCIe x1 and USB 2.0 for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	IMB-199V LAN1: 1 x Intel I219V with 10/100/1000 Mbps LAN2: 1 x Realtek RTL8111G with 10/100/1000 Mbps IMB-198M/IMB-198P LAN1: 1 x Intel I219LM with 10/100/1000 Mbps, supports AMT/vPro LAN2: 1 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O

HDMI	1 x HDMI 2.0
DisplayPort	1 x DP 1.2 (Only for D sku)
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	4 x USB 3.0
Audio	2 (Mic-in, Line-out)
COM	N/A
PS2	N/A

Internal Connector

USB	4 x USB 2.0 (2 x 2.54 pitch header)
COM	COM1, 2(RS-232/422/485) COM3, 4, 5, 6(RS-232)
Parallel	1 (shared with GPIO)
GPIO	8 x GPI, 8 x GPO (shared with LPT header)
TPM	TPM Header
LVDS	1 (Only for V sku)
eDP	1 (Only for D sku)
VGA	1 x Header (Only for V sku)
SATA PWR Output	1
Speaker Header	1

Storage

M.2	N/A
mSATA	1 x full size with SATA3
SATA	2 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V or 19~24V DC-In with 4-pin plug PWR cable or DC Jack
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



IMB-1210-L/ IMB-1210-D

Mini-ITX Motherboard



IMB-1210-L



IMB-1210-D

KEY FEATURES

- Intel® 9th/ 8th Gen (Coffee Lake-S) Core™ Processors with H310 chipset
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2666MHz (16GB per DIMM)
- 1 x PCIe x16 (Gen3), 4 x USB 3.1 Gen1, 4 x USB 2.0, 1 x mini-PCIe, 1 x M.2 Key E, 1 x M.2 Key M, 4 x COM, 4 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports dual display, 2 x DP 1.2, 1 x VGA, 1 x LVDS (IMB-1210-L)
- Supports dual display, 3 x DP 1.2, 1 x eDP (IMB-1210-D)
- TPM header
- ATX PWR

SPECIFICATIONS

Form Factor	IMB-1210-L	IMB-1210-D
Dimensions	Mini-ITX (6.7-in x 6.7-in)	

Processor System

CPU	Intel® 9 th / 8 th Gen (Coffee Lake-S) Core™ Processors, up to 65W *The Performance of CPUs over 65W will be limited due to power design.
Chipset	Intel® H310
Socket	LGA1151
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2666 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	Coffee Lake integrated graphics
HDMI	N/A
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2304@60Hz
VGA	Max resolution up to 1920x1200@60Hz
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	eDP 1.4 Max resolution up to 4096x2304@60Hz
DVI	N/A
MultiDisplay	Dual Display

Expansion Slot

PCIe	1 x PCIe x16 (Gen3)
PCI	N/A
mini-PCIe	1 x Full/Half size with PCIe x1 and USB 2.0
M.2	1 x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	LAN1: 1 x Intel® I210 with 10/100/1000 Mbps LAN2: 1 x Intel® I219V with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O	IMB-1210-L	IMB-1210-D
HDMI	N/A	
DisplayPort	2 x DP 1.2	3 x DP 1.2
VGA	1	N/A
DVI	N/A	
Ethernet	2 x 1 Gigabit LAN	
USB	4 x USB 3.1 (Gen1)	
Audio	2 (Mic-in, Line-out)	
COM	COM3(RS-232/422/485) COM4(RS-232)	
PS2	N/A	

Internal Connector

USB	4 x USB 2.0 (2 x 2.54 pitch header)	
COM	COM1, 2(RS232)	
Parallel	N/A	
GPIO	4 x GPI, 4 x GPO	
TPM	TPM Header	
LVDS	1	N/A
eDP	N/A	1
VGA	N/A	
SATA PWR Output	N/A	
Speaker Header	1	

Storage

M.2	1 x M.2 (Key M, 2242/2260/2280) with shared SATA3 for SSD
mSATA	N/A
SATA	4 x SATA3 (6Gb/s), SATA3_1 shared with M.2 Key M
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	ATX PWR (24+4-pin)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



IMB-1211-L/ IMB-1211-D

Mini-ITX Motherboard



IMB-1211-L



IMB-1211-D

KEY FEATURES

- Intel® 9th/ 8th Gen (Coffee Lake-S) Core™ Processors with Q370 chipset
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2666MHz (16GB per DIMM)
- 1 x PCIe x16 (Gen3), 4 x USB 3.1 Gen1, 4 x USB 2.0, 1 x mini-PCIe, 1 x M.2 Key E, 1 x M.2 Key M, 5 x COM, 4 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports triple display, 2 x DP 1.2, 1 x VGA, 1 x LVDS (IMB-1211-L)
- Supports triple display, 3 x DP 1.2, 1 x eDP (IMB-1211-D)
- TPM 2.0 onboard IC
- ATX PWR

SPECIFICATIONS

Form Factor	IMB-1211-L	IMB-1211-D
Dimensions	Mini-ITX (6.7-in x 6.7-in)	

Processor System

CPU	Intel® 9 th / 8 th Gen (Coffee Lake-S) Core™ Processors, up to 65W *The Performance of CPUs over 65W will be limited due to power design.
Chipset	Intel® Q370
Socket	LGA1151
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2666 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	Coffee Lake integrated graphics
HDMI	N/A
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2304@60Hz
VGA	Max resolution up to 1920x1200@60Hz
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	eDP 1.4 Max resolution up to 4096x2304@60Hz
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

PCIe	1 x PCIe x16 (Gen3, Support riser card x8/x8, x8/x4/x4)
PCI	N/A
mini-PCIe	1 x Full/Half size with PCIe x1 and USB 2.0
M.2	1 x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	LAN1: 1 x Intel® I210 with 10/100/1000 Mbps LAN2: 1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro
Connector	2 x RJ-45

Rear I/O	IMB-1211-L	IMB-1211-D
HDMI	N/A	
DisplayPort	2 x DP 1.2	3 x DP 1.2
VGA	1	N/A
DVI	N/A	
Ethernet	2 x 1 Gigabit LAN	
USB	4 x USB 3.1 (Gen1)	
Audio	2 (Mic-in, Line-out)	
COM	COM3, 4(RS-232/422/485)	
PS2	N/A	

Internal Connector

USB	4 x USB 2.0 (2 x 2.54 pitch header)	
COM	COM1, 2, 5(RS232)	
Parallel	N/A	
GPIO	4 x GPI, 4 x GPO	
TPM	TPM 2.0 onboard IC	
LVDS	1	N/A
eDP	N/A	1
VGA	N/A	
SATA PWR Output	N/A	
Speaker Header	1	

Storage

M.2	1 x M.2 (Key M, 2242/2260/2280) with PCIe x4 and SATA3 for SSD
mSATA	N/A
SATA	4 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	ATX PWR (24+4-pin)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

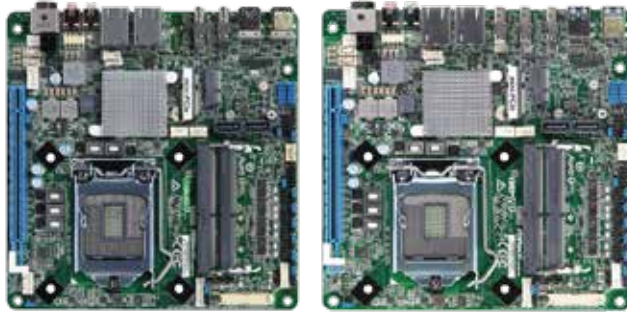
Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



IMB-1212/ IMB-1213

Mini-ITX Motherboard



IMB-1212

IMB-1213

KEY FEATURES

- Intel® 9th/ 8th Gen (Coffee Lake-S) Core™ Processors with H310 chipset (IMB-1212)
- Intel® 9th/ 8th Gen (Coffee Lake-S) Core™ Processors with Q370 chipset (IMB-1213)
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2666MHz (16GB per DIMM)
- 1 x PCIe x16 (Gen3), 4 x USB 3.1 Gen1, 4 x USB 2.0, 1 x mini-PCIe, 1 x M.2 Key E, 1 x M.2 Key M, 4 x COM, 2 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports dual display, 2 x DP 1.2, 1 x VGA, 1 x LVDS or eDP (IMB-1212)
- Supports triple display, 3 x DP 1.2, 1 x LVDS or eDP (IMB-1213)
- TPM header (IMB-1212)
- TPM 2.0 onboard IC (IMB-1213)
- 12V/19~28V DC-In

SPECIFICATIONS

Form Factor	IMB-1212	IMB-1213
Dimensions	Mini-ITX (6.7-in x 6.7-in)	

Processor System

CPU	Intel® 9 th / 8 th Gen (Coffee Lake-S) Core™ Processors, up to 65W *The Performance of CPUs over 65W will be limited due to power design.	
Chipset	Intel® H310	Intel® Q370
Socket	LGA1151	
BIOS	AMI SPI 128 Mbit	

Memory

Technology	Dual Channel DDR4 2666 MHz	
Capacity	32 GB (16 GB per DIMM)	
Socket	2 x 260-pin SO-DIMM	

Graphics

Controller	Coffee Lake integrated graphics	
HDMI	N/A	
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2304@60Hz	
VGA	Max resolution up to 1920x1200@60Hz	
LVDS	Dual channel 24 bit up to 1920x1200@60Hz	
eDP	eDP 1.4 Max resolution up to 4096x2304@60Hz	
DVI	N/A	
MultiDisplay	Dual Display	Triple Display

Expansion Slot

PCIe	1 x PCIe x16 (Gen3)	1 x PCIe x16 (Gen3, Support riser card x8/x8, x8/x4/x4)
PCI	N/A	
mini-PCIe	1 x Full/Half size with PCIe x1 and USB 2.0	
M.2	1 x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for Wireless	

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in	
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Ethernet

Controller/ Speed	LAN1: 1 x Intel® I219V with 10/100/1000 Mbps	LAN1: 1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro
	LAN2: 1 x Intel® I210 with 10/100/1000 Mbps	
Connector	2 x RJ-45	

Rear I/O	IMB-1212	IMB-1213
HDMI	N/A	
DisplayPort	2 x DP 1.2	3 x DP 1.2
VGA	N/A	
DVI	N/A	
Ethernet	2 x 1 Gigabit LAN	
USB	4 x USB 3.1 (Gen1)	
Audio	2 (Mic-in, Line-out)	
COM	N/A	
PS2	N/A	

Internal Connector

USB	4 x USB 2.0 (2 x 2.54 pitch header)	
COM	COM3, 4(RS232/422/485) COM1, 2(RS232)	
Parallel	N/A	
GPIO	4 x GPI, 4 x GPO	
TPM	TPM Header	TPM 2.0 onboard IC
LVDS	1 (shared with eDP, by jumper setting)	
eDP	1 (shared with LVDS, by jumper setting)	
VGA	1	N/A
SATA PWR Output	1	
Speaker Header	1	

Storage

M.2	1 x M.2 (Key M, 2242/2260/2280) with SATA3 for SSD	1 x M.2 (Key M, 2242/2260/2280) with PCIe x4 and SATA3 for SSD
mSATA	N/A	
SATA	2 x SATA3 (6Gb/s)	

Watchdog Timer

Output Interval	From Super I/O to drag RESETCON# 256 Segments, 0, 1, 2, ...255sec
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Power Requirements

Input PWR	12V or 19~28V DC-In with 4-pin plug PWR cable or 4-pin DC Jack
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

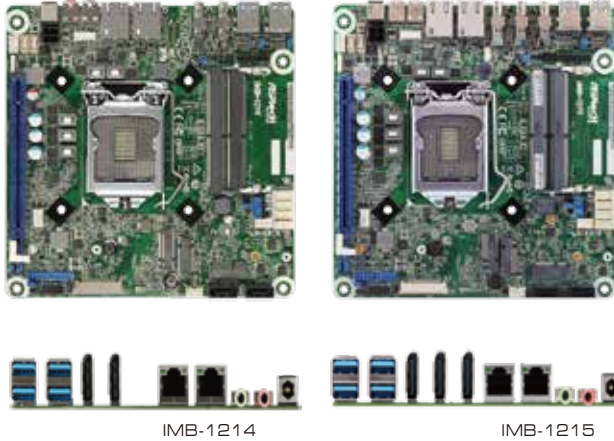
Operating Temp	0°C ~ 60°C
Storage Temp	-40°C ~ 85°C



IMB-1214/ IMB-1215

Mini-ITX Motherboard

KEY FEATURES



- Intel® 9th/ 8th Gen (Coffee Lake-S) Core™ Processors with H310 chipset (IMB-1214)
- Intel® 9th/ 8th Gen (Coffee Lake-S) Core™ Processors with Q370 chipset (IMB-1215)
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2666MHz (16GB per DIMM)
- 1 x PCIe x16 (Gen3), 4 x USB 3.1 Gen1, 4 x USB 2.0, 1 x M.2 Key E, 2 x M.2 Key M, 4 x COM, 2 x SATA3
- 1 x Intel 1 Gigabit LAN, 1 x Realtek 1 Gigabit LAN
- Supports dual display, 2 x DP 1.2, 1 x eDP (IMB-1214)
- Supports triple display, 3 x DP 1.2, 1 x eDP (IMB-1215)
- TPM header (IMB-1214)
- TPM 2.0 onboard IC (IMB-1215)
- 19V DC-In

SPECIFICATIONS

Form Factor	IMB-1214	IMB-1215
Dimensions	Mini-ITX (6.7-in x 6.7-in)	

Processor System

CPU	Intel® 9 th / 8 th Gen (Coffee Lake-S) Core™ Processors, up to 65W *The Performance of CPUs over 65W will be limited due to power design.	
Chipset	Intel® H310	Intel® Q370
Socket	LGA1151	
BIOS	AMI SPI 128 Mbit	

Memory

Technology	Dual Channel DDR4 2666 MHz	
Capacity	32 GB (16 GB per DIMM)	
Socket	2 x 260-pin SO-DIMM	

Graphics

Controller	Coffee Lake integrated graphics	
HDMI	N/A	
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2304@60Hz	
VGA	N/A	
LVDS	N/A	
eDP	eDP 1.4 Max resolution up to 4096x2304@60Hz	
DVI	N/A	
MultiDisplay	Dual Display	Triple Display

Expansion Slot

PCIe	1 x PCIe x16 (Gen3)	1 x PCIe x16 (Gen3, Support riser card x8/x8, x8/x4/x4)
PCI	N/A	
mini-PCIe	N/A	
M.2	1 x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for Wireless	

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in	
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Ethernet

Controller/ Speed	LAN1: 1 x Intel® I219V with 10/100/1000 Mbps	LAN1: 1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro
	LAN2: 1 x Realtek RTL8111H with 10/100/1000 Mbps	
Connector	2 x RJ-45	

Rear I/O	IMB-1214	IMB-1215
HDMI	N/A	
DisplayPort	2 x DP 1.2	3 x DP 1.2
VGA	N/A	
DVI	N/A	
Ethernet	2 x 1 Gigabit LAN	
USB	4 x USB 3.1 (Gen1)	
Audio	2 (Mic-in, Line-out)	
COM	N/A	
PS2	N/A	

Internal Connector

USB	4 x USB 2.0 (2 x 2.54 pitch header)	
COM	COM3(RS232/422/485) COM1, 2, 4(RS232)	
Parallel	N/A	
GPIO	N/A	
TPM	TPM Header	TPM 2.0 onboard IC
LVDS	N/A	
eDP	1	
VGA	N/A	
SATA PWR Output	1	
Speaker Header	1	

Storage

M.2	1 x M.2 (Key M, 2242/2260) with PCIe x1 for SSD	1 x M.2 (Key M, 2242/2280) with SATA3 for SSD	1 x M.2 (Key M, 2242/2280) with PCIe x4 and SATA3 for SSD
mSATA	N/A		
SATA	2 x SATA3 (6Gb/s)		

Watchdog Timer

Output	From Super I/O to drag RESETCON#	
Interval	256 Segments, 0, 1, 2, ...255sec	

Power Requirements

Input PWR	19V DC-In with 4-pin plug PWR cable or DC Jack	
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready	

Environment

Operating Temp	0°C ~ 60°C	
Storage Temp	-40°C ~ 85°C	
Operating Humidity	5% ~ 90%	
Storage Humidity	5% ~ 90%	



IMB-156

Mini-ITX Motherboard



KEY FEATURES

- Intel® Apollo Lake SoC Processor
- 2 x 204-pin SO-DIMM up to 16GB DDR3L 1866 MHz (8GB per DIMM)
- 1 x PCIe x1 (Gen2), 4 x USB 3.1 Gen1, 4 x USB 2.0, 1 x mini-PCIe, 1 x M.2 Key M, 1 x M.2 Key E, 6 x COM, 1 x SATA3
- 2 x Realtek 1 Gigabit LAN
- Supports triple display, 1 x HDMI 1.4b, 1 x VGA, 1 x LVDS
- TPM header
- 12V or +19V~+24V DC-In/ ATX PWR

SPECIFICATIONS

Form Factor

Dimensions	Mini-ITX (6.7-in x 6.7-in)
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Processor System

CPU	Intel® Apollo Lake SoC Processor IMB-156M (E3940, QC, 1.6 GHz, 9.5 W) IMB-156J (J3455, QC, 1.5 GHz, 10 W) IMB-156D (N4200, QC, 1.1 GHz, 6 W) IMB-156L (N3350, DC, 1.1 GHz, 6 W)
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR3L 1866 MHz
Capacity	16 GB (8 GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 12
HDMI	HDMI 1.4b Max resolution up to 4096 x 2160@24Hz
DisplayPort	N/A
VGA	Max resolution up to 1920 x 1200@60Hz
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

PCIe	1 x PCIe x1 (Gen2)
PCI	N/A
mini-PCIe	1 x Full size with PCIe x1 and shared USB 2.0
M.2	1 x Key E (2230) with PCIe x1 and shared USB 2.0 for Wireless

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	2 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O

HDMI	1 x HDMI 1.4b
DisplayPort	N/A
VGA	1
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	4 x USB 3.1 (Gen1)
Audio	2 (Mic-in, Line-out)
COM	3 x COM (RS-232/422/485)
PS2	1 x PS/2 combo

Internal Connector

USB	4 x USB 2.0 (2 x 2.54 pitch header)
COM	3 x COM (RS232)
Parallel	1 (shared with GPIO)
GPIO	8 x GPI, 8 x GPO (shared with LPT header)
TPM	TPM Header
LVDS	1
eDP	N/A
VGA	N/A
SATA PWR Output	1
Speaker Header	1

Storage

M.2	1 x Key M (2242/2260) with SATA3 for SSD
mSATA	N/A
SATA	1 x SATA3 (6Gb/s), SATA3_1 shared with M.2_Key M
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V or +19V~+24V DC-In/ ATX PWR
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



IMB-1002J

Mini-ITX Motherboard



KEY FEATURES

- Intel® Apollo Lake SoC Processor J3455
- 2 x 204-pin SO-DIMM up to 16GB DDR3L 1866MHz (8GB per DIMM)
- 1 x PCIe x1 (Gen2), 4 x USB 3.1 Gen1, 4 x USB 2.0, 1 x M.2 Key E, 1 x M.2 Key B, 1 x M.2 Key M, 4 x COM, 1 x SATA3
- 2 x Realtek 1 Gigabit LAN
- Supports triple display, 2 x HDMI 1.4b, 1 x LVDS
- TPM Header
- 12V DC-In

SPECIFICATIONS

Form Factor

Dimensions	Mini-ITX (6.7-in x 6.7-in)
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Processor System

CPU	Intel® Apollo Lake SoC Processor J3455, QC, 1.50 GHz, 10 W
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR3L 1866 MHz
Capacity	16 GB (8 GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics

Controller	Intel® HD Graphics
HDMI	HDMI 1.4b Max resolution up to 4096x2160@24Hz
DisplayPort	N/A
VGA	N/A
LVDS	Dual Channel 24-bit up to 1920x1200@60Hz
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

PCIe	1 x PCIe x1 (Gen2)
PCI	N/A
mini-PCIe	N/A
M.2	1 x M.2 (KEY E, 2230) with PCIe x1 and shared USB 2.0 for Wireless 1 x M.2 (KEY B, 3042) with shared USB 2.0 and UIM for 4G
SIM Socket	1 x Socket connected to M.2 Key_B

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	LAN1: 1 x Realtek RTL8111G with 10/100/1000 Mbps LAN2: 1 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O

HDMI	2 x HDMI 1.4b
DisplayPort	N/A
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	4 x USB 3.1 (Gen1)
Audio	2 (Mic-in, Line-out)
COM	COM3(RS-232/422/485), COM4(RS-232)
PS2	N/A

Internal Connector

USB	4 x USB 2.0 (2 x 2.54 pitch header) (one is shared with M.2 Key E, one is shared with M.2 Key B)
COM	COM5, COM6 (RS-232)
Parallel	1 (shared with GPIO)
GPIO	8 x GPI, 8 x GPO (shared with LPT header)
TPM	TPM Header
LVDS	1
eDP	N/A
VGA	N/A
SATA PWR Output	1
Speaker Header	1

Storage

M.2	1 x M.2 (KEY M, 2242/2260/2280) with SATA3 for SSD
mSATA	N/A
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V DC-In with 4-pin plug PWR cable
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



IMB-1000D-WF

Mini-ITX Motherboard



KEY FEATURES

- Intel® Bay Trail SoC Processor J1900
- 2 x 204-pin SO-DIMM up to 16GB DDR3L 1333 MHz (8GB per DIMM)
- 1 x Mini PCIe, 1 x USB 3.1 Gen1, 5 x USB 2.0,
2 x M.2 Key M (1 for SSD, 1 for VPU), 6 x COM, 1 x SATA2
- 1 x POE Power slot for ASRI PSE module
(Optional: LAN4 supports POE function by PSE-30W/PSE-15W)
- 2 x Intel® Gigabit LAN, 2 x Realtek Gigabit LAN
- Supports dual display, 1 x HDMI 1.4a, 1 x VGA
- TPM Header
- 12V DC-in

SPECIFICATIONS

Form Factor

Dimensions	Mini-ITX (6.7-in x 6.7-in)
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Processor System

CPU	Intel® Bay Trail SoC Processor J1900, QC, 2.00GHz, 10W
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 64 Mbit

Memory

Technology	Dual Channel DDR3L 1333 MHz
Capacity	16 GB (8GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics

Controller	Intel® Gen7 Graphics DX 11
HDMI	HDMI 1.4a Max resolution up to 1920x1200@60Hz
DisplayPort	N/A
VGA	Max resolution up to 1920x1200@60Hz
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Dual Display

Expansion Slot

PCIe	N/A
PCI	N/A
Mini-PCIe	1 x Full/Half size with PCIe x1 and USB 2.0
M.2	1 x M.2 (Key M, 2260) with PCIe x1 optional for VPU
SIM Socket	N/A
POE Power Slot	1 x POE Power slot for ASRI PSE module (Optional: LAN4 supports POE function by PSE-30W/PSE-15W)

Audio

Interface	Realtek ALC887, High Definition Audio Header
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Ethernet

Controller/ Speed	LAN1: 1 x Realtek RT8119I with 10/100/1000 Mbps LAN2: 1 x Realtek RT8119I with 10/100/1000 Mbps LAN3: 1 x Intel® I210IT with 10/100/1000 Mbps LAN4: 1 x Intel® I210IT with 10/100/1000 Mbps (Optional: LAN4 supports POE function by ASRI PSE module)
Connector	4 x RJ-45

Rear I/O

HDMI	1 x HDMI 1.4a
DisplayPort	N/A
VGA	N/A
DVI	N/A
Ethernet	4 x 1 Gigabit LAN
USB	1 x USB 3.1 (Gen1), 3 x USB 2.0
Audio	N/A
COM	N/A
PS2	N/A

Internal Connector

USB	2 x USB 2.0 (1 x 2.54 pitch header)
COM	COM1, 2 (RS-232/422/485), COM3, 4, 5, 6 (RS-232)
Parallel	N/A
GPIO	4 x GPI, 4 x GPO
TPM	TPM Header
LVDS	N/A
eDP	N/A
VGA	1
PS/2	1
SATA PWR Output	1
Speaker Header	1

Storage

M.2	1 x M.2 (Key M, 2242/2260/2280) with SATA2 for SSD
mSATA	N/A
SATA	1 x SATA2 (3Gb/s)
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V DC-In (with 4-pin wafer PWR cable or DC Jack)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mini-ITX



IMB-1001D-WF

Mini-ITX Motherboard



KEY FEATURES

- Intel® Baytrail SoC Processor J1900
- 1 x 204-pin SO-DIMM up to 8GB DDR3L 1333MHz
- 1 x PCIe x1 (Gen2), 1 x USB 3.1 Gen1, 8 x USB 2.0, 1 x mini-PCIe, 1 x M.2 Key M, 6 x COM, 2 x SATA2
- 2 x Realtek 1 Gigabit LAN
- Supports dual display, 1 x HDMI 1.4a, 1 x VGA, 1 x LVDS
- TPM Header
- 12V DC-In

SPECIFICATIONS

Form Factor

Dimensions	Mini-ITX (6.7-in x 6.7-in)
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Processor System

CPU	Intel® Baytrail SoC Processor J1900 J1900, QC, 2.00GHz, 10W
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 64 Mbit

Memory

Technology	Single Channel DDR3L 1333 MHz
Capacity	8GB
Socket	1 x 204-pin SO-DIMM

Graphics

Controller	Intel® Gen7 Graphics DX 11
HDMI	HDMI 1.4a Max resolution up to 4096x2160@24Hz
DisplayPort	N/A
VGA	Max resolution up to 1920x1200@60Hz
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	N/A
DVI	N/A
MultiDisplay	Dual Display

Expansion Slot

PCIe	1 x PCIe x1 (Gen2)
PCI	N/A
mini-PCIe	1 x Full/Half size with PCIe x1 and USB 2.0
M.2	N/A

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	LAN1: 1 x Realtek RTL8111G with 10/100/1000 Mbps LAN2: 1 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O

HDMI	1 x HDMI 1.4a
DisplayPort	N/A
VGA	1 (shared with internal VGA)
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	1 x USB 3.1 (Gen1), 3 x USB 2.0
Audio	2 (Mic-in, Line-out)
COM	N/A
PS2	N/A

Internal Connector

USB	5 x USB 2.0 (2 x 2.54 pitch header, 1 x USB 2.0 Type-A vertical con)
COM	COM1, 2, 4, 5, 6 (RS-232), COM3 (RS-232/422/485)
Parallel	1 (shared with GPIO)
GPIO	8 x GPI, 8 x GPO (shared with LPT header)
TPM	TPM Header
LVDS	1
eDP	N/A
VGA	1 x Header (shared with VGA port)
SATA PWR Output	1
Speaker Header	1

Storage

M.2	1 x M.2 (Key M, 2242/2260/2280) with shared SATA2 for SSD
mSATA	N/A
SATA	2 x SATA2 (3Gb/s), SATA2_2 shared with M.2 Key M
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V DC-In (DC Jack)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



IMB-A1000

Mini-ITX Motherboard



KEY FEATURES

- AMD Ryzen 7th/5th/3th Gen (Raven Ridge/Matisse) Core™ Processors with B450 chipset
- 2 x 204-pin SO-DIMM up to 32GB DDR4 3200 MHz (16GB per DIMM)
- 1 x PCIe x16 (Gen3), 4 x USB 3.1 Gen2, 4 x USB 3.1 Gen1, 4 x USB 2.0 with Matisse,
- 1 x PCIe x16 (Gen3), 8 x USB 3.1 Gen1, 4 x USB 2.0 with Raven Ridge
2 x M.2 Key M, 1 x M.2 Key E, 1 x M.2 Key B, 2 x COM, 3 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports triple display, 3 x DP++ 1.2, 1 x eDP
- TPM 2.0 onboard IC
- ATX PWR (24+8-pin)

SPECIFICATIONS

Form Factor

Dimensions	Mini-ITX (6.7-in x 6.7-in)
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Processor System

CPU	AMD Ryzen 7 th /5 th /3 th Gen (Raven Ridge/Matisse) Core™ Processors Ryzen 7 th :Matisse (3700X,8cores,3.6GHz,65W) Ryzen 5 th :Raven Ridge (2400G, QC, 3.6GHz,65W); Matisse (3600,6cores,3.6GHz,65W) Ryzen 3 th :Raven Ridge (2200G, QC,3.5GHz,65W)
Chipset	AMD Promontory B450
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 3200 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics

Controller	AMD Radeon™ HD Vega DirectX 12
HDMI	N/A
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2160@60Hz
VGA	N/A
LVDS	N/A
eDP	eDP 1.4 (share with DisplayPort) Max resolution up to 4096x2160@60Hz
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

PCIe	1 x PCIe x16 (PCIe Gen3 x8 for Raven Ridge) 1 x PCIe x16 (PCIe Gen3 x16 for Matisse)
PCI	N/A
mini-PCIe	N/A
M.2	1 x Key B (3042) with PCIe, USB 2.0 and SIM Socket for 4G 1 x Key E (2230) with PCIe x1 and USB 2.0 for Wireless
SIM Socket	1 x Socket connected to M.2 Key_B

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out,Mic-in
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Ethernet

Controller/ Speed	2 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O

HDMI	N/A
DisplayPort	3
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	Matisse: 4 x USB 3.1 (Gen2), 2 x USB 3.1(Gen1) Raven Ridge: 6 x USB 3.1(Gen1)
Audio	2 (Mic-in, Line-out)
COM	N/A
PS2	N/A

Internal Connector

USB	2 x USB 3.1 Gen1 (1 x USB 3.1 header) 4 x USB 2.0 (2 x 2.54 pitch header)
COM	2 x COM (RS232/422/485)
Parallel	N/A
GPIO	N/A
TPM	TPM 2.0 onboard IC
LVDS	N/A
eDP	1 (share with DisplayPort)
VGA	N/A
SATA PWR Output	1
Speaker Header	1

Storage

M.2	1 x Key M (2242/2260/2280) with PCIe x4 and SATA3 for SSD 1 x Key M (2242/2280) with PCIe x1 for SSD
mSATA	N/A
SATA	3 x SATA3 (6Gb/s), SATA3_1 shared with M.2_Key M
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	ATX PWR (24+8-pin)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



IMB-R1000/ IMB-V1000

Mini-ITX Motherboard



IMB-R1000

IMB-V1000

KEY FEATURES

- AMD Ryzen™ Embedded R1000 SoC processors (IMB-R1000)
- AMD Ryzen™ Embedded V1000 SoC processors (IMB-V1000)
- 2 x 260-pin SO-DIMM up to 32GB DDR4 3200 MHz (16GB per DIMM)
- 1 x PCIe x4 (Gen3) (IMB-R1000), 1 x PCIe x8 (Gen3) (IMB-V1000),
2 x USB 3.2 Gen2, 7 x USB 2.0, 1 x M.2 Key M, 1 x M.2 Key E,
1 x mini-PCIe, 6 x COM, 2 x SATA3
- 2 x Realtek Gigabit LAN
- Supports Triple display, 3 x DisplayPort 1.2a (IMB-R1000)
- Supports Quad display, 4 x DisplayPort 1.2a (IMB-V1000)
- TPM 2.0 onboard IC
- 12V/19~28V DC-In/ ATX PWR (4-pin)

SPECIFICATIONS

Form Factor	IMB-R1000	IMB-V1000
Dimensions	Mini-ITX (6.7-in x 6.7-in)	

Processor System		
CPU	AMD Ryzen™ Embedded R1000 SoC processors IMB-R1000M (R1606G, DC, 2.6GHz, 12-25W) IMB-R1000V (R1505G, DC, 2.4GHz, 12-25W)	AMD Ryzen™ Embedded V1000 SoC processors IMB-V1000P (V1807B, QC, 3.35GHz, 35-54W) IMB-V1000M (V1605B, QC, 2GHz, 12-25W) IMB-V1000V (V1202B, DC, 2.3GHz, 12-25W)
Chipset	SoC	
Socket	N/A	
BIOS	AMI SPI 64 Mbit	

Memory		
Technology	Dual Channel DDR4 2400 MHz	Dual Channel DDR4 2400 MHz (V1605B/V1202B) Dual Channel DDR4 3200 MHz (V1807B)
Capacity	32 GB (16 GB per DIMM)	
Socket	2 x 260-pin SO-DIMM	

Graphics		
Controller	AMD Radeon™ Vega 3 Graphics	IMB-V1000P (AMD Radeon™ Vega 11 Graphics) IMB-V1000M (AMD Radeon™ Vega 8 Graphics) IMB-V1000V (AMD Radeon™ Vega 3 Graphics)
HDMI	N/A	
DisplayPort	DisplayPort 1.2a Max resolution up to 3840x2160@60Hz	
VGA	Max resolution up to 1920x1200@60Hz	
LVDS	Dual channel 48 bit up to 1920 x 1200@60Hz	
eDP	eDP 1.3 Max resolution up to 3840x2160@60Hz	
DVI	N/A	
MultiDisplay	Triple Display	Quad Display

Expansion Slot		
PCIe	1 x PCIe x4 (Gen3)	1 x PCIe x8 (Gen3)
PCI	N/A	
mini-PCIe	1 x Full/Half size with PCIe x1 and USB 2.0	
M.2	1 x M.2 (Key E, 2230) with PCIe x1 and shared USB 2.0 for Wireless	
SIM Socket	N/A	

Audio	
Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in, Line-in

Ethernet	
Controller/ Speed	2 x Realtek R8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O	IMB-R1000	IMB-V1000
HDMI	N/A	
DisplayPort	3 x DP 1.2a	4 x DP 1.2a
VGA	N/A	
DVI	N/A	
Ethernet	2 x 1 Gigabit LAN	
USB	2 x USB 3.2 Gen2 2 x USB 2.0	
Audio	2 (Mic-in, Line-out)	
COM	2 x COM (RS-232/422/485)	
PS2	N/A	

Internal Connector	
USB	5 x USB 2.0 (2 x 2.54 pitch header, 1 x USB 2.0 Type-A vertical con)
COM	4 x COM (RS-232, COM6 shared with ccTalk)
GPIO	8 x GPI, 8 x GPO (shared with LPT header)
TPM	TPM 2.0 onboard IC
LVDS	1 (Shared with DP1)
eDP	1 (Shared with DP0)
VGA	1 (Shared with DP3)
SATA PWR Output	1
Speaker Header	1

Storage	
M.2	1 x M.2 (Key M, 2242/2260/2280) with PCIe x2 and SATA for SSD
mSATA	N/A
SATA	2 x SATA3 (6.0Gb/s), Red header shared with M.2 Key M SATA signal
eMMC	N/A

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements	
Input PWR	12V or 19~28V DC-In with 4-pin plug PWR cable or DC Jack
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment	
Operating Temp	0°C ~ 60°C
Storage Temp	-40°C ~ 85°C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



Mini-ITX

Model	IMB-190		IMB-X190		IMB-191		IMB-192		IMB-193	
Chipset/ CPU	Intel® Q170		Intel® C236		Intel® H110		Intel® H110		Intel® H110	
Socket	LGA1151		LGA1151		LGA1151		LGA1151		LGA1151	
Form Factor	Mini-ITX		Mini-ITX		Mini-ITX		Mini-ITX		Mini-ITX	
Memory	Dual Channel DDR4 2133 MHz SDRAM		Dual Channel DDR4 2133 MHz Supports ECC DIMM memory modules		Dual Channel DDR4 2133 MHz SDRAM		Dual Channel DDR4 2133 MHz SDRAM		Dual Channel DDR4 2133 MHz SDRAM	
DIMM Slot	2 x 260-pin SO-DIMM		2 x 260-pin SO-DIMM		2 x 260-pin SO-DIMM		2 x 260-pin SO-DIMM		2 x 260-pin SO-DIMM	
Capacity	32GB (16GB per DIMM)		32GB (16GB per DIMM)		32GB (16GB per DIMM)		32GB (16GB per DIMM)		32GB (16GB per DIMM)	
PCIe	1 x PCIe x4 (Gen3)		1 x PCIe x4 (Gen3)		1 x PCIe x4 (Gen2)		1 x PCIe x4 (Gen2)		1 x PCIe x4 (Gen2)	
PCI	N/A		N/A		N/A		N/A		N/A	
DP	N/A		N/A		N/A		N/A		1 x DP 1.2a, DP++	
HDMI	1 x HDMI 2.0, 2 x HDMI 1.4b		1 x HDMI 2.0, 2 x HDMI 1.4b		2 x HDMI 1.4b		1 x HDMI 1.4b		2 x HDMI 1.4b	
DVI	N/A		N/A		N/A		N/A		N/A	
D-Sub	1 x Header		1 x Header		1 x Header		1		N/A	
LVDS/ eDP	1	N/A	1	N/A	1	N/A	1	N/A	N/A	1
mini-PCIe	1 x half size with PCIe x1 and USB 2.0		1 x half size with PCIe x1 and USB 2.0		1 x half size with PCIe x1 and USB 2.0		N/A		1 x half size with PCIe x1 and USB 2.0	
mSATA	N/A		N/A		1 x full size with SATA3 and USB 2.0		N/A		1 x full size with SATA3 and USB 2.0	
mini-PCIe/ mSATA	1 x full size with PCIe x1, SATA3 and USB 2.0		1 x full size with PCIe x1, SATA3 and USB 2.0		N/A		N/A		N/A	
M.2 (SSD) Key M	N/A		N/A		N/A		1 x 2242/2260 with SATA3		N/A	
M.2 (WiFi) Key E	N/A		N/A		N/A		1 x 2230 with PCIe x1 and USB 2.0		N/A	
SATA	2 x SATA3		2 x SATA3		2 x SATA3		2 x SATA3		2 x SATA3	
USB 3.1	4 x USB 3.1 (Gen1) (Rear)		4 x USB 3.1 (Gen1) (Rear)		4 x USB 3.1 (Gen1) (Rear)		4 x USB 3.1 (Gen1) (Rear)		4 x USB 3.1 (Gen1) (Rear)	
USB 2.0	4 (2 x header) (Internal)		4 (2 x header) (Internal)		4 (2 x header) (Internal)		5 (2 x header, 1 x Type-A) (Internal)		4 (2 x header) (Internal)	
GPIO	4 x GPI, 4 x GPO		4 x GPI, 4 x GPO		4 x GPI, 4 x GPO		N/A		4 x GPI, 4 x GPO	
LAN	1 x Intel I210 1 x Intel I219LM		1 x Intel I210 1 x Intel I219LM		1 x Intel I210 1 x Intel I219V		1 x Intel I219V		1 x Intel I219V, 1 x Realtek RTL8111G	
COM Port	2 x RS-232 (Internal) 2 x RS-232/422/485 (Internal)		2 x RS-232 (Internal) 2 x RS-232/422/485 (Internal)		2 x RS-232 (Internal) 2 x RS-232/422/485 (Internal)		2 x RS-232 (Internal)		3 x RS-232 (Internal) 1 x RS-232/422/485 (Internal)	
Parallel	N/A		N/A		N/A		N/A		N/A	
TPM	1 x Header		1 x Header		1 x Header		1 x Header		1 x Header	
PS/2	N/A		N/A		N/A		N/A		N/A	
Power	12V or 19~24V DC-In with 4-pin plug PWR cable or DC Jack		12V or 19~24V DC-In with 4-pin plug PWR cable or DC Jack		12V or 19~24V DC-In with 4-pin plug PWR cable or DC Jack		19V DC-In (DC Jack)		19V DC-In with 4-pin plug PWR cable or DC Jack	
Operating Temperature	0 ~ 60° C		0 ~ 60° C		0 ~ 60° C		0 ~ 60° C		0 ~ 60° C	



Model	IMB-194-L		IMB-194-D		IMB-195		IMB-195-D	
Chipset/ CPU	Intel® Q170		Intel® Q170		Intel® H110		Intel® H110	
Socket	LGA1151		LGA1151		LGA1151		LGA1151	
Form Factor	Mini-ITX		Mini-ITX		Mini-ITX		Mini-ITX	
Memory	Dual Channel DDR4 2133 MHz SDRAM		Dual Channel DDR4 2133 MHz SDRAM		Dual Channel DDR4 2133 MHz SDRAM		Dual Channel DDR4 2133 MHz SDRAM	
DIMM Slot	2 x 260-pin SO-DIMM		2 x 260-pin SO-DIMM		2 x 260-pin SO-DIMM		2 x 260-pin SO-DIMM	
Capacity	32GB (16GB per DIMM)		32GB (16GB per DIMM)		32GB (16GB per DIMM)		32GB (16GB per DIMM)	
PCIe	1 x PCIe x16 (Gen3)		1 x PCIe x16 (Gen3)		1 x PCIe x16 (Gen2)		1 x PCIe x16 (Gen2)	
PCI	N/A		N/A		N/A		N/A	
DP	1 x DP 1.2a, DP++		2 x DP 1.2a, DP++		1 x DP 1.2a, DP++		2 x DP 1.2a, DP++	
HDMI	1 x HDMI 1.4b		1 x HDMI 1.4b		1 x HDMI 1.4b		1 x HDMI 1.4b	
DVI	N/A		N/A		N/A		N/A	
D-Sub	1		N/A		1		N/A	
LVDS/ eDP	1	N/A	N/A	1	1	N/A	N/A	1
mini-PCIe	1 x full/half size with PCIe x1 and USB 2.0		1 x full/half size with PCIe x1 and USB 2.0		1 x full/half size with PCIe x1 and USB 2.0		1 x full/half size with PCIe x1 and USB 2.0	
mSATA	1 x full size with shared SATA3 and USB 2.0		1 x full size with shared SATA3 and USB 2.0		1 x full size with shared SATA3 and USB 2.0		1 x full size with shared SATA3 and USB 2.0	
M.2 (SSD) Key M	N/A		N/A		N/A		N/A	
M.2 (WiFi) Key E	N/A		N/A		N/A		N/A	
SATA	4 x SATA3, SATA3_1 shared with mSATA		4 x SATA3, SATA3_1 shared with mSATA		4 x SATA3, SATA3_1 shared with mSATA		4 x SATA3, SATA3_1 shared with mSATA	
USB 3.1	4 x USB 3.1 (Gen1) (Rear)		4 x USB 3.1 (Gen1) (Rear)		4 x USB 3.1 (Gen1) (Rear)		4 x USB 3.1 (Gen1) (Rear)	
USB 2.0	4 x USB 2.0 (2 x header) (Internal)		4 x USB 2.0 (2 x header) (Internal)		4 x USB 2.0 (2 x header) (Internal)		4 x USB 2.0 (2 x header) (Internal)	
GPIO	4 x GPI, 4 x GPO		4 x GPI, 4 x GPO		4 x GPI, 4 x GPO		4 x GPI, 4 x GPO	
LAN	1 x Intel I219LM, 1 x Intel I210		1 x Intel I219LM, 1 x Intel I210		1 x Intel I219V, 1 x Intel I210		1 x Intel I219V, 1 x Intel I210	
COM Port	2 x RS-232/422/485 (Rear) 3 x RS-232 (Internal)		2 x RS-232/422/485 (Rear) 3 x RS-232 (Internal)		1 x RS-232/422/485 (Rear) 1 x RS-232 (Rear) 2 x RS-232 (Internal)		2 x RS-232/422/485 (Rear) 1 x RS-232 (Internal)	
Parallel	N/A		N/A		N/A		N/A	
TPM	TPM 2.0 onboard IC		TPM 2.0 onboard IC		1 x Header		1 x Header	
PS/2	N/A		N/A		N/A		N/A	
Power	ATX PWR (24+4-pin)		ATX PWR (24+4-pin)		ATX PWR (24+4-pin)		ATX PWR (24+4-pin)	
Operating Temperature	0 ~ 60° C		0 ~ 60° C		0 ~ 60° C		0 ~ 60° C	

Mini-ITX



Mini-ITX

Model	IMB-150		IMB-150D-PCI		IMB-154		IMB-155		IMB-157	
Chipset/ CPU	Intel® Baytrail IMB-150D (J1900) IMB-150N (N2930)		Intel® Baytrail J1900		Intel® Braswell IMB-154A (N3710) IMB-154B (N3160)		Intel® Braswell IMB-155A (N3710) IMB-155B (N3160)		Intel® Apollo Lake IMB-157D (N4200) IMB-157D-WF (N4200) IMB-157L (N3350) IMB-157J (J3455) IMB-157J-WF (J3455) IMB-157M (E3940)	
Socket	SoC		SoC		SoC		SoC		SoC	
Form Factor	Mini-ITX		Mini-ITX		Mini-ITX		Mini-ITX		Mini-ITX	
Memory	Dual Channel DDR3L 1333 MHz SDRAM		Dual Channel DDR3L 1333 MHz SDRAM		Dual Channel DDR3L 1333 / 1600 MHz SDRAM		Dual Channel DDR3L 1333 / 1600 MHz SDRAM		Dual Channel DDR3L 1866MHz SDRAM	
DIMM Slot	2		2		2		2		2	
PCIe	1 x PCIe x1		N/A		1 x PCIe x1		1 x PCIe x1		1 x PCIe x1	
PCI	N/A		1		N/A		N/A		N/A	
DP	N/A		N/A		N/A		N/A		N/A	
HDMI	1 x HDMI 1.4a		1 x HDMI 1.4a		1 x HDMI 1.4b		1 x HDMI 1.4b		1 x HDMI 1.4b	
DVI	N/A		N/A		N/A		N/A		N/A	
D-Sub	1		1		1		1		1	
LVDS/ eDP	1	N/A	1	N/A	1	N/A	1	N/A	1	1 (Jumper Switch)
mini-PCIe	1		N/A		1		1		1	
mSATA	1		1		1		1		N/A	
M.2 (SSD)	N/A		1 x 2242/2260/2280 (SATA2)		N/A		N/A		1 x 2242/2260 (SATA3)	
M.2 (WiFi)	N/A		1		N/A		N/A		1	
SATA	2 x SATA2		1 x SATA2		2 x SATA3		1 x SATA3		1 x SATA3	
RAID	N/A		N/A		N/A		N/A		N/A	
USB 3.1	2 x USB 3.1 Gen1 (Rear) 2 x USB 3.1 Gen1 (Internal)		4 x USB 3.1 Gen1 (Rear)		4 x USB 3.1 Gen1 (Rear)		4 x USB 3.1 Gen1 (Rear)		4 x USB 3.1 Gen1 (Rear)	
USB 2.0	2 (Rear) 4 (Internal)		6 (Internal)		4 (Internal)		4 (Internal)		4 (Internal)	
GPIO	4 x GPI, 4 x GPO		4 x GPI, 4 x GPO		8 x GPI, 8 x GPO		8 x GPI, 8 x GPO		8 x GPI, 8 x GPO	
LAN	2 x Realtek RTL8111G		2 x Realtek RTL8111G		2 x Realtek RTL8111G		2 x Realtek RTL8111G		2 x Realtek RTL8111G	
COM Port	3 x RS-232/422/485 (Rear) 2 x RS-232 (Internal)		3 x RS-232/422/485 (Rear) 3 x RS-232 (Internal)		3 x RS-232/422/485 (Rear) 3 x RS-232 (Internal)		4 x RS-232 (Internal) 2 x RS-232/422/485 (Internal)		4 x RS-232 (Internal) 2 x RS-232/422/485 (Internal)	
Parallel	1		N/A		1		1		1	
TPM	1 x Header		1 x Header		1 x Header		1 x Header		1 x Header	
PS/2	2		2		2		N/A		N/A	
Power	9-19V DC-In, ATX PWR		9-19V DC-In, ATX PWR		12V or 19~24V DC in, ATX PWR		12V or 19~24V DC in, ATX PWR		12V or 19V~24V DC-In	
Operating Temperature	0 ~ 60° C		0 ~ 60° C		0 ~ 60° C		0 ~ 60° C		0 ~ 60° C	



Model	IMB-151		IMB-151D-WF		IMB-A190M-L		IMB-A182P		IMB-A180	
Chipset/ CPU	Intel® Baytrail IMB-151D (J1900) IMB-151N (N2930)		Intel® Baytrail J1900		AMD RX-418GD		AMD G series GX-424CC		AMD G series GX-420CA/GX-415GA GX-210HA	
Socket	SoC		SoC		SoC		SoC		SoC	
Form Factor	Mini-ITX		Mini-ITX		Mini-ITX		Mini-ITX		Mini-ITX	
Memory	Dual Channel DDR3L 1333 MHz		Dual Channel DDR3L 1333 MHz		Dual Channel DDR4 2400 MHz		Single Channel DDR3 1866 MHz		Single Channel DDR3 1600 MHz (GX-420CA / GX-415GA) Single Channel DDR3 1333 MHz (GX-210HA)	
DIMM Slot	2		2		2		2		2	
PCIe	1 x PCIe x1		1 x PCIe x1		1 x PCIe x8		1 x PCIe x4		1 x PCIe x4	
PCI	N/A		N/A		N/A		N/A		N/A	
DP	N/A		N/A		1 x DP 1.2++		N/A		N/A	
HDMI	1 x HDMI 1.4a		1 x HDMI 1.4a		1 x HDMI 1.4a		1 x HDMI 1.4a		1 x HDMI 1.4a	
DVI	N/A		N/A		N/A		N/A		N/A	
D-Sub	1		1		N/A		1		1	
LVDS/ eDP	1	N/A	1	N/A	1	N/A	1	N/A	1	N/A
mini-PCIe	1		1		N/A		1		1	
mSATA	1		1		N/A		1		1	
M.2 (SSD)	N/A		N/A		1		N/A		N/A	
M.2 (WiFi)	N/A		N/A		1		N/A		N/A	
SATA	2 x SATA2		2 x SATA2		2 x SATA3		1 x SATA3		1 x SATA3	
RAID	N/A		N/A		N/A		N/A		N/A	
USB 3.1	2 x USB 3.1 Gen1 (Rear) 2 x USB 3.1 Gen1 (Internal)		2 x USB 3.1 Gen1 (Rear) 2 x USB 3.1 Gen1 (Internal)		4 x USB 3.1 Gen1 (Rear)		2 x USB 3.1 Gen1 (Rear)		2 x USB 3.1 Gen1 (Rear)	
USB 2.0	4 (Internal)		2 (Rear) 4 (Internal)		4 (Internal)		4 (Rear) 4 (Internal)		4 (Rear) 3 (Internal)	
GPIO	4 x GPI, 4 x GPO		4 x GPI, 4 x GPO		4 x GPI, 4 x GPO		4 x GPI, 4 x GPO		4 x GPI, 4 x GPO	
LAN	1 x Realtek RTL8111G		1 x Realtek RTL8111G		2 x Realtek RTL8111G		1 x Realtek RTL8111E, 1 x Realtek RTL8111DP		1 x Realtek RTL8111E 1 x Realtek RTL8111DP	
COM Port	1 x RS-232/422/485 (Internal) 4 x RS-232 (Internal)		1 x RS-232/422/485 (Internal) 4 x RS-232 (Internal)		1 x RS-232/422/485 (Rear) 1 x RS-232 (Rear) 3 x RS232 (Internal)		2 x RS-232/422/485 (Rear) 4 x RS-232 (Internal)		2 x RS-232/422/485 (Rear) 4 x RS-232 (Internal)	
Parallel	1		1		N/A		1		1	
TPM	1 x Header		1 x Header		1 x Header		1 x Header		1 x Header	
PS/2	N/A		N/A		1 (Combo)		1 (Combo)		1 (Combo)	
Power	9~19V DC-In AT PWR		9~19V DC-In AT PWR		12V only or 19V ~24V DC-In		12V~24V DC-In ATX PWR		ATX PWR (20-pin)	
Operating Temperature	0 ~ 60° C		0 ~ 60° C		0 ~ 60° C		0 ~ 60° C		0 ~ 60° C	



STX-1000

Mini-STX Motherboard



KEY FEATURES

- Intel® Gemini Lake SoC Processor
- 1 x 260-pin SO-DIMM up to 8 GB DDR4 2400 MHz
- 4 x USB 3.1 Gen1, 5 x USB 2.0, 1 x M.2 Key B, 1 x M.2 Key E, 2 x COM, 2 x SATA3
- 1 x Intel Gigabit LAN, 1 x Realtek Gigabit LAN
- Supports triple display, 2 x DP, 1 x eDP or LVDS
- TPM Header
- 9~24V DC-In/ ATX PWR

SPECIFICATIONS

Form Factor

Dimensions	Mini-STX (5.5-in x 5.8-in)
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Processor System

CPU	Intel® Gemini Lake SoC Processor STX-1000B (J4005, DC, 2.0 GHz, 10 W) STX-1000J (J4105, QC, 1.5 GHz, 10 W) STX-1000D (J5005, QC, 1.5 GHz, 10 W)
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Single Channel DDR4 2400 MHz
Capacity	8 GB
Socket	1 x 260-pin SO-DIMM

Graphics

Controller	Intel® UHD Graphics
HDMI	N/A
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2160@60Hz
VGA	N/A
LVDS	Dual channel 24 bit up to 1920X1200@60Hz (shared with eDP)
eDP	eDP 1.4 (shared with LVDS) Max resolution up to 4096X2160@60Hz
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

PCIe	N/A
PCI	N/A
mini-PCIe	N/A
M.2	1 x M.2 (Key E, 2230) with PCIe x1, CNVi and USB 2.0 for WiFi+BT 1 x M.2 (Key B, 2242/2260/2280) with PCIe x1, USB 2.0 and SATA3
SIM Socket	1 x Socket connected to M.2 Key_B

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	LAN1: 1 x Intel I210AT with 10/100/1000 Mbps LAN2: 1 x Realtek RTL8111G with 10/100/1000Mbps
Connector	2 x RJ-45

Front I/O

USB	2 x USB 3.1 (Gen1)
Audio	2 (Mic-in, Line-out)

Rear I/O

HDMI	N/A
DisplayPort	2 x DP 1.2
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	4 x USB 2.0
Audio	N/A
COM	N/A
PS2	N/A
DC Jack	1

Internal Connector

USB	2 x USB 3.1 (Gen1) (1 x USB 3.1 header) 1 x USB 2.0 (1 x 2.54 pitch header)
COM	COM3(RS232/422/485) COM2(RS232)
Parallel	N/A
GPIO	4 x GPI, 4 x GPO
TPM	TPM Header
LVDS	1 (shared with eDP)
eDP	1 (shared with LVDS)
VGA	N/A
SATA PWR Output	1
Speaker Header	1

Storage

mSATA	N/A
SATA	2 x SATA3 (6Gb/s), SATA3_2 shared with M.2 Key B
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

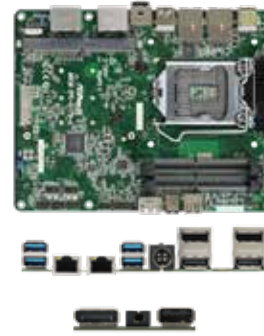
Power Requirements

Input PWR	9~24V DC-In with 4-pin wafer PWR cable or DC Jack
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mini-STX



Model	MXM IPC-H110		MXM IPC-Q170-Q		MXM IPC-Q170		MXM IPC-Q370	
Chipset/ CPU	Intel H110		Intel Q170		Intel Q170		Intel Q170	
Socket	LGA1151		LGA1151		LGA1151		LGA1151	
Form Factor	Micro-STX		Micro-STX		Micro-STX		Micro-STX	
Memory	Dual Channel DDR4 2400 MHz SO-DIMM		Dual Channel DDR4 2400 MHz SO-DIMM		Dual Channel DDR4 2400 MHz SO-DIMM		Dual Channel DDR4 2400 MHz SO-DIMM	
DIMM Slot	2		2		2		2	
PCIe	N/A		N/A		N/A		N/A	
PCI	N/A		N/A		N/A		N/A	
MXM Slot	1		1		1		1	
DP	5 (1 x from CPU, 4 x from MXM)		5 (1 x from CPU, 4 x from MXM)		5 (1 x from CPU, 4 x from MXM)		5 (1 x from CPU, 4 x from MXM)	
HDMI	N/A		N/A		N/A		N/A	
DVI	N/A		N/A		N/A		N/A	
D-Sub	N/A		N/A		N/A		N/A	
LVDS/ eDP	N/A	1	N/A	1	N/A	1	N/A	1
mini-PCIe	N/A		N/A		N/A		N/A	
mSATA	N/A		N/A		N/A		N/A	
M.2 (SSD)	1 x 2242/2260/2280		1 x 2242/2260/2280		1 x 2242/2260/2280		2 x 2242/2260/2280	
M.2 (WiFi)	1 x 2230		1 x 2230		1 x 2230		1 x 2230	
SATA	2 x SATA3		2 x SATA3		2 x SATA3		2 x SATA3	
RAID	N/A		N/A		N/A		N/A	
USB 3.1	4 x USB 3.1 (Gen1) (Rear)		4 x USB 3.1 (Gen1) (Rear)		4 x USB 3.1 (Gen1) (Rear)		4 x USB 3.1 (Gen1) (Rear)	
USB 2.0	3 (2 x Internal, 1 x Front)		3 (2 x Internal, 1 x Front)		3 (2 x Internal, 1 x Front)		3 (2 x Internal, 1 x Front)	
GPIO	N/A		N/A		N/A		N/A	
LAN	1 x Intel I219V 1 x Intel I210		1 x Intel I219LM 1 x Intel I210		1 x Intel I219LM 1 x Intel I210		1 x Intel I219LM 1 x Intel I210	
COM Port	2 x RS-232		2 x RS-232		2 x RS-232		2 x RS-232	
Parallel	N/A		N/A		N/A		N/A	
TPM	1 x Header		1 x Header		1 x Header		1 x Header	
PS/2	N/A		N/A		N/A		N/A	
Power	19V DC-In		19V DC-In		19V DC-In		19V DC-In	
Operating Temperature	0 ~ 60° C		0 ~ 60° C		0 ~ 60° C		0 ~ 60° C	



IMB-1312

Micro-ATX Motherboard



KEY FEATURES

- Intel® 9th/ 8th Gen (Coffee Lake-S) Core™ Processors with Q370 chipset
- 4 x 288-pin Long-DIMM up to 64GB DDR4 2666 MHz (16GB per DIMM)
- 1 x PCIe x16 (Gen3), 1 x PCIe x8 (Gen3), 2 x PCIe x4 (Gen3),
6 x USB 3.1 Gen1, 6 x USB 2.0, 1 x M.2 Key E, 1 x mini-PCIe, 1 x M.2 Key M,
6 x COM, 8 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports triple display, 1 x HDMI 1.4, 1 x DP 1.2, 1 x VGA, 1 x LVDS, 1 x DVI-D
- TPM 2.0 onboard IC
- ATX PWR

SPECIFICATIONS

Form Factor

Dimensions	Micro ATX (9.6-in x 9.6-in)
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Processor System

CPU	Intel® 9 th / 8 th Gen (Coffee Lake-S) Core™ Processors, up to 95W
Chipset	Intel® Q370
Socket	LGA1151
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2666 MHz
Capacity	64 GB (16 GB per DIMM)
Socket	4 x 288-pin Long-DIMM

Graphics

Controller	Coffee Lake integrated graphics
HDMI	HDMI 1.4 Max resolution up to 4096x2160@24Hz
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2304@60Hz
VGA	Max resolution up to 1920x1200@60Hz
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	N/A
DVI-D	Max resolution up to 1920x1200@60Hz
MultiDisplay	Triple Display

Expansion Slot

PCIe	- 2 x PCIe 3.0 x16 Slots (PCIe1/PCIe3: single at x16 (PCIe1); dual at x8 (PCIe1) / x8 (PCIe3)) - 2 x PCIe 3.0 x4 Slots (PCIe2) (PCIe4)
PCI	N/A
mini-PCIe	1 x Full/Half size with PCIe x1 and USB 2.0
M.2	1 x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for Wireless

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in, Line-in
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Ethernet

Controller/ Speed	LAN1: 1 x Intel® I210 with 10/100/1000 Mbps LAN2: 1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro
Connector	2 x RJ-45

Rear I/O

HDMI	1 x HDMI 1.4
DisplayPort	1 x DP 1.2
VGA	1
DVI-D	1
Ethernet	2 x 1 Gigabit LAN
USB	4 x USB 3.1 (Gen1)
Audio	3 (Mic-in, Line-in, Line-out)
COM	COM1(RS-232/422/485)
PS2	1

Internal Connector

USB	2 x USB 3.1 (Gen1) (1 x USB3.1 header) 6 x USB 2.0 (3 x 2.54 pitch header)
COM	COM2, 3, 4, 5, 6 (RS-232)
Parallel	1 (shared with GPIO)
GPIO	8 x GPI, 8 x GPO (shared with LPT header)
TPM	TPM 2.0 onboard IC
LVDS	1
eDP	N/A
VGA	N/A
SATA PWR Output	N/A
Speaker Header	1

Storage

M.2	1 x M.2 (Key M, 2242/2260/2280) with PCIe x4 and shared SATA3 for SSD
mSATA	N/A
SATA	8 x SATA3 (6Gb/s), SATA3_1 shared with M.2 Key M
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	ATX PWR (24+8-pin)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40°C ~ 85°C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



IMB-1311-L/ IMB-1311-D

Micro-ATX Motherboard



IMB-1311-L

IMB-1311-D

KEY FEATURES

- Intel® 9th/ 8th Gen (Coffee Lake-S) Core™ Processors with Q370 chipset
- 4 x 288-pin Long-DIMM up to 64GB DDR4 2666MHz (16GB per DIMM)
- 1 x PCIe x16 (Gen3), 1 x PCIe x4 (Gen3), 2 x PCI, 6 x USB 3.1 Gen1, 6 x USB 2.0, 1 x M.2 Key E, 1 x mini-PCIe, 1 x M.2 Key M, 6 x COM, 6 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports triple display, 1 x HDMI 1.4, 1 x DP 1.2, 1 x VGA, 1 x LVDS, 1 x DVI-D (IMB-1311-L)
- Supports triple display, 1 x HDMI 1.4, 1 x DP 1.2, 1 x eDP, 1 x DVI-D (IMB-1311-D)
- TPM 2.0 onboard IC
- ATX PWR

SPECIFICATIONS

Form Factor	IMB-1311-L	IMB-1311-D
Dimensions	Micro ATX (9.6-in x 9.6-in)	

Processor System	
CPU	Intel® 9 th / 8 th Gen (Coffee Lake-S) Core™ Processors, up to 65W
Chipset	Intel® Q370
Socket	LGA1151
BIOS	AMI SPI 128 Mbit

Memory	
Technology	Dual Channel DDR4 2666 MHz
Capacity	64 GB (16 GB per DIMM)
Socket	4 x 288-pin Long-DIMM

Graphics	
Controller	Coffee Lake integrated graphics
HDMI	HDMI 1.4 Max resolution up to 4096x2160@24Hz
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2304@60Hz
VGA	Max resolution up to 1920x1200@60Hz
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	eDP 1.4 Max resolution up to 4096x2304@60Hz
DVI-D	Max resolution up to 1920x1200@60Hz
MultiDisplay	Triple Display

Expansion Slot	
PCIe	1 x PCIe x16 (Gen3, Support riser card x8/x8, x8/x4/x4)
PCI	2
mini-PCIe	1 x Full/Half size with PCIe x1 and USB 2.0
M.2	1 x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for Wireless

Audio	
Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in, Line-in

Ethernet	
Controller/ Speed	LAN1: 1 x Intel® I210 with 10/100/1000 Mbps LAN2: 1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro
Connector	2 x RJ-45

Rear I/O	IMB-1311-L	IMB-1311-D
HDMI	1 x HDMI 1.4	
DisplayPort	1 x DP 1.2	
VGA	1	N/A
DVI-D	1	
Ethernet	2 x 1 Gigabit LAN	
USB	4 x USB 3.1 (Gen1)	
Audio	3 (Mic-in, Line-in, Line-out)	
COM	COM3(RS-232/422/485)	
PS2	1	

Internal Connector		
USB	2 x USB 3.1 (Gen1) (1 x USB3.1 header) 6 x USB 2.0 (3 x 2.54 pitch header)	
COM	COM1, 2, 4, 5, 6(RS232)	
Parallel	1 (shared with GPIO)	
GPIO	8 x GPI, 8 x GPO (shared with LPT header)	
TPM	TPM 2.0 onboard IC	
LVDS	1	N/A
eDP	N/A	1
VGA	N/A	
SATA PWR Output	N/A	
Speaker Header	1	

Storage	
M.2	1 x M.2 (Key M, 2242/2260/2280) with PCIe x4 and shared SATA3 for SSD
mSATA	N/A
SATA	6 x SATA3 (6Gb/s), SATA3_1 shared with M.2 Key M
eMMC	N/A

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements	
Input PWR	ATX PWR (24+8-pin)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment	
Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Micro-ATX



IMB-1310

Micro-ATX Motherboard



KEY FEATURES

- Intel® 9th/ 8th Gen (Coffee Lake-S) Core™ Processors with H310 chipset
- 2 x 288-pin Long-DIMM up to 32GB DDR4 2666 MHz (16GB per DIMM)
- 1 x PCIe x16 (Gen3), 1 x PCIe x4 (Gen2), 2 x PCI, 4 x USB 3.1 Gen1, 4 x USB 2.0, 1 x M.2 Key M, 4 x COM, 4 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports dual display, 1 x HDMI 1.4, 1 x DP 1.2, 1 x VGA, 1 x LVDS, 1 x DVI-D
- TPM Header
- ATX PWR

SPECIFICATIONS

Form Factor

Dimensions	Micro ATX (9.6-in x 9.6-in)
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Processor System

CPU	Intel® 9 th / 8 th Gen (Coffee Lake-S) Core™ Processors, up to 65W
Chipset	Intel® H310
Socket	LGA1151
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2666 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 288-pin Long-DIMM

Graphics

Controller	Coffee Lake integrated graphics
HDMI	HDMI 1.4 Max resolution up to 4096x2160@24Hz
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2304@60Hz
VGA	Max resolution up to 1920x1200@60Hz
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	N/A
DVI-D	Max resolution up to 1920x1200@60Hz
MultiDisplay	Dual Display

Expansion Slot

PCIe	1 x PCIe x16 (Gen3) 1 x PCIe x4 (Gen2)
PCI	2
mini-PCIe	N/A
M.2	N/A

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in, Line-in
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Ethernet

Controller/ Speed	LAN1: 1 x Intel® I210 with 10/100/1000 Mbps LAN2: 1 x Intel® I219V with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O

HDMI	1 x HDMI 1.4
DisplayPort	1 x DP 1.2
VGA	1
DVI-D	1
Ethernet	2 x 1 Gigabit LAN
USB	4 x USB 3.1 (Gen1)
Audio	3 (Mic-in, Line-in, Line-out)
COM	COM3(RS-232/422/485)
PS2	1

Internal Connector

USB	4 x USB 2.0 (2 x 2.54 pitch header)
COM	COM1, 2, 4(RS-232)
Parallel	1 (shared with GPIO)
GPIO	8 x GPI, 8 x GPO (shared with LPT header)
TPM	TPM Header
LVDS	1
eDP	N/A
VGA	N/A
SATA PWR Output	N/A
Speaker Header	1

Storage

M.2	1 x M.2 (Key M, 2242/2260/2280) with shared SATA3 for SSD
mSATA	N/A
SATA	4 x SATA3 (6Gb/s), SATA3_1 shared with M.2 Key M
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	ATX PWR (24+8-pin)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Micro-ATX



IMB-A1300/ IMB-A1301

Micro-ATX Motherboard

KEY FEATURES



- AMD Ryzen 7th/5th/3th Gen (Raven Ridge/Matisse) Core™ Processors with B450 chipset (IMB-A1300)
- AMD Ryzen 7th/5th/3th Gen (Raven Ridge/Matisse) Core™ Processors with X470 chipset (IMB-A1301)
- 2 x 288-pin Long-DIMM up to 32GB DDR4 3200 MHz with Matisse (16GB per DIMM)
- 2 x 288-pin Long-DIMM up to 32GB DDR4 2933 MHz with Raven Ridge (16GB per DIMM)
- 1 x PCIe x16 (Gen3), 3 x PCIe x1 (Gen3), 4 x USB 3.1 Gen2, 3 x USB 3.1 Gen1, 6 x USB 2.0, 1 x M.2 Key M, 1 x M.2 Key E, 6 x COM, 4 x SATA3 (IMB-A1300)
- 1 x PCIe x16 (Gen3), 1 x PCIe x1 (Gen3), 1 x PCIe x1 (Gen3), 4 x USB 3.1 Gen2, 7 x USB 3.1 Gen1, 6 x USB 2.0, 1 x M.2 Key M, 1 x M.2 Key E, 6 x COM, 8 x SATA3 (IMB-A1301)
- 2 x Intel 1 Gigabit LAN
- Supports triple display, 2 x DP++ 1.2, 1 x VGA
- TPM 2.0 onboard IC
- ATX PWR (24+8-pin)

SPECIFICATIONS

Form Factor	IMB-A1300	IMB-A1301
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Dimensions	Micro-ATX (9.6-in x 9.6-in)	
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Processor System

CPU	AMD Ryzen 7th/5th/3th Gen (Raven Ridge/Matisse) Core™ Processors Ryzen 7th:Matisse (3700X,8cores,3.6GHz,65W) Ryzen 5th:Raven Ridge (2400G, QC, 3.6GHz,65W);Matisse (3600,6cores,3.6GHz,65W) Ryzen 3th:Raven Ridge (2200G, QC,3.5GHz,65W)	
Chipset	AMD Promontory B450 (IMB-A1300)	AMD Promontory X470 (IMB-A1301)
Socket	N/A	
BIOS	AMI SPI 128 Mbit	

Memory

Technology	Dual Channel DDR4 3200 MHz (Matisse) Dual Channel DDR4 2933 MHz (Raven Ridge)	
Capacity	32 GB (16 GB per DIMM)	
Socket	2 x 288-pin Long-DIMM	

Graphics

Controller	AMD Radeon™ HD Vega DirectX 12	
HDMI	N/A	
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2160@60Hz	
VGA	Max resolution up to 4096x2160@60Hz	
LVDS	N/A	
eDP	N/A	
DVI	N/A	
MultiDisplay	Triple Display	

Expansion Slot

PCIe	1 x PCIe x16 (PCIe Gen3 x8 for Raven Ridge);(PCIe Gen3 x16 for Matisse) 3 x PCIe x1 (Gen3)	1 x PCIe x16 (PCIe Gen3 x8 for Raven Ridge);(PCIe Gen3 x16 for Matisse) 1 x PCIe x4 (Gen3) 1 x PCIe x1 (Gen3)
PCI	0	
mini-PCIe	0	
M.2	1 x Key E (2230)with PCIe x1 and USB 2.0 for Wireless	
SIM Socket	N/A	

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out,Mic-in
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Ethernet

Controller/ Speed	2 x Intel® I210-AT with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O	IMB-A1300	IMB-A1301
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HDMI	N/A	
DisplayPort	2 x DP1.2++	
VGA	1	
DVI	N/A	
Ethernet	2 x 1 Gigabit LAN	
USB	Matisse: 4 x USB 3.1 (Gen2) Raven Ridge: 4 x USB 3.1 (Gen1)	
Audio	3 (Mic-in, Line-in, Line-out)	
COM	2 x COM(RS-232/422/485)	
PS2	1 x PS/2 combo	

Internal Connector

USB	3 x USB 3.1 (Gen1)(1 x USB 3.1 header, 1 x Type A) 6 x USB 2.0 (3 x 2.54 pitch header)	7 x USB 3.1 (Gen1)(2 x USB 3.1 header, 3 x Type A) 6 x USB 2.0 (3 x 2.54 pitch header)
COM	4 x COM (RS-232)	
Parallel	1	
GPIO	8 x GPI, 8 x GPO (shared with LPT header)	
TPM	TPM 2.0 onboard IC	
LVDS	N/A	
eDP	N/A	
VGA	N/A	
SATA PWR Output	1	
Speaker Header	1	

Storage

M.2	1 x Key M (3042/3060/3080)withPCIe x4 and SATA3 for SSD	
mSATA	N/A	
SATA	4 x SATA3 (6Gb/s), SATA3_1 shared with M.2_Key M	8 x SATA3 (6Gb/s), SATA3_1 shared with M.2_Key M
eMMC	N/A	

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	ATX PWR (24+8-pin)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



Model	IMB-390-D		IMB-390-L		IMB-391		IMB-392	
Form Factor	Micro ATX		Micro ATX		Micro ATX		non-standard Micro-ATX (6.7-in x 8.8-in)	
Chipset/ CPU	Intel® Q170		Intel® Q170		Intel® H110		Intel® H110	
Socket	LGA1151		LGA1151		LGA1151		LGA1151	
Memory	Dual Channel DDR4 2133 MHz SDRAM		Dual Channel DDR4 2133 MHz SDRAM		Dual Channel DDR4 2133 MHz SDRAM		Dual Channel DDR4 2133 MHz SDRAM	
DIMM Slot	4 x 288-pin Long-DIMM		4 x 288-pin Long-DIMM		2 x 288-pin Long-DIMM		2 x 288-pin Long-DIMM	
Capacity	64GB (16GB per DIMM)		64GB (16GB per DIMM)		32GB (16GB per DIMM)		32GB (16GB per DIMM)	
PCIe	1 x PCIe x16 (Gen3, Support riser card) 1 x PCIe x4 (Gen3)		1 x PCIe x16 (Gen3, Support riser card) 1 x PCIe x4 (Gen3)		1 x PCIe x16 (Gen3) 1 x PCIe x4 (Gen2)		1 x PCIe x16 (Gen3)	
PCI	2		2		2		N/A	
DP	1 x DP 1.2a, DP++		1 x DP 1.2a, DP++		1 x DP 1.2a, DP++		1 x DP 1.2a, DP++	
HDMI	1 x HDMI 2.0		1 x HDMI 2.0		1 x HDMI 2.0		1 x HDMI 1.4b	
DVI-D	1		1		1		1	
D-Sub	N/A		1		1		1	
LVDS/ eDP	N/A	1	1	N/A	1	N/A	N/A	
mini-PCIe	1 x Full/Half size with PCIe x1 and USB 2.0		1 x full/half size with PCIe x1 and USB 2.0		N/A		N/A	
mSATA	1 x Full size with shared SATA3 and USB 2.0		1 x Full size with shared SATA3 and USB 2.0		N/A		N/A	
M.2 (SSD) Key M	N/A		N/A		N/A		N/A	
M.2 (WiFi) Key E	N/A		N/A		N/A		N/A	
SATA	6 x SATA3, SATA3_6 shared with mSATA		6 x SATA3, SATA3_6 shared with mSATA		4 x SATA3		10 x SATA3	
USB 3.1	4 x USB 3.1 (Gen1) (Rear) 2 x USB 3.1 (Gen1) (1 x Internal header)		4 x USB 3.1 (Gen1) (Rear) 2 x USB 3.1 (Gen1) (1 x Internal header)		4 x USB 3.1 (Gen1) (Rear)		2 x USB 3.1 (Gen1) (Rear) 2 x USB 3.1 (Gen1) (1 x Internal header)	
USB 2.0	6 x USB 2.0 (3 x header) (Internal)		6 x USB 2.0 (3 x header) (Internal)		4 x USB 2.0 (2 x header) (Internal)		2 x USB 2.0 (Rear) 4 x USB 2.0 (2 x Internal header)	
GPIO	8 x GPI, 8 x GPO		8 x GPI, 8 x GPO		8 x GPI, 8 x GPO		8 x GPI, 8 x GPO	
LAN	1 x Intel I219LM 1 x Intel I210		1 x Intel I219LM 1 x Intel I210		1 x Intel I219V 1 x Intel I210		1 x Intel I219V 1 x Intel I210AT	
COM Port	5 x RS-232 (Internal) 1 x RS-232/422/485 (Rear)		5 x RS-232 (Internal) 1 x RS-232/422/485 (Rear)		3 x RS-232 (Internal) 1 x RS-232/422/485 (Rear)		N/A	
Parallel	1		1		1		N/A	
TPM	TPM 2.0 onboard IC		TPM 2.0 onboard IC		1 x Header		1 x Header	
PS/2	1		1		1		N/A	
Power	ATX PWR (24+8-pin)		ATX PWR (24+8-pin)		ATX PWR (24+8-pin)		ATX PWR (24+4-pin)	
Operating Temperature	0 ~ 60° C		0 ~ 60° C		0 ~ 60° C		0 ~ 60° C	

Micro-ATX



IMB-1710

ATX Motherboard



KEY FEATURES

- Intel® 9th/ 8th Gen (Coffee Lake-S) Core™ Processors with Q370 chipset
- 4 x 288-pin Long-DIMM up to 64GB DDR4 2666 MHz (16GB per DIMM)
- 1 x PCIe x16 (Gen3), 1 x PCIe x8 (Gen3), 3 x PCIe x4 (Gen3), 2 x PCIe x1 (Gen3), 6 x USB 3.1 Gen1, 6 x USB 2.0, 1 x M.2 Key E, 1 x mini-PCIe, 1 x M.2 Key M, 10 x COM, 6 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports triple display, 1 x HDMI 1.4, 2 x DP 1.2, 1 x VGA
- TPM 2.0 onboard IC
- ATX PWR

SPECIFICATIONS

Form Factor

Dimensions	ATX (12-in x 9.6-in)
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Processor System

CPU	Intel® 9 th / 8 th Gen (Coffee Lake-S) Core™ Processors, up to 95W
Chipset	Intel® Q370
Socket	LGA1151
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2666 MHz
Capacity	64 GB (16 GB per DIMM)
Socket	4 x 288-pin Long-DIMM

Graphics

Controller	Coffee Lake integrated graphics
HDMI	HDMI 1.4 Max resolution up to 4096x2160@24Hz
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2304@60Hz
VGA	Max resolution up to 1920x1200@60Hz
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

PCIe	-3 x PCIe 3.0 Slots (PCIe1/PCIe2/PCIe3: single at x16 (PCIe1); dual at x8 (PCIe1) / x8 (PCIe3); triple at x8 (PCIe1) / x4 (PCIe2) / x4 (PCIe3)) -2 x PCIe 3.0 x4 Slots (PCIe4) (PCIe6) -2 x PCIe 3.0 x1 Slots (PCIe5) (PCIe7)
PCI	N/A
mini-PCIe	1 x Full/Half size with PCIe x1 and USB 2.0
M.2	1 x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for Wireless

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in, Line-in
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Ethernet

Controller/ Speed	LAN1: 1 x Intel® I210 with 10/100/1000 Mbps LAN2: 1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro
Connector	2 x RJ-45

Rear I/O

HDMI	1 x HDMI 1.4
DisplayPort	2 x DP 1.2
VGA	1
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	4 x USB 3.1 (Gen1)
Audio	3 (Mic-in, Line-in, Line-out)
COM	COM1, 2(RS-232/422/485)
PS2	1

Internal Connector

USB	2 x USB 3.1 (Gen1) (1 x USB 3.1 header) 6 x USB 2.0 (3 x 2.54 pitch header)
COM	COM3, 4, 5, 6, 7, 8, 9, 10 (RS-232)
Parallel	1 (shared with GPIO)
GPIO	8 x GPI, 8 x GPO (shared with LPT header)
TPM	TPM 2.0 onboard IC
LVDS	N/A
eDP	N/A
VGA	N/A
SATA PWR Output	N/A
Speaker Header	1

Storage

M.2	1 x M.2 (Key M, 2242/2260/2280) with PCIe x4 and shared SATA3 for SSD
mSATA	N/A
SATA	6 x SATA3 (6Gb/s), SATA3_1 shared with M.2 Key M
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	ATX PWR (24+8-pin)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



Model	IMB-790		IMB-X790	IMB-791	IMB-792
Chipset/ CPU	Intel® Q170		Intel® C236	Intel® H110	Intel® H110
Socket	1151		1151	1151	1151
Form Factor	ATX		ATX	ATX	ATX
Memory	Dual Channel DDR4 2133 MHz SDRAM		Dual Channel DDR4 2133 MHz SDRAM ECC support	Dual Channel DDR4 2133 MHz SDRAM	Dual Channel DDR4 2133 MHz SDRAM
DIMM Slot	4 x 288-pin Long-DIMM		4 x 288-pin Long-DIMM	2 x 288-pin Long-DIMM	2 x 288-pin Long-DIMM
Capacity	64GB (16GB per DIMM)		64GB (16GB per DIMM)	32GB (16GB per DIMM)	32GB (16GB per DIMM)
PCIe	1 x PCIe x16 (Gen3, Support riser card) 1 x PCIe x8 (Gen3) 1 x PCIe x4 (Gen3) 1 x PCIe x1 (Gen3)		1 x PCIe x16 (Gen3, Support riser card) 1 x PCIe x8 (Gen3) 1 x PCIe x4 (Gen3) 1 x PCIe x1 (Gen3)	1 x PCIe x16 (Gen3) 1 x PCIe x4 (Gen2) 1 x PCIe x1 (Gen2)	1 x PCIe x16 (Gen3) 1 x PCIe x4 (Gen2)
PCI	3		3	3	5
DP	3 x DP 1.2a, DP++		3 x DP 1.2a, DP++	2 x DP 1.2a, DP++	N/A
HDMI	N/A		N/A	N/A	1 x HDMI 1.4b
DVI	N/A		N/A	N/A	N/A
D-Sub	1		1	1	1
LVDS/ eDP	N/A	N/A	N/A	N/A	N/A
mini-PCIe	1 x Full/Half size with PCIe x1 and USB 2.0		1 x Full/Half size with PCIe x1 and USB 2.0	N/A	N/A
mSATA	1 x Full size with shared SATA3 and USB 2.0		1 x Full size with shared SATA3 and USB 2.0	1 x Full size with shared SATA3 and USB 2.0	1 x Full size with shared SATA3 and USB 2.0
M.2 (SSD) Key M	1 x 2230/2242/2260/2280/22110 with PCIe x4 and shared SATA3		1 x 2230/2242/2260/2280/22110 with PCIe x4 and shared SATA3	N/A	1 x 2242/2260/2280 with shared SATA3
M.2 (WiFi) Key E	N/A		N/A	N/A	N/A
SATA	6 x SATA3, SATA3_1 shared with mSATA, SATA3_6 shared with M.2 Key M		6 x SATA3, SATA3_1 shared with mSATA, SATA3_6 shared with M.2 Key M	4 x SATA3, SATA3_1 shared with mSATA	4 x SATA3, SATA3_1 shared with mSATA, SATA3_2 shared with M.2 Key M
USB 3.1	4 x USB 3.1 (Gen1) (Rear) 2 x USB 3.1 (Gen1) (1 x internal header)		4 x USB 3.1 (Gen1) (Rear) 2 x USB 3.1 (Gen1) (1 x internal header)	4 x USB 3.1 (Gen1) (Rear)	2 x USB 3.1 (Gen1) (Rear) 2 x USB 3.1 (Gen1) (1 x Internal header)
USB 2.0	6 x USB 2.0 (2 x internal header, 2 x Type-A)		6 x USB 2.0 (2 x internal header, 2 x Type-A)	5 x USB 2.0 (2 x internal header, 1 x Type-A)	2 x USB 2.0 (Rear) 3 x USB 2.0 (1 x internal header, 1 x Type-A)
GPIO	8 x GPI, 8 x GPO		8 x GPI, 8 x GPO	8 x GPI, 8 x GPO	8 x GPI, 8 x GPO
LAN	1 x Intel I210, 1 x Intel I219LM		1 x Intel I210, 1 x Intel I219LM	1 x Intel I219V	1 x Intel I210, 1 x Intel I219V
COM Port	4 x RS-232 (Internal) 2 x RS-232/422/485 (Rear)		4 x RS-232 (Internal) 2 x RS-232/422/485 (Rear)	2 x Rear-232 (Internal) 1 x RS-232/422/485 (Rear) 1 x RS-232 (Rear)	8 x RS-232 (Internal) 2 x RS-232/422/485 (Rear)
Parallel	1		1	1	1
TPM	TPM 2.0 onboard IC		TPM 2.0 onboard IC	1 x Header	1 x Header
PS/2	1		1	1	1
Power	ATX PWR (24+8-pin)		ATX PWR (24+8-pin)	ATX PWR (24+8-pin)	ATX PWR (24+8-pin)
Operating Temperature	0 ~ 60° C		0 ~ 60° C	0 ~ 60° C	0 ~ 60° C

ATX



SBC-350

3.5" SBC Motherboard



KEY FEATURES

- Intel® 8th Gen (Whiskey lake-U) Core™ Processors
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2400 MHz (16GB per DIMM)
- 4 x USB 3.2 Gen2, 2 x USB 3.2 Gen1, 2 x USB 2.0, 2 x M.2 Key M, 1 x M.2 Key E, 4 x COM, 1 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports triple display, 2 x DP1.2 ++, 1 x LVDS
- TPM 2.0 onboard IC (SBC-350P/SBC-350M)
- TPM 2.0 with Bios setting (SBC-350V)
- 9~36V DC-In

SPECIFICATIONS

Form Factor

Dimensions	3.5" SBC (6.3-in x 4.0-in)
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Processor System

CPU	Intel® 8 th Gen (Whiskey lake-U) Core™ Processors SBC-350P (i7-8665UE, QC, 1.7 GHz, 15 W) SBC-350M (i5-8365UE, QC, 1.6GHz, 15W) SBC-350V (i3-8145UE, DC, 2.2GHz, 15W)
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2400 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 12
HDMI	N/A
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2160@60Hz
VGA	N/A
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

PCIe	N/A
PCI	N/A
mini-PCIe	N/A
M.2	1 x Key E (2230) with PCIe x1, CNVi and USB 2.0 for Wireless

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	SBC-350P/M LAN1: 1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro LAN2: 1 x Intel® I210AT with 10/100/1000 Mbps SBC-350V LAN1: 1 x Intel® I219V with 10/100/1000 Mbps LAN2: 1 x Intel® I210AT with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O

HDMI	N/A
DisplayPort	2 x DP1.2 ++
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	4 x USB 3.2 (Gen2)
Audio	N/A
COM	N/A
PS2	N/A

Internal Connector

USB	2 x USB 3.2 Gen1 (1 x USB 3.2 Gen1 header) 2 x USB 2.0 (1 x 2.54 pitch header)
COM	1 x COM (RS232/422/485), 3 x COM (RS232)
Parallel	N/A
GPIO	4 x GPI, 4 x GPO
TPM	TPM 2.0 onboard IC (SBC-350P/SBC-350M) TPM 2.0 with Bios setting (SBC-350V)
LVDS	1
eDP	N/A
VGA	N/A
Audio	2 (Mic-in, Line-out)
SATA PWR Output	1
Speaker Header	1

Storage

M.2	1 x Key M (2242/2280) with PCIe x4 and SATA3 for SSD 1 x Key M (2242) with SATA3 for SSD
mSATA	N/A
SATA	1 x SATA3 (6Gb/s), SATA3_1 shared with M.2_Key M
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	9~36V DC-In (DC Jack)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



SBC-330/ SBC-331

3.5" SBC Motherboard



KEY FEATURES

- Intel® 7th/ 6th Gen (KabyLake-S/Skylake-S) Core™ Processors
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2133 MHz (16GB per DIMM)
- 4 x USB 3.1 Gen2, 4 x USB 2.0, 1 x mini-PCIe, 1 x mSATA/mini-PCIe, 4 x COM, 2 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports triple display, 2 x DP 1.2, 1 x LVDS
- TPM Header
- 12~36V DC-In

SPECIFICATIONS

Form Factor	SBC-330	SBC-331
Dimensions	3.5" SBC (5.8-in x 4.0-in)	
Processor System		
CPU	Intel® 7 th / 6 th Gen (KabyLake-S/Skylake-S) Core™ Processors	
	- SBC-330P (i7-6600U, QC, 2.60GHz, 15W)	- SBC-331V (i3-6100U, QC, 2.30GHz, 15W)
	- SBC-330M (i5-6300U, QC, 2.40GHz, 15W)	
Chipset	SoC	
Socket	N/A	
BIOS	AMI SPI 128 Mbit	

Memory	
Technology	Dual Channel DDR4 2133 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics	
Controller	Intel® Gen9 Graphics DX 12
HDMI	N/A
DisplayPort	DisplayPort 1.2 Max resolution up to 4096x2160@60Hz
VGA	N/A
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot	
PCIe	N/A
PCI	N/A
mini-PCIe	1 x Full size with PCIe x1 and USB 2.0
mSATA/mini-PCIe	1 x Full size with SATA3 and USB 2.0
M.2	N/A
SIM Socket	N/A

Audio	
Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in

Ethernet	
Controller/ Speed	SBC-330P/330M LAN1: 1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro LAN2: 1 x Intel® I211AT with 10/100/1000 Mbps SBC-331V LAN1: 1 x Intel® I219V with 10/100/1000 Mbps LAN2: 1 x Intel® I211AT with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O	
HDMI	N/A
DisplayPort	2 x DP1.2
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	4 x USB 3.1 (Gen2)
Audio	N/A
COM	N/A
PS2	N/A

Internal Connector	
USB	4 x USB 2.0 (2 x 2.54 pitch header)
COM	1 x COM (RS-232/422/485), 3 x COM (RS-232)
Parallel	N/A
GPIO	4 x GPI + 4 x GPO
TPM	TPM Header
LVDS	1
eDP	N/A
VGA	N/A
SATA PWR Output	1
Speaker Header	N/A

Storage	
M.2	N/A
mSATA	1 x half size with SATA3 and USB 2.0 colay with mini-PCIe
SATA	2 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements	
Input PWR	12~36V (DC In)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment	
Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

SBC



SBC-310/ SBC-311

3.5" SBC Motherboard



KEY FEATURES

- Intel® 4th Gen (Haswell-U) Core™ Processors
- 1 x 204-pin SO-DIMM up to 8GB DDR3L 1333/1600 MHz
- 4 x USB 3.1 Gen2, 4 x USB 2.0, 1 x mini-PCIe, 1 x mSATA/mini-PCIe, 4 x COM, 2 x SATA3
- 1 x Intel 1 Gigabit LAN, 1 x Realtek 1 Gigabit LAN
- Supports triple display, 2 x HDMI 1.4a, 1 x LVDS
- TPM Header
- 9~36V DC-In

SPECIFICATIONS

Form Factor	SBC-310	SBC-311
Dimensions	3.5" SBC (5.8-in x 4.0-in)	
Processor System		
CPU	Intel® 4 th Gen (Haswell-U) Core™ Processors	
	- SBC-310P (i7-4560U, QC, 1.70 GHz, 15W)	- SBC-311V (i3-4010U, QC, 1.70 GHz, 15W)
	- SBC-310M (i5-4300U, QC, 1.90 GHz, 15W)	
Chipset	SoC	
Socket	N/A	
BIOS	AMI SPI 64 Mbit	

Memory	
Technology	Single Channel DDR3L 1333/1600MHz
Capacity	8 GB
Socket	1 x 204-pin SO-DIMM

Graphics	
Controller	Intel® Gen9 Graphics DX 11
HDMI	HDMI 1.4a Max resolution up to 4096x2304@60Hz
DisplayPort	N/A
VGA	N/A
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot	
PCIe	N/A
PCI	N/A
mini-PCIe	1 x Full size with PCIe x1 and USB 2.0
mSATA/mini-PCIe	1 x Full size with SATA3 and USB 2.0
M.2	N/A
SIM Socket	N/A

Audio	
Interface	N/A

Ethernet	
Controller/ Speed	SBC-310P/310M LAN1: 1 x Realtek RTL8111G with 10/100/1000 Mbps LAN2: 1 x Intel® I28LM with 10/100/1000 Mbps SBC-311V LAN1: 1 x Realtek RTL8111G with 10/100/1000 Mbps LAN2: 1 x Intel® I218V with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O	
HDMI	2 x HDMI 1.4a
DisplayPort	N/A
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	4 x USB 3.1 (Gen2)
Audio	N/A
COM	N/A
PS2	N/A

Internal Connector	
USB	4 x USB 2.0 (2x 2.54 pitch header)
COM	2 x COM (RS-232/422/485), 2 x COM (RS-232)
Parallel	N/A
GPIO	4 x GPI, 4 x GPO
TPM	TPM Header
LVDS	1
eDP	N/A
VGA	N/A
SATA PWR Output	1
Speaker Header	1

Storage	
M.2	N/A
mSATA	1 x Half size with PCIe x1, SATA3 and USB 2.0 colay with mini-PCIe
SATA	2 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements	
Input PWR	9~36V (DC In)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment	
Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



SBC-230/ SBC-230M-WT

3.5" SBC Motherboard



KEY FEATURES

- Intel® Apollo Lake/Apollo Lake-I SoC Processors
- 2 x 204-pin SO-DIMM up to 16 GB DDR3L 1866 MHz (8GB per DIMM)
- 2 x USB 3.1 Gen2, 4 x USB 2.0, 1 x mini-PCIe, 1 x mSATA/mini-PCIe, 4 x COM, 1 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports triple display, 1 x HDMI 1.4b, 1 x VGA, 1 x LVDS or eDP
- TPM Header
- 9~36V DC-In

SPECIFICATIONS

Form Factor	SBC-230	SBC-230M-WT
Dimensions	3.5" SBC (5.8-in x 4.0-in)	
Processor System		
CPU	Intel® Apollo Lake/Apollo Lake-I SoC Processors	
	- SBC-230D (N4200, QC, 1.10 GHz, 6W) - SBC-230L (N3350, DC, 1.10 GHz, 6W) - SBC-230J (J3455, QC, 1.50 GHz, 10W)	- SBC-230M-WT (E3940, QC, 1.60 GHz, 9.5W)
Chipset	SoC	
Socket	N/A	
BIOS	AMI SPI 128 Mbit	

Memory	
Technology	Dual Channel DDR3L 1866 MHz
Capacity	16 GB (8 GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics	
Controller	Intel® Gen9 Graphics DX 12
HDMI	HDMI 1.4b Max resolution up to 4096x2160@24Hz
DisplayPort	N/A
VGA	Max resolution up to 1920x1200@60Hz
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	Max resolution up to 4096x2160@60Hz
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot	
PCIe	N/A
PCI	N/A
mini-PCIe	1 x Full size with PCIe x1 and USB 2.0
mSATA/mini-PCIe	1 x Full size with USB 2.0
M.2	N/A
SIM Socket	N/A

Audio	
Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in

Ethernet	
Controller/ Speed	2 x Intel® I210 with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O	SBC-230	SBC-230M-WT
HDMI	1 x HDMI 1.4b	
DisplayPort	N/A	
VGA	1	
DVI	N/A	
Ethernet	2 x 1 Gigabit LAN	
USB	2 x USB 3.1 (Gen2)	
Audio	2 (Mic-in, Line-out)	
COM	N/A	
PS2	N/A	

Internal Connector	
USB	4 x USB 2.0 (2x 2.54 pitch header)
COM	1 x COM (RS-232/422/485), 3 x COM (RS-232)
Parallel	N/A
GPIO	4 x GPI + 4 x GPO
TPM Header	TPM Header
LVDS	1 (shared with eDP, by jumper setting)
eDP	1 (shared with LVDS, by jumper setting)
VGA	N/A
SATA PWR Output	1
Speaker Header	1

Storage	
M.2	N/A
mSATA	1 x Half size with USB 2.0 colay with mini-PCIe
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements	
Input PWR	9~36V (DC In)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment		
Operating Temp	0°C ~ 60°C	-20°C ~ 75°C
Storage Temp	-40° C ~ 85° C	
Operating Humidity	5% ~ 90%	
Storage Humidity	5% ~ 90%	

SBC



SBC-240

3.5" SBC Motherboard



KEY FEATURES

- Intel® Apollo Lake/Apollo Lake-I SoC Processors
- 1 x 204-pin SO-DIMM up to 16 GB DDR3L 1866 MHz
- 2 x USB 3.1 Gen2, 4 x USB 2.0, 1 x M.2 Key M, 1 x M.2 Key E, 4 x COM, 1 x SATA3
- 2 x Realtek 1 Gigabit LAN
- Supports triple display, 1 x HDMI 1.4b, 1 x VGA, 1 x LVDS
- TPM Header
- 12V DC-In

SPECIFICATIONS

Form Factor

Dimensions	3.5" SBC (5.8-in x 4.0-in)
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Processor System

CPU	Intel® Apollo Lake/Apollo Lake-I SoC Processors - SBC-240L (N3350, DC, 1.10 GHz, 6W) - SBC-240J (J3455, QC, 1.50 GHz, 10W)
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR3L 1866 MHz
Capacity	16 GB
Socket	1 x 204-pin SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 12
HDMI	HDMI 1.4b Max resolution up to 4096x2160@24Hz
DisplayPort	N/A
VGA	Max resolution up to 1920x1200@60Hz
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

PCIe	N/A
PCI	N/A
mini-PCIe	N/A
mSATA/mini-PCIe	N/A
M.2	1 x M.2 (Key E, 2230) with PCIe x1 and shared USB 2.0 for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out
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Ethernet

Controller/ Speed	2 x Realtek RT8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O

HDMI	1 x HDMI 1.4b
DisplayPort	N/A
VGA	1
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	2 x USB 3.1 (Gen2)
Audio	1 (Line-out)
COM	N/A
PS2	N/A

Internal Connector

USB	4 x USB 2.0 (2x 2.54 pitch header)
COM	1 x COM(RS-232/422/485), 3 x COM(RS-232)
Parallel	N/A
GPIO	4 x GPI + 4 x GPO
TPM	TPM Header
LVDS	1
eDP	N/A
VGA	N/A
SATA PWR Output	1
Speaker Header	1

Storage

M.2	1 x M.2 (Key M, 2242/2260) with PCIe x1 and SATA3 for SSD
mSATA	N/A
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V (DC In)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



Model	SBC-210		SBC-212-WT		SBC-220	
Form Factor	SBC		SBC		SBC	
Chipset/ CPU	Intel® Celeron SBC-210D (J1900) SBC-210N (N2930) SBC-210L (N2807)		Intel® Baytrail-I E3845		Intel Braswell SBC-220A (N3710) SBC-220B (N3160)	
Socket	SoC		SoC		SoC	
Memory	Single Channel DDR3L 1333 MHz SDRAM		Single Channel DDR3L 1333 MHz SDRAM		Single Channel DDR3L 1333/1600 MHz SDRAM	
DIMM Slot	1		1		1	
PCIe	N/A		N/A		N/A	
PCI	N/A		N/A		N/A	
DP	N/A		N/A		N/A	
HDMI	1 x HDMI 1.4a		1 x HDMI 1.4a		1 x HDMI 1.4b	
DVI	N/A		N/A		N/A	
D-Sub	1		1		1	
LVDS/ eDP	1	N/A	1	N/A	1	N/A
mini-PCIe	1		1		1	
mSATA	1 (shared)		1 (shared)		1	
M.2 (SSD)	N/A		N/A		N/A	
M.2 (WiFi)	N/A		N/A		N/A	
SATA	2 x SATA2		2 x SATA2		1 x SATA3	
RAID	N/A		N/A		N/A	
USB 3.1	2 x USB 3.1 (Gen2) (Rear)		2 x USB 3.1 (Gen2) (Rear)		2 x USB 3.1 (Gen2) (Rear)	
USB 2.0	6 (Internal)		6 (Internal)		2 (Internal)	
GPIO	4 x GPI, 4 x GPO		4 x GPI, 4 x GPO		4 x GPI, 4 x GPO	
LAN	2 x Realtek RTL8111G-CG		2 x Intel I210IT		2 x Intel I210	
COM Port	1 x RS-232/422/485, 3 x RS-232 (Internal)		1 x RS-232/422/485, 3 x RS-232 (Internal)		1 x RS-232/422/485, 3 x RS-232 (Internal)	
Parallel	N/A		N/A		N/A	
TPM	1 x Header		1 x Header		1 x Header	
PS/2	N/A		N/A		N/A	
Power	9~36V DC-In, AT/ATX Supported		9~36V DC-In, AT/ATX Supported		12~24V DC-in, AT/ATX Supported	
Operating Temperature	0 ~ 60° C		-20~75° C		0 ~ 60° C	

SBC



NUC-8665UE/ 8365UE/ 8145UE

NUC Motherboard



KEY FEATURES

- Intel® 8th Gen (Whiskey lake-U) Core™ Processors
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2400 MHz (16GB per DIMM)
- 3 x USB 3.2 Gen2, 2 x USB 2.0, 1 x M.2 Key M, 1 x M.2 Key E, 1 x COM, 1 x SATA3
- 1 x Intel 1 Gigabit LAN, 1 x Realtek 1 Gigabit LAN
- Supports triple display, 1 x HDMI 1.4, 2 x DP 1.2a
- TPM 2.0 onboard IC
- 12V DC-In

SPECIFICATIONS

Form Factor

Dimensions	NUC (4.09-in x 4.02-in)
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Processor System

CPU	Intel® 8 th Gen (Whiskey lake-U) Core™ Processors NUC-8145UE (I3-8145UE DC, 2.2GHz, 15 W) NUC-8365UE (I5-8365UE QC, 1.6GHz, 15 W) NUC-8665UE (I7-8665UE QC, 1.8GHz, 15 W)
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2400 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 12
HDMI	HDMI 1.4 Max resolution up to 4096x2160@24Hz
DisplayPort	DisplayPort 1.2a Max resolution up to 4096x2160@60Hz
VGA	N/A
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

PCIe	N/A
PCI	N/A
mini-PCIe	N/A
M.2	1 x Key M (2242/2260)with PCIe x4 and SATA3 for SSD *M.2 Key M 2280 (optional support) 1 x Key E (2230)with PCIe x1, and USB 2.0 for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC233, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	NUC-8365UE / NUC-8665UE: LAN1: 1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro LAN2: 1 x Realtek RTL8111H with 10/100/1000 Mbps NUC-8145UE: LAN1: 1 x Intel® I219V with 10/100/1000 Mbps, supports AMT/vPro LAN2: 1 x Realtek RTL8111H with 10/100/1000 Mbps
Connector	2 x RJ-45

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	1 x USB 3.2 (Gen2)
Audio	1 (Mic-in or Line-out)

Rear I/O

HDMI	1 x HDMI 1.4
DisplayPort	2 x DP 1.2a
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	2 x USB 3.2 (Gen2)
Audio	N/A
COM	N/A
PS2	N/A

Internal Connector

USB	2 x USB 2.0 (1 x 2.00 pitch header)
COM	1 x COM (RS232/422/485)
Parallel	N/A
GPIO	N/A
TPM	TPM 2.0 onboard IC
LVDS	N/A
eDP	N/A
VGA	N/A
SATA PWR Output	1
Speaker Header	N/A

Storage

M.2	1 x Key M (2242/2260)with PCIe x4 and SATA3 for SSD *M.2 Key M 2280 (optional support) 1 x Key E (2230)with PCIe x1, and USB 2.0 for Wireless
mSATA	N/A
SATA	1 x SATA3 (6Gb/s), SATA3_1 shared with M.2_Key M
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V DC-In (DC Jack)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

NUC



N4200-NUC-DL/ N3350-NUC-DL NUC Motherboard



KEY FEATURES

- Intel® Apollo Lake SoC Processor
- 2 x 204-pin SO-DIMM up to 16GB DDR3L 1866 MHz (8GB per DIMM)
- 3 x USB 3.1 Gen1, 2 x USB 2.0, 1 x M.2 Key M, 1 x M.2 Key E, 1 x COM, 1 x SATA3
- 2 x Realtek 1 Gigabit LAN
- Supports triple display, 1 x HDMI 1.4b, 2 x DP 1.2a
- TPM 2.0 onboard IC
- 12V DC-In

SPECIFICATIONS

Form Factor	N4200-NUC-DL	N3350-NUC-DL
Dimensions	NUC (4.09-in x 4.02-in)	

Processor System

CPU	Intel® Apollo Lake SoC Processor	
	N4200, QC, 1.10GHz, 6W	N3350, DC, 1.10GHz, 6W
Chipset	SoC	
Socket	N/A	
BIOS	AMI SPI 128 Mbit	

Memory

Technology	Dual Channel DDR3L 1866 MHz	
Capacity	16 GB (8GB per DIMM)	
Socket	2 x 204-pin SO-DIMM	

Graphics

Controller	Intel® Gen9 Graphics DX 12	
HDMI	HDMI 1.4b Max resolution up to 4096x2160@24Hz	
DisplayPort	DisplayPort 1.2a Max resolution up to 4096x2160@60Hz	
VGA	N/A	
LVDS	N/A	
eDP	N/A	
DVI	N/A	
MultiDisplay	Triple Display	

Expansion Slot

PCIe	N/A
PCI	N/A
mini-PCIe	N/A
M.2	1 x Key E (2230)with PCIe x1, and USB 2.0 for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC233, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	2 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	1 x USB3.1 (Gen1)
Audio	1 (Mic-in & Line-out)

Rear I/O

HDMI	1 x HDMI 1.4b
DisplayPort	2 x DP 1.2a
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	2 x USB 3.1 (Gen1)
Audio	N/A
COM	N/A
PS2	N/A

Internal Connector

USB	2 x USB 2.0 (1 x 2.00 pitch header)
COM	1 x COM (RS232/422/485)
Parallel	N/A
GPIO	N/A
TPM	TPM 2.0 onboard IC
LVDS	N/A
eDP	N/A
VGA	N/A
SATA PWR Output	1
Speaker Header	N/A

Storage

M.2	1 x Key M (2242/2260)with PCIe x1 and SATA3 for SSD
mSATA	N/A
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer

Output Interval	From Super I/O to drag RESETCON# 256 Segments, 0, 1, 2, ...255sec
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Power Requirements

Input PWR	12V DC-In (DC Jack)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



N3160-NUC IPC/ N3710-NUC IPC

NUC Motherboard



KEY FEATURES

- Intel® Braswell SoC Processor
- 2 x 204-pin SO-DIMM up to 16GB DDR3L 1600 MHz (8GB per DIMM)
- 1 x mini-PCIe, 3 x USB 3.1 Gen1, 1 x USB 3.1 Gen1 Type C, 1 x mSATA
1 x SATA3
- 1 x Realtek 1 Gigabit LAN
- Supports triple display, 2 x HDMI1.4 , 1 x DP1.2
- 12V DC-In

SPECIFICATIONS

Form Factor	N3160-NUC IPC	N3710-NUC IPC
Dimensions	NUC (4.09-in x 4.02-in)	

Processor System

CPU	Intel® Braswell SoC Processor	
	N3160, QC, 1.60 GHz, 6 W	N3710, QC, 1.60 GHz, 6 W
Chipset	SoC	
Socket	N/A	
BIOS	AMI SPI 64 Mbit	

Memory

Technology	Dual Channel DDR3L 1600 MHz	
Capacity	16 GB (8 GB per DIMM)	
Socket	2x 204-pin SO-DIMM	

Graphics

Controller	Intel® Gen8 Intel® Graphics DX 11, OGL3.2	
HDMI	HDMI 1.4a Max resolution up to 3840x2160@30Hz	
DisplayPort	DisplayPort 1.1a Max resolution up to 3840x2160@30Hz	
VGA	N/A	
LVDS	N/A	
eDP	N/A	
DVI	N/A	
MultiDisplay	Triple Display	

Expansion Slot

PCIe	N/A
PCI	N/A
mini-PCIe	1 x Half size with PCIe x1 and USB 2.0
M.2	N/A
mSATA	N/A

Audio

Interface	Realtek ALC233, High Definition Audio. Mic-In,Line-Out
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Ethernet

Controller/ Speed	1 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	1 x RJ-45

Front I/O

USB	1 x USB3.1 (Gen1, TypeC) 1 x USB3.1 (Gen1)
Audio	1 x (Mic-In & Line-Out)
Others	IR Receiver

Rear I/O

HDMI	2 x HDMI1.4
DisplayPort	1 x DP 1.2
VGA	N/A
DVI	N/A
Ethernet	1 x 1 Gigabite LAN
USB	2 x USB3.1 (Gen1)
Audio	N/A
COM	N/A
PS2	N/A
DC Jack	1

Internal Connector

USB	N/A
COM	N/A
Parallel	N/A
GPIO	N/A
TPM	N/A
LVDS	N/A
eDP	N/A
VGA	N/A
SATA PWR Output	1
Speaker Header	N/A

Storage

M.2	N/A
mSATA	1
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V DC-In (DC Jack)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



NUC-7100U/ NUC-7300U

NUC Motherboard



KEY FEATURES

- Intel® 7th Gen (kabylake-U) Core™ MCP Processors
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2133 MHz (16GB per DIMM)
- 3 x USB 3.1 Gen1, 1 x USB 3.1 Gen1(TypeC), 1 x IR , 1 x M.2 Key E, 1 x M.2 Key M, 1 x SATA3
- 1 x Intel 1 Gigabit LAN
- Support Dual display, (1 x HDMI + 1 x DP or 2 x HDMI)
- 19V DC-in

SPECIFICATIONS

Form Factor

Dimensions	NUC (4.09-in x 4.02-in)
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Processor System

CPU	Intel® 7 th Gen (kabylake-U) Core™ MCU Processors
Chipset	SoC
Socket	FCBGA1356
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2133 MHz
Capacity	32GB (16 GB per DIMM)
Socket	2 x 260-pin SODIMM

Graphics

Controller	Intel® HD Graphics 620
HDMI	HDMI1: HDMI 1.4b Max resolution up to 4096x2160 @60Hz HDMI2: HDMI 1.4b Max resolution up to 4096x2160 @30Hz
DisplayPort	DisplayPort 1.2a, DP++ Max resolution up to 4096x2160@60Hz
VGA	Max resolution up to 1920x1200@60Hz
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Dual Display, supports HDMI 2 + DP or HDMI 1 + HDMI 2

Expansion Slot

PCIe	N/A
PCI	N/A
mini-PCIe	N/A
M.2	1 x M.2 (Key E, 2230) with PCIe x1 and USB 2.0 for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC233 , High Definition Audio. Line-out,Mic-in.
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Ethernet

Controller/ Speed	1 x Intel® I219V, with 10/100/1000 Mbps (NUC-7100U) 1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro (NUC-7300U)
Connector	1 x RJ-45

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	1 x USB 3.1 (Gen1), 1 x USB 3.1 (Gen1) TypeC
Audio	1 (Mic-in, Line-out)
Others	1 x IR receiver

Rear I/O

HDMI	2 x HDMI 1.4b
DisplayPort	1, DP1.2, DP++
VGA	N/A
DVI	N/A
Ethernet	1 x 1 Gigabit LAN
USB	2 x USB 3.1 (Gen1)
Audio	N/A
COM	N/A
PS2	N/A

Internal Connector

USB	N/A
COM	N/A
Parallel	N/A
GPIO	N/A
TPM	TPM 2.0 onboard IC (NUC-7300U)
LVDS	N/A
eDP	N/A
VGA	N/A
SATA PWR Output	1
Speaker Header	N/A

Storage

M.2	1 x M.2 (Key M, 2242/2260) with PCIe x4 and SATA3 1 x M.2 (Key E, 2230) with PCIe x1 and USB 2.0 for Wireless
mSATA	N/A
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	19V DC in
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



NUC-6100U/ NUC-6300U

NUC Motherboard



KEY FEATURES

- Intel® 6th Gen (Skylake-U) Core™ MCP Processors
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2133 MHz (16GB per DIMM)
- 3 x USB 3.1 Gen1, 1 x USB 3.1 Gen1(TypeC), 1x IR , 1 x M.2 Key E, 1 x M.2 Key M, 1 x SATA3
- 1 x Intel 1 Gigabit LAN
- Support Dual display, (HDMI2 + DP or HDMI1 + HDMI2)
- 19V DC-in

SPECIFICATIONS

Form Factor	NUC-6100U	NUC-6300U
Dimensions	NUC (4.09-in x 4.02-in)	

Processor System

CPU	Intel® 6 th Gen (Skylake-U) Core™ MCU Processors	
	i3-6100U, QC, 2.30GHz, 15W	i5-6300U, QC, 2.40 GHz, 15W
Chipset	SoC	
Socket	N/A	
BIOS	AMI SPI 128 Mbit	

Memory

Technology	Dual Channel DDR4 2133 MHz
Capacity	32GB (16 GB per DIMM)
Socket	2 x 260-pin SODIMM

Graphics

Controller	Intel® HD Graphics 520
HDMI	HDMI1: HDMI 1.4b Max resolution up to 4096x2160 @60Hz HDMI2: HDMI 1.4b Max resolution up to 4096x2160 @30Hz
DisplayPort	DisplayPort 1.2a , DP++ Max resolution up to 4096x2160@60Hz
VGA	Max resolution up to 1920x1200@60Hz
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Dual Display, supports HDMI 2 + DP or HDMI 1 + HDMI 2

Expansion Slot

PCIe	N/A
PCI	N/A
mini-PCIe	N/A
M.2	1 x M.2 (Key E, 2230) with PCIe x1 and USB 2.0 for Wireless
mSATA	N/A

Audio

Interface	Realtek ALC283HD , High Definition Audio. Line-out, Mic-in.
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Ethernet

Controller/ Speed	1 x Intel® I219V, with 10/100/1000 Mbps	1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro
Connector	1 x RJ-45	

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	1 x USB 3.1 (Gen1), 1 x USB 3.1 (Gen1) TypeC
Audio	1 (Mic-in, Line-out)
Others	1x IR receiver

Rear I/O

HDMI	2 x HDMI 1.4b
DisplayPort	1 x DP 1.2a, DP++
VGA	N/A
DVI	N/A
Ethernet	1 x 1 Gigabit LAN
USB	2 x USB 3.1 (Gen1)
Audio	N/A
COM	N/A
PS2	N/A

Internal Connector

USB	N/A
COM	N/A
Parallel	N/A
GPIO	N/A
TPM	N/A
LVDS	N/A
eDP	N/A
VGA	N/A
SATA PWR Output	1
Speaker Header	N/A

Storage

M.2	1 x M.2 (Key M, 2242/2260) with PCIe x1 and SATA3
mSATA	N/A
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	19V DC in
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



4X4-R1000/ 4x4-V1000M

4X4 Motherboard



KEY FEATURES

- AMD Ryzen™ Embedded R1000 SoC processors (4X4-R1000)
- AMD Ryzen™ Embedded V1000 SoC processors (4X4-V1000M)
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2400 MHz with ECC support (16GB per DIMM)
- 3 x USB 3.2 Gen2, 2 x USB 2.0, 1 x M.2 Key M, 1 x M.2 Key E, 1 x COM, 1 x SATA3
- 2 x Realtek 1 Gigabit LAN
- Supports triple display, 1 x HDMI 2.0, 2 x DP 1.4
- TPM Header
- 12V DC-In

SPECIFICATIONS

Form Factor	4X4-R1000	4X4-V1000M
Dimensions	4X4 (4.09-in x 4.02-in)	
Processor System		
CPU	AMD Ryzen™ Embedded R-Series 4x4-R1000M (R1606G, DC, 2.6GHz, 12-25W) 4x4-R1000V (R1505G, DC, 2.4GHz, 12-25W)	AMD Ryzen™ Embedded V-Series (V1605B, QC, 2GHz, 12-25W)
Chipset	SoC	
Socket	N/A	
BIOS	AMI SPI 64 Mbit	

Memory	
Technology	Dual Channel DDR4 2400 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics	
Controller	AMD Radeon™ Vega 3 Graphics AMD Radeon™ Vega 8 Graphics
HDMI	HDMI 2.0 Max resolution up to 4096x2160@60Hz
DisplayPort	DisplayPort 1.4 Max resolution up to 4096x2160@60Hz
VGA	N/A
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot	
PCIe	N/A
PCI	N/A
mini-PCIe	N/A
M.2	1 x Key E (2230) with PCIe x1 and USB 2.0 for Wireless
SIM Socket	N/A

Audio	
Interface	Realtek ALC233, High Definition Audio. Line-out, Mic-in

Ethernet	
Controller/ Speed	2 x Realtek RTL8111G-CG with 10/100/1000 Mbps
Connector	2 x RJ-45

Front I/O	
HDMI	N/A
DisplayPort	N/A
USB	1 x USB 3.2 (Gen2)
Audio	1 (Mic-in, Line-out)

Rear I/O	
HDMI	1 x HDMI 2.0
DisplayPort	2 x DP1.4
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	2 x USB 3.2 (Gen2)
Audio	N/A
COM	N/A
PS2	N/A

Internal Connector	
USB	2 x USB 2.0 (1 x 2.00 pitch header)
COM	1 x COM (RS-232/422/485)
Parallel	N/A
GPIO	N/A
TPM	TPM Header
LVDS	N/A
eDP	N/A
VGA	N/A
SATA PWR Output	1
Speaker Header	N/A

Storage	
M.2	1 x Key M (2242/2260) with PCIe x4 and SATA3 for SSD *M.2 Key M 2280 (optional support)
mSATA	N/A
SATA	1 x SATA3 (6Gb/s), SATA3_1 shared with M.2_Key M
eMMC	N/A

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements	
Input PWR	12V DC-In (DC Jack)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment	
Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



UTX-115

UTX Motherboard



KEY FEATURES

- Intel® Apollo Lake SoC Processor
- 2 x 204-pin SO-DIMM up to 16GB DDR3L 1866 MHz (8GB per DIMM)
- 2 x USB 3.1 Gen1, 3 x USB 2.0, 1 x M.2 Key E, 1 x M.2 Key B, 1 x SIM slot, 1 x COM
- 2 x Realtek 1 Gigabit LAN
- Supports triple display, 2 x HDMI 1.4b, 1 x LVDS
- TPM header
- 12V DC-In/ 4-pin ATX PWR Con

SPECIFICATIONS

Form Factor

Dimensions	UTX (4.4-in x 4.6-in)
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Processor System

CPU	Intel® Apollo Lake SoC Processor UTX-115J (J3455, QC, 1.5 GHz, 10 W) UTX-115D (N4200, QC, 1.1 GHz, 6 W) UTX-115L (N3350, DC, 1.1 GHz, 6 W)
Chipset	SoC
Socket	FCBGA1296
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR3L 1866 MHz
Capacity	16 GB (8 GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 12
HDMI	HDMI 1.4b Max resolution up to 4096 x 2160@24Hz
DisplayPort	N/A
VGA	N/A
LVDS	Dual channel 24 bit up to 1920x1200@60Hz
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

PCIe	N/A
PCI	N/A
mini-PCIe	N/A
M.2	1 x Key E (2230) with PCIe x1 and shared USB 2.0 for Wireless 1 x M.2 KEY B (3042) with USB 2.0+ SATA/ PCIe2
SIM Socket	1

Audio

Interface	Realtek ALC233, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	2 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Front I/O

HDMI	2 x HDMI 1.4b
DisplayPort	N/A
USB	2 x USB 3.1 (Gen1)
Audio	N/A

Rear I/O

HDMI	N/A
DisplayPort	N/A
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	1 x USB 2.0
Audio	1 (Mic-in, Line-out)
COM	N/A
PS2	N/A

Internal Connector

USB	1 x USB 2.0 (2 x 2.54 pitch header)
COM	1 x COM (RS232)
Parallel	N/A
GPIO	N/A
TPM	TPM Header
LVDS	1
eDP	0
VGA	N/A
SATA PWR Output	N/A
Speaker Header	N/A

Storage

M.2	1 x M.2 KEY B (3042) with USB 2.0+ SATA/ PCIe2
mSATA	N/A
SATA	N/A
eMMC	32GB (optional)

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V DC-In/ 4-pin ATX PWR Con
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



SOM-P101/ SOM-P102

Pico-ITX Motherboard

KEY FEATURES

- Intel® Apollo Lake SoC Processor
- 1 x 204-pin SO-DIMM up to 8GB DDR3L 1866 MHz
- 1 x USB 3.1 Gen1, 2 x USB 2.0, 1 x M.2 Key E, 2 x COM, 1 x mSATA/mini-PCIe
- 1 x MIOe slot (SOM-P101)
- 1 x Intel 1 Gigabit LAN
- Supports dual display, 1 x HDMI 1.4b, 1 x LVDS
- 12V DC-In



SPECIFICATIONS

Form Factor	SOM-P101	SOM-P102
Dimensions	PICO-ITX (3.9-in x 2.8-in)	
Processor System		
CPU	Intel® Apollo Lake SoC Processor SOM-P101J (J3455, QC, 1.5 GHz, 10 W) SOM-P101D (N4200, QC, 1.1 GHz, 6 W) SOM-P101L (N3350, DC, 1.1 GHz, 6 W)	Intel® Apollo Lake SoC Processor SOM-P102J (J3455, QC, 1.5 GHz, 10 W) SOM-P102D (N4200, QC, 1.1 GHz, 6 W) SOM-P102L (N3350, DC, 1.1 GHz, 6 W)
Chipset	SoC	
Socket	FCBGA1296	
BIOS	AMI SPI 128 Mbit	
Memory		
Technology	Dual Channel DDR3L 1866 MHz	
Capacity	8 GB	
Socket	1 x 204-pin SO-DIMM	
Graphics		
Controller	Intel® Gen9 Graphics DX 12	
HDMI	HDMI 1.4b Max resolution up to 4096 x 2160@24Hz	
DisplayPort	N/A	
VGA	N/A	
LVDS	Dual channel 24 bit up to 1920x1200@60Hz	
eDP	N/A	
DVI	N/A	
MultiDisplay	Dual Display	
Expansion Slot		
PCIe	N/A	
PCI	N/A	
mSATA/mini-PCIe	1	
M.2	1 x Key E (2230) with PCIe x1 and shared USB 2.0 for Wireless	
MIOe	1, (HDMI or DP, 1 x USB3.0, 1 x USB2.0, 3 x PCIe x1, Line out, LPC bus, SMBus)	N/A
Audio		
Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in	
Ethernet		
Controller/ Speed	1 x Intel® I210IT with 10/100/1000 Mbps	1 x Intel® I210AT with 10/100/1000 Mbps
Connector	1 x RJ-45	

Rear I/O	SOM-P101	SOM-P102
HDMI	1 x HDMI 1.4b	
DisplayPort	N/A	
VGA	N/A	
DVI	N/A	
Ethernet	1 x 1 Gigabit LAN	
USB	1 x USB 3.1 Gen1	
Audio	N/A	
COM	N/A	
PS2	N/A	

Internal Connector

USB	1 x USB 2.0 (2 x 2.54 pitch header)
COM	1 x COM1 (RS-232/422/485), 1 x COM2 (RS232)
Parallel	N/A
GPIO	4 x GPI + 4 x GPO
TPM	N/A
LVDS	1
eDP	0
VGA	N/A
SATA PWR Output	1
Speaker Header	1

Storage

M.2	N/A
mSATA	1 x Full size with SATA3 and USB 2.0
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V DC-In
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40°C ~ 85°C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



Model	SOM-QA101		SOM-Q101		CAB-701	
Chipset/ CPU	N/A		N/A		N/A	
Socket	BGA-769		FCBGA1296		N/A	
Form Factor	Qseven		Qseven		Micro ATX	
Memory	DDR3L 1866MHz		Single / Dual / Quad Channel LPDDR4 2400		By CPU Board	
DIMM Slot	By Carrier Board		By Carrier Board		By CPU Board	
PCIe	3 x PCIe x1 Lane		4 x PCIe x1 Lane		3 x PCIe x1, 1 x PCIe x8	
PCI	N/A		N/A		N/A	
DP	By Carrier Board		By Carrier Board		1	
HDMI	By Carrier Board		By Carrier Board		1	
DVI	NA		NA		N/A	
D-Sub	NA		NA		N/A	
LVDS/ eDP	NA	N/A	NA	N/A	1	N/A
mini-PCIe	By Carrier Board		By Carrier Board		1	
mSATA	By Carrier Board		By Carrier Board		1	
EMMC	N/A		32GB (optional)		N/A	
M.2 (SSD)	N/A		N/A		N/A	
M.2 (WiFi)	N/A		N/A		N/A	
SATA	1 x SATA3 (6.0 Gb/s)		2 x SATA3 (6.0 Gb/s)		2	
RAID	N/A		N/A		N/A	
USB 3.1	0		N/A		2	
USB 2.0	2		N/A		6	
GPIO	4 x GPI, 4 x GPO		4 x GPI, 4 x GPO		4 x GPI, 4 x GPO	
LAN	1 x Intel I210		1 x Intel LAN I210IT		2 x RJ45 connector	
COM Port	I/O: N/A	Internal Connector: 1 x COM (COM1 supports RS-232/422/485)	I/O: NA	Internal Connector: 2(RX/TX only)	I/O: N/A	Internal Connector: 1 x COM (COM1 supports RS-232/422/485)
Parallel	N/A		N/A		N/A	
TPM	N/A		N/A		Y	
PS/2	By Carrier Board		By Carrier Board		1	
Power	By Carrier Board		By Carrier Board		12V DC-in	
Operating Temperature	0-60° C		0-60° C		0-60° C	

Qseven



COM-653

COM Express Motherboard

KEY FEATURES



- Intel® 8th Generation Intel® Core™ Processor
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2666 MHz (16GB per DIMM)
- 4 x USB 3.1 Gen1, 8 x USB 2.0, 4 x SATA3
- 1 x Intel 1 Gigabit LAN
- Supports triple display, 3 x DDI, 1 x eDP or LVDS
- TPM 2.0 onboard IC
- ATX: 12V±5%/5Vsb±5%
AT: 12V±5%

SPECIFICATIONS

Form Factor

Dimensions	COM Express Basic(4.92-in x 3.74-in)
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Processor System

CPU	Intel® 8 th Generation Intel® Core™ Processor COM-653P (i7-8850H, 6C, 2.6G, 45W) COM-653M (i5-8400H, QC, 2.5G, 45W) COM-653V (i3-8100H, QC, 3G, 45W)
Chipset	Intel® QM370
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2400 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	Intel® UHD Graphics 630
HDMI	HDMI 1.4b Max resolution up to 4096 x 2160@ 24Hz
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096 x 2304@60Hz
VGA	Max resolution up to 1920 x 1200@60Hz
LVDS	Dual channel 24 bit up to 1920 x 1200@60Hz
eDP	eDP 1.4 Max resolution up to 3840 x 2160@60Hz
DVI	Max resolution up to 4096 x 2304@60Hz
MultiDisplay	Triple Display

Expansion

PCIe	1 x PCIe x16 (Gen3) 1 x PCIe x8 (Gen3)
PCI	N/A
mini-PCIe	N/A
M.2	N/A

Ethernet

Controller/ Speed	1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro or 1 x Intel® I219V with 10/100/1000/Mbps(COM-653V)
Connector	N/A

I/O

HDMI	3 DDI ports support DVI/HDMI/DP
DisplayPort	3 DDI ports support DVI/HDMI/DP
DVI	3 DDI ports support DVI/HDMI/DP
VGA	1 (optional)
LVDS	1 (shared with eDP)
eDP	1 (shared with LVDS)
GPIO	4 x GPI, 4 x GPO
Ethernet	1 x 1 Gigabit LAN
USB	4 x USB 3.1 (Gen1), 8 x USB2.0
Audio	N/A
Serial Port	Two UART Ports (SoC)
PS2	N/A

Storage

M.2	N/A
mSATA	N/A
SATA	4 x SATA3 (6Gb/s)
eMMC	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	ATX: 12V±5%/5Vsb±5% AT: 12V±5%
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



COM-652

COM Express Motherboard

KEY FEATURES



- Intel® 8th Gen (Whiskey Lake-U) Core™ Processors
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2400 MHz (16GB per DIMM)
- 8 x PCIe x1 (Gen3), 4 x USB 3.2 Gen1, 8 x USB 2.0, 2 x COM, 3 x SATA3
- 1 x Intel Gigabit LAN
- Supports Triple Display, 2x DDI, 1x eDP (or LVDS)
- TPM 2.0 onboard IC (optional)
- ATX: 12V±5%/5Vsb±5%
AT: 12V±5%

SPECIFICATIONS

Form Factor

Dimensions	COM Express Type6 (3.74-in x 3.74-in)
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Processor System

CPU	Intel® 8 th Gen (Whiskey Lake-U) Core™ Processors COM-652P (i7-8665UE, QC, 1.7GHz, 15 W) COM-652M (i5-8365UE, QC, 1.6GHz, 15 W)
Chipset	SoC
Socket	BGA1528
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2400 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 11/12
HDMI	HDMI 1.4b Max resolution up to 4096x2160p 24Hz
DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096x2160@60Hz
VGA	1920x1200@60Hz
LVDS	Dual channel 48 bit up to 1920x1200@60Hz
eDP	eDP 1.4 Max resolution up to 3840 x 2160@60Hz
DVI	N/A
MultiDisplay	Triple Display

Expansion

PCIe	8 x PCIe x1 (Gen3)
PCI	N/A
mini-PCIe	N/A
M.2	N/A
SIM Socket	N/A

Ethernet

Controller/ Speed	1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro
Connector	N/A

I/O

HDMI	3 DDI ports support HDMI/DP/VGA/LVDS
DisplayPort	3 DDI ports support HDMI/DP/VGA/LVDS
USB	4 x USB 3.1 Gen1, 8 x USB 2.0
VGA	3 DDI ports support HDMI/DP/VGA/LVDS
LVDS	3 DDI ports support HDMI/DP/VGA/LVDS
eDP	1(shared with LVDS , optional)
TPM	TPM 2.0 onboard IC (optional)
GPIO	4 x GPI, 4 x GPO
Ethernet	1
Serial Port	Two UART Ports (SoC)
Audio	N/A

Storage

M.2	N/A
mSATA	N/A
SATA	3 x SATA3 (6Gb/s)
eMMC	32GB (Optional)

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	ATX: 12V±5%/5Vsb±5% AT: 12V±5%
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

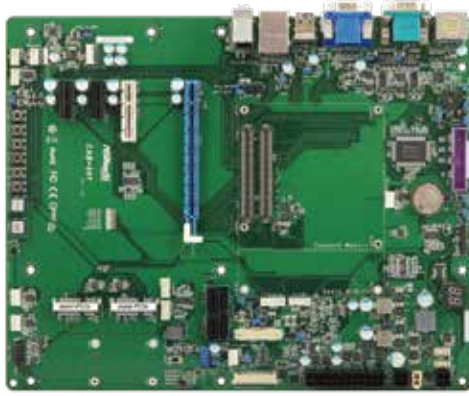
Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



Model	COM-601	COM-602	COM-651
Form Factor	COM Express Compact Size 95 x 95mm (3.74 in x 3.74 in)	COM Express Compact Size 95 x 95mm (3.74 in x 3.74 in)	COM Express Compact Size 95 x 95mm (3.74 in x 3.74 in)
Chipset/ CPU	Intel® Braswell SoC Processor	Intel® Apollo Lake SoC Processor	Intel® Kabylake-U/Skylake-U Core™ MCP Processors
Socket	N/A	N/A	N/A
Memory	Dual Channel DDR3L 1333/1600MHz SDRAM	Dual Channel DDR3L 1866 MHz	Dual Channel DDR4 2133 MHz
DIMM Slot	N/A	N/A	N/A
PCIe	6 x PCIe x1	6 x PCIe x1	6 x PCIe x1
PCI	N/A	N/A	N/A
Display	3 x DDI, 1 x eDP	3 x DDI, 1 x eDP	3 x DDI, 1 x eDP
mini-PCIe	N/A	N/A	N/A
mSATA	N/A	N/A	N/A
M.2 (SSD)	N/A	N/A	N/A
M.2 (WiFi)	N/A	N/A	N/A
SATA	2 x SATA3	2 x SATA3	3 x SATA3
USB 3.1	4	4	4
USB 2.0	2	2	2
GPIO	4 x GPI, 4 x GPO	4 x GPI, 4 x GPO	4 x GPI, 4 x GPO
LAN	1 x Intel I210AT	1 x Intel I210IT	1 x Intel LAN I219LM / I219V
COM Port	2 (TX/RX Only), By Carrier Board	2 (TX/RX Only), By Carrier Board	2 (TX/RX Only), By Carrier Board
Parallel	1	1	1
TPM	TPM 2.0 on board IC (optional)	TPM 2.0 on board IC (optional)	TPM 2.0 on board IC (optional)
PS/2	1 x Combo, By Carrier Board	1 x Combo, By Carrier Board	1 x Combo, By Carrier Board
Power	ATX: 12V±5%/5Vsb±5%, AT: 12V±5%	ATX: 12V±5%/5Vsb±5%, AT: 12V±5%	ATX: 12V±5%/5Vsb±5%, AT: 12V±5%
Operating Temperature	0 ~ 60° C	0 ~ 60° C	0 ~ 60° C



CAB-601



KEY FEATURES

- COM Express Type 6 Pin Out
- Supports COM Express Basic/Compact/Mini Module
- Supports three Digital Display Interfaces (DDI) with HDMI/DisplayPort output
- 1 x PCIe x16, 1 x PCIe x4, 2 x PCIe x1, 4 x USB3.1 (Gen1)
- 24-pin / 4-pin ATX PWR Con

SPECIFICATIONS

Form Factor

Dimensions	ATX (9.6-in x 12-in)
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Memory

Technology	N/A
Capacity	N/A
Socket	N/A

Expansion Slot

PCIe	1 x PCIe x16, 1 x PCIe x4, 2 x PCIe x1
PCI	N/A
mini-PCIe	2 x half/full
M.2	N/A
SIM Socket	N/A

Audio

Interface	N/A
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Ethernet

Controller/ Speed	1 x slot 10/100/1000 Mbps
Connector	1 x RJ-45

Rear I/O

HDMI	1
DisplayPort	2
VGA	N/A
DVI	N/A
Ethernet	1 x slot 10/100/1000 Mbps
USB	4 x USB 3.1 (Gen1)
Audio	3 x (Line-in, Line-out, Mic-in)
COM	2 x COM
PS2	N/A

Internal Connector

USB	2 x USB 2.0
COM	N/A
Parallel	1
GPIO	4 x GPI, 4 x GPO
TPM	N/A
LVDS	1
eDP	1
Serial	2 x TX/RX Only
VGA	N/A
SATA PWR Output	1
Speaker Header	N/A

Storage

M.2	N/A
mSATA	N/A
SATA	4
eMMC	N/A

Watchdog Timer

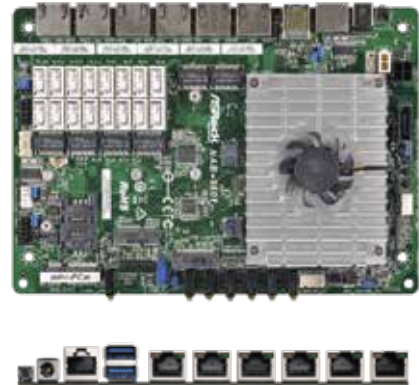
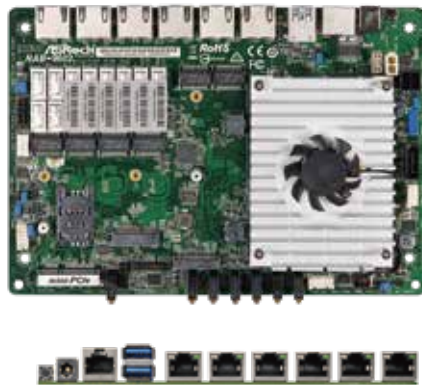
Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	24-pin / 4-pin ATX PWR Con
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%



Model	NAB-9602		NAB-9601	
Form Factor	200x140mm (7.9-in x 5.5-in)		200x140mm (7.9-in x 5.5-in)	
Chipset/ CPU	Intel® Apollo Lake SoC Processor		Intel® Braswell SoC Processor	
Socket	SoC		SoC	
Memory	Single Channel DDR3L 1866 MHz		Single Channel DDR3L 1600 MHz	
DIMM Slot	1		1	
PCI	N/A		N/A	
DP	N/A		N/A	
HDMI	N/A		N/A	
DVI	N/A		N/A	
D-Sub	1 x Header		1 x Header	
LVDS/ eDP	N/A	N/A	N/A	N/A
mini-PCIe	1		1	
mSATA	N/A		N/A	
M.2 (SSD)	N/A		N/A	
M.2 (WiFi)	N/A		N/A	
SIM slot	1		1	
SATA	1 x SATA3 (6Gb/s)		1 x SATA3 (6Gb/s)	
RAID	N/A		N/A	
USB 3.1	2		2	
USB 2.0	2		2	
GPIO	4 x GPI, 4 x GPO		4 x GPI, 4 x GPO	
LAN	6 x Intel I211		6 x Intel I211	
Serial	1 x console		1 x console	
Parallel	N/A		N/A	
TPM	1 x TPM Header		1 x TPM Header	
PS/2	N/A		N/A	
Power	12V DC-in Jack 4-pin ATX PWR		12V DC-in Jack 4-pin ATX PWR Con.	
Operating Temperature	0 ~ 60° C		0 ~ 60° C	



Model	NAS-9602		NAS-9601	
Form Factor	Networking BB		Networking BB	
Chipset/ CPU	Intel® Apollo Lake SoC Processor		Intel® Braswell SoC Processor	
Socket	SoC		SoC	
Memory	Single Channel DDR3L 1866 MHz		Single Channel DDR3L 1600 MHz	
DIMM Slot	1		1	
PCI	N/A		N/A	
DP	N/A		N/A	
HDMI	N/A		N/A	
DVI	N/A		N/A	
D-Sub	N/A		N/A	
LVDS/ eDP	N/A	N/A	N/A	N/A
mini-PCIe	1		1	
mSATA	N/A		N/A	
M.2 (SSD)	1		1	
M.2 (WiFi)	1		1	
SIM slot	1		1	
SATA	1 x SATA3 (6Gb/s)		1 x SATA3 (6Gb/s)	
RAID	N/A		N/A	
USB 3.1	2		2	
USB 2.0	N/A		N/A	
GPIO	4 x GPI, 4 x GPO		4 x GPI, 4 x GPO	
LAN	6 x Intel I211 AT		6 x Intel I211 AT	
Serial	1 x console		1 x console	
Parallel	N/A		N/A	
TPM	N/A		N/A	
PS/2	N/A		N/A	
Power	12V DC-in Jack		12V DC-in Jack	
Operating Temperature	0 ~ 60° C		0 ~ 60° C	



KEY FEATURES

- Intel® 8th Gen (Whiskey lake-U) Core™ Processors
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2400 MHz (16GB per DIMM)
- 3 x USB 3.2 Gen2, 2 x USB 2.0, 1 x M.2 Key M, 1 x M.2 Key E, 1 x COM, 1 x SATA3
- 1 x Intel 1 Gigabit LAN, 1 x Realtek 1 Gigabit LAN
- Supports triple display, 1 x HDMI 1.4, 2 x DP 1.2a
- TPM 2.0 onboard IC
- 12V DC-In
- 110.0 x 118.5 x 67.3 mm, Faned Barebone

SPECIFICATIONS

Processor System

CPU	Intel® 8 th Gen (Whiskey lake-U) Core™ Processors NUC BOX-8145UE (I3-8145UE DC, 2.2GHz, 15 W) NUC BOX-8365UE (I5-8365UE QC, 1.6GHz, 15 W) NUC BOX-8665UE (I7-8665UE QC, 1.8GHz, 15 W)
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2400 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 12
HDMI	HDMI 1.4 Max resolution up to 4096x2160@24Hz
DisplayPort	DisplayPort 1.2a Max resolution up to 4096x2160@60Hz
VGA	N/A
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

mini-PCIe/ mSATA	N/A
mini-PCIe	N/A
M.2	1 x Key E (2230)with PCIe x1 and USB 2.0 for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC233, High Definition Audio. Line-out,Mic-in
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Ethernet

Controller/ Speed	NUC BOX-8365UE / NUC BOX-8665UE: LAN1: 1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro LAN2: 1 x Realtek RTL8111H with 10/100/1000 Mbps NUC BOX-8145UE: LAN1: 1 x Intel® I219V with 10/100/1000 Mbps, supports AMT/vPro LAN2: 1 x Realtek RTL8111H with 10/100/1000 Mbps
Connector	2 x RJ-45

Storage

M.2	1 x M.2 (Key M, 2242/2260) with PCIe x4 and SATA3 for SSD *Not support M.2 Key M 2280
mSATA	N/A
SATA	1 x SATA3 (6Gb/s), SATA3_1 shared with M.2_Key M
eMMC	N/A

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	1 x USB 3.2 (Gen2)
Audio	1 (Mic-in or Line-out)

Rear I/O

HDMI	1 x HDMI 1.4
DisplayPort	2 x DP 1.2a
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	2 x USB 3.2 (Gen2)
Audio	N/A
COM	N/A
PS2	N/A

Watchdog Timer

Output Interval	From Super I/O to drag RESETCON# 256 Segments, 0, 1, 2, ...255sec
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Power Requirements

Input PWR Power On	12V DC-In (DC Jack) AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready
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Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C – 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Plastic
Mounting	VESA mounting
Dimensions (W x H x D)	110.0 x 118.5 x 67.3 mm
Weight	Net Weight: 0.7kg

Others

OS Support	Windows 10
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 96W Power Adapter 1 x Screw Package 1 x Product DVD 1 x VESA mounting bracket 1 x Heatsink for M.2 Key M



KEY FEATURES

- Intel® 8th Gen (Whiskey lake-U) Core™ Processors
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2400 MHz (16GB per DIMM)
- 3 x USB 3.2 Gen2, 2 x USB 2.0, 1 x M.2 Key M, 1 x M.2 Key E, 1 x COM, 1 x SATA3
- 1 x Intel 1 Gigabit LAN, 1 x Realtek 1 Gigabit LAN
- Supports triple display, 1 x HDMI 1.4, 2 x DP 1.2a
- TPM 2.0 onboard IC
- 12V DC-In
- 171.8 x 150 x 71.5 mm, Fanless Barebone

SPECIFICATIONS

Processor System

CPU	Intel® 8 th Gen (Whiskey lake-U) Core™ Processors iBOX-8145UE (I3-8145UE DC, 2.2GHz, 15 W) iBOX-8365UE (I5-8365UE QC, 1.6GHz, 15 W) iBOX-8665UE (I7-8665UE QC, 1.8GHz, 15 W)
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2400 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 12
HDMI	HDMI 1.4 Max resolution up to 4096x2160@24Hz
DisplayPort	DisplayPort 1.2a Max resolution up to 4096x2160@60Hz
VGA	N/A
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

mini-PCIe/ mSATA	N/A
mini-PCIe	N/A
M.2	1 x Key E (2230)with PCIe x1 and USB 2.0 for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC233, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	iBOX-8365UE / iBOX-8665UE: LAN1: 1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro LAN2: 1 x Realtek RTL8111H with 10/100/1000 Mbps iBOX-8145UE: LAN1: 1 x Intel® I219V with 10/100/1000 Mbps, supports AMT/vPro LAN2: 1 x Realtek RTL8111H with 10/100/1000 Mbps"
Connector	2 x RJ-45

Storage

M.2	1 x M.2 (Key M, 2242/2260) with PCIe x4 and SATA3 for SSD *M.2 Key M 2280 (optional support)
mSATA	N/A
SATA	1 x SATA3 (6Gb/s), SATA3_1 shared with M.2_Key M
eMMC	N/A

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	1 x USB 3.2 (Gen2)
Audio	1 (Mic-in or Line-out)

Rear I/O

HDMI	1 x HDMI 1.4
DisplayPort	2 x DP 1.2a
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	2 x USB 3.2 (Gen2)
Audio	N/A
COM	N/A
PS2	N/A

Watchdog Timer

Output Interval	From Super I/O to drag RESETCON# 256 Segments, 0, 1, 2, ...255sec
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Power Requirements

Input PWR	12V DC-In (DC Jack)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Aluminum
Mounting	VESA mounting · Wall mounting
Dimensions (W x H x D)	171.8 x 150 x 71.5 mm
Weight	Net Weight: 2.2kg

Others

OS Support	Windows 10
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 96W Power Adapter 1 x Screw Package 1 x Product DVD 1 x VESA mounting bracket



4X4 BOX-R1000/ 4X4 BOX-V1000M

Faned Embedded BOX PC



KEY FEATURES

- AMD Ryzen™ Embedded R-Series (4X4 BOX-R1000M/4X4 BOX-R1000V)
- AMD Ryzen™ Embedded V-Series (4X4 BOX-V1000M)
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2400 MHz with ECC support (16GB per DIMM)
- 3 x USB 3.2 Gen2, 2 x USB 2.0, 1 x M.2 Key M, 1 x M.2 Key E, 1 x COM, 1 x SATA3
- 2 x Realtek 1 Gigabit LAN
- Supports triple display, 1 x HDMI 2.0, 2 x DP 1.4
- TPM Header
- 12V DC-In
- 110.0 x 118.5 x 67.3 mm, Faned Barebone

SPECIFICATIONS

Processor System	4x4 BOX-R1000	4x4 BOX-V1000M
CPU	AMD Ryzen™ Embedded R-Series -4X4 BOX-R1000M (R1606G, DC, 2.6GHz, 12-25W) -4X4 BOX-R1000V (R1505G, DC, 2.4GHz, 12-25W)	AMD Ryzen™ Embedded V-Series (V1605B, QC, 2GHz, 12-25W)
Chipset	SoC	
Socket	N/A	
BIOS	AMI SPI 64 Mbit	

Memory

Technology	Dual Channel DDR4 2400 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	AMD Radeon™ Vega 8 Graphics
HDMI	HDMI 2.0 Max resolution up to 4096x2160@60Hz
DisplayPort	DisplayPort 1.4 Max resolution up to 4096x2160@60Hz
VGA	N/A
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

mini-PCIe/ mSATA	N/A
mini-PCIe	N/A
M.2	1 x Key M (2242/2260) with PCIe x4 and SATA3 for SSD *Not support M.2 Key M 2280 1 x Key E (2230)with PCIe x1 and USB 2.0 for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC233, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	2 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Storage

M.2	1 x M.2 (Key M, 2242/2260) with PCIe x4 and SATA3 for SSD
mSATA	N/A
SATA	1 x SATA3 (6Gb/s), SATA3_1 shared with M.2_Key M
eMMC	N/A

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	1 x USB 3.2 (Gen2)
Audio	1 (Mic-in or Line-out)

Rear I/O

HDMI	1 x HDMI 2.0
DisplayPort	2 x DP1.4
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit Realtek LAN
USB	2 x USB 3.2 (Gen2)
Audio	N/A
COM	N/A
PS2	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V DC-In (DC Jack)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Plastic
Mounting	VESA mounting
Dimensions (W x H x D)	110.0 x 118.5 x 67.3 mm
Weight	Net Weight: 1kg

Others

OS Support	Windows 10
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 96W Power Adapter 1 x Screw Package 1 x Product DVD 1 x VESA mounting bracket 1 x Heatsink for M.2 Key M

iBOX-R1000/ iBOX-V1000M

Fanless Embedded BOX PC



KEY FEATURES

- AMD Ryzen™ Embedded R-Series (iBOX-R1000M/iBOX-R1000V)
- AMD Ryzen™ Embedded V-Series (iBOX-V1000M)
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2400 MHz with ECC support (16GB per DIMM)
- 3 x USB 3.2 Gen2, 2 x USB 2.0, 1 x M.2 Key M, 1 x M.2 Key E, 1 x COM, 1 x SATA3
- 2 x Realtek 1 Gigabit LAN
- Supports triple display, 1 x HDMI 2.0, 2 x DP 1.4
- TPM Header
- 12V DC-In
- 171.8 x 150 x 71.5 mm, Fanless Barebone

SPECIFICATIONS

Processor System	iBOX-R1000	iBOX-V1000M
CPU	AMD Ryzen™ Embedded R-Series -iBOX-R1000M (R1606G, DC, 2.6GHz, 12-25W) -iBOX-R1000V (R1505G, DC, 2.4GHz, 12-25W)	AMD Ryzen™ Embedded V-Series (V1605B, QC, 2GHz, 12-25W)
Chipset	SoC	
Socket	N/A	
BIOS	AMI SPI 64 Mbit	

Memory

Technology	Dual Channel DDR4 2400 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	AMD Radeon™ Vega 8 Graphics
HDMI	HDMI 2.0 Max resolution up to 4096x2160@60Hz
DisplayPort	DisplayPort 1.4 Max resolution up to 4096x2160@60Hz
VGA	N/A
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

mini-PCIe/ mSATA	N/A
mini-PCIe	N/A
M.2	1 x Key M (2242/2260) with PCIe x4 and SATA3 for SSD 1 x Key E (2230)with PCIe x1 and USB 2.0 for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC233, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	2 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Storage

M.2	1 x M.2 (Key M, 2242/2260) with PCIe x4 and SATA3 for SSD *M.2 Key M 2280 (optional support)
mSATA	N/A
SATA	1 x SATA3 (6Gb/s), SATA3_1 shared with M.2_Key M
eMMC	N/A

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	1 x USB 3.2 (Gen2)
Audio	1 (Mic-in or Line-out)

Rear I/O

HDMI	1 x HDMI 2.0
DisplayPort	2 x DP1.4
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit Realtek LAN
USB	2 x USB 3.2 (Gen2)
Audio	N/A
COM	N/A
PS2	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V DC-In (DC Jack)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C – 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Aluminum
Mounting	VESA mounting · Wall mounting
Dimensions (W x H x D)	171.8 x 150 x 71.5 mm
Weight	Net Weight: 2.2kg

Others

OS Support	Windows 10
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 96W Power Adapter 1 x Screw Package 1 x Product DVD 1 x VESA mounting bracket



KEY FEATURES

- Intel® 8th Gen (Whiskey lake-U) Core™ MCP Processors
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2400 MHz (16GB per DIMM)
- 4 x USB 3.2 Gen2, 2 x USB 3.2 Gen1, 2 x M.2 Key M, 1 x M.2 Key E, 4 x COM, 1 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports dual display, 2 x DP 1.2a
- TPM 2.0 onboard IC (SBC-350P, SBC-350M)
- 1 x 12V/96W AC-DC power brick adapter
- 208 x 178.6 x 62.9mm, Fanless Barebone

SPECIFICATIONS

Processor System

CPU	Intel® 8 th Gen (Whiskey lake-U) Core™ MCP Processors -iBOX-350P (i7-8665UE, QC, 1.7GHz, 15 W) -iBOX-350M (i5-8365UE, QC, 1.6GHz, 15 W) -iBOX-350V (i3-8145UE, DC, 2.2GHz, 15W)
Chipset	SoC
Socket	BGA1528
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2400 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	Intel® UHD Graphics 620
HDMI	N/A
DisplayPort	DisplayPort 1.2a, DP++ Max resolution up to 4096 x 2304@60Hz
VGA	N/A
LVDS	Dual channel 48 bit up to 1920 x 1200@60Hz
eDP	N/A
DVI	N/A
MultiDisplay	Dual Display

Expansion Slot

Mini-PCIe/ mSATA	N/A
Mini-PCIe	N/A
M.2	1 x Key E (2230)with PCIe x1, CNVI and USB 2.0 for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC887
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Ethernet

Controller/ Speed	iBOX-350P/M LAN1: 1 x Intel® I210 with 10/100/1000 Mbps LAN2:1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro iBOX-350V LAN1: 1 x Intel® I210 with 10/100/1000 Mbps LAN2:1 x Intel® I219V with 10/100/1000 Mbps
Connector	2 x RJ-45

Storage

M.2	1 x Key M (2242/2280)with PCIe4 and SATA3 for SSD 1 x Key M (2242)with SATA3 for SSD
mSATA	N/A
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Front I/O

HDMI	N/A
DisplayPort	1 x DP 1.2a++
USB	2 x USB 3.2 (Gen1), 2 x USB 2.0
Audio	N/A

Rear I/O

HDMI	N/A
DisplayPort	1 x DP 1.2a, DP++
VGA	N/A
DVI	N/A
Ethernet	2 x Intel 1 Gigabit LAN
USB	4 x USB 3.2 (Gen2)
Audio	N/A
COM	N/A
PS2	N/A

Watchdog Timer

Output Interval	From Super I/O to drag RESETCON# 256 Segments, 0, 1, 2, ...255sec
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Power Requirements

Input PWR Power On	1 x 12V/96W AC-DC power brick adapter AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready
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Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Aluminum housing
Mounting	VESA mounting
Dimensions (W x H x D)	208 x 178.6 x 62.9mm
Weight	Net Weight:2.4kg

Others

OS Support	Windows 10
TPM	TPM 2.0 onboard IC (iBOX-350P、iBOX-350M)
Certifications	CE, FCC Class A
Packing List	1 x 12V/96W Power Adapter 1 x Screw Package 1 x Product DVD 1 x VESA mounting bracket



KEY FEATURES

- Intel® Celeron® Processor J1900
- 2 x 204-pin SO-DIMM up to 8GB DDR3L 1333 MHz (4GB per DIMM)
- 1 x USB 3.1 Gen 1, 5 x USB 2.0, 2 x M.2 Key M, 4 x COM, 1 x SATA2
- 2 x Intel 1 Gigabit LAN, 2 x Realtek 1 Gigabit LAN
- Supports dual display, 1 x HDMI 1.2a, 1 x VGA
- 1 x 12V/60W AC-DC power brick adapter
- 200 x 244 x 55.1mm, Fanless Barebone

SPECIFICATIONS

Processor System

CPU	Intel® Celeron® Processor J1900, QC, 2.00GHz, 10W
Chipset	SoC
Socket	FCBGA1170
BIOS	AMI SPI 64, Mbit

Memory

Technology	Dual Channel DDR3L 1333 MHz
Capacity	8 GB (4GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics

Controller	Integrated Intel®Gen7 Intel® Graphics DX 11, OGL3.2
HDMI	HDMI 1.2a, max resolution up to 1920 x 1200@24Hz
DisplayPort	N/A
VGA	Max resolution up to 1920x1200@60Hz
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Dual Display

Expansion Slot

mini-PCIe/ mSATA	N/A
mini-PCIe	1 x Full/Half mini-PCIe with PCIe x1 and shared USB 2.0
M.2	N/A
SIM Socket	N/A

Audio

Interface	Realtek ALC887
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Ethernet

Controller/ Speed	LAN1: 1 x Realtek RT81119I with 10/100/1000 Mbps LAN2: 1 x Realtek RT81119I with 10/100/1000 Mbps LAN3: 1 x Intel® I210IT with 10/100/1000 Mbps LAN4: 1 x Intel® I210IT with 10/100/1000 Mbps Support POE function up to 30W
Connector	4 x RJ-45

Storage

M.2	1 x M.2 (Key M, 2242/2260/2280) with SATA2 for SSD 1 x M.2 (Key M, 2260) with PCIe x1 for movidius
mSATA	N/A
SATA	1 x SATA2 (3.0Gb/s)
eMMC	N/A

Front I/O

HDMI	N/A
VGA	1
USB	N/A
COM	2 x COM (RS-232/422/485), 2 x COM (RS-232)
GPIO(Phoenix)	8 x GPI, 8 x GPO
Power in put(Phoenix)	3pin
Reset (Phoenix)	2pin
Audio	N/A

Rear I/O

HDMI	1 x HDMI 1.2a
DisplayPort	N/A
VGA	N/A
DVI	N/A
Ethernet	2 x Intel 1 Gigabit LAN, 2 x Realtek 1 Gigabit LAN
USB	1 x USB 3.1 (Gen1), 5 x USB 2.0
Audio	N/A
COM	N/A
PS2	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	1 x 12V/60W AC-DC power brick adapter
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Aluminum housing
Mounting	VESA mounting, Wall mounting
Dimensions (W x H x D)	200 x 244 x 55.1mm
Weight	Net Weight:1.7kg

Others

OS Support	Windows 7
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 12V/60W Power Adapter 1 x Screw Package 1 x Product DVD 1 x VESA mounting bracket



KEY FEATURES

- Intel® Apollo Lake SoC Processor
- 2 x 204-pin SO-DIMM up to 16GB DDR3L 1866 MHz (8GB per DIMM)
- 2 x USB 3.1 Gen1, 1 x USB 2.0, 1 x M.2 Key E, 1 x M.2 Key B
- 2 x Realtek 1 Gigabit LAN
- Supports dual display, 2 x HDMI 1.4b
- 1 x 12V/60W AC-DC power brick adapter
- 135 x 116 x 25.4mm, Fanless Barebone

SPECIFICATIONS

Processor System

CPU	Intel® Apollo Lake SoC Processor - uBOX-115D (N4200, QC, 1.10GHz, 6W) - uBOX-115J (J3455, QC, 1.50GHz, 10W) - uBOX-115L (N3350, DC, 1.10GHz, 6W)
Chipset	SoC
Socket	FCBGA1296
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR3L 1866 MHz
Capacity	16 GB (8GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics

Controller	Intel® HD Graphics 505
HDMI	HDMI 1.4b Max resolution up to 4096 x 2160@24Hz
DisplayPort	N/A
VGA	N/A
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Dual Display

Expansion Slot

mini-PCIe/ mSATA	N/A
mini-PCIe	1 x Full/Half mini-PCIe with PCIe x1 and shared USB 2.0
M.2	1 x M.2 (KEY E, 2230) with PCIe x1 and USB 2.0 for Wireless 1 x M.2 (KEY B, 3042) with USB 2.0+ SATA/PCIe x2 + SIM for 4G
SIM Socket	N/A

Audio

Interface	Realtek ALC233, High Definition Audio
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Ethernet

Controller/ Speed	2 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Storage

M.2	N/A
mSATA	N/A
SATA	N/A
eMMC	32GB/64GB (optional)

Front I/O

HDMI	2 x HDMI 1.4b
DisplayPort	N/A
USB	2 x USB 3.1 (Gen1)
Audio	1 (Mic-in, Line-out)

Rear I/O

HDMI	N/A
DisplayPort	N/A
VGA	N/A
DVI	N/A
Ethernet	2 x 1 Gigabit LAN
USB	1 x USB 2.0
Audio	N/A
COM	N/A
PS2	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V/60W AC-DC power brick adapter
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Aluminum housing
Mounting	VESA mounting bracket
Dimensions (W x H x D)	135 x 116 x 25.4mm
Weight	Net Weight:0.5kg

Others

OS Support	Windows 10
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 12V/60W Power Adapter 1 x VESA mounting bracket 1 x Screw Package 1 x Product DVD

Jupiter-H110/ Jupiter-H310

Faned Embedded BOX PC



Jupiter H110



Jupiter H310



KEY FEATURES

- Intel® 7th/6th Gen LGA1151 Processors, up to 65W (Jupiter H110)
- Intel® 8th Gen LGA1151 Processors, up to 65W (Jupiter H310)
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2133 MHz (16GB per DIMM)
- 4 x USB 3.1 Gen1, 4 x USB 2.0, 1 x M.2 Key E, 1 x M.2 Key M, 1 x COM, 1 x SATA3 (Jupiter H110)
- 2 x USB 3.1 Gen1, 2 x USB 3.1 Gen1 (Type C), 4 x USB 2.0, 1 x M.2 Key E, 1 x M.2 Key M, 1 x COM, 1 x SATA3 (Jupiter H310)
- 1 x Realtek 1 Gigabit LAN
- Supports dual display, 1 x HDMI 1.4, 1 x DP 1.4a, 1 x VGA (Jupiter H110)
- Supports dual display, 1 x HDMI 2.0, 1 x DP 1.4a, 1 x VGA (Jupiter H310)
- 1 x 19V/90W AC-DC power brick adapter
- 178 x 178 x 34mm, Faned Barebone

SPECIFICATIONS

Processor System	Jupiter H110	Jupiter H310
CPU	Intel® 7 th / 6 th Gen Core™ Processors up to 65W	Intel® 8 th Gen (Coffee Lake) Core™ Processors up to 65W
Chipset	H110	H310
Socket	LGA1151	
BIOS	AMI SPI 128 Mbit	

Memory

Technology	Dual Channel DDR4 2133 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	Intel® HD Graphics
HDMI	HDMI 1.4a Max resolution up to 4096x2160@24Hz
DisplayPort	DisplayPort 1.2a Max resolution up to 4096x2160@60Hz
VGA	Max resolution up to 1920x1200@60Hz
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Dual Display

Expansion Slot

mini-PCIe/ mSATA	N/A
mini-PCIe	N/A
M.2	1 x M.2 (KEY E, 2230) with PCIe x1 and USB 2.0 for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC233, High Definition Audio
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Ethernet

Controller/ Speed	1 x Realtek RTL8111GN with 10/100/1000 Mbps
Connector	1 x RJ-45

Storage

M.2	1 x Key M (2280)with PCIe x4 and SATA3 for SSD
mSATA	N/A
SATA	1 x SATA3 (6.0Gb/s)
eMMC	N/A

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	4 x USB 3.1 (Gen1) 2 x USB 3.1 (Gen1), 2 x USB 3.1 (Gen1) (Type C)
Audio	2 (Mic-in, Line-out)

Rear I/O

HDMI	1 x HDMI 1.4a
DisplayPort	1 x DisplayPort 1.2a
VGA	1
DVI	N/A
Ethernet	1 x Realtek 1 Gigabit LAN
USB	4 x USB 2.0
Audio	N/A
COM	1 x COM (RS-232)
PS2	N/A

Watchdog Timer

Output Interval	From Super I/O to drag RESETCON# 256 Segments, 0, 1, 2, ...255sec
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Power Requirements

Input PWR Power On	1 x 19V/90W AC-DC power brick adapter AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready
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Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C – 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Front Panel - Plastic / Base - Metal
Mounting	VESA mounting
Dimensions (W x H x D)	178 x 178 x 34mm
Weight	Net Weight : 1.0kg

Others

OS Support	Windows 10
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 19V/90W Power Adapter 1 x Screw Package 1 x Product DVD 1 x VESA mounting bracket



KEY FEATURES

- Intel® 9th/8th Gen LGA1151 Processors, up to 35W
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2133 MHz (16GB per DIMM)
- 4 x USB 3.1 Gen1, 1 x USB 3.1 Gen1(Type C), 4 x USB 2.0, 1 x M.2 Key E, 1 x M.2 Key M, 1 x COM, 1 x SATA
- 1 x Realtek 1 Gigabit LAN
- Supports dual display, 1 x HDMI 2.0, 1 x VGA
- 1 x 19V/90W AC-DC power brick adapter
- 262.35 x 177.35 x 64.7mm, Fanless Barebone

SPECIFICATIONS

Processor System

CPU	Intel® 9 th /8 th Gen LGA1151 Processors, up to 35W
Chipset	H310
Socket	LGA1151
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2133 MHz
Capacity	32 GB (16 GB per DIMM)
Socket	2 x 260-pin SO-DIMM

Graphics

Controller	Intel® HD Graphics
HDMI	HDMI 1.4a Max resolution up to 4096x2160@24Hz
DisplayPort	DisplayPort 1.2a Max resolution up to 4096x2160@60Hz
VGA	Max resolution up to 1920x1200@60Hz
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Dual Display

Expansion Slot

mini-PCIe/ mSATA	N/A
mini-PCIe	N/A
M.2	1 x M.2 (KEY E, 2230) with PCIe x1 and USB 2.0 for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC233, High Definition Audio
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Ethernet

Controller/ Speed	1 x Realtek RTL8111H with 10/100/1000 Mbps
Connector	2 x RJ-45

Storage

M.2	1 x Key M (2280)with PCIe x4 and SATA3 for SSD
mSATA	N/A
SATA	1 x SATA3 (6.0Gb/s)
eMMC	N/A

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	2 x USB 3.1 (Gen1), 2 x USB 3.1 (Gen1)(Type C)
Audio	2 (Mic-in, Line-out)

Rear I/O

HDMI	1 x HDMI 1.4a
DisplayPort	1 x DisplayPort 1.2a
VGA	1
DVI	N/A
Ethernet	1 x Realtek 1 Gigabit LAN
USB	4 x USB 2.0
Audio	N/A
COM	1 x COM (RS-232)
PS2	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	1 x 19V/90W AC-DC power brick adapter
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C – 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Aluminum housing
Mounting	N/A
Dimensions (W x H x D)	262.35 x 177.35 x 64.7mm
Weight	Net Weight: 2.8kg

Others

OS Support	Windows 10
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 19/90W Power Adapter 1 x Screw Package 1 x Product DVD



KEY FEATURES

- Intel® Braswell SoC Processor N3160
- 2 x 204-pin SO-DIMM up to 8GB DDR4 2400 MHz (4GB per DIMM)
- 4 x USB 3.1 Gen1, 4 x USB 2.0, 1 x mini-PCIe, 1 x mSATA, 2 x COM, 1 x SATA3
- 2 x Realtek 1 Gigabit LAN
- Supports dual display, 1 x HDMI 1.2a, 1 x VGA
- 1 x 19V/65W AC-DC power brick adapter
- 200 x 200 x 35mm, Fanless Barebone

SPECIFICATIONS

Processor System

CPU	Intel® Braswell SoC Processor N3160, QC, 1.60 GHz, 6 W
Chipset	SoC
Socket	FCBGA1170
BIOS	AMI SPI 64, Mbit

Memory

Technology	Dual Channel DDR3L 1600 MHz
Capacity	8 GB (4GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics

Controller	Integrated Intel® Gen8 Intel® Graphics DX 11*, OGL3.2
HDMI	HDMI 1.4a, max resolution up to 1920 x 1200@24hz
DisplayPort	N/A
VGA	Max resolution up to 1920 x 1200@60Hz
LVDS	Dual channel 24 bit up to 1920 x 1200@60Hz
eDP	Max resolution up to 4096 x 2160@60Hz
DVI	N/A
MultiDisplay	Dual Display

Expansion Slot

mini-PCIe/ mSATA	N/A
mini-PCIe	1 x Full/Half mini-PCIe with PCIe x1 and shared USB 2.0
M.2	N/A
SIM Socket	N/A

Audio

Interface	Realtek ALC887
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Ethernet

Controller/ Speed	2 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	2 x RJ-45

Storage

M.2	N/A
mSATA	1
SATA	1 x SATA3 (6.0Gb/s)
eMMC	N/A

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	N/A
COM	2 x COM (RS-232/RS-422/485)
Audio	N/A

Rear I/O

HDMI	1 x HDMI 1.2a
DisplayPort	N/A
VGA	1
DVI	N/A
Ethernet	2 x Realtek 1 Gigabit LAN
USB	4 x USB 3.1 (Gen1)
Audio	2 (Mic-in, Line-out)
COM	N/A
PS2	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	1 x 19V/65W AC-DC power brick adapter
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Aluminum housing
Mounting	VESA mounting
Dimensions (W x H x D)	200 x 200 x 35mm
Weight	Net Weight : 1.8kg

Others

OS Support	Windows 7
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 19V/65W Power Adapter 1 x Screw Package 1 x Product DVD 1 x VESA mounting bracket



KEY FEATURES

- Intel® Apollo Lake SoC Processor
- 2 x 204-pin SO-DIMM up to 16GB DDR3L 1866 MHz (8GB per DIMM)
- 2 x USB 3.1 Gen1, 2 x USB 2.0, 1 x mini-PCIe/mSATA, 1 x mini-PCIe, 2 x COM, 1 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports dual display, 1 x HDMI 1.4b, 1 x VGA
- 1 x 19V/65W AC-DC power brick adapter
- 200 x 134.5 x 39mm, Fanless Barebone

SPECIFICATIONS

Processor System

CPU	Intel® Apollo Lake SoC Processor - iBOX-230D (N4200, QC, 1.10GHz, 6W) - iBOX-230L (N3350, DC, 1.10GHz, 6W)
Chipset	SoC
Socket	FCBGA1296
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR3L 1866 MHz
Capacity	16 GB (8 GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics

Controller	Intel® HD Graphics 505
HDMI	HDMI 1.4b Max resolution up to 4096 x 2160@24Hz
DisplayPort	N/A
VGA	Max resolution up to 1920x1200@60Hz
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Dual Display

Expansion Slot

mini-PCIe/ mSATA	1 x full size (Supports PCIe x1 shared with m-SATA and USB device)
mini-PCIe	1 x Full/ half size(Supports PCIe x1 and USB device)
M.2	N/A
SIM Socket	N/A

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out, Mic-in
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Ethernet

Controller/ Speed	2 x Intel® I210 with 10/100/1000 Mbps
Connector	2 x RJ-45

Storage

M.2	N/A
mSATA	1 x Half size with USB 2.0 coloy with mini-PCIe
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	2 x USB 2.0
COM	1 x COM (RS-233/422/485), 1 x COM (RS-232)
Audio	N/A

Rear I/O

HDMI	1 x HDMI 1.4b
DisplayPort	N/A
VGA	1
DVI	N/A
Ethernet	2 x Intel 1 Gigabit LAN
USB	2 x USB 3.1 (Gen1)
Audio	2 (Mic-in, Line-out)
COM	N/A
PS2	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	1 x 19V/65W AC-DC power brick adapter
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Aluminum housing
Mounting	VESA mounting
Dimensions (W x H x D)	200 x 134.5 x 39mm
Weight	Net Weight:1.8kg

Others

OS Support	Windows 10
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 19V/65W Power Adapter 1 x Screw Package 1 x Product DVD 1 x VESA mounting bracket



KEY FEATURES

- Intel® Celeron® Processor J1900
- 2 x 204-pin SO-DIMM up to 8GB DDR3L 1333MHz (4GB per DIMM)
- 2 x USB 3.1 Gen1, 2 x USB 2.0, 1 x mini-PCIe/mSATA, 1 x mini-PCIe, 2 x COM, 1 x SATA3
- 2 x Realtek 1 Gigabit LAN
- Supports dual display, 1 x HDMI 1.2a, 1 x VGA
- 1 x 19V/65W AC-DC power brick adapter
- 200 x 134.5 x 39mm, Fanless Barebone

SPECIFICATIONS

Processor System

CPU	Intel® Celeron® Processor J1900, QC, 2.00GHz, 10W
Chipset	SoC
Socket	FCBGA1170
BIOS	AMI SPI 64, Mbit

Memory

Technology	Dual Channel DDR3L 1333 MHz
Capacity	8GB (4GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics

Controller	Integrated Intel® Gen7 Intel® Graphics DX 11, OGL3.2
HDMI	HDMI 1.2a, max resolution up to 1920 x 1200@24Hz
DisplayPort	N/A
VGA	Max resolution up to 1920x1200@60Hz
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Dual Display

Expansion Slot

mini-PCIe/ mSATA	1 x Full size (Supports PCIe x1 and USB 2.0, shared with m-SATA)
mini-PCIe	1 x Full/ half size(Supports PCIe x1 and USB 2.0)
M.2	N/A
SIM Socket	N/A

Audio

Interface	Realtek ALC887, High Definition Audio. Line-out,Mic-in
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Ethernet

Controller/ Speed	2 x Realtek RTL8111G-CG with 10/100/1000 Mbps
Connector	2 x RJ-45

Storage

M.2	N/A
mSATA	1 x Half size with USB 2.0 colay with mini-PCIe
SATA	1 x SATA2 (3Gb/s)
eMMC	N/A

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	2 x USB 2.0
COM	1 x COM (RS-233/422/485), 1 x COM (RS-232)
Audio	N/A

Rear I/O

HDMI	1 x HDMI 1.2a
DisplayPort	N/A
VGA	1
DVI	N/A
Ethernet	2 x Realtek 1 Gigabit LAN
USB	2 x USB 3.1 (Gen1)
Audio	1 (Line-out)
COM	N/A
PS2	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	1 x 19V/65W AC-DC power brick adapter
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Aluminum housing
Mounting	VESA mounting
Dimensions (W x H x D)	200 x 134.5 x 39mm
Weight	Net Weight:1.3kg

Others

OS Support	Windows 7
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 19V/65W Power Adapter 1 x Screw Package 1 x Product DVD 1 x VESA mounting bracket



iBOX-310M

Fanless Embedded BOX PC



KEY FEATURES

- Intel® 4th Gen (Haswell) Core™ MCP Processors
- 2 x 204-pin SO-DIMM up to 8GB DDR3L 1600MHz (4GB per DIMM)
- 4 x USB 3.1 Gen1, 2 x USB 2.0, 1 x mini-PCIe/mSATA, 1 x mini-PCIe, 4 x COM, 1 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports dual display, 2 x HDMI 1.4a
- 1 x 19V/65W AC-DC power brick adapter
- 170 x 200 x 70mm, Fanless Barebone

SPECIFICATIONS

Processor System

CPU	Intel® 4 th Gen (Haswell) Core™ MCP Processors i5-4300U, QC, 1.9GHz, 15 W
Chipset	SoC
Socket	FCBGA1168
BIOS	AMI SPI 64 Mbit

Memory

Technology	Dual Channel DDR3L 1600 MHz
Capacity	8 GB (4 GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics

Controller	Intel® HD Graphics 4400
HDMI	HDMI 1.4a Max resolution up to 4096x2304@24Hz
DisplayPort	N/A
VGA	N/A
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Dual Display

Expansion Slot

mini-PCIe/ mSATA	1 x Full size (Supports PCIe x1 and USB 2.0, shared with m-SATA)
mini-PCIe	1 x Full/ half size (Supports PCIe x1 and USB 2.0)
M.2	N/A
SIM Socket	N/A

Audio

Interface	Realtek ALC662
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Ethernet

Controller/ Speed	LAN1: 1 x Realtek RTL8111G with 10/100/1000 Mbps LAN2: 1 x Intel® I218LM with 10/100/1000 Mbps, supports AMT/vPro
Connector	2 x RJ-45

Storage

M.2	N/A
mSATA	1 x Half size with USB 2.0 coloy with mini-PCIe
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	2 x USB 2.0
COM	2 x COM (RS-233/422/485), 2 x COM (RS-232)
Audio	N/A

Rear I/O

HDMI	2 x HDMI 1.4a
DisplayPort	N/A
VGA	N/A
DVI	N/A
Ethernet	1 x Intel 1 Gigabit LAN, 1 x Realtek 1 Gigabit LAN
USB	4 x USB 3.1 (Gen1)
Audio	N/A
COM	N/A
PS2	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	1 x 19V/65W AC-DC power brick adapter
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Aluminum housing
Mounting	N/A
Dimensions (W x H x D)	170 x 200 x 70mm
Weight	Net Weight: 2.2 kg

Others

OS Support	Windows 7
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 19V/65W Power Adapter 1 x Screw Package 1 x Product DVD



KEY FEATURES

- Intel® Braswell SoC Processor
- 2 x 204-pin SO-DIMM up to 16GB DDR3L 1600 MHz (8GB per DIMM)
- 1 x mini-PCIe , 3 x USB 3.1 Gen1 , 1 x USB 3.1 Gen1 Type C , 1 x mSATA, 1 x SATA3
- 1 x Realtek LAN RTL8111G
- Supports triple display, 2 x HDMI 1.4 , 1 x DP 1.2
- 1 x 12V/60W AC-DC power brick adapter
- 135 x 110 x 44.5mm, Fanless Barebone

SPECIFICATIONS

Processor System

CPU	Intel® Braswell SoC Processor N3160-NUC IPC (N3160, QC, 1.60 GHz, 6W)
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 64 Mbit

Memory

Technology	Dual Channel DDR3L 1600 MHz
Capacity	16 GB (8 GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics

Controller	Intel® Gen8 Intel® Graphics DX 11, OGL3.2
HDMI	HDMI 1.4a Max resolution up to 3840x2160@30Hz
DisplayPort	DisplayPort 1.1a Max resolution up to 3840x2160@30Hz
VGA	N/A
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

mini-PCIe/ mSATA	N/A
mini-PCIe	1 x Half size with PCIe x1 and USB 2.0
M.2	N/A
SIM Socket	N/A

Audio

Interface	Realtek ALC233, High Definition Audio. Mic-In, Line-Out
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Ethernet

Controller/ Speed	1 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	1 x RJ-45

Storage

M.2	N/A
mSATA	1
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Front I/O

USB	1 x USB3.1 (Gen1, TypeC) 1 x USB3.1 (Gen1)
Audio	1 x (Mic-In & Line-Out)
Others	IR Receiver

Rear I/O

HDMI	2 x HDMI 1.4
DisplayPort	1 x DP 1.2
VGA	N/A
DVI	N/A
Ethernet	1 x 1 Gigabite LAN
USB	2 x USB3.1 (Gen1)
Audio	N/A
COM	N/A
PS2	N/A
DC Jack	1

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V DC-In (DC Jack)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Top cover -aluminum extrusion/ Base- metal
Mounting	VESA mounting bracket
Dimensions (W x H x D)	135 x 110 x 44.5mm (WxDxH)
Weight	Net Weight: 1.9kg

Others

OS Support	Windows 7/10
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 12V/36W Power Adapter 1 x VESA mounting bracket 1 x Screw Package 1 x Product DVD



NUC BOX 3160/ NUC BOX 3010

Faned Embedded BOX PC



KEY FEATURES

- Intel® Braswell SoC Processor
- 2 x 204-pin SO-DIMM up to 16GB DDR3L 1600 MHz (8GB per DIMM)
- 1 x mini-PCIe , 3 x USB 3.1 Gen1 , 1 x USB 3.1 Gen1 Type C , 1 x mSATA, 1 x SATA3
- 1x Realtek LAN RTL8111G
- Supports triple display, 2 x HDMI1.4 , 1 x DP1.2
- 1 x 12V/36W AC-DC power brick adapter
- 110 x 118.5 x 46mm, Faned Barebone

SPECIFICATIONS

Processor System

CPU	Intel® Braswell SoC Processor NUC BOX 3160 (N3160, QC, 1.60 GHz, 6W) NUC BOX 3010 (N3010, DC, 1.04 GHz, 4W)
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 64 Mbit

Memory

Technology	Dual Channel DDR3L 1600 MHz
Capacity	16 GB (8 GB per DIMM)
Socket	2 x 204-pin SO-DIMM

Graphics

Controller	Intel® Gen8 Intel® Graphics DX 11, OGL3.2
HDMI	HDMI 1.4a Max resolution up to 3840x2160@30Hz
DisplayPort	DisplayPort 1.1a Max resolution up to 3840x2160@30Hz
VGA	N/A
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Triple Display

Expansion Slot

mSATA	N/A
mini-PCIe	1 x Half size with PCIe x1 and USB 2.0
M.2	N/A
SIM Socket	N/A

Audio

Interface	Realtek ALC233, High Definition Audio. Mic-In, Line-Out
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Ethernet

Controller/ Speed	1 x Realtek RTL8111G with 10/100/1000 Mbps
Connector	1 x RJ-45

Storage

M.2	N/A
mSATA	1
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Front I/O

USB	1 x USB3.1 (Gen1, TypeC) 1 x USB3.1 (Gen1)
Audio	1 x (Mic-In & Line-Out)
Others	IR Receiver

Rear I/O

HDMI	2 x HDMI1.4
DisplayPort	1 x DP 1.2
VGA	N/A
DVI	N/A
Ethernet	1 x 1 Gigabit LAN
USB	2 x USB3.1 (Gen1)
Audio	N/A
COM	N/A
PS2	N/A
DC Jack	1

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	12V DC-In (DC Jack)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C – 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Plastic
Mounting	VESA mounting bracket
Dimensions (W x H x D)	110 x 118.5 x 46mm (WxDxH)
Weight	Net Weight: 0.5kg

Others

OS Support	Windows 7/10
TPM	N/A
Certifications	CE, FCC Class A
Packing List	1 x 12V/36W AC-DC power brick adapter 1 x Screw Package 1 x Product DVD 1 x VESA mounting bracket



KEY FEATURES

- Intel® 6th Gen (Skylake-U) Core™ MCP Processors
- 2 x 260-pin SO-DIMM up to 32GB DDR4 2133 MHz (16GB per DIMM)
- 3 x USB 3.1, 1 x USB 3.1(TypeC), 1x IR , 1 x M.2 Key E,
- 1 x M.2 Key M, 1 x SATA3
- 1 x Intel 1 Gigabit LAN
- Support Dual display, (HDMI2 + DP or HDMI1 + HDMI2)
- 1 x 19V/65W AC-DC power brick adapter
- 110 x 118.5 x 46mm, Faned Barebone

SPECIFICATIONS

Processor System

CPU	Intel® 6 th Gen (Skylake-U) Core™ MCU Processors
Chipset	SoC
Socket	N/A
BIOS	AMI SPI 128 Mbit

Memory

Technology	Dual Channel DDR4 2133 MHz
Capacity	32GB (16 GB per DIMM)
Socket	2 x 260-pin SODIMM

Graphics

Controller	Intel® HD Graphics 520
HDMI	HDMI1: HDMI 1.4b Max resolution up to 4096x2160 @60Hz HDMI2: HDMI 1.4b Max resolution up to 4096x2160 @30Hz
DisplayPort	DisplayPort 1.2a , DP++ Max resolution up to 4096x2160@60Hz
VGA	Max resolution up to 1920x1200@60Hz
LVDS	N/A
eDP	N/A
DVI	N/A
MultiDisplay	Dual Display, supports HDMI 2 + DP or HDMI 1 + HDMI 2

Expansion Slot

PCIe	N/A
PCI	N/A
mini-PCIe	N/A
M.2	1 x M.2 (Key E, 2230) with PCIe x1 and USB 2.0 for Wireless
SIM Socket	N/A

Audio

Interface	Realtek ALC283HD , High Definition Audio. Line-out,Mic-in.
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Ethernet

Controller/ Speed	1 x Intel® I219V, with 10/100/1000 Mbps
Connector	1 x RJ-45

Storage

M.2	1 x M.2 (Key M, 2242/2260) with PCIe x1 and SATA3
mSATA	N/A
SATA	1 x SATA3 (6Gb/s)
eMMC	N/A

Front I/O

HDMI	N/A
DisplayPort	N/A
USB	1 x USB 3.1, 1 x USB 3.1 TypeC
Audio	1 (Mic-in, Line-out)
Others	1 x IR receiver

Rear I/O

HDMI	2 x HDMI 1.4b
DisplayPort	1 x DP 1.2a, DP++
VGA	N/A
DVI	N/A
Ethernet	1 x 1 Gigabit LAN
USB	2 x USB 3.1
Audio	N/A
COM	N/A
PS2	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	19V DC in
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	0°C ~ 60°C
Storage Temp	-40° C ~ 85° C
Operating Humidity	5% ~ 90%
Storage Humidity	5% ~ 90%

Mechanical

Construction	Plastic
Mounting	VESA mounting
Dimensions (W x H x D)	110 x 118.5 x 46mm(WxDxH)
Weight	Net Weight: 0.5 kg

Others

OS Support	Windows 7/10
TPM	TPM 2.0 onboard IC
Certifications	CE, FCC Class A
Packing List	1 x 19V/65W AC-DC power brick adapter 1 x Screw Package 1 x Product DVD 1 x VESA mounting bracket

SUCCESSFUL CASES



KIOSK
Ordering System



Vending Machine



ATM



Manufacture
Automation



Family-Type Robot



AGV



Video Gaming
Machine



Lottery



Surveillance System

* Photo does not represent the actual company and product.

BUSINESS ALLIANCES

ASRock Industrial partners with the world leading CPU and software manufactures to co-develop advanced, reliable products and meet market needs.



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ASRock Industrial Computer Corporation

TEL: +886-2-5588-2688

FAX: +886-2-2858-1369

E-mail: Info_ipc@asrockind.com

www.asrockind.com

7F., No.9, Ln. 79, Ligong St., Beitou Dist., Taipei City 112, Taiwan (R.O.C.)

