

AAEON®
an **ASUS** ASSOC. CO.



Selection Guide 2017 Vol. 2

Focus • Agility • Competitiveness

www.aaeon.com



Selection Guide

About Us

A Leader and Partner in Embedded Computing Platforms

Our relentless pursuit for excellence and passion for unsurpassed service.



Established in 1992, AAEON is one of the leading designers and manufacturers of advanced industrial and embedded computing platforms today. Committed to innovative engineering, AAEON provides Industry 4.0 integrated solutions, hardware and intelligent automated services for premier OEM/ODMs and system integrators worldwide, as well as IoT solution platforms that seamlessly consolidate virtual and physical networks. Reliable and high quality computing platforms include industrial motherboards and systems, industrial displays, rugged tablets, PC/104, PICMG and COM modules, embedded SBCs, embedded controllers, network appliances and related accessories. AAEON also offers customized end-to-end services from initial product conceptualization and product development on through to volume manufacturing and after-sales service programs, and is committed to continuously redefining and harmonizing the management and development processes of the industry.

With a constant pursuit of innovation and excellence, AAEON became a member of the ASUS group in 2011, further strengthening its leadership fueled by advanced technology from ASUS and leveraging resources within the group. AAEON is poised to offer more diversified embedded products and solutions at higher quality standards to meet world-class design and manufacturing demands in the years to come.

AAEON is an Associate member of the Intel® Internet of Things Solutions Alliance.

Peruse AAEON's services and product portfolio by visiting us at www.aaeon.com.

AAEON Core Values

Reliability:

Delivering trustworthy products on a timely manner to our customers

Integrity:

We value business integrity and ethics, making AAEON your choice business partner

Innovation:

Working abreast with industry leaders to maintain technology leadership, AAEON is able to help customers turn cutting-edge concepts into reality

Index

About Us	1	Pico-ITX Boards	29
Index	2	PICO-APL1	29
Design Manufacturing Service (DMS)	5	PICO-APL2	29
Network Security Platform	6	PICO-APL3	30
AAEON Hi-Safe	7	PICO-APL4	30
AAEON Hi-Manager	8	PICO-KBU1	31
AAEON's Embedded OS Solutions	9	PICO-BSW1	31
AAEON's Q Service Plus	11	PICO-BT01	32
BIO Board Design Service	12	PICO-CV01	32
Board Level Products	13	PICO-HD01	32
Compact Boards	15	PICO-IMX6	33
PCM-QM77	15	RICO-3288	33
PCM-LN02	15	Pico-ITX Boards-BIO	34
PCM-5895 Rev. A	16	BIO-ST01-L1U2	34
PCM-5895 Rev. B	16	BIO-ST01-M1U1	34
EPIC Boards	17	BIO-ST02-C4M1	34
EPIC-KBS8	17	BIO-ST05-C14D32	34
EPIC-KBS7	17	BIO-ST03-P2U1	34
EPIC-BDU7	18	COM Express CPU Modules	35
EPIC-QM77	18	COM-SKHB6	35
EPIC-QM57	18	COM-SKUC6	35
EPIC-BT07	19	COM-QM77 Rev. B	36
EPIC-CV07	19	COM-HM76	36
EPIC-5536	19	COM-APLC6	37
SubCompact Boards	20	COM-BT	37
GENE-KBU6	20	COM-BYTC2	38
GENE-SKU7	20	NanoCOM-SKU	38
GENE-SKU6	20	NanoCOM-APL	39
GENE-QM77 Rev. A	21	NanoCOM-BT	39
GENE-QM77 Rev. B	21	COM Carrier Boards	40
GENE-APL5	22	ECB-916M Rev. B11	40
GENE-APL6	22	ECB-920A	40
GENE-APL7	22	ETX CPU Modules	41
GENE-BSW5	23	ETX-A55E	41
GENE-BT04	23	ETX-701	41
GENE-BT05	23	ETX Carrier Boards	42
GENE-BT06	24	ECB-902M	42
GENE-BT07	24	Qseven CPU Modules	43
GENE-CV05	25	AQ7-IMX6	43
GENE-LN05 Rev. B	25	AQ7-BT	43
GENE-A55E	26	Qseven Carrier Board	44
GENE-5315 Rev. A	26	ECB-970-A10	44
GENE-5315 Rev. B	26	ECB-970-A10-01	44
PC/104 Modules	27	SMARC CPU Module	45
PFM-LNP	27	uCOM-BT	45
PFM-CVS Rev. A	27	SMARC Carrier Board	45
PFM-CVS Rev. B	27	ECB-960T	45
PFM-5411	28	Industrial Motherboards	46
PFM-5401 Rev. A	28	NITX-SKL1	46
PFM-5401 Rev. B	28	NITX-BD1	46
		EMB-APL1	47

Selection Guide

Index

EMB-BT1	47
EMB-BT2	48
EMB-BT4	48
EMB-BT7	49
EMB-BSW1	49
EMB-BSW2	50
EMB-Q170A	50
EMB-Q170B	51
EMB-Q170C	51
EMB-H110B	52
EMB-Q87A	52
EMB-Q87B	53
EMB-H81A	53
EMB-H81B	54
EMB-QM87A	54
EMB-B75A	55
EMB-B75B	55
EMB-QM77	56
EMB-H61A	56
EMB-H61B	57
EMB-QM67	57
EMB-KB1	58
IMBA-Q170A	58
IMBA-H110A	59
IMBA-Q87A	59
IMBA-Q77	60
IMBA-967	60
IMBA-H61A	60
IMBM-Q170A	61
IMBM-H110A	61
IMBM-Q87A	62
IMBM-H81B	62
IMBM-B75A	63
IMBM-H61A	63
IMBM-H61B	63
Networking Motherboards	64
FWB-2250	64
FWB-7250	64
Full-size SBC — PICMG 1.0 SBC	65
FSB-B75G	65
Half-size SBCs — PCI/ ISA	66
HSB-800I	66

System Level Products 67

Industrial HMI Touch Panel Solutions	69
AHP-1154	69
AHP-1125	70
AHP-1123	70
AHP-1083	71
AHP-1070	71
Wide Temp. HMI Touch Panel Solutions	72
AHP-2173	72
AHP-2176	72
AHP-2153	73
AHP-2122	73

Industrial Modular Touch Panel Solutions 74

OMNI-2155-BT	74
OMNI-2215-BT	74
OMNI-3105-BT	75
OMNI-3125-BT	75
OMNI-3155-BT	76
OMNI-3175-BT	76
OMNI-3195-BT	77
OMNI-2155-SKU	77
OMNI-2215-SKU	78
OMNI-3105-SKU	78
OMNI-3125-SKU	78
OMNI-3155-SKU	79
OMNI-3175-SKU	79
OMNI-3195-SKU	79

OMNI Series Modules- CPU BOX 80

OMNI-BT CPU-BOX	80
OMNI-SKU CPU-BOX	80

OMNI Series Modules- Panels 81

OMNI-3105 PANEL KIT	81
OMNI-3125 PANEL KIT	81
OMNI-3155 PANEL KIT	81
OMNI-3175 PANEL KIT	82
OMNI-3195 PANEL KIT	82
OMNI-2155 PANEL KIT	83
OMNI-2215 PANEL KIT	83

Infotainment Multi-Touch Panel Solutions 84

ACP-5153	84
ACP-1106	84
ACP-1076	84
ACP-1104	85
ACP-1103	85
ACP-1074	86
ACP-1073	86

Industrial Touch Display Solutions 87

AGD-315D V2	87
AGD-312D V2	87
ACD-110D	88
ACD-515D	88

Rugged Tablet Computers 89

RTC-600A	89
RTC-700M	89
RTC-700A	90
RTC-900R	91
RTC-900B	91
RTC-1000i	91
RTC-1200SK	92

Ultra Slim Fanless BOX PC Solutions 93

BOXER-6405	93
BOXER-6404U	93
BOXER-6403	94
BOXER-6403WT	94
BOXER-6403M	95
BOXER-6404	95
BOXER-6404WT	96

Index

BOXER-6404M	96	FWS-2255	118
Compact Fanless BOX PC Solutions	97	FWS-2253	118
BOXER-6616	97	FWS-2252	118
BOXER-6640M	97	FWS-2251	119
BOXER-6640	97	FWS-2250	119
BOXER-6639M	98	FWS-7821	120
BOXER-6639	98	FWS-7820	120
BOXER-6615	99	FWS-7811	121
BOXER-6614	99	FWS-7810	121
AEC-6613	100	FWS-7520	122
AEC-6612 Rev. B	100	FWS-7400	122
BOXER-6638U	101	FWS-7350	123
AEC-6638	101	FWS-7250	123
AEC-6637	101	FWS-8500	123
AEC-6646B	102	ICS-6270	124
BOXER-6652	102	IoT Gateway	125
BOXER-6651	102	UP-GWS01	125
Expandable Fanless BOX PC Solutions	103	UPS-GWS01	125
BOXER-6839	103	UP-GWS02G	126
BOXER-6852	103	UP-GWS02L	126
AEC-6877	104	Industrial Chassis — Rackmount	127
AEC-6876	104	ARC-645	127
Automation Fanless BOX PC Solutions	105	ARC-645M	127
BOXER-6914	105	ARC-625M	127
AEC-6977	105	Industrial Chassis — Wallmount	128
AEC-6967	106	AMC-280M	128
AEC-6950	106	AMC-262	128
AEC-6913	106	AEC-206	128
Transportation BOX PC Solutions	107	AEC-204	128
BOXER-6313U	107		
BOXER-6313	107		
BOXER-6301VS	108		
BOXER-6357VS	108		
AEV-6356	108		
Network Video Recorder & Mobile NVR	109		
VPC-3300S	109		
VPC-5500S	109		
VPC-5600S	109		
NVR-067S	110		
Turn-Key Chassis Solutions	111		
TKS-P20-CV01	111		
NANO-001N	111		
NANO-001F	111		
NANO-002N	112		
NANO-002F	112		
ACS-1U01-BT4	113		
ACS-1U01-H110B	113		
ACS-1U01-H81B	114		
ACS-1U02	115		
ACS-2U01	115		
Network Appliances	116		
FWS-2350	116		
FWS-2272	116		
FWS-2271	117		
FWS-2260	117		

00 Design Manufacturing Service (DMS)

AAEON's Design Manufacturing Service/ Network Security Platform

Design Manufacturing Service (DMS) offers exceptional end-to-end services from product conceptualization and development to manufacturing and service programs. All services are linked together through a comprehensive process and closely monitored by dedicated professionals to guarantee the highest level in product quality, reliability and durability.

- Product Conceptualization
 - Electronic Circuit Development
 - PCB Layout
 - Component Qualification
 - Mechanical Design
 - Prototype building
 - Compatibility, Reliability and Qualification testing
 - Certification and processing (Agency Approvals)
 - Manufacturing Design
 - Packaging and Enclosure Design
-
- Customer Service Management
 - Customer and Channel Repair
 - Logistics extension
 - Refurbishment
 - Return Processing
 - Troubleshooting Support
 - Upgrades
 - Warranty Management
 - Spare Parts Management
-
- PCBA Assembly
 - System Manufacturing
 - Component and Subsystem Assembly
 - Functional Testing
 - Engineering Change Management
 - BTO (Build to Order)
 - Supplier Qualification
 - Warehousing
 - Failure Analysis

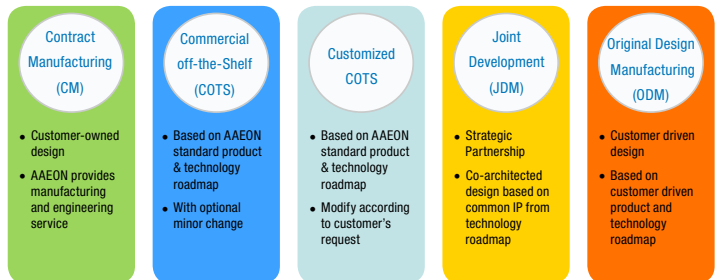


Collaboration Models

Customers can consign to AAEON the manufacturing of their existing products, customize existing AAEON COTS products, or joint develop new products with the expertise of a dedicated project team that oversees the project from product conceptualization to on-time delivery of the goods. AAEON DMS handles Large Volume as well as Low-Volume-High-Mix projects, satisfying the need of our customers for every type of computing platform requirement.

Areas of Expertise

- Retail
- Transportation
- Energy
- Automation
- Medical & Healthcare
- Networking



Based on Intel Xeon processor based server-grade/ workstation-grade motherboard, AAEON offers superb Network Appliance, up scaled to 40GbE Network Interface Module, and intelligent PoE supported Network Surveillance solutions.

Network Computing Platforms and Services

Network Workstation Platform

- Intel® 4th generation Core™ i processor to Xeon® processor
- Single or dual ATX power supply compatible



FWS-7811

Network Server Platform

- High density storage server
- SSD storage server
- Designed for Hadoop, Openstack and Object storage



FWS-8500

Surveillance Cloud Platform

- Fanless in-vehicle PoE video surveillance server box
- EMARK certificated
- Wide Voltage; Wide Temperature



VPC-5500S



NVR-Q67S



FWS-2251

Hi-Safe is a free and powerful program providing SDKs for UIs running Microsoft® Windows® operating systems. It provides an easy way to develop the end user's own UI software to monitor vital system information such as those for the processor, RAM and VGA. It monitors received data from the Super I/O, fan, temperature and voltage, offers configuration options for Digital I/O pin direction and data patterns, provides watchdog timer and fan speed settings, SMBus base address detection and device ID settings. Hi-Safe also offers two modes for backlight display control if one uses the LVDS interface. Based on the user interface SDK, no coding is needed and customers can create their own customized user interface by using the function codes provided by AAEON.

Hi-Safe Advantages

- ▶ **Faster time-to-market**
- ▶ **Easy to use**



System Information:

Receives CPU, VGA and RAM information



Hardware Monitor:

Receives super I/O, fan, temperature and voltage data



DIO:

Obtains DIO information: sets the pin direction and pin data



Watchdog:

Sets the system reboot timer



Smart Fan:

Receives fan and temperature data; sets the fan speed into the smart fan mode



SM Bus:

Reads and writes SMBus device, and detects SMBus base address automatically.



Backlight Controller:

Controls the backlight display; two modes

Hi-Manager is a tool based on the Intel® Active Management Technology 9.0 (iAMT 9.0) and has backward compatibility with earlier versions of iAMT. This allows users to locate all iAMT devices within the intranet, power On/Off target devices remotely, set power On/Off scheduling, arrange device groupings for better management, offer event logs and timer settings to wake up devices at specified times, recover systems that have crashed from virtual CD-ROM, remote KVM management and access to target device hardware information for asset management. Hi-Manager can be installed on all AAEON platforms and can remotely manage AAEON client devices that use Intel® Q77, Q87, QM77, QM87 chipsets and run Microsoft® Windows® XP, Windows® 7 Operating Systems.

Hi-Manager Advantages

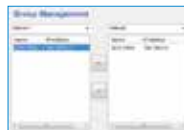
- ▶ **Easy-to-use and build custom applications**
- ▶ **Supports AAEON products with iAMT**
- ▶ **In-depth technical support**



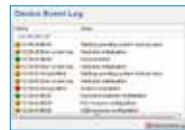
Network Discovery:
AMT device discovery



Power Control:
Powers On/Off the target device



Group Management:
Arrange devices in this function



Event Log:
Logs boot records of the selected device



Alarm Clock:
Sets timer to wake up a sleeping device



Remote Recovery:
Mounts boot image or physical CD-ROM to target device



KVM:
Controls remotely from the target device

Intel® Active Management Technology Features



Schedule:
Schedules the power On/Off target devices



Device Information:
Shows target device assets

Intel® Chipset	QM67/ Q77/ QM77/ HM76/ B75A/ Q87/ QM87
Intel® AMT Version	AMT 7.0/8.0/9.0
HW Inventory	✓
SW Inventory	✓
Power State Management	✓
System Defense	✓
Remote Configuration	✓
Remote Boot Option	✓
KVM Redirection	✓
KVM Remote Control	✓
ME Wake on LAN	✓
Proactive Security Block, HW-Based and Remote Management Recovery	✓
Host-Based Provisioning	✓
Enhanced System Defense Filters	✓

AAEON provides Embedded OS Solutions to customers who are in need of OS customization. AAEON's Embedded OS Solutions are designed to shorten time-to-market and save customers' time and R&D resources.

Windows® Embedded Products

Windows 10 IoT

Windows 10 IoT Enterprise 2016

Windows Embedded 8

Windows Embedded 8.1
Industry

Windows Embedded 8
Standard

Windows Embedded 8.1
Pro

Windows Embedded 8.1
Handheld

Windows Embedded 7

Windows Embedded
Enterprise 7

Windows Embedded
POSReady 7

Windows Embedded
Standard 7

Windows Embedded Compact

Windows Embedded
Compact 7

Windows Server 2012 R2

Windows Server 2012
R2 for Embedded
Systems

Embedded OS Main Features

OS Family	Windows® Embedded CE	Windows® Embedded Standard	Windows® Embedded POS Ready	Windows® Embedded Enterprise
Features	Simple Customization	Full Customization	Simple Installation	Full Function
Windows® Product Sku	Windows® CE 6.0 Windows® Compact 7	Windows® Embedded Standard 2009 Windows® Embedded Standard 7 Windows® Embedded Standard 8	WEPOS 1.1 POSReady 7 POSReady 2009 Windows® Embedded Industry 8.1 Pro Retail	Windows® 7 Professional Windows® 8.1 Professional Windows® 10 IoT Enterprise 2016
CPU Type	ARM/ MIPS/ SH4/ X86	x86	x86	x86
Development Tool	Customization Image	Customization Image	CD Installation	CD Installation
Development Time	Long	Short	None	None
Maintenance Cost	High	Middle	Low	Low
Embedded Features	Custom Shell	Custom Shell/ EWF/ FBWF/ USB Boot/ HORM	Custom Shell/ FBWF/ USB Boot	Standard Shell

AAEON Embedded OS Solutions

Chipset	Windows® Embedded Standard 2009 (Note 1)	Windows® Embedded Standard 7 (Note 2)	Windows® Embedded 8 Standard	Windows® CE 6.0	Windows® Compact 7
Intel® Q170/H110	—	✓	✓	—	—
Intel® QM87/Q87/H81	—	✓	✓	—	—
Intel® QM77/Q77/HM76/B75	✓	✓	✓	—	—
Intel® QM67/Q67/H61	✓	✓	✓	—	—
Intel® QM57/Q57	✓	✓	—	—	—
Intel® Atom™ D2550/N2800/N2600	✓	✓	—	—	✓
Intel® Atom™ D525/N455/D425	✓	✓	—	✓	—
Intel® Atom™ N450/D410/D510	✓	✓	—	✓	—
Intel® Atom™ E620/E640/E660/E680	✓	✓	—	—	✓
Intel® Atom™ J1900/N2000/E3800	—	✓	✓	—	✓
AMD Geode™ LX700/LX800/LX900	—	✓	—	—	—
AMD T56N/T40R/T40E/T16R	✓	✓	✓	✓	✓

Note 1: Former Windows® Embedded XP

Note 2: Former Windows® Embedded

AAEON's Q Service Plus

What is Q Service Plus?



Q Service is a Quick and Quality Service for reducing the time spent on trouble shooting and expediting the development process. With COM technology getting more and more complex and versatile, product failure can originate from numerous ways and may be difficult to identify. AAEON's Q Service Plus helps our customers to improve new product's time-to-market with AAEON's full support from Hardware, Software and Firmware R&D resources.

Q Service Plus Commitment:

- Quick carrier board schematic review within FIVE working days -Absolutely FREE!
- Quick bring up of BIOS within FIVE working days -Absolutely FREE!
- Quick compatibility and reliability debug services and feedback within 72 hours
- Quick arrangement for on-site service and consultation



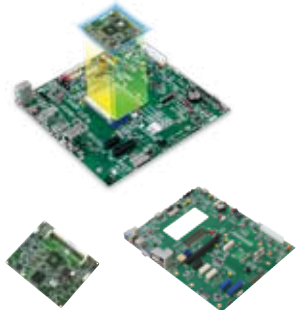
Benefits:

- Worry-free upgrades
- Faster time-to-market
- Cost savings
- Reduced design risks
- Long-term support



AAEON Carrier Board Design Service

With over 20 years of quality design and manufacturing experience, AAEON provides professional carrier board design services according to the customer's specifications and passes all compatibility and functional tests required in the process. There are also default carrier boards available for evaluation purposes.



NanoCOM Module



Qseven Module



COM Module



SMARC Module



ETX Module



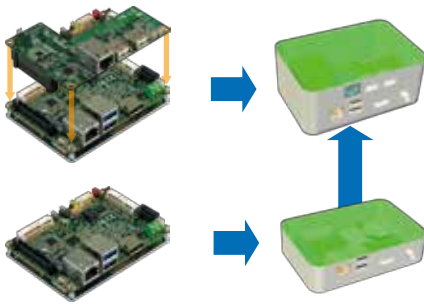
XTX Module



Carrier Board

BIO Board Design Service

The BIO interface, or board-to-board I/O interface, is AAEON's latest innovation in product customization. The BIO board is designed with compactness in mind and is highly customizable for a plethora of add-on features such as MiniCards, USBs, COM, PoE (Power over Ethernet) ports, etc., for the perfect solution.



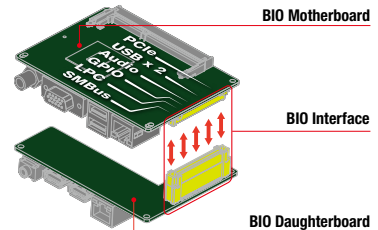
BIO Standardized Pin Definition

While there are many approaches to which a product can be customized,

AAEON recommends the BIO daughterboards, a series of daughterboards equipped with AAEON's Board-to-board Interface for AAEON's Standard Products. Simple in design and made-to-order, the board takes the time and effort out of customization by bypassing the traditional process of re-specifying, building, and testing. Just pick the features you want, build the board, connect it to the motherboard and your solution is ready. No fuss, no muss.

Some key features include:

- Universal screw holes on both the motherboard and daughterboard
- Flexible to demands of vertical markets
- Easy thermal and system assembly



Customization Made Easy



AEON[®] *an ASUS[®] assoc. co.*
Focus • Agility • Competitiveness

Board Level Products

Board Level Products

Compact Boards

Compact Boards



Model	PCM-QM77	PCM-LN02
System		
Form Factor	5.25" Compact Board	5.25" Compact Board
CPU	Intel® Core™ i7/i5/i3/Celeron® IVY bridge and Sandy Bridge (Socket-G2 based)	Onboard Intel® Atom™ N455/D525
CPU Frequency	Up to 2.5 GHz	Up to 1.83GHz
Chipset	Intel® QM77/HM76	PineView™ D/M DDR3 + ICH8M
Memory Type	DDR3 1066/1333/1600, SODIMM x 2 up to 16G	Onboard 2 GB /4 GB DDR3 667/800
Max. Memory Capacity	8 GB	4 GB
BIOS	UEFI	AMI 8MB
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	ATX	+12V & ATX co-lay
Power Supply Type	ATX	ATX/ DC-12V
Power Consumption (Typical)	—	—
Dimension (L x W)	8" x 5.75" (203mm x 146mm)	8" x 5.75" (203mm x 146mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (hours)	60,000	—
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	Intel® Core™ i7/i5/i3 integrated	Integrated
Video Output	CRT, LVDS LCD, DVI-I	CRT, TTL (Optional), or LVDS 18/24 bit
Backlight Inverter Supply	Max. 12V	Max. 12V
I/O		
Ethernet	Intel® 82579LM x 1, Intel® 82583V x 1, 10/100/1000Base-TX x 2 (With Pin header co-lay)	10/100/1000Base-TX x 2, (Realtek RTL-8111E) Pin Header x 2
Audio	Realtek ALC892, 2.1CH	ALC888-GR, 2 CH
USB Port	USB3.0 x 4, USB 2.0 x 4	USB2.0 x 6
Serial Port	RS-232 x 8, RS-232/422/485 x 2	RS-232 x 5, RS-232/422/485 x 1
Parallel Port	SPP/EPP/ECP x 1 or FDD Function	SPP/EPP/ECP x 1
HDD Interface	SATA 3.0 x 2, SATA 2.0 x 2	UDMA33 x 1, SATA 2 x 2
FDD Interface	—	—
SSD	CFAST, mSATA	CompactFlash™
Expansion Slot	PCI-Express [x16], Mini Card or mSATA, PCI, Mini PCI Digital I/O (8 in/8 out) iAMT 8.0 support 5V/12V Voltage output	PCI, PCMCIA, PC/104-Plus, Mini Card x 2: 1st: full size+SIM; 2nd: half size SIM x 1
PWM LCD Support	—	—
DIO	16 bit	8 bit
TPM	Optional	Optional
Touch	Optional	—
Note		

Compact Boards



Model	PCM-5895 Rev. A	PCM-5895 Rev. B
System		
Form Factor	5.25" Compact Board	5.25" Compact Board
CPU	Onboard AMD Geode™ LX 800	Onboard AMD Geode™ LX 800
CPU Frequency	Up to 500 MHz	Up to 500 MHz
Chipset	AMD Geode™ LX 800 + CS5536	AMD Geode™ LX 800 + CS5536
Memory Type	SDRAM DDR333/400, DIMM x 1	SDRAM DDR333/400 DIMM x 1 or Onboard memory
Max. Memory Capacity	1 GB	1 GB DIMM x 1 or onboard memory 256 MB
BIOS	Award 1 MB	Award 1 MB
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	ATX	ATX
Power Supply Type	AT/ ATX	AT/ ATX
Power Consumption (Typical)	AMD Geode™ LX 800 (500 MHz) DDR400 256 MB 2.33A@+5V	AMD Geode™ LX 800 (500 MHz) DDR400 256 MB 2.33A@+5V
Dimension (L x W)	8" x 5.75" (203mm x 146mm)	8" x 5.75" (203mm x 146mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	80,000	80,000
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	AMD Geode™	AMD Geode™
Video Output	LVDS/TTL, CRT	LVDS/TTL, CRT
Backlight Inverter Supply	Max. 12V	Max. 12V
I/O		
Ethernet	10/100Base-TX x 2, Realtek RTL8139DL (Rear I/O, Pin Header x 1)	10/100Base-TX x 2, Realtek RTL8100C
Audio	Realtek ALC203	Realtek ALC203
USB Port	USB2.0 x 4	USB2.0 x 4
Serial Port	RS-232 x 3, RS-232/422/485 x 1	RS-232 x 3, RS-232/422/485 x 1
Parallel Port	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1
HDD Interface	UDMA100 x 1	UDMA100 x 1
FDD Interface	FDD x 1	—
SSD	CompactFlash™	CompactFlash™
Expansion Slot	PCI, Mini-PCI, PC/104	PCI, PC/104+, CAN x 2 (Optional)
PWM LCD Support	—	—
DIO	8 bit	8 bit
TPM	—	—
Touch	—	—
Note		

Board Level Products

EPIC Boards

EPIC Boards



Model	EPIC-KBS8	EPIC-KBS7
System		
Form Factor	EPIC	EPIC
CPU	6th/7th Generation Intel® Core™ i series Socket Type Processor (Suggest to use 35W SKU)	6th/7th Generation Intel® Core™ i series Socket Type Processor (Suggest to use 35W SKU)
CPU Frequency	Up to 3.4 GHz	Up to 3.4 GHz
Chipset	H110/Q170	H110/Q170
Memory Type	DDR4 (Non-ECC), 2133MHz, up to 16 GB	DDR4 (Non-ECC), 2133MHz, up to 16 GB
Max. Memory Capacity	Up to 16 GB	Up to 16 GB
BIOS	AMI	AMI
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	9-24V (Default) or 9-12V, AT/ATX	9-24V (Default) or 9-12V, AT/ATX
Power Supply Type	AT/ ATX	AT/ ATX
Power Consumption (Typical)	49.8W	49.8W
Dimension (L x W)	4.53" x 6.50" (115mm x 165mm)	4.53" x 6.50" (115mm x 165mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	—	—
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	6th/7th Generation Intel® Core™ i3/i5/i7/Celeron®	6th/7th Generation Intel® Core™ i3/i5/i7/Celeron®
Video Output	LVDS1+ CRT (Optional: LVDS2/eDP)	HDMI, LVDS, CRT
Backlight Inverter Supply	Max. 12V	Max. 12V
I/O		
Ethernet	Realtek® RTL8111E-VL-CG Gigabit Ethernet, RJ-45 x 2	Intel® i211 Gigabit Ethernet, RJ-45 x 2
Audio	ALC892, with Audio detect (Optional: 2W Amp, 12S)	ALC892, no Amp
USB Port	Rear I/O: USB3.0 x 2 Internal: USB2.0 x 10 (Need to use Q170 or higher)	USB3.0 x 4 (Real IO) USB2.0 x 2 (Internal)
Serial Port	COM x 6 (All internal, COM2: RS-232/422/485, COM2-5 5V/12V/R)	COM x 4 (All Internal) COM2: RS232/422/485
Parallel Port	—	—
HDD Interface	SATA Gen3 x 1	SATA Gen3 x 2
FDD Interface	—	—
SSD	mSATA x 1 (Half size, option for mini-card)	mSATA x 1 (Full size, option for mini-card)
Expansion Slot	Mini Card x 1 (Full size) Micro SIM (optional)	Mini Card x 1 (Full Size) Micro SIM (optional)
PWM LCD Support	—	—
DIO	8bit	8bit
TPM	—	—
Touch	—	—
Note		

EPIC Boards




Model	EPIC-BDU7	EPIC-QM77	EPIC-QM57
System			
Form Factor	EPIC	EPIC	EPIC
CPU	5th Generation Intel® Core™ i3/i5/i7 ULT Processor SoC	Intel® Core™ i7/i5/i3/Celeron® (BGA based, ≤25W)	Intel® Core™ i7/ i5 (Socket-988)
CPU Frequency	Up to 2.2 GHz	Up to 2.5 GHz	Up to 2.66 GHz
Chipset	5th Generation Intel® Core™ i series ULT Processor SoC	Intel® PCH QM77/HM76	Intel® QM57
Memory Type	DDR3L 1333/1600, SODIMM x 1	DDR3 1066/1333/1600, SODIMM x 1	DDR3 (800/1066), SODIMM x 1
Max. Memory Capacity	Up to 8 GB	Up to 8 GB	4 GB
BIOS	UEFI	UEFI	AMI 8 MB
Wake on LAN	Yes	Yes	Yes
Watchdog Timer	255 Levels	255 Levels	255 Levels
Power Requirement	+12V or 9-24V AT/ATX (default)	DC12V	+12V
Power Supply Type	AT/ ATX	AT/ ATX	AT/ATX
Power Consumption (Typical)	38.8W	—	—
Dimension (L x W)	4.53" x 6.50" (115mm x 165mm)	4.53" x 6.50" (115mm x 165mm)	4.53" x 6.50" (115mm x 165mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	63,000	—	70,000
Certification	CE/FCC	CE/FCC	CE/FCC
Display			
VGA/LCD Controller	5th Generation Intel® Core™ i series ULT Processor SoC	Intel® Core™ i7/i5/i3 integrated	Intel® Core™ i7/i5 Mobile
Video Output	Triple independent Displays: VGA, LVDS, DP, LVDS (Optional), eDP (Optional)	CRT+2 LVDS (eDP+Internal LVDS), CRT+HDMI, CRT+DVI, DVI+HDMI	CRT, LVDS, DVI, Display Port
Backlight Inverter Supply	Max. 12V	Max. 12V	Max. 12V
I/O			
Ethernet	Intel® WGI211AT x 1/ WGI218LM x 1, RJ-45 x 2	Intel® 82579LM x 1, Intel® 82583V x 1	10/100/1000Base-TX x 2, Intel® 82577LM, Intel® 82574L
Audio	High Definition Audio Interface	High Definition Audio Interface	High Definition Audio (HDA)
USB Port	USB2.0 x 4, USB3.0 x 2	USB2.0 x 4, USB3.0 x 2	USB2.0 x 6
Serial Port	COM: RS-232 x 4 COM2, COM3: RS-232/422/485 x 2 (Ring/+5V/+12V)	RS-232 x 5, RS-232/422/485 x 1 (COM2)	RS-232 x 3, RS-232/422/485 x 1
Parallel Port	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1
HDD Interface	SATA 3.0 x 2	SATA3 x 2	SATA 2 x 2
FDD Interface	—	—	—
SSD	mSATA (Shared with Full-size Mini Card by BIOS)	mSATA x 1	CompactFlash™
Expansion Slot	Mini Card x 1, SIM x 1 PCI-104 (Optional) 16 bit DIO or LPT PS/2 x 1	Mini Card x 1 16 bit DIO or LPT PCI-104	PCI/104-Express (PCI-Express & PCI-104)
PWM LCD Support	—	—	—
DIO	16 bit	16 bit	8 bit
TPM	Optional	Optional	—
Touch	Optional	Optional	Yes
Note			

Board Level Products

EPIC Boards

EPIC Boards/ SubCompact Boards



Model	EPIC-BT07	EPIC-CV07	EPIC-5536
System			
Form Factor	EPIC	EPIC	EPIC
CPU	Intel® Atom™/ Celeron® E3845/J1900/N2807	Intel® Atom™ D2550/N2800/N2600	AMD Geode™ LX 800
CPU Frequency	Up to 2.0 GHz	1.6 GHz ~ 2.13 GHz	Up to 500 MHz
Chipset	Intel® Atom™/ Celeron® SoC	Intel® Atom™ D2550/N2600 + NM10	AMD CS5536
Memory Type	DDR3L 1333, SODIMM x 1	DDR3 800/1066 MHz	SDRAM DDR333 (DDR400 optional), SODIMM x 1
Max. Memory Capacity	Up to 8 GB	Up to 4GB	1 GB
BIOS	AMI	AMI 4MB	Award 1 MB
Wake on LAN	Yes	Yes	Yes
Watchdog Timer	255 Levels	255 Levels	255 Levels
Power Requirement	+12V or 9-24V AT/ATX (default)	+12V	+12V
Power Supply Type	AT/ ATX	AT/ATX	AT/ATX
Power Consumption (Typical)	11.8W	—	AMD Geode™ LX 800 500 MHz, DDR333 1 GB, 1.35A@12V
Dimension (L x W)	4.53" x 6.50" (115mm x 165mm)	4.53" x 6.50" (115mm x 165mm)	4.53" x 6.50" (115mm x 165mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32 °F ~ 140 °F (0 °C ~ 60 °C); -4 °F ~ 158 °F (-20 °C ~ 70 °C) For WITAS 1	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40 °F ~ 176 °F (-40 °C ~ 80 °C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 80% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	110,000	—	70,000
Certification	CE/FCC	CE/FCC	CE/FCC
Display			
VGA/LCD Controller	Intel® Atom™/ Celeron® SoC	Intel® Atom™ D2550/ N2600 integrated	AMD Geode™ + TI SN75LVDS83
Video Output	CRT, LVDS, HDMI	CRT, LVDS, DVI (optional, need to change connector)	CRT, LVDS & TTL
Backlight Inverter Supply	Max. 12V	Max. 12V	Max. 12V
I/O			
Ethernet	Intel® i211 Gigabit Ethernet, RJ-45 x 2	Giga LAN Realtek 8111E x 2	10/100Base-TX x 2, Realtek 8100C (Optional Gigabit LAN)
Audio	High Definition Audio Interface	ALC662 co-lay ALC886/892	High Definition Audio (HDA)
USB Port	USB2.0 x 5, USB3.0 x 1	USB 2.0 x 7	USB2.0 x 4 (Does not support wake-up function)
Serial Port	COM1, 4, 5, 6 : RS-232 x 4, COM2, 3 : RS-232/422/485 x 1 (Ring/ +5V/ +12V)	RS-232 x 7, RS-232/422/485 x 1 (COM 2)	RS-232 x 3, TTL only/ GPS x 1, RS-232/422/485 x 1
Parallel Port	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1
HDD Interface	SATA 2.0 x 1	SATA 2.0 x 1	UDMA100 x 1, SATA 1 x 2
FDD Interface	—	—	FDD x 1
SSD	mSATA x 1 (Shared with Half-size Mini Card by BOM)	mSATA	CompactFlash™
Expansion Slot	Mini Card x 1, Micro-SD x 1 (Only E3800 series), PCI-104 x 1 (optional), 16 bit DIO or LPT, SMBus x 1, I2C x 1 (optional), PS/2 x 1	PCI-104 x 1, Mini Card x 2 (One support mSATA), Touch Panel Feature (Optional), 8 pin DIO 4 in/4out	PC/104-plus
PWM LCD Support	—	—	—
DIO	16 bit	16 bit	8-bit
TPM	Optional	—	—
Touch	Optional	Yes	—
Note			

SubCompact Boards



Model	GENE-KBU6	GENE-SKU7	GENE-SKU6
System			
Form Factor	3.5" SubCompact Board	3.5" SubCompact Board	3.5" SubCompact Board
CPU	Intel® i7-7600U Processor SoC	6th Generation Intel® Core™ Processor U series	6th Generation Intel® Core™ i7-6600U/i5-6300U Processor SoC
CPU Frequency	Up to 3.9 GHz	Up to 3.0 GHz	Up to 3.0 GHz
Chipset	Intel® i7-7600U Processor SoC	6th Generation Intel® Core™ Processor U series	6th Generation Intel® Core™ i7-6600U/i5-6300U Processor SoC
Memory Type	DDR4 1866/2133, SODIMM x1	DDR4 1866/2133, SODIMM x1	DDR4 1866/2133, SODIMM x1
Max. Memory Capacity	Up to 16 GB	Up to 16 GB	Up to 16 GB
BIOS	UEFI	UEFI	UEFI
Wake on LAN	Yes	Yes	Yes
Watchdog Timer	255 Levels	255 Levels	255 Levels
Power Requirement	+9~36V or +12V	+9~24V (+/- 10%) or 12V only	+9~36V or +12V
Power Supply Type	AT/ ATX	AT/ ATX	AT/ ATX
Power Consumption (Typical)	Intel® i7-7600U, DDR4 2400MHz 16G, 1.85A@ +12V	—	Intel® i7-6600U, DDR4 2133MHz 16G, 1.75A@ +12V
Dimension (L x W)	5.75" x 4" (146mm x 101.7mm)	5.75" x 4" (146mm x 101.7mm)	5.75" x 4" (146mm x 101.7mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 81°C)	-40°F ~ 176°F (-40°C ~ 81°C)	-40°F ~ 176°F (-40°C ~ 81°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	—	—	123,000
Certification	CE/FCC	CE/FCC	CE/FCC
Display			
VGA/LCD Controller	Intel® i7-7600U Processor SoC	6th Generation Intel® Core™ Processor U series	6th Generation Intel® Core™ Processor SoC
Video Output	DVI-I, CRT/DP, LVDS (CRT is shared with DP, and default is DP)	HDMI 1.4a x 1 (4Kx2K) with audio LVDS	DVI-I, CRT/DP, LVDS (CRT is shared with DP, and default is DP)
Backlight Inverter Supply	Yes	Yes	Yes
I/O			
Ethernet	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2 (Support EtherCAT)	Intel® i210/i211, 10/100/1000Base-TX, RJ 45 x 2	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2 (Support EtherCAT)
Audio	High Definition Audio Interface	High Definition Audio Interface	High Definition Audio Interface
USB Port	USB 3.0 x 4, USB 2.0 x 2	USB 3.0 x 4 (rear I/O)	USB 3.0 x 4, USB 2.0 x 2
Serial Port	RS-232 x 1, RS-232/422/485 x 3	RS-232/422/485 x 2	RS-232 x 1, RS-232/422/485 x 3
Parallel Port	—	—	—
HDD Interface	SATA 3.0 x 1, +5V SATA power connector x 1	SATA 3.0 x 2, +12V/5V SATA power connector x 2	SATA 3.0 x 1, +5V SATA power connector x 1
FDD Interface	—	—	—
SSD	mSATA (shared with Half-size miniCard and selective by BIOS)	mSATA x 1 (Full-size)	mSATA (shared with Half-size Mini Card and selective by BIOS)
Expansion Slot	BIO x 1, Mini Card x 2 and default is mSATA x 1 (Half-size), Mini Card x 1 (Full-size)	BIO x 1, mSATA x 1 (Full-size, co-layout with minicard by jumper switch), M.2 E-key	BIO x 1, Mini Card x 2 and default is mSATA x 1 (Half-size), Mini Card x 1 (Full-size)
DIO	8 Bit	8 Bit 4-in + 4-out with power +5V/ 12V/ 24V (by jumper)	8 Bit
SIM	x 1	x 1 (optional)	x 1
TPM	TPM 2.0 x 1	x 1 (optional)	x 1 (optional)
Touch	x 1	—	x 1

SubCompact Boards



Model	GENE-APL5	GENE-APL6	GENE-APL7
System			
Form Factor	3.5" SubCompact Board	3.5" SubCompact Board	3.5" SubCompact Board
CPU	Intel® Pentium® N4200/ Celeron® N3350 Processor SoC	Intel® Atom™, Celeron® series CPU	Intel® Atom™, Celeron® series CPU
CPU Frequency	Up to 2.5 GHz	Up to 1.6 GHz	Up to 2.0 GHz
Chipset	Intel® Pentium® N4200/ Celeron® N3350 Processor SoC	Intel® Atom™, Celeron® series CPU	—
Memory Type	DDR3L 1867MHz, SODIMM x 1	DDR3L 1867MHz, SODIMM x 1	DDR3L (1866 MT/s)
Max. Memory Capacity	Up to 8 GB	Up to 8 GB	Up to 8 GB
BIOS	UEFI	UEFI	AMI
Wake on LAN	Yes	Yes	Yes
Watchdog Timer	255 Levels	255 Levels	255 Levels
Power Requirement	+12V or +9~19V (optional)	+9~36V or +12V	12V Only
Power Supply Type	AT/ ATX	AT/ ATX	AT/ ATX
Power Consumption (Typical)	Intel® N4200, DDR3L 1600 MHz 8G, 0.8A@+12V	—	—
Dimension (L x W)	5.75" x 4" (146mm x 101.7mm)	5.75" x 4" (146mm x 101.7mm)	5.75" x 4" (146mm x 101.7mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 81°C)	-40°F ~ 176°F (-40°C ~ 81°C)	-40°F ~ 176°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	—	—	—
Certification	CE/FCC	CE/FCC	CE/FCC
Display			
VGA/LCD Controller	Intel® Atom™N4200/ N3350 Processor SoC integrated	Intel® Atom™, Celeron series CPU	Intel® Atom™, Celeron series CPU
Video Output	VGA/LVDS/ LVDS2 (co-layout with HDMI, optional)	LVDS, LVDS2, VGA (HDMI is Optional, co-layout with LVDS)	LVDS1 + CRT (Optional: LVDS2/eDP)
Backlight Inverter Supply	Yes	Yes	Max 12V, 2A
I/O			
Ethernet	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2	Intel® i210/i211, 10/100/1000Base-TX, RJ 45 x 2	LAN x 2 (Real IO), REALTEK. RTL8111E-VL-CG
Audio	High Definition Audio Interface	High Definition Audio Interface	REALTEK ALC892 (Optional: 2W Amp, I2S)
USB Port	USB 3.0 x 2, USB 2.0 x 4	USB 3.0 x 2, USB 2.0 x 2	Rear I/O: USB3.0 x 2, Internal: USB2.0 x 8
Serial Port	RS-232 x 2, RS-232/422/485 x 2	RS-232 x 2, RS-232/422/485 x 2	Rear I/O: COM x 2 (COM2 is RS-232/422/485), Internal: COM x 4 (Option to COM x 10)
Parallel Port	SPP/EPP/ECP x 1 (Optional, shared with DIO)	SPP/EPP/ECP x 1 (Optional, shared with DIO)	—
HDD Interface	SATA 3.0 x 1, +5V SATA power connector x 1	SATA 3.0 x 1, +5V SATA power connector x 1	SATA Gen3 x 1
FDD Interface	—	—	—
SSD	mSATA	eMMC 16G/32G (optional)	mSATA x 1 (Full)
Expansion Slot	mSATA x 1 (Full-size), miniCard x 1(Half-size)	Mini Card x 1 (Full-size) MSATA x 1 (Half-size)	Mini Card x 1 (Full)
DIO	8 bit	8 Bit	8 bit
SIM	x 1 (uSIM) (optional)	x 1 (uSIM)	Micro SIM x 1 (optional)
TPM	x 1 (optional)	x 1 (optional)	—
Touch	x 1 (optional)	x 1 (optional)	x 1
Note			

Board Level Products

SubCompact Boards

SubCompact Boards



Model	GENE-BSW5	GENE-BT04	GENE-BT05
System			
Form Factor	3.5" SubCompact Board	3.5" SubCompact Board	3.5" SubCompact Board
CPU	Intel® Pentium® & Celeron® M/D Processor SoC	Intel® Celeron® J1900/ N2807 Processor SoC	Intel® N2930/N2807/J1900/E3845/E3825
CPU Frequency	Up to 2.6 GHz	Up to 2.0 GHz	Up to 2.0 GHz
Chipset	Intel® Pentium® & Celeron® M/D Processor SoC	Intel® Bay Trail N2807/J1900 Processor SoC	Intel® N2930/N2807/J1900/E3845/E3825
Memory Type	DDR3L 1600, SODIMM x 1	DDR3L 1333, SODIMM x 1	DDR3L 1066/1333, SODIMM x 1
Max. Memory Capacity	Up to 8 GB	Up to 8GB	Up to 8GB
BIOS	UEFI	UEFI	UEFI
Wake on LAN	Yes	Yes	Yes
Watchdog Timer	255 Levels	255 Levels	255 Levels
Power Requirement	+12V	+12V	+12V
Power Supply Type	AT/ ATX	ATX mode	AT/ATX
Power Consumption (Typical)	Intel® Pentium® N3700 @ 2.40 GHz, DDR 3L 1600MHz, 8G, 1.55A@+12V	Intel® N2807, DDR3L 1600MHz 4G, 0.65A@ +12V	Intel® N2930, DDR3L 1600MHz 8G, 0.65A@+12V
Dimension (L x W)	5.75" x 4" (146mm x 101.7mm)	5.75" x 4" (146mm x 101.6mm)	5.75" x 4" (146mm x 101.6mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C) or WITAS 2 (E3825)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 81°C)	-40°F ~ 176°F (-40°C ~ 80°C)	32°F ~ 140°F (0°C ~ 60°C) or WITAS 2 (E3825/ E3845)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	81,000	155,000	111,000
Certification	CE/FCC	CE/FCC	CE/FCC
Display			
VGA/LCD Controller	Intel® Pentium® & Celeron® M/D SoC	Intel® Celeron® J1900/ N2807 Processor SoC	Intel® N2930/N2807/J1900/E3845/E3825
Video Output	Combination in 3 independent display: LVDS x 2 + VGA (HDMI is optional, shared with LVDS2)	HDMI x 2: HDMI 1(w/Audio), HDMI 2(w/o Audio)	CRT+LVDS, HDMI+LVDS, CRT+HDMI
Backlight Inverter Supply	Up to 24-bit dual-channel LVDS	—	Up to 24-bit dual-channel LVDS x 1
I/O			
Ethernet	Realtek RTL-8111E, 10/100/1000Base-TX, RJ-45 x2	Intel® I211AT(or 210), 10/100/1000Base-TX, RJ-45 x 4	Intel® I211 (or 210), 10/100/1000Base-TX, RJ-45 x 2
Audio	High Definition Audio Interface	High definition audio interface	High definition audio interface
USB Port	USB3.0 x 2, USB2.0 x 3	USB2.0 x 2, USB 3.0 x 1	USB2.0 x 3, USB 3.0 x 1
Serial Port	RS-232/422/485 x 2, RS-232 x 4	RS-232 x 1	RS-232 x 2, RS-232/422/485 x 2
Parallel Port	SPP/EPP/ECP x 1 (Optional, shared with DIO)	—	SPP/EPP/ECP x 1
HDD Interface	SATA 3.0 x 1	SATA2 x 1	SATA2 x 1
FDD Interface	—	—	—
SSD	mSATA x 1 (Half-size)	CFAST™ x 1	CFAST™ (alternative with mSATA by BOM and also occupy one Mini Card location)
Expansion Slot	Mini Card x 1(Full-size)	Mini Card x 1 (for USB only)	Mini Card x 2(Full-size x 1, Half-size x 1)
DIO	8 bit	4 bit	8 bit
SIM	x 1	x 1	x 1
TPM	—	x 1	x 1
Touch	x 1 (USB interface)	—	x 1
Note			

SubCompact Boards



Model	GENE-BT06	GENE-BT07
System		
Form Factor	3.5" SubCompact Board	3.5" SubCompact Board
CPU	Intel® Atom™ E3845/E3825	Intel® Celeron® J1900
CPU Frequency	Up to 2.0 GHz	Up to 2.0 GHz
Chipset	Intel® Atom™ E3845/E3825	Intel® Celeron® J1900
Memory Type	Onboard DDR3L 1066/1333	DDR3L 1333, SODIMM x 1
Max. Memory Capacity	Up to 4GB	Up to 8GB
BIOS	UEFI	UEFI
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	Wide DC support 9~24V	+12V
Power Supply Type	AT/ATX	AT/ ATX
Power Consumption (Typical)	Intel® E3845, Onboard DDR3L 1600MHz 4G, 0.64A@+12V	—
Dimension (L x W)	5.75" x 4" (146mm x 101.6mm)	5.75" x 4" (146mm x 101.7mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) or WITAS 2 (—)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 81°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	110,000	204,000
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	Intel® Atom™ E3845/E3825	Intel® Celeron® J1900
Video Output	CRT+LVDS, HDMI+LVDS, CRT+HDMI	CRT+LVDS (co-layout with eDP)
Backlight Inverter Supply	18/24-bit dual-channel LVDS LCD	
I/O		
Ethernet	Intel® I211 (or 210), 10/100/1000Base-TX, RJ-45 x 2	RTL8111E x 2
Audio	High definition audio interface	Realtek ALC892 CODEC, MIC-In/ Line-In/ Line-out AMP TI13113, Support 8ohm/2W speaker
USB Port	USB2.0 x 3, USB 3.0 x 1	USB2.0 x 9
Serial Port	RS-232 x 2, RS-232/422/485 x 2	RS-232 x 6
Parallel Port	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1
HDD Interface	SATA2 x 1	—
FDD Interface	—	—
SSD	mSATA (Half-size, shared with Mini-Card)	mSATA (Half-size)
Expansion Slot	Mini Card x 1 (Full-size)	Mini Card x 1
DIO	8 bit	—
SIM	x 1	x 1
TPM	x 1	—
Touch	x 1	Reserve USB2.0 x1 connector to expend
Note		

Board Level Products

SubCompact Boards

SubCompact Boards



Model	GENE-CV05	GENE-LN05 Rev. B
System		
Form Factor	3.5" SubCompact Board	3.5" SubCompact Board
CPU	Intel® Atom™ D2550/N2800/N2600	Intel® Atom™ D525/N455
CPU Frequency	Up to 1.86 GHz	1.8 GHz
Chipset	Intel® NM10	Intel® ICH8M
Memory Type	DDR3 800/1066, SODIMM x 1	DDR3 800, SODIMM
Max. Memory Capacity	4 GB	4 GB for D525, 2GB for N455
BIOS	SPI type	AMI 4MB
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	+12V	+12V or +5V
Power Supply Type	AT/ ATX	AT/ATX
Power Consumption (Typical)	Intel® Atom™ N2800, DDR3 1333 4 GB 1.00A@+12V Intel® Atom™ N2600, DDR3 1066 2 GB 0.87A@+12V Intel® Atom™ D2550, DDR3 1333 4 GB 1.24A@+12V	Intel® Atom™ D525, DDR3 800 1 GB, 1.29A @ +12V
Dimension (L x W)	5.75" x 4" (146mm x 101.6mm)	5.75" x 4" (146mm x 101.6mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	62,000	70,000
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	Intel® Atom™ D2550/N2800/N2600 integrated	Intel® Atom™ D525/N455
Video Output	CRT+LVDS, CRT+DVI, LVDS+DVI, LVDS+LVDS	CRT, LVDS
Backlight Inverter Supply	Up to 24-bit Dual-Channel LVDS	Up to 24-bit single channel LVDS
I/O		
Ethernet	Realtek RTL 8111E x 2, 10/100/1000Base-TX, RJ-45 x 2	Intel® 82567V, Intel® 82583V, 10/100/1000Base-TX x 2
Audio	High definition audio interface	High definition audio interface
USB Port	USB2.0 x 6	USB2.0 x 7
Serial Port	RS-232 x 5, RS-232/422/485 x 1	RS-232 x 5, RS-232/422/485 x 1
Parallel Port	SPP/EPP/ECP x 1 (Shared with COM6 by BOM)	SPP/ECP/EPP x 1
HDD Interface	SATA2 x 1	SATA 2 x 2
FDD Interface	—	—
SSD	CFast™ (alternative with mSATA by BOM and also occupy one Mini Card location)	CompactFlash™
Expansion Slot	Mini Card x 1	Mini Card x 1
DIO	8 bit	8 bit
SIM	x 1	x 1
TPM	x 1	x 1
Touch	x 1	x 1
Note		

SubCompact Boards



Model	GENE-A55E	GENE-5315 Rev. A	GENE-5315 Rev. B
System			
Form Factor	3.5" SubCompact Board	3.5" SubCompact Board	3.5" SubCompact Board
CPU	AMD G-Series T16R/T40R/T56N	Onboard AMD Geode™ LX 800	Onboard AMD Geode™ LX 800
CPU Frequency	615 MHz up to dual core 1 GHz	500 MHz	500 MHz
Chipset	AMD A55E	AMD Geode™ LX	AMD Geode™ LX
Memory Type	DDR3L 1066MHz, SODIMM x 1	DDR333 SODIMM x 1 (DDR400 optional)	DDR333 SODIMM x 1 (DDR400 optional)
Max. Memory Capacity	4 GB	1 GB	1 GB
BIOS	SPI type	Award 1 MB	Award 1 MB
Wake on LAN	Yes	Yes	Yes
Watchdog Timer	255 Levels	255 Levels	255 Levels
Power Requirement	+5V	+5V	+5V
Power Supply Type	AT/ ATX	AT/ ATX	AT/ ATX
Power Consumption (Typical)	AMD G-T16R, DDR3 1333MHz 4GB, 2.20A@+5V	LX 800 500 MHz, DDR400 1 GB, 1.17A@+5V	LX 800 500 MHz, DDR400 1 GB, 1.17A@+5V
Dimension (L x W)	5.75" x 4" (146mm x 101.6mm)	5.75" x 4" (146mm x 101.6mm)	5.75" x 4" (146mm x 101.6mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C), -4°F ~ 158°F (-20°C ~ 70°C) for WiTAS 1	32°F ~ 140°F (0°C ~ 60°C), -4°F ~ 158°F (-20°C ~ 70°C) for WiTAS 1
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	148,000	90,000	90,000
Certification	CE/FCC	CE/FCC	CE/FCC
Display			
VGA/LCD Controller	AMD Radeon HD 6250	AMD Geode™	AMD Geode™
Video Output	CRT, LVDS, TTL LCD	CRT, TTL LCD, LVDS LCD	CRT, TTL LCD, LVDS LCD
Backlight Inverter Supply	Up to 24-bit dual-channel LVDS	Up to 24-bit single channel TTL/LVDS	Up to 24-bit single channel TTL/LVDS
I/O			
Ethernet	Realtek RTL-8111E, 10/100/1000Base-TX x 2	Realtek RTL 8139DL, 10/100Base-TX x 2	Realtek RTL 8139DL, 10/100Base-TX x 2
Audio	High definition audio interface	High Definition Audio Interface	High Definition Audio Interface
USB Port	USB2.0 x 4	USB2.0 x 4	USB2.0 x 4
Serial Port	RS-232 x 2, RS-232/422/485 x 2	RS-232 x 1, RS-232/422/485 x 1	RS-232 x 4 & TTL UART x 1, RS-232/422/485 x 1
Parallel Port	SPP/ECP/EPP x 1 (Shared with DIO)	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1
HDD Interface	SATA2 x 1	UDMA33 x 1	UDMA33 x 1
FDD Interface	—	FDD x 1	FDD x 1
SSD	CompactFlash™	CompactFlash™	CompactFlash™
Expansion Slot	Mini Card x 1, PC/104	Mini-PCI, PC/104	Mini-PCI
DIO	8 bit	8 bit	8 bit
SIM	x 1	—	—
TPM	—	—	—
Touch	x 1	—	—
Note			

Board Level Products

PC/104 Modules


PC/104 Modules



Model	PFM-LNP	PFM-CVS Rev. A	PFM-CVS Rev. B
System			
Form Factor	PC/104	PC/104+	PC/104
CPU	Onboard Intel® Atom™ N450	Intel® Atom™ N2600 Processor	Intel® Atom™ N2600 Processor
CPU Frequency	1.66 GHz	1.6GHz	1.6 GHz
Chipset	Intel® Atom™ N450 + ICH8M	NM10	NM10
Memory Type	Onboard DDR2 Memory up to 1 GB	SODIMM DDR 3	SODIMM DDR3
Max. Memory Capacity	1 GB	2GB	2GB
BIOS	AMI - 4MB ROM	AMI 32MB	AMI
Wake on LAN	Yes	Yes	Yes
Watchdog Timer	255 Levels	255 Levels	255 Levels
Power Requirement	+12V	12V	12V
Power Supply Type	AT/ATX	AT/ATX	AT/ATX
Power Consumption (Typical)	—	<15W (Atom™ 1.6 GHz, DDR3 1066 2GB)	14W
Dimension (L x W)	3.55" x 3.77" (90mm x 96mm)	3.55" x 3.77"(90mm x 96mm)	3.55" x 3.77" (90mm x 96mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C) -20°F ~ 158°F (-20°C ~ 70°C) -40°F ~ 176°F (-40°C ~ 80°C)(optional)	32°F ~ 140°F (0°C ~ 60°C) -20°F ~ 158°F (-20°C ~ 70°C) -40°F ~ 176°F (-40°C ~ 80°C)(optional)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	129,000	—	70,000
Certification	CE/FCC	CE/FCC Class A	CE/FCC Class A
Display			
VGA/LCD Controller	N450	Intel® Atom™ N2600 integrated	Intel® Atom™ N2600 integrated
Video Output	CRT, LVDS (18 bit)	CRT, LVDS	CRT, LVDS
Backlight Inverter Supply	—	Max. 12V	Max. 12V
I/O			
Ethernet	Intel® 82576V, 10/100/1000Base-TX	Realtek RTL 8111E, 10/100/1000Base-TX x 1	Intel® 82583V, 10/100/1000Base-TX x 1
Audio	—	—	—
USB Port	USB2.0 x 4	USB2.0 x 4	USB2.0 x 4
Serial Port	RS-232 x 3, RS-232/422/485 x 1	RS232 x 3, RS232/422/485 x 1	RS232 x 3, RS232/422/485 x 1
Parallel Port	—	—	—
HDD Interface	SATA x 1	SATA2 x 1	SATA2 x 1
FDD Interface	—	—	—
SSD	CompactFlash™	—	—
Expansion Slot	PCI-104, Mini-Card	PC/104-Plus, mini Card / mSATA (switch by R)	PC/104-Plus, mini Card/ mSATA (switch by R)
PWM LCD Support	—	—	—
DIO	8 bit	8 bit	8 bit
TPM	—	—	—
Touch	—	—	—
Note			

PC/104 Modules



Model	PFM-5411	PFM-540I Rev. A	PFM-540I Rev. B
System			
Form Factor	PC/104	PC/104	PC/104
CPU	Onboard AMD Geode™ LX 800	Onboard AMD Geode™ LX 800	Onboard AMD Geode™ LX 800
CPU Frequency	500 MHz	500 MHz	500 MHz
Chipset	AMD Geode™ LX 800 + CS5536	AMD Geode™ LX 800 + CS5536	AMD Geode™ LX 800 + CS5536
Memory Type	Onboard DDR333 Memory up to 256 MB	DDR333/400, SODIMM x 1, (512 MB for DDR400)	DDR333/400, SODIMM x 1, (512 MB for DDR400)
Max. Memory Capacity	256 MB	1 GB	1 GB
BIOS	Award Plug & Play BIOS - 1 MB ROM	Award 512 KB	Award 512 KB
Wake on LAN	Yes	Yes	Yes
Watchdog Timer	255 Levels	255 Levels	255 Levels
Power Requirement	+5V	+5V	+5V
Power Supply Type	AT	AT	AT
Power Consumption (Typical)	AMD Geode™ LX 800 500 MHz, DDR333 256 MB, 1.83A@+5V	AMD Geode™ LX 800 500 MHz, DDR400 512 MB, 1.53A@+5V	AMD Geode™ LX 800 500 MHz, DDR400 512 MB, 1.53A@+5V
Dimension (L x W)	3.55" x 3.77" (90mm x 96mm)	3.55" x 3.77" (90mm x 96mm)	3.55" x 3.77" (90mm x 96mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	90,000	100,000	100,000
Certification	CE/FCC	CE/FCC	CE/FCC
Display			
VGA/LCD Controller	AMD Geode™ LX 800	AMD Geode™ LX 800	AMD Geode™ LX 800
Video Output	CRT, TTL LCD	CRT, TTL LCD	CRT, TTL LCD
Backlight Inverter Supply	—	—	—
I/O			
Ethernet	Intel® 82551ER, 10/100Base-TX, RJ-45 x 2	Realtek RTL 8139DL, 10/100Base-TX x 1	Intel® 82551ER, 10/100Base-TX
Audio	ALC892	—	—
USB Port	USB2.0 x 4	USB2.0 x 4	USB2.0 x 4
Serial Port	RS-232 x 3, RS-232/422/485 x 1	RS-232 x 1, RS-232/422/485 x 1	RS-232 x 3, RS-232/422/485 x 1
Parallel Port	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1
HDD Interface	UDMA33 x 1	UDMA33 x 1	UDMA33 x 1
FDD Interface	—	FDD x 1	FDD x 1
SSD	CompactFlash™	CompactFlash™	CompactFlash™
Expansion Slot	PC/104	PC/104	PC/104
PWM LCD Support	—	—	—
DIO	—	—	—
TPM	—	—	—
Touch	—	—	—
Note			

Board Level Products

Pico-ITX Boards

Pico-ITX Boards



Model	PICO-APL1	PICO-APL2
System		
Form Factor	Pico-ITX	Pico-ITX
CPU	Intel® Atom™ E3900 Processor SoC, Intel® N4200, N3350	Intel® Atom™ E3900, Pentium® N4200, Celeron® N3350
CPU Frequency	Up to 1.1/2.5GHz	Up to 1.1/2.5GHz
Chipset	Intel® Atom™ E3900 Processor SoC, Intel® N4200, N3350	Intel® Atom™ E3900, Pentium® N4200, Celeron® N3350
Memory Type	204-pin DDR3L SODIMM x 1, DDR3L 1867MHz, Max 8 GB	204-pin DDR3L SODIMM x 1, DDR3L 1867MHz, Max 8 GB
Max. Memory Capacity	Up to 8 GB	Up to 8 GB
BIOS	AMI/SPI	AMI/SPI
Wake On LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	+12V AT/ATX (default)	+12V AT/ATX(default)
Power Supply Type	AT/ATX (default), lockable connector optional	AT/ATX(default). lockable connector optional
Power Consumption (Typical)	Intel® N3350 Processor, DDR3L 8 GB 0.91A@+12V	—
System Cooling	Heat-spreader; heatsink optional	Heat-spreader, heatsink & cooler optional
Dimension	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	—	—
Operating Temperature	32°F~ 140°F (0°C ~ 60°C)	32°F~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	170,000	—
Certification	CE, FCC	CE, FCC
Display		
Chipset	Intel® Atom™ E3900 Processor SoC, Intel® N4200, N3350	Intel® Atom™ E3900, Pentium® N4200, Celeron® N3350
Resolution	LVDS (18/24-bit 2CH) 1920 x1200 HDMI up to 3840 x 2160 DDI (BIO)	HDMI up to 3840 x 2160 eDP up to 3840 x 2160 DDI (BIO)
LCD Interface	18/24-bit 2CH LVDS	—
I/O		
Storage/SSD	SATA 6.0Gb/s x 1, mSATA/MiniCard(Full size) x 1	eMMC 16 GB(optional up to 32GB/64GB) x 1 STATA 6.0Gb/s x 1
Ethernet	Intel® i2110AT, 10/100/1000Base-TX, RJ-45 x 1	Realtek RTL 8111E, 10/100/1000Base-TX, RJ-45 x 1
USB Port	USB3.0 x 2 Rear IO, USB2.0 x 1	USB 3.0 x 2 Rear IO, USB 2.0 x 2 Pin header
Serial Port	COM1: RS-232 x 1, COM2: RS-232/422/485 x 1 (Ring/ +5V/ +12V)	COM1: RS-232 x 1 COM2 : Tx/Rx (on HAT)
Audio	Line-out x1	—
DIO	4-bit (2-in, 2-out)	28 bit (on HAT)
Expansion Slot	Mini Card (Half-size) x 1, BIO x 1, I2C or SMBus x 1	MiniCard/mSATA(Full size) x 1, BIO x 1 (optional) HAT x 1 (I2C x2, Smbus x1, SDIO, SPI2, I2S, 28bit DIO, COM2 [Tx, Rx]) MIPI CSI [x2] x1
SIM	—	—
TPM	—	—
Touch	—	—
Note	3 display: HDMI + LVDS + DDI (HDMI) SOC on solder side BIO w/ USB 3.0	3 display: HDMI/DP + eDP + DDI (HDMI) SOC on solder side BIO w/ USB 3.0

Pico-ITX Boards



Model	PICO-APL3	PICO-APL4
System		
Form Factor	Pico-ITX	Pico-ITX
CPU	Intel® Atom™ E3900, Pentium® N4200, Celeron® N3350	Intel® Atom™ E3900, Pentium® N4200, Celeron® N3350
CPU Frequency	Up to 1.1/2.5GHz	Up to 1.1/2.5GHz
Chipset	Intel® Atom™ E3900, Pentium® N4200, Celeron® N3350	Intel® Atom™ E3900, Pentium® N4200, Celeron® N3350
Memory Type	Onboard DDR3L 2G (Optional to 4G)	Onboard DDR3L 2G (Optional to 4G)
Max. Memory Capacity	Up to 4GB	Up to 4GB
BIOS	AMI/SPI	AMI/SPI
Wake On LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	+12V, AT/ATX	+12V, AT/ATX
Power Supply Type	Lockable & phenix Terminal co-lay	Lockable & phenix Terminal co-lay
Power Consumption (Typical)	—	—
System Cooling	Heat-spreader, heatsink & cooler (Optional)	Heat-spreader, heatsink & cooler (Optional)
Dimension	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	—	—
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	—	—
Certification	CE, FCC	CE, FCC
Display		
Chipset	Intel® Atom™ E3900, Pentium® N4200, Celeron® N3350	Intel® Atom™ E3900, Pentium® N4200, Celeron® N3350
Resolution	HDMI up to 3840 x 2160, eDP, DDI (BIO)	Mini-DP up to 3840 x 2160, eDP DDI (BIO)
LCD Interface	—	—
I/O		
Storage/SSD	SATA 6.0Gb/s x 1, 5V/12V Power reserved M.2 2280 (B Key) x 1, eMMC 16G (optional to 32/64G)	SATA 6.0Gb/s x 1, 5V/12V Power reserved M.2 2280 (B Key) x 1, eMMC 16G (optional to 32/64G)
Ethernet	Realtek 8111G x 1	Realtek 8111G x 2
USB Port	USB 3.0 x 2 Rear IO USB 2.0 x 2 (Internal, co-use with FAN connector)	USB 3.0 x 2 Rear IO USB 2.0 x 2 (Internal, co-use with FAN connector)
Serial Port	COM1: RS-232 COM2: RS-232 (From EC)	COM1: RS-232 x 1 COM2: RS-232/422/485 x 1
Audio	ALC269 (Included 2W Amp.)	—
DIO	4-bit	4-bit
Expansion Slot	M.2 2230 x 1 (E-Key) BIO x 1 (Optional) TPM x 1 (Optional) I2C, Smbus, I2S MIPI-CSI x 2 Lanes (Optional) MIPI-CSI x 4 Lanes (Optional)	M.2 2230 x 1 (E-Key) BIO x 1 (optional) I2C, Smbus MIPI-CSI x 4 Lanes (Optional)
SIM	—	—
TPM	—	—
Touch	—	—
Note		

Board Level Products

Pico-ITX Boards

Pico-ITX Boards



Model	PICO-KBU1	PICO-BSW1
System		
Form Factor	Pico-ITX	Pico-ITX
CPU	7th Generation Intel® Core™ i processor U series, Intel® i7-7600U, i5-7300U, i3-7100U series & Celeron® 3965U	Intel® N3160 Quad Core 1.6GHz (6W), Intel® N3060 Dual Core 1.6GHz (6W), Intel® X5-E8000 Quad Core 1.04GHz (5W)
CPU Frequency	Up to 3.9/2.8 GHz	Up to 2.24 GHz
Chipset	7th Generation Intel® Core™ i processor U series, Intel® i7-7600U, i5-7300U, i3-7100U series & Celeron® 3965U	Intel® N3160 Quad Core 1.6 GHz (6W), Intel® N3060 Dual Core 1.6 GHz (6W), Intel® X5-E8000 Quad Core 1.04 GHz (5W)
Memory Type	DDR4 1866/2133MHz SODIMM x 1, Max 16 GB	204-pin DDR3L SODIMM x 1, DDR3L 1600, Max. 8 GB
Max. Memory Capacity	Up to 16 GB	Up to 8 GB
BIOS	AMI/SPI	AMI/SPI
Wake On LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	+12V AT/ATX (default)	+12VDC
Power Supply Type	AT/ATX (default)	AT/ATX (default). lockable connector optional
Power Consumption (Typical)	—	Intel® Pentium® N3160@ DDR3L-1600MHz 8 GB, 0.91A@+12V
System Cooling	Heat-spreader, heatsink & cooler optional	Heat-spreader; Heat-sink & cooler (optional)
Dimension	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	—	0.44 lb (0.2 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	—	100,000
Certification	CE, FCC	CE, FCC
Display		
Chipset	7th Generation Intel® Core™ i processor U series, Intel® i7-7600U, i5-7300U, i3-7100U series & Celeron® 3965U	Intel® N3160 Quad Core 1.6GHz (6W), Intel® N3060 Dual Core 1.6GHz (6W), Intel® X5-E8000 Quad Core 1.04GHz (5W)
Resolution	LVDS (18/24-bit 2CH) 1920 x 1200 HDMI up to 4096 x 2304 (4K) DDI (BIO)	LVDS (18/24-bit 2CH) 1920 x 1200 HDMI up to 3840 x 2160 (4K) DDI (optional by BIO board)
LCD Interface	18/24-bit 2CH LVDS	18/24-bit 2CH LVDS
I/O		
Storage/SSD	SATA 6.0Gb/s x 1, M.2 B-key (2242)	SATA 6.0Gb/s x 1, mSATA/MiniCard (Full size) x 1
Ethernet	Realtek 8111G Gigabit Ethernet 10/100/1000Base-TX, RJ-45 x 2	Realtek RTL 8111E, 10/100/1000Base-TX, RJ-45 x 1
USB Port	USB 3.0 x 2 Rear I/O, USB 2.0 x 2 Pin header	USB3.0 x 2 Rear I/O
Serial Port	COM1: RS-232 x 1, COM2: RS-232/422/485 x 1 (Ring/ +5V/+12V)	COM1: RS-232 x 1, COM2: RS-232/422/485 x 1 (Ring/ +5V/+12V)
Audio	Line-out x1	Line-out x 1
DIO	4-bit (2-in, 2-out)	4-bit (2-in, 2-out)
Expansion Slot	M.2 2230 x 1 (E-Key), BIO (optional), I2C x1 or Smbus x 1	Mini Card (Half-size) x 1, BIO x 1, I2C x 1 or Smbus x 1, LPC
SIM	—	—
TPM	—	—
Touch	—	—
Note		

Pico-ITX Boards



Model	PICO-BT01	PICO-CV01	PICO-HD01
System			
Form Factor	Pico-ITX	Pico-ITX	Pico-ITX
CPU	Onboard Intel® Atom™ E3845 or Celeron® J1900/N2807 Processor SoC	Intel® Atom™ N2600 Processor	AMD G-series T40E (Dual Core)/T40R (Single Core) Processor
CPU Frequency	Up to 2.0 GHz	1.6GHz Dual Core	1.0 GHz Dual Core
Chipset	Intel® E3845/J1900/N2807	N2600 + NM10	G-Series T40E+ A50M
Memory Type	204-pin DDR3L SODIMM x 1, DDR3L 1066/1333, Max 8 GB	SODIMM DDR3 1066MHz	SODIMM DDR3 1066MHz
Max. Memory Capacity	Up to 8 GB	2 GB	4 GB
BIOS	AMI/SPI	AMI 32MB	AMI 32Mb
Wake On LAN	Yes	Yes	YES
Watchdog Timer	1-255 steps by software program	255 Levels	255 Levels
Power Requirement	+12V DC	+12V only	+12V only
Power Supply Type	AT/ATX (default), lockable connector optional	AT/ATX	AT/ATX
Power Consumption (Typical)	Intel® Celeron® J1900 2.0 GHz ,DDR3L 1333 MHz 8 GB 1.14A@+12V	Intel® Atom™ N2600 1.6GHz,DDR3 800MHz 2GB, 0.83A@12VDC	AMD T-40R 1.0 GHz, DDR3 1066MHz 2GB, 0.91A@12V DC
System Cooling	Heat-spreader, heatsink or cooler optional	Fanless, Heat-sink	Fanless, Heat-sink
Dimension	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.88 lb (0.4 kg)	1.1 lb (0.5 kg)	1.1 lb (0.5 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C), -4°F ~ 158°F (-20°C ~ 70°C) WiTAS 1	32°F ~ 140°F (0°C ~ 60°C), -4°F ~ 158°F (-20°C ~ 70°C) WiTAS 1	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	80,000	95,000	89,000
Certification	CE, FCC	CE, FCC	CE, FCC
Display			
VGA/LCD Controller	Intel® E3845/J1900/N2807	Intel® Atom™ N2600 integrated	Integrated decoders in AMD G-series
Resolution	VGA up to 2048 x 1152 @60Hz or DP up to 2560 x 1400 @60Hz LVDS (18/24-bit) up to 1400 x 900 @60Hz	VGA up to 1920 x 1200 @60Hz uHDMI up to 1920 x 1200 @60Hz LVDS (18-bit) up to 1366 x 768 @60Hz	VGA up to 1920 x 1200 @60Hz uHDMI up to 1920 x 1200 @60Hz LVDS (18-bit) up to 1366 x 768 @60Hz
LCD Interface	18/24-bit Single LVDS	18-bit Single Channel LVDS with PWM function	18-bit Single Channel LVDS with PWM function
I/O			
Storage/SSD	SATA 3.0Gb/s x 1, mSATA/Mini Card (Full-size) x 1	SATA 3.0Gb/s x 1, mSATA/Mini Card x 1	SATA 3.0Gb/s x 1, mSATA/Mini Card x 1
Ethernet	Intel® i211AT 10/100/1000Base-TX x 1	Realtek RTL 8111E, 10/100/1000Base-TX x 1	Realtek RTL 8111E, 10/100/1000Base-TX x 1
USB Port	USB3.0 x 1 Rear IO, USB2.0 x 1 Rear IO and x 1 Pin header	USB2.0 x 5	USB2.0 x 5
Serial Port	RS-232 x 1, RS-232/422/485 x 1 (Ring /+5V/+12V)	RS-232 x 1, RS-232/422/485 x 1	RS-232 x 1, RS-232/422/485 x 1
Audio	Line-out x 1	Audio Buzzer x 1, HD Audio Codec (ALC662) for Mic-in/Line-in/Line-out	Audio Buzzer x 1, HD Audio Codec (ALC662) for Mic-in/Line-in/Line-out
DIO	4-bit (2-in, 2-out)	4-bit (2-in, 2-out)	4-bit (2-in, 2-out)
Expansion Slot	Mini Card (Half-size) x 1, BIO x 1	—	—
SIM	Option by BIO Board	—	—
TPM	—	—	—
Touch	—	—	—
Note			

Board Level Products

Pico-ITX Boards


Pico-ITX Boards/ Pico-ITX Boards-BIO



Model	PICO-IMX6	RICO-3288
System		
Form Factor	Pico-ITX	Pico-ITX
CPU	Freescale i.MX6 Quad 1.0 GHz Automotive Freescale i.MX6 Dual Lite 1.0 GHz Ex. Consumer	Rackchip RK3288 ARM Cortex™-A17 Quad-core 1.6GHz (up to 1.8GHz)
CPU Frequency	1.0 GHz Dual/Quad Core	1.6GHz Quad-core
Chipset	i.MX6	Rackchip RK3288
Memory Type	1GB DDR3	LPDDR3 2GB
Max. Memory Capacity	2GB	16 GB eMMC and Micro SD card
BIOS	—	—
Wake On LAN	—	—
Watchdog Timer	Integrated	Integrated
Power Requirement	12V	+12V only, support 7.4V battery
Power Supply Type	AT	AT
Power Consumption (Typical)	0.6A@12V, full load, Quad CPU	0.6A@12V, full load, Quad CPU
System Cooling	Fanless, Heat-sink	Fanless, Heat-sink
Dimension	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.88 lb (0.4 kg)	0.88 lb (0.4 kg)
Operating Temperature	0°C ~ 60°C, -40°C ~ 85°C (optional)	32°F ~ 140°F (0°C ~ 60°C) or WITAS 1 (-20°C ~ 70°C)
Storage Temperature	-40°C ~ 85°C	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	80,000	80000
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	Freescale i.MX6	—
Resolution	mHDMI, LVDS	HDMI(2.0) up to 4k x 2k @60Hz DP up to 2560 x 1400 @60Hz LVDS (18/24-bit) up to 1400 x 900 @60Hz
LCD Interface	18/24-bit Single LVDS	18/24-bit Dual LVDS
I/O		
Storage/SSD	SATA w/ SATA PWR connector eMMC up to 16 GB	16 GB eMMC and Micro SD card
Ethernet	10/100/1000Base-TX x 1	10/100/1000Base-TX x 1
USB Port	Up to 4, one OTG port	Micro USB OTG x 1 Rear IO, USB2.0 x 2 Rear IO and Pin header x 1
Serial Port	4-wire UART x 2	RS-232/422/485 x 1, RS-232 Pin header x 1
Audio	Line-in, Speaker out, mic	Line-out x 1, 2.5W (by 4Ω) Speaker x 1
DIO	8-bit	8-bit (4-in, 4-out)
Expansion Slot	Mini Card (Quad only), CAN Bus (optional)	Mini Card (Full-size) x 1
SIM	Optional	Mano-SIM
TPM	—	—
Touch	—	I2C interfac
Note		

Pico-ITX Boards-BIO



Model	BIO-ST01-L1U2	BIO-ST01-M1U1	BIO-ST02-C4M1
System			
Form Factor	2.5" Board	2.5" Board	2.5" Board
Power Requirement	Power from MB by BIO	Power from MB by BIO	Power from MB by BIO
Dimension	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.44 lb (0.2kg)	0.44 lb (0.2kg)	0.44 lb (0.2kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
Certification	CE, FCC	CE, FCC	CE, FCC
I/O			
Ethernet	Realtek RTL 8111E, 10/100/1000Base-TX, RJ-45 x 1	—	—
USB Port	USB2.0 x 2	USB2.0 x 1	USB2.0 x 1
Serial Port	—	—	COM1, COM2 by Pin Header COM3, COM4 on Rear I/O
Audio	Audio output dual CH with 2W Amp.	Audio output dual CH with 2W Amp.	—
DIO	1-bit	1-bit	—
Expansion Slot	SMbus x 1, LPC (optional)	Mini-Card(Full size), SMbus x1, LPC (optional)	Mini-Card(Full size)
SIM	—	Yes	Yes
Note			



Model	BIO-ST05-C14D32	BIO-ST03-P2U1
System		
Form Factor	2.5" Board	3.5" Board
Power Requirement	Power from MB by BIO, Reserve 12V power input	12V or +9~36V input (external power supply)
Dimension	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.44 lb (0.3kg)	0.44 lb (0.2kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
Certification	CE, FCC	CE, FCC
I/O		
Ethernet	Intel® i211, 10/100/1000Base-TX x 1	Intel® i210, 10/100/1000Base-TX x 2 (support PoE 802.3af)
USB Port	USB3.0 x 1, USB2.0 x 3	USB3.0 x 1
Serial Port	COM x 14 by Pin Header	—
Audio	Audio output dual CH with 2W Amp.	—
DIO	32 bits	—
Expansion Slot	PCIe[x1] x 1, LPT x 1	—
SIM	—	—
Note		

Board Level Products

COM Express CPU Modules

COM Express CPU Modules



Model	COM-SKHB6	COM-SKUC6
System		
Form Factor	COM Express Basic Size	COM Express Compact Size
CPU	i7-6820EQ 4c/2.7 GHz i3-6100E 2c/2.7 GHz	Onboard 6th Gen Intel® Core™ U-series Processor, BGA type
CPU Frequency	Up to i7-6820EQ 2.8 GHz	Up to i7-6600U 2.6 GHz
Chipset	PCH QM170 or CM236 (by sku)	Onboard 6th Gen Intel® Core™ U-series Processor
Memory Type	DDR4, SODIMM x 2, ECC Support with CM236 sku only, up to 2133	DDR3L 1333/1600, SODIMM x 1
Max. Memory Capacity	32GB	8 GB
BIOS	AMI BIOS, Legacy Free	AMI BIOS, Legacy Free
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	Standard: +12V	Standard: +12V
Power Supply Type	AT/ATX Selection	AT/ATX Selection
Power Consumption (Typical)	Intel® i7-6820EQ 2.8GHz, DDR4 16 GB 3.08A@12V	i7-6600U, 4GB DDR3.; full loading 1.07A@12V during 100% loading burn in test
Dimension (L x W)	4.92" x 3.75" (125mm x 95mm)	3.75in x 3.75in (95mm x 95mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Operating Humidity	10% ~90% relative humidity, non-condensing	10% ~90% relative humidity, non-condensing
MTBF (hours)	80,000	80,000
Certification	CE/FCC Class A	CE/FCC Class A
Display		
VGA/LCD Controller	Onboard 6th Gen Intel® Core™ H-series Processor, GT2	Onboard 6th Gen Intel® Core™ U-series Processor, GT2/GT1
Video Output	VGA, LVDS/eDP, DDI x2	VGA, LVDS/eDP, DDI x 1 (up to 2)
I/O		
Ethernet	Intel® I219, Gigabit Ethernet	Intel® I219, Gigabit Ethernet
Audio	HD Audio	HD Audio
USB Port	USB2.0 x 8, USB3.0 x4	USB2.0 x 8, USB3.0 x 4
Serial Port	2-Wire UART (Tx/Rx) x 2	2-Wire UART (Tx/Rx) x 2
HDD Interface	SATA x 4	SATA x 3 (SATA Port 3 optional)
Onboard SSD	—	—
Expansion Slot	PCIe[x16] x 1, PCIe[x1] x 8, I2C, LPC, SMBus	PCI-Express Lanes x 8, I2C, LPC, SMBus
DIO	GPIO 8-bit	GPIO 8-bit
TPM	Optional	Optional
Note		

COM Express CPU Modules



Model	COM-QM77 Rev. B	COM-HM76
System		
Form Factor	COM Express, Basic Size, Pin-out Type 6	COM Express, Basic Module, Pin-out Type 6
CPU	Onboard 3rd Gen. Intel® Core™ i7/i5/i3/Celeron® (FCBGA1023)	Socket G2 for Intel® 2nd & 3rd generation Core™ i7/i5/i3/Pentium®/Celeron® processor
CPU Frequency	Up to 2.5GHz	Up to i7-3610QE, Quad core, 2.3GHz
Chipset	Intel® PCH QM77/HM76	Intel® HM76
Memory Type	DDR3 1333/1600, SODIMM x 2, Supports Dual Channel function	Non-ECC DDR3L 1333/1600
Max. Memory Capacity	16 GB	Single-channel SODIMM DDR3L 1333/1600 Memory, Max. 8 GB
BIOS	AMI BIOS	AMI BIOS
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	Nominal: +12V	Nominal: +12V
Power Supply Type	AT/ ATX	AT/ ATX
Power Consumption (Typical)	Intel® Core™ i3-3217UE 1.6GHz, DDR3 1066 4GB, 2.23A @+12V	i7-3610QE 2.3GHz, DDR3L 8 GB 2.73A@12V, 1.18A@5V, 0.31A@3.3V, 100% loading on ECB-920A
Dimension (L x W)	4.92" x 3.74" (125mm x 95mm)	4.92" x 3.75" (125mm x 95mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) -4°F ~ 158°F (-20°C ~ 70°C) for WITAS 1	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (hours)	80,000	150,000
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	Intel® Core™ i7/i5/i3 Celeron® integrated	Intel® Core™ i7/ i5/i3/Celeron® processor integrated
Video Output	CRT, LVDS LCD, DDI x 2	CRT, 18/24-bit Dual-channel LVDS, DDI x 2
I/O		
Ethernet	Intel® 82579LM, Gigabit Ethernet	Intel® 82579LM for 10/1000/1000Base-TX
Audio	High definition audio	High Definition Audio Interface
USB Port	USB2.0 x 8	USB2.0 x 8, USB3.0 x4
Serial Port	Tx/Rx x 2	Tx/Rx x 2
HDD Interface	SATA 2 x 4	SATA x 4
Onboard SSD	—	—
Expansion Slot	PCI-Express [x16] x 1 PCI-Express [x1] x 7 LPC Bus x 1 SM Bus x 1 I2C x 1	PCI-Express [x16] x 1 PCI-Express [1] x 7 LPC bus x 1 SMBus x 1
DIO	GPIO 8-bit	GPIO 8-bit
TPM	Optional	—
Note		

Board Level Products

COM Express CPU Modules

COM Express CPU Modules



Model	COM-APLC6	COM-BT
System		
Form Factor	COM Express R3.0 compatible Compact size, Pin-out Type 6	COM Express, Compact, Pin-out Type 6
CPU	Intel® Atom™ E39xx SoC	Onboard Intel® Atom™ SoC
CPU Frequency	Intel® Atom™ E39xx	Intel® Atom™N2930 (1.83 GHz), N2807 (1.58 GHz), E3845 (1.91 GHz), E3827 (1.75 GHz), E3825 (1.33 GHz), J1900 (2.0 GHz)
Chipset	Intel® Atom™ SoC	Intel® Atom™ SoC
Memory Type	DDR3L1867, SODIMM x 2, ECC only	DDR3L 1066/1333 MHz SODIMM x 1
Max. Memory Capacity	8 GB	8 GB
BIOS	AMI BIOS	AMI BIOS
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	Nominal: +12V	Nominal: +12V
Power Supply Type	AT/ ATX	AT/ ATX
Power Consumption (Typical)	E3950 TDP: 12W	0.92A@12V, full load, J1900 0.48A@12V, full load, N2807
Dimension (L x W)	3.74" x 3.74" (95mm x 95mm)	3.74" x 3.74" (95mm x 95mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (hours)	—	80,000
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	Intel® Atom™ SoC Integrated	Intel® Atom™ SoC Integrated
Video Output	CRT, LVDS/(eDP), DDI	CRT, LVDS LCD, DDI, eDP (on module, by switch)
I/O		
Ethernet	Intel® 210, Gigabit Ethernet	Intel® 211, Gigabit Ethernet
Audio	High Definition Audio Interface	High Definition Audio Interface
USB Port	USB2.0 x 6, USB2.0/3.0 x 2	USB2.0 x 6, USB2.0/3.0 x 1
Serial Port	Tx/Rx x 2	Tx/Rx x 2
HDD Interface	SATA x 2	SATA x 2
Onboard SSD	—	—
Expansion Slot	PCI-Express[x1] x 3 (devices) LPC Bus x 1 SMBus x 1	PCI-Express[x1] x 3 (Gen 2.0) LPC Bus x 1, SMBus x 1
DIO	GPIO 8-bit	GPIO 8-bit
TPM	—	—
Note		

COM Express CPU Modules



Model	COM-BYTC2	NanoCOM-SKU
System		
Form Factor	COM Express, Compact size, Pin-out Type 2	COM Express Mini size, Type 10
CPU	Onboard Intel® Atom™ Processor SoC	Intel® 6th Gen U series CPU up to i7-6600U
CPU Frequency	Up to J1900 1.91 GHz, Quad core	—
Chipset	Intel® Atom™ SoC	Intel® SoC
Memory Type	DDR3L 1066/1333, SODIMM x 1	Non-EEC DDR4-2133
Max. Memory Capacity	8 GB	4 GB onboard
BIOS	AMI BIOS, Legacy Free	AMI BIOS, Legacy free BIOS
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	Support CPU temperature monitoring
Power Requirement	Standard: +12V	Normal: +12V
Power Supply Type	AT/ATX Selection	Normal: +12V
Power Consumption (Typical)	1A@ 12V with J1900, full load	i7-6600U 12V@1.5A, i3-6100U 12V@1.42A. Under 100% loading. CPU Set to 15W TDP. CPU base frequency may change accordingly.
Dimension (L x W)	3.75" x 3.75" (95mm x 95mm)	3.31" x 2.17" (84mm x 55mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F~ 140°F (0°C ~ 60°C)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Operating Humidity	10% ~90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (hours)	80,000	80,000
Certification	CE/FCC Class A	CE/FCC
Display		
VGA/LCD Controller	Intel® Atom™ SoC	Onboard 6th Gen. intel® Core™ U-Series Processor, GT2
Video Output	VGA, LVDS, eDP	LVDS/eDP, DDI x1
LVDS Interface	—	Supports 18-bit and 24-bit Single channel
I/O		
Ethernet	Intel® I210IT, Gigabit Ethernet	Intel® I219 GbE
Audio	HD Audio	HD Audio x 1
USB Port	USB2.0 x 7	USB3.0 x 2, USB2.0 x 8
Serial Port	—	2-wire UART x 2 (Tx/Rx)
HDD Interface	SATA x 1, PATA x 1	SATA 6.0 Gb/s x 2
Onboard SSD	—	—
Expansion Slot	PCIe[x1] x 2, PCI x 4, I2C, LPC, SMBus	PCIe [x1] x 4, I2C, LPC, SMBus, GPIO
DIO	GPIO 8-bit	GPIO 8-bit
TPM	Optional	—
Note		

Board Level Products

COM Express CPU Modules

COM Express CPU Modules/ COM Carrier Boards



Model	NanoCOM-APL	NanoCOM-BT
System		
Form Factor	COM Express R3.0 compatible, Mini size, Pin-out Type 10	COM Express, Mini Size, Type 10
CPU	Intel® Atom™, Celeron® series CPU	Intel® Atom™/ Celeron® Processor SoC (M/I)
System Memory	Up to E3950 1.6 GHz, Turbo 2.0 GHz	Up to E3845, 1.91 GHz
Chipset	Intel® Atom™ SoC Processor	Intel® Atom™/ Celeron® Processor SoC
Memory Type	Onboard LPDDR4 dual channel	Non-ECC DDR3L-1333
Max. Memory Capacity	Default: 2GB/4GB, 8 GB, quad channel (optional)	2 GB DDR3L onboard (up to 4 GB)
BIOS	AMI	AMI BIOS
Wake on LAN	EC, ITE8528	Yes
Watchdog Timer	Yes	255 Levels
Power Requirement	255 Levels	Standard : +12V, AT/ATX Optional: +5V, AT/ATX
Power Supply Type	Standard : +12V, AT/ATX	AT/ATX
Power Consumption (Typical)	AT/ATX	0.7A@12V, full load, E3845
Dimension (L x W)	3.31" x 2.17" (84mm x 55mm)	3.31" x 2.17" (84mm x 55mm)
Operation Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C) -40 °F ~ 185 °F (-40 °C ~ 80 °C) ~ optional	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) by E3845
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF	—	90,000
Certification	CE/FCC Class A	CE/FCC
Display		
VGA/LCD Controller	Intel® Atom™ SoC	Intel® Atom™ SoC
Video Output	LVDS/eDP, DDI x 1	LVDS LCD/eDP, DDI x 1
LVDS Interface	—	—
I/O		
Ethernet	Intel® I210IT	Intel® I210IT
Audio	High Definition Audio Interface	High Definition Audio Interface
USB	USB 2.0 x 8, USB3.0 x2	USB2.0 x 7, USB3.0 x 1
Serial Port	Tx/Rx x 2	Tx/Rx x 2
HDD Interface	SATA 2 x 2	SATA 2 x 2
SSD	Onboard eMMC	Optional for 8 GB/16 GB eMMC
Expansion Interface	PCI Express [x1] (3 devices@3 lanes in default) LPC Bus x 1 SMBus x 1 I2C x 1	PCI Express [x1] x 3 LPC Bus x 1 SMBus x 1
DIO	SDIO x1 (Optional, mux with GPIO), GPIO 8-bit	GPIO 8-bit
TPM	—	—
Note		

COM Carrier Boards



Model	ECB-916M Rev. B11	ECB-920A
System		
Form Factor	Micro-ATX	ATX
COM Express Connector	x2	x 2
I/O Chipset	Winbond W83627DHG	—
Front Panel Control	10-pin (5x2) header	10-pin (5x2) header
Ethernet	Intel® 82573L, 10/100/1000Base-TX, RJ-45 x 1 10/100 Base-TX or 10/100/1000Base-TX, RJ-45 x 1 (From CPU module)	10/1000/1000Base-TX, RJ-45 x 1 (From CPU module)
Expansion Interface	PCI-Express [x1] slot x 1 (additional 2 for test only) PCI-Express [x16] slot x 1 ==> Add a 3-pin header for SDVO enabled or disabled PCI slot x 1 Mini-PCI slot x 1 Mini Card slot x 1 Express Card slot x 1	PCI-Express [x1] slot x 4 (3 by PCI-E[x1] x 1 pin-out, 1 by SIO pin-out) PCI-Express [x4] slot x 1 PCI-Express [x16] slot x 1 Mini Card slot x 1
Power Supply Type	AT/ATX	ATX
CMOS Battery	RTC battery socket x 1	RTC battery socket x 1
BIOS	SPI x 1 Firmware Hub x 1 (with DIP Switch for BIOS Selection)	—
Board Size	9.6" x 9.6" (243.84mm x 243.84mm)	12" x 9.6" (304mm x 244mm)
Gross Weight	1.32 lb (0.6 kg)	1.32 lb (0.6 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	77,000	75,000
Display		
DVI/CRT	DVI 29-pin + DB 15-pin stack-type connector	DB15 connector x 1
LVDS	30-pin (15 x 2) Dual-Channel LVDS connector x 1	30-pin (15 x 2) Dual-Channel LVDS connector x 1
SDVO	40-pin (20 x 2) SDVO connector x 1	—
DDI	—	DP connector x 4 (Dual x 1, Single x 2)
I/O		
Storage	40-pin PATA connector x 1 SATA 3.0 Gb/s x 3 CompactFlash™ Type 2 slot x 1	SATA x 4
Serial Port	RS-232 Port x 1, RS-232/422/485 Port x 1	2-wire RS-232 port x 2 (10-pin (5x2) box header x 2)
USB	Type-A connector x 4	Type A connector x 4 (USB3.0) for Type 6, USB2.0 port x 4
PS/2 Port	x 1	—
Digital I/O	Supports 8-bit (Programmable)	—
Audio	Audio jack x 6, support 7.1 channel audio Audio Codec: Realtek ALC888 Buzzer x 1	Audio Jack, supports Line-in, Line-out, Microphone
Switch/Button	Power button x 1 Reset button x 1	—
Debug LED	—	80 PORT
I2C	—	1
Note		

Board Level Products

ETX CPU Modules / ETX Carrier Boards

ETX CPU Modules



Model	ETX-A55E	ETX-701
System		
Form Factor	ETX	ETX
CPU	Onboard AMD® G-series APU T16R/T56N	Onboard AMD Geode™ LX 800
CPU Frequency	T16R: Single Core 615 MHz/ 4.5W T56N: Dual Core 1.6GHz/18W	LX800: 500 MHz
Chipset	AMD G-series A55E	AMD Geode™ LX 800 + CS5536
Memory Type	DDR3L 1066/1333 MHz, SODIMM x 1	DDR333/400, DDR SODIMM x 1, DDR333: 1 GB, DDR400: 512 MB
Max. Memory Capacity	up to 8 GB	1 GB
BIOS	AMI BIOS	Award PLCC Type, 2MB
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	+5V	+5V
Power Consumption (Typical)	T16R: 10.7W T56N: 24.2W	LX 800, DDR333 1 GB 0.25A@+12V, 2.02A@+5V W/ TF-ECB-901A-A10-01
Power Supply Type	AT/ ATX	AT/ ATX
Dimension (L x W)	4.5" x 3.74" (114mm x 95mm)	4.5" x 3.74" (114mm x 95mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	83,500	110,000
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	AMD G-series T16R/T56N integrated	AMD Geode™ LX 800 processor integrated
Video Output	CRT/ LVDS LCD	CRT, LVDS LCD, TTL LCD
Backlight Inverter Supply	—	—
I/O		
Ethernet	Realtek RTL8105, 10/100 Base-TX	Realtek RTL8139DL, 10/100Base-TX
Audio	Realtek ALC892	Realtek ALC203
USB Port	USB2.0 x 4	USB2.0 x 4
Serial Port	1	COM 1/2
Parallel Port	1	SPP/EPP/ECP x 1
HDD Interface	SATA x 2, PATA x 2 (2 devices)	PATA x 2, SATA 1 x 2
FDD Interface	—	Option
SSD	—	—
Expansion Slot	32-bit PCI x 4 SMBUS x 1 I2C x1 8/16-bit ISA	PCI Express [x1] x3 I2C x 2 SPI x 2, 1 for boot
DIO	—	—
TPM	—	—
Note		

ETX Carrier Boards



Model	ECB-902M
System	
Form Factor	MicroATX
I/O Chipset	Winbond W83977EG-AW
Ethernet	10/100Base-TX, RJ-45 x 1
Expansion Interface	PCI Slot x 2 ISA Slot x 2 Mini PCI slot x 1
Power Supply Type	AT/ ATX
Board Size	9.6" x 9.6" (244mm x 244mm)
Gross Weight	1.32 lb (0.6 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	132,000
Display	
VGA	DB15 connector x 1
LCD	30-pin (15x2) Dual-Channel LVDS connector x 1 40-pin (20x2) TTL connector x 1
I/O	
Storage	PATA connector x 2
Serial Port	RS-232 port x 3 (9-pin Dsub connector x 1 + 5 x 2-pin box header x 2) RS-232/422/485 port x 1 (5x2-pin box header)
Parallel Port	DB-25 connector x 1, supports SPP/ EPP/ ECP mode
USB	Type A connector x 4
PS/2 Port	Keyboard x 1, Mouse x 1
Digital I/O	Supports 8-bit (Programmable)
Audio	Audio jack, supports 2 channel audio
IrDA	One IrDA Tx/Rx header
Note	

Board Level Products

Qseven CPU Modules/ Qseven Carrier Boards

Qseven CPU Modules



Model	AQ7-IMX6	AQ7-BT
System		
Form Factor	Qseven Rev. 2.0	Qseven Rev.2.0
CPU	Freescall® i.MX6 Processor SoC	Intel® Atom™ Processor SoC
CPU Frequency	1.0 GHz (Dual lite), 1.2 GHz(Quad)	up to 1.91 GHz
Chipset	Freescall® i.MX6 Quad 1.0GHz Processor (Automotive) Freescall® i.MX6 Quad 1.2GHz Processor (Commercial) Freescall® i.MX6 Dual Lite 800MHz Processor (Commercial)	Intel® Atom™ E3800 series
Memory Type	Onboard DDR3 1066MHz (Quad) Onboard DDR3 800MHz (Dual lite)	Onboard DDR3L
Max. Memory Capacity	Onboard DDR3 1066MHz, 1GB, up to 2GB (Quad) Onboard DDR3 800MHz, 1GB, up to 2GB (Dual lite)	2GB (Optional to 4 GB)
BIOS	—	AMI BIOS
Wake on LAN	No	No
Watchdog Timer	255 Levels (per level 0.5 sec)	255 Levels
Power Requirement	+5V	+5V
Power Supply Type	AT/ ATX	AT/ ATX
Power Consumption (Typical)	Freescall iMX6 Quad 1.2GHz, DDR3 1GB, eMMC 8 GB, 5.375W (w/ECB-970)	2A@5V, full load, E3845
Dimension	2.75" x 2.75" (70mm x 70mm)	2.75" x 2.75" (70mm x 70mm)
Operating Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C) -40 °F ~ 185 °F (-40 °C ~ 80 °C) WITAS 2	32 °F ~ 140 °F (0 °C ~ 60 °C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	100,000	80,000
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	Freescall® i.MX6 Quad 1.0GHz Processor (Automotive) Freescall® i.MX6 Quad 1.2GHz Processor (Commercial) Freescall® i.MX6 Dual Lite 800MHz Processor (Commercial)	Intel® Atom™ SoC
Video Output	LVDS x 2, HDMI 1.4	24-bit LVDS LCD, DDI x 1
Backlight Inverter Supply	—	—
I/O		
Ethernet	Micrel® KSZ9021RNI, 10/1000/1000Base-TX	Intel® I210IT, 10/1000/1000Base-TX
Audio	I2S x 1	High Definition Audio Interface
USB Port	USB2.0 x 5 (Shared with USB OTG client x 1)	USB2.0 x 6, USB3.0 x 1
Serial Port	4-Wire UART x 1	4-Wire UART x 1, 2-wire UART x 1
Parallel Port	—	—
HDD Interface	SATA 3.0GB/s x 1 (Quad)	SATA x 1, onboard SSD x 1 (optional)
FDD Interface	—	—
SSD	eMMC x 1 (optional)	Optional
Expansion Slot	PCI Express [x1] x 1, CAN Bus x 1, I2C x 1, SDIO x 1	PCI Express [x1] x 3 LPC Bus x 1 (shared with GPIO) SMBus x 2
DIO	8 bit	GPIO 8 bit (shared w/ LPC, optional)
TPM	—	—
Note		

Qseven Carrier Boards



Model	ECB-970-A10	ECB-970-A10-01
System	X86 (A10)	ARM (A10-01)
Form Factor	Micro ATX	Micro ATX
I/O Chipset	—	—
Ethernet	10/100/1000Base-TX, RJ-45 x 1 (From CPU module)	10/100/1000Base-TX, RJ-45 x 1 (From CPU module)
Expansion	Interface PCI-E [x4] x 1(For Super I/O Card only), LPC Connector x 1	PCI-E [x1] x 1
Power Requirement	+5V DC	+5V DC
Power Consumption (Typical)	—	3~5 Watt @5V
Board Size	9.65" x 9.65" (243.84mm x 243.84mm)	9.65" x 9.65" (243.84mm x 243.84mm)
Gross Weight	1.32 lb (0.6 kg)	1.32 lb (0.6 kg)
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	75,000	75,000
Display		
DVI/CRT	—	—
LVDS	18-bit Single Channel LVDS	24-bit Dual-Channel LVDS
DDI	—	LVDS x 2, eDP x 2, HDMI x 1
I/O		
Storage	SATA x 2, SDIO x 1	SATA 2 x 1
Serial Port	RS-232 x 1, RS-232/422/485 x 1	One, For debug only
Parallel Port	—	—
USB	USB2.0 x 8, USB3.0 x 2	USB2.0 x 5 (one shared with USB OTG)
PS/2 Port	—	—
I2C	—	1
Audio	Line-out, Microphone	Headphone
Debug LED	Port 80	—
Note		

Board Level Products

SMARC CPU Module



SMARC Carrier Board



SMARC CPU Module/ SMARC Carrier Board/ Industrial Motherboards

Model	uCOM-BT	Model	ECB-960T
System		System	
Form Factor	SMARC Version 1.1	Form Factor	Mini-ITX form Factor (170mm x 170mm)
CPU	Intel® Atom™ SoC Processor	I/O Chipset	—(Legacy Support)
CPU Frequency	up to 1.91 GHz	Ethernet	10/100/1000Base-TX, RJ-45 x 1 (From CPU module)
Chipset	Intel® Atom™ E3800 series	Expansion Interface	PCI-Express [x1] x 3 via adapter card
Memory Type	Onboard DDR3L	Power Consumption (Typical)	—
Max. Memory Capacity	2 GB (optional to 4 GB)	Power Requirement	+12V DC; +8~20VDC-in on separate connector
BIOS	AMI BIOS	Board Size	6.69" x 6.69" (170mm x 170mm)
Wake on LAN	—	Gross Weight	—
Watchdog Timer	255 Levels	Operation Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C)
Power Requirement	Normal: 3.3V - 5V	Storage Temperature	-4 °F ~ 158 °F (-20 °C ~ 70 °C)
Power Supply Type	AT/ ATX	Operation Humidity	10% ~ 80% relative humidity, non-condensing
Power Consumption (Typical)	0.7A@12V, full load, E3845	MTBF	80,000
Dimension	3.23" x 1.96" (82 x 50 mm)	Display	
Operating Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C) -40 °F ~ 185 °F (-40 °C ~ 80 °C) WITAS 2	LVDS	18/24-bit Single channel LVDS
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	I/O	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	Storage	SATA x 1, microSD card x 1
MTBF (Hours)	80,000	Serial Port	2-wire x 1, 4-wire x 1
Certification	CE/FCC	USB	USB port 3.0 x 1 USB port 2.0 x 5 (Port 0 for client only)
Display		I2C	Client mode
VGA/LCD Controller	Intel® Atom™ SoC	Audio	Line-in, Line-out, Microphone
Video Output	24-bit LVDS LCD, HDMI		
Backlight Inverter Supply	—		
I/O			
Ethernet	Intel® I211AT, 10/1000/1000Base-TX		
Audio	HD Audio x 1		
USB Port	USB3.0 x 1, USB2.0 x 3		
Serial Port	UART x 2 (1 for Tx/Rx/RTS#/ CTS#; 1 for Tx/Rx)		
Parallel Port	—		
HDD Interface	SATA x 2		
FDD Interface	—		
SSD	Optional for onboard eMMC up to 64GB		
Expansion Slot	PCI Express [x1] x 3 I2C, SMBus x 1, SDIO SPI x 2, SPI 0 for boot only	Note	
DIO	GPIO, 11-bit		
TPM	—		
Touch	—		
Note			

Industrial Motherboards



Model	NITX-SKL1	NITX-BD1
System		
Processor	6th gen. Intel® 14nm ULT Core™, BGA CPU, 15W TDP: i7-6600U/ i5-6300U/ i3-6100U/ Celeron®	5th gen. Intel® 14nm ULT i7-5650U/ i5-5350U/ i3-5010U, BGA CPU, 15W TDP.
Chipset	Integrate into SoC	Integrate into SoC
Memory	SODIMM x 2, max. 16GB, DDR4 2133/1867 MHz, non-ECC, un-buffered memory	SODIMM x 2, max. 16GB, DDR3L 1600 MHz, non-ECC, un-buffered memory
I/O Chipset	NCT5538D	NCT5538D
Ethernet	Realtek 8111G Gigabit Ethernet x 2, RJ-45 x 2	Realtek 8111G Gigabit Ethernet x 2, RJ-45 x 2
Audio	Realtek® ALC887	Realtek® ALC887
TPM	—	—
Expansion Slots	M.2 2280 M-Key slot x 1 (PCIex4 + SATA) M.2 2230 E-Key slot x 1 (PCIe + USB), default PCIe	M.2 slot (M-key) x 1, length: 60mm (mSATA coloy LVDS), auto detect, Mini-Card half size (USB+PCIe+mSATA) x 1, default USB+PCIe, mSATA BOM change
BIOS	128Mbit Flash ROM, AMI BIOS	128M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System Voltage Monitor on Vcore/5V/3.3V/12V Fan Monitor on Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/ 5V/ 3.3V/ 12V, Fan Monitor on Chassis
WatchDog Timer	1~255 steps by software program	1~255 steps by software program
Smart Fan Control	Chassis Fan	Chassis Fan
Wake On LAN/ PXE	Yes (WOL / PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	Integrated Graphics	Integrated Graphics, LVDS via Chrontel CH7511, support by add on M2 module
Graphics Multi Display	HDMI+HDMI	DP1+DP2+LVDS, DP1+DP2, LVDS+DP1, LVDS+DP2
HDMI	HDMI 1.4 up to 4096x2160@24Hz	—
Display Port	—	DP 1.2a (U): 3840 x 2160, (H): 4096 x 2304
LVDS	—	1920 x 1200
Backlight Control	—	Yes
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	DC Power x 1 (DC: 12V~19V, wide rage:12V-5%~ 19V+10%)	DC power jack x 1 (DC: 12V~19V, wide rage: 12V-5%~ 19V+10%)
Operating Temperature	FANLESS : 0°C~40°C, FAN : 0°C~50°C	32°F ~ 131°F (0°C ~ 50°C)
Storage Temperature	—	-40°F ~185°F (-40°C ~85°C)
Operating Humidity	20%~90%RH, non-condensing	20% ~ 90% RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	NANO ITX: 4.72" x 4.72" (120mm x 120mm)	NANO ITX: 4.72" x 4.72" (120mm x 120mm)
MTBF (Hours)	—	434,910
I/O		
Front Panel I/O Ports	USB3.0 port x 2 Audio Jack x 2: Line-out (green), Mic-in(pink) COM port RS-232 On/Off Button x 1, Power LED + HD LED x 1	USB3.0 port x 2, USB2.0 port x 2, USB header support USB2.0 port x 1 (p=2.00mm) Audio jack x 2: Line-out (green), Mic-in (pink) On/Off Button x 1, Power LED + HD LED x 1
Rear Panel I/O Ports	USB3.0 port x 2 HDMI Connector x 2 RJ-45 connector x 2 Reset Switch x 1, DC power jack x 1	USB3.0 port x 2 DP connector x 2 RJ-45 connector x 2 Reset Switch x 1, DC power jack x 1
Internal I/O Connectors	M.2 2280 M-Key slot x 1 for SATA Chassis Fan connector x 1 (3-pin, p=2.00mm) Reset Switch 2-pin header x 1, power button 2-pin header x 1, M.2 2230 E-Key slot x 1	SATA 6.0 Gb/s port x 1, M.2 slot for mSATA x 1 (optional) USB header support USB2.0 port x 1 (p=2.00mm) LVDS connector x 1, support by add on M.2 module COM port header x 1, p=1.25mm (RS-232) Chassis Fan connector x 1 (3-pin, p=2.00mm) SATA power connector x 1, support by add on M.2 module, int. 2-pin reset switch x 1, int. 2-pin power switch x 1, Mini-Card half size x 1 (USB+PCIe+mSATA, default USB+PCIe, mSATA BOM change), LVDS inverter x 1, support by add on M.2 module
OS		
OS Support	Windows® 7 32-bit, Windows® 7 64-bit, Windows® 8.1 64-bit, Windows® 10 64-bit, Linux Fedora® 22	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Windows® 10 64-bit, Linux Feder
Note		

Board Level Products

Industrial Motherboards



Model	EMB-APL1	EMB-BT1
System		
Processor	Intel® N4200/N3350 Processor	Intel® Atom™ J1900/N2807/E3845/E3825 Processor
Chipset	Integrate into SoC	—
Memory	DDR3L 1333/1600/1867MHz SODIMM x 2, max. 8GB, non-ECC, un-buffered memory	DDR3L 1333 MHz SODIMM x 2 up to 8 GB (for J1900 / E3845), DDR3L 1333 MHz SODIMM x 1 up to 4 GB (for N2807), DDR3L 1067 MHz SODIMM x 1 up to 4 GB (for E3825), Non-ECC, un-buffered memory, Dual-channel memory architecture flat type
I/O Chipset	F81866D	Fintech 81866D
Ethernet	Realtek PCIe Gigabit Ethernet 8111G x 2	Realtek PCIe Gigabit Ethernet 8111G x 2
Audio	Realtek® ALC3236-CG	Realtek® ALC887
TPM	Nuvoton NPCT650ABAYX TPM2.0 (default: No)	Infineon SLB9635 TT 1.2 (default : No)
Expansion Slots	PCIe [x1] x 1, M.2 M key (22 x 42mm) x 1, for SATA, M.2 E Key (22 x 30mm) x 1, for PCIe	Full-size Mini-Card (mSATA default) (PCIe+USB optional) + SIM Card (default: No) x 1, Half-size Mini-Card (PCIe+USB) x 1, PCIe [x1] x 1
BIOS	128M bit Flash ROM x 1, AMI BIOS	64 M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	1~255 steps by software program
Smart Fan Control	Chassis Fan (Fanless)	Chassis Fan (fanless)
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics
Graphics Multi Display	3 independent display	VGA+LVDS, VGA+HDMI, LVDS+HDMI
VGA	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @60 Hz
HDMI	Up to 3840 x 2160 @30Hz	Up to 1920 x 1200 @60 Hz
LVDS	Up to 1920 x 1080 @60Hz, Daul Channel 18/24 bit (via PS8625) (colay with eDP)	Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)
eDP	Up to 4096 x 2160 @60Hz	—
Backlight Control	Voltage / PWM	Voltage / PWM
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	12V~24V wide-range voltage input back panel DC jack x 1; 4-pin ATX 12V Power connector x 1	12VDC
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% RH, non-condensing	0% ~ 90%RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)
Weight	1.1 lb (0.5 Kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	—	111,131
I/O		
Rear Panel I/O Ports	USB3.0 x 2, USB2.0 x 2, HDMI x 1, VGA x 1, Mic-in, Line-out x 1, LAN (RJ-45) x 2, DC power jack x 1	USB3.0/2.0 x 1, USB2.0 x 2, VGA x 1, HDMI x 1, Line-out x 1, LAN (RJ-45) port x 2, COM (RS-232)(optional) x 1, DC port (12V) Screw type x 1
Internal I/O Connectors	SATA 6.0Gb/s x 2 (1 colay with M.2), M.2 M key (22 x 42mm) x 1, USB2.0 headers support additional 3 USB ports (2*5PIN, p=2.00mm) x 2, 40-pin LVDS/eDP connector x 1 (default eDP), RS-232/422/485 x 1, RS-232 x 5, PS/2 header x 1, 8-bit x 1 (In/Out programmable), 4-pin Chassis Fan x 1, Front panel header x 1, Clear CMOS jumper x 1, AT/ATX mode select jumper (optional) x 1, SATA power connector x 1, M.2 E key (22 x 30mm) for PCIe x 1	SATA3 (6.0Gb/s) x 2, SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), SATA power connector x 1, Full Size Mini-Card slot (mSATA) x 1, USB2.0 (2x5PIN, 2.54mm) x 2 ports support additional 4 USB, USB2.0 (1x 5PIN, 2.0mm) x 1 port supports additional 1 USB, LVDS connector x 1, LVDS 3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1, AAFP x 1, Boxer header for COM (RS-232) x 4, Boxer header for COM (RS-232/422/485) x 1, PS/2 Keyboard Mouse 6 PIN Connector x 1, SPP/EPP Mode, DIO (4in/4out) x 1, Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (default : No) x 1, Half-size Mini-Card (PCIe + USB) x 1, PCIe [x1] x 1, SIM Card Socket(default : No) x 1, LPT PIN header x 1, Front Panel connector x 1, CMOS jumper x 1
OS		
OS Support	Windows® 10 64-bit, Linux Fedora	Windows® 10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora
Note		

Industrial Motherboards



Model	EMB-BT2	EMB-BT4
System		
Processor	Intel® Atom™ J1900 Processor	Intel® Atom™ J1900/N2807 Processor
Chipset	—	—
Memory	DDR3L 1333 MHz SODIMM x 1 up to 8 GB, Non-ECC, un-buffered memory	DDR3L 1333 MHz SODIMM x 2 up to 8 GB (for J1900), DDR3L 1333 MHz SODIMM x 1 up to 4 GB (for N2807), Non-ECC, un-buffered memory, Dual-channel memory architecture flat type
I/O Chipset	Fintech 81866D	Fintech 81866D
Ethernet	Realtek PCIe Gigabit Ethernet 8111G x 2	Realtek PCIe Gigabit Ethernet 8111G x 1
Audio	Realtek® ALC887 (colay ALC892/886)	Realtek® ALC887 (colay ALC892/886)
TPM	Infineon SLB9635 TT 1.2 (default : No)	Infineon SLB9635 TT 1.2 (default : No)
Expansion Slots	Full-size Mini-Card (mSATA default PCIe+USB optional) x 1, PCIe [x1] x 1	Full-size Mini-Card (mSATA default) (PCIe+USB optional) + SIM Card (default: No) x 1, Half-size Mini-Card (PCIe+USB) x 1
BIOS	64 M bit Flash ROM, AMI BIOS	64 M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1–255 steps by software program	1–255 steps by software program
Smart Fan Control	Chassis Fan (fanless)	Chassis Fan (fanless)
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics
Graphics Multi Display	VGA+LVDS, Dual LVDS	VGA+LVDS, VGA+HDMI, LVDS+HDMI
VGA	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz
HDMI	—	Up to 1920 x 1200 @60 Hz
LVDS	Dual LVDS, Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)	Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)
Backlight Control	Voltage / PWM	Voltage / PWM
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	ATX	12VDC
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ -185°F (-40°C ~ -85°C)	-40°F ~ -185°F (-40°C ~ -85°C)
Operation Humidity	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
Weight	1.1 lb (0.5 Kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	290,990	295,750
I/O		
Rear Panel I/O Ports	USB2.0 x 6, VGA x 1, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, COM (RS-232/422/485) x 1, COM (RS-232) x 2, PS/2 Keyboard Mouse combo x 1	USB3.0/2.0 x 1, USB2.0 x 2, HDMI x 1, Line in x 1, Line-out x 1, LAN (RJ-45) port x 1, COM (RS-232) x 1, DC port (12V) Screw type x 1
Internal I/O Connectors	SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), Full size Mini-Card slot (mSATA) x 1, USB2.0 (2x5PIN, 2.54mm) x 2 ports support additional 4 USB, LVDS connector x 2, LVDS 3V /5V jumper x 2, LCD DC / PWM mode jumper x 2, LCD backlight connector (inverter) x 2, LCD backlight 12V /5V jumper x 2, LCD push button for backlight control (2PIN) x 2, AAFP x 1, Speaker x 1, Boxer header for COM (RS-232) x 3, DIO (4in/4out) x 1, Chassis Fan connector x 1, 2 4PIN ATX power connector x 1, AT/ATX mode select jumper (default : No) x 1, Front Panel connector x 1, CMOS jumper x 1	SATA3 (6.0Gb/s) x 2, SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), SATA power connector x 1, Full size Mini-Card slot (mSATA) x 1, USB2.0 (2x5PIN, 2.54mm) x 2 ports support additional 4 USB, USB2.0 (1x 5PIN, 2.0mm) x 1 port supports additional 1 USB, VGA pin header x 1, LVDS connector x 1, LVDS 3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1, AAFP x 1, Boxer header for COM (RS-232) x 4, Boxer header for COM (RS-232/422/485) x 1, PS/2 Keyboard Mouse 6 PIN Connector x 1, SPP/EPP Mode, DIO (4in/4out) x 1, Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (default : No) x 1, Half-size Mini-Card (PCIe + USB) x 1, SIM Card Socket (default: No) x 1, LPT PIN header x 1, Front Panel connector x 1, CMOS jumper x 1
OS		
OS Support	Windows® 10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux	Windows® 10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora
Note		

Board Level Products

Industrial Motherboards



Model	EMB-BT7	EMB-BSW1
System		
Processor	Intel® Atom™ E3845 Processor	Intel® Atom™ N3710 /N3060 Processor
Chipset	—	—
Memory	DDR3L 1333 MHz SODIMM x 1 up to 8 GB, ECC, un-buffered memory, flat type	DDR3L 1333/1600 MHz SODIMM x 2 up to 8 GB, Non-ECC, un-buffered memory, Dual-channel memory architecture flat type
I/O Chipset	Fintech 81866D	F81866D
Ethernet	Realtek PCIe Gigabit Ethernet 8111G x 2	Intel® i211AT x 2
Audio	Realtek® ALC887 (colay ALC892/886)	Realtek® ALC3236
TPM	Infineon SLB9635 TT 1.2 (default : No)	Infineon SLB96XX TT 1.2/2.0 (default: No)
Expansion Slots	Full-size Mini- Card (mSATA default) (PCIe+USB optional) + SIM Card (default: No) x 1, Half-size Mini-Card (PCIe+USB) x 1, PCIe [x1] x 1	Full-size Mini-Card (mSATA default) (PCIe+USB optional)x 1, Half-size Mini-Card (PCIe+USB) x 1
BIOS	64 M bit Flash ROM, AMI BIOS	64 M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on Chassis
WatchDog Timer	1–255 steps by software program	1–255 steps by software program
Smart Fan Control	Chassis Fan (fanless)	Chassis Fan (fanless)
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics
Graphics Multi Display	VGA+LVDS, VGA+HDMI, LVDS+HDMI	Three independent displays
VGA	Up to 1920 x 1200 @60 Hz	—
DVI	—	—
HDMI	Up to 1920 x 1200 @60 Hz	Up to 2560 x 1600 @60 Hz, 3840 x 2160 @30Hz
Display Port	—	Up to 2560 x 1600 @60 Hz, 3840 x 2160 @30Hz, 3840 x 2160 @30 Hz
LVDS	Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)	Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)
eDP	—	Up to 2560 x 1440 @60Hz
Backlight Control	Voltage / PWM	Voltage / PWM, use HW control
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	12VDC	12-24V DC (wide range: 12V-5% ~ 24V +10%)
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~131°F (0°C ~55°C)
Storage Temperature	-40°F ~-185°F (-40°C ~-85°C)	-40°F ~-185°F (-40°C ~-85°C)
Operation Humidity	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
Weight	1.1 lb (0.5 Kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	283,770	229,000
I/O		
Rear Panel I/O Ports	USB3.0/2.0 x 1, USB2.0 x 2, VGA x 1, HDMI x 1, Line-out x 1, LAN (RJ-45) port x 2, COM (RS-232) x 1, DC port (12V) Screw type x 1	USB3.0 x 2, HDMI x 2, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, DC port (12V-24V) Screw type x 1
Internal I/O Connectors	SATA3 (6.0Gb/s) x 2, SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), SATA power connector x 1, Full size Mini-Card slot (mSATA) x 1, USB2.0 (2x5PIN, 2.54mm) x 2 ports support additional 4 USB, USB2.0 (1x 5PIN, 2.0mm) x 1 port supports additional 1 USB, LVDS connector x 1, LVDS 3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V/5V jumper x 1, AAFP x 1, Boxer header for COM (RS-232) x 4, Boxer header for COM (RS-232/422/485) x 1, PS/2 Keyboard Mouse 6 PIN Connector x 1, SPP/EPP Mode, DIO (4in/4out) x 1, Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (default:No) x 1, Half-size Mini-Card (PCIe + USB) x 1, PCIe [x1] x 1, SIM Card Socket (default : No) x 1, LPT PIN header x 1, Front Panel connector x 1, CMOS jumper x 1	SATA3 (6.0Gb/s) x 3, SATA power connector x 1, Full Size Mini-Card (mSATA) x 1, USB3.0 (2x10PIN, 2.00mm) x 1 port supports additional 2 USB, USB2.0 (2x5PIN, 2.00mm) x 3 ports support additional 6 USB, LVDS connector (40PIN, default) x 1, eDP connector (colay with LVDS, optional) x 1, LVDS 3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V/5V jumper x 1, Speaker x 1, Boxer header for COM (RS-232) x 5, Boxer header for COM (RS-232/422/485) x 1, PS/2 Keyboard Mouse 6 PIN Connector x 1, DIO (4-in/4-out) x 1, Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1, Front Panel connector x 1, CMOS jumper x 1
OS		
OS Support	Windows®10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora	Windows®10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora

Industrial Motherboards



Model	EMB-BSW2 new	EMB-Q170A
System		
Processor	Intel® Atom™ N3060 Processor, (2C, ~6W TDP)	Intel® 6th Generation Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs
Chipset	Integrate into SoC	Intel® Q170
Memory	DDR3L 1333/1600 MHz SODIMM x 1 up to 8 GB, Non-ECC, un-buffered memory	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture
I/O Chipset	F81866D	NCT6791D
Ethernet	Realtek 8111G x 2	Intel® PCIe Gigabit Ethernet 219LM x 1, Intel® PCIe Gigabit Ethernet i211AT x 1
Audio	Realtek® ALC3236-VB2-CG	Realtek® ALC887
TPM	Nuvoton NPCT650ABAYX TPM2.0 onboard (default: No)	Infineon SLB96XX TT 1.2/2.0 (default: No)
Expansion Slots	M.2 M key (2242/2280) for SATA (default:2280) x 1, Full-size Mini Card(PCle +USB) x 1, PCIe [x1] x 1	PCIe [x16] x 1, M.2 M-key (22x80mm) at bottom side x 1
BIOS	128M bit Flash ROM, AMI BIOS	128M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	1~255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan	CPU Fan/ Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics
Graphics Multi Display	—	DP+DP, DP+VGA, DP+DP+VGA, DP+DP+DP
VGA	—	Up to 1920 x 1200 @60 Hz
DVI	Up to 1920 x 1200 @60 Hz	—
HDMI	—	—
Display Port	—	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio
LVDS	—	—
eDP	—	—
Backlight Control	Voltage / PWM, use HW control	—
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	12V DC	ATX
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~140°F (0°C ~ 60°C)
Storage Temperature	—	-40°F ~185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
Weight	1.1 lb (0.5 Kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	—	221,850
I/O		
Rear Panel I/O Ports	USB 3.0 x 4, VGA x 1, DVI-I x 1, Mic-in x 1, Line in x 1, Line-out x 1, RJ-45 x 2, COM (RS-232/422/485) x 1, COM (RS-232) x 1, DC Jack x 1	USB3.0 x 4, USB2.0 x 2, VGA x 1, DP x 3 Mic-in x 1, Line-out x 1 LAN (RJ-45) port x 2, PS/2 for KB/MS x 1
Internal I/O Connectors	SATA3 x 1, M.2 M key (2242/2280) for SATA (default:2280) x 1, USB 2.0 x 2, LVDS x 1, Speaker x 1, COM (RS-232) x 3, PS/2 Port x 1, 8-bit programmable (4-in/4-out) x 1, Chassis Fan x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1, Front Panel x 1, CMOS jumper x 1	SATA3 (6.0Gb/s) x 2, SATA power connector x 1, M.2 M-key(22 x 80mm) at bottom side x 1, USB2.0 (2x5PIN, 2.00mm) x 2 ports support additional 4 USB, Speaker x 1, Bower header for COM (RS-232/422/485) x 1, Bower header for COM (RS-232) x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer Onboard x 1, CMOS jumper x 1
OS		
OS Support	Windows®10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora	Windows®10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora
Note		

Board Level Products

Industrial Motherboards

Industrial Motherboards



Model	EMB-Q170B	EMB-Q170C
System		
Processor	Intel® 6th Generation Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs	Intel® 6th Generation Core™ i7/i5/i3, LGA 1151 socket Processor, Max. 65W TDPs
Chipset	Intel® Q170	Intel® Q170
Memory	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture
I/O Chipset	NCT6791D	NCT6791D
Ethernet	Intel® PCIe Gigabit Ethernet 219LM for vPro x 1, Intel® PCIe Gigabit Ethernet 211AT x 1	Intel® PCIe Gigabit Ethernet 219LM for vPro x 1, Intel® PCIe Gigabit Ethernet i211AT x 1
Audio	Realtek® ALC887	Realtek® ALC887 with Amp.
TPM	Infineon SLB96XX TT 1.2/2.0 (default: No)	Infineon SLB9665 TT 2.0 (optional)
Expansion Slots	PCIe [x4] x 1, M.2 M key (22 x 80mm) at Bottom side x 1, M.2 E key (22 x 30mm) at Top side x 1	PCIe [x8] x 1, M.2 E-key (22x30mm) for PCIe x 1
BIOS	128M bit Flash ROM, AMI BIOS	128Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore 5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1–255 steps by software program	1–255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan	CPU Fan/Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics
Graphics Multi Display	2DP + LVDS, DP + eDP + LVDS, 2DP + eDP	VGA + HDMI + HDMI
VGA	—	Up to 1920 x 1200 @ 60 Hz
DVI	—	—
HDMI	—	Up to 4096 x 2160 @24 Hz; 3840 x 2160 @60 Hz, with Digital Audio
Display Port	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	—
LVDS	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit	—
eDP	UP to 4096 x 2340 @60Hz	—
Backlight Control	Voltage / PWM	—
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	12VDC	ATX
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	0°C ~ 60°C
Storage Temperature	-40°F ~ 185°F (-40°C ~85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% RH, non-condensing	0%~90% R/H, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)
Weight	1.1 lb (0.5 Kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	292,450	282,880
I/O		
Rear Panel I/O Ports	USB3.0 x 4, DP x 2, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, DC Jack x 1	USB3.0 x 4, VGA x 1, HDMI x 2, Mic-in x 1, Line out x 1, LAN (RJ45) port x 2
Internal I/O Connectors Others	SATA3 (6.0Gb/s) x 4, SATA power connector x 1, M.2 M key (22 x 80mm) at Bottom side x 1, M.2 E key (22 x 30mm) at Top side x 1, USB2.0 (2x5PIN, 2.00mm) x 3 ports support additional 6 USB, 40-pin LVDS connector x 1, 40-pin eDP connector x 1, LVDS 3.3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1, AAFP x 1, Speaker x 1 (pin out refer to manual), Boxer header for COM (RS-232/422/485) x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer Onboard (pin header) x 1, CMOS jumper x 1	SATA3 (6.0Gb/s) x 6, SATA power connector x 1, USB3.0 (2x10-PIN, 2.00mm) x 1 port supports additional 2 USB, Speaker x 1, *4 PIN CPU Fan connector x 1, 4 PIN Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1, M.2 E-key(22x30mm) for PCIe x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer Onboard x 1, CMOS jumper x 1
OS		
OS Support	Windows®10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora	Windows® 7 32/64-bit, Windows® 8.1 64-bit, Windows® 10 64-bit, Linux, Fedora (Ubuntu)
Note		

Industrial Motherboards



Model	EMB-H110B	EMB-Q87A
System		
Processor	Intel® 6th Generation Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs	Intel® 6th Generation Core™ i7/ i5/ i3, LGA 1151 socket Processor, Max. 65W TDPs
Chipset	Intel® H110	Intel® Q170
Memory	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture
I/O Chipset	NCT6791D	NCT6791D
Ethernet	Realtek PCIe Gigabit Ethernet 8111G x 2	Intel® PCIe Gigabit Ethernet 219LM for vPro x 1, Intel® PCIe Gigabit Ethernet I211AT x 1
Audio	Realtek® ALC887	Realtek® ALC887 with Amp.
TPM	Infineon SLB96XX TT 1.2/2.0 (default: No)	Infineon SLB9665 TT 2.0 (optional)
Expansion Slots	PCIe [x1] x 1, Full-size Mini-Card (mSATA default) (PCIe+USB optional)x 1, Half-size Mini-Card (PCIe+USB) x 1	PCIe [x8] x 1, M.2 E-key (22x30mm) for PCIe x 1
BIOS	64 M bit Flash ROM, AMI BIOS	128Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	1~255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan	CPU Fan/Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	—	Intel® HD Graphics
Graphics Multi Display	HDMI1+HDMI2, HDMI1+DP2, DP1+HDMI2, HDMI1+LVDS, HDMI2+LVDS, HDMI1+eDP, HDMI2+eDP, DP1+DP2, DP1+LVDS, DP2+LVDS, DP1+eDP, DP2+eDP	VGA + HDMI + HDMI
VGA	—	Up to 1920 x 1200 @ 60 Hz
DVI	—	—
HDMI	Up to 4096 x 2160 @24 Hz / 2560 x 1600 @60 Hz, with Digital Audio (HDMI/ DP Combo)	Up to 4096 x 2160 @24 Hz ; 3840 x 2160 @60 Hz, with Digital Audio
Display Port	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio (HDMI/ DP Combo)	—
LVDS	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit colay	—
eDP	Up to 4096 x 2340 @60Hz	—
Backlight Control	Voltage / PWM	—
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	12VDC	ATX
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	0°C ~ 60°C
Storage Temperature	-40°F ~185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90%RH, non-condensing	0%~90% R/H, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)
Weight	1.1 lb (0.5 Kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	315,210	282,880
I/O		
Rear Panel I/O Ports	USB3.0 x 4, DP/HDMI (BOM Change) x 2, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, DC Jack x 1	USB3.0 x 4, VGA x 1, HDMI x 2, Mic-in x 1, Line out x 1, LAN (RJ45) port x 2
Internal I/O Connectors	SATA3 (6.0Gb/s) x 2, Full Size Mini-Card (mSATA) x 1, SATA power connector x 1, USB2.0 (2x5PIN, 2.00mm) x 2 ports support additional 4 USB, 40-pin LVDS connector x 1, 40-pin eDP connector x 1, LVDS 3.3V/5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1, AAFP x 1, Speaker x 1, Boxer header for COM (RS-232/422/485) x 1, Boxer header for COM (RS-232) x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer Onboard (pin header) x 1, CMOS jumper x 1	SATA3 (6.0Gb/s) x 6, SATA power connector x 1 USB3.0 (2x10-PIN, 2.00mm) x 1 port supports additional 2 USB, Speaker x 1, 4 PIN CPU Fan connector x 1, 4 PIN Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1, M.2 E-key(22x30mm) for PCIe x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer Onboard x 1, CMOS jumper x 1
OS		
OS Support	Windows®10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora	Windows® 7 32/64-bit, Windows® 8.1 64-bit, Windows® 10 64-bit, Linux, Fedora (Ubuntu)
Note		

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

Industrial Motherboards



Model	EMB-Q87B	EMB-H81A
System		
Processor	Intel® 4th Gen. Core™ i Series 22nm LGA1150 socket Processor, Max. 65W TDPs	Intel® 6th Generation Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs
Chipset	Intel® Q87	Intel® H110
Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Dual-channel memory architecture (flat type)	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture
I/O Chipset	NCT6791D	NCT6791D
Ethernet	Intel® PHY I217LM Gigabit Ethernet x 1, Intel® I210AT Gigabit Ethernet x 1	Realtek PCIe Gigabit Ethernet 8111G x 2
Audio	Realtek® ALC887	Realtek® ALC887
TPM	Infineon SLB9655 TT 1.2 (default: No)	Infineon SLB96XX TT 1.2/2.0 (default: No)
Expansion Slots	Full-size Mini-Card x 1 (mSATA default) (PCIe+USB optional, selected by jumper), Half-size Mini-Card x1 (PCIe+USB default) (mSATA optional, selected by jumper).	PCIe [x1] x 1, Full-size Mini-Card (mSATA default) (PCIe+USB optional)x 1, Half-size Mini-Card (PCIe+USB) x 1
BIOS	128M bit Flash ROM, AMI BIOS	64 M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore 5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	1~255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan	CPU Fan/ Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	Intel® HD Graphics	—
Graphics Multi Display	DP, DP+DP, DP+DP+DP	HDMI1+HDMI2, HDMI1+DP2, DP1+HDMI2, HDMI1+LVDS, HDMI2+LVDS, HDMI1+eDP, HDMI2+eDP, DP1+DP2, DP1+LVDS, DP2+LVDS, DP1+eDP, DP2+eDP
VGA	—	—
DVI	—	—
HDMI	—	Up to 4096 x 2160 @24 Hz / 2560 x 1600 @60 Hz, with Digital Audio (HDMI/DP Combo)
Display Port	Up to 3840 x 2160 @60 Hz, with Digital Audio	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio (HDMI/DP Combo)
LVDS	—	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit colay
eDP	—	UP to 4096 x 2340 @60Hz
Backlight Control	—	Voltage / PWM
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	12-24V DC (wide rage:12V-5%~ 24V+10%)	12VDC
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	32°F ~140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	-40°F ~185°F (-40°C ~85°C)
Operation Humidity	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
Weight	1.1 lb (0.5 Kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	48,944	315,210
I/O		
Rear Panel I/O Ports	USB3.0 x 4, DP x 3, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2	USB3.0 x 4, DP/HDMI (BOM Change) x 2, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, DC Jack x 1
Internal I/O Connectors	SATA3 (6.0Gb/s) x 4, SATA power connector x 1, Full Size Mini-Card (mSATA) x 1, USB2.0 (2x5PIN, 2.00mm) x 3 ports support additional 6 USB, USB2.0 vertical connectors x 2, AAFP x 1, Boxer header for COM (RS-232) x 2, PS/2 Keyboard Mouse 6 PIN Connector x 1, Digital I/O header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1, Front Panel connector x 1, Chassis Intrusion x 1, CMOS jumper x 1	SATA3 (6.0Gb/s) x 2, Full Size Mini-Card (mSATA) x 1, SATA power connector x 1, USB2.0 (2x5PIN, 2.00mm) x 2 ports support additional 4 USB, 40-pin LVDS connector x 1, 40-pin eDP connector x 1, LVDS 3.3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1, AAFP x 1, Speaker x 1, Boxer header for COM (RS-232/422/485) x 1, Boxer header for COM (RS-232) x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer Onboard (pin header) x 1, CMOS jumper x 1
OS		
OS Support	Windows®10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora	Windows®10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora
Note		

Industrial Motherboards



Model	EMB-H81B	EMB-QM87A
System		
Processor	Intel® 6th Generation Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs	Intel® 4th Gen. Core™ i Series 22nm LGA1150 socket Processor, Max. 65W TDPs
Chipset	Intel® H110	Intel® Q87
Memory	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	DDR3 1333/1600 MHz SODIMM x 2, up to 16GB, Non-ECC, Dual-channel memory architecture (flat type)
I/O Chipset	NCT6791D	NCT6791D
Ethernet	Realtek PCIe Gigabit Ethernet 8111G x 2	Intel® PHY I217LM Gigabit Ethernet x 1, Intel® I210AT Gigabit Ethernet x 1
Audio	Realtek® ALC887	Realtek® ALC887
TPM	Infineon SLB96XX TT 1.2/2.0 (default: No)	Infineon SLB96XX TT 1.2/2.0 (default: 1.2)
Expansion Slots	PCIe [x1] x 1, Full-size Mini-Card (mSATA default) (PCIe+USB optional) x 1, Half-size Mini-Card (PCIe+USB) x 1	PCIe [x4] x 1, Full-size Mini-Card x 1 (mSATA default) (PCIe+USB optional, selected by BIOS), Half-size Mini-Card x 1 (PCIe+USB default, selected by BIOS).
BIOS	64 M bit Flash ROM, AMI BIOS	128M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore 5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	1~255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan	CPU Fan/ Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	—	Intel® HD Graphics
Graphics Multi Display	HDMI1+HDMI2, HDMI1+DP2, DP1+HDMI2, HDMI1+LVDS, HDMI2+LVDS, HDMI1+eDP, HDMI2+eDP, DP1+DP2, DP1+LVDS, DP2+LVDS, DP1+eDP, DP2+eDP	VGA+HDMI, VGA+DP, VGA+LVDS, HDMI+DP, HDMI+LVDS, DP+LVDS, VGA+HDMI+DP, VGA+HDMI+LVDS, HDMI+DP+LVDS, VGA+DP+LVDS
VGA	—	Up to 1920 x 1200 @60 Hz
DVI	—	—
HDMI	Up to 4096 x 2160 @24 Hz / 2560 x 1600 @60 Hz, with Digital Audio (HDMI/ DP Combo)	Up to 4096 x 2160 @24 Hz; 3840 x 2160 @60 Hz, with Digital Audio
Display Port	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio (HDMI/ DP Combo)	Up to 4096 x 2160 @24 Hz; 3840 x 2160 @60 Hz, with Digital Audio
LVDS	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit colay	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit
eDP	UP to 4096 x 2340 @60Hz	—
Backlight Control	Voltage / PWM	Voltage / PWM
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	12VDC	12-24V DC (wide rage:12V-5%~24V+10%)
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	32°F ~140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	-40°F ~185°F (-40°C ~85°C)
Operation Humidity	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
Weight	1.1 lb (0.5 Kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	315,210	104,363
I/O		
Rear Panel I/O Ports	USB3.0 x 4, DP/HDMI (BOM Change) x 2, Mic-in x 1, Line-out x 1 LAN (RJ-45) port x 2, DC Jack x 1	USB3.0 x 4, HDMI x 1, DP x 1, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, DC Jack x 1
Internal I/O Connectors	SATA3 (6.0Gb/s) x 2, Full Size Mini-Card (mSATA) x 1, SATA power connector x 1, USB2.0 (2x5PIN, 2.00mm) x 2 ports support additional 4 USB, 40-pin LVDS connector x 1, 40-pin eDP connector x 1, LVDS 3.3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1, AAFP x 1, Speaker x 1, Boxer header for COM (RS-232/422/485) x 1, Boxer header for COM (RS-232) x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer Onboard (pin header) x 1, CMOS jumper x 1	SATA3 (6.0Gb/s) x 4, SATA power connector x 1, Full Size Mini-Card (mSATA) x 1, USB2.0 (2x5PIN, 2.00mm) x 3 ports support additional 6 USB VGA x 1, LVDS connector x 1, LVDS 3.3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1, AAFP x 1, Speaker x 1, DMIC (optional) x 1, Boxer header for COM (RS-232) x 2, PS/2 Keyboard Mouse 6 PIN Connector x 1, Digital I/O header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1 Front Panel connector x 1, Chassis Intrusion x 1, CMOS jumper x 1
OS		
OS Support	Windows®10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora	Windows®10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora
Note		

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

Industrial Motherboards



Model	EMB-B75A	EMB-B75B
System		
Processor	LGA1155 socket for Intel® 3rd/2nd Generation Core™ i7/i5/i3/ Pentium® / Celeron® Processor	LGA1155 socket for Intel® 3rd/2nd Generation Core™ i7/i5/i3/ Pentium® / Celeron® Processor
Chipset	Intel® B75 Express Chipset	Intel® B75 Express Chipset
Memory	DDR3 1333/1600 MHz DIMM x 2, Up to 16GB, Non-ECC, Dual-channel memory architecture	DDR3 1333/1600 MHz DIMM x 2, Up to 16GB, Non-ECC, Dual-channel memory architecture
I/O Chipset	ITE 8728F	ITE 8728F
Ethernet	Realtek PCIe Gigabit Ethernet 8111F x 2	Realtek PCIe Gigabit Ethernet 8111F x 1, RJ-45 x 1
Audio	Realtek® ALC887	Realtek® ALC887
TPM	Infineon SLB9635 TT 1.2	—
Expansion Slots	PCI-E [x16] slot x 1	PCIe [x16] x 1
BIOS	AMI BIOS, 64 M bit ROM x 2	64M bit Flash ROM x 2, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1–255 steps by software program	1–255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan	CPU Fan/ Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S1, S3, S4, S5	S1, S3, S4, S5
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics
Graphics Multi Display	VGA+HDMI, HDMI+HDMI, VGA+HDMI+HDMI, HDMI+HDMI+HDMI	VGA+HDMI, LVDS+VGA, LVDS+HDMI, HDMI+HDMI, VGA+HDMI+HDMI (optional), LVDS+HDMI+HDMI (optional)
VGA	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @60Hz
DVI	—	—
HDMI	Up to 1920 x 1080 @60Hz	Up to 1920 x 1080 @60Hz
Display Port	—	—
LVDS	—	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit, support EDID LVDS autodetect
eDP	—	—
Backlight Control	—	—
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	24pin ATX connector x 1, 4pin ATX 12V Power connector x 1	24pin ATX connector x 1, 4pin ATX 12V Power connector x 1
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 131°F (0°C ~ 55°C)
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)
Weight	1.1 lb (0.5 Kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	116,656	199,397
I/O		
Rear Panel I/O Ports	USB3.0 x 2, USB2.0 x 2, VGA x 1, HDMI x 3, Mic-in x 1, Line in x 1, Line-out x 1, LAN (RJ-45) ports x 2, PS/2 Port (Keyboard & Mouse) x 2	USB3.0 x 2, USB2.0 x 2, VGA x 1, HDMI x 2 (1 optional), Mic-in x 1, Line in x 1, Line-out x 1, LAN (RJ-45) port x 1, RS-232 x 1, PS/2 Port (Keyboard & Mouse) x 2
Internal I/O Connectors	SATA3 (6.0Gb/s) connectors x 1, SATA2 (3.0Gb/s) connectors x 2, USB3.0 connector supports additional 2 USB port x 1, USB2.0 connectors support additional 4 USB port x 2, Boxer header for COM (RS-232) x 1, Boxer header for COM (RS-232/422/485) x 1, 8-bit Digital I/O interface (4-in/4-out) x 1, CPU Fan connector (4-pin) x 1, Chassis Fan connectors (4-pin) x 1, 24-pin EATX Power connector, 4-pin AUX 12V Power connector, Front panel header x 1	SATA3 (6.0Gb/s) connector x 1, SATA2 (3.0Gb/s) connector x 1, USB port connector supports additional x 4, LVDS x 1, M (RS-232) x 1, 8-bit Digital I/O interface (4-in/4-out) x 1, CPU Fan connector (4-pin) x 1, Chassis Fan connectors (4-pin) x 1, 24-pin EATX Power connector, 4-pin AUX 12V Power connector, Front panel header x 1
OS		
OS Support	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora
Note		

Industrial Motherboards



Model	EMB-QM77	EMB-H61A
System		
Processor	Socket Intel® 3rd generation rPGA988 Processor	LGA1155 socket for Intel® 3rd/2nd Generation Core™ i7/ i5/ i3/ Pentium® / Celeron® Processors (Supports Intel® 32 nm CPU up to 35W)
Chipset	Intel® QM77	Intel® H61
Memory	Dual-Channel with 204-pin SDRAM x 2, DDR3 1600/1333/1066, up to 16GB	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Dual-channel memory architecture
I/O Chipset	ITE IT8728F+Fintek F81216DG	Fintek F81866D-I
Ethernet	Intel® PHY WG82579LM/ Realtek RTL 8111E, Gigabit Ethernet x 2	Realtek PCIe Gigabit Ethernet 8111E x 2
Audio	Realtek® ALC892/886/662	Realtek® ALC887
TPM	Infineon SLB9635TT 1.2	Infineon SLB9635 TT 1.2
Expansion Slots	PCIe [x16] x 1, Mini-PCIe x 1, CFast x 1	PCIe [x4] x 1, Full-size Mini- Card (PCIe + USB) (mSATA Default)+ SIM Card x 1
BIOS	AMI BIOS - 128MB ROM	64 M bit Flash ROM, AMI BIOS
H/W Monitor	Supports System temperature, Voltage, and Cooling fan status monitoring	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	System Reset: 1~255 steps programmable	1~255 steps by software program
Smart Fan Control	CPU Fan/Chassis Fan	CPU Fan/ Chassis Fan
Wake On LAN/ PXE	Yes	Yes (WOL/PXE)
Power State	S3,S4,S5	S1, S3, S4, S5
Graphics		
Graphics Chipset	Intel® Core™i7/i5/i3 + QM77	Intel® HD Graphics
Graphics Multi Display	DP x 2+VGA, DP x 2+LVDS, HDMI+DP,HDMI+VGA, HDMI+LVDS	VGA+LVDS, VGA+HDMI, VGA+DVI, LVDS+HDMI, LVDS+DVI, HDMI+DVI
VGA	1	Up to 2048 x 1536 @ 75 Hz
DVI	1	Up to 1920 x 1200 @60 Hz
HDMI	1 (by SKU)	Up to 1920 x 1200 @60 Hz
Display Port	2 (by SKU)	—
LVDS	1	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit
eDP	—	—
Backlight Control	Voltage/PWM	Voltage / PWM
Environment & Power & ME		
Battery	Lithium Battery	Lithium battery
Power Requirement	12V DC	12V DC with 4pin Power connector x 1
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32~131°F (0~55°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% R/H, non-condensing	0% ~ 90%RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
Weight	1.32 lb (0.6 kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	60,000	117,673
I/O		
Rear Panel I/O Ports	USB3.0 x 4, DP x 2 or DP x 1+HDMI x 1, DVI-D x 1 Line-in, Mic-in, Line-out, RJ-45 x 2, RS-232/422/485 x 1 Mini-Din PS/2 K/B and Mouse x 1	USB2.0 x 6, VGA x 1, DVI-D x 1, HDMI x 1, Mic-in x 1, Line in x 1, Line-out x 1, LAN (RJ-45) port x 2, COM (RS-232/422/485) x 1, PS/2 Keyboard Mouse Connector x 1
Internal I/O Connectors	SATA 6.0 Gb/s x 2, SATA 3.0 Gb/s x 2, Support RAID 0,1,5,10, USB2.0 x 6 VGA x 1, LVDS x 1, RS-232 x 1, 8-bit programmable (4-in/4-out), CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 1, 4-pin connector x 1	SATA connectors x 2, SATA power connector x 1, Mini-Card slot x 1, USB2.0 connectors support additional 2 USB port x 1, LVDS connector x 1, LVDS Power select jumper x 1, LVDS Brightness Control Type Selection x 1, LVDS Panel Backlight Power Selection x 1, LCD_POWER 5 pin connector x 1, COM header x 5 (RS-232), Digital I/O header x 1, CPU Fan connector x 1, Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper x 1, SIM Card Socket x 1, Front Panel connector x 1, CMOS jumper x 1
OS		
OS Support	Windows® XP, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora
Note		

Board Level Products

Industrial Motherboards

Industrial Motherboards



Model	EMB-H61B	EMB-QM67
System		
Processor	LGA1155 socket for Intel® 3rd/2nd Generation Core™ i7/i5/i3/Pentium® /Celeron® Processors (Supports Intel® 32 nm CPU up to 35W)	Socket Intel® 2nd generation rPGA988 Processor
Chipset	Intel® H61 Express Chipset	Intel® QM67
Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Dual-channel memory architecture	Dual-Channel with 204-pin SDRAM x 2, DDR3 1600/1333/1066, up to 16GB
I/O Chipset	Fintek F81866D-1	ITE IT8728F+Fintek F81216DG
Ethernet	Realtek PCIe Gigabit Ethernet 8111F x 2	Intel® PHY W682579LM / Realtek RTL 8111E, Gigabit Ethernet x 2
Audio	Realtek® ALC887	Realtek® ALC892/886/662
TPM	Infineon SLB9635 TT 1.2	Infineon SLB9635TT 1.2(Optional)
Expansion Slots	PCIe [x4] x 1, Full-size Mini-Card (PCIe + USB) (mSATA Default) + SIM Card x 1	PCIe [x4] x 1, Mini-PCIe x 1, CFast x 1
BIOS	64 M bit Flash ROM, AMI BIOS	AMI BIOS - 64MB ROM
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	Supports System temperature, Voltage, and Cooling fan status monitoring
WatchDog Timer	1~255 steps by software program	System Reset: 1~255 steps programmable
Smart Fan Control	CPU Fan/ Chassis Fan	CPU Fan/Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes
Power State	S1, S3, S4, S5	S3,S4,S5
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® Core™i7/i5/Celeron® + QM67
Graphics Multi Display	VGA+LVDS, VGA+HDMI1, VGA+HDMI2, LVDS+HDMI1, LVDS+HDMI2, HDMI1+HDMI2	VGA+HDMI, VGA + LVDS, VGA+DVI, HDMI+DVI, HDMI+LVDS, DVI+LVDS
VGA	Up to 2048 x 1536 @ 75 Hz	1
DVI	—	1
HDMI	Up to 1920 x 1200 @60 Hz	1
Display Port	—	—
LVDS	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit	1
eDP	—	—
Backlight Control	Voltage / PWM	Voltage
Environment & Power & ME		
Battery	Lithium battery	Lithium Battery
Power Requirement	12V DC with 4-pin Power connector x 1	12V DC
Operation Temperature	32~131°F (0~55°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	-40 °F ~ 176 °F (-40 °C ~ 80 °C)
Operation Humidity	0% ~ 90%RH, non-condensing	0% ~ 90% R/H, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)
Weight	1.1 lb (0.5 Kg)	1.32 lb (0.6 kg)
MTBF (Hours)	211,000	70,000
I/O		
Rear Panel I/O Ports	USB2.0 x 6, VGA x 1, HDMI x 2, Mic-in x 1, Line in x 1, Line-out x 1 LAN (RJ-45) port x 2, COM (RS-232/422/485) x 1, PS/2 Keyboard Mouse Connector x 1	USB2.0 x 4, HDMI x 1, DVI-D x 1, VGA x 1, Line-in, Mic-in, Line-out RJ-45 x 2, RS-232/422/485 x 1, Mini-Din PS/2 K/B and Mouse x 1
Internal I/O Connectors	SATA connectors x 2, SATA power connector x 1, Mini-Card slot x 1 USB2.0 connectors support additional 2 USB port x 1 LVDS connector x 1, LVDS Power select jumper x 1, LVDS Brightness Control Type Selection x 1, LVDS Panel Backlight Power Selection x 1, LCD_POWER 5 pin connector x 1 COM header x 5 (RS-232) Digital I/O header x 1 CPU Fan connector x 1, Chassis Fan connector x 1 12V AUX Power Connector x 1, AT/ATX mode select jumper x 1 SIM Card Socket x 1, Front Panel connector x 1, CMOS jumper x 1	SATA 3.0 Gb/s x 2, Support RAID 0,1,5,10 USB2.0 x 4 LVDS x 1 RS-232 x 5 8-bit programmable (4-in/4-out) CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 1 4-pin connector x 1
OS		
OS Support	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP, Windows® 7 32/64-bit, Linux Fedora
Note		

Industrial Motherboards



Model	EMB-KB1	IMBA-Q170A
System		
Processor	AMD 1st generation APU SoC (FT3 BGA Package), Quad(2G,1.5G), Dual (1.6G,1.0G)	6th/7th Generation Intel® Core™ i7/i5/i3/Pentium®/ Celeron® 14nm LGA1151 Socket Processor
Chipset	—	Intel® Q170
Memory	SODIMM x 2, max. 16GB, DDR3L (1.35V)/DDR3 (1.5V) 1600 MHz/1333 MHz, Non-ECC, un-buffered memory, Single channel memory architecture	288-pin DIMM x 4, max. 64GB, DDR4 2133/1867, Dual channel
I/O Chipset	Fintek F81866D-1	NCT6791D, F81216HD
Ethernet	Realtek PCIe Gigabit Ethernet 8111F x 2	LAN1: Intel® PHY I219LM Giga LAN, LAN2: Intel® I211AT Giga LAN
Audio	Realtek® ALC887 with Amplifier	Realtek® ALC887 (Colay with ALC886/892)
TPM	Infineon SLB9635 TT 1.2 (default: No)	Nuvoton NPCT650ABBYX TPM2.0 onboard (option)
Expansion Slots	PCIe [x4] x 1, Full-size Mini-Card (PCIe + USB + mSATA) + SIM Card (mSATA optional) x 1, Half-size Mini-Card (PCIe + USB) x 1	PCIe [x16] x 1, PCIe [x4] (open edge) x 2, PCI x 3, M.2 E key x 1, M.2 M key x 1
BIOS	64Mbit Flash ROM, AMI BIOS	128M bit Flash ROM x 1, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/SV3.3V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/SV3.3V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	1~255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan	CPU Fan/ Chassis Fan x 2
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	"Sea Islands" Family (Integrated)	Intel® Graphics Media Accelerator VGA support via RTD2168
Graphics Multi Display	VGA+LVDS, VGA+DVI, LVDS+DVI	DVI-D+HDMI, HDMI+HDMI, VGA+HDMI, DVI-D+HDMI+HDMI, VGA+HDMI+HDMI
VGA	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60Hz (via RTD2168)
DVI	Up to 1920 x 1200 @60 Hz	—
HDMI	—	HDMI 1.4 Up to 4096 x 2304 @24Hz
Display Port	—	—
LVDS	Up to 1920 x 1080 @60Hz, Dual Channel 18/24 bit (via CH7511)	—
eDP	—	—
Backlight Control	Voltage / PWM	—
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	ATX	24-pin ATX connector x 1, 8 pin ATX 12V Power connector x 1
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ -185°F (-40°C ~ -85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90%RH, non-condensing	0% ~ 90% RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC (Class A)
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	ATX Form Factor, 12"x9.6" (305mmx244mm)
Weight	1.1 lb (0.5 Kg)	1.76 lb (0.8 Kg)
MTBF (Hours)	140,000	—
I/O		
Rear Panel I/O Ports	USB3.0 x 2, USB2.0 x 2, VGA x 1, DVI-D x 1, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, COM (RS-232/422/485) x 1, COM (RS-232) x 1, PS/2 x 2	USB 3.0 x 10, VGA x 1, HDMI x 2, Line-in, Mic-in, Line-out, RJ-45 x 2 DB-9 COM x 1 (support RS-232/422/485), Combo Port (Keyboard & Mouse) x 1
Internal I/O Connectors	SATA connectors x 2, SATA power connector x 1, Mini-Card slot (half size) x 1, Mini-Card slot (full size) x 1, USB2.0 connectors support additional 4 USB ports (2.54mm) x 2, LVDS connector x 1, LVDS 3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1, Speaker x 1, COM header x 4 (RS-232) DIO x 1, CPU Fan connector x 1, Chassis Fan connector x 1, 24-pin ATX connector x 1, 4-pin ATX connector x 1, AT/ATX mode select jumper x 1 SIM Card Socket x 1, Front Panel connector x 1, Onboard buzzer x 1, CMOS jumper x 1	SATA 6.0Gb/s x 3, Supports RAID 0/1/5M.2 M key (22 x 80mm) x 1, USB 2.0 x 3, Speaker header x 1 (Line-out), RS-232 header x 5, 8-bit x 1 (In/Out programmable), 4 pin CPU Fan x 1, 4-pin Chassis Fan x 2, 24-pin EATX Power header x 1, 8-pin EATX 12V Power connector x 1, Front panel header x 1, Clear CMOS jumper x 1, AT/ATX select jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1
OS		
OS Support	Windows® XP 32 / 64-bit, Windows® 7 32 / 64-bit, Windows® 8, Linux Fedora	Windows® 7 32/64-bit (not supported when a Kaby Lake processor is used), Windows® 8.1 64-bit(not supported when a Kaby Lake processor is used), Windows® 10 64-bit, Linux Fedora 64bit
Note		

Board Level Products

Industrial Motherboards



Model	IMBA-H110A new	IMBA-Q87A
System		
Processor	6th/7th Generation Intel® Core™ i7/i5/i3/Pentium®/ Celeron® 14nm LGA1151 Socket Processor	4th Generation Intel® Core™ i7/i5/i3/Pentium®/ Celeron® 22nm LGA 1150 socket Processor
Chipset	Intel® H110	Intel® Q87 Express Chipset
Memory	288-pin DIMM x 2, max. 32GB, DDR4 2133/1867, Dual channel	240-pin DIMM x 4, max. 32GB, DDR3 1600/1333 MHz, non-ECC, un-buffered memory, Dual channel memory architecture
I/O Chipset	NCT6791D, F81216HD	NCT6791D, F81216HD
Ethernet	LAN1: Intel® PHY I219LM Giga LAN, LAN2: Intel® I211AT Giga LAN	LAN1: Intel® PHY I217LM Gigabit Ethernet (supports iAMT 9.0) x 1 LAN2: Intel® I210AT Gigabit Ethernet x 1, RJ-45 x 2
Audio	Realtek® ALC887 (Colay with ALC886)	Realtek® ALC887 (Colay with ALC886)
TPM	Nuvoton NPC2650ABBYX TPM2.0 onboard (option)	20-1 PIN header for TPM1.2/FW3.19
Expansion Slots	PCIe [x16] x 1, PCIe [x4] (open edge) x 1, PCI x 4, M.2 M key x 1	PCIe 3.0/2.0 [x16] Slot x 1, PCIe 2.0 [x4] Slot x 1, PCI x 5
BIOS	128M bit Flash ROM x 1, AMI BIOS	64Mbit Flash ROM x 2, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	1~255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan x 2	CPU Fan/ Chassis Fan
Wake On LAN/PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	Intel® Graphics Media Accelerator VGA support via RTD2168	Intel® HD Graphics
Graphics Multi Display	DVI-D+HDMI, HDMI+HDMI, VGA+HDMI, DVI-D+HDMI+HDMI, VGA+HDMI+HDMI	SKU1 (VGA/ DVI/ HDMI/ DP): VGA+DVI, VGA+HDMI, VGA+DP, DVI+HDMI, DVI+DP, HDMI+DP, VGA+DVI+HDMI, VGA+DVI+DP, HDMI+DP+VGA; SKU2 (VGA/ DVI/ 2xHDMI): VGA+DVI, VGA+HDMI1, VGA+HDMI2, DVI+HDMI1, DVI+HDMI2, HDMI1+HDMI2, VGA+HDMI1+HDMI2, VGA+HDMI1+DVI, VGA+HDMI2+DVI
VGA	Up to 1920 x 1200 @60Hz (via RTD2168)	Up to 1920 x 1200 @60Hz
DVI	—	Up to 1920 x 1200 @60Hz
HDMI	HDMI 1.4 Up to 4096 x 2304 @24Hz	HDMI 1.4, up to 4096 x 2304 @24Hz
Display Port	DP 1.2, up to 4096 x 2304 @60Hz	DP 1.2, up to 3840 x 2160 @60Hz
LVDS	—	—
eDP	—	—
Backlight Control	—	—
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	24-pin ATX connector x 1, 8-pin ATX 12V Power connector x 1	24-pin ATX connector x 1, 8-pin ATX 12V Power connector x 1
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% RH, non-condensing	0% ~ 90% RH, non-condensing
Certificate	CE & FCC (Class A)	CE & FCC Class A
Form Factor	ATX Form Factor, 12" x 9.6" (305mm x 244mm)	ATX Form Factor, 12" x 9.6" (305 mm x 244 mm)
Weight	1.76 lb (0.8 Kg)	1.76 lb (0.8 Kg)
MTBF (Hours)	—	86,000
I/O		
Rear Panel I/O Ports	USB 3.0 x 4, USB 2.0 x 2, VGA x 1, HDMI x 1, DP x 1, Line-in, Mic-in, Line-out, RJ-45 x 2, DB-9 COM x 1 (support RS-232/422/485), Combo Port (Keyboard & Mouse) x 1	USB3.0 port x 4, USB2.0 port x 2, DVI-D x 1, HDMI x 1 (Dual HDMI optional), DP x 1 (will disable if choose 2 HDMI), Audio Jack x 3: Line-in, Mic-in, Line-out, LAN (RJ-45) port x 2, RS-232/422/485 DB-9 connector x 1 (COM1, supports 5/12V on RI pin), PS/2 Combo Port (Keyboard & Mouse) x 1
Internal I/O Connectors	SATA 6.0Gb/s x 3, Supports RAID 0/1/5M.2 M key (22 x 80mm) x 1, USB 2.0 x 4, Speaker header x 1 (Line-out), RS-232 header x 5, 8-bit x 1 (In/Out programmable), 4 pin CPU Fan x 1, 4-pin Chassis Fan x 2, 24-pin EATX Power header x 1, 8-pin EATX 12V Power connector x 1, Front panel header x 1, Clear CMOS jumper x 1, AT/ATX select jumper x 1, BIOS flash header [2x4]P p=1.27mm) x 1, Chassis Intrusion x 1	SATA3 (6.0Gb/s) port x 6, supports RAID 0/1/5/10, USB2.0 connector x 4 supports additional 8 USB ports, VGA x 1, RS-232 header x 5, LPT connector x 1, 8-bit Digital I/O interface x 1 (In/Out programmable), CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2, Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header [2x4]P p=1.27mm) x 1
OS		
OS Support	Windows® 7 32/64-bit (not supported when a Kabylake CPU is used), Windows® 8.1 64-bit (not supported when a Kabylake CPU is used), Windows® 10 64-bit, Linux Fedora 64-bit	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Windows® 10 32/64-bit, Linux Fedora
Note		

Industrial Motherboards



Model	IMBA-Q77	IMBA-967	IMBA-H61A
System			
Processor	Socket Intel® 3rd generation LGA 1155 Processor	Socket Intel® 2nd generation LGA 1155 Processor	Intel® 3rd/ 2nd Generation Core™ i7/i5/i3/ Pentium®/Celeron® 22nm LGA 1155 Processors
Chipset	Intel® Q77	Intel® Q67	Intel® H61
Memory	Dual-Channel with 240-pin DRAM x 4, DDR3 1600/1333/1066, up to 32GB	Dual-Channel with 240-pin DRAM x 4, DDR3 1333/1066, up to 32GB	Intel® DIMM x 2, max. 16GB, DDR3 1333/1066/800, Dual channel
I/O Chipset	Winbond W83627DHG	Winbond W83627DHG	NCT6776F
Ethernet	Intel® 82579 / 82583V, Gigabit Ethernet x 2	Intel® 82579LM / 82574L, Gigabit Ethernet x 2	Realtek RTL8111F Giga LAN x 2
Audio	Realtek® ALC662	Realtek® ALC662	Realtek® ALC887 (Colay with ALC886)
TPM	Infineon SLB9635TT 1.2(Optional)	Infineon SLB9635TT 1.2(Optional)	20-1 PIN header for TPM1.2/FW3.19
Expansion Slots	PCIe [x16] x 1, PCIe [x4] x 1, PCIe [x1] x 2, PCI x 3	PCIe [x16] x 1, PCIe [x4] x 1, PCIe [x1] x 1, PCI x 4	PCIe [x16] x 1, PCIe [x1] x 2, PCI x 4, Full/Half Size Mini-card x 1
BIOS	AMI BIOS - 128MB ROM	AMI BIOS - 64MB ROM	64Mbit Flash ROM, AMI BIOS
H/W Monitor	Supports System temperature, Voltage, and Cooling fan status monitoring	Supports System temperature, Voltage, and Cooling fan status monitoring	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/VBAT/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	System Reset: 1~255 steps programmable	System Reset: 1~255 steps programmable	1~255 steps by software program
Smart Fan Control	CPU Fan/Chassis Fan	—	CPU Fan/ Chassis Fan
Wake On LAN/ PXE	Yes	Yes	Yes (WOL/PXE)
Power State	S3,S4,S5	S3,S4,S5	S3,S4,S5
Graphics			
Graphics Chipset	Intel® Core™i7/i5/i3 + Q77	Intel® Core™i7/i5/i3 + Q67	Intel® HD Graphics
Graphics Multi Display	DP x 2+VGA, DP x 2+DVI, HDMI+DP,HDMI+VGA, HDMI+LVDS, VGA+DVI,VGA+LVDS	VGA+HDMI,VGA+DVI, HDMI+DVI	VGA+DVI
VGA	1	1	Up to 1920 x 1200 @60 Hz
DVI	1	1	Up to 1920 x 1200 @60 Hz
HDMI	1 (by SKU)	1	—
Display Port	2 (by SKU)	—	—
LVDS	1	—	—
eDP	—	—	—
Backlight Control	Voltage/PWM	Voltage	—
Environment & Power & ME			
Battery	Lithium Battery	Lithium Battery	Lithium battery
Power Requirement	12V DC	12V DC	24-pin ATX connector x 1, 4-pin ATX 12V Power connector x 1
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)	-40 °F ~ 176 °F (-40 °C ~ 80 °C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% R/H, non-condensing	0% ~ 90% R/H, non-condensing	0% ~ 90% R/H, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A	CE & FCC Class A
Form Factor	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	ATX, 12" x 9.6" (305 mm x 244 mm)
Weight	1.76 lb(0.8 kg)	1.76 lb (0.8 kg)	1.45 lb (0.66Kg)
MTBF (Hours)	56,000	52,000	136,599
I/O			
Rear Panel I/O Ports	USB3.0 x 2 with Type A connectors, USB2.0 x 2 with Type A connectors, DP x 2 or DP x 1+HDMI x 1, DVI-D x 1, Line-in, Mic-in, Line-out, RJ-45 x 2, RS-232/422/485 x 1, Mini-Din PS/2 K/B and Mouse x 1	USB2.0 x 4 with Type A connectors, HDMI x 1, DVI-D x 1, VGA x 1, Line-in, Mic-in, Line-out, RJ-45 x 2, RS-232 x 1, Mini-Din PS/2 K/B and Mouse x 1	USB 2.0 x 4, VGA x 1, DVI-D x 1, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN port (RJ-45) x 2, DB-9 COM x 2 (COM2 supports RS-232/422/485), PS/2 Combo Port (Keyboard & Mouse) x 1
Internal I/O Connectors	SATA 6.0 Gb/s x 2, SATA 3.0 Gb/s x 4, Support RAID 0,1,5,10, USB3.0 x 2, USB2.0 x 6, VGA x 1, LVDS x 1, RS-232 x 5, 8-bit programmable (4-in/4-out), CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 1, 24-pin ATX connector x 1, 4-pin connector x 1	SATA 6.0 Gb/s x 2, SATA 3.0 Gb/s x 4, Support RAID 0,1,5,10, USB2.0 x 8, RS-232 x 3, RS-232/422/485 x 1, LPT x 1, 8-bit programmable (4-in/4-out), CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 1, 24-pin ATX connector x 1, 4-pin connector x 1, IrDA x 1	SATA 3.0Gb/s x 4, USB 2.0 x 5, RS-232 x 4, LPT connector x 1 (supports SPP/EPP/ECP Mode), 8-bit DIO x 1 (In/out programmable), 4-pin CPU Fan x 1, 4-pin Chassis Fan x 1, Front panel header x 1, Clear CMOS jumper x 1, TPM header x 1, BIOS flash header (2 x4 P=1.27mm) x 1
OS			
OS Support	Windows® XP, Windows® 7 32/64-bit, Linux Fedora	Windows® XP, Windows® 7 32/64-bit, Linux Fedora	Windows® XP 32-bit, Windows® 7 32/64-bit, Windows® 8 32/64-bit
Note			

Board Level Products

Industrial Motherboards



Model	IBM-Q170A	IBM-H110A new
System		
Processor	Intel® 6th Generation (Skylake-S) Core™ i7/i5/i3/Pentium®/Celeron® 14nm LGA1151 Socket Processor	Intel® 7th/ 6th Generation (Kabylake-S/ Skylake-S) Core™ i7/i5/i3/Pentium®/Celeron® 14nm LGA1151 Socket Processor
Chipset	Intel® Q170	Intel® H110
Memory	288-pin DIMM x 4, max. 64GB, DDR4 2133/1867, Dual channel	288-pin DIMM x 2, max. 32GB, DDR4 2133/1867, Dual channel
I/O Chipset	NCT6791D, F81216HD	NCT6791D, F81216HD
Ethernet	LAN1: Intel® PHY I219LM Giga LAN, LAN2: Intel® I211AT Giga LAN	Intel® I211AT Giga LAN x 2
Audio	Realtek® ALC887 (Colay with ALC886)	Realtek® ALC887 (Colay with ALC886)
TPM	20-1 PIN header for TPM1.2/FW3.19	Nuvoton NPCT650ABBYX TPM2.0 (default : No)
Expansion Slots	PCIe [x16] x 1, PCIe [x4] (open edge) x 1, PCIe[x1] (open edge) x 1, PCI x 1	PCIe [x16] x 1, PCIe [x1] (open edge) x 2, PCI x 1, M.2 M key (22 x 42mm) x 1
BIOS	128M bit Flash ROM x 1, AMI BIOS	128M bit Flash ROM x 1, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	1~255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan x 2	CPU Fan/ Chassis Fan x 2
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics
Graphics Multi Display	DVI-D+HDMI, HDMI+HDMI, VGA+HDMI, DVI-D+HDMI+HDMI, VGA+HDMI+HDMI	DVI-D+HDMI, HDMI+HDMI, VGA+HDMI, DVI-D+VGA
VGA	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @60Hz
DVI	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @60Hz
HDMI	HDMI 1.4 up to 4096 x 2304 @30Hz	HDMI 1.4 up to 4096 x 2304 @30Hz
Display Port	—	—
LVDS	—	—
eDP	—	—
Backlight Control	—	—
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	24-pin ATX connector x 1, 8-pin ATX 12V Power connector x 1	24-pin ATX connector x 1, 8-pin ATX 12V Power connector x 1
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% RH, non-condensing	0% ~ 90% RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)
Weight	1.76 lb (0.8 Kg)	1.76 lb (0.8 Kg)
MTBF (Hours)	193,470	—
I/O		
Rear Panel I/O Ports	USB 3.0 x 10, DVI-I x 1, HDMI x 2, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN port (RJ-45) x 2, DB-9 COM x 1 (supports RS-232/422/485), PS/2 Combo Port (Keyboard & Mouse) x 1	USB 3.0 x 4, HDMI x 2, VGA x 1, DVI-D x 1, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN port (RJ-45) x 2, DB-9 COM x 1 (supports RS-232/422/485), PS/2 Stack Port (Keyboard & Mouse) x 1
Internal I/O Connectors	SATA 6.0Gb/s x 6 (supports RAID 0/1/5/10), USB 2.0 x 4, Speaker header x 1 (Line-out), RS-232 x 5, 8-bit DIO x 1 (In/Out programmable), 4-pin CPU Fan x 1, 4-pin Chassis Fan x 2, Front panel header x 1, Clear CMOS jumper x 1, TPM header x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1	SATA 6.0Gb/s x 5, M.2 M key (22 x 42mm) x 1, USB 2.0 x 6, Speaker header x 1 (Line-out), RS-232 x 5, 8-bit DIO x 1 (In/Out programmable), 4-pin CPU Fan x 1, 4-pin Chassis Fan x 2, Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1
OS		
OS Support	Windows® 7 32/64-bit, Windows® 8.1 64-bit, Windows® 10 64-bit, Linux Fedora 64bit	Windows® 7 32/64-bit, Windows® 8.1 64-bit, Windows® 10 64-bit, Linux Fedora 64bit
Note		

Industrial Motherboards



Model	IMBM-Q87A	IMBM-H81B
System		
Processor	4th Generation Intel® Core™ i7/i5/i3/Pentium®/Celeron® 22nm LGA 1150 socket Processor	4th Generation Intel® Core™ i7/i5/i3/Pentium®/Celeron® 22nm LGA 1150 socket Processor
Chipset	Intel® Q87	Intel® H81
Memory	240-pin DIMM x 4, max. 32GB, DDR3 1600/1333, Dual channel	240-pin DIMM x 2, max. 16GB, DDR3 1600/1333, Dual channel
I/O Chipset	NCT6791D, F81216HD	F81866D, F81216HD
Ethernet	LAN1: Intel® PHY I217LM Giga LAN, LAN2: Intel® I210AT Giga LAN	Realtek PCIe Gb LAN 8111G x 2
Audio	Realtek® ALC887 (Colay with ALC886)	Realtek® ALC887
TPM	20-1 PIN header for TPM1.2/FW3.19	—
Expansion Slots	PCIe [x16] x 1, PCIe [x4] x 1, PCI x 2, Half size Mini-Card x 1 (PCIe + USB or mSATA optional)	PCIe [x16] x 1, PCIe [x1] x 2
BIOS	64Mbit Flash ROM x 2, AMI BIOS	64Mbit Flash ROM x 1, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	1~255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan	CPU Fan/ Chassis Fan x 2
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics
Graphics Multi Display	DVI-D+DP, DP+DP, VGA+DVI-D, VGA+DP, DVI-D+DP+DP, VGA+DP+DP	VGA+DVI-D, VGA+VGA
VGA	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @60Hz
DVI	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @60Hz
HDMI	—	—
Display Port	DP 1.2, up to 3840 x 2160 @60Hz	—
LVDS	—	—
eDP	—	—
Backlight Control	—	—
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	24-pin ATX connector x 1, 8-pin ATX 12V Power connector x 1	24-pin ATX connector x 1, 4-pin ATX 12V Power connector x 1
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% RH, non-condensing	0% ~ 90% RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A
Form Factor	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)
Weight	1.76 lb (0.8 Kg)	1.76 lb (0.8 Kg)
MTBF (Hours)	100,000	220,420
I/O		
Rear Panel I/O Ports	USB 3.0 x 4, USB 2.0 x 6, DVI-D x 1, DP x 2, VGA x 1, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN port (RJ-45) x 2, PS/2 Combo Port (Keyboard & Mouse) x 1	USB 3.0 x 6, USB 2.0 x 8, DVI-I x 1, VGA x 1, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN port (RJ-45) x 2, PS/2 Combo Port (Keyboard & Mouse) x 1,
Internal I/O Connectors	SATA 6.0Gb/s x 5 (supports RAID 0/1/5/10), Half size Mini-Card (PCIe + USB, mSATA optional) x 1, USB 2.0 x 2, RS-232 x 5, RS-232/422/485 x 1, 8-bit DIO x 1 (In/Out programmable), 4-pin CPU Fan x 1, 4-pin Chassis Fan x 2, Front panel header x 1, Clear CMOS jumper x 1, TPM header x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1	SATA 6.0Gb/s x 2, SATA 3.0Gb/s x 2, AAFP x 1, RS-232 x 9, RS-232/422/485 x 1, 8-bit DIO x 1 (In/Out programmable), 4-pin CPU Fan x 1, 4-pin Chassis Fan x 2, Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1
OS		
OS Support	Windows® 7 32/64-bit, Windows® 8 32/64-bit, Linux Fedora	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora
Note		

Board Level Products

Industrial Motherboards



Model	IMBM-B75A	IMBM-H61A	IMBM-H61B
System			
Processor	Intel® 3rd/ 2nd Generation Core™ i7/i5/i3/ Pentium®/Celeron® 22nm LGA 1155 Processors	Intel® 3rd/ 2nd Generation Core™ i7/i5/i3/ Pentium®/Celeron® 22nm LGA 1155 Processors	Intel® 3rd/ 2nd Generation Core™ i7/i5/i3/ Pentium®/Celeron® 22nm LGA 1155 Processors
Chipset	Intel® B75	Intel® H61	Intel® H61
Memory	240-pin DIMM x 4, max. 32GB, DDR3 1600/1333, Dual channel	240-pin DIMM x 2, max. 16GB, DDR3 1333/1066/800, Dual channel	240-pin DIMM x 2, max. 16GB, DDR3 1333/1066/800, Dual channel
I/O Chipset	ITE IT8783F	Fintech 81866D+81216HD	Fintech 81866D+81216HD
Ethernet	Realtek RTL8111F Giga LAN x 2	Realtek RTL8111F Giga LAN x 2	Realtek RTL8111F Giga LAN x 2
Audio	Realtek® ALC887	Realtek ALC887	Realtek ALC887
TPM	Infineon SLB9635 TT 1.2	—	—
Expansion Slots	PCIe[x16] x 1, PCIe[x4] x 1, PCI x 2	PCIe [x16] x 1, PCIe [x1] x 1, PCI x 1, Half Size Mini-Card x 1	PCIe [x16] x 1, PCI x 2, Half Size Mini-Card x 1
BIOS	64Mbit Flash ROM, AMI BIOS	64Mbit Flash ROM, AMI BIOS	64Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	1~255 steps by software program	1~255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan	CPU Fan/ Chassis Fan	CPU Fan/ Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S4, S5	S3, S4, S5
Graphics			
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
Graphics Multi Display	VGA+HDMI, HDMI+HDMI; 3rd Generation Processors supports: VGA+HDMI+HDMI, HDMI+HDMI+HDMI	VGA+LVDS, VGA+DVI, LVDS+DVI	VGA1+LVDS, VGA1+VGA2, LVDS+VGA2
VGA	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @75Hz	Up to 1920 x 1200 @75Hz
DVI	—	Up to 1920 x 1200 @60 Hz	—
HDMI	Up to 1920 x 1080 @60Hz	—	—
Display Port	—	—	—
LVDS	—	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz
eDP	—	—	—
Backlight Control	—	Voltage/ PWM	Voltage/ PWM
Environment & Power & ME			
Battery	Lithium battery	Lithium battery	Lithium battery
Power Requirement	24-pin ATX connector x 1, 8-pin ATX 12V Power connector x 1	24-pin ATX connector x 1, 4-pin ATX 12V Power connector x 1	24-pin ATX connector x 1, 4-pin ATX 12V Power connector x 1
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% RH, non-condensing	0% ~ 80% RH, non-condensing	0% ~ 80% RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A	CE & FCC Class A
Form Factor	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)
Weight	1.76 lb (0.8 Kg)	1.55 lb (0.7 Kg)	1.55 lb (0.7 Kg)
MTBF (Hours)	83,621	87,274	—
I/O			
Rear Panel I/O Ports	USB 3.0 x 2, USB 2.0 x 2, VGA x 1, HDMI x 3, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN port (RJ-45) x 2, PS/2 Stack Port (Keyboard & Mouse) x 1	USB 2.0 x 4, VGA x 1, DVI-D x 1, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN port (RJ-45) x 2, DB-9 COM x 2, PS/2 Stack Port (Keyboard & Mouse) x 1	USB 2.0 x 4, VGA x 2, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN port (RJ-45) x 2, DB-9 COM x 2, PS/2 Stack Port (Keyboard & Mouse) x 1
Internal I/O Connectors	SATA 3.0Gb/s x 1, SATA 3.0Gb/s x 4, USB 3.0 x 2, USB 2.0 x 4, RS-232 x 4, RS-232/422/485 x 1, LPT connector x 1 (support SPP/EPP/ECP Mode), 8-bit DIO x 1 (In/Out programmable), 4-pin CPU Fan x 1, 4-pin Chassis Fan x 2, Front panel header x 2, IrDA x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1	SATA 3.0Gb/s x 3, CFAST™ Socket x 1, USB 2.0 x 4, RS-232 x 9, RS-232/422/485 x 2, LPT connector x 1 (support SPP/EPP/ECP Mode), 8-bit DIO x 1 (In/Out programmable), 4-pin CPU Fan x 1, 4-pin Chassis Fan x 1, Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4] P p=1.27mm) x 1	SATA 3.0Gb/s x 3, CFAST™ Socket x 1, USB 2.0 x 4RS-232 x 9, RS-232/422/485 x 2, LPT connector x 1 (support SPP/EPP/ECP Mode), 8-bit DIO x 1 (In/Out programmable), 4-pin CPU Fan x 1, 4-pin Chassis Fan x 2 (Fan2 optional), Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1
OS			
OS Support	Windows® XP 32/64-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora
Note			

Networking Motherboards



Model	FWB-2250	FWB-7250
System		
Form Factor	Networking Motherboard	Mini-ITX / Networking Motherboard
Processor	Intel® Atom™ E3815 processor SoC	Intel® Celeron® J1900 2.0 GHz
System Memory	204-pin DDR3L 1066/1333 MHz SODIMM x 2, up to 8 GB	204-pin DDR3L 1333MHz SODIMM x 2, up to 8GB
Chipset	—	—
Ethernet	Intel® Ethernet Controller I211-AT, Gigabit Ethernet x 4	Intel® I210-AT (Co-lay with Intel® I211-AT), Gigabit Ethernet x 4
Bypass Function	1 Pair (Optional)	Supports up to 2 Pair (optional)
BIOS	AMI BIOS	AMI BIOS
Serial ATA	SATA 3.0 Gb/s Connector x 1 (CompactFlash™ Socket x 1)	CompactFlash Socket x 1, SATA II connector x 1 (Optional SATA II connector x 2)
Expansion Interface	Mini-Card Socket x 1(Optional)	Mini-Card socket w/ SIM card socket x 1 (optional)
Power Requirement	40W, 12V DC-in power connector	ATX 100W PSU
Power Consumption	Intel® Celeron® J1900 2.0 GHz, DDR3L 1333 2GB 0.39A@100VAC, 1.21A@12V	Intel® Celeron® J1900 2.4 GH, DDR3L 1600 4GB, 0.26A@100VAC
Board Size	5.67" x 3.94" (114 mm x 100 mm)	6.7" x 6.7" (170mm x 170mm)
Watchdog Timer	1~255 steps by software programming	1~255 steps by software programming
MTBF (Hours)	90,630	110,571
OS Support	Windows® 7 or above, Linux	Windows® 7 or above, Linux
Display		
Chipset	Intel® Atom™ E3815	Intel® Celeron® J1900, Intel® Atom™ E3845 (optional)
Graphic Engine	Intel® HD	Intel® HD Graphic
Resolution	2560 x 1600	2560 x 1600
Outer Interface	Reserved VGA Internal box header	Reserved Pin Header for Graphic Integrated Processor
I/O		
LAN Port	RJ-45 Port x 4	RJ-45 Port x 4
Serial Port	RJ-45 Console x 1	RJ-45 Console x 1
USB	USB2.0 x 2, USB3.0 x 1	USB2.0 x 2
LED	Power LED x 1, HDD Active x 1, LAN LED x 8 (Optional Status LED x 1, Bypass LED x 1)	Power LED x 1, Status LED x 1, HDD Active x 1, Bypass LED x 2
Others	Power Button x 1, Software Programmable Reset Button x 1	Software Programmable Reset Button x 1
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0%~90% @RH, non-condensing	0%~90% relative humidity, non-condensing
Note		

Board Level Products

Full-size SBCs — PICMG 1.0 SBC



Model	FSB-B75G
System	
Form Factor	Full size CPU Card
Bus Interface	PICMG 1.0
CPU	LGA 1155 for Intel® 3rd Generation Core™ i3/i5/i7 Processor
Memory Type	Up to 16 GB (DDR 3 1333/1600 DIMM x 2)
Chipset	Intel® B75
BIOS	AMI
Wake on LAN	No
Watchdog Timer	255 Levels
Watchdog Timer	Yes
Power Requirement	ATX 2.1
Power Consumption (Typical)	Intel® Core™ i7-3770 3.4 GHz, DDR3 8 GB 3.38A@+12V, 3.11A@+5V, 0.41A@+3.3V, 0.2A@5VSB, 58.45W (Full load)
Dimension (L x W)	13.3" x 5" (339 mm x 126 mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	60,000
Certification	CE & FCC Class A, Class A
Display	
VGA/LCD Controller	Intel® B75
Video Output	Up to 2048 x 1536 @75 Hz for CRT
Backlight Inverter Supply	—
I/O	
Ethernet	10/100/1000Base-TX x 2
Audio	HDAC Daughter Board (optional) Mic-in/ Line-in/ Line-out/ CD-in
USB Port	USB3.0 x 4, USB2.0 x 6
Serial Port	RS-232 x 1, RS-232/422/485 x 1
Parallel Port	1
HDD Interface	SATA 3 x 1, SATA 2 x 2
FDD Interface	Optional
SSD	CFAST™ x 1
Expansion Slot	PCI x 4/ ISA
DIO	8-bit programmable (4-in/4-out)
TPM	—
Note	

Full-size SBCs - PICMG 1.0 SBC / Half-size SBCs — ISA

Half-size SBCs — ISA



Model	HSB-800I
System	
Form Factor	Half-size CPU Card
Bus Interface	ISA
CPU	Onboard AMD Geode™ LX800
Memory Type	Onboard 128 MB (DDR 400)
Chipset	AMD Geode™ LX800 + CS 5536
BIOS	Award
Wake on LAN	No
Watchdog Timer	255 Levels
Power Requirement	ATX 2.1
Power Consumption (Typical)	AMD LX800, DDR400 128MB 0.19A@+12V, 1.51A@+5V, 9.83W
Power Supply Type	+5V, +12V operation
Dimension (L x W)	7.3" x 4.8" (185mm x 122mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (hours)	85,000
Certification	CE & FCC Class A, Class A
Display	
VGA/LCD Controller	AMD Geode™ LX800
Video Output	1600 x 1200@32bpp at 100 MHz for CRT 1600 x 1200@24bpp for LCD
Backlight Inverter Supply	5V/12V
I/O	
Ethernet	10/100 or 10/100/1000Base-TX (optional)
Audio	Yes
USB Port	USB2.0 x 4
Serial Port	RS-232 x 3 RS-232/422/485 x 1
Parallel Port	1
HDD Interface	IDE x 1
FDD Interface	1
SSD	CompactFlash™
Expansion Slot	ISA, PC/104
DIO	8-bit Programmable (4-in/4-out)
TPM	—
Note	

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System Level Products

Industrial HMI Touch Panel Solutions



Model	AHP-1154
System	
Processor	Intel® Celeron® J1900 ,2 GHz / N2807, 1.58 GHz
System Memory	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB (J1900), 4 GB (N2807), Default 2 GB
LCD/CRT Controller	Integrated in processor
Ethernet	10/100/1000Base-TX, RJ-45 x 2
I/O Port	USB type A x 1 for USB 3.0 USB type A x 3 for USB 2.0 DB-9 for RS-485/422/232 x 2 (COM2, COM3) DB-9 for RS-232 x 2 RJ-45 x 2 for 10/100/1000Base-TX DB-15 x 1 for VGA 3-pin terminal block x 1 Power button x 1
Storage Disk Drive	CFast™ Socket x 1 SATA 2.5" HDD bay x 1
Expansion Slot	Mini-Card x 2 (Full Size, Half Size)
OS support	Windows® 10, Windows® 8.1, Windows® 7, WES 7, Linux kernel 2.6.x or higher, Android 4.4.4
Mechanical	
Construction	Plastic (ABS) front bezel + metal chassis
Color	—
Mounting	VESA 100/ VESA 75/ Panel mount
Dimension	16.02" x 12.22" x 2.3" (407mm x 310.5mm x 58.3mm)
Carton Dimension	—
Gross Weight	14.96 lb (6.8 kg)
Net Weight	—
Environmental	
Operating Temperature	14°F ~ 140°F (-10°C ~ 60°C) with 0.5 m/s airflow (N2807) -10°C ~ 50°C with 0.5 m/s airflow (J1900)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C, non-condensing
Vibration	—
Shock	—
EMC	—
Power Supply	
DC Input	DC 12V/DC 9 ~ 30 V
LCD	
Display type	15" TFT-LCD, LED backlight
Max Resolution	1024 x 768
Max. Colors	16.7M colors (8-bit for R,G,B)
Luminance	450 cd/m ²
Viewing Angle	160°(H), 140°(V)
Back Light	—
Back Light MTBF (Hours)	100,000
Touchscreen	
Type	5-wire, analog resistive
Light Transmission	80%
Life Time	10 million activations
Note	

Industrial HMI Touch Panel Solutions



Model	AHP-1125	AHP-1123
System		
Processor	Intel® Atom™ N3710 processor, 1.6 GHz (Quad-Core) Intel® Atom™ N3060 processor, 1.6 GHz (Dual-Core)	Onboard Intel® Atom™ D2550 1.86 GHz
System Memory	204-pin DDR3L SODIMM x 1, default 2GB, up to 8GB	204-pin DDR 3 800/1066 SODIMM x 1, up to 4 GB, default 2 GB RAM inside
LCD/CRT Controller	Integrated in processor	Integrated in processor
Ethernet	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 2
I/O Port	DB9 Type RS-232/422/485 x 1 DB9 Type RS-232 x 3 USB 2.0 x 2 USB 3.0 x 2 DB-15 VGA x 1 RJ-45 10/100/1000 LAN x 2 3-pin terminal block for power input Power button x 1	RS-232 x 3, RS-232/422/485 x 1 USB 2.0 x 4 VGA x 1 Power button x 1 LAN x 2
Storage Disk Drive	2.5" SATA HDD bay x 1	2.5" SATA HDD/ CFast™ slot (internal)
Expansion Slot	Half-size Mini-Card x 1 (Internal) Full size Mini-Card x 1 (Internal)	Mini-Card x 1
OS support	Windows® 7, Windows® 8.1, Windows® 10, Linux kernel 2.6.3 or higher	Windows® XP Embedded, Windows® XP, Windows® 7 32-bit, Windows® Embedded Standard 7 32-bit, Linux kernel 2.6.3 or higher
Mechanical		
Construction	Plastic Front Bezel + Aluminum Chassis	IP65 plastic front bezel
Color	—	—
Mounting	VESA 100/ Panel mount/ Stand	VESA100/ Panel mount
Dimension	16.34" x 7.09" x 15.43" (415 mm x 180 mm x 392 mm)	12.5"(W) x 9.6"(H) x 2.5"(D) (317mm x 243mm x 63.5mm)
Carton Dimension	—	—
Gross Weight	9.46 lb (4.3 kg)	10.1 lb (4.6 kg)
Net Weight	6.38 lb (2.9 kg)	7.9 lb (3.6 kg)
Environmental		
Operating Temperature	5°F ~ 131°F (-15°C ~ 55°C) with 0.5 m/s airflow	32°F ~ 131°F (0°C ~ 55°C) w/ airflow 32°F ~ 122°F (0°C ~ 50°C) w/o airflow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C, non-condensing	10~95% @40°C, non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	—
Shock	15G peak acceleration (11 msec. duration) – with HDD	—
EMC	CE/FCC class A	—
Power Supply		
DC Input	DC 12V, DC 9~30V	DC 12V input, w/3-pin terminal block
LCD		
Display type	12.1" TFT-LCD, LED	12.1" TFT LCD
Max Resolution	1024 x 600	1024 x 768
Max. Colors	16.2M colors (6/8-bit for R,G,B)	16.2M colors
Luminance	500 cd/m ²	500 cd/m ²
Viewing Angle	160°(H), 160°(V)	160°(H), 160°(V)
Back Light	LED	LED
Back Light MTBF (Hours)	50,000	50,000
Touchscreen		
Type	5-wire resistive	5-wire, analog resistive
Light Transmission	90%	80%
Life Time	10 million activations	10 million activations
Note		

Note: All specifications are subject to change without notice.

System Level Products

Industrial HMI Touch Panel Solutions

Industrial HMI Touch Panel Solutions/ Wide Temp. HMI Touch Panel Solutions



Model	AHP-1083	AHP-1070
System		
Processor	Intel® Atom™ D2550, 1.86 GHz	TI OMAP 600 MHz
System Memory	204-Pin DDR3 800/1066 MHz SODIMM x 1, up to 4GB, Default 2 GB	LP DDR 128 MB RAM, up to 256 MB
LCD/CRT Controller	Integrated in Intel® NM10 chipset	Integrated in TI processor
Ethernet	10/100/1000Base-TX, RJ-45 x 2	10/100Base-TX, RJ-45 x 1
I/O Port	USB 2.0 x 2 RS-232 x 1 RS-232/422/485 x 1 LAN x 2 VGA x 1	RS-232 x 1 RS-232/422/485 x 1 USB 2.0 x 2 USB client x 1 LAN x 1 VGA out x 1
Storage Disk Drive	2.5" SATA HDD/ CFast™ slot (internal)	256 MB NAND FLASH onboard/ SD card x 1 expansion
Expansion Slot	Mini-Card x 1	Mini-Card x 1 (USB interface only)
OS support	Windows® XP Embedded, Windows® XP, Windows® 7 32-bit, Windows® Embedded Standard 7 32-bit, Linux kernel 2.6.3 or higher	Windows® CE 6.0 , Linux
Mechanical		
Construction	IP65 certified plastic front panel, aluminum back panel	IP65, NEMA 4, plastic front bezel
Color	Front panel: gray, Back panel: light gray	Bezel: Patone 5425C, Rear cover: RAL 7040
Mounting	VESA 75/ Panel mount	VESA 75/ Panel mount
Dimension	9.65" x 7.2" x 2.67" (245mm x 183mm x 67.9mm)	8.8" (W) x 6.14" (H) x 1.77" (D) (225mm x 156mm x 45mm)
Carton Dimension	—	11.4" (W) x 7.48" (H) x 9" (D) (290mm x 190mm x 230mm)
Gross Weight	4.4 lb (2 kg)	4.41 lb (2 kg)
Net Weight	3.3 lb (1.5 kg)	1.54 lb (0.7 kg)
Environmental		
Operating Temperature	32°F ~ 131°F (0°C ~ 55°C) w/ airflow 32°F ~ 122°F (0°C ~ 50°C) w/o airflow	32°F ~ 122°F (0°C ~ 50°C) (ambient w/ airflow)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	5~90% @40°C, non-condensing	5~90% @ 40°C, non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	3 Grms/ 5~ 500Hz/ operation – with SD
Shock	20 G peak acceleration (11 msec. duration)	20 G peak acceleration (11 msec. duration)
EMC	CE/FCC class A	CE/FCC class A
Power Supply		
DC Input	DC 12V w/ 2-pin terminal block	DC 12V w/ 2-pin terminal block
LCD		
Display type	8.4" TFT-LCD	7" TFT LCD
Max Resolution	800 x 600	800 x 480
Max. Colors	262K	262K colors
Luminance	450 cd/m ²	300 cd/m ²
Viewing Angle	160°(H), 140°(V)	140°(H), 120°(V)
Back Light	LED	LED
Back Light MTBF (Hours)	50,000	30,000
Touchscreen		
Type	5-wire, analog resistive	5-wire, analog resistive
Light Transmission	80%	80%
Life Time	10 million activations	10 million activations

Wide Temp. HMI Touch Panel Solutions



Model	AHP-2173	AHP-2176
System		
Processor	Onboard Intel® Atom™ D2550, 1.86 GHz	Onboard Intel® Celeron® 827E, 1.4 GHz/ Core™ i7-2610UE, 1.5 GHz
Memory	204-Pin DDR3 SODIMM x 2 up to 4 GB, default 2 GB	204-pin DDR3 SODIMM x 2, up to 8 GB, default 2 GB
LCD/CRT Controller	Integrated in NM10	Integrated in Intel® QM67 chipset
Ethernet	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 2
Storage Disk Drive	RS-232 x 2, RS-232/422/485 x 1, USB 2.0 x 2, Line-out, VGA out x 1	RS-232 x 4, USB 2.0 x 6 (2 on front; 4 on rear), Line-in/Line-out, VGA x 1
I/O Port	2.5" SATA HDD/ CFast™ slot (internal)	2.5" SATA HDD/ CFast™ slot (internal)
Expansion Slot	Mini-Card x 1	Mini-Card x 1
OS support	Windows® XP Embedded, Windows® XP, Windows® 7 32-bit, Windows® Embedded Standard 7 32-bit, Linux kernel 2.6.3 or higher	Windows® XP Embedded, Windows® XP, Windows® 7 32-bit, Windows® Embedded Standard 7 32-bit, Linux kernel 2.6.3 or higher
Mechanical		
Construction	IP65/ NEMA4 aluminum die cast front bezel & aluminum chassis	IP65/ NEMA4 aluminum die cast front bezel & aluminum chassis
Mounting	Panel mount/ Desktop/ VESA100/ Wallmount	Desktop/ VESA100/ Rackmount/ Wallmount/ Panel mount
Dimension	16.56" (W) x 14.08" (H) x 2.87" (D) (420mm x 358mm x 73mm)	16.54" x 14.09" x 3.82" (420mm x 358mm x 97mm)
Carton Dimension	26.02" (W) x 19.53" (H) x 8.11" (D) (661mm x 496mm x 206mm)	26.02" x 8.11" x 19.53" (661mm x 206mm x 496mm)
Gross Weight	18.7 lb (8.5 kg)	23.1 lb (10.5 kg)
Net Weight	13.2 lb (6 kg)	17.82 lb (8.1 kg)
Environmental		
Operating Temperature	-4°F ~ 140°F (-10°C ~ 60°C) w/ airflow -4°F ~ 131°F (-10°C ~ 55°C) w/o airflow	-4°F ~ 140°F (-20°C ~ 60°C) w/o airflow -4°F ~ 131°F (-20°C ~ 55°C) with Core™ i7, w/o airflow
Storage Temperature	-20°F ~ -158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	10~95% @40°C, non-condensing	10~95% @40°C, non-condensing
Vibration	1 Grms/5-500 Hz/ random operation (HDD)	3 Grms/ 5~500 Hz/ random operation (HDD)
Shock	20 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration)
EMC	CE/FCC class A	CE/FCC class A
Power Supply		
DC Input	DC 9~30V input, w/3-pin terminal block	DC 9~30V input, w/3-pin terminal block: Over-Voltage protection; low-voltage protection; reverse-voltage protection, surge protection
LCD		
Display type	17" TFT-LCD	17" TFT-LCD
Max. Resolution	1280 x 1024	1280 x 1024
Max. Colors	16.7M colors	16.7M colors
Luminance	350 cd/m ²	350 cd/m ²
Viewing Angle	170°(H), 160°(V)	170°(H)/160°(V)
Back Light	LED	LED
Back Light MTBF (Hours)	50,000	50,000
Touchscreen		
Type	5-wire resistive	5-wire resistive
Light Transmission	80%	80%
Life Time	10 million activations	10 million activations
Note		

System Level Products

Wide Temp. HMI Touch Panel Solutions

Wide Temp. HMI Touch Panel Solutions/ Industrial Modular Touch Panel Solutions



Model	AHP-2153	AHP-2122
System		
Processor	Onboard Intel® Dual Core™ Atom™ D2550	Onboard Intel® Atom™ D525, 1.8 GHz
Memory	204-pin DDR3 SODIMM x 1, up to 4 GB, default 2 GB	204-pin DDR3 800 MHz SODIMM x 1, up to 4 GB, default 2 GB RAM inside
LCD/CRT Controller	Integrated in processor	Integrated in Processor
Ethernet	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 2
Storage Disk Drive	RS-232 x 2, RS-232/422/485 x 1, USB 2.0 x 4 (2 on front; 2 on rear), Line-out x 1, VGA x 1	RS-232 x 1, RS-232/422/485 x 1, USB 2.0 x 4 (2 on front; 2 on rear), Line-out x 1, VGA x 1
I/O Port	2.5" SATA HDD/ CFast™ slot (internal)	2.5" SATA HDD/ CompactFlash™ Slot (Internal)
Expansion Slot	Mini-Card x 1	Mini-Card x 1
OS support	Windows® XP Embedded, Windows® XP, Windows® 7 32-bit, Windows® Embedded Standard 7 32-bit, Linux kernel 2.6.3 or higher	Windows® XP, Windows® 7, Windows® CE, Linux Fedora
Mechanical		
Construction	IP65/ NEMA4 aluminum die cast front bezel & aluminum chassis	IP65/ NEMA4 aluminum die cast front bezel & metal chassis
Mounting	Desktop/ VESA100/ Rackmount/ Wallmount/ Panel mount	Panel mount/ Wallmount/ VESA 100/ Desktop
Dimension	15.35" x 12.74" x 3.08" (389.98mm x 323.48mm x 78.3mm)	13.6" x 10.46" x 3.58" (345.6mm x 265.7mm x 91mm)
Carton Dimension	20.08" x 9.84" x 18.11" (510mm x 250mm x 460mm)	17.9" x 15.75" x 12.6" (455mm x 400mm x 320mm)
Gross Weight	18.96 lb (8.62 kg)	19.8 lb (9 kg)
Net Weight	13.64 lb (6.2 kg)	15.4 lb (7 kg)
Environmental		
Operating Temperature	-4°F ~ 149°F (-20°C ~ 65°C) w/ airflow -4°F ~ 140°F (-20°C ~ 60°C) w/o airflow	-4°F ~ 140°F (-20°C ~ 60°C), w/o airflow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	10~95% @ 40°C, non-condensing	10~95% @ 40°C, non-condensing
Vibration	1 Grms/ 5~500Hz/ random operation (HDD)	1 Grms/5~500Hz/ random operation (HDD)
Shock	20 G peak acceleration (11 msec. duration)	20 G peak acceleration (11 msec. duration)
EMC	CE/FCC class A	CE/FCC class A
Power Supply		
DC Input	DC 9 ~ 30V input: Over-Voltage protection; Low-voltage protection; Reverse-voltage protection	DC 9~30V input: Over-Voltage protection; Low-voltage protection; Reverse-voltage protection
LCD		
Display type	15" TFT-LCD	12.1" TFT-LCD
Max. Resolution	1024 x 768	1024 x 768
Max. Colors	16.7M colors	262k colors
Luminance	HTT: 450 cd/m ² , STT: 800 cd/m ²	HTT: 500 cd/m ² , STT: 1000 cd/m ²
Viewing Angle	160°(H)/ 140°(V)	HTT: 160°(H)/160°(V), STT: 160°(H)/140°(V)
Back Light	LED	HTT: LED, STT: LED
Back Light MTBF (Hours)	HTT: 50,000, STT: 100,000	HTT: 50,000, STT: 100,000
Touchscreen		
Type	5-wire resistive	5-wire, analog resistive
Light Transmission	80%	80%
Life Time	10 million activations	10 million activations
Note		

Industrial Modular Touch Panel Solutions



Model	OMNI-2155-BT	OMNI-2215-BT
System		
Processor	Intel® N2807 processor, 1.58 GHz Intel® J1900 processor, 2 GHz	Intel® N2807 processor, 1.58 GHz Intel® J1900 processor, 2 GHz
System Memory	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)
LCD/CRT Controller	Integrated in Processor	Integrated in processor
Ethernet	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 2
I/O Port	USB type A x 1 for USB 3.0 USB type A x 3 for USB 2.0 SMA antenna hole x 1 HDMI x 1 CFast™ x 1 DB-9 for RS-232/422/485 x 1 RJ-45 x 2 for 10/100/1000Base-TX DB-15 x 1 for VGA 3-pin terminal block x 1 for 9~30 V DC power input LED Power On/Off Switch x 1 (Power on = orange, Power off = N/A)	USB type A x 1 for USB 3.0 USB type A x 3 for USB 2.0 SMA antenna hole x 1 HDMI x 1 CFast™ x 1 DB-9 for RS-232/422/485 x 1 RJ-45 x 2 for 10/100/1000Base-TX DB-15 x 1 for VGA 3-pin terminal block x 1 for 9~30 V DC power input LED Power On/Off Switch x 1 (Power on = orange, Power off = N/A)
Storage Disk Drive	CFast™ socket x 1 SATA 2.5" HDD bay x 1	CFast™ x 1 2.5" SATA HDD bay x 1
Expansion Slot	Mini-Card x 2 (Full Size), OMNI I/O Connector x 1	Full size Mini-Card x 2, OMNI I/O Connector x 1
OS support	Windows® 7, Windows® 8, Windows® 10, Linux kernel 2.6.x or higher	Windows® 7, Windows® 8.1, Windows® 10, Linux kernel 2.6.3 or higher
Mechanical		
Construction	Aluminum front bezel + metal chassis	Aluminum design
Mounting	VESA 100/ Panel mount	VESA 100/ Panel mount
Dimension (mm)	16.54" x 10.43" x 2.36" (420 mm x 265 mm x 60 mm)	21.7" x 14.7" x 2.1" (550mm x 373mm x 53mm)
Gross Weight	6.6 lb (3 kg)	19.6 lb (8.9 Kg)
Environmental		
Operating Temperature	-20°C~60°C with industrial grade device (with 0.5 m/s air flow, according to IEC68-2-14, CPU: N2807) -20°C~55°C with industrial grade device (with 0.5 m/s air flow, according to IEC68-2-14, CPU: J1900)	-20°C~60°C with industrial grade device (with 0.5 m/s air flow, according to IEC68-2-14, CPU: N2807) -20°C~55°C with industrial grade device (with 0.5 m/s air flow, according to IEC68-2-14, CPU: J1900)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C, non-condensing	90% @40°C, non-condensing
Anti-Vibration	1 Grms/ 5 ~ 500 Hz/ Operation (HDD)	1 Grms/ 5~ 500Hz/ operation – with HDD
Anti-Shock	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration) – with HDD
EMC	CE/FCC class A	CE/FCC class A
Power Supply		
DC Input	DC 9 ~ 30 V	DC9~30V
LCD		
Display type	15.6" TFT-LCD, LED backlight	21.5" TFT-LCD, LED
Max Resolution	1366 x 768	1920 x 1080
Max. Colors	16.7M colors (8-bit for R,G,B)	16.7M colors (RGB 8-bit)
Luminance	400 cd/m ²	250 cd/m ²
Viewing Angle	160°(H), 140°(V)	178°(H), 178°(V)
Back Light	LED	LED
Back Light MTBF (Hours)	50,000	50,000
Touchscreen		
Type	P-CAP/ 5-wire resistive	5-wire resistive, Projective capacitive multi-touch (2-point)
Light Transmission	90 ± 3%/ 80% ± 5%	90 ± 3%/ 80% ± 5%
Note	Support OMNI I/O Modules	Support OMNI I/O Modules

System Level Products

Industrial Modular Touch Panel Solutions



Model	OMNI-3105-BT	OMNI-3125-BT
System		
Processor	Intel® N2807 processor, 1.58 GHz Intel® J1900 processor, 2 GHz	Intel® N2807 processor, 1.58 GHz Intel® J1900 processor, 2 GHz
System Memory	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)
LCD/CRT Controller	Integrated in processor	Integrated in processor
Ethernet	Intel® I211, 10/100/1000Base-TX x 2	Intel® I211, 10/100/1000Base-TX x 2
I/O Port	USB 2.0 type A x 3 USB 3.0 type A x 1 SMA Antenna hole x 1 HDMI x 1 CFast x 1 DB-9 Type RS-232/422/485 x 1 RJ-45 x 2 for 10/100/1000 Base-TX DB-15 x 1 for VGA 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x 1 (Power on = Orange, Power off =N/A)	USB 2.0 type A x 3 USB 3.0 type A x 1 SMA Antenna hole x 1 HDMI x 1 CFast x 1 DB-9 Type RS-232/422/485 x 1 RJ-45 x 2 for 10/100/1000 Base-TX DB-15 x 1 for VGA 3-pin terminal block x 1 for 9~30 Vdc power input LED Power on/off switch x 1 (Power on = Orange, Power off =N/A)
Storage Disk Drive	CFast™ x 1, 2.5" SATA HDD bay x 1	CFast™ x 1, 2.5" SATA HDD bay x 1
Expansion Slot	Full size Mini Card x 2, SIM card x 2, OMNI I/O connector x 1	Full size Mini Card x 2, SIM card x 2, OMNI I/O connector x 1
OS support	Windows® 7, Windows® 8, Windows® 10, Linux Kernal 2.6.x or higher	Windows® 7, Windows® 8, Windows® 10, Linux kernel 2.6.x or higher
Mechanical		
Construction	Aluminum design (IP65 Front Frame)	Aluminum design (IP65 Front Frame)
Mounting	Wall/ VESA 100/ Desktop/ Panel Mount	Wall/ VESA 100/ Desktop/ Panel Mount
Dimension	11.02" x 9.41" x 2.32" (280 x 239 x 59 mm)	12.95" x 11.34" x 2.2" (329 x 288 x 56 mm)
Gross Weight	7.92 lb (3.6 kg)	11 lb (5.0 kg)
Environmental		
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) (J1900), 14°F ~ 140°F (-10°C ~ 60°C) (N2807) with 0.5 m/s airflow (CF & HDD)	14°F ~ 131°F (-10°C ~ 55°C) (J1900), 14°F ~ 140°F (-10°C ~ 60°C) (N2807) with 0.5 m/s airflow (CF & HDD)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C; non-condensing	90% @40°C; non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Shock	—	—
EMC	CE/FCC class A	CE/FCC class A
Power Supply		
DC Input	DC 9(min) ~ 30 (max) V w/ 3-pin terminal block, ATX Power function	DC 9 (min) ~ 30 (max) V w/3-pin terminal block, ATX Power function
LCD		
Display type	10.4" TFT-LCD, LED	12.1" TFT-LCD, LED
Max Resolution	800 (H) x 600 (V)	1024(H) x 768(V)
Max. Colors	16.2M colors	16.2M colors
Luminance	230 cd/m ²	500 cd/m ²
Viewing Angle	120° (H), 100° (V)	160° (H), 160° (V)
Back Light	LED	LED
Back Light MTBF (Hours)	—	—
Touchscreen		
Type	P-CAP/ 5-wire resistive	P-CAP/ 5-wire resistive
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)
Note	Not support OMNI I/O Modules due to chassis limitation	Not support OMNI I/O Modules due to chassis limitation

Industrial Modular Touch Panel Solutions



Model	OMNI-3155-BT	OMNI-3175-BT
System		
Processor	Intel® N2807 processor, 1.58 GHz Intel® J1900 processor, 2 GHz	Intel® N2807 processor, 1.58 GHz Intel® J1900 processor, 2 GHz
System Memory	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)
LCD/CRT Controller	Integrated in processor	Integrated in processor
Ethernet	Intel® I211, 10/100/1000Base-TX x 2	Intel® I211, 10/100/1000Base-TX x 2
I/O Port	USB 2.0 type A x 3 USB 3.0 type A x 1 SMA Antenna hole x 1 HDMI x 1 CFast x 1 DB-9 Type RS-232/422/485 x 1 RJ-45 x 2 for 10/100/1000 Base-TX DB-15 x 1 for VGA 3-pin terminal block x 1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)	USB 2.0 type A x 3 USB 3.0 type A x 1 SMA Antenna hole x 1 HDMI x 1 CFast x 1 DB-9 Type RS-232/422/485 x 1 RJ-45 x 2 for 10/100/1000 Base-TX DB-15 x 1 for VGA 3-pin terminal block x 1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)
Storage Disk Drive	CFast™ x 1, 2.5" SATA HDD bay x 1	CFast™ x 1, 2.5" SATA HDD bay x 1
Expansion Slot	Full size Mini Card x 2, SIM card x 2, OMNI I/O connectors	Full size Mini Card x 2, SIM card x 2, OMNI I/O connectors
OS support	Windows® 7, Windows® 8, Windows® 10, Linux kernel 2.6.x or higher	Windows® 7, Windows® 8, Windows® 10, Linux kernel 2.6.x or higher
Mechanical		
Construction	Aluminum design (IP65 Front Frame)	Aluminum design (IP65 Front Frame)
Mounting	Wall/ VESA 100/ Desktop/ Panel Mount	Wall/ VESA 100/ Desktop/ Panel mount
Dimension	14.53" x 12.36" x 2.28" (369 x 314 x 58 mm)	15.75" x 14.57" x 2.32" (400 x 370 x 59 mm)
Gross Weight	13.97 lb (6.35 kg)	15.84 lb (7.2 kg)
Environmental		
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) (J1900), 14°F ~ 140°F (-10°C ~ 60°C) (N2807) with 0.5 m/s airflow (CF & HDD)	14°F ~ 131°F (-10°C ~ 55°C) (J1900), 14°F ~ 140°F (-10°C ~ 60°C) (N2807) with 0.5 m/s airflow (CF & HDD)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C; non-condensing	90% @40°C; non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Shock	—	—
EMC	CE/FCC class A	CE/FCC class A
Power Supply		
DC Input	DC 9 (min) ~ 30 (max) V w/3-pin terminal block, ATX Power function	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function
LCD		
Display type	15" TFT-LCD, LED	17" TFT-LCD, LED
Max Resolution	1024(H) x 768(V)	1280(H) x 1024(V)
Max. Colors	16.7M (8 bit/color)	16.7M colors (RGB 6-bits + Hi-FRC data)
Luminance	450 cd/m ²	350 cd/m ²
Viewing Angle	160° (H), 140° (V)	170°(H), 160°(V)
Back Light	LED	LED
Back Light MTBF (Hours)	—	—
Touchscreen		
Type	P-CAP/ 5-wire resistive	P-CAP/ 5-wire resistive
Light Transmission	P-CAP (≥85%), 5-wire Resistive (80% ± 2%)	P-CAP (≥85%), 5-wire Resistive (80% ± 5%)
Note	Support OMNI I/O Modules	Support OMNI I/O Modules

System Level Products

Industrial Modular Touch Panel Solutions



Model	OMNI-3195-BT	OMNI-2155-SKU
System		
Processor	Intel® N2807 processor, 1.58 GHz Intel® J1900 processor, 2 GHz	Intel® i5-6300U processor, 2.4 GHz Intel® Celeron® 3955U processor, 2.0 GHz
System Memory	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)	260-pin DDR4 SODIMM x 1, up to 8GB
LCD/CRT Controller	Integrated in processor	Integrated in processor
Ethernet	Intel® I211, 10/100/1000Base-TX x 2	Intel® I211, 10/100/1000Base-TX x 1
I/O Port	USB 2.0 type A x 3 USB 3.0 type A x 1 SMA Antenna hole x 1 HDMI x 1 CFast x 1 DB-9 Type RS-232/422/485 x 1 RJ-45 x 2 for 10/100/1000 Base-TX DB-15 x 1 for VGA 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)	USB 3.0 type A x 4 SMA Antenna hole x 1 HDMI x 1 DB-9 Type RS-232/422/485 x 2 RJ-45 x 1 for 10/100/1000 Base-TX 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)
Storage Disk Drive	CFast™ x 1, 2.5" SATA HDD bay x 1	2.5" SATA HDD bay x 1
Expansion Slot	Full size Mini Card x 2, SIM card x 1, OMNI I/O connector x 1	Full size Mini Card x 1, SIM card x 1, OMNI I/O connector x 1
OS support	Windows® 7, Windows® 8, Windows® 10, Linux kernel 2.6.x or higher	Windows® 8, Windows® 10, Linux kernel 2.6.x or higher
Mechanical		
Construction	Aluminum design (IP65 Front Frame)	Aluminum design (IP65 Front Frame)
Mounting	Wall/ VESA 100/ Desktop/ Panel Mount	Wall/ VESA 100/ Desktop/ Panel Mount
Dimension (mm)	18.14" x 16.14" x 2.47" (460.8 x 410 x 62.7 mm)	16.54" x 10.43" x 2.36" (420 x 265 x 60 mm)
Gross Weight	19.36 lb (8.8 kg)	14.96 lb (6.8 kg)
Environmental		
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) (J1900), 14°F ~ 140°F (-10°C ~ 60°C) (N2807) with 0.5 m/s airflow (CF & HDD)	-20°C ~ 55°C with 0.5 m/s airflow (Industrial Grade HDD)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C; non-condensing	90% @40°C; non-condensing
Anti-Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Anti-Shock	—	—
EMC	CE/FCC class A	CE/FCC class A
Power Supply		
DC Input	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function
LCD		
Display type	19" TFT-LCD, LED	15.6" TFT-LCD, LED
Max Resolution	1280(H) x 1024(V)	1366(H) x 768(V)
Max. Colors	16.7M colors	16.7M (8 bit/color)
Luminance	350 cd/m ²	400 cd/m ²
Viewing Angle	170°(H), 160°(V)	160 (H), 140 (V)
Back Light	LED	LED
Back Light MTBF (Hours)	—	—
Touchscreen		
Type	P-CAP/ 5-wire resistive	P-CAP/ 5-wire resistive
Light Transmission	P-CAP (≥85%), 5-wire Resistive (80% ± 5%)	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 2%)
Note	Support OMNI I/O Modules	Support OMNI I/O Modules

Industrial Modular Touch Panel Solutions



Model	OMNI-2215-SKU	OMNI-3105-SKU	OMNI-3125-SKU
System			
Processor	Intel® i5-6300U processor, 2.4 GHz Intel® Celeron® 3955U processor, 2.0 GHz	Intel® i5-6300U processor, 2.4 GHz Intel® Celeron® 3955U processor, 2.0 GHz	Intel® i5-6300U processor, 2.4 GHz Intel® Celeron® 3955U processor, 2.0 GHz
System Memory	260-pin DDR4 SODIMM x 1, up to 8GB	260-pin DDR4 SODIMM x 1, up to 8GB	260-pin DDR4 SODIMM x 1, up to 8GB
LCD/CRT Controller	Integrated in processor	Integrated in processor	Integrated in processor
Ethernet	Intel® I211, 10/100/1000Base-TX x 1	Intel® I211, 10/100/1000Base-TX x 1	Intel® I211, 10/100/1000Base-TX x 1
I/O Port	USB 3.0 type A x 4 SMA Antenna hole x 1 HDMI x 1 DB-9 Type RS-232/422/485 x 2 RJ-45 x 1 for 10/100/1000 Base-TX 3-pin terminal block x1 for 9~30 Vdc power input, LED Power on/off switch x 1 (Power on = Orange, Power off =N/A)	USB 3.0 type A x 4 SMA Antenna hole x 1 HDMI x 1 DB-9 Type RS-232/422/485 x 2 RJ-45 x 1 for 10/100/1000 Base-TX 3-pin terminal block x1 for 9~30 Vdc power input, LED Power on/off switch x 1 (Power on = Orange, Power off =N/A)	USB 3.0 type A x 4 SMA Antenna hole x 1 HDMI x 1 DB-9 Type RS-232/422/485 x 2 RJ-45 x 1 for 10/100/1000 Base-TX 3-pin terminal block x1 for 9~30 Vdc power input, LED Power on/off switch x 1 (Power on = Orange, Power off =N/A)
Storage Disk Drive	2.5" SATA HDD bay x 1	2.5" SATA HDD bay x 1	2.5" SATA HDD bay x 1
Expansion Slot	Full size Mini Card x 1, SIM card x 1, OMNI I/O connector x 1	Full size Mini Card x 1, SIM card x 1, OMNI I/O connector x 1	Full size Mini Card x 1, SIM card x 1, OMNI I/O connector x 1
OS support	Windows® 8.1, Windows® 10, Linux Kernel 2.6.x or higher	Windows® 8.1, Windows® 10, Linux Kernel 2.6.x or higher	Windows® 8.1, Windows® 10, Linux Kernel 2.6.x or higher
Mechanical			
Construction	Aluminum design (IP65 Front Frame)	Aluminum design (IP65 Front Frame)	Aluminum design (IP65 Front Frame)
Mounting	Wall/ VESA 100/ Desktop/ Panel Mount	Wall/ VESA 100/ Desktop/ Panel Mount	Wall/ VESA 100/ Desktop/ Panel Mount
Dimension (mm)	21.7" x 14.7" x 2.1" (550mm x 373mm x 53mm)	11.02" x 9.41" x 2.32" (280 x 239 x 59 mm)	12.95" x 11.34" x 2.2" (329 x 288 x 56 mm)
Gross Weight	20.02 lb (9.1 Kg)	8.36 lb (3.8 kg)	11.44 lb (5.2 kg)
Environmental			
Operating Temperature	-20°C ~ 55°C with 0.5 m/s airflow (Industrial Grade HDD)	-20°C ~ 55°C with 0.5 m/s airflow (Industrial Grade HDD)	-20°C ~ 55°C with 0.5 m/s airflow (Industrial Grade HDD)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C; non-condensing	90% @40°C; non-condensing	90% @40°C; non-condensing
Anti-Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Anti-Shock	—	—	—
EMC	CE/FCC class A	CE/FCC class A	CE/FCC class A
Power Supply			
DC Input	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function	DC 9 (min) ~ 30 (max) V w/3-pin terminal block, ATX Power function
LCD			
Display type	21.5" TFT-LCD, LED	10.4" TFT-LCD, LED	12.1" TFT-LCD, LED
Max Resolution	1920(H) x 1080(V)	800(H) x 600(V)	1024(H) x 768(V)
Max. Colors	16.7M colors	16.2M colors	16.2M colors
Luminance	250 cd/m ²	230 cd/m ²	500 cd/m ²
Viewing Angle	178° (H), 178° (V)	120° (H), 100° (V)	160° (H), 160° (V)
Back Light	LED	LED	LED
Back Light MTBF (Hours)	—	—	—
Touchscreen			
Type	P-CAP/ 5-wire resistive	P-CAP/ 5-wire resistive	P-CAP/ 5-wire resistive
Light Transmission	P-CAP (≥85%) 5-wire Resistive (80% ± 5%)	P-CAP (90% ± 3%) 5-wire Resistive (80% ± 3%)	P-CAP (90% ± 3%) 5-wire Resistive (80% ± 3%)
Note	Support OMNI I/O Modules	Not support OMNI I/O Modules due to chassis limitation	Not support OMNI I/O Modules due to chassis limitation

System Level Products

Industrial Modular Touch Panel Solutions



Industrial Modular Touch Panel Solutions/ OMNI Series Modules - CPU BOX

Model	OMNI-3155-SKU	OMNI-3175-SKU	OMNI-3195-SKU
System			
Processor	Intel® i5-6300U processor, 2.4 GHz/ Celeron® 3955U processor, 2.0 GHz	Intel® i5-6300U processor, 2.4 GHz/ Celeron® 3955U processor, 2.0 GHz	Intel® i5-6300U processor, 2.4 GHz/ Celeron® 3955U processor, 2.0 GHz
System Memory	260-pin DDR4 SODIMM x 1, up to 8GB	260-pin DDR4 SODIMM x 1, up to 8GB	260-pin DDR4 SODIMM x 1, up to 8GB
LCD/CRT Controller	Integrated in processor	Integrated in processor	Integrated in processor
Ethernet	Intel® I211, 10/100/1000Base-TX x 1	Intel® I211, 10/100/1000Base-TX x 1	Intel® I211, 10/100/1000Base-TX x 1
I/O Port	USB 3.0 type A x 4 SMA Antenna hole x 1 HDMI x 1 DB-9 Type RS-232/422/485 x 2 RJ-45 x 1 for 10/100/1000 Base-TX 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)	USB 3.0 type A x 4 SMA Antenna hole x 1 HDMI x 1 DB-9 Type RS-232/422/485 x 2 RJ-45 x 1 for 10/100/1000 Base-TX 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)	USB 3.0 type A x 4 SMA Antenna hole x 1 HDMI x 1 DB-9 Type RS-232/422/485 x 2 RJ-45 x 1 for 10/100/1000 Base-TX 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)
Storage Disk Drive	2.5" SATA HDD bay x 1	2.5" SATA HDD bay x 1	2.5" SATA HDD bay x 1
Expansion Slot	Full size Mini Card x 1, SIM card x 1, OMNI I/O connector x 1	Full size Mini Card x 1, SIM card x 1, OMNI I/O connector x 1	Full size Mini Card x 1, SIM card x 1, OMNI I/O connector x 1
OS support	Windows® 7, Windows® 8.1, Windows® 10, Linux kernel 2.6.x or higher	Windows® 8.1, Windows® 10, Linux Kernal 2.6.x or higher	Windows® 8.1, Windows® 10, Linux Kernal 2.6.x or higher
Mechanical			
Construction	Aluminum design (IP65 Front Frame)	Aluminum design (IP65 Front Frame)	Aluminum design (IP65 Front Frame)
Mounting	Wall/ VESA 100/ Desktop/ Panel Mount	Wall/ VESA 100/ Desktop/ Panel Mount	Wall/ VESA 100/ Desktop/ Panel Mount
Dimension (mm)	14.53" x 12.36" x 2.28" (369 x 314 x 58 mm)	15.75" x 14.57" x 2.32" (400 x 370 x 59 mm)	18.14" x 16.14" x 2.47" (460.8 x 410 x 62.7 mm)
Gross Weight	14.3 lb (6.5 kg)	16.28 lb (7.4 kg)	19.36 lb (8.8 kg)
Environmental			
Operating Temperature	-20°C ~ 55°C with 0.5 m/s airflow (Industrial Grade HDD)	-20°C ~ 55°C with 0.5 m/s airflow (Industrial Grade HDD)	-20°C ~ 55°C with 0.5 m/s airflow (Industrial Grade HDD)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C; non-condensing	90% @40°C; non-condensing	90% @40°C; non-condensing
Anti-Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Anti-Shock	—	—	—
EMC	CE/FCC class A	CE/FCC class A	CE/FCC class A
Power Supply			
DC Input	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function
LCD			
Display type	15" TFT-LCD, LED	17" TFT-LCD, LED	19" TFT-LCD, LED
Max Resolution	1024(H) x 768(V)	1280(H) x 1024(V)	1280(H) x 1024(V)
Max. Colors	16.7M (8 bit/color)	16.7M colors (RGB 6-bits + Hi-FRC data)	16.7M colors
Luminance	450 cd/m ²	350 cd/m ²	350 cd/m ²
Viewing Angle	160° (H), 140° (V)	170 (H), 160 (V)	170°(H), 160°(V)
Back Light	LED	LED	LED
Back Light MTBF (Hours)	—	—	—
Touchscreen			
Type	P-CAP/ 5-wire resistive	P-CAP/ 5-wire resistive	P-CAP/ 5-wire resistive
Light Transmission	P-CAP (≥85%), 5-wire Resistive (80% ± 2%)	P-CAP (≥85%) 5-wire Resistive (80% ± 5%)	P-CAP (≥85%) 5-wire Resistive (80% ± 5%)
Note	Support OMNI I/O Modules	Support OMNI I/O Modules	Support OMNI I/O Modules

OMNI Series Modules- CPU BOX



Model	OMNI-BT CPU BOX	OMNI-SKU CPU BOX
System		
Processor	Intel® N2807 processor, 1.58 GHz Intel® J1900 processor, 2 GHz	Intel® Core™ i5-6300U, 2.4GHz Intel® Celeron® 3995U, 2GHz
System Memory	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)	260 Pin DDR4 SODIMM x 1, up to 16GB
LCD CRT Controller	Integrated in processor	Integrated in processor
Ethernet	Intel® I211, 10/100/1000Base-TX x 2	Intel® I211, 10/100/1000Base-TX x 1
IO Port	USB 2.0 type A x 3 USB 3.0 type A x 1 SMA Antenna hole x 1 HDMI x 1 CFast x 1 DB-9 Type RS-232/422/485 x 1 RJ-45 x 2 for 10/100/1000Base-TX DB-15 x 1 for VGA 3-pin terminal block x 1 for 9~30 Vdc power input LED Power on/off switch x 1 (Power on = Orange, Power off =N/A)	Type A USB 3.0 x 4 DB-9 Type RS-232/422/485 x 2 RJ-45 Type 10/100/1000Base-TX x 2 SMA Antenna hole x 1 HDMI x 1 3-pin terminal block x 1 for 9~30 Vdc power input, LED Power on/off switch x 1 (Power on = Orange, Power off =N/A)
Storage Disk Drive	CFast™ x 1, 2.5" SATA HDD bay x 1	2.5" SATA HDD bay x 1
Expansion Slot	Full size Mini Card x 2 SIM card x 2 OMNI I/O connector x 1	Full size Mini Card x 1 SIM card x 1 OMNI I/O connector x 1
OS Support	Window® 7, Window® 8, Window® 10, Linux Kernal 2.6.x or higher	Window® 8, Window® 10, Linux Kernal 2.6.x or higher
Construction	Metal Chass Design	Metal Chass Design
Mounting	—	—
Dimension	7.20" x 6.38"x 1.10" (183 mm x 162 mm x 28 mm)	7.20" x 6.38"x 2.05" (183 mm x 162 mm x 52 mm)
Gross Weight	26.2 lb (1.8 kg)	5.3 lb (2.4 kg)
Operating Temperature	14°F ~ 140°F (-10°C ~ 60°C)	-20°C ~ 55°C with 0.5 m/s airflow (Industrial Grade HDD)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C; non-condensing	90% @40°C; non-condensing
Anti Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Certification	CE/FCC class A	CE/FCC class A
DC Input	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function
Note		

System Level Products

OMNI Series Modules - Panels

OMNI Series Modules - Panels



Model	OMNI-3105 PANEL KIT	OMNI-3125 PANEL KIT	OMNI-3155 PANEL KIT
System			
Display Type	10.4" TFT-LCD, LED	12.1" TFT-LCD, LED	15" TFT-LCD, LED
Max. Resolution	800(H)x600(V)	1024(H)x768(V)	1024(H)x768(V)
Max. Colors	16.2M colors	16.2M colors	16.7M (8 bit/color)
Luminance	230 cd/m ²	500 cd/m ²	450 cd/m ²
Viewing Angle	120 (H), 100 (V)	160 (H), 160 (V)	160 (H), 140 (V)
Back Light	LED	LED	LED
Back Light MTBF (Hours)	—	—	—
Type	P-CAP/ 5-wire resistive	P-CAP/ 5-wire resistive	P-CAP/ 5-wire resistive
Light Transmission	P-CAP (90% ± 3%) 5-wire Resistive (80% ± 3%)	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	P-CAP (≥85%), 5-wire Resistive (80% ± 2%)
Construction	Aluminum design (IP65 Front Frame)	Aluminum design (IP65 Front Frame)	Aluminum design (IP65 Front Frame)
Mounting	Wall/ VESA 100/ Desktop/ Panel Mount	Wall/ VESA 100/ Desktop/ Panel Mount	Wall/ VESA 100/ Desktop/ Panel Mount
Dimension	11.02" x 9.41" x 1.22" (280 x 239 x 31 mm)	12.95" x 11.34" x 0.98" (329 x 288 x 25 mm)	14.52" x 12.36" x 1.06" (369 x 314 x 27 mm)
Gross Weight	4.63 lb (2.1 kg)	7.71lb (3.5 kg)	10.69 (4.85 kg)
Operating Temperature	14°F ~ 140°F (-10°C ~ 60°C)	14°F ~ 140°F (-10°C ~ 60°C)	14°F ~ 140°F (-10°C ~ 60°C)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C; non-condensing	90% @40°C; non-condensing	90% @40°C; non-condensing
Anti-Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Certification	CE/FCC class A	CE/FCC class A	CE/FCC class A
DC Input	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function
Note			

OMNI Series Modules - Panels



Model	OMNI-3175 PANEL KIT	OMNI-3195 PANEL KIT
System		
Display Type	17" TFT-LCD, LED	19" TFT-LCD, LED
Max. Resolution	1280(H)x1024(V)	1280(H)x1024(V)
Max. Colors	16.7M colors	16.7M colors
Luminance	350 cd/m ²	350 cd/m ²
Viewing Angle	170 (H), 160 (V)	170 (H), 160 (V)
Back Light	LED	LED
Back Light MTBF (Hours)	—	—
Type	P-CAP/ 5-wire resistive	P-CAP/ 5-wire resistive
Light Transmission	P-CAP (≥85%) 5-wire Resistive (80% ± 5%)	P-CAP (≥85%) 5-wire Resistive (80% ± 5%)
Os Support	Window® 7, Window® 8, Window® 10 Linux Kernel 2.6.x or higher	Window® 7, Window® 8, Window® 10 Linux Kernel 2.6.x or higher
Construction	Aluminum design (IP65 Front Frame)	Aluminum design (IP65 Front Frame)
Mounting	Wall/ VESA 100/ Desktop/ Panel Mount	Wall/ VESA 100/ Desktop/ Panel Mount
Dimension	15.74" x 14.57" x 1.10" (400 x 370 x 28 mm)	18.14" x 16.14" x 1.22" (460.8 x 410 x 31 mm)
Gross Weight	5.7 kg	7.3 kg
Operating Temperature	14°F ~ 140°F (-10°C ~ 60°C)	14°F ~ 140°F (-10°C ~ 60°C)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C; non-condensing	90% @40°C; non-condensing
Anti-Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Certification	CE/FCC class A	CE/FCC class A
DC Input	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function
Note		

OMNI Series Modules - Panels



Model	OMNI-2155 PANEL KIT	OMNI-2215 PANEL KIT
System		
Display Type	15.6" TFT-LCD, LED	21.5" TFT-LCD, LED
Max. Resolution	1366(H) x 768(V)	1920(H) x 1080(V)
Max. Colors	16.7M colors	16.7M colors
Luminance	400 cd/m ²	250 cd/m ²
Viewing Angle	160 (H), 140 (V)	178 (H), 178 (V)
Back Light	LED	LED
Back Light MTBF (Hours)	—	—
Type	P-CAP/ 5-wire resistive	P-CAP/ 5-wire resistive
Light Transmission	P-CAP (90% ± 3%) 5-wire Resistive (80% ± 2%)	P-CAP (≥85%) 5-wire Resistive (80% ± 5%)
Construction	Aluminum design (IP65 Front Frame)	Aluminum design (IP65 Front Frame)
Mounting	Wall/ VESA 100/ Desktop/ Panel Mount	Wall/ VESA 100/ Desktop/ Panel Mount
Dimension	16.54" x 10.43" x 1.41" (420 x 265 x 29 mm)	21.65" x 14.69" x 0.87" (550 x 373 x 22 mm)
Gross Weight	11.4lb (5.15 kg)	16.3 lb (7.4 kg)
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) (J1900) 14°F ~ 140°F (-10°C ~ 60°C)(N2807), with 0.5 m/s airflow (CF & HDD)	14°F ~ 131°F (-10°C ~ 55°C) (J1900) 14°F ~ 140°F (-10°C ~ 60°C)(N2807), with 0.5 m/s airflow (CF & HDD)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C; non-condensing	90% @40°C; non-condensing
Anti-Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Certification	CE/FCC class A	CE/FCC class A
DC Input	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function	DC 9(min) ~ 30 (max) V w/3-pin terminal block, ATX Power function
Note		

Infotainment Multi-Touch Panel Solutions



Model	ACP-5153	ACP-1106	ACP-1076
System			
Processor	Intel® Atom™ D2550 processor, 1.86 GHz	Intel® Celeron N4200/N3350 Processor	Intel® Celeron N4200/N3350 Processor
System Memory	DDR3 SODIMM up to 4 GB, default 2 GB	204-pin DDR4 SODIMM x 1, up to 16 GB,	260-pin DDR4 SODIMM x 1, up to 16 GB,
LCD/CRT Controller	Integrated in Intel® NM10 chipset	Integrated In Intel® Processor	Integrated In Intel® Processor
Ethernet	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 2
I/O Port	RS-232 x 1, USB 2.0 x 4 (2 on side, 2 on rear), Line-out x 1, VGA out x 1, RJ-45 x 2, Lockable power input connexor, Power switch x 1	RS-232 x 1 USB 2.0 x 1, USB 3.0 x 2 LAN x 2, HDMI x 1 2 Pin power input connexor, Power switch x 1 I/O Expansion slot	RS-232 x 1 USB 2.0 x 1, USB 3.0 x 2 LAN x 2, HDMI x 1 2 Pin power input connexor, Power switch x 1 I/O Expansion slot
Storage Disk Drive	2.5" SATA HDD/ CFast™ (internal)	Full Size mSATA x 1	Full Size mSATA x 1
Expansion Slot	Mini-PCIe card x 1	Half size mini card x 1(Internal)	Half size mini card x 1(Internal)
OS support	Windows® XP 32-bit, Windows® 7 32-bit, Linux kernel 2.6.3 or higher	Window® 10, Linux Kernal 4.4.0 or higher	Window® 10, Linux Kernal 4.4.0 or higher
Mechanical			
Construction	IP65 / NEMA 4 plastic front bezel, IPX1 plastic chassis	IP65 Aluminum Front Bezel + Matel Chassis	IP65 Aluminum Front Bezel + Matel Chassis
Mounting	VESA 75/100	VESA 75, Panel Mount	VESA 75, Panel Mount
Dimension	15.5" x 10.7" x 2.44" (394mm x 272mm x 62mm)	8.89" x 7.24" x 1.89" (266 x 184 x 48mm)	7.73" x 5.28" x 1.89" (196.4 x 134.2 x 48 mm)
Carton Dimension	20.47" x 18.5" x 9.06" (520mm x 470mm x 230mm)	13.39" x 7.64" x 9.96" (340 x 194 x 253mm)	10.87" x 9.41" x 6.69" (276 x 239 x 170 mm)
Gross Weight	12.1 lb (5.5 kg)	6.4 lb (2.9 Kg)	4.6 lb (2.1 Kg)
Environmental			
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C) w/o airflow	-5°C ~ 50°C with 0.5 m/s airflow	-5°C ~ 50°C with 0.5 m/s airflow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	10%~90% @40°C, non-condensing	10%~90% @40°C, non-condensing	10%~90% @40°C, non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Shock	20 G peak acceleration (11 msec. duration) – with HDD	20 G peak acceleration (11 msec. duration) – with mSATA	20 G peak acceleration (11 msec. duration) – with mSATA
EMC	CE/FCC class A	CE/FCC class A	CE/FCC class A
Power Supply			
DC Input	DC12V, with lockable power adapter	DC 12 / 9~30VDC input, with 2 Pin Power Adapter	DC 12 / 9~30VDC input, with 2 Pin Power Adapter
LCD			
Display Type	15.6" TFT-LCD, LED	10.1" TFT-LCD	7" TFT-LCD
Max. Resolution	1366 x 768	1280 x 800	1024 x 600
Max. Colors	16.7M colors (6/8-bit for R,G,B)	262K	262K
Luminance	400 cd/m ²	250 cd/m ²	300 cd/m ²
Viewing Angle	160°(H), 140°(V)	160°(H), 160°(V)	120°(H), 120°(V)
Back Light	LED	LED	LED
Back Light MTBF (hours)	50,000	25,000	15,000
Touchscreen			
Type	Projected capacitive multi-touch (2-point)	Projected capacitive multi-touch (2-point)	Projected capacitive multi-touch (2-point)
Light Transmission	90%	90%	90%
Life Time	10 million activations	10 million activations	10 million activations
Note			

System Level Products

Infotainment Multi-Touch Panel Solutions

Infotainment Multi-Touch Panel Solutions / Industrial Touch Display Solutions



Model	ACP-1104	ACP-1103
System		
Processor	Intel® J1900 processor, 2 GHz Intel® N2807 processor, 1.58 GHz	Intel® Atom™ N2600 1.6 GHz processor
System Memory	204-pin DDR3L 1333MHz SODIMM x 1, default 2 GB, up to 8 GB (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, default 2 GB, up to 4 GB (N2807)	204-pin DDR3 SODIMM up to 2 GB, default 2 GB
LCD/CRT Controller	—	Integrated in Intel® NM10 chipset
Ethernet	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 1
I/O Port	RS-232/422/485 x 2 (RJ-45 connector) USB 2.0 type A x 3 USB 3.0 type A x 1 HDMI x 1 DI/O (4 DI, 2 DO) BIOS selection Power button x 1 Lockable power connector x 1	RJ-48 type RS-232/422/485 x 2 RJ-48 type RS-232 x 1 USB 2.0 x 4, Mini HDMI x 1, RJ-45 type LAN x 1, Lockable power input connector, power switch x 1
Storage Disk Drive	Half size mSATA x 1 (Installation by AAEON recommended)	Half size mSATA storage (Installation by AAEON recommended)
Expansion Slot	Full size Mini-Card x 1	WiFi (by module)
OS support	Windows® 7, Windows® 8.1, Linux kernel 2.6.3 or higher, Android 6.0	Windows® XP 32-bit, Windows® 7 32-bit, Linux kernel 2.6.3 or higher
Construction		
Mounting	Aluminum Design	IP65/NEMA 4 Aluminum front bezel, aluminum back chassis
Dimension	VESA 75/ Panel mount/ Stand	VESA 75/ Panel mount/ Stand
Carton Dimension	10.47" x 7.22" x 1.81" (266 x 183.5 x 30mm)	10.47" x 7.22" x 1.81" (266mm x 183.5mm x 30mm)
Gross Weight	13.58" x 7.87" x 9.65" (345 x 200 x 245mm)	13.58" x 7.87" x 9.65" (345mm x 200mm x 245mm)
Net Weight	5.5 lb (2.5 kg)	5.5 lb (2.5 kg)
Environmental		
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) without airflow 32°F ~ 122°F (0°C ~ 50°C) with airflow	32°F ~ 113°F (0°C ~ 45°C) without airflow 32°F ~ 122°F (0°C ~ 50°C) with airflow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	5%~90% @40°C, non-condensing	95% @40°C, non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Shock	15 G peak acceleration (11 msec. duration) – with HDD	15 G peak acceleration (11 msec. duration) – with HDD
EMC	CE/FCC class A	CE/FCC class A
Power Supply		
DC Input	DC 12V with lockable power adapter	DC 12V, with lockable power adapter
LCD		
Display Type	10.1" TFT-LCD, LED	10.1" TFT-LCD, LED
Max. Resolution	1280 x 800	1280 x 800
Max. Colors	262k	262K
Luminance	250 cd/m ²	250 cd/m ²
Viewing Angle	160°(H), 160°(V)	160°(H), 160°(V)
Back Light	LED	LED
Touchscreen		
Viewing Angle	Projected capacitive multi-touch (2-point)	Projected capacitive multi-touch (2-point)
Light Transmission	90%	>86%
Life Time	10 million activations	10 million activations
Note		

Infotainment Multi-Touch Panel Solutions



Model	ACP-1074	ACP-1073
System		
Processor	Intel® N2807 1.58 GHz/ J1900 2 GHz processor	Intel® Atom™ N2600 1.6 GHz processor
System Memory	204-Pin DDR3L SODIMM x 1, default 2GB, up to 8 GB (J1900) 204-Pin DDR3L SODIMM x 1, default 2GB, up to 4 GB (N2807)	204-pin DDR3 SODIMM up to 2 GB, default 2 GB
LCD/CRT Controller	Integrated in processor	Intel® NM10 integrated graphics
Ethernet	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 1
I/O Port	RJ-45 type RS-232/422/485 x 2 USB 2.0 x 3 USB 3.0 x 1 HDMI x 1 RJ-45 10/100/1000 LAN x 2 DI/O (4DI, 2DO)BIOS Selection Lockable power input connector Power switch x 1	RJ-48 type RS-232/422/485 x 2 RJ-48 type RS-232 x 1 USB 2.0 x 4, Mini HDMI x 1 RJ-45 type LAN x 1, Lockable power input connector power switch x 1
Storage Disk Drive	Half size mSATA storage x 1 (Installation by AAEON recommended)	Half-size mSATA storage (installation by AAEON recommended)
Expansion Slot	Full size Mini-Card x 1	WiFi (by module)
OS support	Windows® 7, Windows® 8.1, Windows® 10, Linux kernel 2.6.3 or higher, Android 6.0	Windows® XP 32-bit, Windows® 7 32-bit, Linux kernel 2.6.3 or higher
Construction		
Mounting	Aluminum Design	IP65/NEMA 4 aluminum front bezel, aluminum back chassis
Dimension	VESA 75/ Panel mount/ Stand	VESA 75 stand/ Panel mount
Carton Dimension	7.71" x 5.27" x 1.18" (196mm x 134mm x 30mm)	7.96" x 5.28" x 1.46" (202.19mm x 134.18mm x 37.2mm)
Gross Weight	13.58" x 7.87" x 9.64" (345mm x 200mm x 245mm)	13.58" x 7.87" x 9.65" (345mm x 200mm x 245mm)
Net Weight	5.5 lb (2.5 kg)	5.5 lb (2.5 kg)
Environmental		
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C) without airflow 23°F ~ 131°F (-5°C ~ 55°C) with airflow	32°F ~ 113°F (0°C ~ 45°C) without airflow 32°F ~ 122°F (0°C ~ 50°C) with airflow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	5%~90% @40°C, non-condensing	95% @40°C, non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Shock	15 G peak acceleration (11 msec. duration) – with HDD	15 G peak acceleration (11 msec. duration) – with HDD
EMC	CE/FCC class A	CE/FCC class A
Power Supply		
DC Input	DC12V, with lockable power adapter	DC12V, with lockable power adapter
LCD		
Display Type	7" TFT-LCD, LED	7" TFT-LCD, LED
Max. Resolution	1024 x 600	1024 x 600
Max. Colors	26M colors (6/8-bit for R,G,B)	26M colors (6/8-bit for R,G,B)
Luminance	250 cd/m ²	250 cd/m ²
Viewing Angle	150°(H), 145°(V)	150°(H), 145°(V)
Back Light	LED	LED
Touchscreen		
Viewing Angle	Projected capacitive multi-touch (2-point)	Projected capacitive multi-touch (2-point)
Light Transmission	90%	90%
Life Time	10 million activations	10 million activations
Note		

System Level Products

Industrial Touch Display Solutions

Industrial Touch Display Solutions



Model	AGD-315D V2	AGD-312D V2
System		
Input Signal	VGA/DVI	VGA/DVI
On Screen Display Control	MENU, AUTO, LCD On/Off, UP, DOWN	LCD On/Off, Auto, Menu, Up, Down
I/O Connector	VGA/DVI, RS-232 (For T/S)	VGA/DVI, RS-232 (For T/S)
OS Support	Windows® XP, Windows® 7, Windows® 8.1, Windows® 10, Linux Fedora	Windows® XP, Windows® 7, Windows® 8.1, Windows® 10, Linux Fedora
Mechanical		
Construction	IP65/ NEMA4 aluminum die cast front bezel & steel chassis	IP65/ NEMA4 aluminum die cast front bezel & steel chassis
Mounting	Panel mount/ Rackmount/ VESA 75/100/ Wallmount/ Desktop	Panel mount/ Rackmount/ VESA 75/100/ Wallmount/ Desktop
Dimension	15.35" x 12.74" x 2.84" (390mm x 323.5mm x 72mm)	13.61" x 10.46" x 2.41" (345.8mm x 265.8mm x 61.1mm)
Carton Dimension	20" x 18.11" x 8.26" (510mm x 460mm x 210mm)	20.67" x 18.31" x 9.1" (525mm x 465mm x 230mm)
Gross Weight	13 lb (5.9 kg)	13 lb (5.9 kg)
Net Weight	9 lb (4.1 kg)	9 lb (4.1 kg)
Environmental		
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	10~95% @ 40°C, non-condensing	10~95% @ 40°C, non-condensing
Vibration	1 Grms/ 5~500Hz/ random operation	1 Grms/ 5~500Hz/ random operation
Shock	15 G peak acceleration (11 msec. duration)	10G peak acceleration (11 msec. duration)
EMC	CE/FCC class A	CE/FCC class A
Power Supply		
DC Input	DC 12V or DC 9~30V, w/3-pin terminal block Over-voltage (31VDC) Under-voltage (8VDC) Reverse-voltage protection Surge protection (1000VDC)	DC 12 V/ 9~30V, w/3-pin terminal block Over-voltage (31VDC) Under-voltage (8VDC) Reverse-voltage protection Surge protection (1000VDC)
LCD		
Display Type	15" TFT-LCD	12.1" TFT-LCD
Max. Resolution	1024 x 768	1024 x 768
Max. Colors	16.7M colors (6/8-bit for R,G,B)	16.7M colors (6/8-bit for R,G,B)
Luminance	450 cd/m ²	500 cd/m ²
Viewing Angle	160°(H), 140°(V)	160°(H), 160°(V)
Back Light	LED	LED
Back Light MTBF (Hours)	100,000	50,000
Touchscreen		
Type	5-wire resistive (V2A/V2A)	5-wire resistive (AGD-312DHTT-V2A-1010/ AGD-312DHTT-V2B-1010)
Light Transmission	80%	80% (±5%)
Lifetime (Times)	10 million activations	10 million activations

Industrial Touch Display Solutions



Model	ACD-110D	ACD-515D
System		
Input Signal	VGA, DVI-D	VGA/ DVI-D
On Screen Display Control	Auto, Menu, Up, Down, LCD On/Off	Menu, Auto, LCD On/Off, Up, Down
I/O Connector	DB-15: VGA x 1, DVI-D x 1 Mini USB x 1, Power input x 1	USB x 3 (2 on side; 1 on rear), VGA/DVI x 1, Mini-USB x 1 (for T/S), Line-out x 1, 2W speaker x 2
OS Support	Windows® XP 32 bit, Windows® 7 32/64 bit, Windows® 8 32/64 bit, Linux Ubuntu 12.04	Windows® XP (T/S: single point), Linux Fedora (T/S: single point), Windows® 7 (T/S: multi-point)
Mechanical		
Construction	IP65 aluminum front bezel & SGCC chassis	IP65/ NEMA4 for plastic front bezel, IPX1 for plastic chassis
Mounting	VESA75/ Panel mount/ Stand	VESA 75/100
Dimension	9.97" x 6.72" x 1.57" (265.96mm x 183.56mm x 40mm)	15.51" x 10.71" x 2.32" (394mm x 272mm x 59mm)
Carton Dimension	—	20.47" x 18.5" x 9.06" (520mm x 470mm x 230mm)
Gross Weight	4.4 lb (2.6 kg)	11.02 lb (5 kg)
Net Weight	2.64 lb (1.4 kg)	6.6 lb (3 kg)
Environmental		
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) w/o airflow 32°F ~ 122°F (0°C ~ 50°C) w/ airflow	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature	14°F ~ 140°F (-10°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	5%~90% @40°C, non-condensing	10~95% @ 40°C, non-condensing
Vibration	1 Grms/ 5 ~ 500Hz/ operation – with HDD	1 Grms/ 5~500Hz/ random operation
Shock	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration)
EMC	CE/FCC class A	CE/FCC class A
Power Supply		
DC Input	DC 12V with Lockable Power adapter	DC 12V, with lockable power adapter
LCD		
Display Type	10.1" TFT LCD	15.6" TFT-LCD, LED type
Max. Resolution	1280 x 800	1366 x 768
Max. Colors	262K colors	16.7M colors (6/8-bit for R,G,B)
Luminance	250 cd/m ²	400 cd/m ²
Viewing Angle	160°(H)/ 160°(V)	160°(H)/140°(V)
Back Light	LED	LED
Back Light MTBF (Hours)	20,000	50,000
Touchscreen		
Type	Projective capacitive multi-touch (2-point)	Projected capacitive multi-touch (2-point)
Light Transmission	86%	90%
Lifetime (Times)	10 million activations	10 million activations

System Level Products

Rugged Tablet Computers

Rugged Tablet Computers



Model	RTC-600A	RTC-700M
System Architecture		
Processor	TI® OMAP™ 4470 1.5 GHz Dual Core Processor	TI® OMAP™ 4470 1.5GHz Dual Core Processor
Operating System	Android™ 4.2	Android™ 4.2, Android™ 5.1 (Optional)
Memory	Onboard 1 GB LPDDR2	Onboard 1GB LPDDR2
Storage	Onboard 16 GB eMMC	Onboard 16GB eMMC
Display	5.7" TFT LCD/16:9, with Projected Capacitive Multi-Touch screen	7" TFT-LCD / 16:10, with Projected Capacitive Multi-Touch screen
I/O Ports	SIM Card x 1, Micro SD Card Slot x 1, USB 2.0 (type A) x 1, Micro USB port x 1, 3.5-mm stereo headphone jack x 1, DC-In Jack x 1, Built-in Speaker & Microphone	DC-in jack x 1, MicroSD Card x 1, SIM Card slot x 1, Mini HDMI port x 1, Mini USB x 1, Built-in Speaker & Microphone x 1, 3.5mm stereo headphone jack x 1, 1D/2D Barcode scanner x 1 (Optional), Magnetic Stripe Reader x 1 (Optional), COM port x 1+Ethernet x 1 (Optional)
Communication	Bluetooth v4.0, Wi-Fi (802.11 b/g/n), NFC / RFID (13.56MHz), 3G (Optional)	Bluetooth v3.0, Wi-Fi (802.11 b/g/n), NFC / RFID (13.56MHz), 3G (Optional)
Navigation	GPS, Glonass	GPS, Glonass
WWAN (Optional)	3G: WCDMA	3G: WCDMA
Camera	5 MP auto-focus rear camera with flash	5 MP auto-focus rear camera with flash
Sensors	Light Sensor, G-Sensor, 3-axis digital gyroscope, vibrator	S-sensor, E-compass, Gyroscope, Light-sensor
Expansion Slot	Docking	Docking
Barcode Code Scanner (Optional)	1D Scanner support CMOS engine (Optional), 2D Scanner support LED engine	1D Scanner support CMOS engine (optional), 2D Scanner support LED engine
RFID (Optional)	HF RFID based on 13.56MHz compatible with NFC	HF RFID based on 13.56MHz compatible with NFC
Mechanical		
Color	Black	Black
Dimension (W x H x D)	4.1" x 8.2" x 0.8" (105mm x 201mm x 21mm)	5.38" x 8.58" x 0.83" (136.6mm x 219mm x 21mm)
Gross Weight	0.94lb (0.43kg)	1.27lb (0.57kg)
Environmental		
Operating Temperature	-20 °C ~ 60 °C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)
Storage Temperature	-55 °C ~ 70 °C (-67°F ~ 158°F)	-55°C ~ 70°C (-67°F ~ 158°F)
Humidity	50°C; 5% ~ 90%RH; 120 hours, non-condensing	50°C; 5% ~ 90%RH; 120 hours, non-condensing
Environmental Sealing	IP67	IP65
Vibration	MIL-STD-810G Method 514.6 Procedure I, Cat. 24, Fig. 514.6E-1 & E-2	MIL-STD-810G Method 514.6 Procedure I, Cat. 24, Fig. 514.6E-1 & E-2
Drop	MIL-STD-810G Method 516.6 Procedure IV - Height of Drop: 122cm (48 inch; 4ft), - Number of Drop: 26 times, - Floor: Twoinch plywood backed by concrete, - For all surfaces, edges and corners	MIL-STD-810G Method 516.6 Procedure IV - Height of Drop: 122cm (48 inch; 4ft), - Number of Drop: 26 times, - Floor: Twoinch plywood backed by concrete, - For all surfaces, edges and corners
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV	Air charge: +/- 8KV, Contact charge: +/- 4KV
Certifications and Standards	UL: UL60950-1, CE/LVD: EN60950-1, FCC, CE	UL: UL60950-1, CE/LVD: EN60950-1, FCC, CE
Power Supply		
AC / DC Adapter	AC 100~240V, 50~60Hz; DC 12V/3A (36W)	AC 100~240V, 50~60Hz; DC 12V/3A (36W)
Battery Life	Li-polymer High Capacity Battery, up to 8 Hours Battery Life	Li-polymer High Capacity Battery, up to 8 Hours Battery Life
Master Battery	External Battery: 7.4V 1530mAh	External Battery: 7.4V 1530mAh
Slave Battery	Removable Battery: 7.4V 1530mAh	Removable Battery: 7.4V 1530mAh
Display		
LCD	5.7" TFT LCD / 16:9, with LED backlight	7" TFT-LCD / 16:10, with LED backlight
Resolution	1280 x 720 Pixels	1280 x 800 pixel
Maximum Color	—	16.7M
Dot Size	—	0.117(W) x 0.117(H)
Brightness	420 nits; optional Sunlight Readable*	400 nits; Sunlight Readable (Optional)*
Viewing Angle	Vertical/ Horizontal 178°	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)
Touch Screen		
Touch Type	Projected capacitive multi-touch screen (PCT)	Projected capacitive multi-touch screen (PCT)
Light Transmission	Min 87% (ASTM D1003; Wavelength = 550nm)	Min 87% (ASTM D1003; Wavelength = 550nm)
Note		

Rugged Tablet Computers



Model	RTC-700A
System Architecture	
Processor	nVIDIA® TEGRA™ 2 Dual Core 1.0 GHz Processor
Operating System	Android © 4.0
Memory	Onboard 1GB LPDDR2
Storage	Onboard 16GB eMMC
Display	7" TFT-LCD / 16:10, with Projected Capacitive Multi-Touch screen
I/O Ports	DC-in jack x 1, MicroSD Card x 1, SIM Card slot x 1, miniUSB 2.0 x 1, mini HDMI x 1, Built-in Speaker & Microphone x 1, 3.5mm stereo headphone jack x 1, 1D/2D Barcode scanner x 1 (Optional)
Communication	Bluetooth v2.1, Wi-Fi (802.11 b/g/n), NFC / RFID (13.56MHz), 3G (Optional)
Navigation	GPS; Glonass (Optional)
WWAN (Optional)	3G: WCDMA
Camera	1.2 MP front camera, 5 MP auto-focus rear camera
Sensors	G-sensor, E-Compass, Gyroscope, Light-sensor
Expansion Slot	Docking
Barcode Code Scanner (Optional)	1D Scanner support CMOS engine (optional), 2D Scanner support LED engine
RFID (Optional)	HF RFID based on 13.56MHz compatible with NFC
Mechanical	
Color	Black
Dimension (W x H x D)	5.38" x 8.58" x 0.83" (136.6mm x 219mm x 21mm)
Gross Weight	1.254lb (0.57 kg)
Environmental	
Operating Temperature	-20 °C ~ 60 °C (-4 °F ~ 140°F)
Storage Temperature	-55 °C ~ 70 °C (-67°F ~ 158°F)
Humidity	50°C; 5% ~ 90%RH; 120 hours, non-condensing
Environmental Sealing	IP65
Vibration	MIL-STD-810G Method 514.6 Procedure I, Cat. 24, Fig. 514.6E-1 & E-2
Drop	MIL-STD-810G Method 516.6 Procedure IV - Height of Drop: 122cm (48 inch; 4ft), - Number of Drop: 26 times, - Floor: Twainch plywood backed by concrete, - For all surfaces, edges and corners
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV
Certifications and Standards	UL: UL60950-1, CE/LVD: EN60950-1, FCC, CE
Power Supply	
AC / DC Adapter	AC 100~240V, 50~60Hz ; DC 12V/2A (24W)
Battery Life	Li-polymer High Capacity Battery, up to 8 Hours Battery Life
Master Battery	Internal Battery: 7.4V 3700mAh
Slave Battery	—
Display	
LCD	7" TFT-LCD / 16:10, with LED backlight
Resolution	1280 x 800 pixel
Maximum Color	16.7M
Dot Size	0.117x 0.117(H)
Brightness	400 nits; 680 nit (Optional)
Viewing Angle	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)
Touch Screen	
Touch Type	Projected capacitive multi-touch screen (PCT)
Light Transmission	Min 87% (ASTM D1003; Wavelength = 550nm)
Note	

System Level Products

Rugged Tablet Computers

Rugged Tablet Computers



Model	RTC-900R	RTC-900B	RTC-1000i
System Architecture			
Processor	NVIDIA® TEGRA 2 1.0GHz Dual Core Processor	Intel® Atom™ Bay Trail E3825 Processor 1.33GHz Dual Core (Up to E3827)	Intel® Core™ i7-620UE 1.06GHz Processor
Operating System	Android 4.0	Support Windows® 10 IoT/ Windows® Embedded 7/ Windows® 8.1 Industrial Pro	Windows®/Embedded 7, Linux Ubuntu 9.04 (optional)
Memory	Onboard 1GB LPDDR2	DDR3L 4GB (Max 8GB)	Onboard DDR3 2GB(defule) + DDR3 SO-DIMM Socket x 1, up to 6GB(optional)
Storage	Onboard 16GB eMMC	mSATA SSD 32GB MLC (up to 256GB)	2.5" SATA Hard Disk/SSD (optional)
Display	10.1" TFT-LCD / 16:10, with Projected Capacitive Multi-Touch screen	10.1" TFT-LCD / 16:10, with Projected Capacitive Multi-Touch screen	10.2" TFT-LCD / 16:9, with AOT Projected Capacitive Multi-Touch screen
I/O Ports	DC-in Jack x 1 Mini USB Port x 1 Mini HDMI x 1, Micro SD Card Slot x 1, 3.5-mm stereo headphone jack x 1 Built-in Speaker & Microphone, SIM Card Slot x 1	DC-in Jack x 1, Micro USB 3.0 Port x 1, Micro HDMI x 1, Micro SD Card Slot x 1, 3.5-mm stereo headphone jack x 1 Built-in Speaker & Microphone, SIM Card Slot x 1	COM (RS-232/422/485) x 1, USB 2.0 x 2, Mini USB x 1, VGA x 1, Docking port x 1, Two audio in/ out jacks for Microphone/Earphone
Communication	Bluetooth v4.0+EDR (Bluetooth® Keyboard/Mouse support, Wi-Fi (802.11 b/g/n)	Bluetooth v4.0+EDR (Bluetooth® Keyboard/Mouse support, Wi-Fi (802.11 b/g/n)	Gigabit Ethernet, WLAN 802.11 b/g+Bluetooth 2.0 Class 1, 3.5G Modem module (optional)
Navigation	GPS, Glonass	GPS, Glonass	GPS
WWAN (Optional)	3G: WCDMA	3G: WCDMA, 4G (optional)	Gigabit Ethernet, WLAN 802.11 b/g+Bluetooth 2.0 Class 1
Camera	1.2 MP front camera, 5 MP auto-focus rear camera	2MP Front camera, 5MP Auto Focus camera	—
Sensors	Light Sensor, G-Sensor	Light Sensor, G-Sensor	—
Expansion Slot	—	—	—
Barcode Code Scanner (Optional)	—	—	—
RFID (Optional)	—	HF RFID based on 13.56MHz compatible with NFC	—
Mechanical			
Color	Black	Black	Black
Dimension (W x H x D)	10.65" x 7.42" x 0.96" (270.4mm x 188.4mm x 24.29 mm)	10.65" x 7.42" x 0.96"(270.4mm x 188.4mm x24.29 mm)	10.6" x 7.2" x 19"(270mm x 184mm x 49mm)
Gross Weight	2.4lb (1.1Kg)	2.8lb (1.31Kg)	5 lb (2.3 Kg)
Environmental			
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C)	-4°F ~ 131°F (-20°C ~ 55°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Temperature	-67°F ~ 131°F (-55°C ~ 55°C)	-67°F ~ 131°F (-55°C ~ 55°C)	-67°F ~ 167°F (-55°C ~ 75°C)
Humidity	40°C; 10% ~ 90%RH; 120 hours, non-condensing	40°C; 10% ~ 90%RH; 120 hours, non-condensing	40°C; 10% ~ 90%RH; 120 hours, non-condensing
Environmental Sealing	IP65	IP65	IP54
Vibration	Meets MIL-STD 810G-514.6, Procedure I Cat. 24, Fig. 514.6E-1 & 514.6E-2 (Unit is non-operating) ASTM 4169-99 Truck Assurance Level II, Schedule E (Unit is operating)	Meets MIL-STD 810G-514.6, Procedure I Cat. 24, Fig. 514.6E-1 & 514.6E-2 (Unit is non-operating) ASTM 4169-99 Truck Assurance Level II, Schedule E (Unit is operating)	Meets MIL-STD-810G-514.6, Procedure I Cat. 24, Fig. 514.6E-1 & 514.6E-2 (Units is non-operating), ASTM 4169-99 Truck Assurance Level 2, Schedule E (Units is operating)
Drop	26 drops of 48 inches height to 2" plywood over concrete with unit off MIL-STD 810G-516.6, Procedure IV	26 drops of 48 inches height to 2" plywood over concrete with unit off MIL-STD 810G-516.6, Procedure IV	26 drop of 48 inches height to 2" plywood over concrete with units off MIL-STD-810G-516.6, Procedure IV
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV	Air charge: +/- 8KV, Contact charge: +/- 4KV	Air charge: +/- 8KV, Contact charge: +/- 4KV
Certifications and Standards	UL: UL60950-1, CE/LVD: EN60950-1, FCC, CE	UL: UL60950-1, CE/LVD: EN60950-1, FCC, CE	UL: UL60950-1, CE/LVD: EN60950-1, FCC, CE
Power Supply			
AC / DC Adapter	AC 100~240V, 50~60Hz; DC 12V/2A (24W)	AC 100~240V, 50~60Hz; DC 12V/4A (48W)	AC 100~240V, 50~60Hz; DC 19V/3.42A (65W)
Battery Life	Li-ion High Capacity Battery, up to 8 Hours Battery Life	Li-ion High Capacity Battery, up to 8 Hours Battery Life	Li-polymer High Capacity Battery, up to 5 Hours Battery Life
Master Battery	Internal Battery: 7.4V 6810mAh	Internal Battery: 7.4V 6810mAh	Internal Battery: 11.1V 7800mAh
Slave Battery	—	—	—
Display			
LCD	10.1" TFT-LCD/ 16:10 with LED backlight	10.1" TFT-LCD/ 16:10 with LED backlight	10.2" 16:9 TFT LCD, with LED backlight
Resolution	1280 x 800	1280 x 800	1024 x 600
Maximum Color	16.7M	16.7M	262K colors
Dot Size	0.0565 x 0.1695(H)	0.0565 x 0.1695(H)	0.2175 x 0.2175
Brightness	350 nits (900 nits optional)	350 nit (800 nits optional)	200/500 nits (Optional)
Viewing Angle	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)	Vertical 60° (R)/60° (L), Horizontal 70° (U)/70° (L)
Touch Screen			
Touch Type	Projected capacitive multi-touch screen (PCT)	Projected capacitive multi-touch screen (PCT)	Resistive Touch Screen
Light Transmission	Min 87% (ASTM D1003; Wavelength = 550nm)	Min 87% (ASTM D1003; Wavelength = 550nm)	86±3%
Note			

Rugged Tablet Computers



Model	RTC-1200SK
System Architecture	
Processor	Intel® Core™ i Dual Core up to 3.4GHz Processor Intel® Celeron® 3955U Dual Core 2.0GHz Processor
Operating System	Windows® 10 IoT Enterprise 64bit, Windows® 7 Embedded 32/64bit
Memory	DDR3 SO-DIMM Socket x 1, up to 8 GB
Storage	M.2 (NGFF) SSD, default 64GB
Display	11.6" TFT-LCD / 16:9, with Projected Capacitive Multi-Touch screen
I/O Ports	DC-in Jack x 1, USB 3.0 x 1 (Type A), USB 2.0 x 2 (Type A), RJ45 x 1, COM x 1, HDMI x 1, Micro SD Card Slot x 1, 3.5-mm stereo headphone jack x 1, Built-in Speaker & Microphone SIM Card Slot x 1, Barcode Scanner (Optional)
Communication	Bluetooth v4.0, Wi-Fi (802.11 b/g/n), Front-facing NFC / RFID (13.56MHz), 3G (Optional)
Navigation	GPS, Glonass
WWAN(optional)	3G: WCDMA
Camera	2 MP front camera, 5 MP auto-focus rear camera with flash
Sensors	G-sensor, E-Compass, Gyroscope, Light-sensor
Expansion Slot	Docking; GPS/WLAN Pass-through via Docking
Barcode Code Scanner (optional)	1D Scanner support CMOS engine (optional), 2D Scanner support LED engine
RFID (optional)	Front-facing HF RFID based on 13.56MHz compatible with NFC
Mechanical	
Color	Gray&Black
Dimension (W x H x D)	310.4 mm x 200 mm x 24.5 mm
Gross Weight	3.3 lbs (1.5 kg)
Environmental	
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Temperature	-67°F ~ 158°F (-55°C ~ 70°C)
Humidity	50°C; 5% ~ 90%RH; 120 hours, non-condensing
Environmental Sealing	IP65
Vibration	MIL-STD-810G Method 514.6 Procedure I, Cat. 24, Fig. 514.6E-1 & E-2
Drop	MIL-STD-810G Method 516.6 Procedure IV - Height of Drop: 122cm (48 inch; 4ft), - Number of Drop: 26 times, - Floor: 2" plywood backed by concrete, - For all surfaces, edges and corners
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV
Certifications and Standards	UL: UL60950-1, CE/LVD: EN60950-1, FCC, CE
Power Supply	
AC / DC Adapter	AC 100~240V, 50~60Hz ; DC 19V/3.42A (65W)
Battery Life	Li-polymer High Capacity Battery, up to 6 Hours Battery Life, one of hard packs is removable
Master Battery	Removable Battery: 14.8V 2270mAh
Slave Battery	Removable Battery: 14.8V 2270mAh
Display	
LCD	11.6" TFT-LCD / 16:9, with LED backlight
Resolution	1920 x 1080 pixel
Maximum Color	16.7M
Dot Size	0.117x 0.117(H)
Brightness	1000 nits; 300 nits (Optional)
Viewing Angle	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)
Touch Screen	
Touch Type	Projected capacitive multi-touch screen (PCT); Gloves/Finger Switchable by F2
Light Transmission	Min 87% (ASTM D1003; Wavelength = 550nm)
Physical Key	
Windows	Starter Key
Volume up	Speaker Volume Up
Volume down	Speaker Volume Down
F1	Ctrl+Alt+Del & Barcode Scanner Trigger
F2	Touch Mode Switch
F3	Print/Screen
Note	

System Level Products

Ultra Slim Fanless BOX PC Solutions

Launching in Q4



Model	BOXER-6405	BOXER-6404U
System		
CPU	Intel® Pentium® N4200, 2.5 GHz Intel® Celeron® N3350, 2.4 GHz	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron™ N2807, 1.58 GHz
Chipset	Intel® System on Chip	Intel® System on Chip
System Memory	DDR3L 1866 SODIMM slot x 1, up to 8GB	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900) or 4 GB (N2807)
Display Interface	HDMI, VGA	VGA
Storage Device	mSATA, HDD/SSD	mSATA, HDD/SSD
Ethernet	Intel® I211+I219, 10/100/1000Base-TX x 2	REALTEK, RTL8111E-VL-CG, 10/100/1000Base-TX x 2
I/O	RS-232/422/485 x 3 USB Type A x 4 for USB 3.0 VGA x 1 HDMI x 1 RJ-45 x 9 for GbE LAN 2 pin Remote power on/off AT/ATX DIP Switch Antenna holes x 1 Power button SYS LED indicator x 1 HDD LED indicator x 1 DC-in 3-pin terminal block (9~24V)	RS-232 x 1 USB 2.0 x 1 USB 3.0 x 1 VGA x 1 LAN x 2 Digital I/O x 8 bit Antenna holes x 3 Power switch Power input
Expansion	Full-size Mini-Card x 1 Half-size Mini-Card x 1 (optional for mSATA)	Full-size Mini-Card x 1 Half Mini-Card x 1 (for mSATA)
Indicator	Power LED, HDD active LED	Power LED HDD active LED
OS Support	Windows® 10 Windows® 10 IoT Linux	Windows® 10, Windows® 8.1, Windows® 7, Windows® Embedded 8, Windows® Embedded 7, Linux Fedora
Power Supply		
Power Requirement	3 pin 9~24V DC Power input x 1	12 - 24V with 3-pin terminal block
Mechanical		
Mounting	Wallmount DIN Rail (Mounting kit is optional) VESA Mount (Mounting kit is optional)	Wallmount VESA (Mounting kit is optional) DIN rail (Mounting kit is optional)
Dimensions (W x H x D)	6.53" x 4.20" x 1.63" (166 mm x 106.6 mm x 41.5 mm)	6.53" x 4.20" x 1.63" (166 mm x 106.6 mm x 41.5 mm)
Gross Weight	2.9 lb (1.3 kg)	2.9 lb (1.3 kg)
Net Weight	2.2 lb (1.0 kg)	2.2 lb (1.0 kg)
Environmental		
Operating Temperature	-20°C ~ 60°C with W.T. SSD/HDD/mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-25°C ~ 60°C with wide temperature HDD/mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-22°F ~ 176°F (-30°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – mSATA/SSD 1 Grms/ 5~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation – mSATA
Certification	CE/FCC class A	CE/FCC class A
Note		

Ultra Slim Fanless BOX PC Solutions



Model	BOXER-6403	BOXER-6403WT
System		
CPU	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron® N2930, 1.83 GHz Intel® Celeron™ N2807, 1.58 GHz Intel® Atom™ E3825, 1.33 GHz	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron™ N2807, 1.58 GHz
Chipset	Intel® System on Chip	Intel® System on Chip
System Memory	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900/ N2930/ E3825) or 4 GB (N2807)	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900) or 4 GB (N2807)
Display Interface	HDMI	HDMI
Storage Device	mSATA	mSATA
Ethernet	Intel® I211, 10/100/1000Base-TX x 2	Intel® I211, 10/100/1000Base-TX x 2
I/O	RS-232/422/485 x 2 USB 2.0 x 3 USB 3.0 x 1 HDMI x 1 LAN x 2 Digital input x 4 Digital output x 2 Antenna holes x 2 Power button Power input	RS-232/422/485 x 2 USB 2.0 x 3 USB 3.0 x 1 HDMI x 1 LAN x 2 Digital input x 4 Digital output x 2 Antenna holes x 2 Power button Power input
Expansion	Half Mini-Card x 1 (mSATA only), Full Mini-Card x 1 with SIM slot	Half Mini-Card x 1 (mSATA only), Full Mini-Card x 1 with SIM slot
Indicator	Power LED on power button	Power LED on power button
OS Support	Windows® 10, Windows® 8.1, Windows® 7, Windows® Embedded 8, Windows® Embedded 7, Linux Fedora	Windows® 10, Windows® 8.1, Windows® 7, Windows® Embedded 8, Windows® Embedded 7, Linux Fedora
Power Supply		
Power Requirement	12V with lockable DC jack	12V with lockable DC jack
Mechanical		
Mounting	VESA (Mounting kit is optional) DIN rail (Mounting kit is optional)	VESA (Mounting kit is optional) DIN rail (Mounting kit is optional)
Dimensions (W x H x D)	6.22" x 3.74" x 0.79" (158mm x 95mm x 20mm)	6.22" x 3.74" x 1.41" (158mm x 95mm x 29mm)
Gross Weight	2.56 lb (1.16 kg)	2.98 lb (1.35 kg)
Net Weight	2.0 lb (0.9 kg)	2.2 lb (1.0 kg)
Environmental		
Operating Temperature	-30°C ~ 60°C with wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-30°C ~ 70°C with wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-22°F ~176°F (-30°C ~ 80°C)	-22°F ~176°F (-30°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	3G rms/ 5 ~ 500Hz/ operation –mSATA	3G rms/ 5 ~ 500Hz/ operation –mSATA
Certification	CE/FCC class A	CE/FCC class A
Note		

System Level Products

Ultra Slim Fanless BOX PC Solutions

Ultra Slim Fanless BOX PC Solutions



Model	BOXER-6403M	BOXER-6404
System		
CPU	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron™ N2807, 1.58 GHz	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron™ N2807, 1.58 GHz
Chipset	Intel® System on Chip	Intel® System on Chip
System Memory	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900) or 4 GB (N2807)	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900) or 4 GB (N2807)
Display Interface	HDMI	HDMI
Storage Device	mSATA, HDD/SSD	CFAST™
Ethernet	Intel® I211, 10/100/1000Base-TX x 2	Intel® I211, 10/100/1000Base-TX x 4
I/O	RS-232/422/485 x 2 USB 2.0 x 3 USB 3.0 x 1 HDMI x 1 LAN x 2 Digital input x 4 Digital output x 2 Antenna holes x 2 Power button Power input	RS-232 x 1 USB 2.0 x 2 USB 3.0 x 1 HDMI x 2 LAN x 4 CFAST slot x 1 Antenna holes x 1 Power button Power input
Expansion	Half Mini-Card x 1 (mSATA only) Full Mini-Card x 1 with SIM slot	Full-size Mini-Card (USB interface only) x 1
Indicator	Power LED on power button	Power LED on power button
OS Support	Windows® 10, Windows® 8.1, Windows® 7, Windows® Embedded 8, Windows® Embedded 7, Linux Fedora	Windows® 10, Windows® 8.1, Windows® 7, Windows® Embedded 8, Windows® Embedded 7, Linux Fedora
Power Supply		
Power Requirement	12V with lockable DC jack	12V with lockable DC jack
Mechanical		
Mounting	VESA (Mounting kit is optional) DIN rail (Mounting kit is optional)	VESA (Mounting kit is optional) DIN rail (Mounting kit is optional)
Dimensions (W x H x D)	6.22" x 3.74" x 1.41" (158mm x 95mm x 29mm)	6.53" x 4.20" x 1.18" (166 mm x 106.6 mm x 30 mm)
Gross Weight	3.20 lb (1.45 kg)	2.9 lb (1.3 kg)
Net Weight	2.5 lb (1.1 kg)	2.2 lb (1.0 kg)
Environmental		
Operating Temperature	-30°C ~ 70°C with wide temperature CFAST™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-30°C ~ 65°C with wide temperature CFAST™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-22°F ~176°F (-30°C ~ 80°C)	-22°F ~176°F (-30°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	—	5 Grms/ 5 ~ 500Hz/ operation –CFAST™ card
Certification	CE/FCC class A	CE/FCC class A
Note		

Ultra Slim Fanless BOX PC Solutions



Model	BOXER-6404WT	BOXER-6404M
System		
CPU	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron™ N2807, 1.58 GHz	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron™ N2807, 1.58 GHz
Chipset	Intel® System on Chip	Intel® System on Chip
System Memory	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900) or 4 GB (N2807)	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900) or 4 GB (N2807)
Display Interface	HDMI	HDMI
Storage Device	CFast™	CFast™, HDD/SSD
Ethernet	Intel® I211, 10/100/1000Base-TX x 4	Intel® I211, 10/100/1000Base-TX x 4
I/O	RS-232 x 1 USB 2.0 x 2 USB 3.0 x 1 HDMI x 2 LAN x 4 CFast slot x 1 Antenna holes x 1 Power button Power input	RS-232 x 1 USB 2.0 x 2 USB 3.0 x 1 HDMI x 2 LAN x 4 CFast slot x 1 Antenna holes x 1 Power button Power input
Expansion	Full-size Mini-Card (USB interface only) x 1	Full-size Mini-Card (USB interface only) x 1
Indicator	Power LED on power button	Power LED on power button
OS Support	Windows® 10, Windows® 8.1, Windows® 7, Windows® Embedded 8, Windows® Embedded 7, Linux Fedora	Windows® 10, Windows® 8.1, Windows® 7, Windows® Embedded 8, Windows® Embedded 7, Linux Fedora
Power Supply		
Power Requirement	12V with lockable DC jack	12V with lockable DC jack
Mechanical		
Mounting	VESA (Mounting kit is optional) DIN rail (Mounting kit is optional)	VESA (Mounting kit is optional) DIN rail (Mounting kit is optional)
Dimensions (W x H x D)	6.53" x 4.20" x 1.59" (166mm x 106.6mm x 40.5mm)	6.53" x 4.20" x 2.05" (166mm x 106.6mm x 52mm)
Gross Weight	3.59 lb (1.63 kg)	3.81 lb (1.73 kg)
Net Weight	3.0 lb (1.4 kg)	3.3 lb (1.5 kg)
Environmental		
Operating Temperature	-30°C ~ 75°C with wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-30°C ~ 75°C with wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-22°F ~ 176°F (-30°C ~ 80°C)	-22°F ~ 176°F (-30°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card or SSD 1 Grms/ 5 ~ 500Hz/ operation –HDD
Certification	CE/FCC class A	CE/FCC class A
Note		

System Level Products

Compact Fanless BOX PC Solutions



Model	BOXER-6616	BOXER-6640M	BOXER-6640
System			
CPU	Intel® Pentium® N4200, 2.5 GHz Intel® Celeron® N3350 2.4 GHz	Intel® Core™ i7-7700T, Quad Core, 2.9 GHz, i5-7500T, Quad Core, 2.7 GHz, i3-7100T, Dual Core, 3.4 GHz, i7-6700TE, Quad Core, 2.4 GHz, i5-6500TE, Quad Core, 2.3 GHz, i3-6100TE, Dual Core, 2.7 GHz	Intel® Core™ i7-7700T, Quad Core, 2.9 GHz, i5-7500T, Quad Core, 2.7 GHz, i3-7100T, Dual Core, 3.4 GHz, i7-6700TE, Quad Core, 2.4 GHz, i5-6500TE, Quad Core, 2.3 GHz, i3-6100TE, Dual Core, 2.7 GHz
Chipset	Intel® System on Chip	Intel® H170	Intel® H110
System memory	DDR3L 1866 SODIMM slot x 1, up to 8GB	DDR4 1866/2133 SO-DIMM slot x 2, up to 32GB	DDR4 1866/2133 SO-DIMM slot x 2, up to 32GB
Display Interface	HDMI, VGA	HDMI, VGA	HDMI x 2, VGA
Storage Device	mSATA, HDD/SSD	mSATA, SATA	mSATA, SATA
Ethernet	Intel® I211, 10/100/1000Base-TX x 2	Intel® I210IT, 10/100/1000Base-TX x 3	Intel® I211+ I219, 10/100/1000Base-TX x 3
I/O	RS-232/422/485 x 2 RS-232 x 4 USB 3.0 x 4 VGA x 1 HDMI x 1 LAN x 2 8-bit DIO x 1 Remote On/Off x 1 Reset Button x 1 AT/ATX DIP Switch Mic-In x 1 Line-Out x 1 Antenna holes x 1 Power button Power input	RS-232/422/485 x 1 USB Type A x 8 for USB 3.0 USB Type A x 2 for USB 2.0 RJ-45 x 9 for GbE LAN 8-bit Digital I/O Power On/Off Button x 1 2 pin Remote power on/off Mic-in x 1 Line-out x 1 SYS LED indicator x 1 HDD LED indicator x 1 VGA x 1 HDMI x 2 DC-in 3-pin terminal block (9~36V)	RS-232 x 3 RS-232/422/485 x 1 USB Type A x 4 for USB 3.0 USB Type A x 3 for USB 2.0 RJ-45 x 2 for GbE LAN 8-bit Digital I/O Power On/Off Button x 1 2 pin Remote power on/off Mic-in x 1 Line-out x 1 SYS LED indicator x 1 HDD LED indicator x 1 VGA x 1, HDMI x 2, Combo DP x 2 DC-in 3-pin terminal block (9~36V)
Expansion	Full-size Mini-Card x 1 Half-size Mini-Card x 1 (optional for mSATA)	Full-size Mini-Card x 2 (one for SIM)	Full-size Mini-Card x 2, LPC x 1
Indicator	Power LED HDD active LED	Power LED, HDD active LED	Power LED, HDD active LED
OS Support	Windows® 10, Windows® 10 IoT, Linux	Windows® 10 (64-bit), Windows® 8.1 (64-bit), Windows® embedded 8 standard (64-bit)	Windows® 10 (64-bit), Windows® 8.1 (64-bit), Windows® embedded 8 standard (64-bit)
Power Supply			
Power Requirement	9 - 30V with 3-pin terminal block	3 pin 9~36V DC Power input x 1	3-pin Phoenix DC Input 9~36V
Mechanical			
Mounting	Wallmount DIN Rail (Mounting kit is optional) VESA Mount (Mounting kit is optional)	Wallmount	Wallmount
Dimensions (W x H x D)	7.76" x 4.33" x 2.17" (197mm x 110mm x 55mm)	10.4" x 3.8" x 7.3" (264mm x 96.4mm x 186.2mm)	10.4" x 3.8" x 7.3" (264mm x 96.4mm x 186.2mm)
Gross Weight	6.6 lb (2.8 kg)	5.8kg (12.8 lb)	5.8kg (12.8 lb)
Net Weight	4.4 lb (2 kg)	4.5kg (9.9 lb)	4.5kg (9.9 lb)
Environmental			
Operating Temperature	-20°C ~ 60°C with W.T. SSD/HDD/mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-20°C ~ 50°C (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-20°C ~ 55°C (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-45°C ~ 70°C	-49°F ~ 176°F (-45°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing	5~95% @ 40°C, non-condensing	5~95% @ 40°C, non-condensing
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – mSATA/SSD 1 Grms/ 5 ~ 500Hz/ operation – HDD	2 Grms/ 5 ~ 500Hz/ operation –SSD/mSATA 1 Grms/ 5 ~ 500Hz/ operation – HDD	2 Grms/ 5 ~ 500Hz/ operation –SSD/mSATA 1 Grms/ 5 ~ 500Hz/ operation – HDD
Certification	CE/FCC class A	CE/FCC class A	CE/FCC class A
Note			

Compact Fanless BOX PC Solutions



Model	BOXER-6639M	BOXER-6639
System		
CPU	Intel® Core™ i7-6700TE, 2.4 GHz Intel® Core™ i5-6500TE, 2.3 GHz Intel® Core™ i3-6100TE, 2.7 GHz	Intel® Core™ i7-6700TE, 2.4 GHz Intel® Core™ i5-6500TE, 2.3 GHz Intel® Core™ i3-6100TE, 2.7 GHz Intel® Pentium® G4400TE, 2.4 GHz Intel® Celeron® G3900TE, 2.3 GHz
Chipset	Intel® Q170	Q170
System memory	DDR4 1866/2133 SO-DIMM slot x 2, up to 32GB	DDR4 1866/2133 SODIMM slot x 2, up to 32 GB, ECC or Non-ECC support
Display Interface	HDMI, VGA	VGA, HDMI
Storage Device	Cfast™, HDD/SSD	CFast™, SATA HDD/SSD
Ethernet	Intel® I210, 10/100/1000Base-TX x 7	Intel® i210, 10/100/1000Base-TX x 3
I/O	RS-232/422/485 x 6 USB Type A x 4 for USB 3.0 USB Type A x 2 for USB 2.0 RJ-45 x 3 for GbE LAN RJ-45 x 4 for PoE (802.3af) DB-44 for 34-bit Digital I/O (5V) CFast™ slot x 1 SIM card slot x 1 Power On/Off Button x 1 2 pin Remote power on/off Reset switch Mic-in x 1 Line-out x 1 Antenna opening x 2 SYS LED indicator x 1 HDD LED indicator x 1 DB-15 x 1 for VGA HDMI v1.4 x 2 DC-in 3-pin terminal block (9~36V)	RS-232/422/485 x 6 USB 3.0 x 4 USB 2.0 x 2 VGA x 1 HDMI x 2 Line-out x 1 Mic-in x 1 LAN x 3 CFast slot x 1 SIM slot x 1 Antenna holes x 2 32 bit DIO x 1 (A2 SKU) Power switch Power input Remote power switch Reset Button
Expansion	Full-size Mini-Card x 2	Full-size Mini-Card x 2
Indicator	Power LED HDD active LED	Power LED HDD active LED
OS Support	Windows® 10 (64-bit), Windows® 8/8.1 (64-bit), Windows® 7 (32/64-bit)	Windows® 7 (32/64-bit), Windows® 8/8.1 (64-bit), Windows® 10 (64-bit)
Power Supply		
Power Requirement	9 - 36V with 3-pin terminal block	9 - 36V with 3-pin terminal block
Mechanical		
Mounting	Wallmount	Wallmount
Dimensions (W x H x D)	10.39" x 3.43" x 6.14" (264mm x 87mm x 156mm)	10.39" x 2.44" x 6.06" (264 mm x 62 mm x 154 mm)
Gross Weight	11 lb (5 kg)	7.72 lb (3.5 kg)
Net Weight	10 lb (4.5 kg)	6.6 lb (3 kg)
Environmental		
Operating Temperature	-20°C ~ 55°C (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-20°C ~ 55°C (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)	-49°F ~ 176°F (-45°C ~ 80°C)
Storage Humidity	5~95% @ 40°C, non-condensing	5~95% @ 40°C, non-condensing
Anti-Vibration	2 Grms/ 5 ~ 500Hz/ operation –CFast™ card 1 Grms/ 5~ 500Hz/ operation – HDD	2 Grms/ 5 ~ 500Hz/ operation –CFast™ card 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A	CE/FCC class A
Note		

System Level Products

Compact Fanless BOX PC Solutions



Model	BOXER-6615	BOXER-6614
System		
CPU	Intel® Pentium® N3710 1.6GHz	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron™ N2930, 1.83 GHz Intel® Celeron™ N2807, 1.58GHz
Chipset	Intel® System on Chip	Intel® System on Chip
System memory	204-pin 1600 DDR3L SODIMM x 1, up to 8GB	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900/N2930/ E3845) or 4 GB (N2807)
Display Interface	VGA, HDMI	VGA, HDMI
Storage Device	mSATA, 2.5" HDD/SSD	CFast™, HDD/SSD
Ethernet	Realtek RTL-8111E, 10/100/1000Base x 2	Intel® I210/I211, 10/100/1000Base-TX x 2
I/O	RS-232/422/485 x 2 RS-232 x 4 USB3.0 x 2 USB2.0 x 2 VGA x 1 HDMI x 1 DIO x 1 Line-Out x 1 Antenna holes x 2 Power switch Power input	RS-232/422/485 x 2 RS-232 x 2 USB 2.0 x 3 USB 3.0 x 2 VGA x 1 HDMI x 1 Line-out x 1 LAN x 2 CFast slot x 2 Antenna holes x 2 Power switch Power input
Expansion	Full-size Mini-Card x 1 Half-size Mini-Card x 1 (optional for mSATA)	Full-size Mini-Card x 1 Half-size Mini-Card x 1
Indicator	Power LED HDD active LED	Power LED HDD active LED
OS Support	Windows® 10, Windows® 8.1 (32/64-bit), Windows® 7(32/64-bit), WES7/ WES8, Win10 IoT, Linux	Windows® 10, Windows® 8.1 (32/64-bit), Windows® 7(32/64-bit), WES7/ WES8, Linux Ubuntu 14.04/ Kernel 3.13.0
Power Supply		
Power Requirement	9 - 30V with 3-pin terminal block (A2M) 12V with lockable DC jack (A2)	9 - 30V with 3-pin terminal block 12V with lockable DC jack
Mechanical		
Mounting	Wallmount DIN Rail (Mounting kit is optional)	Wallmount DIN Rail (Mounting kit is optional)
Dimensions (W x H x D)	7.76" x 4.33" x 2.17" (197mm x 110mm x 55mm)	8.35" x 4.21" x 2.53" (212.15mm x 107mm x 64.2mm)
Gross Weight	6.6 lb (2.8 kg)	6.6 lb (2.8 kg)
Net Weight	4.4 lb (2 kg)	4.4 lb (2 kg)
Environmental		
Operating Temperature	-20°C ~ 60°C with W.T. SSD/HDD/mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-20°C ~ 55°C with wide temperature CFast™ card -20°C ~ 60°C with wide temperature HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation –mSATA/SSD 1 Grms/ 5~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A	CE/FCC class A
Note		

Compact Fanless BOX PC Solutions



Model	AEC-6613	AEC-6612 Rev. B
System		
CPU	Intel® Atom™ D2550, 1.86 GHz	Intel® Atom™ D525, 1.8 GHz
Chipset	Intel® NM10	Intel® ICH8M
System memory	DDR3 800/1066 SODIMM slot x 1, up to 4 GB	DDR3 667/800 SODIMM slot x 1, up to 4 GB
Display Interface	VGA, DVI-D (A3/A4/A3M/A4M)	VGA
Storage Device	CFast™, HDD/SSD	Compact Flash™, HDD/SSD
Ethernet	Realtek RTL 8111E, 10/100/1000Base-TX x 2	Intel® 82567V, 10/100/1000Base-TX x 1 Intel® 82583V, 10/100/1000Base-TX x 1
I/O	RS-232/422/485 x 1 RS-232 x 3 USB 2.0 x 4 VGA x 1 DVI-D x1 (A3 / A4 / A3M / A4M) Line-out x 1 LAN x 2 CFast slot x 2 Antenna holes x 2 Power switch Power input	RS-232/422/485 x 1 RS-232 x 5 (B2 / B2M) ; x 1 (A1 / A1M) SB 2.0 x 6 (B2 / B2M) ; x 2 (A1 / A1M) VGA x 1 Line-out x 1 DIO x 8 (DI x 4 ; DO x 4) LAN x 2 CompactFlash™ slot x 2 Power switch Power input
Expansion	Full-size Mini-Card x 1	Full-size Mini-Card x 1
Indicator	Power LED HDD active LED	Power LED HDD active LED
OS Support	Windows® 7(32-bit), WES2009, WES7 32-bit, Linux Fedora 15/ Kernel 2.6.38.6	Windows® XP(32-bit), Windows® 7(32-bit / 64-bit), WES2009, WES7 32-bit/64-bit, WinCE 6.0, WEC7, Linux Fedora 14/ Kernel 2.6.35.6
Power Supply		
Power Requirement	9 - 30V with 3-pin terminal block 12V with lockable DC jack	9 - 30V with 3-pin terminal block 12V with lockable DC jack
Mechanical		
Mounting	Wallmount DIN Rail (Mounting kit is optional)	Wallmount DIN Rail (Mounting kit is optional)
Dimensions (W x H x D)	8.35" x 3.1" x 2.25" (212.15mm x 78.88mm x 107mm)	7.76" x 2.26" x 4.34" (197mm x 57.2mm x 110mm)
Gross Weight	8.38 lb (3.8 kg)	—
Net Weight	4.57 lb (2.07 kg)	4.85 lb (2.2 kg)
Environmental		
Operating Temperature	-20°C ~ 55°C with wide temperature CFast™ card -20°C ~ 60°C with wide temperature HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-20°C ~ 50°C with wide temperature CFast™ card -20°C ~ 55°C with wide temperature HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card 1 Grms/ 5~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A	CE/FCC class A
Note		

System Level Products

Compact Fanless BOX PC Solutions



Model	BOXER-6638U	AEC-6638	AEC-6637
System			
CPU	Intel® 5th Generation Core™ i3-5010U, 2.1 GHz	4th Generation Intel® Core™ i7-4700EQ, 2.4 GHz 4th Generation Intel® Core™ i5-4400EQ, 2.7 GHz 4th Generation Intel® Core™ i3-4100EQ, 2.4 GHz	Intel® 3rd Generation Core™ i7-3610QE, 2.3 GHz Intel® 3rd Generation Core™ i5-3610ME, 2.7 GHz
Chipset	Intel® System on Chip	Intel® QM87	Intel® QM77
System memory	DDR3L 1600 SODIMM slot x 1, up to 8 GB	DDR3L 1333/1600 SODIMM x 1, up to 8 GB	DDR3 1066/1333 SODIMM slot x 1, up to 8 GB
Display Interface	VGA, DP	VGA, HDMI, DVI-D	VGA, DVI-D (C1 / C2)
Storage Device	mSATA, HDD/SSD	CFAST™, HDD/SSD	CFAST™, HDD/SSD
Ethernet	Intel® WGI211AT, 10/100/1000Base-TX x 1 Intel® WGI218LM, 10/100/1000Base-TX x 1	Intel® I211AT, 10/100/1000Base-TX x 1 Intel® I217LM, 10/100/1000Base-TX x 1	Intel® 82579LM, 10/100/1000Base-TX x 1 Realtek RTL-8111E, 10/100/1000Base-TX x 1
I/O	RS-232/422/485 x 2 RS-232 x 2 USB 2.0 x 2 (A2M) USB 3.0 x 2 VGA x 1 DP x 1 Line-out x 1 LAN x 2 Antenna holes x 2 Power switch Power input	RS-232/422/485 x 1 RS-232 x 3 USB 2.0 x 2 USB 3.0 x 2 VGA x 1 DVI-D x 1 Line-out x 1 LAN x 2 Antenna holes x 2 Power switch Power input	RS-232/422/485 x 1 RS-232 x 3 USB 2.0 x 2 USB 3.0 x 2 VGA x 1 DVI-D x 1 (C1 / C2) Line-out x 1 LAN x 2 Antenna holes x 2 Power switch Power input
Expansion	Full-size Mini-Card and SIM slot x 1 (optional for mSATA) Half-size Mini-Card x 1	Full-size Mini-Card x 1	Full-size Mini-Card x 1
Indicator	Power LED HDD active LED	Power LED HDD active LED	Power LED HDD active LED
OS Support	Windows® 10 (64 bit), Windows® 8.1 (32/64-bit), Windows® 7 (32/64-bit), Linux Ubuntu 14.10	Windows® 10, Windows® 8.1 (32/64-bit), Windows® 7 (32/64-bit), WES7/WES8, Linux Ubuntu 14.04/ Kernel 3.13.0	Windows® 10, Windows® 8.1 (32/64-bit), Windows® 7 (32/64-bit), WES7/WES8, Linux Ubuntu 14.04/ Kernel 3.13.0
Power Supply			
Power Requirement	9 - 24V with lockable DC jack	9 - 30V with 3-pin terminal block	9 - 30V with 3-pin terminal block
Mechanical			
Mounting	Wallmount	Wallmount	Wallmount
Dimensions (W x H x D)	7.76" x 2.17" x 5.63" (197mm x 55mm x 143mm)	8.35" x 2.53" x 6.14" (212.2mm x 64.3mm x 156mm)	8.35" x 2.53" x 6.14" (212.2mm x 64.3mm x 156mm)
Gross Weight	5.3 lb (2.4 kg)	7.94 lb (3.6 kg)	7.94 lb (3.6 kg)
Net Weight	3.3 lb (1.5 kg)	6.0 lb (2.7 kg)	6.0 lb (2.7 kg)
Environmental			
Operating Temperature	-20°C ~ 60°C with wide temperature HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-15°C ~ 50°C with W.T. CFAST™ card -15°C ~ 55°C with W.T. HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-15°C ~ 50°C with wide temperature CFAST™ card -15°C ~ 55°C with wide temperature HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation -mSATA / SSD 1 Grms/ 5 ~ 500Hz/ operation - HDD	5 Grms/ 5 ~ 500Hz/ operation -CFAST™ card 1 Grms/ 5 ~ 500Hz/ operation - HDD	5 Grms/ 5 ~ 500Hz/ operation -CFAST™ card 1 Grms/ 5 ~ 500Hz/ operation - HDD
Certification	CE/FCC class A	CE/FCC class A	CE/FCC class A
Note			

Compact Fanless BOX PC Solutions



Model	AEC-6646B	BOXER-6652	BOXER-6651
System			
CPU	Intel® Pentium® G540, 2.50 GHz Intel® Pentium® G850, 2.90 GHz Intel® Core™ i3-2120, 3.30 GHz Intel® Core™ i3-3220, 3.10 GHz	Intel® Core™ i5-4402E, 2.7 GHz	Intel® Atom™ E3845, 1.91 GHz
Chipset	Intel® H61	Intel® QM87	Intel® System on Chip
System memory	DDR3 800/1066 SODIMM x 1, up to 16 GB	DDR3L 1333/1600 SODIMM slot x 1, up to 8 GB	DDR3L 1333 SODIMM slot x 1, up to 8 GB
Display Interface	VGA, HDMI	VGA, HDMI, DVI-D	VGA, DVI-D
Storage Device	HDD/SSD	CFast™, HDD/SSD	CFast™, HDD/SSD
Ethernet	Realtek RTL-8111E, 10/100/1000Base-TX x 2	Intel® I211, 10/100/1000Base-TX x 1 Intel® I217LM, 10/100/1000Base-TX x 1	Intel® I211, 10/100/1000Base-TX x 1 Intel® I211, 10/100/1000Base-TX x 1
I/O	RS-232/422/485 x 1 RS-232 x 3 USB 2.0 x 6 VGA x 1 HDMI x 2 Line-in x 1 Line-out x 1 Mic-in x 1 LAN x 2 Antenna holes x 2 Power switch Power input	Isolated RS-232/422/85 x 2 RS-232 x 4 USB 2.0 x 4 USB 3.0 x 2 VGA x 1 HDMI x 1 DVI x 1 Line-out x 1 LAN x 2 CFast slot x 1 Antenna holes x 2 Power switch Power input	Isolated RS-232/422/85 x 2 RS-232 x 4 USB 2.0 x 5 USB 3.0 x 1 VGA x 1 DVI x 1 Line-in x 1 Line-out x 1 LAN x 2 CFast slot x 1 Antenna holes x 2 Power switch Power input
Expansion	Full-size Mini-Card x 1	Full-size Mini-Card x 1 Half-size Mini-Card x 1	Full-size Mini-Card x 1 Half-size Mini-Card x 1
Indicator	Power LED HDD active LED	Power LED HDD active LED LAN LED	Power LED HDD active LED LAN LED
OS Support	Windows® 8.1(32/64-bit), Windows® 7(32/64-bit), WES8, WES7, Win XP, WES2009, Linux Fedora 15 / Kernel 2.6.38.6	Windows® 7, Windows® 8/8.1, Windows® 10, Linux Fedora	Windows® 10, Windows® 8.1 (32/64-bit), Windows® 7(32/64-bit), WES7/ WES8, Linux Ubuntu 12.04/ Kernel 3.2.0
Power Supply			
Power Requirement	12V with DC Jack	9 - 30V with 3-pin terminal block	9 - 30V with 3-pin terminal block
Mechanical			
Mounting	Wallmount	Wallmount	Wallmount
Dimensions (W x H x D)	11.81" x 3.05" x 7.48" (300mm x 77.5mm x 190mm)	10.4" x 2.74" x 7.62" (264.16mm x 69.62mm x 193.5mm)	10.4" x 2.74" x 7.62" (264.16mm x 69.62mm x 193.5mm)
Gross Weight	12.98 lb (5.9 kg)	12.1 lb (5.5 kg)	12.1 lb (5.5 kg)
Net Weight	11.0 lb (5.0 kg)	10.0 lb (4.6 kg)	10.0 lb (4.6 kg)
Environmental			
Operating Temperature	-5°C ~ 45°C with W.T. HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-20°C ~ 60°C with wide temperature HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-20°C ~ 65°C with wide temperature HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	14°F ~ 140°F (-10°C ~ 60°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	1 Grms/ 5~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation – mSATA / SSD 1 Grms/ 5~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation – mSATA / SSD 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A	CE/FCC class A	CE/FCC class A
Note			

System Level Products

Expandable Fanless BOX PC Solutions

Expandable Fanless BOX PC Solutions



Model	BOXER-6839	BOXER-6852
System		
CPU	Intel® Core™ i7-6700TE, 2.4 GHz Intel® Core™ i5-6500TE, 2.3 GHz Intel® Core™ i3-6100TE, 2.7 GHz	Intel® Core™ i5-4402E, 2.7 GHz
Chipset	Intel® Q170	Intel® QM87
System Memory	DDR4 1866/2133 SODIMM slot x 2, up to 32GB	DDR3L 1333/1600 SODIMM slot x 1, up to 8 GB
Display Interface	HDMI, VGA	VGA, HDMI, DVI-D
Storage Device	Cfast™, HDD/SSD	CFast™, HDD/SSD
Network	Intel® I210, 10/100/1000Base-TX x 3	Intel® I211, 10/100/1000Base-TX x 1 Intel® I217LM, 10/100/1000Base-TX x 1
Front I/O	RS-232/422/485 x 6 USB Type A x 4 for USB 3.0 USB Type A x 2 for USB 2.0 RJ-45 x 3 for GbE LAN DB-44 for 34-bit Digital I/O (5V) CFast™ slot x 1 SIM card slot x 1 Power On/Off Button x 1 2 pin Remote power on/off Reset switch Mic-in x 1 Line-out x 1 Antenna opening x 2 SYS LED indicator x 1 HDD LED indicator x 1 DB-15 x 1 for VGA HDMI v1.4 x 2 DC-in 3-pin terminal block (9~36V)	Isolated RS-232/422/485 x 2 RS-232 x 4 USB 2.0 x 4 USB 3.0 x 2 VGA x 1 HDMI x 1 DVI x 1 Line-out x 1 LAN x 2 CFast slot x 1 PCI/PCle slot x 2 Antenna holes x 2 Power switch Power input
Expansion	Full-size Mini-Card x 2 PCle [x4] x 1 & PCle [x1] x 1 (for A1) PCle [x4] x 1 & PCI x 1 (for A2) PCI x 2 (for A3)	Full-size Mini-Card x 1 Half-size Mini-Card x 1 PCI/PCle slot x 2
Indicator	Power LED HDD active LED	Power LED HDD active LED LAN LED
OS Support	Windows® 10 (64-bit), Windows® 8/8.1 (64-bit), Windows® 7 (32/64-bit)	Windows® 7, Windows® 8/8.1, Windows® 10, Linux Fedora
Power Supply		
Power Requirement	9 - 36V with 3-pin terminal block	9 - 30V with 3-pin terminal block
Mechanical		
Mounting	Wallmount	Wallmount
Dimensions (W x H x D)	10.39" x 4.33" x 6.14" (264mm x 110mm x 156mm)	10.4" x 4.3" x 7.62" (264.16mm x 109.3mm x 193.5mm)
Gross Weight	—	12.1 lb (5.5 kg)
Net Weight	—	—
Environmental		
Operating Temperature	-20°C ~ 60°C (-4°F ~ 140°F) (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-20°C ~ 60°C with wide temperature HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-45°C ~ 80°C (-49°F ~ 176°F)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	5~95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	2 Grms/ 5 ~ 500Hz/ operation – CFast™ card 1 Grms/ 5~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation – mSATA / SSD 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A	CE/FCC class A
Note		

Expandable Fanless BOX PC Solutions



Model	AEC-6877	AEC-6876
System		
CPU	Intel® Core™ i7-3610QE, 2.3 GHz Intel® Core™ i7-2710QE, 2.1 GHz Intel® Core™ i5-3610ME, 2.7 GHz Intel® Core™ i5-2510E, 2.5 GHz Intel® Celeron® B810, 1.6 GHz	Intel® Core™ i7-2710QE, 2.1 GHz Intel® Core™ i5-2510E, 2.5 GHz Intel® Core™ i3-2330E, 2.2 GHz Intel® Celeron® B810, 1.6 GHz
Chipset	Intel® QM77	Intel® QM67
System Memory	DDR3 1066/1333/1600 SODIMM slot x 1, up to 16 GB	DDR3 1066/1333 SODIMM slot x 1, up to 16 GB
Display Interface	VGA, DVI-D, DP	VGA, DVI-D, HDMI
Storage Device	CFast™, HDD/SSD	CFast™, HDD/SSD
Network	Intel® 82579LM, 10/100/1000Base-TX x 1 Intel® 82583V, 10/100/1000Base-TX x 1	Intel® WG82579LM, 10/100/1000Base-TX x 1 Realtek RTL-8111E, 10/100/1000Base-TX x 1
Front I/O	RS-232/422/485 x 1 RS-232 x 1 USB 3.0 x 4 VGA x 1 DVI x 1 DP x 2 Line-in x 1 Line-out x 1 Mic-ic x 1 LAN x 2 PS/2 KB x 1 PS/2 Mouse x 1 PCIe slot x 1 (A Sku) PCI slot x 2 (B Sku) Antenna holes x 2 Power switch Power input	RS-232/422/485 x 1 RS-232 x 3 USB 2.0 x 4 VGA x 1 DVI x 1 HDMI x 1 Line-in x 1 Line-out x 1 Mic-in x 1 LAN x 2 PS/2 KB x 1 PS/2 Mouse x 1 PCIe slot x 1 (A Sku) PCI slot x 2 (B Sku) Antenna holes x 2 Power switch Power input
Expansion	Full-size Mini-Card x 1 PCIe x 1 (A Sku) PCI x 2 (B Sku)	Full-size Mini-Card x 1 PCIe x 1 (A Sku) PCI x 2 (B Sku)
Indicator	Power LED HDD active LED	Power LED HDD active LED
OS Support	Windows® 7, Windows® XP Embedded, WES2009, WES 7, Linux Fedora 13 / Kernel 2.6.33.3	Windows® 7, Windows® XP Embedded, WES2009, WES 7, Linux Fedora 13 / Kernel 2.6.33.3
Power Supply		
Power Requirement	9 - 30V with 3-pin terminal block	9 - 30V with 3-pin terminal block 12V with DC Jack
Mechanical		
Mounting	Wallmount	Wallmount
Dimensions (W x H x D)	10.4" x 4.84" x 7.62" (264.16mm x 123mm x 193.5mm)	9.37" x 4.03" x 7.62" (223 mm x 107mm x 238mm)
Gross Weight	13.2 lb (6 kg)	13.2 lb (6 kg)
Net Weight	—	—
Environmental		
Operating Temperature	0°C ~ 55°C with wide temperature HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-15°C ~ 55°C with wide temperature HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation –mSATA / SSD 1 Grms/ 5~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation –mSATA / SSD 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A	CE/FCC class A
Note		

System Level Products

Automation Fanless BOX PC Solutions

Automation Fanless BOX PC Solutions



Model	BOXER-6914	AEC-6977
System		
CPU	Intel® Atom™ D2550, 1.86 GHz	Intel® Core™ i7-3612QE, 2.1 GHz Intel® Core™ i7-3517UE, 1.7 GHz Intel® Core™ i3-3217UE, 1.6 GHz Intel® Celeron® 1020E, 2.2 GHz
Chipset	Intel® NM10	Intel® QM77
System Memory	DDR3 800/1066 SODIMM slot x 2, Max. 4 GB	DDR3 1066/1333 MHz SODIMM slot x 2, up to 16 GB
Display Interface	VGA, DVI-D	HDMI, DVI-D, VGA
Storage Device	mSATA, HDD/SSD	CFast™, HDD/SSD
Ethernet	Intel® 82583V, 10/100/1000Base-TX x 2	Intel® 82579LM, 10/100/1000Base-TX x 1 Intel® 82574L, 10/100/1000Base-TX x 1
I/O	RS-232/422/485 x 2 RS-232 x 12 (A00) or 14 (A01 & A02) USB 3.0 x 2 USB 2.0 x 4 DVI-D x 1 VGA x 1 LAN x 2 Programmable 30 channel digital input/output Line-out x 1 CFast™ slot x 1 SIM card slot x 1 Antenna hole x 1 Power button x 1 Remote power on/off x 1	RS-232/422/485 x 1 isolation RS-232 x 1 isolation, RS-232 x 4 USB 3.0 x 4, USB 2.0 x 2 HDMI x 1, DVI-D x 1, VGA x 1 LAN x 2 Programmable 8-bit digital input / output isolation Mic-in x 1 Line-in x 1 Line-out x 1 PS/2 x 1 Grounding x 1 CFast™ slot x 1 Antenna x 1
Expansion	Full-size Mini-Card x 2	Full-size Mini-Card x 2 PCIe[x4] x 2 (SKU A1, A4, A7, A10) PCI x 2 (SKU A2, A5, A8, A11) PCIe[x4] x 1 & PCI x 1 (SKU A3, A6, A9, A12)
Indicator	Power LED on power button HDD active LED	Power LED HDD active LED
OS support	Windows® 7, Windows® XP, Linux Fedora	Windows® 7, Windows® XP, Windows® XP Embedded, Linux Fedora
Power Supply		
Power Requirement	9 - 30V with 3-pin terminal block	9 - 30V with 3-pin terminal block
Mechanical		
Mounting	Wallmount	Wallmount
Dimensions (W x H x D)	13.10" x 5.39" x 7.48" (332.8mm x 136.8mm x 190mm)	8.19" x 4.9" x 9.37" (208mm x 124.4mm x 238mm)
Gross Weight	9.7 lb (4.4 kg)	13.2 lb (6.0 kg)
Net Weight	6.17 lb (2.8 kg)	—
Environmental		
Operating Temperature	-20°C ~ 60°C with wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-20°C ~ 60°C with CPU Intel® Core™ i7-3612QE or Celeron® 1020E, and wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices) -20°C ~ 75°C with CPU Intel® Core™ i7-3517UE or Core™ i3-3217UE, and wide temperature CF
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation – CFast™/SSD 1 Grms/ 5 ~ 500Hz/ operation – HDD	3 Grms/ 5 ~ 500Hz/ operation – CFast™/SSD 1 Grms/ 5 ~ 500Hz/ operation – HDD
Certification	CE/FCC class A, CCC	CE/FCC class A
Note		

Automation Fanless BOX PC Solutions



Model	AEC-6967	AEC-6950	AEC-6913
System			
CPU	Intel® Core™ i7-2610UE, 1.5 GHz Intel® Core™ i3-2310E, 2.1 GHz	Intel® Core™ i7 3517UE 1.7 GHz	Intel® Atom™ D2550, 1.86 GHz
Chipset	Intel® QM67	Intel® QM77	Intel® NM10
System Memory	DDR3 1066/1333 MHz SODIMM slot x 2, up to 16 GB	DDR3 1333/1600 MHz SODIMM slot x 2, up to 16 GB	DDR3 800/1066 MHz SODIMM slot x 1, up to 4 GB
Display Interface	HDMI, DVI-D, VGA	DVI-I, DVI-D	DVI-I
Storage Device	CFast™, HDD/SSD	CFast™, HDD/SSD	CFast™, HDD/SSD
Ethernet	Intel® 82579LM, 10/100/1000Base-TX x 1, REALTEK RTL8111E-VL-C6, 10/100/1000Base-TX x 1	Intel® 82583V, 10/100/1000Base-TX x 1 Intel® 82579LM, 10/100/1000Base-TX x 1	Intel® 82583V, 10/100/1000Base-TX x 2
I/O	RS-232/422/485 x 1 isolation RS-232 x 1 isolation, RS-232 x 4 USB 2.0 x 6 HDMI x1 DVI-D x 1, VGA x 1 LAN x 2 Programmable 8-bit digital input / output isolation Mic-in x 1, Line-in x 1, Line-out x 1 PS/2 x 1, Grounding x 1, CFast™ slot x 1 Power switch x 1, Reset x 1	RS-232/422/485 x 2 isolation RS-232/422/485 x 2, RS-232 x 4 USB 3.0 x 2, USB 2.0 x 4 DVI-I x1 DVI-D x 1 LAN x 2 Digital input x 4 isolated, Digital output x 4 isolated, CAN bus x 2 isolation (optional), Line-out x 1, CFast™ slot x 1, Antenna hole x 3 Power switch x 1	RS-232/422/485 x 2 isolated RS-232/422/485 x 2, RS-232 x 4 USB 3.0 x 2, USB 2.0 x 4 DVI-D x 1 LAN x 2 Digital input x 4 isolated Digital output x 4 isolated CAN bus x 2 isolated (optional) Line-out x 1 CFast™ slot x 1, Antenna hole x 3 Power switch x 1
Expansion	Full-size Mini-Card x 2 PCIe[x4] x 2 (SKU A5) PCI x 2 (SKU A2, A4) PCIe[x4] x 1 & PCI x 1 (SKU A1, A3)	Full-size Mini-Card x 2 PCIe [x1] x 1 & PCIe [x 16] x 1 (SKU A1) PCI x 2 (SKU A2)	Full-size Mini-Card x 2 PCIe [x1] x 1 (SKU A1) PCI x 2 (SKU A2)
Indicator	Power LED HDD active LED	Power LED HDD active LED	Power LED HDD active LED
OS support	Windows® 7, Windows® XP, Windows® XP Embedded, Linux Fedora 15-2.6.38.6 Support	Windows® 7, Windows® XP, Windows® XP Embedded, Linux Fedora	Windows® 7, Windows® XP, Windows® XP Embedded, Linux Fedora
Power Supply			
Power Requirement	9 - 30V with 3-pin terminal block	9 - 30V with 3-pin terminal block	9 - 30V with 3-pin terminal block
Mechanical			
Mounting	Wallmount	Wallmount	Wallmount
Dimensions (W x H x D)	8.19" x 4.9" x 9.37" (208mm x 124.4mm x 238mm)	8.4" x 3.9" x 9.5" (214mm x 100mm x 241mm)	8.4" x 3.9" x 9.5" (214mm x 100mm x 241mm)
Gross Weight	13.2 lb (6.0 kg)	11 lb (5 kg)	11 lb (5 kg)
Net Weight	—	—	—
Environmental			
Operating Temperature	-20°C ~ 60°C with CPU Intel® Core™i3-2310E, and wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices) -20°C ~ 75°C with CPU Intel® Core™i7-2610UE, and wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-20°C ~ 55°C with wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices) *Power consumption of add-on PCI/PCI-E card must be under 30W.	-20°C ~ 75°C with wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices) *Power consumption of add-on PCI/PCI-E card must be under 30W.
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – CFast™/SSD 1 Grms/ 5~ 500Hz/ operation – HDD	3 Grms/ 5 ~ 500Hz/ operation – CFast™/SSD 1 Grms/ 5~ 500Hz/ operation – HDD	3 Grms/ 5 ~ 500Hz/ operation – CFast™/SSD 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A	CE/FCC class A, UL	CE/FCC class A
Note			

System Level Products

Transportation BOX PC Solutions



Model	BOXER-6313U	BOXER-6313
System		
CPU	Intel® Atom™ E3845, 1.91 GHz	Intel® Atom™ E3845, 1.91 GHz
Chipset	Intel® System on Chip	Intel® System on Chip
System Memory	DDR3L 1066/1333 SODIMM slot x 1, up to 8 GB	DDR3L 1066/1333 SODIMM slot x 1, up to 8 GB
Display Interface	HDMI, VGA	HDMI, VGA
Storage Device	CFast™ slot x 1, 2.5" HDD bay x 2	2.5" HDD bay x 2
Ethernet	Intel® I211, 10/100/1000Base-TX x 2	Intel® I211, 10/100/1000Base-TX x 2
I/O	RS-232/422/485 x 2 isolated RS-232 x 2 USB 3.0 x 1 USB 2.0 x 3 HDMI x 1 VGA x 1 LAN x 2 CAN bus x 1 Mic-in x 1 Line-out x 1 CFast™ slot x 1 Antenna hole x 4 Power on/off LED button x 1 Power input	RS-232/422/485 x 2 isolated RS-232 x 2 USB 3.0 x 1 USB 2.0 x 3 HDMI x 1 VGA x 1 LAN x 2 CAN bus x 1 Mic-in x 1 Line-out x 1 Antenna hole x 4 Removable 2.5" HDD kit x 2 Power on/off LED button x 1 Power input
Expansion	Full-size Mini-Card x 3 with SIM slot x 3	Full-size Mini-Card x 3
Indicator	Power LED on power button HDD active LED	Power LED on power button HDD active LED
OS support	Windows® 10, Windows® 8.1, Windows® 7, Linux Fedora	Windows® 10, Windows® 8.1, Windows® 7, Linux Fedora
Power Supply		
Power Requirement	12V with M12 (for A1) 24V with M12 (for A2)	9 - 30V with 3-pin terminal block
Mechanical		
Mounting	Wallmount	Wallmount
Dimensions (W x H x D)	10.55" x 6.48" x 2.00" (268mm x 164.6mm x 51mm)	11.26" x 6.46" x 3.62" (286mm x 164.2mm x 92mm)
Gross Weight	—	15.4 lb (7 kg)
Net Weight	—	14.3 lb (6.5 kg)
Environmental		
Operating Temperature	-15°C ~ 65°C (according to IEC60068-2, with 0.5m/s AirFlow)	-15°C ~ 65°C (according to IEC60068-2, with 0.5m/s AirFlow)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	3 Grms/ 5~ 500Hz/ operation – CFast™	1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A, E13, ISO7637	CE/FCC class A, E13, ISO7637
Note		

Transportation BOX PC Solutions



Model	BOXER-6301VS	BOXER-6357VS	AEV-6356
System			
CPU	Intel® Core™ i5-4402E 1.6 GHz	Intel® Core™ i7 3517UE 1.7 GHz	Intel® Core™ i7 3517UE 1.7 GHz
Chipset	Intel® QM87	Intel® QM77	Intel® QM77
System Memory	DDR3L 1333/1600MHz SODIMM x 1, up to 8 GB	DDR3 1333/1600 SODIMM slot x 2, up to 16 GB (4 GB pre-installed)	DDR3 1333/1600 SODIMM slot x 1, up to 8 GB
Display Interface	VGA	DVI-I, VGA	DVI-D, VGA
Storage Device	CFast™, HDD/SSD	CFast™, HDD/SSD	CFast™, HDD/SSD (for HDD SKU)
Ethernet	Intel® I211, 10/100/1000Base-TX x 1 Intel® I217LM, 10/100/1000Base-TX x 1	Intel® 82579LM, 10/100/1000Base-TX x 1 Intel® 82574L, 10/100/1000Base-TX x 1	Intel® 82579LM, 10/100/1000Base-TX x 1 Intel® 82574L, 10/100/1000Base-TX x 1
I/O	RS-232/422/485 x 1 RS-232 x 2 USB 3.0 x 2 USB 2.0 x 2 VGA x 1 LAN x 2 Mic-in x 1 Line-out x 1 CFast™ slot x 1 PoE x 4 (802.3 af) Antenna hole x 6 Removable 2.5" HDD kit x 2 Power switch x 1 Power input	M12 RS-232/422/485 x 1 M12 LAN x 2 M12 dual USB2.0 x 1 RS-232/422/485 x 1 isolated RS-232/422/485 x 2 USB3.0 x 2 VGA x 1 DVI-I x 1 Digital input x 4 isolated Digital output x 2 isolated PoE x 4 (802.3 af, for SKU A1, A2, A3) Antenna hole x 3, Removable 2.5" HDD kit x 2	M12 RS-232/422/485 x 1 M12 LAN x 2 M12 dual USB2.0 x 1 Isolated RS-232/422/485 x 1 RS-232/422/485 x 2 USB3.0 x 2 VGA x 1 DVI-D x 1 Isolated Digital input x 4 Isolated Digital output x 2 Antenna hole x 3 Removable 2.5" HDD kit x 2 (for HDD SKU) Power on/off
Expansion	Full-size Mini-Card x 3	Full-sized Mini-Card x 3	Full-size Mini-Card x 1 Half-size Mini-Card x 1
Indicator	Power LED HDD active LED	Power LED on power button	Power LED on power button
OS support	Windows® 8.1, Windows® 7, Linux Fedora	Windows® 8.1, Windows® 7, Windows® XP	Windows® 8.1, Windows® 7, Windows® XP
Power Supply			
Power Requirement	9 - 30V with 3-pin terminal block	12~36V, 16.5~75V, 43~160V with M12	17~30V with M12
Mechanical			
Mounting	Wallmount	Wallmount	Wallmount
Dimensions (W x H x D)	10" x 7.5" x 3.5" (255mm x 190mm x 88mm)	11.26" x 6.46" x 3.62" (286mm x 164.2mm x 92mm)	11.26" x 6.86" x 5.32" (286mm x 174.2mm x 135mm)
Gross Weight	10.8 lb (4.9 kg)	15.4 lb (7 kg)	18.2 lb (8.3 kg)
Net Weight	8.6 lb (3.9 kg)	—	—
Environmental			
Operating Temperature	-20°C ~ 55°C (according to IEC60068-2, with 0.5m/s AirFlow)	-40°C to 70°C, 85°C for 10 minutes (according to EN50155 Tx)	-40°C to 70°C, 85°C for 10 minutes (according to EN50155 Tx)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	Compliant with EN50155 / EN50121 standard	Compliant with EN50155 / EN50121 standard
Storage Humidity	95% @ 40°C, non-condensing	Compliant with EN50155 / EN50121 standard	Compliant with EN50155 / EN50121 standard
Anti-Vibration	3 Grms/5 ~ 500Hz/ operation – CFast™/SSD 1 Grms/5 ~ 500Hz/ operation – HDD	Compliant with EN613731 standard	Compliant with EN613731 standard
Certification	CE/FCC class A, E13, IS07637	CE/FCC class A., EN50155, EN50121, EN45545	CE/FCC class A, EN50155, EN50121, EN45545
Note			

System Level Products

Network Video Recorder & Mobile NVR

Network Video Recorder & Mobile NVR



Model	VPC-3300S	VPC-5500S	VPC-5600S
System			
Form Factor	Fanless In-Vehicle NVR	Fanless In-Vehicle NVR	Fanless In-Vehicle NVR
Processor	Intel® Celeron® J1900 Processor	Intel® 4th Gen. Core™ i3/i5/i7 Processor (Default: i7-4700EQ)	Intel® 6th/7th generation Core™ processor (Default: i3-7100U)
Chipset	Quad Core SoC	Intel® QM87	Intel® Graphic integrated
Main Memory	Up to 8GB, DDR3L 204-pin SODIMM	Up to 16GB, DDR3L 204-pin SODIMM	Up to 32GB, DDR4, 2133GHz SODIMM
Display	VGA x 1, HDMI x 1	VGA x 1, HDMI x 1, DP x 1	HDMI x 1, DP x 1
Ethernet	10/100/1000Base-TX x 6	10/100/1000Base-TX x 5	10/100/1000Base-TX x 6 (Optional with 10)
PoE Ethernet Port	4 ports	4 ports	4 ports (8 ports optional)
RAID support	0/1	0/1	0/1
Expansion Slot	Mini-Card x 3 Built-in CAN 2.0B x 1	Mini-Card slot x 3 (for 3G/4G/Wifi Module) Built-in CAN 2.0B x 1	Mini-Card slot x 3 (for 3G/4G/Wifi Module) Built-in CAN 2.0B x 1
GPS/G-sensor	Onboard (GPS/GLOS)	Onboard (GPS/GLOS)	Onboard (GPS, G-sensor)
Front I/O Panel	Power Button x 1, Power Input x 1, Remote Power x 1, 3G/4G/WIFI LED x 3 SIM slot x 2, HDD LED x 1, CanBus connector x , DIO x 1	Power Button x 1, 3G/4G/WIFI LED x 3, USB3.0 x 4, SIM slot x 2, LAN (RJ-45) port x 1, PoE LAN x 4	Power Button w/LED x 1, 3G/4G/WIFI/HDD LED x 4, DP x 1, USB3.0 x 4, SW reset Button x 1, LAN (RJ-45) port x 2, PoE LAN x 4 (PoE x 8 optional)
Rear I/O Panel	VGA out x 1, HDMI x 1, LAN (RJ-45) port x 2, PoE LAN x 4, USB2.0 x 2, USB3.0 x 1, Audio Line-out x 1, Mic-In x 1	DC-In power x 1, Remote Power x 1, DIO x 1, DC 12V Output x 1, RS-232 x 2, RS-232/422/485 x 2, VGA out x 1, HDMI x 1, DP x 1, CAN bus connector x 1, USB2.0 x 2, Audio Line-out x 1, Mic-In x 1	DC power Input x 1, Remote Power x 1, DIO x 1, DC 12V Output x 1, RS-232/422/485 x 2, HDMI x 1, CanBus connector x 1, Audio Line-out x 1, Mic-In x 1
Storage			
HDD Tray	2.5" HDD Bay x 1	2.5" HDD Bay x 2	2.5" HDD/SSD x 2
CF/CFast/mSATA Slot	mSATA Slot x 1 (default; colay w/ 2.5" HDD x 1)	mSATA Slot x 1	mSATA Slot x 1
Environmental			
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-40°F ~ 176°F (-40°C ~ 85°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Storage Humidity	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing
Vibration/Shock	MIL-STD-810G	MIL-STD-810G	MIL-STD-810G
Certification	CE & FCC Class A, E-mark	CE & FCC Class A, E-mark	CE & FCC Class A, E-mark (Default: i3-7100U)
Power Requirement			
Power Supply	DC 9-36V, with Ignition Pin	DC 10-35V	DC 9-36V, with Ignition Pin
Mechanical			
Removable HDD Tray	2.5" HDD x 2 (Optional, MOQ apply)	3.5" or 2.5" HDD x 2 (Optional, MOQ apply)	2.5" HDD/SSD x 2 (Hot swappable module by Modularized Extension kit)
Internal System HDD Bay	2.5" HDD x 1 (Optional SKU if support HDD x 2)	2.5" HDD x 2	2.5" HDD x 2
Dimension	6.85" x 7.87" x 2.36" (174mm x 200mm x 60mm)	11.34" x 8.27" x 3.3" (288mm x 210mm x 84mm)	6.85" x 7.87" x 2.52" (174mm x 200mm x 64mm)
Gross Weight	5.7 lb (2.6 kg)	8.3 lb (3.8 kg)	6.6 lb (3.0 kg)
Note			Built-in G-Sensor x 1

Network Video Recorder & Mobile NVR



Model	NVR-Q67S
System	
Form Factor	2U Rackmount
Processor	Intel® 2nd Gen. Core™ i3/i5/i7 Processor
Chipset	Intel® Q67
Main Memory	Up to 32GB, DDR3, Non-ECC 1333MHz, 240-pin DIMM
Display	DVI-D x 1, VGA x 1, DP x 1
Ethernet	10/100/1000Base-TX x 2
PoE Ethernet Port	—
RAID support	0/1/5/10
Expansion Slot	PCI-E [x16] x 1, PCI x 2
GPS	—
Front I/O Panel	Power Button x 1 Reset Button x 1 Power & HDD LED USB2.0 x 2 (only for RM-S model)
Rear I/O Panel	VGA x 1 DVI-D x 1 DP x 1 LAN (RJ-45) port x 2 USB 2.0 x 4 Audio jack x 3 PS/2 x 1 (Keyboard + Mouse)
Environmental	
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	10%~80% @40°C, non-condensing
Vibration/Shock	IEC68-2-64
Certification	CE/FCC Class A, CCC
Power Requirement	
Power Supply	1U 500W PSU, 80 plus Gold
Mechanical	
Removable HDD Tray	3.5" x 8
Internal System HDD Bay	2.5" HDD x 1 (SATA DOM optional)
Dimension	21" x 17.2" x 3.46" (533mm x 437mm x 88mm)
Gross Weight	28.7 lb (13 kg)
Note	

System Level Products

Turn-Key Chassis Solutions



Model	TKS-P20-CV01	NANO-001N	NANO-001F
System			
CPU	Intel® Atom™ N2600, 1.6 GHz	5th gen. Intel® 14nm ULT i7-5650U/ i5-5350U/ i3-5010U BGA CPU, 15W TDP.	5th gen. Intel® 14nm ULT i7-5650U/ i5-5350U/ i3-5010U BGA CPU, 15W TDP.
Chipset	Intel® NM10	intergrate into SoC	Intergrate into SoC
System Memory	DDR3 800 SODIMM slot x 1, up to 2 GB	SODIMM x 2, max. 16GB, DDR3L 1600 MHz, non-ECC, un-buffered memory	SODIMM x 2, max. 16GB, DDR3L 1600 MHz, non-ECC, un-buffered memory
Display Interface	VGA, HDMI	DP x 2	DP x 2
Storage Device	mSATA, HDD/SSD (Optional)	M.2 slot 2260 (M-key) x 1, optional mSATA x 1	M.2 slot 2260 (M-key) x 1, optional mSATA x 1
Ethernet	Realtek RTL-8111E, 10/100/1000Base-TX x 1	Realtek 8111G Giga LAN 10/100/1000Mb LAN x 2	Realtek 8111G Giga LAN 10/100/1000Mb LAN x 2
I/O	RS-232/422/485 x 1 RS-232 x 1 USB 2.0 x 5 VGA x 1 HDMI x 1 (Type C) LAN x 1 DIO x 4 Line-out x 1 Mic-in x 1 Antenna holes x 2 Power switch Power input	USB 3.0 ports x 4, USB 2.0 ports x 2, Audio Jack x 2 : Line-out(green), Mic-in(pink), On/Off Button x 1, DP x 2, RJ-45 x 2, Reset Switch x 1, DC Power jack x 1, Antenna output x 1 (from internal mini-card)	USB 3.0 ports x 4, USB 2.0 ports x 2, Audio Jack x 2 : Line-out(green), Mic-in(pink), On/Off Button x 1, DP x 2, RJ-45 x 2, Reset Switch x 1, DC Power jack x 1, Antenna output x 1 (from internal mini-card)
Expansion	Half-size Mini-Card x 1 (for mSATA)	Half size mini card x 1 (default USB+PCIe), (mSATA BOM change), RS-232 9-pin box header x 1, 5-pin USB 2.0 header(p=2.00mm) x 1	Half size mini card x 1 (default USB+PCIe), (mSATA BOM change), RS-232 9-pin box header x 1, 5-pin USB 2.0 header(p=2.00mm) x 1
Indicator	Power LED HDD active LED	Front: Power LED x 1, HDD Active LED x 1	Front: Power LED x 1, HDD Active LED x 1
OS support	Windows® 7, Windows® XP, Windows® XP Embedded, Linux Fedora	Windows® 7 32/64 bit, Windows® 8.1 32/64 bit, Windows® 10 64bit, Linux Fedora	Windows® 7 32/64 bit, Windows® 8.1 32/64 bit, Windows® 10 64bit, Linux Fedora
Power Supply			
Power Requirement	9 ~ 30V with 2-pin terminal block 12V with 2-pin terminal block	12V~19V DC, (wide rage: 12V -5%~ 19V +10%)	12V~19V DC, (wide rage:12V-5%~ 19V+10%)
Mechanical			
Mounting	Wallmount DIN Rail (Mounting kit is optional)	VESA Mount: 75mm x 75mm	VESA Mount: 75mm x 75mm
Dimensions (W x H x D)	4.7" x 2.3" x 4.3" (120mm x 59.5mm x 110mm)	5.91" x 4.92" x 2.17" (150mm x 125mm x 55 mm)	5.91" x 4.92" x 2.17" (150mm x 125mm x 55 mm)
Gross Weight	2.2 lb (1 kg)	—	—
Net Weight	1.8 lb (820 g)	—	—
Environmental			
Operating Temperature	0°C ~ 55°C with wide temperature HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	32°F ~ 122°F (0°C~50°C), with 0.5 m/s airflow	32°F ~ 122°F (0 ~ 50°C), with 0.5 m/s airflow
Storage Temperature	-40°C ~ 80°C	—	—
Storage Humidity	90% @ 40°C, non-condensing	—	—
Anti-Vibration	2 Grms/ 5 ~ 500Hz/ operation -mSATA	5 Grms/ 5~ 500Hz/ operation - SSD	5 Grms/ 5~ 500Hz/ operation - SSD
Certification	CE/FCC class A	CE & FCC class A	CE & FCC class A
Note			

Turn-Key Chassis Solutions



Model	NANO-002N	NANO-002F
System		
CPU	Intel® 6th gen. 14nm ULT Core™, BGA CPU, 15W TDP. i7-6600U 2C/4T GT2 2.6/3.4 GHz 4M/ i5-6300U 2C/4T GT2 2.4/3.0 GHz 3M/ i3-6100U 2C/4T GT2 2.3 GHz 3M/ Celeron® 3955U 2C/2T GT1 (f) 2.0 GHz 2M	Intel® 6th gen.14nm ULT Core™, BGA CPU, 15W TDP. i7-6600U 2C/4T GT2 2.6/3.4 GHz 4M/ i5-6300U 2C/4T GT2 2.4/3.0 GHz 3M/ i3-6100U 2C/4T GT2 2.3 GHz 3M/ Celeron® 3955U 2C/2T GT1 (f) 2.0 GHz 2M
Chipset	Intergrate into SoC	Intergrate into SoC
System Memory	SODIMM x 2, max. 16GB, DDR4 2133/1867 MHz	SODIMM x 2, max. 16GB, DDR4 2133/1867 MHz
I/O Chipset	Non-ECC, un-buffered memory	Non-ECC, un-buffered memory
Storage Devices	NCT5538D	NCT5538D
Ethernet	Realtek 8111G Giga LAN 10/100/1000Mb LAN x 2, RJ-45 x 2	Realtek 8111G Giga LAN 10/100/1000Mb LAN x 2, RJ-45 x 2
Audio	Realtek® ALC887	Realtek® ALC887
TPM	—	—
Expansion Slots	M.2 2280 M-Key slot (PCIe4 + SATA) x 1 M.2 2230 E-Key slot (PCIe+USB) x 1	M.2 2280 M-Key slot (PCIe4 + SATA) x 1 M.2 2230 E-Key slot (PCIe+USB) x 1
BIOS	128Mbit Flash ROM, AMI BIOS	128M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on Chassis
WatchDog Timer	1~255 steps by software program	1~255 steps by software program
Smart Fan Control	Chassis Fan	Chassis Fan
Wake On LAN / PXE	Yes (WOL / PXE)	Yes (WOL / PXE)
Power State	S3, S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	Integrated Graphics	Integrated Graphics
Resolution	HDMI 1.4 up to 4096x2160@24Hz	HDMI 1.4 up to 4096 x 2160@24Hz
Graphics Multi Display	HDMI+HDMI	HDMI + HDMI
Environment & Power & ME		
Battery	Lithium battery	Lithium battery
Power Requirement	DC Power x 1 (DC: 12V~19V, wide rage:12V-5%~ 19V+10%)	DC Power x 1 (DC: 12V~19V, wide rage:12V-5%~ 19V+10%)
Operating Temperature	FANLESS : 0°C~45°C	FAN: 0°C ~ 50°C
Operating Humidity	20%~90%RH, non-condensing	20%~90%RH, non-condensing
Certificate	CE & FCC class A	CE & FCC class A
Form Factor	NANO ITX: 120mm x 120mm (4.72" x 4.72")	NANO ITX: 120mm x 120mm (4.72" x 4.72")
Weight	—	—
I/O		
Front I/O	USB 3.0 port x 2, Audio Jack x 2: Line-out (green), Mic-in (pink), COM port RS-232, On/Off Button x 1, Power LED + HD LED x1	USB 3.0 port x 2, Audio Jack x 2 : Line-out (green), Mic-in (pink), COM port RS-232, On/Off Button x 1, Power LED x 1 + HD LED
Rear I/O	USB 3.0 port x 2 HDMI Connector x 2 RJ-45 Connector x 2 Reset Button x 1, DC Power Jack x 1	USB 3.0 port x 2 HDMI Connector x 2 RJ-45 Connector x 2 Reset Button x 1, DC Power Jack x 1
Internal I/O	M.2 2280 M-Key slot x 1 Chassis Fan connector x 1 (3-pin, p=2.00mm) Reset Switch 2-pin header x 1, power button 2-pin header x 1, M.2 2230 E-Key slot x 1	M.2 2280 M-Key slot Chassis Fan connector x 1 (3-pin, p=2.00mm) Reset Switch 2-pin header x 1, power button 2-pin header x 1, M.2 2230 E-Key slot x 1
Operating System		
OS	Windows® 7 32 bit, Windows® 7 64 bit, Windows® 8.1 64 bit, Windows® 10 64 bit, Linux Fedora* 22 (64 bit)	Windows® 7 32 bit, Windows® 7 64 bit, Windows® 8.1 64 bit, Windows® 10 64 bit, Linux Fedora* 22 (64 bit)
Note		

System Level Products

Turn-Key Chassis Solutions



Model	ACS-1U01-BT4	ACS-1U01-H110B
System		
CPU	Intel® Atom™ J1900 Processor (4C @ 2.00 GHz CPU, 688/854 MHz GFX, 10W TDP), Intel® Atom™ N2807 Processor (2C @ 1.58 GHz CPU, 313/750 MHz GFX, 4.3W TDP)	Intel® Skylake 14nm LGA 1151 socket Processor, Max. 65W TDPs (follow thin mini-ITX)
Chipset	—	Intel® H110
System Memory	204-pin SODIMM x 2 up to 8 GB (for J1900), 204-pin SODIMM x 1 up to 4 GB (for N2807), DDR3L 1333 MHz, Non-ECC, un-buffered memory, Dual-channel memory architecture	2 x SODIMM, Max. 32GB, DDR4 2133/1867 MHz, Non-ECC, Un-buffered
I/O Chipset	Fintech 81866D	NCT6791D
Display Chipset	Intel® Graphics Media Accelerator	Intel® HD Graphics
Display Interface	VGA x 1, Up to 1920 x 1200 @60 Hz; HDMI x 1, Up to 1920 x 1200 @60 Hz	DP (BOM Change, default HDMI): Up to 4096 x 2304 @24Hz / 3840 x 2160 @60Hz, with Digital Audio HDMI: Up to 4096 x 2304 @24Hz / 2560 x 1600 @60Hz, with Digital Audio LVDS: Up to 1920 x 1200 @60Hz, Dual Channel 18/24-bit coloy eDP: Up to 4096 x 2304 @60Hz
Storage Devices	2.5" HDD, Full-Size Mini-Card (optional)	2.5" HDD x 1, Full-Size Mini-Card(mSATA default, PCIe + USB optional) x 1
Network	Realtek PCIe Gb LAN 8111G x 1	Realtek PCIe Gb LAN 8111G x 2
I/O		
Front I/O	USB 2.0 port x 4, VGA x 1, On/Off Button x 1, Power LED + HD LED x 1, (COM port optional if not use VGA port)	USB 2.0 port x 4, Power S/W x 1, COM port x 1, HDD LED x 1, POWER LED x 1
Rear I/O	USB 3.0/2.0 port x 1, USB 2.0 port x 2, Line-out (green) x 1, Line-in (blue) x 1, HDMI x 1, RJ-45 connector x 1, DC Power x 1, RS-232 connector x 1	USB 3.0 port x 4, Mic-In (pink) x 1, Line-Out (green) x 1, HDMI x 2 (BOM Changeable to DP), RJ-45 Connector x 2, DC Power jack x 1
Expansion	Full-size Mini-Card (PCIe +USB or mSATA) + SIM Card (mSATA default) x 1, Half-size Mini-Card (PCIe +USB) x 1, Full-size Mini-Card slot (mSATA default) x 1, SATA3 (6.0Gb/s) x 2, SATA2 (3.0Gb/s) x 2, SATA power connector x 1, RS-232 9-pin int. box header x 5, RS-232/422/485 9-pin box header x 1, 5-pin USB 2.0 header(p=2.00mm) x 1, 8-bit Digital I/O x 1 (In/Out programmable)	Half-Size Mini-Card slot (PCIe + USB) x 1, Full-Size Mini-Card (Default mSATA, PCIe + USB optional) x 1, SATA3 (6.0Gb/s) x 2, SATA Power connector x 1, USB 2.0 header x 2 (2x5 pin, 2.00mm. Connected to USB 2.0 port x 4 on front I/O) Boxer header for COM (RS-232/422/485) x 1, Boxer header for COM (RS-232) x 1, Digital I/O box header x 1, Full-size Mini-Card slot (mSATA default) x 1, SATA3 (6.0Gb/s) x 2, SATA2 (3.0Gb/s) x 2, SATA power connector x 1, RS-232 9-pin int. box header x 5, RS-232/422/485 9-pin box header x 1, 5-pin USB 2.0 header(p=2.00mm) x 1, 8-bit Digital I/O x 1 (In/Out programmable)
Indicator	Power LED x 1, HDD Active LED x 1	
Power		
Battery	Lithium battery	Lithium battery
Power Requirement	DC: 12V	DC: 12V
Mechanical		
Dimension (WxHxD)	8" x 8" x 1.75" (203.20mm x 203.20mm x 44.45mm)	8" x 8" x 1.75" (203.20mm x 203.20mm x 44.45mm)
VESA Mounting	Wallmount	Wallmount
Anti-Vibration	0.5 Grms/ 5~ 500Hz/ operation – HDD	0.5 Grms/ 5~ 500Hz/ operation – HDD
Anti-Shock	10 G peak acceleration (11 msec. duration)	10 G peak acceleration (11 msec. duration)
Environmental		
Operating temperature	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 122°F (0°C ~ 50°C)
Certificate	CE & FCC Class A	CE & FCC Class A
Operating System		
MS Windows	Windows® 7 32/64 bit, Windows® 8.1 32/64 bit	Windows® 7 32 / 64bit, Windows® 8.1 32 / 64bit, Windows® 10 32 / 64bit
Linux	Fedora	
Note		

Turn-Key Chassis Solutions



Model	ACS-1U01-H81B
System	
CPU	Intel® Haswell 22nm LGA 1150 socket Processor, Max. 65W TDPs (follow thin mini-ITX)
Chipset	—
System Memory	204pin SODIMM x 2, Max. 16GB, DDR3 1600/1333 MHz Non-ECC, un-buffered memory, Dual-channel memory architecture
I/O Chipset	NCT6791D
Display Chipset	Intel® Graphics Media Accelerator
Display Interface	HDMI1.4 x 1, Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz DP1.2 x 1, Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz VGA x 1, Up to 1920 x 1200 @60 Hz
Storage Devices	2.5" HDD, Full-Size Mini-Card (optional)
Network	Realtek PCIe Gb LAN 8111G x 2
I/O	
Front I/O	USB 2.0 port x 4, VGA x 1, On/Off Button x 1, Power LED + HD LED x 1, (COM port optional if not use VGA port)
Rear I/O	USB 3.0 port x 2, USB 2.0 port x 2, Line-out (green) x 1, Mic-in (pink) x 1, HDMI x 1, DP x 1 RJ-45 connector x 2, DC Power x 1
Expansion	Half size Mini-Card (PCIe+USB) x 1 Full-Size Mini-Card x 1, SATA3 (6.0Gb/s) x 2, SATA2 (3.0Gb/s)x 1, SATA power connector x 1 Boxer header for COM x 2 (COM1: RS-232/422/485 supports 5V/12V/RI; COM2: RS-232), USB 2.0 connectors support additional 2 USB ports (2.54 mm) x 1, 8-bit Digital I/O x 1 (In/Out programmable)
Indicator	Power LED x 1, HDD Active LED x 1
Power	
Battery	Lithium battery
Power Requirement	DC: 12V~24V (± 5% wide range voltage input)
Mechanical	
Dimension (WxHxD)	8" x 8" x 1.75" (203.20mm x 203.20mm x 44.45mm)
VESA Mounting	Wallmount
Anti-Vibration	0.5 Grms/ 5~ 500Hz/ operation – HDD
Anti-Shock	10 G peak acceleration (11 msec. duration)
Environmental	
Operating temperature	32°F ~ 122°F (0°C ~ 50°C)
Certificate	CE & FCC Class A
Operating System	
MS Windows	Windows® 10 32/64 bit, Windows® 7 32/64 bit, Windows® 8.1 32/64 bit
Linux	Fedora
Note	

System Level Products

Turn-Key Chassis Solutions/ Network Appliances

Turn-Key Chassis Solutions



Model	ACS-1U02	ACS-2U01
System		
M/B Form Factor	Mini-ITX	Mini-ITX
Dimension (W x D x H)	195mm x 195mm x 68mm (7.68" x 7.68" x 1.73")	10.04" x 9.06" x 3.46" (255mm x 230mm x 88mm)
Color	Black	Black/Silver
Processor Support	TDP < 45W	TDP: 84W
Drive Bay	2.5" internal HDD bay x 2	3.5" x 1/ 2.5" internal HDD bay x 2; 2.5" internal HDD bracket (optional) x 1
Expansion Slot	—	Low-profile add-on card x 1/ Full-height add-on card via riser card (optional)
System Cooling	60mm PWM fan x 1	80mm PWM fan x 1
Front I/O	—	USB 2.0 x 2 or USB 3.0 x 2 Audio x 2
Button	Power button x 1	Power button x 1 Reset button x 1
LED	Power LED x 1	Power LED x 1
Power Supply	60W, 12V power adapter (optional)	Flex-ATX power supply
Others	—	Antenna hole x 2(reserved)
Environment	Operating Temperature : 0°C ~ 40°C (-32°F ~ 104°F) Storage Temperature : -40°C ~ 70°C (-40°F ~ 158°F) Operating Humidity : 5% ~ 90% (non-condensing) Storage Humidity : 5% to 95% (non-condensing)	Operating Temperature : 0°C ~ 40°C (-32°F ~ 104°F) Storage Temperature : -40°C ~ 70°C (-40°F ~158°F) Operating Humidity : 5% ~ 90% (non-condensing) Storage Humidity : 5% ~ 95% (non-condensing)
Note		

Network Appliances



Model	FWS-2350	FWS-2272
Platform		
Form Factor	Desktop 6-Port Network Appliance	Desktop 4-Port Network Appliance
Processor	Intel® Atom™ C2358 1.7 GHz (Dual Core) Intel® Atom™ C2558 2.4 GHz (Quad Core)	Intel® Celeron® Processor N3350
Chipset	—	—
System Memory	240-pin DDR3 1333MHz ECC or non-ECC SODIMM up to 16GB, C2358 single channel, C2558 dual-channel	On-board LPDDR4 16B, or 204-pin DDR3L-1333 MHz SODIMM x 1, up to 8GB
Network		
Ethernet	Intel® i211, Gigabit Ethernet x 2 (Optional additional Intel® i211, Gigabit Ethernet x 2), Intel® SoC Integrated i354 with Marvell 88E1543 PHY x 1	Intel® Ethernet Controller I211-AT x 4, Gigabit Ethernet Copper Port
Bypass	Supports up to 2 pairs bypass function	—
Display		
Graphic Controller	—	Intel® HD Graphics 505 Intergrated
Connector	—	—
Storage		
HDDs	Internal 2.5" SATA HDD Bay x 1	SATA II port Onboard for SATA DOM x 1
CF/CFast/mSATA	CF socket x 1 (Optional CFast™ socket x 1)	Onboard 8GB eMMC
Expansion/Internal Interface		
PCIe slot	—	—
Mini-PCIe slot	Mini-Card slot with SIM socket x 1 (Full size) (Optional Mini-Card slot up to 2)	Full size Mini-Card with SIM socket x 1
Keyboard and Mouse	Pin-header	Pin-header
Universal Serial Bus	USB 2.0 x 2	USB3.0 x 2
Miscellaneous		
RTC	Internal RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable	1~255 steps by software programmable
Software Button	GPIO Programmable push button x 1	GPIO Programmable push button x 1
TPM	Optional TPM v1.2/v2.0	Optional TPM v1.2/v2.0
GPIO	Reserve internal GPIO Pin header x 1	—
FAN	System Fan x 1	Fanless
MTBF (Hours)	86,286	—
Color	Black	Alumni
Environmental Parameters and Dimension		
Power Requirement	12V DC power in connector/ 60W Power adapter x 1 4-pin DC power out connector for HDD x 1	12V DC power in connector/ 24W Power Adapter x 1
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10%~80% relative humidity, non-condensing	10%~95% @40°C
Storage Humidity	10%~80% @40°C, non-condensing	10%~95% @40°C; non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (2.5" Hard Disk Drive) 1.5 Grms/ 5 ~ 500Hz/ non-operation	2.0G / 5 ~ 500Hz / operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation	30G peak acceleration (11 m sec. duration), operation
Chassis Dimension (W x D x H)	10.24" x 7.01" x 1.73" (260mm x 178mm x 44mm)	155 x 90 x 30mm
I/O Interfaces		
Front Panel	Power LED x 1 Status LED x 1 HDD Active LED x 1 Bypass LED x 2 (Optional) LAN LED x 12 (Supports up to LAN LED x 16)	Power LED x 1 Status LED x 1 HDD Active x 1 LAN LED x 8
Rear Panel	12V DC Power Input x 1 Power Button x 1 USB 2.0 x 2 RJ-45 LAN x 6 (Supports up to RJ-45 LAN x 8) RJ-45 Console x 1 Software Programmable Button x 1	RJ-45 Console x 1, USB 3.0 x 2, RJ-45 x 4, 12V DC Power Input x 1, Reset Button x 1
Note		

System Level Products

Network Appliances



Model	FWS-2271	FWS-2260
Platform		
Form Factor	Desktop 4/6-port Network Appliance	Desktop 6-Port Network Appliance
Processor	Onboard Intel® N3350/N4200 Processor SoC	Intel® Celeron® N3060/N3160 Processor SoC
Chipset	Integrated	—
System Memory	204-pin DDR3L 1867MHz SODIMM x 1, up to 8 GB	204-pin DDR3L 1600MHz SODIMM x 2, up to 8GB
Network		
Ethernet	Intel® i211 (Co-lay with Intel® i210), Gigabit Ethernet x 6 (BOM Optional 4 Ports)	Intel® i211, Gigabit Ethernet x 6 (Optional Intel® i211, Gigabit Ethernet x 4)
Bypass	Supports up to 2 pairs bypass function	Supports up to 2 pairs bypass function
Display		
Graphic Controller	Intel® HD Graphics 505 Intergrated	Intel® HD Graphics 400
Connector	HDMI x 1	HDMI x 1
Storage		
HDDs	2.5" HDD Bay x 1	Internal 2.5" SATA HDD Bay x 1, SATA II Port x 1
CF/CFast/mSATA	CFast, (Co-lay CF card)	CF socket x 1 (Optional CFast™ socket or mSATA socket x 1)
Expansion/Internal Interface		
PCIe slot	—	—
Mini-PCIe slot	Mini-Card socket (full-size) with SIM socket x 2	Mini-Card slot with SIM socket x 1 (USB Signal only, full size) (Optional Mini-Card slot with SIM socket x 2)
Keyboard and Mouse	Reserve pin-header	Pin-header
Universal Serial Bus	USB 3.0 Type A on I/O side x 2	USB 3.0 x 2, USB 3.0 internal pin-header x 1 (optional)
Miscellaneous		
RTC	Internal RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable	1~255 steps by software programmable
Software Button	GPIO Programmable push button x 1	GPIO Programmable push button x 1
TPM	Optional TPM v1.2 9660/TPM2.0 9665	Optional TPM v1.2 v/2.0
GPIO	Reserve internal pin header 8-bit Digital I/O interface (4-in /4-out)	Reserve internal GPIO Pin header x 1
FAN	Fanless	Fanless
MTBF (Hours)	—	85,321
Color	White	Black
Environmental Parameters and Dimension		
Power Requirement	—	12V DC power in connector/ 60W Power adapter x 1 4-pin DC power out connector for HDD x 1
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing
Storage Humidity	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (2.5" Hard Disk Drive) 1.5 Grms/ 5 ~ 500Hz/ non-operation	0.5 Grms/ 5 ~ 500Hz/ operation (2.5" HDD) 1.5 Grms/ 5 ~ 500Hz/ non-operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation
Chassis Dimension (W x D x H)	7.87" x 4.13" x 1.73" (200mm x 105mm x 44 mm)	10.23" x 7.01" x 1.73" (260mm x 178mm x 44mm)
I/O Interfaces		
Front Panel	Power LED x 1 Status LED x 1 HDD Active LED x 1 LAN LED x 12 Bypass LED x 2	Power LED x 1 Status LED x 1 HDD Active LED x 1 Bypass LED x 2 LAN LED x 12
Rear Panel	USB 3.0 Port x 2 RJ-45 Port with LED x 4 (BOM Optional RJ-45 Port with LED x 6) RJ-45 Console x 1 12V DC Power Input x 1 Software Programmable button x 1 HDMI x 1	12V DC Power Input x 1 Power Button x 1 USB 3.0 x 2 RJ-45 LAN x 6 RJ-45 Console x 1 Software Programmable Button x 1 HDMI x 1
Note		

Network Appliances



Model	FWS-2255	FWS-2253	FWS-2252
Platform			
Form Factor	Desktop 6-Port Network Appliance	Desktop 4-Port Network Appliance	Desktop 4-Port Network Appliance
Processor	Intel® Celeron® Processor N2807	Intel® Celeron® N2807 1.58 GHz (Dual Core) Intel® Celeron® J1900 2.0 GHz (Quad Core)	Intel® Celeron® J1900 2.0 GHz (Quad Core)
Chipset	—	—	—
System Memory	2 x 204-pin DDR3L-1333 MHz SODIMM, up to 8GB	204-pin SODIMM: Intel® N2807 Single-channel DDR3L 1333MHz x 1/ Intel® J1900 Dual-channel DDR3L 1333MHz x 2	204-pin Dual channel DDR3L 1333MHz SODIMM x 2, up to 8GB
Network			
Ethernet	Intel® Ethernet Controller I211-AT, Gigabit Ethernet Copper Port x 4 Intel® Ethernet Controller I210-AT, Gigabit Ethernet SFP Port x 2	Intel® i211, Gigabit Ethernet x 4	Intel® i211, Gigabit Ethernet x 4
Bypass	Support 1 pair Bypass	Supports 1 pair bypass function for J1900 only	Supports 1 pair bypass function
Display			
Graphic Controller	Intel® HD Graphics Integrated	Intel® HD Graphics	Intel® HD Graphics
Connector	—	Reserve internal VGA pin header x 1	Reserve internal VGA pin header x 1
Storage			
HDDs	SATA II port Onboard x 1 2.5" HDD Bay x 1	—	2.5" HDD Bay x 1
CF/FAST/msATA	CF socket x 1	CF socket x 1	CF socket x 1
Expansion/Internal Interface			
PCIe slot	—	—	—
Mini-PCIe slot	Full size Mini-Card (USB only) with SIM socket x 1, Half size Mini-card (PCIe + USB) x 1	Mini-Card Slot x 1 (Half size)	Mini-Card Slot x 1 (Half size)
Keyboard and Mouse	Pin-header	Pin-header	Pin-header
Universal Serial Bus	USB2.0 x 2	USB 2.0 x 2, USB 3.0 x 1	USB 2.0 x 2, USB 3.0 x 1
Miscellaneous			
RTC	Internal RTC	Internal RTC	Internal RTC
Watchdog Timer	1-255 steps by software programmable	1-255 steps by software programmable	1-255 steps by software programmable
Software Button	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1
TPM	Optional TPM v1.2/v2.0	—	—
GPIO	—	—	—
FAN	Fanless	Fanless	System fan x 1
MTBF (Hours)	—	—	116,331
Color	Black	Black	Black
Environmental Parameters and Dimension			
Power Requirement	12V DC power in connector/ 40W Power Adapter x 1	12V DC power in connector/ 40W Power adapter x 1, 4-pin DC power out connector for HDD x 1	12V DC power in connector/ 40W Power adapter x 1 4-pin DC power out connector for HDD x 1
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	-4°F ~ 158°F (-20°C ~ 70°C), N2807/ 32°F ~ 122°F (0°C ~ 50°C), J1900	32°F ~ 104°F (0°C ~ 40°C)
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10%~95% @40°C	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing
Storage Humidity	10%~95% @40°C, non-condensing	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing
Vibration	2.0 Grms/ 5 ~ 500Hz/ operation	1 Grms/ 5 ~ 500Hz/ operation 2 Grms/ 5 ~ 500Hz/ non-operation	0.5 Grms/ 5 ~ 500Hz/ operation (2.5" HDD) 1.5 Grms/ 5 ~ 500Hz/ non-operation
Shock	30G peak acceleration (11 m sec. duration), operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation
Chassis Dimension (W x D x H)	7.87" x 4.13" x 1.73" (200mm x 105mm x 44mm)	6.89" x 4.09" x 1.5" (175mm x 104mm x 38mm)	7.87" x 4.09" x 1.73" (200mm x 104mm x 44mm)
I/O Interfaces			
Front Panel	Power LED x 1, Status LED x, HDD Active x 1, Bypass LED x 1, LAN LED x 12, SIM Card Cover x 1	- Power LED x 1, - Status LED x 1, - HDD Active LED x 1, - LAN LED x 8	- Bypass LED x 1, - Power LED x 1, - Status LED x 1, - HDD Active LED x 1, - LAN LED x 8
Rear Panel	RJ-45 Console x 1, USB 2.0 x 2, RJ-45 x 4, SFP x 2, 12V DC Power Input x 1, Reset Button x 1	- 12V DC Power Input x 1, - Power Button x 1, - USB 3.0 x 1, - USB 2.0 x 2, - RJ-45 LAN x 4, - RJ-45 Console x 1, - Software Programmable Button x 1	- 12V DC Power Input x 1, - Power Button x 1 - USB 3.0 x 1, - USB 2.0 x 2, - RJ-45 LAN x 4 - RJ-45 Console x 1, - Software Programmable Button x 1, - VGA Port x 1 (Optional)
Note			

System Level Products

Network Appliances



Model	FWS-2251	FWS-2250
Platform		
Form Factor	Desktop 4-Port Network Appliance	Desktop 4-Port Network Appliance
Processor	Intel® Celeron® J1900 2.0 GHz (Quad Core)	Intel® Atom™ E3815 1.46 GHz (Single Core) Intel® Atom™ E3827 1.75 GHz (Dual Core) Intel® Celeron® J1900 2.0 GHz (Quad Core)
Chipset	—	—
System Memory	204-pin Dual channel DDR3L 1333/1600MHz SODIMM x 2, up to 8GB	204-pin Dual channel DDR3L 1333/1600MHz SODIMM x 2, up to 8GB (E3815 Single Channel)
Network		
Ethernet	Intel® i211, Gigabit Ethernet x 4	Intel® i211, Gigabit Ethernet x 4
Bypass	—	Supports 1 pair bypass function
Display		
Graphic Controller	Intel® HD Graphics	Intel® HD Graphics
Connector	Reserve internal VGA pin header x 1	Reserve internal VGA pin header x 1
Storage		
HDDs	Optional SATA II connector x 1 (SATA DOM Horizontal and no housing type only)	Optional SATA II connector x 1
CF/CFast/mSATA	CF socket x 1	CF socket x 1
Expansion/Internal Interface		
PCIe slot	—	—
Mini-PCIe slot	Mini-Card Slot x 3 (Half Size x 1, Full Size with SIM Socket x 1, USB 2.0 Signal only Full size with dual SIM socket x 1)	Mini-Card slot x 1 (Half size)
Keyboard and Mouse	Pin-header	Pin-header
Universal Serial Bus	USB 3.0 x 1	USB 2.0 x 2, USB 3.0 x 1
Miscellaneous		
RTC	Internal RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable	1~255 steps by software programmable
Software Button	GPIO Programmable push button x 1	GPIO Programmable push button x 1
TPM	Default N/A, optional TPM V1.2 or 2.0	—
GPIO	—	—
FAN	Fanless	Fan/Fanless refers to order information
MTBF (Hours)	85,551	90,630
Color	White	White
Environmental Parameters and Dimension		
Power Requirement	12V DC power in connector/ 40W Power adapter x 1 4-pin DC power out connector for HDD x 1	12V DC power in connector/ 40W Power adapter x 1 4-pin DC power out connector for HDD x 1
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing
Storage Humidity	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (SATA DOM) 1.5 Grms/ 5 ~ 500Hz/ non-operation	0.5 Grms/ 5 ~ 500Hz/ operation 1.5 Grms/ 5 ~ 500Hz/ non-operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation
Chassis Dimension (W x D x H)	8.27" x 4.09" x 1.38" (210mm x 104mm x 35mm)	6.3" x 4.09" x 1.38" (160mm x 104mm x 35mm)
I/O Interfaces		
Front Panel	- Power LED x 1 - HDD Active LED x 1 - LAN LED x 8 - RSSI LED x 2 (optional) - Accessible SIM cover x 1	- Power LED x 1 - Status LED x 1 - HDD Active LED x 1 - Bypass LED x 1 (Optional) - LAN LED x 8
Rear Panel	- 12V DC Power Input x 1 - Power Button x 1 - USB 3.0 x 1 - RJ-45 LAN x 4 - RJ-45 Console x 1 - Software Programmable Button x 1	- 12V DC Power Input x 1 - Power Button x 1 - USB 3.0 x 1 - USB 2.0 x 2 - RJ-45 LAN x 4 - RJ-45 Console x 1 - Software Programmable Button x 1
Note		

Network Appliances



Model	FWS-7821	FWS-7820
Platform		
Form Factor	1U Rackmount Network Platform	1U Rackmount Network Platform
Processor	6th/7th Generation Intel® Core™/ Xeon Processors	Intel® 6th Generation Core™/ Xeon Processors
Chipset	Intel® C236	Intel® C236
System Memory	DDR4 1600/1866/2133 UDIMM/ECC, Up to 64GB, 288-pin DIMM x 4	DDR4 1600/1866/2133 UDIMM/ECC, Up to 64GB, 288-pin DIMM x 4
Network		
Ethernet	Intel® i211 Gigabit Ethernet x 8 + NIM x 1	Intel® i210-AT Gigabit Ethernet x 6 + NIM
Bypass	Onboard 2 pairs bypass, others depend on NIM module	Onboard 2 pairs bypass, others depend on NIM module
NIM Slot	1	4 (Max. 5 slots by project base)
Display		
Graphic Controller	Intel® Integrated	Intel® Integrated
Connector	VGA cable (Optional)	VGA cable (Optional)
Storage		
HDDs	Internal 3.5" SATA HDD x 1	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)* *(mSATA/ CF/ CFast will be disabled if 2nd SATA HDD is used)
CF/CFast/mSATA	CFast™ socket x 1 (Optional BOM CFast™ socket or mSATA slot)	CF socket x 1 (Optional BOM CFast™ socket or mSATA slot)
Expansion/Internal Interface		
PCIe slot	Up to PCIe x 2 [x8] slots	PCIe [x4] signal use [x8] slot (3rd NIM slot will be disabled if PCIe Riser supported)
Mini-PCIe slot	—	—
IPMI	—	—
Keyboard and Mouse	Pin-header	Pin-header
Universal Serial Bus	USB 3.0 x 2, Box Header (2.0mm)	USB 3.0 x 2, Box Header (2.0mm)
Miscellaneous		
RTC	Internal RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable, 1 sec per step	1~255 steps by software programmable, 1 sec per step
Software Button	GPIO Programmable push button x 1	GPIO Programmable push button x 1
TPM	Yes	Yes
GPIO	8bits, BIOS default 4 bits input, 4bits output.	8bits, BIOS default 4 bits input, 4bits output.
FAN	2	3
MTBF (Hours)	—	—
Color	Black	Black
Environmental Parameters and Dimension		
Power Requirement	250W ATX PSU	250W ATX PSU
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10 ~ 80%	10 ~ 80%
Storage Humidity	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation
Shock	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation
Chassis Dimension (W x D x H)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)	16.93" x 18.7" x 1.73" (430mm x 475mm x 44mm)
I/O Interfaces		
Front Panel	- Power LED x 1 - Status LED x 1 - HDD Active LED x 1 - USB 3.0 Ports x 2 - RJ-45 Console x 1 - Parallel LCM display and 4 keypad x 1 (Optional w/ NIM slot) - Software Programmable Switch x 1"	- Power LED x 1 - Status LED x 1 - HDD Active LED x 1 - USB 3.0 Ports x 2 - RJ-45 Console x 1 - Parallel LCM display and 4 keypad x 1 (Optional w/ NIM slot) - Software Programmable Switch x 1
Rear Panel	- AC Power Input x 1 - Power Switch x 1 - VGA port (Optional) - Rear Expansion Slot x 2 (2 x PCIe [x8] slots, NIM slot will be disabled if PCIe Riser supported)	- AC Power Input x 1 - Power Switch x 1 - VGA port (Optional) - Rear Expansion Slot x 1 (Optional PCIe [x4] signal use [x8] slot, 3rd NIM slot will be disabled if PCIe Riser supported)
Note		

Network Appliances



Model	FWS-7811	FWS-7810
Platform		
Form Factor	1U Rackmount Network Platform	1U Rackmount Network Platform
Processor	Intel® LGA1150 4th Gen Core™/ Xeon Processor	Intel® LGA1150 4th Gen Core™/ Xeon Processor
Chipset	Intel® C226	Intel® C226
System Memory	DDR3 1333/1600 UDIMM/ECC, up to 32GB, 240-pin DIMM x 4	DDR3 1333/1600 UDIMM/ECC, up to 32GB, 240-pin DIMM x 4
Network		
Ethernet	Intel® i211, Gigabit Ethernet x 8 + NIM	Intel® i211, Gigabit Ethernet x 8 + NIM
Bypass	2 ~ 4 (Depends on NIM)	2 ~ 4 (Depends on NIM)
NIM Slot	1	1
Display		
Graphic Controller	Intel® Integrated	Intel® Integrated
Connector	VGA cable (Optional)	VGA cable (Optional)
Storage		
HDDs	Internal 2.5" SATA HDD x 2 or 3.5" SATA HDD x 1 (Optional)	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)
CF/CFast/mSATA	CF socket x 1	CF socket x 1
Expansion/Internal Interface		
PCIe slot	PCIe [x8] slot x 1 (Optional)	PCIe [x8] slot x 1 (Optional) or PCIe [x8] slot x 2, cannot use w/ NIM (Optional)
Mini-PCIe slot	—	—
IPMI	—	—
Keyboard and Mouse	Pin-header	Pin-header
Universal Serial Bus	USB 2.0 x 2 Box Header (2.0mm) (optional)	USB 2.0 x 2 Box Header (2.0mm) (optional)
Miscellaneous		
RTC	Internal RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable	1~255 steps by software programmable
Software Button	GPIO Programmable push button x 1	GPIO Programmable push button x 1
TPM	—	—
GPIO	—	—
FAN	2	2
MTBF (Hours)	97,000	115,000
Color	Black	Black
Environmental Parameters and Dimension		
Power Requirement	275W Redundant PSU	250W ATX PSU
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10 ~ 80%	10 ~ 80%
Storage Humidity	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation
Shock	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation
Chassis Dimension (W x D x H)	16.93" x 18.77" x 1.73" (430mm x 475mm x 44mm)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)
I/O Interfaces		
Front Panel	- Power LED x 1 - Status LED x 1 - HDD Active LED x 1 - LAN ports Link/Active LED x 8 - Bypass LED (Default 2 LEDs) - USB 3.0 Ports x 2 - RJ-45 Console x 1 - Parallel LCM display and 4 keypad x 1 - Software Programmable Switch x 1	- Power LED x 1 - Status LED x 1 - HDD Active LED x 1 - LAN ports Link/Active LED x 8 - Bypass LED (Default 2 LEDs) - USB 3.0 Ports x 2 - RJ-45 Console x 1 - Parallel LCM display and 4 keypad x 1 - Software Programmable Switch x 1
Rear Panel	- AC Power Input x 2 - Power Switch x 1 - VGA port (Optional) - Rear Expansion Slot x 2 (Optional)	- AC Power Input x 1 - Power Switch x 1 - VGA port (Optional) - Rear Expansion Slot x 2 (Optional)
Note		

Network Appliances



Model	FWS-7520	FWS-7400
Platform		
Form Factor	1U Rackmount Network Platform	1U Rackmount Network Platform
Processor	Intel® FCBGA Xeon D-1548/D-1518 (Optional) SoC	Intel® LGA1150 4th Gen Core™ Processor
Chipset	Integrated	Intel® H81
System Memory	DDR4 1600/1866/2133 RDIMM/UDIMM/ECC, up to 128GB, 288 Pin DIMM x 4	DDR3L 1333/1600 UDIMM, up to 16GB, 240-pin DIMM x 2
Network		
Ethernet	Intel® i211, Gigabit Ethernet x 1, Inphi CS4227 phy 10 Gigabit Ethernet x 2 + NIM	Intel® i211, Gigabit Ethernet x 6 + NIM
Bypass	Depends on NIM	2 – 4 (Depends on NIM)
NIM Slot	3	1
Display		
Graphic Controller	IPMI integrated (Optional)	Intel® Integrated
Connector	VGA cable (Optional)	VGA cable (Optional)
Storage		
HDDs	Support 2.5" SATA HDD x 2	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)
CF/CFast/mSATA	CF socket x 1 (Optional CFast™ socket or mSATA slot)	CF socket x 1
Expansion/Internal Interface		
PCIe slot	PCIe [x4] signal use [x8] slot (optional)	PCIe [x8] slot x 1 (Optional), cannot use w/ NIM
Mini-PCIe slot	—	—
IPMI	Optional Module	—
Keyboard and Mouse	Pin-header	Pin-header
Universal Serial Bus	USB 3.0 x 2 Box Header (2.0mm) (optional)	USB 2.0 x 2 Box Header (2.0mm) (optional)
Miscellaneous		
RTC	Internal RTC	Internal RTC
Watchdog Timer	1–255 steps by software programmable	1–255 steps by software programmable
Software Button	GPIO Programmable push button x 1	GPIO Programmable push button x 1
TPM	Yes	—
GPIO	8bits, BIOS default 4 bits input, 4bits output.	—
FAN	3	2
MTBF (Hours)	—	106,000
Color	Black	Black
Environmental Parameters and Dimension		
Power Requirement	250W ATX PSU or 220W Redundant PSU (Optional)	250W ATX PSU
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10 ~ 80%	10 ~ 80%
Storage Humidity	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation
Shock	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non operation	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation
Chassis Dimension (W x D x H)	16.93" x 18.7" x 1.73" (430mm x 475mm x 44mm)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)
I/O Interfaces		
Front Panel	- Power LED x 1 - Status LED x 1 - HDD Active LED x 1 - USB 3.0 Ports x 2 - RJ-45 Console x 1 - Parallel LCM display and 4 keypad x 1 - Software Programmable Switch x 1	- Power LED x 1 - Status LED x 1 - HDD Active LED x 1 - LAN ports Link/Active LED x 6 - Bypass LED (Default 2 LEDs) - USB 3.0 Ports x 2 - RJ-45 Console x 1 - Parallel LCM display and 4 keypad x 1 - Software Programmable Switch x 1
Rear Panel	- AC Power Input x 1 - Power Switch x 1 - VGA port (Optional) - Rear Expansion Slot x 1 (Optional PCIe [x4] signal use x8 slot)	- AC Power Input x 1 - Power Switch x 1 - VGA port (Optional) - Rear Expansion Slot x 2 (Optional)
Note		

System Level Products

Network Appliances

Network Appliances



Model	FWS-7350	FWS-7250	FWS-8500
Platform			
Form Factor	1U Rackmount Network Platform	1U Rackmount Network Platform	2U Rackmount Network Platform
Processor	Onboard Intel® C2758/C2558 4-Core/ 8-Core 2.4 GHz Processor SoC	Intel® Atom™ E3845, up to 1.91 GHz/ Celeron® J1900 up to 2.42 GHz	Intel® Xeon® Processor E5-2600 v3 Series, LGA 2011
Chipset	Integrated	Integrated	Intel® Communications Chipset 8925 PCH
System Memory	DDR3L 1600 UDIMM/ECC, up to 64GB, 240-pin DIMM x 4	DDR3(L) 1333 SODIMM, up to 8GB, 204 Pin DIMM x 2	DDR4 1600/1866/2133 RDIMM/UDIMM/ECC, Up to 512 GB 288-Pin DIMM x 16 (8 DIMM Per CPU)
Network			
Ethernet	Marvell 88E1543 phy Gigabit Ethernet x 4 + NIM	Intel® i210AT, Gigabit Ethernet x 4 + NIM	Depends on NIM, onboard 1 GbE LAN x 1 (optional Gigabit Ethernet x 2)
Bypass	2 – 4 (Depends on NIM)	2	Depends on NIM
NIM Slot	1	—	8
Display			
Graphic Controller	Mini-card VGA (Optional)	Intel® Integrated	Mini-card VGA (Optional)
Connector	VGA cable (Optional)	VGA cable (Optional)	VGA cable (Optional)
Storage			
HDDs	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)	2.5" SATA HDD x 1 (Optional)	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)
CF/CFast/mSATA	CF socket x 1	CF socket x 1	CF socket x 1
Expansion/Internal Interface			
PCIe slot	PCIe [x4] signal use [x8] slot	—	PCIe [x8] slot x 2 (Optional)
Mini-PCIe slot	—	1	1
IPMI	—	—	—
Keyboard and Mouse	Pin-header	Pin-header	Pin-header
Universal Serial Bus	USB 2.0 x 1 Box Header (2.0mm) (optional)	USB 2.0 x 1 Box Header (2.0mm) (optional)	USB x 2 for internal pin-header (optional)
Miscellaneous			
RTC	Internal RTC	Internal RTC	Internal RTC
Watchdog Timer	1–255 steps by software programmable	1–255 steps by software programmable	1–255 steps by software programmable
Software Button	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1
TPM	—	—	TPM v1.2
GPIO	—	—	8-bit, BIOS default 4-bit input, 4-bit output
FAN	1	2	5
MTBF (Hours)	109,000	110,000	—
Color	Black	Black	Black
Environmental Parameters and Dimension			
Power Requirement	100W ATX PSU	100W ATX PSU	650W Redundant PSU
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10 ~ 80%	10 ~ 80%	10 ~ 80%
Storage Humidity	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation
Shock	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation
Chassis Dimension (W x D x H)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)	16.93" x 11.02" x 1.73" (430mm x 280mm x 44mm)	18.9" x 23.62" x 3.46" (480mm x 600mm x 88mm)
I/O Interfaces			
Front Panel	Power LED x 1, Status LED x 1, HDD Active LED x 1, LAN ports Link/Active LED x 4, Bypass LED (Default 2 LEDs), USB 2.0 Ports x 2, RJ-45 Console x 1, Parallel LCM display and 4 keypad x 1, Software Programmable Switch x 1	Power LED x 1, Status LED x 1, HDD Active LED x 1, LAN ports Link/Active LED x 4, Bypass LED (Default 2 LEDs), USB 2.0 Ports x 2, RJ-45 Console x 1, Parallel LCM display and 4 keypad x 1, Software Programmable Switch x 1	Power LED x 1, Status LED x 1, HDD Active LED x 1, USB 2.0 Ports x 2, RJ-45 Console x 1, Parallel LCM display and 4 keypad x 1, Software Programmable Button x 1, RJ-45 LAN x 1 (optional up to RJ-45 LAN x 2)
Rear Panel	AC Power Input x 1, Power Switch x 1, VGA port (Optional), Rear Expansion Slot x 2 (Optional PCIe [x4] signal use x8 slot)	AC Power Input x 1, Power Switch x 1, VGA port (Optional)	AC Power Input x 2, Power Switch x 1, Rear Expansion Slot x 2 (Optional PCIe [x8])
Note			

Network Appliances



Model	ICS-6270
Platform	
Form Factor	Industrial DIN Rail Network Appliance
Processor	Intel® Celeron® Processor N3350
Chipset	—
System Memory	204-pin DDR3L-1600 MHz SODIMM x 2, up to 8GB
Network	
Ethernet	Intel® Ethernet Controller I211-AT x 6, Gigabit Ethernet Copper Port
Bypass	Support 2 pair Bypass
Display	
Graphic Controller	Intel® HD Graphics 505 Intergrated
Connector	VGA x 1
Storage	
HDDs	SATA II port Onboard x 1, 2.5" HDD Bay x 1
CF/CFast/mSATA	CFast socket x 1
Expansion/Internal Interface	
PCIe slot	—
Mini-PCIe slot	Mini-Card socket (full-size) with SIM socket via main board x 1 Mini-Card socket (full-size) via daughter board x 1
Keyboard and Mouse	Pin-header
Universal Serial Bus	USB3.0 x 2
Miscellaneous	
RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable
Software Button	GPIO Programmable push button x 1
TPM	Optional TPM v1.2/v2.0
GPIO	Reserve internal GPIO Pin header x 1
FAN	Fanless
MTBF (Hours)	—
Color	Dark Grey
Environmental Parameters and Dimension	
Power Requirement	9~36V DC terminal block on top side x 1
Operation Temp.	-40°F ~ 156°F (-40°C ~ 75°C)
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	10%~95% @40°C
Storage Humidity	10%~95% @40°C; non-condensing
Vibration	2.0 Grms/ 5 ~ 500Hz/ operation
Shock	30G peak acceleration (11 m sec. duration), operation
Chassis Dimension (W x D x H)	75 x 120 x 140 mm
I/O Interfaces	
Front Panel	Power LED x 1 Status LEDx 1 HDD Active x 1 Bypass LED x 1 RS-232/485 COM x 1, USB 3.0 x 2, RJ-45 x 6, Reset Button x 1 VGA port x 1
Rear Panel	Supports DIN Rail
Note	

IoT Gateway



Model	UP-GWS01	UPS-GWS01
System		
Processor	Intel® Atom™ x5-Z8350 Processor (2M Cache, 1.44 GHz up to 1.92 GHz) CPU with 64 bit architecture; Quad Core	Intel® Celeron™ N3350 Processor (2M Cache, 1.10 GHz up to 2.40 GHz) Intel® Pentium™ N4200 Processor (2M Cache, 1.10 GHz up to 2.50 GHz)
System Memory	Onboard DDR3L memory	Onboard Single / Dual Channel LPDDR4
Storage	Onboard eMMC	Onboard eMMC (Max 128GB)
Ethernet	Giga LAN x 1	Giga LAN (Realtek 8111G) x 2
Graphics	Intel® HD 400 Graphics, 12 EU GEN 8, up to 500MHz Support DX*11.1/12, Open GL*4.2, Open CL*1.2 OGL ES3.0, H.264, HEVC (decode), VP8	Intel® Graphics, GEN 9, DX*12.0, Open GL*4.3, Open CL*2.0 Full Profile
I/O Port	USB 2.0 x 4 USB 3.0 x 1 HDMI x 1 Giga LAN x 1	USB3.0 x 3 HDMI x 1 DP x 1 Giga LAN x 2 USB3.0 OTG x 1
Wi-Fi (Optional)	IEEE 802.11 a/b/g/n or b/g/n	Dual Band Wireless-AC
Bluetooth (Optional)	4.0	4.2
LoRa function	—	3G module Mini PCIe with SIM slot
Certificate	CE/FCC Class A	CE / FCC Class A
Dimension	3.74" x 3.58" x 1.46" (95mm x 91mm x 37mm)	3.74" x 3.58" x 1.97" (95mm x 91mm x 50mm)
OS Support	Windows® 10, Ubuntu Linux/ Yocto Linux Android 6.0	Windows® 10 Ubuntu Linux/ Yocto Linux
IP	—	—
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 113°F (0°C ~ 45°C)
Power Supply (Optional)	5V, 4A DC-IN	5V, 4A / 6A DC-IN

IoT Gateway



Model	UP-GWS02G	UP-GWS02L
System		
Processor	Intel® Atom™ x5-Z8350 Processor (2M Cache, 1.44 GHz up to 1.92 GHz) CPU with 64 bit architecture; Quad Core	Intel® Atom™ x5-Z8350 Processor (2M Cache, 1.44 GHz up to 1.92 GHz) CPU with 64 bit architecture; Quad Core
System Memory	Onboard 2GB DDR3L-1600 memory	Onboard 4GB DDR3L-1600 memory
Storage	32 GB eMMC Onboard x 1	64 GB eMMC Onboard x 1
Ethernet	Realtek 8111G x 1	Realtek 8111G x 1
Graphics	Intel® HD 400 Graphics ,12 EU GEN 8, up to 500MHz Support DX*11.1/12, Open GL*4.2, Open CL*1.2 OGL ES3.0, H.264, HEVC (decode), VP8	Intel® HD 400 Graphics ,12 EU GEN 8, up to 500MHz Support DX*11.1/12, Open GL*4.2, Open CL*1.2 OGL ES3.0, H.264, HEVC (decode), VP8
I/O Port	RJ45 Connector x 1 HDMI Stack Connector x 1 COM x 2 (RS-232/422/485) USB 2.0 Stack Connector x 2 USB 3.0 OTG x 1 DC x 1 6 pin block connector x 1 (8 bit ADC x 1, Analog GND x 1, GPIO x 3, Digital GND x 1)	RJ45 Connector x 1 HDMI Connector x 1 USB 2.0 Stack Connector x 2 USB 3.0 OTG x 1 DC x 1
Wi-Fi (Optional)	IEEE 802.11 a/b/g/n or b/g/n	IEEE 802.11 a/b/g/n or b/g/n
Bluetooth (Optional)	4.0	4.0
LoRa function	—	Frequency band 868MHz Sensitivity down to -138 dBm Tx/Rx front-ends x 2 RF interface optimized to 50Ω Output power level up to 20 dBm Range up to 15 km (Line of Sight)
Certificate	CE Class A, FCC	CE
Dimension	5.12" x 3.74" x 1.74" (130 mm x 95 mm x 44.2 mm)	5.12" x 3.74" x 1.74" (130 mm x 95 mm x 44.2 mm)
OS Support	Windows® 10, Ubuntu Linux / Yocto Linux Android 6.0	Ubuntu Linux
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 122°F (0°C ~ 50°C)
Power Supply (Optional)	5V DC @6A	5V DC @6A

System Level Products

Industrial Chassis — Rackmount



Model	ARC-645	ARC-645M	ARC-625M
System			
Construction	1.2 mm SECC Zinc-coated Steel	1.2mm SECC Zinc-coated Steel (Japanese Manufactured)	1.2mm SECC Zinc-Coated Steel
Storage	External: 3.5" Drive Bay x 1, 5.25" Drive Bay x 4 Internal: 3.5" Drive Bay x 2	External: 3.5" Drive Bay x 1, 5.25" Drive Bay x 4 Internal: 3.5" Drive Bay x 2	External: 3.5" Disk Drive x 1, 5.25" CD-ROM or Removable Hard Disk Drive x 1 Internal: 3.5" Hard Disk Drive Bay x 2
System Fan	12 cm Ball Bearing Fan with Removable Filter x 1	12 cm Fan on Front Panel x 1, 8 cm Fan On Rear Side x 1	8cm Ball Bearing Fan with Removable Filter x 1
Front Panel	Power ON/OFF Switch x 1 Reset Button x 1 Power ON LED x 1 Hard Disk Drive Active LED x 1 USB Port x 4	Power ON/OFF Switch x 1 Reset Button x 1 Power ON LED x 1 Hard Disk Drive Active LED x 1 USB Port x 4	Power ON/OFF Switch x 1 Reset Button x 1 Power ON LED x 1 Hard Disk Drive Active LED x 1 USB x 2
Rear Panel	AT Keyboard Cut-out x 1 14 Slots (including system slot), supports max. 339 mm (length) for expansion card	AT Keyboard Cut-out x 1 Reserved Cut-out for DB Connector x 4 7 Slots, supports max. 312 mm (length) for expansion card	PCI via riser card x 3, supports max. 167 mm (length) for expansion card
Color	Black	Black	Black
Dimensions	19" (W) x 20.8" (D) x 7" (H) (482mm x 528mm x 177mm)	19" (W) x 7" (H) x 20.8" (D) (482mm x 177mm x 528mm)	19" (W) x 20.8" (D) x 3.5" (H) (482mm x 528mm x 88.2mm)
Carton Size	21.6" (W) x 27" (D) x 12.4" (H) (548mm x 685mm x 315mm)	21.6" (W) x 12.4" (H) x 27" (D) (548mm x 315mm x 685mm)	21.6" (W) x 27" (D) x 8.8" (H) (548mm x 685mm x 224mm)
Net Weight	26.4 lb (12 kg)	26.4 lb (12 kg)	22 lb (10 kg)
Gross Weight	30.8 lb (14 kg)	30.8 lb (14 kg)	26.4 lb (12 kg)
Environmental			
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 122°F (0°C ~ 50°C)
Storage Temperature	-4°F ~ 176°F (-20°C ~ 80°C)	-4°F ~ 176°F (-20°C ~ 80°C)	-4°F ~ 176°F (-20°C ~ 80°C)
Storage Humidity	10 ~ 90% @ 40°C, non-condensing	10 ~ 90% @ 40°C, non-condensing	10 ~ 90% @ 40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (2.5" Hard Disk Drive) 1.5 Grms/ 5 ~ 500Hz/ non operation	0.5 Grms/ 5 ~ 500Hz/ operation (2.5" Hard Disk Drive) 1.5 Grms/ 5 ~ 500Hz/ non operation	0.5 Grms/ 5 ~ 500Hz/ operation (2.5" Hard Disk Drive) 1.5 Grms/ 5 ~ 500Hz/ non operation
Shock	15 G peak acceleration (11 m sec. duration), operation 30 G peak acceleration (11 m sec. duration), non operation	15 G peak acceleration (11 m sec. duration), operation 30 G peak acceleration (11 m sec. duration), non operation	15 G peak acceleration (11 m sec. duration), operation 30 G peak acceleration (11 m sec. duration), non operation
EMC	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A

Industrial Chassis — Wallmount



Model	AMC-280M	AMC-262	AEC-206	AEC-204
System				
Construction	Heavy-duty Steel	Heavy-duty steel	Heavy-duty Steel	Heavy-duty Steel
Storage	External: 5.25" External Drive Bay x 2 Internal: Up to 3.5" Drive Bay x 1 Optional: Two 3.5 HDD Bay Cage	External: 3.5" Drive Bay x 1 5.25" Drive Bay x 1 Internal: 3.5" Drive Bay x 2	External: 5.25" Drive Bay x 1 (Front Accessible) 3.5" Drive Bay x 1 (Front Accessible) Internal: 3.5" Drive Bay x 2	External: Slim CD-ROM & Disk Drive x 1 or 3.5" Disk Drive x 1 (front accessible) Internal: 3.5" Hard Disk Drive Bay or 2.5" Hard Disk Drive Bay x 1
System Fan	12cm Ball Bearing Fan with Removable Filter x 1	12cm Ball Bearing Fan with Removable Filter x 1	12cm Ball Bearing Fan with Removable Filter (Flow-in) x 1	9 cm ball Bearing Fan with removable filter (flow-in) x 1
Front Panel	Power ON/OFF Switch x 1 Reset Button x 1 Power ON LED x 1 Hard Disk Drive Active LED x 1 PS/2 Keyboard Connector x 1 USB x 2	Power ON/OFF Switch x 1 Reset Button x 1 Power LED x 1 HDD Active LED x 1 PS/2 Keyboard Connector x 1 USB Port x 2	Power On/ Off Switch with LED x 1 Reset Button x 1 Hard Disk Drive Active LED x 1 USB x 2	—
Rear Panel	I/O Bracket provided by motherboard mfg 7 slots, supports max. 312 mm (length) for expansion card	Reserved Cut-out for DB-25 Connector x 1 Reserved Cut-out for DB-9 Connector x 1 6 slots (including system slot), supports max. 339 mm (length) for expansion card	COM x 1 Parallel x 1 Reserved Cut-out for LVDS Connector x 1 6 slots (including system slot), supports max. 339 mm (length) for expansion card	COM x 1 Parallel x 1 Reserved Cut-out for LVDS Connector x 1 4 slots (including system slot), supports max. 185 mm (length) for expansion card
Color	White	White	Black	White
Dimensions	7.7" (W) x 17.7" (D) x 13" (H) (196mm x 450mm x 330mm)	6.9" (W) x 16.1" (D) x 10" (H) (175mm x 405mm x 254mm)	7.7" (W) x 15.55" (D) x 8.5" (H) (196mm x 395mm x 216mm)	6.3" (W) x 8.1" (H) x 9.7" (D) (161mm x 207mm x 247mm)
Carton Size	11.1" (W) x 20.3" (D) x 18" (H) (281mm x 515mm x 457mm)	12.4" (W) x 14.37" (D) x 20.47" (H) (315mm x 365mm x 520mm)	12.2" (W) x 13.2" (D) x 20" (H) (310mm x 335mm x 510mm)	13.39" (W) x 10.63" (H) x 13.19" (D) (340mm x 270mm x 335mm)
Net Weight	19.8 lb (9 kg)	12.1 lb (5.5 kg)	17 lb (7.8 kg)	12.1 lb (5.5 kg)
Gross Weight	22 lb (10 kg)	13.9 lb (6.3 kg)	20 lb (9.2 kg)	13.9 lb (6.3 kg)
Environmental				
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 113°F (0°C ~ 45°C)
Storage Temperature	-4°F ~ 176°F (-20°C ~ 80°C)	-4°F ~ 176°F (-20°C ~ 80°C)	32°F ~ 167°F (0°C ~ 75°C)	32°F ~ 167°F (0°C ~ 75°C)
Storage Humidity	10 ~ 90% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation	0.5 Grms/ 5 ~ 500Hz/ operation 1.5 Grms/ 5 ~ 500Hz/ non operation	1 Grms/ 5 ~ 500Hz/ random operation	1 Grms/ 5 ~ 500Hz/ random operation
Shock	15 G peak acceleration (11 m sec. duration), operation	15 G peak acceleration (11 m sec. duration), operation 30 G peak acceleration (11 m sec. duration), non operation	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration)
EMC	CE/FCC Class A	CE/FCC Class A	CE/FCC class A	CE/FCC class A

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