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# 2016 Selection Guide

www.aaeon.com



# Selection Guide

## About Us



### A Leader and Partner in Computing Platform Services

Our relentless pursuit for excellence with a 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 integrated solutions, hardware and services for premier OEM/ODMs and system integrators worldwide. 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.

With our continuous pursuit of innovation and excellence, AAEON has further strengthened its leadership by leveraging advanced technology and resources from ASUS. 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 as well as a GSA Contract holder (#GS-35F-0470Y) serving the Federal, State & Local government sectors.

Peruse AAEON's services and product portfolio by visiting us at [www.aaeon.com](http://www.aaeon.com).

## AAEON Core Values

### Reliability:

Delivering trustworthy products in a timely manner

### Integrity:

Valuing business integrity and ethics

### Innovation:

Turning cutting-edge concepts into reality

# Selection Guide

## Index

<b>About Us</b>	<b>1</b>		
<b>Index</b>	<b>2</b>		
<b>Design Manufacturing Service (DMS)</b>	<b>5</b>		
<b>Network Security Platform</b>	<b>6</b>		
<b>AAEON Hi-Safe</b>	<b>7</b>		
<b>AAEON Hi-Manager</b>	<b>8</b>		
<b>AAEON's Embedded OS Solutions</b>	<b>9</b>		
<b>Q Service Plus</b>	<b>11</b>		
<b>Board Level Products</b>	<b>12</b>		
<b>Compact Boards</b>	<b>13</b>		
PCM-QM77	13		
PCM-LN02	13		
PCM-5895 Rev. A	14		
PCM-5895 Rev. B	14		
<b>EPIC Boards</b>	<b>15</b>		
EPIC-BDU7	15		
EPIC-QM77	15		
EPIC-QM57	15		
EPIC-BT07	16		
EPIC-CV07	16		
EPIC-5536	16		
<b>SubCompact Boards</b>	<b>17</b>		
GENE-SKU6	17		
GENE-QM87	17		
GENE-QM77 Rev. A	17		
GENE-QM77 Rev. B	18		
GENE-QM67	18		
GENE-QM57	18		
GENE-BSW5	19		
GENE-BT04	19		
GENE-BT05	19		
GENE-BT06	20		
GENE-CV05	20		
GENE-LN05 Rev. B	20		
GENE-A55E	21		
GENE-5315 Rev. A	21		
GENE-5315 Rev. B	21		
AIOT-X1000	22		
<b>PC/104 Modules</b>	<b>23</b>		
PFM-HDS	23		
PFM-LNP	23		
PFM-CVS Rev. A	23		
PFM-CVS Rev.B	24		
PFM-541I	24		
PFM-540I Rev. A	25		
PFM-540I Rev. B	25		
<b>Pico-ITX Boards</b>	<b>26</b>		
PICO-BT01	26		
PICO-CV01	26		
PICO-HD01	27		
		PICO-IMX6	27
		<b>Pico-ITX Boards- BIO</b>	<b>28</b>
		BIO-ST01-L1U2	28
		BIO-ST01-M1U1	28
		BIO-ST02-C4M1	28
		<b>COM Express CPU Modules</b>	<b>29</b>
		COM-SKHB6	29
		COM-SKUC6	29
		COM-QM87	29
		COM-QM77 Rev. B	30
		COM-HM76	30
		COM-KB	30
		COM-BT	31
		COM-BYTC2	31
		COM-CV Rev. B	32
		COM-CV Rev. A11	32
		COM-LN Rev. B	32
		NanoCOM-BT	33
		NanoCOM-CV Rev. A	33
		NanoCOM-CV Rev. B	33
		<b>COM Carrier Boards</b>	<b>34</b>
		ECB-916M Rev. B	34
		ECB-920A	34
		<b>XTX/ETX CPU Modules</b>	<b>35</b>
		XTX-BSW	35
		XTX-CV Rev. A11	35
		ETX-LN Rev. A11	36
		ETX-A55E	36
		ETX-701	36
		<b>XTX/ETX Carrier Board</b>	<b>37</b>
		ECB-902M	37
		ECB-910M	37
		<b>Qseven CPU Modules</b>	<b>38</b>
		AQ7-IMX6	38
		AQ7-BT	38
		<b>Qseven Carrier Board</b>	<b>39</b>
		ECB-970-A10	39
		ECB-970-A10-01	39
		<b>SMARC CPU Module</b>	<b>40</b>
		uCOM-BT	40
		<b>SMARC Carrier Module</b>	<b>40</b>
		ECB-960T	40
		<b>Industrial Motherboards</b>	<b>41</b>
		NITX-BD1	41
		EMB-BT1	41
		EMB-BT2	42
		EMB-BT4	42
		EMB-BT7	42
		EMB-BSW1	43
		EMB-Q170A	43
		EMB-Q170B	43
		EMB-H110B	44

## Index

EMB-Q87A	44
EMB-H81A	44
EMB-H81B	45
EMB-QM87A	45
EMB-Q77A	45
EMB-B75A	46
EMB-B75B	46
EMB-QM77	46
EMB-H61A	47
EMB-H61B	47
EMB-QM67	47
EMB-CV2	47
EMB-KB1	48
EMB-A70M	48
EMB-A50M	49
IMBI-QM57	49
EPC-CV1	49
IMBA-Q87A	50
IMBA-Q77	50
IMBA-967	50
IMBA-H61A	51
IMBM-Q170A	51
IMBM-Q87A	51
IMBM-B75A	52
IMBM-H61A	52
IMBM-H61B	52
<b>Networking Motherboards</b>	<b>53</b>
FWB-2250	53
FWB-7250	53
FWB-7350	53
FWB-7401	54
FWB-7811	54
<b>RISC CPU Module</b>	<b>55</b>
GENE-1350	55
<b>Xeon Industrial Server Motherboards</b>	<b>56</b>
CMB-A9SC2	56
CMB-A9DP2	56
<b>Full-size SBCs — PICMG 1.3 SBC/ PICMG 1.0 SBC</b>	<b>57</b>
FSB-H81H	57
FSB-B75H	57
FSB-B75G	57
<b>Half-size SBCs — PCI/ ISA</b>	<b>58</b>
HSB-CV1P	58
HSB-LN2I	58
HSB-800I	58

## System Level Products **59**

<b>Industrial HMI Touch Panel Solutions</b>	<b>61</b>
AHP-1154	61
AHP-1152	61
AHP-1125	62
AHP-1123	62
AHP-1083	63
AHP-1070	63
<b>Wide Temp. HMI Touch Panel Solutions</b>	<b>64</b>
AHP-2173	64
AHP-2176	64
AHP-2153	65
AHP-2122	65
<b>Industrial Modular Touch Panel Solutions</b>	<b>66</b>
OMNI-2155	66
OMNI-2215-BT	66
<b>Infotainment Multi-Touch Panel Solutions</b>	<b>67</b>
ACP-5217	67
ACP-5153	67
ACP-1104	68
ACP-1103	68
ACP-1074	69
ACP-1073	69
ACP-2153	69
<b>Industrial Touch Display Solutions</b>	<b>70</b>
AGD-317D	70
AGD-315D	70
AGD-315D V2	70
AGD-312D	71
AGD-312D V2	71
ACD-110D	72
ACD-515D	72
<b>Rugged Stainless Touch Panel Solutions</b>	<b>73</b>
AFP-6152	73
AFP-6123	73
<b>Rugged Tablet Computers</b>	<b>74</b>
RTC-600A	74
RTC-700A	74
RTC-700B	75
RTC-700C	75
RTC-700M	75
RTC-900R	76
RTC-900B	76
RTC-1000i	77
RTC-1000S	77
<b>Ultra Slim Fanless BOX PC Solutions</b>	<b>78</b>
BOXER-6401	78
BOXER-6402	78
BOXER-6403	79
BOXER-6403WT	79
BOXER-6403M	80
BOXER-6404	80
BOXER-6404WT	81

## Index

BOXER-6404M	81	FWS-2253	103
<b>Compact Fanless BOX PC Solutions</b>	<b>82</b>	FWS-2252	103
BOXER-6615	82	FWS-2251	103
BOXER-6614	82	FWS-2250	104
AEC-6613	83	FWS-2200	104
AEC-6612 Rev. B	83	FWS-7820	105
BOXER-6638U	84	FWS-7811	105
AEC-6638	84	FWS-7810	105
AEC-6637	85	FWS-7520	106
AEC-6636	85	FWS-7400	106
AEC-6635	86	FWS-7350	106
AEC-6625	86	FWS-7250	107
AEC-6646B	87	FWS-8500	107
AEC-6643	87		
BOXER-6652	88	<b>IoT Gateway</b>	<b>108</b>
BOXER-6651	88	AIOT-QG	108
BOXER-6639	89	AIOT-QA	108
		AIOT-QM	108
		AIOT-DRM	108
<b>Expandable Fanless BOX PC Solutions</b>	<b>89</b>	<b>Industrial Chassis — Rackmount</b>	<b>109</b>
BOXER-6852	89	ARC-645	109
AEC-6877	90	ARC-645M	109
AEC-6876	90	ARC-625M	109
		<b>Industrial Chassis — Wallmount</b>	<b>110</b>
<b>Automation Fanless BOX PC Solutions</b>	<b>91</b>	AMC-280M	110
BOXER-6914	91	AMC-262	110
AEC-6977	91	AEC-206	110
AEC-6967	92	AEC-204	110
AEC-6950	92		
AEC-6913	93		
<b>Transportation BOX PC Solutions</b>	<b>93</b>		
BOXER-6313VS	93		
BOXER-6301VS	93		
BOXER-6357VS	94		
AEV-6356	95		
<b>Network Video Recorder &amp; Mobile NVR</b>	<b>96</b>		
NVR-6300S	96		
NVR-CV	96		
NVR-067	96		
NVR-067S	96		
NVR-B75	97		
VPC-3300S	97		
VPC-5500S	97		
<b>Digital Signage System</b>	<b>98</b>		
DSS-TN40	98		
<b>Turn-Key Chassis Solutions</b>	<b>99</b>		
TKS-EMB	99		
TKS-P20-CV01	99		
TKS-E21-HD07	99		
NANO-001N	100		
NANO-001F	100		
ACS-1U01-BT4	101		
ACS-1U01-H81B	101		
<b>Network Appliances</b>	<b>102</b>		
FWS-2350	102		
FWS-2270	102		
FWS-2260	102		

# 00 Design Manufacturing Service (DMS)

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.

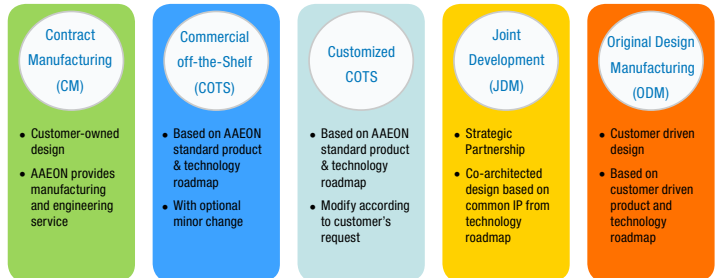
- Product Conceptualization
  - Electronic Circuit Development
  - PCB Layout
  - Component Qualification
  - Mechanical Design
  - Prototype building
  - Compatibility, Reliability and Qualification testing
  - Certification and processing (Agency Approvals)
  - Manufacturing Design
  - Packaging and 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



Quality Manufacturing

Collaborative Development

# Network Security Platform

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. It 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

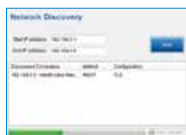


# AAEON Hi-Manager

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



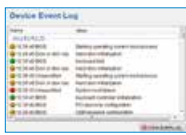
### Power Control:

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:

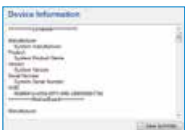
Controls remotely from the target device

## 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's Embedded OS Solutions

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 Family

### Windows Embedded Standard

- Windows® XP Embedded
- Windows® Embedded Standard 2009
- Windows® Embedded Standard 7
- Windows® Embedded Standard 8



Entertainment



Industrial Automation



ATM/ Kiosk



Office Automation

### Windows Embedded Enterprise

- Windows® Vista Business
- Windows® 7 Professional
- Windows® 8.1 Professional
- Windows® 10 IoT Enterprise



Kiosks



Entertainment

### Windows Embedded Compact 7

- Windows® CE 6.0
- Windows® Compact 7
- Windows® Compact 2013



   
Handheld Terminals



Portable Media



Consumer



Medical



Industrial Automation



Thin Client



Robotics

### Windows Embedded POSReady

- WEPOS 1.1
- POSReady 2009
- POSReady 7
- Windows® Embedded Industry 8.1 Pro Retail
- Windows® 10 IoT Enterprise for Retail or Thin Clients



Point of Service

### Windows Embedded Server



Dedicated Servers

## 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	Window XP Embedded 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® 10 IoT Enterprise for Retail or Thin Clients	Windows® Vista Business Windows® 7 Professional Windows® 8.1 Professional Windows® 10 IoT Enterprise
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 Solution

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



Q Service Plus is AAEON's unique set of multi-faceted services aimed at getting you up and running in the shortest possible time. We provide:

- Quick BIOS setup within 5 working days
- Preliminary troubleshooting feedback within 1~2 working days
- Complete compatibility, reliability and debugging within 3~5 working days
- On-site service and consultation, including resolution and risk management

## More than Design and Support

With Q Service Plus, AAEON assures that any of our products will be timely and adequately supported by our team of experienced engineers, providing services, such as designing, debugging and circuitry review.

For circuitry review, initial feedback will be provided after the first 2 days with a complete assessment after 5 days. Debugging will be performed on the customer's equipment and initial feedback will be available within 72 hours. Similarly, the setup of BIOS will be completed within 5 working days.

Q service is our commitment to you.

Please contact [Qservice@aaeon.com.tw](mailto:Qservice@aaeon.com.tw) to learn more.



## 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

# Board Level Products

**AAEON**<sup>®</sup> *an ASUS<sup>®</sup> assoc. co.*  
*Focus • Agility • Competitiveness*

# Board Level Products

## Compact Boards



Model	PCM-QM77	PCM-LN02
<b>System</b>		
<b>Form Factor</b>	5.25" Compact Board	5.25" Compact Board
<b>CPU</b>	Intel® Core™ i7/i5/i3/Celeron® IVY bridge and Sandy Bridge (Socket-G2 based)	Onboard Intel® Atom™ N455/D525
<b>CPU Frequency</b>	Up to 2.5 GHz	Up to 1.83 GHz
<b>Chipset</b>	Intel® QM77/HM76	PineView™ D/M DDR3 + ICH8M
<b>Memory Type</b>	DDR3 1066/1333/1600, SODIMM x 2 up to 16GB	Onboard 2 GB / 4 GB DDR3 667/800
<b>Max. Memory Capacity</b>	8 GB	4 GB
<b>BIOS</b>	UEFI	AMI 8MB
<b>Wake on LAN</b>	Yes	Yes
<b>Watchdog Timer</b>	255 Levels	255 Levels
<b>Power Requirement</b>	ATX/DC12V	+12V & ATX co-lay
<b>Power Supply Type</b>	ATX	ATX/ DC-12V
<b>Power Consumption (Typical)</b>	—	—
<b>Dimension (L x W)</b>	8" x 5.75" (203mm x 146mm)	8" x 5.75" (203mm x 146mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	60,000	—
<b>Certification</b>	CE/FCC	CE/FCC
<b>Display</b>		
<b>VGA/LCD Controller</b>	Intel® Core™ i7/i5/i3 integrated	Integrated
<b>Video Output</b>	CRT, LVDS LCD, DVI-I	CRT, TTL (Optional), or LVDS 18/24 bit
<b>Backlight Inverter Supply</b>	Max. 12V	Max. 12V
<b>I/O</b>		
<b>Ethernet</b>	Intel® 82579LM x 1, Intel® 82583V x 1, 10/100/1000Base-TX need Pin header for LAN	Intel® 82567V x 1, Intel® 82583V x 1, 10/100/1000Base-TX x 2
<b>Audio</b>	Realtek ALC892, 2.1CH	ALC888-GR, 2 CH
<b>USB Port</b>	USB3.0 x 4, USB 2.0 x 4	USB2.0 x 6
<b>Serial Port</b>	RS-232 x 8, RS-232/422/485 x 2	RS-232 x 5, RS-232/422/485 x 1
<b>Parallel Port</b>	SPP/EPP/ECP x 1 or FDD Function	SPP/EPP/ECP x 1
<b>HDD Interface</b>	SATA 3.0 x 2, SATA 2.0 x 2	UDMA33 x 1, SATA 2 x 2
<b>FDD Interface</b>	—	—
<b>SSD</b>	CFAST, mSATA	CompactFlash™
<b>Expansion Slot</b>	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	PCMCIA x 1, PC-104-Plus, Two mini-card (1st: full size+SIM; 2nd: half size) on the top side; CF x 1, LAN connector Pin header Type
<b>DIO</b>	16 bit	8 bit
<b>TPM</b>	Optional	Optional
<b>Touch</b>	Optional	—
<b>Note</b>		

# Board Level Products

## Compact Boards



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

# Board Level Products

EPIC Boards

## EPIC Boards




Model	EPIC-BDU7	EPIC-QM77	EPIC-QM57
<b>System</b>			
<b>Form Factor</b>	EPIC	EPIC	EPIC
<b>CPU</b>	Intel® 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)
<b>CPU Frequency</b>	Up to 2.2 GHz	Up to 2.5 GHz	Up to 2.66 GHz
<b>Chipset</b>	5th Generation Intel® Core™ i series ULT Processor SoC	Intel® PCH QM77/HM76	Intel® QM57
<b>Memory Type</b>	DDR3L 1333/1600, SODIMM x 1	DDR3 1066/1333/1600, SODIMM x 1	DDR3 (800/1066), SODIMM x 1
<b>Max. Memory Capacity</b>	Up to 8G	Up to 8G	4 GB
<b>BIOS</b>	UEFI	UEFI	AMI 8 MB
<b>Wake on LAN</b>	Yes	Yes	Yes
<b>Watchdog Timer</b>	255 Levels	255 Levels	255 Levels
<b>Power Requirement</b>	+12V or 9-24V AT/ATX (default)	DC12V	+12V
<b>Power Supply Type</b>	AT/ ATX	AT/ ATX	AT/ATX
<b>Power Consumption (Typical)</b>	38.8W	—	—
<b>Dimension (L x W)</b>	4.53" x 6.50" (115mm x 165mm)	4.53" x 6.50" (115mm x 165mm)	4.53" x 6.50" (115mm x 165mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	63,000	—	70,000
<b>Certification</b>	CE/FCC	CE/FCC	CE/FCC
<b>Display</b>			
<b>VGA/LCD Controller</b>	5th Generation Intel® Core™ i series ULT Processor SoC	Intel® Core™ i7/i5/i3 integrated	Intel® Core™ i7/i5 Mobile
<b>Video Output</b>	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
<b>Backlight Inverter Supply</b>	Max. 12V	Max. 12V	Max. 12V
<b>I/O</b>			
<b>Ethernet</b>	Intel® WGI211AT x 1/ WGI218LM x 1, RJ-45 x 2	Intel® 82579LM x 1/Intel® 82583V x 1, 10/100/1000Base	10/100/1000Base-TX x 2, Intel® 82577LM, Intel® 82574L
<b>Audio</b>	High Definition Audio Interface	High Definition Audio Interface	High Definition Audio (HDA)
<b>USB Port</b>	USB2.0 x 4, USB3.0 x 2	USB2.0 x 4, USB3.0 x 2	USB2.0 x 6
<b>Serial Port</b>	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
<b>Parallel Port</b>	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1
<b>HDD Interface</b>	SATA 3.0 x 2	SATA3 x 2	SATA 2 x 2
<b>FDD Interface</b>	—	—	—
<b>SSD</b>	mSATA (Share with half-size Mini-Card by BIOS)	mSATA x 1	CompactFlash™
<b>Expansion Slot</b>	Mini Card x 1, SIM x1 (Optional), 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)
<b>DIO</b>	16 bit	16 bit	8 bit
<b>TPM</b>	Optional	Optional	—
<b>Touch</b>	Optional	Optional	Yes
<b>Note</b>			



# Board Level Products

## EPIC Boards



Model	EPIC-BT07	EPIC-CV07	EPIC-5536
<b>System</b>			
<b>Form Factor</b>	EPIC	EPIC	EPIC
<b>CPU</b>	Intel® Atom™/ Celeron® E3845/J1900/N2807	Intel® Atom™ D2550/N2800/N2600	AMD Geode™ LX 800
<b>CPU Frequency</b>	Up to 2.0 GHz	1.6 GHz ~ 2.13 GHz	Up to 500 MHz
<b>Chipset</b>	Intel® Atom™/ Celeron® SOC	Intel® Atom™ D2550/N2600 + NM10	AMD CS536
<b>Memory Type</b>	DDR3L 1333, SODIMM x 1	DDR3 800/1066 MHz	SDRAM DDR333 (DDR400 optional), SODIMM x 1
<b>Max. Memory Capacity</b>	Up to 8G	Up to 4G	1 GB
<b>BIOS</b>	AMI	AMI 4MB	Award 1 MB
<b>Wake on LAN</b>	Yes	Yes	Yes
<b>Watchdog Timer</b>	255 Levels	255 Level	255 Levels
<b>Power Requirement</b>	+12V or 9-24V AT/ATX(default)	+12V	+12V
<b>Power Supply Type</b>	AT/ ATX	AT/ATX	AT/ATX
<b>Power Consumption (Typical)</b>	11.8W	—	AMD Geode™ LX 800 500 MHz, DDR333 1 GB, 1.35A@12V
<b>Dimension (L x W)</b>	4.53" x 6.50" (115mm x 165mm)	(165mm x 115mm)	4.53" x 6.50" (115mm x 165mm)
<b>Operating Temperature</b>	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)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	10~80%, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	110,000	—	70,000
<b>Certification</b>	CE/FCC	CE/FCC	CE/FCC
<b>Display</b>			
<b>VGA/LCD Controller</b>	Intel® Atom™/ Celeron® SOC	Intel® Atom™ D2550/ N2600 integrated	AMD Geode™ +TI SN75LVDS83
<b>Video Output</b>	CRT, LVDS, HDMI	CRT, LVDS, DVI (optional, need to change connector)	CRT, LVDS & TTL
<b>Backlight Inverter Supply</b>	Max. 12V	Max. 12V	Max. 12V
<b>I/O</b>			
<b>Ethernet</b>	Intel® i211 Gigabit Ethernet, RJ-45 x 2	Giga LAN Realtek 8111E x 2	10/100Base-TX x 2, Realtek 8100C (Optional Gigabit LAN)
<b>Audio</b>	High Definition Audio Interface	ALC662 co-lay ALC886/892	High Definition Audio (HDA)
<b>USB Port</b>	USB2.0 x 5, USB3.0 x 1	USB 2.0 x 7	USB2.0 x 4 (Does not support wake-up function)
<b>Serial Port</b>	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 x1, RS-232/422/485 x 1
<b>Parallel Port</b>	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1
<b>HDD Interface</b>	SATA 2.0 x 1	SATA 2.0 x 1	UDMA100 x 1, SATA 1 x 2
<b>FDD Interface</b>	—	None	FDD x 1
<b>SSD</b>	mSATA x 1 (Share with half-size Mini-Card by BOM)	mSATA	CompactFlash™
<b>Expansion Slot</b>	Mini-Card x 1, SIM 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
<b>DIO</b>	16 bit	16 bit	8-bit
<b>TPM</b>	Optional	—	—
<b>Touch</b>	Optional	Yes	—
<b>Note</b>			

# Board Level Products

## SubCompact Boards

SubCompact Boards




Model	GENE-SKU6	GENE-QM87	GENE-QM77 Rev. A
<b>System</b>			
<b>Form Factor</b>	3.5" SubCompact Board	3.5" SubCompact Board	3.5" SubCompact Board
<b>CPU</b>	Intel® Skylake-U Processor SoC	Onboard Intel® 4th Generation Core™ i5-4402E Processor	Intel® Core™ i7/i5/i3/Celeron® (Socket-G2 based)
<b>CPU Frequency</b>	Up to 2.4/3.0 GHz	Up to 2.7GHz	Up to 2.7 GHz
<b>Chipset</b>	Intel® Skylake-U Processor SoC	Intel® PCH QM87	Intel® PCH QM77/MH76
<b>Memory Type</b>	DDR4 1866/2133, SODIMM x1	DDR3L 1333/1600, SODIMM x 1	DDR3 1333/1600, SODIMM x 1
<b>Max. Memory Capacity</b>	Up to 8GB	8 GB	8 GB
<b>BIOS</b>	UEFI	SPI type	SPI type
<b>Wake on LAN</b>	Yes	Yes	Yes
<b>Watchdog Timer</b>	255 Levels	255 Levels	255 Levels
<b>Power Requirement</b>	+9~36V or +12V	+12V	+12V
<b>Power Supply Type</b>	AT/ ATX	AT/ ATX	AT/ ATX
<b>Power Consumption (Typical)</b>	—	Intel® Core™ i5-4402E 1.6 GHz, DDR3L 1600 8GB, 2.73A@+12V	Intel® Core™ i7-3610QE 2.3 GHz, DDR3 1333 8 GB, 5.2A@+12V Intel® Core™ i5-3610ME 2.7 GHz, DDR3 1333 8 GB, 3.47A@+12V
<b>Dimension (L x W)</b>	5.75" x 4" (146mm x 101.7mm)	5.75" x 4" (146mm x 101.7mm)	5.75" x 4" (146mm x 101.6mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 61°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 81°C)	-40°F ~ 176°F (-40°C ~ 81°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 91% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	—	105,000	51,000
<b>Certification</b>	CE/FCC	CE/FCC	CE/FCC
<b>Display</b>			
<b>VGA/LCD Controller</b>	Intel® Skylake-U Processor SoC	Intel® Haswell BGA integrated	Intel® Core™ i7/i5/i3/Celeron® integrated
<b>Video Output</b>	DVI-I+LVDS, DVI-I + CRT, DVI-I+eDP, CRT+LVDS, CRT+eDP, DP+LVDS	CRT+LVDS, CRT+HDMI, LVDS+DVI, LVDS+HDMI, DVI+HDMI, LVDS+LVDS (Real I/O as GENE-QM77 Rev.B)	CRT+LVDS, CRT+DVI, LVDS+DVI, LVDS+LVDS
<b>Backlight Inverter Supply I/O</b>	Up to 24-bit dual-channel LVDS x 2	Up to 24-bit dual-channel LVDS x 2	Up to 24-bit dual-channel LVDS x 2
<b>Ethernet</b>	Intel® i210, 10/100/1000Base, RJ 45 x2 (Support EtherCAT)	Intel® I211AT, I217LM, Intel®I210 10/100/1000Base-TX x2	Intel® 82579LM, Realtek RTL-8111E, 10/100/1000Base
<b>Audio</b>	High Definition Audio Interface	High Definition Audio Interface	High Definition Audio Interface
<b>USB Port</b>	USB 3.0 x 4, USB 2.0 x 2	USB2.0 x 6, USB3.0 x 2	USB2.0 x 6, USB3.0 x 2
<b>Serial Port</b>	RS-232 x 1, RS-232/422/485 x 3	RS-232 x 3, RS-232/422/485 x 1	RS-232 x 3, RS-232/422/485 x 1
<b>Parallel Port</b>	SPP/EPP/ECP x 1 (Option, share with DIO)	—	RS/EPP/ECP x 1 (sharded with DIO, By BIOS setting)
<b>HDD Interface</b>	SATA 3.0 x 1, +5V SATA power connector x 1	SATA 3.0 (6 Gbps) x 2	SATA 3.0 (6 Gbps) x 2
<b>FDD Interface</b>	—	—	—
<b>SSD</b>	mSATA (share with half-size Mini-Card and selective by BIOS)	CFast™, mSATA (share with Mini-Card by jumper),	CFast™, mSATA (share with Mini-Card by BOM)
<b>Expansion Slot</b>	BIO x 1, Mini-Card x 2 and default is mSATA x 1 (half-size), Mini-Card x 1 (Full-size)	Mini-Card x 1	Mini-Card x 1
<b>DIO</b>	8 bit	8 bit	8 bit
<b>TPM</b>	x 1	x 1	x 1
<b>Touch</b>	x 1	x 1	x 1
<b>Note</b>			TAIWAN EXCELLENCE 2013

# Board Level Products

## SubCompact Boards



Model	GENE-QM77 Rev. B	GENE-QM67	GENE-QM57
<b>System</b>			
<b>Form Factor</b>	3.5" SubCompact Board	3.5" SubCompact Board	3.5" SubCompact Board
<b>CPU</b>	Intel® Core™ i7/i3/Celeron® (BGA based, 17W)	Intel® Core™ i7/i5/i3/Celeron® (Socket-G2 based, <=35W )	Intel® Core™ i7/i5 Mobile
<b>CPU Frequency</b>	Up to 1.8 GHz	Up to 2.5 GHz	Up to 2.66GHz
<b>Chipset</b>	Intel® PCH QM77/HM76	Intel® PCH QM67	Intel® QM57/HM55
<b>Memory Type</b>	DDR3 1066/1333/1600, SODIMM x 1	DDR3 1066/1333, SODIMM x 1	SODIMM DDR3 800/1066, SODIMM x 1
<b>Max. Memory Capacity</b>	8 GB	8 GB	4 GB
<b>BIOS</b>	SPI type	SPI type	AMI 8MB
<b>Wake on LAN</b>	Yes	Yes	Yes
<b>Watchdog Timer</b>	255 Levels	255 Levels	255 Levels
<b>Power Requirement</b>	+12V	+12V	+12V
<b>Power Supply Type</b>	AT/ ATX	AT/ ATX	AT/ATX
<b>Power Consumption (Typical)</b>	Intel® Core™ i7-3555LE 2.5 GHz, DDR3 1333 8 GB, 2.49A@+12V	Intel® Core™ i5-2510E, DDR3 1333 4 GB, 3.47A@+12V	Intel® Core™ i7 620M@2.66 GHz, DDR3 4 GB 1066 MHz, 3.64A@+12V
<b>Dimension (L x W)</b>	5.75" x 4" (146mm x 101.6mm)	5.75" x 4" (146mm x 101.6mm)	5.75" x 4" (146mm x 101.6mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	50,000	51,000	69,000
<b>Certification</b>	CE/FCC	CE/FCC	CE/FCC
<b>Display</b>			
<b>VGA/LCD Controller</b>	Intel® Core™ i7/i3/Celeron® integrated	Intel® Core™ i7/i5/i3 integrated	Intel® Core™ i7/i5 Mobile
<b>Video Output</b>	CRT+LVDS, CRT+DVI, CRT+HDMI, LVDS+DVI, LVDS+HDMI, DVI+HDMI, LVDS+LVDS	CRT+LVDS, CRT+DVI, CRT+HDMI, LVDS+DVI, LVDS+HDMI, DVI+HDMI, LVDS+LVDS	CRT, LVDS x 2, DVI x 2
<b>Backlight Inverter Supply I/O</b>	Up to 24-bit dual-channel LVDS x 2	Up to 24-bit dual-channel LVDS x 2	Up to 24-bit dual-channel LVDS
<b>Ethernet</b>	Intel® 82579LM, Realtek RTL-8111E, 10/100/1000Base	Intel® 82579LM, Realtek RTL-8111E, 10/100/1000Base	10/100/1000Base-TX x 2, Intel® 82577LM, Intel® 82574L
<b>Audio</b>	High Definition Audio Interface	High Definition Audio Interface	Line in, Line out, Mic
<b>USB Port</b>	USB2.0 x 6, USB3.0 x 2	USB2.0 x 8	USB2.0 x 8
<b>Serial Port</b>	RS-232 x 3, RS-232/422/485 x 1	RS-232 x 3, RS-232/422/485 x 1	RS-232 x 1, RS-232/422/485 x 1
<b>Parallel Port</b>	SPP/EPP/ECP x 1 (By BIOS setting)	SPP/EPP/ECP x 1 (Sharded with DIO, By BIOS setting)	—
<b>HDD Interface</b>	SATA 3.0 (6 Gbps) x 2	SATAIII x 2	SATA 2 x 2
<b>FDD Interface</b>	—	—	—
<b>SSD</b>	CFast™, mSATA (share with Mini-Card by BOM)	CFast™, mSATA (share with Mini-Card by BOM)	CFast™
<b>Expansion Slot</b>	Mini-Card x 1	Mini-Card x 1	Mini-Card, LPC
<b>DIO</b>	8 bit	8 bit	8 bit
<b>TPM</b>	x 1	x 1	x 1
<b>Touch</b>	x 1	x 1	—
<b>Note</b>			

# Board Level Products

## SubCompact Boards

SubCompact Boards



Model	GENE-BSW5	GENE-BT04	GENE-BT05
<b>System</b>			
<b>Form Factor</b>	3.5" SubCompact Board	3.5" SubCompact Board	3.5" SubCompact Board
<b>CPU</b>	Intel® Pentium® & Celeron® M/D Processor SoC	Intel® Celeron® J1900/ N2807 Processor SoC	Intel® N2930/N2807/J1900/E3845/E3825
<b>CPU Frequency</b>	Up to 2.6 GHz	Up to 2.0GHz	Up to 2.0GHz
<b>Chipset</b>	Intel® Pentium® & Celeron® M/D Processor SoC	Intel® Bay Trail N2807/J1900 Processor SoC	Intel® N2930/N2807/J1900/E3845/E3825
<b>Memory Type</b>	DDR3L 1600, SODIMM x 1	DDR3L 1333, SODIMM x 1	DDR3L 1066/1333, SODIMM x 1
<b>Max. Memory Capacity</b>	Up to 8 GB	Up to 8G	Up to 8G
<b>BIOS</b>	UEFI	UEFI	UEFI
<b>Wake on LAN</b>	Yes	Yes	Yes
<b>Watchdog Timer</b>	255 Levels	255 Level	255 Level
<b>Power Requirement</b>	+12V	+12V	+12V
<b>Power Supply Type</b>	AT/ ATX	ATX mode	AT/ATX
<b>Power Consumption (Typical)</b>	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
<b>Dimension (L x W)</b>	5.75" x 4" (146mm x 101.7mm)	5.75" x 4" (146mm x 101.6mm)	5.75" x 4" (146mm x 101.6mm)
<b>Operating Temperature</b>	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)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 81°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	81,000	155,000	111,000
<b>Certification</b>	CE/FCC	CE/FCC	CE/FCC
<b>Display</b>			
<b>VGA/LCD Controller</b>	Intel® Pentium® & Celeron® M/D SoC	Intel® Celeron® J1900/ N2807 Processor SoC	Intel® N2930/N2807/J1900/E3845/E3825
<b>Video Output</b>	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
<b>Backlight Inverter Supply I/O</b>	Up to 24-bit dual-channel LVDS	—	Up to 24-bit dual-channel LVDS x 1
<b>Ethernet</b>	Realtek RTL-8111E, 10/100/1000Base, 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
<b>Audio</b>	High Definition Audio Interface	High definition audio interface	High definition audio interface
<b>USB Port</b>	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
<b>Serial Port</b>	RS-232/422/485 x 2, RS-232 x 4	RS-232 x 1	RS-232 x 2 , RS-232/422/485 x 2
<b>Parallel Port</b>	SPP/EPP/ECP x 1 (Option, share with DIO)	—	SPP/EPP/ECP x 1
<b>HDD Interface</b>	SATA 3.0 x 1	SATA 2.0 x 1	SATA 2.0 x 1
<b>FDD Interface</b>	—	—	—
<b>SSD</b>	mSATA x 1 (half-size)	CFast™ x 1	CFast™ (alternative with mSATA by BOM and also occupy one Mini-Card location)
<b>Expansion Slot</b>	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)
<b>DIO</b>	8 bit	4 bit	8 bit
<b>TPM</b>	x 1	x 1	x 1
<b>Touch</b>	x 1 (USB interface)	—	x 1
<b>Note</b>			

# Board Level Products

## SubCompact Boards



Model	GENE-BT06	GENE-CV05	GENE-LN05 Rev. B
<b>System</b>			
<b>Form Factor</b>	3.5" SubCompact Board	3.5" SubCompact Board	3.5" SubCompact Board
<b>CPU</b>	Intel® Atom™ E3845/E3825	Intel® Atom™ D2550/N2800/N2600	Intel® Atom™ D525/N455
<b>CPU Frequency</b>	Up to 2.0GHz	Up to 1.86GHz	1.8 GHz
<b>Chipset</b>	Intel® Atom™ series Processor SoC	Intel® NM10	Intel® ICH8M
<b>Memory Type</b>	On Board DDR3L 1066/1333	DDR3 800/1066, SODIMM x 1	SODIMM DDR3 800
<b>Max. Memory Capacity</b>	Up to 4GB	4 GB	4 GB for D525 , 2GB for N455
<b>BIOS</b>	UEFI	SPI type	AMI 4MB
<b>Wake on LAN</b>	Yes	Yes	Yes
<b>Watchdog Timer</b>	255 Level	255 Levels	255 Levels
<b>Power Requirement</b>	Wide DC support 9~24V	+12V	+12v or +5V
<b>Power Supply Type</b>	AT/ATX	AT/ ATX	AT/ATX
<b>Power Consumption (Typical)</b>	Intel® E3845, Onboard DDR3L 1600MHz 4G, 0.64A@+12V	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
<b>Dimension (L x W)</b>	5.75" x 4" (146mm x 101.6mm)	5.75" x 4" (146mm x 101.6mm)	5.75" x 4" (146mm x 101.6mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C) or WITAS 2 (TBD)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	110,000	62,000	70,000
<b>Certification</b>	CE/FCC	CE/FCC	CE/FCC
<b>Display</b>			
<b>VGA/LCD Controller</b>	Intel® Atom™ series Processor SoC	Intel® Atom™ D2550/N2800/N2600 integrated	Intel® Atom™ D525/N455
<b>Video Output</b>	CRT+LVDS, HDMI+LVDS , CRT+HDMI	CRT+LVDS, CRT+DVI, LVDS+DVI, LVDS+LVDS	CRT, LVDS
<b>Backlight Inverter Supply</b>	18/24-bit dual-channel LVDS LCD	Up to 24-bit Dual-Channel LVDS	Up to 24-bit single channel LVDS
<b>I/O</b>			
<b>Ethernet</b>	Intel® I211 (or 210), 10/100/1000Base-TX, RJ-45 x 2	Realtek RTL 8111E x 2, 10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX x 2, Intel® 82567V, Intel® 82583V
<b>Audio</b>	High definition audio interface	High definition audio interface	High definition audio interface
<b>USB Port</b>	USB2.0 x 3 , USB 3.0 x 1	USB2.0 x 6	USB2.0 x 7
<b>Serial Port</b>	RS-232 x 2 , RS-232/422/485 x 2	RS-232 x 5 , RS-232/422/485 x 1	RS-232 x 5, RS-232/422/485 x 1
<b>Parallel Port</b>	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1 (Shared with COM6 by BOM)	SPP/ECP/EPP x 1
<b>HDD Interface</b>	SATA 2.0 x 1	SATA 2.0 x 1	SATA 2 x 2
<b>FDD Interface</b>	—	—	—
<b>SSD</b>	mSATA (Half-size, shared with Mini-Card)	CFast™ (alternative with mSATA by BOM and also occupy one Mini-Card location)	CompactFlash™
<b>Expansion Slot</b>	Mini-Card x 1 (Full-size)	Mini-Card x 1	Mini-Card x 1
<b>DIO</b>	8 bit	8 bit	8 bit
<b>TPM</b>	x 1	x 1	x1
<b>Touch</b>	x 1	x 1	x1
<b>Note</b>			

# Board Level Products

## SubCompact Boards



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

# Board Level Products

## SubCompact Boards




Model	AIOT-X1000
<b>System</b>	
<b>Processor</b>	Intel® Quark x1000 Series Processor SoC, 400MHz
<b>System Memory</b>	Onboard DDR3 800 MHz ECC, un-buffered memory, up to 1 GB
<b>TPM</b>	SLB9645TT1.2
<b>Expansion Interface</b>	Full Size Mini-PCIe Slot for PCIe and USB Host Interface x 1 Half-size Mini-PCIe Slot for PCIe x 1
<b>Boot Loader</b>	8 MB SPI Flash
<b>I/O</b>	
<b>Storage</b>	Micro SD card slot x 1
<b>Serial Port</b>	RS-232 x 1, RS-232/422/485 x 1
<b>USB</b>	USB2.0 x 4, USB client port x 1
<b>LAN</b>	10/100Base-TX, RJ-45 x 2
<b>DIO</b>	Supports 16 pins Digital I/O interface
<b>ADC</b>	Supports 8-pin with 12-bit resolution, Analog input range: 0 V to 2.5 V (0 - 20mA)
<b>SPI</b>	2 pairs (support optional module)
<b>I2C</b>	1 pair (supports optional module)
<b>Power</b>	
<b>Power Requirement</b>	VDC 5V, or 9~24V
<b>Environmental</b>	
<b>Operating Temperature</b>	Standard Version: 32°F ~ 140°F (0°C ~ 60°C) Wide-Temp Version: -4°F ~ 167°F (-20°C ~ 70°C)
<b>Operating Humidity</b>	0% ~ 90% R/H, non-condensing
<b>Certificate</b>	CE & FCC
<b>Mechanical</b>	
<b>Board Size</b>	5.75" x 4" (146mm x 101.6mm)
<b>Gross Weight</b>	0.88 lb (0.4 kg)
<b>Others</b>	—
<b>Operating System</b>	Wind River Linux with McAfee for Moon Island Support Yocto linux
<b>Optional Module</b>	Wi-Fi, Bluetooth, ZigBee, 3G (Wind River) Wi-Fi, Bluetooth, 3G (Yocto)
<b>Parallel Port</b>	—
<b>HDD Interface</b>	—
<b>FDD Interface</b>	—
<b>SSD</b>	—
<b>Expansion Slot</b>	Full Size Mini-PCIe Slot for PCIe and USB Host Interface x 1 Half Size Mini-PCIe Slot for PCIe x 1 SPI Slot for optional module
<b>DIO</b>	Supports 16 pins Digital I/O interface
<b>TPM</b>	—
<b>Touch</b>	—
<b>Note</b>	

# Board Level Products

## PC/104 Modules

PC/104 Modules




Model	PFM-HDS	PFM-LNP	PFM-CVS Rev. A
<b>System</b>			
<b>Form Factor</b>	PC/104+ (ONTARIO + ITE8888 ISA solution)	PC/104	PC/104+
<b>CPU</b>	AMD G-series T16R (secondly for single core 614MHz, 4.5W)	Onboard Intel® Atom™ N450	Intel® Atom™ N2600 Processor
<b>CPU Frequency</b>	Single core 615MHz	1.66 GHz	1.6GHz
<b>Chipset</b>	A55E	Intel® Atom™ N450 + ICH8M	NM10
<b>Memory Type</b>	SODIMM DDR3 1066	Onboard DDR2 Memory up to 1 GB	SODIMM DDR 3
<b>Max. Memory Capacity</b>	4GB	1 GB	2GB
<b>BIOS</b>	AMI 32MB	AMI - 4MB ROM	AMI 32MB
<b>Wake on LAN</b>	Yes	Yes	Yes
<b>Watchdog Timer</b>	255 Level	255 Levels	255 Level
<b>Power Requirement</b>	+5V/ +12V	+12V	12V
<b>Power Supply Type</b>	AT/ATX	AT/ATX	AT / ATX
<b>Power Consumption (Typical)</b>	Ontario 615MHz, DDR3 1066 4GB	—	<15W (Atom™ 1.6 GHz, DDR3 1066 2GB)
<b>Dimension (L x W)</b>	3.55" x 3.77" (90mm x 96mm)	3.55" x 3.77" (90mm x 96mm)	3.55" x 3.77"(90mm x 96mm)
<b>Operating Temperature</b>	-20°F ~ 158°F (-20°C ~ 70°C) -40°F ~ 185°F (-40°C ~ 85°C) (Nice to Have)	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) (Nice to Have)
<b>Storage Temperature</b>	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	—	129,000	—
<b>Certification</b>	CE/FCC Class A	CE/FCC	CE/FCC Class A
<b>Display</b>			
<b>VGA/LCD Controller</b>	AMD G-Series APU integrated graphic engine - Radeon™ HD6250	N450	CedarView integration
<b>Video Output</b>	CRT+LVDS (18 bit)	CRT, LVDS (18 bit)	CRT, LVDS
<b>Backlight Inverter Supply</b>	Max. +12V	—	Max. 12V
<b>I/O</b>			
<b>Ethernet</b>	RTL 8111E, 10/100/1000Base-TX x 1	Intel® 82576V, 10/100/1000Base-TX	Realtek RTL 8111E, 10/100/1000Base-TX x 1
<b>Audio</b>	ALC892, Amp	—	—
<b>USB Port</b>	USB 2.0 x 4	USB2.0 x 4	USB 2.0 x 4
<b>Serial Port</b>	RS232 x 3, RS232/422/485 x 1	RS-232 x 3, RS-232/422/485 x 1	RS232 x 3, RS232/422/485 x 1
<b>Parallel Port</b>	—	—	—
<b>HDD Interface</b>	SATA2 x 1	SATA x 1	SATA2 x 1
<b>FDD Interface</b>	—	—	—
<b>SSD</b>	CFast™	CompactFlash™	—
<b>Expansion Slot</b>	PC/104 +	PCI-104, Mini-Card	PC/104 +, Mini-Card/mSATA
<b>DIO</b>	8 bit	8 bit	8 bit
<b>TPM</b>	—	—	—
<b>Touch</b>	—	—	—
<b>Note</b>			



# Board Level Products

## PC/104 Modules



Model	PFM-CVS Rev.B	PFM-5411
<b>System</b>		
<b>Form Factor</b>	PC/104	PC/104
<b>CPU</b>	Intel® Atom™ N2600 Processor	Onboard AMD Geode™ LX 800
<b>CPU Frequency</b>	1.6 GHz	500 MHz
<b>Chipset</b>	NM10	AMD Geode™ LX 800 + CS5536
<b>Memory Type</b>	SODIMM DDR3	Onboard DDR333 Memory up to 256 MB
<b>Max. Memory Capacity</b>	2GB	256 MB
<b>BIOS</b>	AMI	Award Plug & Play BIOS - 1 MB ROM
<b>Wake on LAN</b>	Yes	Yes
<b>Watchdog Timer</b>	255 Level	255 Levels
<b>Power Requirement</b>	12V	+5V
<b>Power Supply Type</b>	AT / ATX	AT
<b>Power Consumption (Typical)</b>	14W	AMD Geode™ LX 800 500 MHz, DDR333 256 MB 1.83A@+5V
<b>Dimension (L x W)</b>	3.55" x 3.77" (90mm x 96mm)	3.55" x 3.77" (90mm x 96mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C) -20°F ~ 158°F (-20°C ~ 70°C) -40°F ~ 176°F (-40°C ~ 80°C) (Nice to Have)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	70,000	90,000
<b>Certification</b>	CE/FCC Class A	CE/FCC
<b>Display</b>		
<b>VGA/LCD Controller</b>	CedarView integration	AMD Geode™ LX 800
<b>Video Output</b>	CRT, LVDS	CRT, TTL LCD
<b>Backlight Inverter Supply</b>	Max. 12V	—
<b>I/O</b>		
<b>Ethernet</b>	Intel® 82583V, 10/100/1000Base-TX x 1	Intel® 82551ER, 10/100Base-TX, RJ-45 x 2
<b>Audio</b>	—	—
<b>USB Port</b>	USB 2.0 x 4	USB2.0 x 4
<b>Serial Port</b>	RS232 x 3, RS232/422/485 x 1	RS-232 x 3, RS-232/422/485 x 1
<b>Parallel Port</b>	—	SPP/EPP/ECP x 1
<b>HDD Interface</b>	SATA2 x 1	UDMA33 x 1
<b>FDD Interface</b>	—	—
<b>SSD</b>	—	CompactFlash™
<b>Expansion Slot</b>	PC/104-Plus, mini Card/ mSATA (switch by R)	PC/104
<b>DIO</b>	8 bit	—
<b>TPM</b>	—	—
<b>Touch</b>	—	—
<b>Note</b>		

# Board Level Products

## PC/104 Modules

PC/104 Modules/ Pico-ITX Boards



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

# Board Level Products

## Pico-ITX Boards



Model	PICO-BT01	PICO-CV01
<b>System</b>		
<b>Form Factor</b>	Pico-ITX	Pico-ITX
<b>CPU</b>	Onboard Intel® Atom™ E3845 or Celeron® J1900/N2807 Processor SoC	Intel® Atom™ N2600 Processor
<b>CPU Frequency</b>	Up to 2.0 GHz	1.6 GHz Dual Core
<b>Chipset</b>	Intel® E3845/J1900/N2807	N2600 + NM10
<b>Memory Type</b>	204-pin DDR3L SODIMM x 1, DDR3L 1066/1333, Max 8GB	SODIMM DDR3 1066MHz
<b>Max. Memory Capacity</b>	Up to 8GB	2 GB
<b>BIOS</b>	AMI/SPI	AMI 32MB
<b>Wake On LAN</b>	Yes	Yes
<b>Watchdog Timer</b>	1-255 steps by software program	255 Level
<b>Power Requirement</b>	+12VDC	+12V only
<b>Power Supply Type</b>	AT/ATX (default), lockable connector optional	AT / ATX
<b>Power Consumption (Typical)</b>	Intel® Celeron® J1900 2.0GHz ,DDR3L 1333 MHz 8 GB, 1.14A@+12V	Intel® Atom™ N2600 1.6GHz,DDR3 800MHz 2GB, 0.83A@12VDC
<b>System Cooling</b>	Heat-spreader, heatsink or cooler optional	Fanless, Heat-sink
<b>Dimension</b>	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)
<b>Gross Weight</b>	0.88lb (0.4 kg)	1.1 lb (0.5 kg)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C), -4°F ~ 158°F (-20°C ~ 70°C) WiTas I
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C )
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	80,000	95,000
<b>Certification</b>	CE,FCC	CE,FCC
<b>Display</b>		
<b>Chipset</b>	Intel® E3845/J1900/N2807	Intel® Atom™ N2600 integration
<b>Resolution</b>	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 1920x1200 @60Hz uHDMI up to 1920 x 1200 @60Hz LVDS (18it) up to 1366 x768 @60Hz
<b>LCD Interface</b>	18/24-bit Single LVDS	18-bit Single Channel LVDS with PWM function
<b>I/O</b>		
<b>Storage/SSD</b>	SATA II 3.0Gb/s x 1, mSATA/Mini-Card (Full-size) x 1	SATA II 3.0Gb/s x 1, mSATA/Mini-Cardx1
<b>Ethernet</b>	Intel® Gigabit Ethernet i211AT 10/100/1000Base-TX x 1	Realtek RTL 8111E, 10/100/1000Base-TX x 1
<b>USB Port</b>	USB 3.0 x 1 Rear IO, USB 2.0 x 1 Rear IO and x 1 Pin header	USB2.0 x 5
<b>Serial Port</b>	RS-232 x 1, RS-232/422/485 x 1 (Ring /+5V/+12V)	RS-232 x 1, RS-232/422/485 x 1
<b>Audio</b>	Line-out x 1	Audio Buzzer x 1, HD Audio Codec(ALC662) for Mic-in/Line-in/Line-out
<b>DIO</b>	4-bit (2-in, 2-out)	4-bit (2-in, 2-out)
<b>Expansion Slot</b>	Mini-Card (Half-size) x 1, BIO x 1	—
<b>SIM</b>	Option by BIO Board	—
<b>TPM</b>	—	—
<b>Touch</b>	—	—
<b>Note</b>		

# Board Level Products

## Pico-ITX Boards

Pico-ITX Boards / Pico-ITX Boards-BIO




Model	PICO-HD01	PICO-IMX6
<b>System</b>		
<b>Form Factor</b>	Pico-ITX	Pico-ITX
<b>CPU</b>	AMD G-series T40E (Dual Core)/T40R (Single Core) Processor	Freescale i.MX6 Quad 1.0 GHz Automotive Freescale i.MX6 Dual Lite 1.0 GHz Ex. Consumer
<b>CPU Frequency</b>	1.0 GHz Dual Core	1.0 GHz Dual/Quad Core
<b>Chipset</b>	G-Series T40E+ A50M	i.MX6
<b>Memory Type</b>	SODIMM DDR3 1066MHz	1GB DDR3
<b>Max. Memory Capacity</b>	4 GB	2GB
<b>BIOS</b>	AMI 32Mb	—
<b>Wake On LAN</b>	YES	—
<b>Watchdog Timer</b>	255 Levels	Integrated
<b>Power Requirement</b>	+12V only	12V
<b>Power Supply Type</b>	AT/ATX	AT
<b>Power Consumption (Typical)</b>	AMD T-40R 1.0 GHz, DDR3 1066MHz 2GB, 0.91A@12V DC	0.6A@12V, full load, Quad CPU
<b>System Cooling</b>	Fanless, Heat-sink	Fanless, Heat-sink
<b>Dimension</b>	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)
<b>Gross Weight</b>	1.1 lb (0.5 kg)	0.88lb (0.4 kg)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	0°C ~ 60°C, -40°C ~ 85°C (optional)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°C ~ 85°C
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	89,000	80,000
<b>Certification</b>	CE,FCC	CE/FCC
<b>Display</b>		
<b>Chipset</b>	Integrated decoders in AMD G-series	Freescale i.MX6
<b>Resolution</b>	VGA up to 1920x1200 @60Hz uHDMI up to 1920 x 1200 @60Hz LVDS (18bit) up to 1366 x768 @60Hz	mHDMI, LVDS
<b>LCD Interface</b>	18bit Single Channel LVDS with PWM function	1 CH 18b LVDS x 1
<b>I/O</b>		
<b>Storage/SSD</b>	SATA II 3.0Gb/s x 1, mSATA/Mini-Card x 1	SATA w/SATA PWR connector, eMMC up to 16GB
<b>Ethernet</b>	Realtek RTL 8111E, 10/100/1000Base-TX x 1	GbE x 1
<b>USB Port</b>	USB2.0 x 5	Up to 4, one OTG port
<b>Serial Port</b>	RS-232 x 1, RS-232/422/485 x 1	4-wire UART x 2
<b>Audio</b>	Audio Buzzer x 1, HD Audio Codec (ALC662) for Mic-in/ Line-in/Line-out	Line-in, Speaker out, mic
<b>DIO</b>	4-bit (2-in, 2-out)	8-bit
<b>Expansion Slot</b>	—	Mini-Card (Quad only), CAN Bus (optional)
<b>SIM</b>	—	Optional
<b>TPM</b>	—	—
<b>Touch</b>	—	—
<b>Note</b>		

# Board Level Products

## Pico-ITX Boards- BIO



Model	BIO-ST01-L1U2	BIO-ST01-M1U1	BIO-ST02-C4M1
<b>System</b>			
<b>Form Factor</b>	2.5" Board	2.5" Board	2.5" Board
<b>BIO</b>	80 Pin Hi-speed Board to board connector	80 Pin Hi-speed Board to board connector	80 Pin hi-speed Board to board connector
<b>Power Requirement</b>	Power from MB by BIO	Power from MB by BIO	Power from MB by BIO
<b>Board Size</b>	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)
<b>Gross Weight</b>	200g	200g	200g
<b>Operation Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40 °F ~ 176°F (-40°C ~ 80°C)	-40 °F ~ 176°F (-40°C ~ 80°C)	-40 °F ~ 176°F (-40°C ~ 80°C)
<b>Operation Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>I/O</b>			
<b>PCIe</b>	Realtek 811E, 10/100/1000Base-TX, RJ-45 x 1	Mini-Card x 1	Mini-Card x 1 (full size)
<b>USB</b>	USB 2.0 x2 on rear I/O	USB 2.0 x 1 on rear I/O	USB 2.0 x 1 on rear I/O
<b>Audio</b>	Dual Channel Audio output with 2W Amp.	Dual Channel Audio output with 2W Amp.	—
<b>SIM</b>	—	SIM Slot x 1	SIM Slot x 1
<b>Serial Port</b>	—	—	COM1, COM2 RS-232 by Pin Header, COM3, COM4 RS-232 on Rear I/O
<b>Expansion Interface</b>	SMbus x 1, GPIO x 1	SMbus x 1, GPIO x 1	
<b>Note</b>			

# Board Level Products

## COM Express CPU Modules

COM Express CPU Modules



Model	COM-SKHB6	COM-SKUC6	COM-QM87
<b>System</b>			
<b>Form Factor</b>	COM Express Basic Size	COM Express Compact Size	COM Express, Basic, Pin-out Type 6
<b>CPU</b>	Onboard 6th Gen Intel® Core™ H-series Processor, BGA type	Onboard 6th Gen Intel® Core™ U-series Processor, BGA type	Onboard 4th Generation Intel® Core™ i5 Processor
<b>CPU Frequency</b>	Up to i7-6820EQ 2.8 GHz, vPro™	Up to i7-6600U 2.6 GHz, vPro™	Up to 2.7GHz
<b>Chipset</b>	Onboard 6th Gen Intel® Core™ H-series Processor	Onboard 6th Gen Intel® Core™ U-series Processor	Intel® PCH QM87
<b>Memory Type</b>	DDR4, SODIMM x2, ECC Support	DDR3L 1333/1600, SODIMM x 1	DDR3/DDR3L 1333/1600, SODIMM x 2, Supports Dual Channel function
<b>Max. Memory Capacity</b>	32GB	8 GB	16GB
<b>BIOS</b>	AMI BIOS, Legacy Free	AMI BIOS, Legacy Free	AMI BIOS
<b>Wake on LAN</b>	Yes	Yes	Yes
<b>Watchdog Timer</b>	255 levels	255 levels	255 Levels
<b>Power Requirement</b>	Standard: +12V	Standard: +12V	Nominal: +12V
<b>Power Supply Type</b>	AT/ATX Selection	AT/ATX Selection	AT/ ATX
<b>Power Consumption (Typical)</b>	Intel® i7-6820EQ 2.8GHz, DDR4 16GB, 3.08A@12V	Intel® i3-6100U 2.3GHz, 8GB DDR3L, 1A@12V	Intel® Core™ i5-4400E 2.7GHz, DDR3 1600 8GB, 3.21A @+12V
<b>Dimension (L x W)</b>	4.92" x 3.75" (125mm x 95mm)	3.75in x 3.75in (95mm x 95mm)	4.92" x 3.74" (125mm x 95mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	10% ~90% relative humidity, non-condensing	10% ~90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	80,000	80,000	80,000
<b>Certification</b>	CE/FCC Class A	CE/FCC Class A	CE/FCC
<b>Display</b>			
<b>VGA/LCD Controller</b>	Onboard 6th Gen Intel® Core™ H-series Processor, GT2	Onboard 6th Gen Intel® Core™ U-series Processor, GT2/GT1	Intel® Core™ i7/i5/i3 Celeron® integrated
<b>Video Output</b>	VGA, LVDS/eDP, DDI x2	VGA, LVDS/eDP, DDI x 1 (up to 2)	CRT, LVDS LCD, DDI
<b>Backlight Inverter Supply</b>	—	—	—
<b>I/O</b>			
<b>Ethernet</b>	Intel® I219, Gigabit Ethernet	Intel® I219, Gigabit Ethernet	Intel® 217LM, Gigabit Ethernet
<b>Audio</b>	HD Audio	HD Audio	High definition audio
<b>USB Port</b>	USB2.0 x 8, USB3.0 x 4	USB2.0 x8, USB3.0 x4	USB2.0 x 8, USB3.0 x 4
<b>Serial Port</b>	2-Wire UART (Tx/Rx) x2	2-Wire UART (Tx/Rx) x2	Tx/Rx x 2
<b>Parallel Port</b>	—	—	—
<b>HDD Interface</b>	SATA x 4	SATA x 3 (SATA Port 3 optional)	SATA x 4
<b>Onboard SSD</b>	—	—	—
<b>Expansion Slot</b>	PCIe[x16] x 1, PCIe[x1] x8, I2C, LPC, SMBus	PCIe[x1] x8, I2C, LPC, SMBus	PCI-Express[x1] x 7 (Gen 2.0) PCI-Express[x16] x 1 (Gen 3.0) Configurable to 2 x 8-lane PCI Express Ports Configurable to 1 x 8-lane or 2 x 4-lane PCI Express Ports LPC Bus x 1, SM Bus x 1, I2C x 1
<b>DIO</b>	GPIO 8-bit	GPIO 8-bit	GPIO 8-bit
<b>TPM</b>	Optional	Optional	Optional
<b>Note</b>			

# Board Level Products

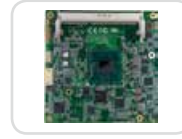
## COM Express CPU Modules



Model	COM-QM77 Rev. B	COM-HM76	COM-KB
<b>System</b>			
<b>Form Factor</b>	COM Express, Basic, Pin-out Type 6	COM Express, Basic Module, Pin-out Type 6	COM Express, Compact Module, Pin-out type 6
<b>CPU</b>	On board 3rd Gen. Intel® Core™ i7/i5/i3/Celeron® (FCBGA1023)	Socket G2 for Intel® 2nd & 3rd generation Core™ i7/i5/i3/Pentium®/Celeron® processor	AMD® Embedded G-Series SoC APU
<b>CPU Frequency</b>	Up to 2.5GHz	Up to i7-3610QE, Quad core, 2.3GHz	Quad(2G), Dual (1.6G)
<b>Chipset</b>	Intel® PCH QM77/HM76	Intel® HM76	AMD® Embedded G-Series SoC
<b>Memory Type</b>	DDR3 1333/1600, SODIMM x 2, Supports Dual Channel function	Non-ECC DDR3L 1333/1600	AMD GX-420CA SoC with AMD Radeon™ HD 8400E Graphics(Quad) GX-217GA SoC with AMD Radeon™ HD 8280E Graphics (Dual)
<b>Max. Memory Capacity</b>	Max. 16GB	Max. 8 GB	MAX. 8 GB
<b>BIOS</b>	AMI BIOS	AMI BIOS	AMI BIOS
<b>Wake on LAN</b>	Yes	Yes	Yes
<b>Watchdog Timer</b>	255 Levels	255 Levels	255 Levels
<b>Power Requirement</b>	Nominal: +12V	Nominal: +12V	Nominal: +12V, Optional: +8.5V ~ +19V
<b>Power Supply Type</b>	AT/ ATX	AT/ ATX	AT/ATX
<b>Power Consumption (Typical)</b>	Intel® Core™ i3-3217UE 1.6GHz, DDR3 1066 4GB, 2.23A @+12V	i7-3610QE 2.3GHz, DDR3L 8GB, 2.73A@12V, 1.18A@5V, 0.31A@3.3V. 100% loading on ECB-920A	AMD GX-420CA 2.0GHz, 8GB memory, 100% load, 1.2A@12V
<b>Dimension (L x W)</b>	4.92" x 3.74" (125mm x 95mm)	4.92" x 3.75" (125mm x 95mm)	3.74" x 3.74" (95mm x 95mm)
<b>Operating Temperature</b>	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)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	80,000	150,000	80,000
<b>Certification</b>	CE/FCC	CE/FCC	CE/FCC
<b>Display</b>			
<b>VGA/LCD Controller</b>	Intel® Core™ i7/i5/i3 Celeron® integrated	Intel® Core™ i7/ i5/i3/Celeron® processor integrated	AMD® eKabini integrated
<b>Video Output</b>	CRT, LVDS LCD, DDI x 2	CRT, 18/24-bit Dual-channel LVDS, DDI x 2	CRT, 24-bit dual channel LVDS, eDP/ LVDS (18 x 1), DDI x 2
<b>Backlight Inverter Supply</b>	—	—	—
<b>I/O</b>			
<b>Ethernet</b>	Intel® 82579LM, Gigabit Ethernet	Intel® 82579LM for 10/1000/1000Base-TX	Realtek® 8111E, Gigabit Ethernet
<b>Audio</b>	High definition audio	High Definition Audio Interface	High Definition Audio Interface
<b>USB Port</b>	USB 2.0 x 8, USB 3.0 x 4	USB 2.0 x 8, USB 3.0 x 4	USB 2.0 x 8 , USB 3.0 x 2
<b>Serial Port</b>	Tx/Rx x 2	Tx/Rx x 2	Tx/Rx x 2
<b>Parallel Port</b>	—	—	—
<b>HDD Interface</b>	SATA 2 x 4	SATA x 4	SATA x 2
<b>Onboard SSD</b>	—	—	—
<b>Expansion Slot</b>	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	PCI-Express [x1] x 5, LPC bus x 1, SMBus x 2, PCI-Express[x4] x 1 (PEG)
<b>DIO</b>	GPIO 8-bit	GPIO 8-bit	GPIO 8-bit
<b>TPM</b>	Optional	—	—
<b>Note</b>			

# Board Level Products

## COM Express CPU Modules



Model	COM-BT	COM-BYTC2
<b>System</b>		
<b>Form Factor</b>	COM Express, Compact, Pin-out Type 6	COM Express, Compact Size
<b>CPU</b>	Onboard Intel® Atom™ SoC	Onboard Intel® Atom™ Processor SoC
<b>CPU Frequency</b>	Intel® Atom™ N2930 (1.83 GHz), N2807 (1.58 GHz), E3845 (1.91 GHz), E3827 (1.75 GHz), E3826 (1.46 GHz), E3825 (1.33 GHz), E3815 (1.46 GHz), J1900 (2.0 GHz)	Up to J1900 1.91 GHz, Quad core
<b>Chipset</b>	Intel® Atom™ SoC	Intel® Atom™ SoC
<b>Memory Type</b>	DDR3L 1066/1333 MHz SODIMM x 1	DDR3L 1066/1333, SODIMM x 1
<b>Max. Memory Capacity</b>	8 GB	8GB
<b>BIOS</b>	AMI BIOS	AMI BIOS, Legacy Free
<b>Wake on LAN</b>	Yes	Yes
<b>Watchdog Timer</b>	255 Levels	255 levels
<b>Power Requirement</b>	Nominal: +12V	Standard: +12V
<b>Power Supply Type</b>	AT/ ATX	AT/ATX Selection
<b>Power Consumption (Typical)</b>	0.92A@12V, full load, J1900 0.48A@12V, full load, N2807	1A@ 12V with J1900, full load
<b>Dimension (L x W)</b>	3.74" x 3.74" (95mm x 95mm)	3.75" x 3.75" (95mm x 95mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-4°F ~ 158°F (-20°C ~ 70°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	10% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	80,000	80,000
<b>Certification</b>	CE/FCC	CE/FCC Class A
<b>Display</b>		
<b>VGA/LCD Controller</b>	Intel® Atom™ SoC Integrated	Intel® Atom™ SoC
<b>Video Output</b>	CRT, LVDS LCD, DDI, eDP (on module, by switch)	VGA, LVDS, eDP
<b>Backlight Inverter Supply</b>	—	—
<b>I/O</b>		
<b>Ethernet</b>	Intel® 211, Gigabit Ethernet	Intel® I210IT, Gigabit Ethernet
<b>Audio</b>	High Definition Audio Interface	HD Audio
<b>USB Port</b>	USB 2.0 x 6, USB 2.0/3.0 x 1	USB2.0 x 7
<b>Serial Port</b>	Tx/Rx x 2	—
<b>Parallel Port</b>	—	—
<b>HDD Interface</b>	SATA x 2	SATA x 1, PATA x 1
<b>Onboard SSD</b>	—	—
<b>Expansion Slot</b>	PCI-Express[x1] x 3 (Gen 2.0) LPC Bus x 1 SMBus x 1	PCIe [x1] x 2 PCI x 4 I2C LPC SMBus
<b>DIO</b>	GPIO 8-bit	GPIO 8-bit
<b>TPM</b>	Optional	Optional
<b>Note</b>		



# Board Level Products

## COM Express CPU Modules



Model	COM-CV Rev. B	COM-CV Rev. A11	COM-LN Rev. B
<b>System</b>			
<b>Form Factor</b>	COM Express, Compact, Pin-out Type 6	COM Express, Compact, Pin-out Type 2	COM Express, Compact, Pin-out Type 2
<b>CPU</b>	Onboard Intel® Atom™ D2550/N2600, Dual Core Processors up to 1.86 GHz	Onboard Intel® Atom™ D2550/N2600 Dual Core Processors up to 1.86 GHz	Onboard Intel® Atom™ D525
<b>CPU Frequency</b>	Up to 1.86 GHz	Up to 1.86 GHz	Up to 1.8 GHz
<b>Chipset</b>	Intel® NM10	Intel® NM10	Intel® ICH8M
<b>Memory Type</b>	DDR3 1066, SODIMM x 1	DDR3 1066, SODIMM x 1	DDR3 667/800, SODIMM x 2
<b>Max. Memory Capacity</b>	Up to 4 GB	Up to 4 GB	4 GB
<b>BIOS</b>	AMI BIOS	AMI BIOS	AMI BIOS
<b>Wake on LAN</b>	Yes	Yes	Yes
<b>Watchdog Timer</b>	255 Levels	255 Levels	255 Levels
<b>Power Requirement</b>	Nominal: +12V	Nominal: +12V	+8.5V ~ +19V (Optional) Nominal: +12V
<b>Power Supply Type</b>	AT/ ATX	AT/ ATX	AT/ ATX
<b>Power Consumption (Typical)</b>	Intel® D2550 1.86 GHz, DDR3 1066/4GB, 1.39A@+12V	Intel® D2550 1.86 GHz, DDR3 1066/4GB, 1.21A@+12V	Intel® Atom™ D525 1.8 GHz, DDR3 800 1GB, 1.24A@+12V
<b>Dimension (L x W)</b>	3.74" x 3.74" (95mm x 95mm)	3.74" x 3.74" (95mm x 95mm)	3.74" x 3.74" (95mm x 95mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C) (D2550/N2600) -40°F ~ 185°F (-40°C ~ 85°C) (N2600)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	80,000	80,000	90,000
<b>Certification</b>	CE/FCC	CE/FCC	CE/FCC
<b>Display</b>			
<b>VGA/LCD Controller</b>	Intel® Atom™ D2550/N2600 Processor integrated	Intel® Atom™ D2550/N2600 Processor integrated	Intel® Atom™ D525 Processor Integrated
<b>Video Output</b>	CRT/ LVDS LCD/ DDI x 1	CRT/ LVDS LCD	CRT/ LVDS LCD
<b>Backlight Inverter Supply</b>	—	—	—
<b>I/O</b>			
<b>Ethernet</b>	Intel® 82583V, Gigabit Ethernet	Intel® 82583V, Gigabit Ethernet	Intel® 82567V, Gigabit Ethernet
<b>Audio</b>	High Definition Audio Interface	High Definition Audio Interface	High Definition Audio Interface
<b>USB Port</b>	USB2.0 x 8, USB3.0 x 2	USB2.0 x 8	USB2.0 x 8
<b>Serial Port</b>	Tx/Rx x 2	From LPC interface	From LPC interface
<b>Parallel Port</b>	—	From LPC interface	From LPC interface
<b>HDD Interface</b>	SATA 2 x 2	SATA 2 x 4, PATA x 1	PATA x 1 (Two devices), SATA 2 x 3
<b>Onboard SSD</b>	—	—	—
<b>Expansion Slot</b>	PCI-Express [x1] x 4 LPC Bus x 1 SM Bus x 1	PCI-Express [x1] x 3 32-bit PCI x 2 LPC Bus x 1 SM Bus x 1	SATA 2 x 3 PCI-Express [x1] x 5 (x 6: Optional) 32-bit PCI x 4 LPC Bus x 1 SM Bus x 1 I2C x 1
<b>DIO</b>	GPIO 8-bit	GPIO 8-bit	GPIO 8-bit
<b>TPM</b>	Optional	—	Optional
<b>Note</b>			

# Board Level Products

## COM Express CPU Modules

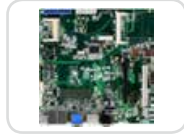
COM Express CPU Modules/ COM Carrier Boards



Model	NanoCOM-BT	NanoCOM-CV Rev. A	NanoCOM-CV Rev. B
<b>System</b>			
<b>Form Factor</b>	COM Express, Nano Module, Pin-out Type 10	COM Express, Ultra (Nano) Module, Pin-out Type 1	COM Express, Ultra (Nano) Module, Pin-out Type 10
<b>CPU</b>	Intel® Atom™/ Celeron® SOC Processor (M/I)	Onboard Intel® Atom™ N2600	Onboard Intel® Atom™ N2600
<b>CPU Frequency</b>	Up to E3845, 1.91 GHz	Up to 1.6GHz	Up to 1.6GHz
<b>Chipset</b>	Intel® Atom™/ Celeron® SOC Processor	Intel® NM10	Intel® NM10
<b>Memory Type</b>	Onboard DDR3L	Non-ECC DDR3 800	Non-ECC DDR3 800
<b>Max. Memory Capacity</b>	2 GB DDR3L Onboard (up to 4 GB)	2GB, DDR3 onboard	2GB, DDR3 onboard
<b>BIOS</b>	AMI BIOS	AMI BIOS	AMI BIOS
<b>Wake on LAN</b>	Yes	Yes	Yes
<b>Watchdog Timer</b>	255 Levels	255 Levels	255 Levels
<b>Power Requirement</b>	Standard : +12V, AT/ATX Optional: +5V, AT/ATX	Nominal: +12V	Nominal: +12V
<b>Power Supply Type</b>	AT/ATX	Nominal: +12V, +4.75V ~ +14.7V (Optional)	Nominal: +12V, +4.75V ~ +14.7V (Optional)
<b>Power Consumption (Typical)</b>	0.7A@12V, full load, E3845	0.65A@12V, full load, N2600	0.72A@12V, full load, N2600
<b>Dimension (L x W)</b>	3.31" x 2.17" (84mm x 55mm)	3.31" x 2.17" (84mm x 55mm)	3.31" x 2.17" (84mm x 55mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 80°C) by E3845/E3825	32°F ~ 140°F (0°C ~ 60°C), -40°F ~ 185°F (-40°C ~ 85°C) for WITAS 2	32°F ~ 140°F (0°C ~ 60°C), -40°F ~ 185°F (-40°C ~ 85°C) for WITAS 2
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	90,000	80,000	80,000
<b>Certification</b>	CE/FCC	CE/FCC	CE/FCC
<b>Display</b>			
<b>VGA/LCD Controller</b>	Intel® Atom SOC	Intel® Atom™ N2600 integrated	Intel® Atom™ N2600 integrated
<b>Video Output</b>	LVDS LCD/eDP, DDI x 1	LVDS, CRT	LVDS, DDI
<b>Backlight Inverter Supply</b>	—	—	—
<b>I/O</b>			
<b>Ethernet</b>	Intel®	Intel® 82583V	Intel® 82583V
<b>Audio</b>	High Definition Audio Interface	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
<b>USB Port</b>	USB2.0 x 8	USB 2.0 x 8 via NM10	USB 2.0 x 8 via NM10
<b>Serial Port</b>	Tx/Rx x 2	—	TX/RX x 2
<b>Parallel Port</b>	From LPC interface	—	—
<b>HDD Interface</b>	SATA 3.0 Gb/s x 2, SATA 2 x 3	SATA 3.0Gb/s x 2 (one shared with SSD)	SATA 3.0Gb/s x 2 (one shared with SSD)
<b>Onboard SSD</b>	Optional eMMC support	Optional up to 4GB	Optional up to 4GB
<b>Expansion Slot</b>	PCI-Express [x1] x 3, 32-bit PCI x2 LPC Bus x 1 SM Bus x 1	PCI-Express [x1] x 3 LPC bus x 1 SMBus x 1	PCI-Express [x1] x 3 LPC bus x 1 SMBus x 1
<b>DIO</b>	GPIO 8-bit	GPIO 8-bit	GPIO 8-bit
<b>TPM</b>	—	—	—
<b>Note</b>			

# Board Level Products

## COM Carrier Boards



Model	ECB-916M Rev. B	ECB-920A
<b>System</b>		
<b>Form Factor</b>	Micro-ATX	ATX
<b>COM Express Connector</b>	x 2	x 2
<b>I/O Chipset</b>	Winbond W83627DHG	—
<b>Front Panel Control</b>	10-pin (5x2) header	10-pin (5x2) header
<b>Ethernet</b>	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)
<b>Expansion Interface</b>	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
<b>Power Supply Type</b>	AT/ATX	ATX
<b>CMOS Battery</b>	RTC battery socket x 1	RTC battery socket x 1
<b>BIOS</b>	SPI x 1 Firmware Hub x 1 (with DIP Switch for BIOS Selection)	BIOS Socket support
<b>Board Size</b>	9.6" x 9.6" (243.84mm x 243.84mm)	12" x 9.6" (304mm x 244mm)
<b>Gross Weight</b>	1.32 lb (0.6 kg)	1.32 lb (0.6 kg)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 185°F (-40°C ~ 85°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	77,000	75,000
<b>Display</b>		
<b>DVI/CRT</b>	DVI 29-pin + DB 15-pin stack-type connector	DB15 connector x 1
<b>LVDS</b>	30-pin (15 x 2) Dual-Channel LVDS connector x 1	30-pin (15 x 2) Dual-Channel LVDS connector x 1
<b>SDVO</b>	40pin (20 x 2) SDVO connector x 1	DP connector x 4 (Dual x 1, Single x 2)
<b>I/O</b>		
<b>Storage</b>	40-pin PATA connectorx1 SATA 3.0 Gb/s x 3 CompactFlash™ Type 2 slot x 1	SATA x 4
<b>Serial Port</b>	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)
<b>USB</b>	Type-A connector x 4	Type A connector x 4 (USB3.0) for Type 6, USB2.0 port x 4
<b>PS/2 Port</b>	x 1	—
<b>Digital I/O</b>	Supports 8-bit (Programmable)	—
<b>Audio</b>	Audio jack x 6, support 7.1 channel audio Audio Codec: Realtek ALC888 Buzzer x 1	Audio Jack, supports Line-in, Line-out, Microphone
<b>Switch/Button</b>	Power button x 1 Reset button x 1	—
<b>Debug LED</b>	—	80-Port
<b>I2C</b>	—	1
<b>Note</b>		

# Board Level Products

## XTX/ETX CPU Modules



Model	XTX-BSW	XTX-CV Rev. A11
<b>System</b>		
<b>Form Factor</b>	XTX	XTX
<b>CPU</b>	Onboard Intel® Atom™ N3000 Processor SoC, D1 stepping	Onboard Intel® Atom™ D2550/N2600 Dual Core Processors, up to 1.86GHz
<b>CPU Frequency</b>	Up to 1.86GHz	Up to 1.86GHz
<b>Chipset</b>	Onboard Intel® Atom™ N3000 Processor SoC, D1 stepping	Intel® NM10
<b>Memory Type</b>	DDR3L 1066 MHz, SODIMM x 1	DDR3 1066, SODIMM x 1
<b>Max. Memory Capacity</b>	8 GB	4 GB (64-bit OS)
<b>BIOS</b>	AMI BIOS	AMI BIOS
<b>Wake on LAN</b>	Yes	Yes
<b>Watchdog Timer</b>	255 Levels	255 Levels
<b>Power Requirement</b>	+5V	+5V
<b>Power Supply Type</b>	AT/ ATX	AT/ ATX
<b>Power Consumption (Typical)</b>	—	Intel® Atom™ N2600 1.6 GHz, DDR 1066 4GB 2.38A@+5V
<b>Dimension (L x W)</b>	4.5" x 3.74" (114mm x 95mm)	4.5" x 3.74" (114mm x 95mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	80,000	68,000
<b>Certification</b>	CE/FCC	CE/FCC
<b>Display</b>		
<b>VGA/LCD Controller</b>	Intel® Atom™ N3000 Processor integrated	Intel® Atom™ D2550/N2600 Processor integrated
<b>Video Output</b>	CRT, LVDS LCD, DP (optional)	CRT/ LVDS LCD
<b>Backlight Inverter Supply</b>	—	—
<b>I/O</b>		
<b>Ethernet</b>	Realtek 8105E, 10/100Base-TX	Realtek 8105E, 10/100Base-TX
<b>Audio</b>	Realtek ALC892	Realtek ALC892
<b>USB Port</b>	USB2.0 x 5	USB2.0 x 6
<b>Serial Port</b>	2	2
<b>Parallel Port</b>	1	1
<b>HDD Interface</b>	SATA x 2 (one shared with PATA), PATA x 1	SATA x 2 (one shared with SATA), PATA x 1
<b>FDD Interface</b>	—	—
<b>SSD</b>	—	—
<b>Expansion Slot</b>	PCI Express [x1] x 2, PCI	PCIe[x1] x 4, PCI x 4
<b>DIO</b>	—	—
<b>TPM</b>	—	—
<b>Note</b>	LPC not supported	

# Board Level Products

## XTX/ETX CPU Modules



Model	ETX-LN Rev. A11	ETX-A55E	ETX-701
<b>System</b>			
<b>Form Factor</b>	ETX	ETX	ETX
<b>CPU</b>	Onboard Intel® Atom™ D525/N455	Onboard AMD® G-series APU T16R/T56N	Onboard AMD Geode™ LX 800
<b>CPU Frequency</b>	Up to 1.8 GHz/ FSB	T16R: Single Core 615 MHz/ 4.5W T56N: Dual Core 1.6GHz/18W	LX800: 500 MHz
<b>Chipset</b>	ICH8M	AMD G-series A55E	AMD Geode™ LX 800 + CS5536
<b>Memory Type</b>	DDR3 667/800, SODIMM x 1	DDR3L 1066/1333 MHz, SODIMM x 1	DDR333/400, DDR SODIMM x 1, DDR333: 1 GB, DDR400: 512 MB
<b>Max. Memory Capacity</b>	N455 667/2G, D525 800/4G	Up to 8 GB	1 GB
<b>BIOS</b>	AMI AMI BIOS, 4MB	AMI BIOS	Award PLCC Type, 2MB
<b>Wake on LAN</b>	Yes	Yes	Yes
<b>Watchdog Timer</b>	255 Levels	255 Levels	255 Levels
<b>Power Requirement</b>	+5V	+5V	+5V
<b>Power Supply Type</b>	Intel® Atom™ D525 1.8 GHz, DDR3 1066 4 GB, 3.42A@+5V	T16R: 10.7W T56N: 24.2W	LX 800, DDR333 1 GB, 0.25A@+12V, 2.02A@+5V, W/ TF-ECB-901A-A10-01
<b>Power Consumption (Typical)</b>	AT/ ATX	AT/ ATX	AT/ ATX
<b>Dimension (L x W)</b>	4.5" x 3.74" (114mm x 95mm)	4.5" x 3.74" (114mm x 95mm)	4.5" x 3.74" (114mm x 95mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	100,000	83,500	110,000
<b>Certification</b>	CE/FCC	CE/FCC	CE/FCC
<b>Display</b>			
<b>VGA/LCD Controller</b>	Intel® D525/N455/D425 integrated	AMD G-series T16R/T56N integrated	AMD Geode™ LX 800 integrated
<b>Video Output</b>	CRT, LVDS LCD	CRT/ LVDS LCD	CRT, LVDS LCD, TTL LCD
<b>Backlight Inverter Supply</b>	—	—	—
<b>I/O</b>			
<b>Ethernet</b>	Realtek RTL8105E, 10/100Base-TX	Realtek RTL8105 10/100 Base-TX	Realtek RTL8139DL, 10/100Base-TX
<b>Audio</b>	Realtek ALC662	Realtek ALC892	Realtek ALC203
<b>USB Port</b>	USB2.0 x 4	USB2.0 x 4	USB2.0 x 4
<b>Serial Port</b>	COM 1/2	1	COM 1/2
<b>Parallel Port</b>	SPP/EPP/ECP x 1	1	SPP/EPP/ECP x 1
<b>HDD Interface</b>	PATA x 1, SATA x 2	SATA x 2, PATA x 2 (2 devices)	PATA x 2, SATA x 1 x 2
<b>FDD Interface</b>	—	—	Optional
<b>SSD</b>	—	—	—
<b>Expansion Slot</b>	PCI ISA I2C x 1	32-bit PCI x 4 SMBUS x 1 I2C x1 8/16-bit ISA	PCI Express [x1] x 3 I2C x 2 SPI x 2, 1 for boot
<b>DIO</b>	—	—	—
<b>TPM</b>	—	—	—
<b>Note</b>			

# Board Level Products

## XTX/ETX Carrier Board



Model	ECB-902M	ECB-910M
<b>System</b>		
<b>Form Factor</b>	MicroATX	MicroATX
<b>I/O Chipset</b>	Winbond W83977EG-AW	ITE IT8712KX
<b>Ethernet</b>	10/100Base-TX, RJ-45 x 1	10/100Base-TX, RJ-45 x 1
<b>Expansion Interface</b>	PCI Slot x 2 ISA Slot x 2 Mini-PCI slot x 1	PCI-Express [x1] Slot x 2 PCI Slot x 1 Express Card slot x 1 Mini-PCI slot x 1 Mini-Card slot x 1 LPC Connector x 1
<b>Power Supply Type</b>	AT/ ATX	AT/ ATX
<b>Board Size</b>	9.6" x 9.6" (244mm x 244mm)	9.6" x 9.6" (243.8mm x 243.8mm)
<b>Gross Weight</b>	1.32 lb (0.6 kg)	1.32 lb (0.6 kg)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	132,000	60,000
<b>Display</b>		
<b>VGA</b>	DB15 connector x 1	DB15 connector x 1
<b>LCD</b>	30-pin (15x2) Dual-Channel LVDS connector x 1 40-pin (20x2) TTL connector x 1	30-pin (15x2) dual-channel LVDS connector x 1
<b>I/O</b>		
<b>Storage</b>	PATA connector x 2	PATA connector x 1 SATA Port x 2
<b>Serial Port</b>	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)	RS-232 port x 3 (9-pin D-Sub connector x 1 + 5x2-pin box header x 2) RS-232/422/485 port x 1 (5x2-pin box header)
<b>Parallel Port</b>	DB-25 connector x 1, supports SPP/ EPP/ ECP mode	DB25 connector x 1, supports SPP/ EPP/ ECP mode
<b>USB</b>	Type A connector x 4	Type A connector x 2, Wafer x 1
<b>PS/2 Port</b>	Keyboard x 1, Mouse x 1	Keyboard x 1, Mouse x 1
<b>Digital I/O</b>	Supports 8-bit (Programmable)	Supports 8-bit (Programmable)
<b>Audio</b>	Audio jack, supports 2 channel audio	One IrDA Tx/Rx header
<b>IrDA</b>	One IrDA Tx/Rx header	Audio jack, supports 5.1 channel audio
<b>Note</b>		

# Board Level Products

## Qseven CPU Modules



Model	AQ7-IMX6	AQ7-BT
<b>System</b>		
<b>Form Factor</b>	Qseven Rev. 2.0	Qseven Rev.2.0
<b>CPU</b>	Freescale® i.MX6 SoC Processor	Intel® Atom™ SOC Processor
<b>CPU Frequency</b>	1.0 GHz (Dual lite), 1.2 GHz(Quad)	up to 1.91GHz
<b>Chipset</b>	Freescale® i.MX6 Quad 1.0GHz Processor (Automotive) Freescale® i.MX6 Quad 1.2GHz Processor (Commercial) Freescale® i.MX6 Dual Lite 800MHz Processor (Commercial)	Intel® Atom™ E3800 series
<b>Memory Type</b>	Onboard DDR3 1066MHz (Quad) Onboard DDR3 800MHz (Dual lite)	Onboard DDR3L
<b>Max. Memory Capacity</b>	Onboard DDR3 1066MHz, 1GB, up to 2GB (Quad) Onboard DDR3 800MHz, 1GB, up to 2GB (Dual lite)	2GB (Optional to 4 GB)
<b>BIOS</b>	—	AMI BIOS
<b>Wake on LAN</b>	No	No
<b>Watchdog Timer</b>	255 level (per level 0.5 sec)	255 Levels
<b>Power Requirement</b>	+5V	+5V
<b>Power Supply Type</b>	AT/ ATX	AT/ ATX
<b>Power Consumption (Typical)</b>	Freescale iMX6 Quad 1.2GHz, DDR3 1GB, eMMC 8GB, 5.375W (w/ECB-970)	2A@5V, full load, E3845
<b>Dimension (L x W)</b>	2.75" x 2.75" (70mm x 70mm)	2.75" x 2.75" (70mm x 70mm)
<b>Operating Temperature</b>	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) -40 °F ~ 185 °F (-40 °C ~ 80 °C) by E3825
<b>Storage Temperature</b>	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	100,000	80,000
<b>Certification</b>	CE/FCC	CE/FCC
<b>Display</b>		
<b>VGA/LCD Controller</b>	Freescale® i.MX6 Quad 1.0GHz Processor (Automotive) Freescale® i.MX6 Quad 1.2GHz Processor (Commercial) Freescale® i.MX6 Dual Lite 800MHz Processor (Commercial)	Intel® Atom™ SOC
<b>Video Output</b>	LVDS x 2 (24-bit x 1)/ LVDS x 1 (24-bit x 2), HDMI 1.4	24-bit LVDS LCD, DDI x 1
<b>Backlight Inverter Supply</b>	—	—
<b>I/O</b>		
<b>Ethernet</b>	Micrel® KSZ9021RNI, 10/1000/1000Base-TX	Intel® I210IT, 10/1000/1000Base-TX
<b>Audio</b>	I2S x 1	High Definition Audio Interface
<b>USB Port</b>	USB 2.0 x 5 (Shared with USB OTG client x 1)	USB 2.0 x 6, USB 3.0 x 1
<b>Serial Port</b>	4-Wire UART x 1	4-Wire UART x 1, 2-wire UART x 1
<b>Parallel Port</b>	—	—
<b>HDD Interface</b>	SATA 3.0GB/s x 1 (Quad)	SATA x 2, 1 share with onboard SSD
<b>FDD Interface</b>	—	—
<b>SSD</b>	eMMC x 1 (optional)	Optional
<b>Expansion Slot</b>	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
<b>DIO</b>	8 bit	GPIO 8-bit (shared w/ LPC, optional)
<b>TPM</b>	—	—
<b>Note</b>		

# Board Level Products

## Qseven Carrier Boards



Model	ECB-970-A10	ECB-970-A10-01
<b>System</b>	X86 (A10)	ARM (A10-01)
<b>Form Factor</b>	Micro ATX	Micro ATX
<b>I/O Chipset</b>	—	—
<b>Ethernet</b>	10/100/1000Base-TX, RJ-45 x 1 (From CPU module)	10/100/1000Base-TX, RJ-45 x 1 (From CPU module)
<b>Expansion</b>	Interface PCI-E [x4] x 1(For Super I/O Card only), LPC Connector x 1	PCI-E [x1] x 1
<b>Power Requirement</b>	+5V DC	+5V DC
<b>Power Consumption (Typical)</b>	—	3~5 Watt @5V
<b>Board Size</b>	9.65" x 9.65" (243.84mm x 243.84mm)	9.65" x 9.65" (243.84mm x 243.84mm)
<b>Gross Weight</b>	1.32 lb (0.6 kg)	1.32 lb (0.6 kg)
<b>Operation Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
<b>Operation Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	75,000	75,000
<b>Display</b>		
<b>VGA/LCD Controller</b>	VGA x 1	—
<b>Video Output</b>	18-bit Single Channel LVDS	24-bit Dual-Channel LVDS
<b>Backlight Inverter Supply</b>	—	LVDS x 2, eDP x 2, HDMI x 1
<b>I/O</b>		
<b>Storage</b>	SATA x 2, SDIO x 1	SATA 2 x 1
<b>Serial Port</b>	RS-232 x 1, RS-232/422/485 x 1	One, For debug only
<b>Parallel Port</b>	—	—
<b>USB</b>	USB 2.0 x 8, USB 3.0 x 2	USB 2.0 x 5 (one shared with USB OTG)
<b>PS/2 Port</b>	—	—
<b>I2C</b>	—	1
<b>Audio</b>	Line-out, Microphone	Headphone
<b>Debug LED</b>	Port 80	—
<b>Note</b>		



# Board Level Products

## SMARC CPU Module



## SMARC Carrier Board



Model	uCOM-BT	Model	ECB-960T
<b>System</b>		<b>System</b>	
<b>Form Factor</b>	SMARC Version 1.1	<b>Form Factor</b>	Mini-ITX form Factor (170mm x 170mm)
<b>CPU</b>	Intel® Atom™ SOC Processor	<b>I/O Chipset</b>	N/A (Legacy Support)
<b>CPU Frequency</b>	up to 1.91 GHz	<b>Ethernet</b>	10/100/1000Base-TX, RJ-45 x 1 (From CPU module)
<b>Chipset</b>	Intel® Atom™ E3800 series	<b>Expansion Interface</b>	PCI-Express [x1] x 3 via adapter card
<b>Memory Type</b>	Onboard DDR3L	<b>Power Consumption (Typical)</b>	—
<b>Max. Memory Capacity</b>	2 GB (optional to 4 GB)	<b>Power Requirement</b>	+12V DC; +8~20VDC-in on separate connector
<b>BIOS</b>	AMI BIOS	<b>Board Size</b>	6.69" x 6.69" (170mm x 170mm)
<b>Wake on LAN</b>	No	<b>Gross Weight</b>	—
<b>Watchdog Timer</b>	255 Levels	<b>Operation Temperature</b>	32 °F ~ 140 °F (0 °C ~ 60 °C)
<b>Power Requirement</b>	Normal: 3.3V - 5V	<b>Storage Temperature</b>	-4 °F ~ 158 °F (-20 °C ~ 70 °C)
<b>Power Supply Type</b>	AT/ ATX	<b>Operation Humidity</b>	10% ~ 80% relative humidity, non-condensing
<b>Power Consumption (Typical)</b>	0.7A@12V, full load, E3845	<b>MTBF</b>	80,000
<b>Dimension</b>	3.23" x 1.96" (82 x 50 mm)	<b>Display</b>	
<b>Operating Temperature</b>	32 °F ~ 140 °F (0 °C ~ 60 °C) -40 °F ~ 185 °F (-40 °C ~ 80 °C) WiTAS 2	<b>LVDS</b>	18/24-bit Single channel LVDS
<b>Storage Temperature</b>	-40°F ~ 185°F (-40°C ~ 85°C)	<b>I/O</b>	
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	<b>Storage</b>	SATA x 1, microSD card x 1
<b>MTBF (Hours)</b>	80,000	<b>Serial Port</b>	2-wire x 1, 4-wire x 1
<b>Certification</b>	CE/FCC	<b>USB</b>	USB port 3.0 x 1 USB port 2.0 x 5 (Port 0 for client only)
<b>Display</b>		<b>I2C</b>	Client mode
<b>VGA/LCD Controller</b>	Intel® Atom SOC	<b>Audio</b>	Line-in, Line-out, Microphone
<b>Video Output</b>	24-bit LVDS LCD/eDP, HDMI		
<b>Backlight Inverter Supply</b>	—		
<b>I/O</b>			
<b>Ethernet</b>	Intel® I211AT, 10/1000/1000Base-TX		
<b>Audio</b>	HD Audio x 1		
<b>USB Port</b>	USB3.0 x 1 USB2.0 x 2		
<b>Serial Port</b>	UART x 2 (1 for TX/RX/RTS#/ CTS#; 1 for TX/RX)		
<b>Parallel Port</b>	—		
<b>HDD Interface</b>	SATA x 2		
<b>FDD Interface</b>	—		
<b>SSD</b>	Optional for onboard eMMC		
<b>Expansion Slot</b>	PCI Express [x1] x 3 I2C, SMBus x 1, SDIO SPI x 2, SPI 0 for boot only		
<b>DIO</b>	GPIO, 9 bit (up to 12 bit)		
<b>TPM</b>	—		
<b>Note</b>			

# Board Level Products

## Industrial Motherboards



Model	NITX-BD1	EMB-BT1
<b>System</b>		
<b>Processor</b>	Intel® 5th gen. 14nm ULT i7-5650U/i5-5350U/i3-5010U, BGA CPU, 15W TDP.	Intel® Atom™ J1900 Processor (4C, 10W TDP), N2807 (2C, 4.3W TDP), E3845 (4C, 10W TDP), E3825 Processor (2C, 6W TDP)
<b>Chipset</b>	Intergrate into SoC	Intergrate into SoC
<b>Memory</b>	SODIMM x 2, max. 16GB, DDR3L 1600 MHz, non-ECC, un-buffered memory	DDR3L SODIMM x 2 up to 8 GB for J1900/E3845, x 1 up to 4 GB for N2807, x 1 up to 8 GB for E3825, Non-ECC, un-buffered memory
<b>I/O Chipset</b>	NCT5538D	Fintech 81866D
<b>Ethernet</b>	Realtek 8111G x 2	Realtek 8111G x 2
<b>Audio</b>	Realtek® ALC887	Realtek® ALC887
<b>TPM</b>	—	Infineon SLB9635 TT 1.2 (default : No)
<b>Expansion Slots</b>	M.2 slot (M-key) x 1, length: 60mm (mSATA colay LVDS), auto detect, Mini-Card half size ( default USB+PCIe, mSATA BOM change) x 1	mSATA(PCIe+USB optional) + SIM Card (default: No) x 1, Mini-PCIe x 1, PCIe [x1] x 1
<b>Graphics</b>		
<b>Graphics Chipset</b>	Integrated Graphics, LVDS via CH7511, support by add on M2 module	Intel® HD Graphics
<b>VGA</b>	—	Up to 1920 x 1200 @60 Hz
<b>DVI</b>	—	—
<b>HDMI</b>	—	Up to 1920 x 1200 @60 Hz
<b>Display Port</b>	DP 1.2a (U): 3840 x 2160, (H): 4096 x 2304	—
<b>LVDS</b>	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)
<b>eDP</b>	—	—
<b>Backlight Control</b>	Yes	Voltage/PWM
<b>Environment &amp; Power &amp; ME</b>		
<b>Power Requirement</b>	DC power jack x 1 (DC: 12V~19V, wide rage: 12V-5%~ 19V+10%)	12V DC
<b>Operating Temperature</b>	32°F ~ 131°F (0°C ~ 50°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Operating Humidity</b>	20% ~ 90% RH, non-condensing	0% ~ 90%RH, non-condensing
<b>Certificate</b>	CE & FCC class A	CE & FCC
<b>Form Factor</b>	NANO ITX: 120mm x 120mm (4.72" x 4.72")	Mini-ITX 6.7" x 6.7" (170mm x 170mm)
<b>MTBF (Hours)</b>	434,910	111,131
<b>Panel I/O Ports</b>		
<b>USB</b>	Front: USB 3.0 port x 2, USB 2.0 port x 2, USB header support USB 2.0 port x 1 (p=2.00mm) Rear: USB 3.0 port x 2	USB 3.0 x 1, USB 2.0 x 2
<b>Display I/O</b>	DP x 2	VGA x 1, HDMI x 1
<b>Audio I/O</b>	Line-out x1 (green), Mic-in x1 (pink)	Line-out x 1
<b>LAN I/O</b>	RJ-45 x 2	RJ-45 x 2
<b>Serial Port</b>	—	COM (RS-232) x 1
<b>PS/2 Port</b>	—	—
<b>Others</b>	Reset Switch x 1, DC power jack x 1, Antenna output x 1, On/Off Button x 1, Power LED + HD LED x 1	DC Jack x 1
<b>Internal I/O Connectors</b>		
<b>Storage</b>	SATA3 x 1, M.2 slot for mSATA x 1	SATA3 x 2, SATA2 x 2 (1 colay with mSATA), mSATA x 1
<b>USB</b>	USB 2.0 x 1 (p=2.00mm)	USB 2.0 x 5
<b>Display I/O</b>	LVDS x 1, support by add on M.2 module	LVDS x 1
<b>Audio I/O</b>	—	AAFP x 1
<b>Serial Port</b>	COM (RS-232) x 1, p=2.00mm	COM (RS-232) x 4, COM (RS-232/422/485) x 1
<b>PS/2 Port</b>	—	1
<b>Parallel Port</b>	—	SPP/EPP Mode
<b>DIO</b>	—	8-bit programmable (4-in/4-out) x 1
<b>FAN</b>	Chassis Fan x 1 (3-pin, p=2.00mm)	Chassis Fan x 1
<b>Power</b>	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,	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1
<b>Others</b>	Mini-Card half size x 1 (default USB+PCIe, mSATA BOM change)	miniPCIe x 1, PCIe [x1] x 1, SIM Card Socket(default : No) x 1, LPT x 1, Front Panel x 1, CMOS jumper x 1
<b>OS</b>		
<b>OS Support</b>	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Windows® 10 64-bit, Linux Fedora	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora

# Board Level Products

## Industrial Motherboards



Model	EMB-BT2	EMB-BT4	EMB-BT7
<b>System</b>			
<b>Processor</b>	Intel® Atom™ J1900 Processor (4C @ 2.00 GHz CPU, 688/854 MHz GFX, 10W TDP)	Intel® Atom™ J1900 Processor (4C, 10W TDP), N2807 (2C, 4.3W TDP)	Intel® Atom™ E3845 Processor (4C @ 1.91 GHz CPU, 542/792 MHz GFX, 10W TDP)
<b>Chipset</b>	Intergrate into SoC	Intergrate into SoC	Intergrate into SoC
<b>Memory</b>	DDR3L 1333 MHz SODIMM x 2 up to 8 GB, Non-ECC, un-buffered memory	DDR3L SODIMM x 2 up to 8 GB for J1900, x 1 up to 4 GB for N2807, Non-ECC, un-buffered memory	DDR3L 1333 MHz SODIMM x 1 up to 8 GB, ECC, un-buffered memory
<b>I/O Chipset</b>	Fintech 81866D	Fintech 81866D	Fintech 81866D
<b>Ethernet</b>	Realtek 8111G x 2	Realtek 8111G x 1	Realtek 8111G x 2
<b>Audio</b>	Realtek® ALC887	Realtek® ALC887	Realtek® ALC887
<b>TPM</b>	Infineon SLB9635 TT 1.2 (default : No)	Infineon SLB9635 TT 1.2 (default : No)	Infineon SLB9635 TT 1.2 (default : No)
<b>Expansion Slots</b>	mSATA(Pcie+USB optional) x 1, PCIe [x1] x 1	mSATA(Pcie+USB optional) + SIM Card (default: No) x 1, Mini-PCie x 1	mSATA(Pcie+USB optional) + SIM Card (default: No) x 1, Mini-PCie x 1, PCIe [x1] x 1
<b>Graphics</b>			
<b>Graphics Chipset</b>	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
<b>VGA</b>	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz
<b>DVI</b>	—	—	—
<b>HDMI</b>	—	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz
<b>Display Port</b>	—	—	—
<b>LVDS</b>	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)	Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)
<b>eDP</b>	—	—	—
<b>Backlight Control</b>	Voltage/PWM	Voltage/PWM	Voltage/PWM
<b>Environment &amp; Power &amp; ME</b>			
<b>Power Requirement</b>	ATX	12V DC	12V DC
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Operating Humidity</b>	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing
<b>Certificate</b>	CE & FCC	CE & FCC	CE & FCC
<b>Form Factor</b>	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
<b>MTBF (Hours)</b>	290,990	295,750	283,770
<b>Panel I/O Ports</b>			
<b>USB</b>	USB 2.0 x 6	USB 3.0 x 1, USB 2.0 x 2	USB 3.0 x 1, USB 2.0 x 2
<b>Display I/O</b>	VGA x 1	HDMI x 1	VGA x 1, HDMI x 1
<b>Audio I/O</b>	Mic-in x 1, Line-out x 1	Line-in x 1, Line-out x 1	Line-out x 1
<b>LAN I/O</b>	RJ-45 x 2	RJ-45 x 1	RJ-45 x 2
<b>Serial Port</b>	COM (RS-232/422/485) x 1, COM (RS-232) x 2	COM (RS-232) x 1	COM (RS-232) x 1
<b>PS/2 Port</b>	1	—	—
<b>Others</b>	—	DC Jack x 1	DC Jack x 1
<b>Internal I/O Connectors</b>			
<b>Storage</b>	SATA2 x 2 (1 colay with mSATA), mSATA x 1	SATA3 x 2, SATA2 x 2 (1 colay with mSATA), mSATA x 1	SATA3 x 2, SATA2 x 2 (1 colay with mSATA), mSATA x 1
<b>USB</b>	USB 2.0 x 4	USB 2.0 x 5	USB 2.0 x 5
<b>Display I/O</b>	LVDS x 2	VGA x 1, LVDS x 1	LVDS x 1
<b>Audio I/O</b>	AAFP x 1, Speaker x 1	AAFP x 1	AAFP x 1
<b>Serial Port</b>	COM (RS-232) x 3	COM (RS-232) x 4, COM (RS-232/422/485) x 1	COM (RS-232) x 4, COM (RS-232/422/485) x 1
<b>PS/2 Port</b>	—	1	1
<b>Parallel Port</b>	—	SPP/EPP Mode	SPP/EPP Mode
<b>DIO</b>	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
<b>FAN</b>	Chassis Fan x 1	Chassis Fan x 1	Chassis Fan x 1
<b>Power</b>	24-pin ATX x 1, AT/ATX mode select jumper (default : No) x 1	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1
<b>Others</b>	Front Panel x 1, CMOS jumper x 1	miniPCie x 1, PCIe [x1] x 1, SIM Card Socket(default : No) x 1, LPT x 1, Front Panel x 1, CMOS jumper x 1	miniPCie x 1, PCIe [x1] x 1, SIM Card Socket(default : No) x 1, LPT x 1, Front Panel x 1, CMOS jumper x 1
<b>OS</b>			
<b>OS Support</b>	Windows® 7/8.1 for 32/64-bit, Linux Fedora	Windows® 7/8.1 for 32/64-bit, Linux Fedora	Windows® 7/8.1 for 32/64-bit, Linux Fedora

# Board Level Products

## Industrial Motherboards



Model	EMB-BSW1	EMB-Q170A	EMB-Q170B
<b>System</b>			
<b>Processor</b>	Intel® Atom™ N3710 Processor, (4C, ~6W TDP) Intel® Atom™ N3060 Processor, (2C, ~6W TDP)	Intel® 6th Gen. Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs	Intel® 6th Gen. Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs
<b>Chipset</b>	Intergrate into SoC	Intel® Q170	Intel® Q170
<b>Memory</b>	DDR3L 1600 MHz SODIMM x 2 up to 8 GB, Non-ECC, un-buffered memory	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory
<b>I/O Chipset</b>	F81866D	NCT6791D	NCT6791D
<b>Ethernet</b>	Intel® i211AT x 2	Intel® 219LM x 1, Intel® i211AT x 1	—
<b>Audio</b>	Realtek® ALC3236	Realtek® ALC887	Realtek® ALC887
<b>TPM</b>	Infineon SLB96XX TT 1.2/2.0 (default: No)	Infineon SLB96XX TT 1.2/2.0 (default: No)	Infineon SLB96XX TT 1.2/2.0 (default: No)
<b>Expansion Slots</b>	mSATA(Pcie+USB optional) x 1, Mini-Pcie x 1	PCIe [x16] x 1, M.2 M-key (22x80mm) x 1	PCIe [x4] x 1, M.2 M key (22 x 80mm) x 1, M.2 E key (22 x 30mm) x 1
<b>Graphics</b>			
<b>Graphics Chipset</b>	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
<b>VGA</b>	—	Up to 1920 x 1200 @60 Hz	—
<b>DVI</b>	—	—	—
<b>HDMI</b>	Up to 2560 x 1600 @60 Hz, 3840 x 2160 @30Hz	—	Up to 4096 x 2160 @24 Hz ; 3840 x 2160 @60 Hz, with Digital Audio
<b>Display Port</b>	—	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio
<b>LVDS</b>	Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)	—	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit
<b>eDP</b>	Up to 2560 x 1440 @60Hz	—	Up to 4096 x 2340 @60Hz
<b>Backlight Control</b>	Voltage/PWM, use HW control	—	Voltage/PWM
<b>Environment &amp; Power &amp; ME</b>			
<b>Power Requirement</b>	12-24V DC (wide range: 12V-5% ~ 24V +10%)	ATX	12V DC
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~140°F (0°C ~ 60°C)	32°F ~140°F (0°C ~ 60°C)
<b>Operating Humidity</b>	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing	0% ~ 90% RH, non-condensing
<b>Certificate</b>	CE & FCC	CE & FCC	CE & FCC
<b>Form Factor</b>	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
<b>MTBF (Hours)</b>	—	—	—
<b>Panel I/O Ports</b>			
<b>USB</b>	USB 3.0 x 2	USB 3.0 x 4, USB 2.0 x 2	USB 3.0 x 4
<b>Display I/O</b>	HDMI x 2	VGA x 1, DP x 3	DP x 2
<b>Audio I/O</b>	Mic-in x 1, Line-out x 1	Mic-in x 1, Line-out x 1	Mic-in x 1, Line-out x 1
<b>LAN I/O</b>	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
<b>Serial Port</b>	—	—	—
<b>PS/2 Port</b>	—	1	—
<b>Others</b>	DC Jack x 1	—	DC Jack x 1
<b>Internal I/O Connectors</b>			
<b>Storage</b>	SATA3 x 3 (1 colay with mSATA), mSATA x 1	SATA3 x 2, M.2 M-key x 1	SATA3 x 4, M.2 M key x 1, M.2 E key x 1
<b>USB</b>	USB 3.0 x 2, USB 2.0 x 6	USB 2.0 x 4	USB 2.0 x 6
<b>Display I/O</b>	LVDS or eDP x 1	—	40-pin LVDS x 1, 40-pin eDP x 1
<b>Audio I/O</b>	Speaker x 1	Speaker x 1	AAFP x 1, Speaker x 1
<b>Serial Port</b>	COM (RS-232) x 5, COM (RS-232/422/485) x 1	COM (RS-232/422/485) x 1, COM (RS-232) x 1	COM (RS-232/422/485) x 1
<b>PS/2 Port</b>	1	—	—
<b>Parallel Port</b>	—	—	—
<b>DIO</b>	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
<b>FAN</b>	Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1
<b>Power</b>	12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1
<b>Others</b>	Front Panel x 1, CMOS jumper x 1	Front Panel x 1, Chassis Intrusion x 1, Buzzer x 1, CMOS jumper x 1	Front Panel x 1, Chassis intrusion x 1, Buzzer x 1, CMOS jumper x 1
<b>OS</b>			
<b>OS Support</b>	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora

# Board Level Products

## Industrial Motherboards



Model	EMB-H110B	EMB-Q87A	EMB-H81A
<b>System</b>			
<b>Processor</b>	Intel® 6th Gen. Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs	Intel® 4th Gen. Core™ i Series 22nm LGA1150 socket Processor, Max. 65W TDPs	Intel® 4th Gen. Core™ i Series 22nm LGA1150 socket Processor, Max. 65W, TDPs
<b>Chipset</b>	Intel® H110	Intel® Q87	Intel® H81
<b>Memory</b>	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Un-buffered Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Un-buffered Memory
<b>I/O Chipset</b>	NCT6791D	NCT6791D	NCT6791D
<b>Ethernet</b>	Realtek 8111G x 2	Intel® I217LM x 1, Intel® I210AT x 1	Realtek 8111G x 2
<b>Audio</b>	Realtek® ALC887	Realtek® ALC887	Realtek® ALC887
<b>TPM</b>	Infineon SLB96XX TT 1.2/2.0 (default: No)	Infineon SLB96XX TT 1.2/2.0 (default: No)	Infineon SLB9635 TT 1.2
<b>Expansion Slots</b>	PCIe [x1] x 1, mSATA(PCIe+USB optional) x 1, Mini-PCIe x 1	PCIe [x4] x 1, mSATA(PCIe+USB optional) x 1, Mini-PCIe x 1	PCIe [x1] x 1, mSATA(PCIe+USB optional) x 1, Mini-PCIe x 1
<b>Graphics</b>			
<b>Graphics Chipset</b>	—	Intel® HD Graphics	Intel® HD Graphics
<b>VGA</b>	—	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz
<b>DVI</b>	—	—	—
<b>HDMI</b>	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio
<b>Display Port</b>	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio
<b>LVDS</b>	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	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit
<b>eDP</b>	UP to 4096 x 2340 @60Hz	—	—
<b>Backlight Control</b>	Voltage/PWM	Voltage/PWM	Voltage/PWM
<b>Environment &amp; Power &amp; ME</b>			
<b>Power Requirement</b>	12V DC	12-24V DC (wide rage:12V-5%~ 24V+10%)	12-24V DC (wide rage:12V-5%~ 24V+10%)
<b>Operating Temperature</b>	32°F ~140°F (0°C ~ 60°C)	32°F ~140°F (0°C ~ 60°C)	32°F ~140°F (0°C ~ 60°C)
<b>Operating Humidity</b>	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing
<b>Certificate</b>	CE & FCC	CE & FCC	CE & FCC
<b>Form Factor</b>	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
<b>MTBF (Hours)</b>	—	104,363	288,850
<b>Panel I/O Ports</b>			
<b>USB</b>	USB 3.0 x 4	USB 3.0 x 4	USB 3.0 x 2, USB 2.0 x 2
<b>Display I/O</b>	DP/HDMI (BOM Change) x 2	HDMI x 1, DP x 1	HDMI x 1, DP x 1
<b>Audio I/O</b>	Mic-in x 1, Line-out x 1	Mic-in x 1, Line-out x 1	Mic-in x 1, Line-out x 1
<b>LAN I/O</b>	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
<b>Serial Port</b>	—	—	—
<b>PS/2 Port</b>	—	—	—
<b>Others</b>	DC Jack x 1	DC Jack x 1	DC Jack x 1
<b>Internal I/O Connectors</b>			
<b>Storage</b>	SATA3 x 2, mSATA x 1	SATA3 x 4, mSATA x 1	SATA3 x 2, SATA2 x 1, mSATA x 1
<b>USB</b>	USB 2.0 x 4	USB 2.0 x 6	USB 2.0 x 6 USB (2 colay with Mini-Card)
<b>Display I/O</b>	40-pin LVDS x 1, 40-pin eDP x 1	VGA x 1, LVDS x 1	VGA x 1, LVDS x 1
<b>Audio I/O</b>	AAFP x 1, Speaker x 1	AAFP x 1, Speaker x 1, DMIC (optional) x 1	AAFP x 1, Speaker x 1
<b>Serial Port</b>	COM (RS-232/422/485) x 1, COM (RS-232) x 1	COM (RS-232) x 2	COM (RS-232) x 1, COM (RS-232/422/485) x 1
<b>PS/2 Port</b>	—	1	1
<b>Parallel Port</b>	—	—	—
<b>DIO</b>	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
<b>FAN</b>	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1
<b>Power</b>	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1
<b>Others</b>	Front Panel x 1, Chassis Intrusion x 1, Buzzer x 1, CMOS jumper x 1	Front Panel x 1, Chassis Intrusion x 1, CMOS jumper x 1	Front Panel x 1, Chassis Intrusion x 1, Buzzer x 1, CMOS jumper x 1
<b>OS</b>			
<b>OS Support</b>	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora

# Board Level Products

## Industrial Motherboards



Model	EMB-H81B	EMB-QM87A	EMB-Q77A
<b>System</b>			
<b>Processor</b>	Intel®4th Gen. Core™ i Series 22nm LGA1150 socket Processor, Max. 65W, TDPs	On board Intel® 4th generation BGA 1364 Processor	Intel® 3rd/2nd Generation Core™ i series LGA1155 socket Processor
<b>Chipset</b>	Intel® H81	Intel® QM87	Intel® Q77 Express Chipset
<b>Memory</b>	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Un-buffered Memory	Dual-Channel with 204-pin SDRAM x 2, DDR3L 1600/1333, up to 16GB	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Un-buffered Memory
<b>I/O Chipset</b>	NCT6791D	Fintek F81866D-I	NCT 6779D
<b>Ethernet</b>	Realtek 8111G x 2	Intel® I217-LM / Realtek RTL 8111E x 2	Intel® 82579LM (Support Intel® I AMT 8.X) x 1, Intel® 82583V x 1
<b>Audio</b>	Realtek® ALC887	Realtek® ALC892/886/662	Realtek® ALC887
<b>TPM</b>	Infineon SLB9635 TT 1.2	Infineon SLB9635TT 1.2(Optional)	Infineon SLB9635 TT 1.2 (optional)
<b>Expansion Slots</b>	PCIe [x1] x 1, mSATA(PCIe+USB optional) x 1, Mini-PCIe x 1	PCIe [x16] x 1, Mini-PCIe x 1	PCIe [x16] x 1, Mini-PCIe(mSATA optional) x 1
<b>Graphics</b>			
<b>Graphics Chipset</b>	Intel® HD Graphics	Intel® Core™i7/i5/i3 + QM87	Intel® HD Graphics
<b>VGA</b>	Up to 1920 x 1200 @60 Hz	1	Up to 1920 x 1200 @60Hz (via DVI-I)
<b>DVI</b>	—	—	Up to 1920 x 1200 @60Hz
<b>HDMI</b>	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	1	—
<b>Display Port</b>	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	—	—
<b>LVDS</b>	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit	1	—
<b>eDP</b>	—	—	—
<b>Backlight Control</b>	Voltage/PWM	Voltage/PWM	—
<b>Environment &amp; Power &amp; ME</b>			
<b>Power Requirement</b>	12-24V DC (wide range:12V-5% ~ 24V+10%)	12V DC	ATX
<b>Operating Temperature</b>	32°F ~140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Operating Humidity</b>	0% ~ 90% R/H, non-condensing	0% ~ 90% R/H, non-condensing	0% ~ 90% R/H, non-condensing
<b>Certificate</b>	CE & FCC	CE/FCC	CE & FCC
<b>Form Factor</b>	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
<b>MTBF (Hours)</b>	288,850	106,000	95,000
<b>Panel I/O Ports</b>			
<b>USB</b>	USB 3.0 x 2, USB 2.0 x 2	USB 3.0 x 4	USB 3.0 x 2, USB 2.0 x 6
<b>Display I/O</b>	HDMI x 1, DP x 1	HDMI x 3, VGA x 1	DVI-D x 1, DVI-I x 1
<b>Audio I/O</b>	Mic-in x 1, Line-out x 1	Line-in, Mic-in, Line-out	Mic-in x 1, Line in x 1, Line-out x 1
<b>LAN I/O</b>	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
<b>Serial Port</b>	—	RS-232/422/485 x 1	—
<b>PS/2 Port</b>	—	1	—
<b>Others</b>	DC Jack x 1	—	—
<b>Internal I/O Connectors</b>			
<b>Storage</b>	SATA3 x 2, SATA2 x 1, mSATA x 1	SATA3 x 4, SATA 2 x 2, Support RAID 0,1,5,10	SATA3 x 2, SATA2 x 2
<b>USB</b>	USB 2.0 x 6 USB (2 coloy with Mini-Card)	USB 3.0 x 2, USB 2.0 x 4	USB 3.0 x 2, USB 2.0 x 1
<b>Display I/O</b>	VGA x 1, LVDS x 1	LVDS x 1	—
<b>Audio I/O</b>	AAFP x 1, Speaker x 1	—	AAFP x 1, speaker x 1
<b>Serial Port</b>	COM (RS-232) x 1, COM (RS-232/422/485) x 1	RS-232 x 4	COM (RS-232) x 1, COM (RS-232/422/485) x 1
<b>PS/2 Port</b>	1	—	—
<b>Parallel Port</b>	—	—	—
<b>DIO</b>	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
<b>FAN</b>	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1
<b>Power</b>	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1	8-pin connector x 1	24-pin ATX x 1, 12V AUX x 1, AT/ATX mode select jumper x 1
<b>Others</b>	Front Panel x 1, Chassis Intrusion x 1, Buzzer x 1, CMOS jumper x 1	—	Front Panel x 1, Chassis Intrusion x 1, CMOS jumper x 1
<b>OS</b>			
<b>OS Support</b>	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora	Windows® 7/8.1 for 32/64-bit, Linux Fedora	Windows® XP 32/64-bit, Windows® 7 32/64-bit (WHQL), Windows® 8 (WHQL), Linux Fedora

# Board Level Products

## Industrial Motherboards



Model	EMB-B75A	EMB-B75B	EMB-QM77
<b>System</b>			
<b>Processor</b>	Intel® 3rd/2nd Generation Core™ I series LGA1155 socket Processor	Intel® 3rd/2nd Generation Core™ I series LGA1155 socket Processor	Socket Intel® 3rd generation rPGA988 Processor
<b>Chipset</b>	Intel® B75 Express Chipset	Intel® B75 Express Chipset	Intel® QM77
<b>Memory</b>	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Un-buffered Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Un-buffered Memory	Dual-Channel with 204-pin SDRAM x 2, DDR3 1600/1333/1066, up to 16GB
<b>I/O Chipset</b>	ITE 8728F	ITE 8728F	ITE IT8728F+Fintek F81216DG
<b>Ethernet</b>	Realtek 8111F x 2	Realtek 8111F x 1	Intel® WG82579LM / Realtek 8111E x 2
<b>Audio</b>	Realtek® ALC887	Realtek® ALC887	Realtek® ALC892/886/662
<b>TPM</b>	Infineon SLB9635 TT 1.2	—	Infineon SLB9635TT 1.2
<b>Expansion Slots</b>	PCI-E [x16] x 1	PCIe [x16] x 1	PCIe [x16] x 1, Mini-PCIe x 1, CFast x 1
<b>Graphics</b>			
<b>Graphics Chipset</b>	Intel® HD Graphics	Intel® HD Graphics	Intel® Core™i7/i5/i3 + QM77
<b>VGA</b>	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @60Hz	1
<b>DVI</b>	—	—	1
<b>HDMI</b>	Up to 1920 x 1080 @60Hz	Up to 1920 x 1080 @60Hz	1 (by SKU)
<b>Display Port</b>	—	—	2 (by SKU)
<b>LVDS</b>	—	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit, support EDID LVDS autodetect	1
<b>eDP</b>	—	—	—
<b>Backlight Control</b>	—	—	Voltage/PWM
<b>Environment &amp; Power &amp; ME</b>			
<b>Power Requirement</b>	ATX	ATX	12V DC
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 131°F (0°C ~ 55°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Operating Humidity</b>	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing	0% ~ 90% R/H, non-condensing
<b>Certificate</b>	CE & FCC	CE & FCC	CE/FCC
<b>Form Factor</b>	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)
<b>MTBF (Hours)</b>	116,656	199,397	60,000
<b>Panel I/O Ports</b>			
<b>USB</b>	USB 3.0 x 2, USB 2.0 x 2	USB 3.0 x 2, USB 2.0 x 2	USB 3.0 x 4
<b>Display I/O</b>	VGA x 1, HDMI x 3	VGA x 1, HDMI x 2 (1 optional)	DP x 2 or DP x 1+HDMI x 1, DVI-D x 1
<b>Audio I/O</b>	Mic-in x 1, Line in x 1, Line-out x 1	Mic-in x 1, Line in x 1, Line-out x 1	Line-in, Mic-in, Line-out
<b>LAN I/O</b>	RJ-45 x 2	RJ-45 x 1	RJ-45 x 2
<b>Serial Port</b>	—	RS-232 x 1	RS-232/422/485 x 1
<b>PS/2 Port</b>	2	2	1
<b>Others</b>	—	—	—
<b>Internal I/O Connectors</b>			
<b>Storage</b>	SATA3 x 1, SATA2 x 2	SATA3 x 1, SATA2 x 1	SATA3 x 2, SATA2 x 2, Support RAID 0,1,5,10
<b>USB</b>	USB 3.0 x 2, USB 2.0 x 4	USB 2.0 x 4	USB 2.0 x 6
<b>Display I/O</b>	—	LVDS x 1	VGa x 1, LVDS x 1
<b>Audio I/O</b>	—	—	—
<b>Serial Port</b>	COM (RS-232) x 1, COM (RS-232/422/485) x 1	COM (RS-232) x 1	COM (RS-232) x 1
<b>PS/2 Port</b>	—	—	—
<b>Parallel Port</b>	—	—	—
<b>DIO</b>	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
<b>FAN</b>	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1
<b>Power</b>	12V AUX x 1, 24-pin ATX x 1	12V AUX x 1, 24-pin ATX x 1	12V AUX x 1
<b>Others</b>	Front panel x 1	Front panel x 1	—
<b>OS</b>			
<b>OS Support</b>	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP/7 for 32/64-bit, Linux Fedora

# Board Level Products

## Industrial Motherboards



Model	EMB-H61A	EMB-H61B	EMB-QM67
<b>System</b>			
<b>Processor</b>	Intel® 3rd/2nd Generation Core™ I series, 32nm LGA1155 socket Processors, up to 35W	Intel® 3rd/2nd Generation Core™ I series, 32nm LGA1155 socket Processors, up to 35W	Integrated Intel® Atom™ processor D2550
<b>Chipset</b>	Intel® H61	Intel® H61	Intel® NM10
<b>Memory</b>	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Un-buffered Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Un-buffered Memory	S0-DIMM x 2, max. 4GB, DDR3 800/1066 MHz, non-ECC, un-buffered memory
<b>I/O Chipset</b>	Fintek F81866D-1	Fintek F81866D-1	ITE IT8783F
<b>Ethernet</b>	Realtek 8111E x 2	Realtek 8111F x 2	Realtek 8111E x 2
<b>Audio</b>	Realtek® ALC887	Realtek® ALC887	VIA 1708S
<b>TPM</b>	Infineon SLB9635 TT 1.2	Infineon SLB9635 TT 1.2	—
<b>Expansion Slots</b>	PCIe [x4] x 1, Mini-PCIe(mSATA optional) + SIM Card x 1	PCIe [x4] x 1, Mini-PCIe(mSATA optional) + SIM Card x 1	PCIe [x1] x 1, Mini-PCIe(mSATA optional) + SIM Card x 1
<b>Graphics</b>			
<b>Graphics Chipset</b>	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
<b>VGA</b>	Up to 2048 x 1536 @ 75 Hz	Up to 2048 x 1536 @ 75 Hz	Up to 1920 x 1200 @60 Hz
<b>DVI</b>	Up to 1920 x 1200 @60 Hz	—	Up to 1920 x 1200 @60 Hz
<b>HDMI</b>	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz	—
<b>Display Port</b>	—	—	—
<b>LVDS</b>	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit	Up to 1440 x 900 @60Hz, Single Channel 18/24-bit
<b>eDP</b>	—	—	—
<b>Backlight Control</b>	Voltage/PWM	Voltage/PWM	Voltage/PWM
<b>Environment &amp; Power &amp; ME</b>			
<b>Power Requirement</b>	12V DC	12V DC	12V DC
<b>Operating Temperature</b>	32~131°F (0~55°C)	32~131°F (0~55°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Operating Humidity</b>	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing
<b>Certificate</b>	CE & FCC	CE & FCC	CE & FCC
<b>Form Factor</b>	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
<b>MTBF (Hours)</b>	117,673	211,000	178,817
<b>Panel I/O Ports</b>			
<b>USB</b>	USB 2.0 x 6	USB 2.0 x 6	USB 2.0 x 4
<b>Display I/O</b>	VGA x 1, DVI-D x 1, HDMI x 1	VGA x 1, HDMI x 2	VGA x 1, DVI-D x 1
<b>Audio I/O</b>	Mic-in x 1, Line in x 1, Line-out x 1	Mic-in x 1, Line in x 1, Line-out x 1	Mic-in x 1, Line in x 1, Line-out x 1
<b>LAN I/O</b>	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
<b>Serial Port</b>	COM (RS-232/422/485) x 1	COM (RS-232/422/485) x 1	COM (RS-232/422/485) x 1, COM (RS-232) x 1
<b>PS/2 Port</b>	1	1	—
<b>Others</b>	—	—	DC Jack x 1
<b>Internal I/O Connectors</b>			
<b>Storage</b>	SATA x 2, mSATA x 1	SATA x 2, Mini-Card slot x 1	SATA x 2, mSATA x 1
<b>USB</b>	USB 2.0 x 2	USB 2.0 x 2	USB 2.0 x 2
<b>Display I/O</b>	LVDS x 1	LVDS x 1	LVDS x 1
<b>Audio I/O</b>	—	—	—
<b>Serial Port</b>	COM (RS-232) x 5	COM header x 5 (RS-232)	COM header x 3, COM2 External Power Selection jumper x 1
<b>PS/2 Port</b>	—	—	1
<b>Parallel Port</b>	—	—	LPT header x 1
<b>DIO</b>	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
<b>FAN</b>	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1
<b>Power</b>	12V AUX x 1, AT/ATX mode select jumper x 1	12V AUX x 1, AT/ATX mode select jumper x 1	12V AUX x 1, AT/ATX mode select jumper x 1
<b>Others</b>	SIM Card Socket x 1, Front Panel x 1, CMOS jumper x 1	SIM Card Socket x 1, Front Panel x 1, CMOS jumper x 1	SIM Card Socket x 1, Front Panel x 1, WDT Function Switch x 1, CMOS jumper x 1
<b>OS</b>			
<b>OS Support</b>	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP/7 32-bit, Linux Fedora
<b>Note</b>			



# Board Level Products

## Industrial Motherboards



Model	EMB-CV2	EMB-KB1	EMB-A70M
<b>System</b>			
<b>Processor</b>	Intel® Atom™ D2550 B3 Processor Dual Core 1.86 GHz	AMD 1st generation APU SoC (FT3 BGA Package), Quad(2G,1.5G), Dual (1.6G,1.0G)	On board AMD® Embedded R-260H/R-460L APU(Dual Core) up to 25W
<b>Chipset</b>	Intel® ICH10R	—	AMD® M3/A70M
<b>Memory</b>	Dual-Channel with 204-pin SDRAM x 2, DDR3 1066, up to 4GB	SO-DIMM x 2, max. 16GB, DDR3(L) 1600/1333 MHz , Non-ECC, un-buffered memory	SO-DIMM x 2, DDR3 1333/1066 MHz, up to 16GB
<b>I/O Chipset</b>	Winbond W83627DHG-P	Fintek F81866D-I	ITE IT8728
<b>Ethernet</b>	Realtek® 8111E x 2	Realtek 8111F x 2	Realtek® 8111E x 2
<b>Audio</b>	Via VT1705	Realtek® ALC887 with Amplifier	Realtek® ALC892
<b>TPM</b>	—	Infineon SLB9635 TT 1.2 (default: No)	—
<b>Expansion Slots</b>	PCIe [x4] x 1	PCIe [x4] x 1, Mini-PCIe + SIM Card (mSATA optional) x 1, Mini-PCIe x 1	PCIe [x4] x 1, Mini-PCIe x 1, mSATA x 1
<b>Graphics</b>			
<b>Graphics Chipset</b>	Intel® Atom™ D2550 B3 Processor	Sea Islands Family (Integrated)	AMD® M3/A70M
<b>VGA</b>	1	Up to 1920 x 1200 @60 Hz	—
<b>DVI</b>	1	Up to 1920 x 1200 @60 Hz	—
<b>HDMI</b>	—	—	4
<b>Display Port</b>	—	—	—
<b>LVDS</b>	1	Up to 1920 x 1080 @60Hz, Dual Channel 18/24 bit (via CH7511)	—
<b>eDP</b>	—	—	—
<b>Backlight Control</b>	Voltage	Voltage/PWM	Voltage
<b>Environment &amp; Power &amp; ME</b>			
<b>Power Requirement</b>	12V DC	ATX	12V DC
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Operating Humidity</b>	0% ~ 90% R/H, non-condensing	0% ~ 90%RH, non-condensing	0% ~ 90% R/H, non-condensing
<b>Certificate</b>	CE/FCC	CE & FCC	CE/FCC
<b>Form Factor</b>	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)
<b>MTBF (Hours)</b>	107,000	140,000	88,000
<b>Panel I/O Ports</b>			
<b>USB</b>	USB 2.0 x 4	USB 3.0 x 2, USB 2.0 x 2	USB 2.0 x 1
<b>Display I/O</b>	DVI-D x 1, VGA x 1	VGA x 1, DVI-D x 1	HDMI x 4
<b>Audio I/O</b>	Line-in, Mic-in, Line-out	Mic-in x 1, Line-out x 1	Mic-in, Line-out
<b>LAN I/O</b>	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
<b>Serial Port</b>	RS-232 x 1, RS-232/422/485 x 1	COM (RS-232/422/485) x 1, COM (RS-232) x 1	—
<b>PS/2 Port</b>	—	2	—
<b>Others</b>	DC Jack x 1	—	—
<b>Internal I/O Connectors</b>			
<b>Storage</b>	SATA2 x 6	SATA x 2, mSATA x 2	SATA2 x 2
<b>USB</b>	USB 2.0 x 4	USB 2.0 x 4	USB 3.0 x 2, USB 2.0 x 4
<b>Display I/O</b>	LVDS x 1	LVDS x 1	—
<b>Audio I/O</b>	—	Speaker x 1	—
<b>Serial Port</b>	—	COM header x 4 (RS-232)	RS-232 x 1, RS-232/422/485 x 1
<b>PS/2 Port</b>	—	—	—
<b>Parallel Port</b>	—	—	—
<b>DIO</b>	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
<b>FAN</b>	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1
<b>Power</b>	12V AUX x 1	12V AUX x 1, 24-pin ATX x 1	12V AUX x 1
<b>Others</b>	—	SIM Card Socket x 1, Front Panel x 1, Buzzer x 1, CMOS Jumper x 1	—
<b>OS</b>			
<b>OS Support</b>	Windows® XP/7 for 32/64-bit, Linux Fedora	Windows® XP/7 for 32/64-bit, Linux Fedora	Windows® XP/7 for 32/64-bit, Linux Fedora
<b>Note</b>			

# Board Level Products

## Industrial Motherboards



Model	EMB-A50M	IMBI-QM57	EPC-CV1
<b>System</b>			
<b>Processor</b>	On board AMD® Fusion APU T56N/T44R	Socket Intel® Core i rPGA988 Processor	Integrated Intel® Atom™ N2600/N2800 processor
<b>Chipset</b>	AMD® M1/A50M	Intel® QM57	Intel® NM10
<b>Memory</b>	SO-DIMM x 2, DDR3 1066/800 MHz, up to 8GB	Dual-Channel with 204-pin SDRAM x 2, DDR3 1066/800, up to 8GB	SO-DIMM x 1, DDR3 800/1066 MHz, non-ECC, un-buffered memory
<b>I/O Chipset</b>	ITE IT8771E	ITE IT8728F	Fintek 81866D-I
<b>Ethernet</b>	Realtek® 8111E x 2	Intel® 82577LM / 82574L, Gigabit LAN x 2	Realtek 8111F x 2
<b>Audio</b>	Realtek® ALC892	Realtek® ALC888	Realtek 887 x 1, Audio Amplifier EUA 2012A x 1
<b>TPM</b>	—	—	—
<b>Expansion Slots</b>	PCIe [x4] x 1, Mini-PCIe x 1, mSATA x 1	PCIe [x4] x 1, Mini-PCIe x 1, PCI x 1, CF x 1	Mini-PCIe x 2
<b>Graphics</b>			
<b>Graphics Chipset</b>	AMD® M1/A50M	Intel® Core™i7/i5 + QM57	—
<b>VGA</b>	—	1	Up to 1920 x 1200 @60 Hz
<b>DVI</b>	1	1	—
<b>HDMI</b>	1	1	Up to 1920 x 1200 @60 Hz
<b>Display Port</b>	—	—	—
<b>LVDS</b>	—	1	Up to 1920 x 1280 @60Hz, 18-bit single channel
<b>eDP</b>	—	—	—
<b>Backlight Control</b>	Voltage	Voltage	Voltage/ PWM, 1 x DC 5V/12V for LCD backlight inverter board
<b>Environment &amp; Power &amp; ME</b>			
<b>Power Requirement</b>	12V DC	12V DC	12V DC
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	14°F ~ 140°F (-10°C ~ 60°C)
<b>Operating Humidity</b>	0% ~ 90% R/H, non-condensing	0% ~ 90% R/H, non-condensing	0% ~ 90% RH, non-condensing
<b>Certificate</b>	CE/FCC	CE/FCC	CE & FCC class B
<b>Form Factor</b>	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	EPIC Form Factor, 4.53"x6.5" (115mmx165mm)
<b>MTBF (Hours)</b>	70,000	56,000	228,000
<b>Panel I/O Ports</b>			
<b>USB</b>	USB 2.0 x 6	USB 2.0 x 4	USB2.0 x 4
<b>Display I/O</b>	HDMI x 1, DVI-Dx1	HDMI x 1, DVI-D x 1, VGA x 1	HDMI x 1
<b>Audio I/O</b>	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out	—
<b>LAN I/O</b>	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
<b>Serial Port</b>	—	RS-232 x 1	COM x 1 (RS-232/422/485)
<b>PS/2 Port</b>	1	Mini-Din PS/2 K/B and Mouse x 1	—
<b>Others</b>	—	—	DC Jack x 1
<b>Internal I/O Connectors</b>			
<b>Storage</b>	SATA2 x 5	SATA 3.0 Gb/s x 3, Support RAID 0,1,5,10	SATA x 2, mSATA x 2
<b>USB</b>	USB 3.0 x 2, USB 2.0 x 4	USB 2.0 x 4	USB 2.0 x 2
<b>Display I/O</b>	—	LVDSx1	VGA x 1, LVDS x 1
<b>Audio I/O</b>	—	—	Line-out/ Mic-in Pin header x 1, SPDIF x 1
<b>Serial Port</b>	RS-232 x 3, RS-232/422/485 x 1	RS-232 x 2, RS-232/422/485 x 1	RS-232 pin header x 3
<b>PS/2 Port</b>	—	—	1
<b>Parallel Port</b>	—	—	—
<b>DIO</b>	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out)	8-bit programmable (4-in/4-out) x 1
<b>FAN</b>	CPU Fan x 1, Chassis Fan x 1	CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 1	Chassis Fan x 1
<b>Power</b>	12V AUX x 1, 24-pin ATX x 1	24-pin ATX connector x 1, 4-pin connector x 1	2-pin 12V DC x 1
<b>Others</b>	—	—	SIM card connector x 1, Front panel x 1, 4-pin Amplifier connector x 1
<b>OS</b>			
<b>OS Support</b>	Windows® XP/7 for 32/64-bit, Linux Fedora	Windows® XP, Windows® 7 32/64-bit, Linux Fedora	Windows® XP/7 32-bit, Linux Fedora
<b>Note</b>			

# Board Level Products

## Industrial Motherboards



Model	IMBA-Q87A	IMBA-Q77	IMBA-967
<b>System</b>			
<b>Processor</b>	Intel® 4th Generation Core™ i7/i5/i3/Pentium®/Celeron® 22nm LGA 1150 socket Processor	Socket Intel® 3rd generation LGA 1155 Processor	Socket Intel® 2nd generation LGA 1155 Processor
<b>Chipset</b>	Intel® Q87	Intel® Q77	Intel® Q67
<b>Memory</b>	240-pin DIMM x 4, max. 32GB, DDR3 1600/1333, Dual Channel	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
<b>I/O Chipset</b>	NCT6791D, F81216HD	Winbond W83627DHG	Winbond W83627DHG
<b>Ethernet</b>	LAN1: Intel® PHY I217LM Giga LAN, LAN2: Intel® I210AT Giga LAN	Intel® 82579 / 82583V, Gigabit LAN x 2	Intel® 82579LM / 82574L, Gigabit LAN x 2
<b>Audio</b>	Realtek® ALC887 (Colay with ALC886)	Realtek® ALC662	Realtek® ALC662
<b>TPM</b>	20-1 PIN header for TPM 1.2/FW3.19	Infineon SLB9635TT 1.2(Optional)	Infineon SLB9635TT 1.2(Optional)
<b>Expansion Slots</b>	PCIe [x16] x 1, PCIe [x4] x 1, PCI x 5	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
<b>Graphics</b>			
<b>Graphics Chipset</b>	Intel® HD Graphics	Intel® Core™i7/i5/i3 + Q77	Intel® Core™i7/i5/i3 + Q67
<b>VGA</b>	Up to 1920 x 1200 @60Hz	1	1
<b>DVI</b>	Up to 1920 x 1200 @60Hz	1	1
<b>HDMI</b>	HDMI 1.4, up to 4096 x 2610 @24Hz	1 (by SKU)	1
<b>Display Port</b>	DP 1.2, up to 2560 x 1440 @60Hz	2 (by SKU)	—
<b>LVDS</b>	—	1	—
<b>Backlight Control</b>	—	Voltage/PWM	Voltage
<b>Environment &amp; Power &amp; ME</b>			
<b>Power Requirement</b>	24-pin ATX connector x 1, 8 pin ATX 12V Power connector x 1	12V DC	12V DC
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Operating Humidity</b>	0% ~ 90% RH, non-condensing	0% ~ 90% R/H, non-condensing	0% ~ 90% R/H, non-condensing
<b>Certificate</b>	CE & FCC Class A	CE/FCC	CE/FCC
<b>Form Factor</b>	ATX, 12" x 9.6" (305 mm x 244 mm)	ATX, 12" x 9.6" (305 mm x 244 mm)	ATX, 12" x 9.6" (305 mm x 244 mm)
<b>MTBF (Hours)</b>	86,000	56,000	52,000
<b>Panel I/O Ports</b>			
<b>USB</b>	USB 3.0 x 4, USB 2.0 port x 2	USB 3.0 x 2 with Type A connectors, USB 2.0 x 2 with Type A connectors	USB 2.0 x 4 with Type A connectors
<b>Display I/O</b>	DVI-D x 1, HDMI x 1, DP x 1 (or DVI-D x1, HDMI x2, by SKU)	DP x 2 or DP x 1+HDMI x 1, DVI-D x 1	HDMI x 1, DVI-D x 1, VGA x 1
<b>Audio I/O</b>	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out
<b>LAN I/O</b>	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
<b>Serial Port</b>	RS-232/422/485 x 1	RS-232/422/485 x 1	RS-232 x 1
<b>PS/2 Port</b>	Combo Port (Keyboard & Mouse) x 1	Mini-Din PS/2 K/B and Mouse x 1	Mini-Din PS/2 K/B and Mouse x 1
<b>Internal I/O Connectors</b>			
<b>Storage</b>	SATA 6.0Gb/s x 6, Supports RAID 0/1/5/10	SATA 6.0 Gb/s x 2, SATA 3.0 Gb/s x 4, Support RAID 0,1,5,10	SATA 6.0 Gb/s x 2, SATA 3.0 Gb/s x 4, Support RAID 0,1,5,10
<b>USB</b>	USB 2.0 x 8	USB 3.0 x 2, USB 2.0 x 6	USB 2.0 x 8
<b>Display I/O</b>	VGA x 1	VGA x 1, LVDS x 1	—
<b>Audio I/O</b>	—	—	—
<b>Serial Port</b>	RS-232 header x 5	RS-232 x 5	RS-232 x 3, RS-232/422/485 x 1
<b>PS/2 Port</b>	—	—	—
<b>Parallel Port</b>	LPT connector x 1	—	LPT x 1
<b>DIO</b>	8-bit x 1 (In/Out programmable)	8-bit programmable (4-in/4-out)	8-bit programmable (4-in/4-out)
<b>FAN</b>	4 pin CPU Fan x 1, 4-pin Chassis Fan x 2	4 pin CPU Fan x 1, 4-pin Chassis Fan x 1	4 pin CPU Fan x 1, 4-pin Chassis Fan x 1
<b>Power</b>	—	24-pin ATX connector x 1, 4-pin connector x 1	24-pin ATX connector x 1, 4-pin connector x 1
<b>Others</b>	—	—	IrDA x 1
<b>OS</b>			
<b>OS Support</b>	Windows® 7 32/64-bit, Windows® 8.1 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
<b>Note</b>			

# Board Level Products

## Industrial Motherboards



Model	IMBA-H61A	IBM-Q170A	IBM-Q87A
<b>System</b>			
<b>Processor</b>	Intel® 3rd/ 2nd Generation Core™ i7/i5/i3/ Pentium® / Celeron® 22nm LGA 1155 Processors	Intel® 6th Generation(Skylake-S) Core™ i7/i5/ i3/Pentium®/ Celeron® 14nm LGA1151 Socket Processor	Intel® 4th Generation Core™ i7/i5/i3/Pentium®/ Celeron® 22nm LGA 1150 socket Processor
<b>Chipset</b>	Intel® H61	Intel® Q170	Intel® Q87
<b>Memory</b>	240-pin DIMM x 2, max. 16GB, DDR3 1333/1066/800 , Dual channel	288-pin DIMM x 4, max. 64GB, DDR4 2133/1867, Dual channel	240-pin DIMM x 4, max. 32GB, DDR3 1600/1333, Dual channel
<b>I/O Chipset</b>	NCT6776F	NCT6791D, F81216HD	NCT6791D, F81216HD
<b>Ethernet</b>	Realtek RTL8111F Giga LAN x 2	LAN1: Intel® PHY I219LM Giga LAN, LAN2: Intel® I211AT Giga LAN	LAN1: Intel® PHY I217LM Giga LAN, LAN2: Intel® I210AT Giga LAN
<b>Audio</b>	Realtek® ALC887 (Colay with ALC886)	Realtek® ALC887 (Colay with ALC886)	Realtek® ALC887 (Colay with ALC886)
<b>TPM</b>	20-1 PIN header for TPM1.2/FW3.19	20-1 PIN header for TPM1.2/FW3.19	20-1 PIN header for TPM1.2/FW3.19
<b>Expansion Slots</b>	PCIe [x16] x 1, PCIe [x1]x 2, PCI x 4, Full/Half Size Mini-card x 1	PCIe [x16] x 1, PCIe [x4](open edge) x 1, PCIe[x1] (open edge) x 1, PCI x 1	PCIe [x16] x 1, PCIe [x4]x 1, PCI x 2, Half size Mini-Card x 1 (PCIe + USB or mSATA optional)
<b>Graphics</b>			
<b>Graphics Chipset</b>	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
<b>VGA</b>	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @60Hz
<b>DVI</b>	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @60Hz
<b>HDMI</b>	—	HDMI 1.4 up to 4096 x 2160 @24Hz	—
<b>Display Port</b>	—	—	DP 1.2, up to 3840 x 2160 @60Hz
<b>LVDS</b>	—	—	—
<b>Backlight Control</b>	—	—	—
<b>Environment &amp; Power &amp; ME</b>			
<b>Power Requirement</b>	24-pin ATX connector x 1, 4-pin ATX 12V Power connector x 1	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
<b>Operating Temperature</b>	32°F – 140°F (0°C – 60°C)	32°F – 140°F (0°C – 60°C)	32°F – 140°F (0°C – 60°C)
<b>Operating Humidity</b>	0% – 90%RH, non-condensing	0% – 90% RH, non-condensing	0% – 90% RH, non-condensing
<b>Certificate</b>	CE & FCC Class A	CE & FCC Class A	CE & FCC Class A
<b>Form Factor</b>	ATX, 12" x 9.6" (305 mm x 244 mm)	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)
<b>MTBF (Hours)</b>	136,599	—	100,000
<b>Panel I/O Ports</b>			
<b>USB</b>	USB 2.0 x 4	USB 3.0 x 10	USB 3.0 x 4, USB 2.0 x6
<b>Display I/O</b>	VGA x 1, DVI-D x 1	DVI-I x 1, HDMI x 2	DVI-D x 1, DP x 2, VGA x 1
<b>Audio I/O</b>	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out
<b>LAN I/O</b>	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
<b>Serial Port</b>	DB-9 COM x 2 (COM2 support RS-232/422/485)	DB-9 COM x 1 (support RS-232/422/485)	—
<b>PS/2 Port</b>	Keyboard Connector x 1, Mouse Connector x 1	Combo Port (Keyboard & Mouse) x 1	Combo Port (Keyboard & Mouse) x 1
<b>Internal I/O Connectors</b>			
<b>Storage</b>	SATA 3.0Gb/s x 4	SATA 6.0Gb/s x 6, Supports RAID 0/1/5/10	SATA 6.0Gb/s x 5, Supports RAID 0/1/5/10;
<b>USB</b>	USB 2.0 x 5	USB 2.0 x 4	Half size Mini-Card (PCIe + USB, mSATA optional) x 1, USB 2.0 x 2
<b>Display I/O</b>	—	—	—
<b>Audio I/O</b>	—	Speaker header x 1 (Line-out)	—
<b>Serial Port</b>	RS-232 header x 4	RS-232 header x 5	RS-232 header x 5, RS-232/422/485 x 1
<b>PS/2 Port</b>	—	—	—
<b>Parallel Port</b>	LPT connector x 1, Support SPP/EPP/ECP Mode	—	—
<b>DIO</b>	8-bit x 1 (In/Out programmable)	8-bit x 1 (In/Out programmable)	8-bit x 1 (In/Out programmable)
<b>FAN</b>	4 pin CPU Fan x 1, 4-pin Chassis Fan x 1	4 pin CPU Fan x 1, 4-pin Chassis Fan x 2	4 pin CPU Fan x 1, 4-pin Chassis Fan x 2
<b>Power</b>	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	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	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
<b>Others</b>	—	—	—
<b>OS</b>			
<b>OS Support</b>	Windows® XP 32-bit, Windows® 7 32/64-bit, Windows® 8 32/64-bit	Windows® 7 32/64-bit, Windows® 8.1 64-bit, Windows® 10 64-bit, ,Linux Fedora 64bit	Windows® 7 32/64-bit, Windows® 8 32/64-bit, Linux Fedora
<b>Note</b>			

# Board Level Products

## Industrial Motherboards



Model	IMBM-B75A	IMBM-H61A	IMBM-H61B
<b>System</b>			
<b>Processor</b>	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
<b>Chipset</b>	Intel® B75	Intel® H61	Intel® H61
<b>Memory</b>	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
<b>I/O Chipset</b>	ITE IT8783F	Fintech 81866D+81216HD	Fintech 81866D+81216HD
<b>Ethernet</b>	Realtek RTL8111F Giga LAN x 2	Realtek RTL8111F Giga LAN x 2	Realtek RTL8111F Giga LAN x 2
<b>Audio</b>	Realtek® ALC887	Realtek ALC887	Realtek ALC887
<b>TPM</b>	Infineon SLB9635 TT 1.2	—	—
<b>Expansion Slots</b>	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
<b>Graphics</b>			
<b>Graphics Chipset</b>	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
<b>VGA</b>	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @75Hz	Up to 1920 x 1200 @75Hz
<b>DVI</b>	—	Up to 1920 x 1200 @60 Hz	—
<b>HDMI</b>	Up to 1920 x 1080 @60Hz	—	—
<b>Display Port</b>	—	—	—
<b>LVDS</b>	—	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz
<b>Backlight Control</b>	—	Voltage/ PWM	Voltage/ PWM
<b>Environment &amp; Power &amp; ME</b>			
<b>Power Requirement</b>	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
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Operating Humidity</b>	0% ~ 90% RH, non-condensing CE & FCC Class A	0% ~ 80% RH, non-condensing CE & FCC Class A	0% ~ 80% RH, non-condensing CE & FCC Class A
<b>Form Factor</b>	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)
<b>MTBF (Hours)</b>	83,621	87,274	—
<b>Panel I/O Ports</b>			
<b>USB</b>	USB 3.0 x 2, USB 2.0 port x 2	USB 2.0 x 4 port	USB 2.0 port x 4
<b>Display I/O</b>	VGA x 1, HDMI x 3	VGA x 1, DVI-D x 1,	VGA x 2
<b>Audio I/O</b>	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out
<b>LAN I/O</b>	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
<b>Serial Port</b>	—	RS232 DB-9 connector x 2	RS232 DB-9 connector x 2
<b>PS/2 Port</b>	Keyboard Mouse Connector x 1, mouse connector x 1	Keyboard Connector x 1, Mouse Connector x 1	Keyboard Connector x 1, Mouse Connector x 1
<b>Internal I/O Connectors</b>			
<b>Storage</b>	SATA 6.0Gb/s x 1, SATA 3.0Gb/s x 4	SATA 3.0Gb/s x 3, CFast Socket x 1	SATA 3.0Gb/s x 3, CFast™ Socket x 1
<b>USB</b>	USB 3.0 x 2, USB 2.0 x 4	USB 2.0 x 4	USB 2.0 x 4
<b>Display I/O</b>	—	—	—
<b>Audio I/O</b>	—	—	—
<b>Serial Port</b>	RS-232/422/485 x 1, RS-232 header x 4	RS-232/422/485 x 2, RS-232 x9	RS-232/422/485 x 2, RS-232 x9
<b>PS/2 Port</b>	—	—	—
<b>Parallel Port</b>	LPT connector x 1, Support SPP/EPP/ECP Mode	LPT connector x 1, Support SPP/EPP/ECP Mode	LPT connector x 1, Support SPP/EPP/ECP Mode
<b>DIO</b>	8-bit x 1 (In/Out programmable)	8-bit x 1 (In/Out programmable)	8-bit x 1 (In/Out programmable)
<b>FAN</b>	4 pin CPU Fan x 1, 4-pin Chassis Fan x 2	4 pin CPU Fan x 1, 4-pin Chassis Fan x 1	4 pin CPU Fan x 1, 4-pin Chassis Fan x 2 (Fan2 optional)
<b>Power</b>	Front panel header x 2, IrDA header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1	Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1	Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1
<b>Others</b>	IrDA x 1	—	—
<b>OS</b>			
<b>OS Support</b>	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
<b>Note</b>			

# Board Level Products

## Networking Motherboards



Model	FWB-2250	FWB-7250	FWB-7350
<b>System</b>			
<b>Form Factor</b>	Networking Motherboard	Mini-ITX / Networking Motherboard	Networking Motherboard
<b>Processor</b>	Intel® Atom™ E3815 processor SoC	Intel® Celeron® J1900 2.0 GHz, Intel® Atom™ E3845 1.91 GHz	Intel® C2758 2.4 GHz (8 Core) Intel® C2558 2.4 GHz (Quad Core)
<b>System Memory</b>	204-pin DDR3L 1066/1333 MHz SODIMM x 2, up to 8 GB	204-pin DDR3L 1333MHz SODIMM x 2, up to 8GB	240-pin Dual channel ECC or non-ECC DDR3L 1600MHz UDIMM x 4, up to 64GB
<b>Chipset</b>	—	—	—
<b>Ethernet</b>	Intel® Ethernet Controller I211-AT, Gigabit Ethernet x 4	Intel® I210-AT (Co-lay with Intel® I211-AT), Gigabit Ethernet x 4	Marvell® PHY x 1, Gigabit Ethernet x 4
<b>Bypass Function</b>	1 Pair (Optional)	Supports up to 2 Pair	Supports 2 pair bypass function
<b>BIOS</b>	AMI BIOS	AMI BIOS	AMI BIOS
<b>Serial ATA</b>	SATA 3.0 Gb/s Connector x 2, (Optional CompactFlash™ Socket x 1)	CompactFlash Socket x 1, SATA II connector x 1 (Optional SATA II connector x 2)	SATA 6.0 Gb/s connector x 2, SATA 3.0 Gb/s connector x 3 CF socket x 1
<b>Expansion Interface</b>	Mini-Card Socket x 1(Optional)	Mini-Card socket w/ SIM card socket x 1	Mini-Card Slot x 1 (Full size)
<b>Power Requirement</b>	40W, 12V DC-in power connector	ATX 100W PSU	Flex ATX 24-pin connector 4-pin DC power out connector for HDD x 5
<b>Power Consumption</b>	Intel® Celeron® J1900 2.0 GHz, DDR3L 1333 2GB, 0.39A@ 100VAC, 1.21A@12V	Intel® Celeron® J1900 2.4 GHz, DDR3L 1600 4GB, 0.26A@ 100VAC	Intel® C2558 2.4 GHz, DDR3-1333 4GB, 0.39A@ 100VAC, 37.4W
<b>Board Size</b>	5.67" x 3.94" (114 mm x 100 mm)	6.7" x 6.7" (170mm x 170mm)	7.56" x 7.17" (192mm x 182mm)
<b>Watchdog Timer</b>	1~255 steps by software programming	1~255 steps by software programming	1~255 steps by software programming
<b>MTBF (Hours)</b>	90,000	110,000	109,334
<b>OS support</b>	Windows® 7 or above, Linux	Windows® 7 or above, Linux	Linux kernel 3.4 and above
<b>Display</b>			
<b>Chipset</b>	Intel® Atom™ E3815	Intel® Celeron® J1900 Intel® Atom™ E3845	—
<b>Graphic Engine</b>	Intel® HD	Intel HD Graphic	—
<b>Resolution</b>	2560 x 1600	2560 x 1600	—
<b>Outer Interface</b>	Reserved VGA Internal box header	Reserved Pin Header for Graphic Integrated Processor	—
<b>I/O</b>			
<b>LAN Port</b>	RJ-45 Port x 4	RJ-45 Port x 4	RJ-45 Port x 4
<b>Serial Port</b>	RJ-45 Console x 1	RJ-45 Console x 1	RJ-45 Console x 1
<b>Output Interface</b>	USB 2.0 x 2, USB 3.0 x 1(Optional)	USB 2.0 x 2	USB2.0 x 2
<b>LED</b>	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 (Optional)	Power LED x 1 HDD Active x 1 Status LED x 1 LAN LED x 1 (Optional Bypass LED x 2)
<b>Others</b>	HDD Active Power Button x 1 Software Programmable Reset Button x 1	Software Programmable Reset Button x 1	Power Button x 1 Software Programmable Reset Button x 1
<b>Environment</b>			
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 185°F (-40°C ~ 85°C)		-40°F ~ 185°F (-40°C ~ 85°C)
<b>Operating Humidity</b>	0%~90% @RH, non-condensing	0%~90% @RH, non-condensing	0%~90% @RH, non-condensing
<b>Note</b>			

# Board Level Products

## Networking Motherboards



Model	FWB-7401	FWB-7811
<b>System</b>		
<b>Form Factor</b>	Networking Motherboard	Networking Motherboard
<b>Processor</b>	Intel® LGA1150 4th Generation Core™ Processor	Intel® LGA1150 4th Generation Core™/Xeon Processor
<b>System Memory</b>	240-pin Dual channel DDR3L 1333/1600MHz UDIMM x 2, up to 16GB	240-pin Dual channel ECC or non-ECC DDR3L 1333/1600MHz UDIMM x 4, up to 32GB
<b>Chipset</b>	H81	C226
<b>Ethernet</b>	Intel® i211AT Gigabit Ethernet x 6	Intel® i211AT Gigabit Ethernet x 8
<b>Bypass Function</b>	Supports 2 pair bypass function	Supports 2 pair bypass function
<b>BIOS</b>	AMI BIOS	AMI BIOS
<b>Serial ATA</b>	SATA 6.0 Gb/s connector x 2, CF socket x 1	SATA 6.0 Gb/s connector x 5, CF socket x 1
<b>Expansion Interface</b>	Optional by riser card	Optional by riser card
<b>Power Requirement</b>	Flex ATX 24-pin connector 4-pin DC power out connector for HDD x 2	Flex ATX 24-pin connector 4-pin DC power out connector for HDD x 5
<b>Power Consumption</b>	Intel® i7-4770S 3.1GHz, DDR3-1600 4GB x 2, 1.27A@100VAC, 127.2W	Intel® Xeon E3-1225 V3 3.2GHz, DDR3-1333 4GB x 2, 1.42A@90VAC, 127.4W
<b>Board Size</b>	10.43" x 7.56" (265mm x 192mm)	10.43" x 7.56" (265mm x 192mm)
<b>Watchdog Timer</b>	1~255 steps by software programming	1~255 steps by software programming
<b>MTBF (Hours)</b>	106,215	115,771
<b>OS support</b>	Linux kernel 2.6 and above	Linux kernel 2.6 and above
<b>Display</b>		
<b>Chipset</b>	H81	C226
<b>Graphic Engine</b>	Integrated	Integrated
<b>Resolution</b>	—	—
<b>Outer Interface</b>	Reserve internal VGA pin header x 1	Reserve internal VGA pin header x 1
<b>I/O</b>		
<b>LAN Port</b>	RJ-45 Port x 6	RJ-45 Port x 8
<b>Serial Port</b>	RJ-45 Console x 1	RJ-45 Console x 1
<b>Output Interface</b>	USB3.0 x 2	USB3.0 x 2
<b>LED</b>	Power LED x 1 HDD Active x 1 Status LED x 1 LAN LED x 1 (Optional Bypass LED x 2)	Power LED x 1 HDD Active x 1 Status LED x 1 LAN LED x 1 (Optional Bypass LED x 2)
<b>Others</b>	Power Button x 1 Software Programmable Reset Button x 1	Power Button x 1 Software Programmable Reset Button x 1
<b>Environment</b>		
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
<b>Operating Humidity</b>	0%~90% @RH, non-condensing	0%~90% @RH, non-condensing
<b>Note</b>		

# Board Level Products

## RISC CPU Module

RISC CPU Module/ Xeon Industrial Server Motherboards



Model	GENE-1350
<b>System</b>	
Form Factor	3.5"
Processor	TI OMAP™ 3503/3530 600 MHz
System Memory	Onboard 128/256 MB (Optional) LP DDR RAM
Ethernet	Davicom DM9000AEP, 10/100Base-TX, RJ-45 x 1
Boot Loader	Microsoft Windows® CE 6.0 or Linux - Kernal 2.6.32
Watchdog Timer	Generate a time-out system reset
Expansion Interface	Mini-Card (with USB interface only) x 2, Proprietary Expansion Slot x 1
Battery	Lithium battery
Battery Charger	Linear tech LTC4100
Power Requirement	+9V to +24V DC
Power Consumption (Typical)	TI OMAP™ 3530, 128/256 MB LP DDR, 0.24A@+12V
Board Size	5.75"(L) x 4"(W) (146mm x 101.6mm)
Gross Weight	0.88 lb (0.4 kg)
Operating Temperature	32°F ~ 158°F (0°C ~ 70°C) -4°F ~ 158°F (-20°C ~ 70°C) for WiTAS 1 -40°F ~ 176°F (-40°C ~ 80°C) for WiTAS 2
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	100,000
<b>Display</b>	
VGA/LCD Controller	TI OMAP™ 3
Video Output	Up to 1280 x 768 for LCD Up to 1024 x 768 for CRT
Backlight Inverter Supply	Up to 18-bit single channel TTL/LVDS LCD
<b>I/O</b>	
Storage	256 MB NAND Flash, SD, MicroSD
Output Interface	RS-232 x 1, RS-232/422/485 (auto flow) x 1, TTL UART x 1
Universal Serial Bus	USB2.0 Host x 2, USB2.0 Client x 1
Digital I/O	Supports 8-bit (Programmable)
Audio	Line-in, Line-out, Mic-in, Speaker-out (1W Amplifier)
Touch Screen	Supports 4-wire resistive touch screen
Keypad Interface	Supports 6 x 6 matrix keypad
Motion Sensor	—
<b>Note</b>	



# Board Level Products

## Xeon Industrial Server Motherboards



Model	CMB-A9SC2	CMB-A9DP2
<b>System</b>		
<b>Form Factor</b>	Micro ATX	EEB
<b>Processor</b>	Socket LGA 1155, Intel® Xeon™ E3 -1200 Series Processors Socket LGA 1155, Intel® Core™ i3 -2100 Processors Socket LGA 1155, Intel® Pentium® G800/G600 Processors Socket LGA 1155, Intel® Celeron® G500/G400 Processors	Support dual processor with socket type 2011 Intel® Xeon® processor E5-1600, E5-2600 v2 product family
<b>System Memory</b>	204-pin Dual channel DDR3 1066/1333/1600MHz, UDIMM, with ECC, up to 32GB	DDR 1333/1600 slot x 12 with maximum capacity up to 284 GB
<b>Chipset</b>	Intel® C202	Intel® C602-A PCH
<b>I/O Chipset</b>	—	—
<b>Ethernet</b>	Intel® 82574L, RJ-45 x 2, Management, RJ-45 x 1	Intel® 82574L x 2 + Management LAN x 1
<b>BIOS</b>	AMI	—
<b>H/W monitoring</b>	CPU Temperature, Cooling Fan status	—
<b>Management Solution</b>	—	ASWM Enterprise, AS MB6-iKVM for KVM-over-Internet
<b>Expansion Interface</b>	PCI-E [x16] x 1 PCI-E [x8] x 1 PCI 32-bit x 1	Slot Location 1: PCI-E [x8] (Gen3 X8 Link) Slot Location 2: PCI-E [x8] (Gen3 X8 Link) Slot Location 3: PCI-E [x8] (Gen3 X8 Link) Slot Location 4: PCI-E [x8] (Gen3 X8 Link) Slot Location 5: PCI-E [x8] (Gen3 X8 Link) Slot Location 6: PCI-E [x16] (Gen3 x16 Link), Auto switch to x8 link if slot 5 is occupied Slot Location 7: PCI-E [x8] (Gen3 X8 Link) Additional Slot 1: PIKE Slot for Storage expansion Follow SSI Location#
<b>Power Requirement</b>	—	—
<b>Board Size</b>	9.6" (L) x 9.6" (W) (244mm x 244mm)	12" x 13"
<b>Gross Weight</b>	10 pcs in BULK package	—
<b>Operation Temperature</b>	50°F ~ 95°F (10°C ~ 35°C)	—
<b>Display</b>		
<b>Chipset</b>	Aspeed AST2050	Aspeed AST2300
<b>Memory</b>	16MB VRAM	16 MB VRAM
<b>Resolution</b>	1920 x 1200 @60Hz 32bpp, 1600 x 1200 @60Hz 32bpp	—
<b>Output Interface</b>	VGA x 1	—
<b>I/O</b>		
<b>Storage</b>	SATA 6.0Gb/s x 6, support software RAID 0,1,5,10	SATA Controller : Intel® C602-A AHCI SATA2 (3.0 Gb/s) ports x 4, SATA3 (6.0 Gb/s) ports x 2 Intel® Rapid Storage Technology Enterprise(RSTe) (For Windows Only) (Support Software RAID 0, 1, 5, 10 ) LSI® MegaRAID (For Linux/Windows) (Support Software RAID 0, 1, 10 ) SATA Controller : Intel® C602-A SCU SATA2 (3.0 Gb/s) ports x 4 Intel® Rapid Storage Technology Enterprise(RSTe) (For Windows Only) (Support Software RAID 0, 1, 5, 10 )
<b>Serial Port</b>	RS-232 x 1	—
<b>USB</b>	USB2.0 x 2	External USB Port x 2
<b>PS/2 Port</b>	Keyboard/Mouse x 1	
<b>Note</b>		

# Board Level Products

## Full-size SBCs — PICMG 1.3 SBC/ PICMG 1.0 SBC



Model	FSB-H81H	FSB-B75H	FSB-B75G
<b>System</b>			
<b>Form Factor</b>	Full Size CPU Card	Full size CPU Card	Full size CPU Card
<b>Bus Interface</b>	PICMG 1.3	PICMG 1.3	PICMG 1.0
<b>CPU</b>	LGA 1150 for Intel® 4th Gen. Core™ i7/ i5/i3 processor	LGA 1155 for Intel® Core™ i7/i5/i3 processor	LGA 1155 for Intel® 3rd Generation Core™ i3/i5/i7 Processor
<b>Memory Type</b>	Up to 16 GB (DDR3/DDR3L 1333/1600 non-ECC DIMM x 2)	Up to 16 GB (DDR 3 1333/1666 DIMM x 2)	Up to 16 GB (DDR 3 1333/1600 DIMM x 2)
<b>Chipset</b>	Intel® H81	Intel® B75	Intel® B75
<b>BIOS</b>	AMI	AMI	AMI
<b>Wake on LAN</b>	No	No	No
<b>Watchdog Timer</b>	255 Levels	255 Levels	255 Levels
<b>Watchdog Timer</b>	Yes	Yes	Yes
<b>Power Requirement</b>	ATX 2.1	ATX 2.1	ATX 2.1
<b>Power Consumption (Typical)</b>	Intel® Core™ i7-4790S 3.2 GHz, DDR3 8 GB, 2.55A@+12V, 2.07A@+5V, 47.15W (Full load)	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)	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)
<b>Dimension (L x W)</b>	13.3" x 5" (339 mm x 126 mm)	13.3" x 5" (339 mm x 126 mm)	13.3" x 5" (339 mm x 126 mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	100,000	60,000	60,000
<b>Certification</b>	CE/FCC, Class A	CE/FCC, Class A	CE/FCC, Class A
<b>Display</b>			
<b>VGA/LCD Controller</b>	Intel® H81	Intel® B75	Intel® B75
<b>Video Output</b>	Up to 2048 x 1536 @ 75Hz for CRT, Up to 1920 x 1200 @ 60Hz for DVI (single link)	Up to 2048 x 1536@75 Hz for CRT, Up to 1920 x 1200 @ 60Hz for DVI (single link)	Up to 2048 x 1536 @75 Hz for CRT
<b>Backlight Inverter Supply I/O</b>	—	—	—
<b>Ethernet</b>	10/100/1000Base-TX x 2	10/100/1000Base-TX x 2	10/100/1000Base-TX x 2
<b>Output Interface</b>	HDAC Daughter Board, Mic-in/ Line-in/ Line-out (optional)	HDAC Daughter Board (optional), Mic-in/ Line-in/ Line-out	HDAC Daughter Board (optional), Mic-in/ Line-in/ Line-out/ CD-in
<b>USB Port</b>	USB 3.0 x 2, USB 2.0 x 6	USB 3.0 x 4, USB 2.0 x 4	USB3.0 x 4, USB2.0 x 6
<b>Serial Port</b>	RS-232 x 4, RS-232/422/485 x 2	RS-232 x 1, RS-232/422/485 x 1	RS-232 x 1, RS-232/422/485 x 1
<b>Parallel Port</b>	1	1	1
<b>HDD Interface</b>	SATA 3 x 2 + SATA 2 x 2	SATA 3 x 1, SATA 2 x 2	SATA 3 x 1, SATA 2 x 2
<b>FDD Interface</b>	—	—	Optional
<b>SSD</b>	CFast™ x 1	CFast™ x 1	CFast™ x 1
<b>Expansion Slot</b>	PCI x 4, PCI-Express [x4] x 1, PCI-Express [x16] x 1	PCI x 4, PCI-Express [x4] x 1, PCI-Express [x16] x 1 in backplane	PCI x 4/ ISA
<b>DIO</b>	8-bit programmable (4-in/4-out)	8-bit programmable (4-in/4-out)	8-bit programmable (4-in/4-out)
<b>TPM</b>	—	—	—
<b>Note</b>			

# Board Level Products

## Half-size SBCs — PCI/ ISA



Model	HSB-CV1P	HSB-LN2I	HSB-800I
<b>System</b>			
<b>Form Factor</b>	Half-size CPU Card	Half-size CPU Card	Half-size CPU Card
<b>Bus Interface</b>	PCI	ISA	ISA
<b>CPU</b>	Onboard Intel® Atom™ D2550/ N2600	Intel® Atom™ D525/N455	Onboard AMD Geode™ LX800
<b>Memory Type</b>	DDR 3 800/ 1066 SODIMM x 1, max. 4 GB	Up to 4 GB (DDR 3 800 SODIMM)	Onboard 128 MB (DDR 400)
<b>Chipset</b>	Intel® NM10	Intel® Atom™ D525/N455 + ICH8M	AMD Geode™ LX800 + CS 5536
<b>BIOS</b>	AMI	AMI	Award
<b>Wake on LAN</b>	No	No	No
<b>Watchdog Timer</b>	255 Levels	255 Levels	255 Levels
<b>Watchdog Timer</b>	ATX 2.1	ATX 2.1	ATX 2.1
<b>Power Requirement</b>	Intel® Atom™ D2550 1.86 GHz, DDR3 4 GB, 0.1A @+12V, 0.95A@+5V, 5.95W	Intel® Atom™ D525 1.8GHz, DDR3 4 GB (Full load), 0.5A@+12V, 2.86A@ +5V	AMD LX800, DDR400 128MB, 0.19A@+12V, 1.51A@+5V, 9.83W
<b>Power Consumption (Typical)</b>	ATX 2.1 (+12V)	+5V, +12V for ISA bus	+5V, +12V operation
<b>Dimension (L x W)</b>	7.3" x 4.8" (185mm x 122mm)	7.3" x 4.8" (185mm x 122mm)	7.3" x 4.8" (185mm x 122mm)
<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
<b>Storage Temperature</b>	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
<b>Operating Humidity</b>	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
<b>MTBF (Hours)</b>	80,000	73,000	85,000
<b>Certification</b>	CE/FCC, Class A	CE/FCC, Class A	CE/FCC, Class A
<b>Display</b>			
<b>VGA/LCD Controller</b>	Intel® NM10	Intel® Atom™ D525/N455 integrated	AMD Geode™ LX800
<b>Video Output</b>	Up to 1920 x 1200 for CRT Up to 1440 x 900, (D2550) 18-bit & 24-bit Single channel for LVDS Up to 1366 x 768, (N2600) 18 bit single channel for LVDS	VGA, 18b 1 CH LVDS	1600 x 1200@32bpp at 100 MHz for CRT 1600 x 1200@24bpp for LCD
<b>Backlight Inverter Supply I/O</b>	5V/12V	5V/12V	5V/12V
<b>Ethernet</b>	10/100/1000Base-TX x 2	10/100/1000Base-TX x 2	10/100 or 10/100/1000Base-TX (optional)
<b>Output Interface</b>	HD codec daughter board (optional)	Yes	Yes
<b>USB Port</b>	USB2.0 x 8	USB2.0 x 5	USB2.0 x 4
<b>Serial Port</b>	RS-232 x 3 (-12V Required)	RS-232 x 1 (-12V required), RS-232/422/485 x 1	RS-232 x 3, RS-232/422/485 x 1
<b>Parallel Port</b>	1	1	1
<b>HDD Interface</b>	SATA 2 x 2	IDE x 1, SATA 2 x 3	IDE x 1
<b>FDD Interface</b>	—	—	1
<b>SSD</b>	CompactFlash™	CompactFlash™	CompactFlash™
<b>Expansion Slot</b>	PCI x 4	ISA	ISA, PC/104
<b>DIO</b>	8-bit Programmable (4-in/4-out)	8-bit Programmable (4-in/ 4-out)	8-bit Programmable (4-in/4-out)
<b>TPM</b>	—	—	—
<b>Note</b>			

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**Focus • Agility • Competitiveness**

# **System Level Products**

# System Level Products

## Industrial HMI Touch Panel Solutions



Model	AHP-1154	AHP-1152
<b>System</b>		
<b>Processor</b>	Intel® Celeron® J1900 ,2 GHz / N2807, 1.58 GHz	Onboard Intel® Atom™ D510, 1.66 GHz
<b>System Memory</b>	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB (J1900), 4 GB (N2807)	200-pin DDR2 667/800 MHz SODIMM x 1, up to 2 GB, default 2 GB RAM inside
<b>LCD/CRT Controller</b>	Default 2 GB	Integrated in processor, shared memory up to 224 MB
<b>Ethernet</b>	Integrated in processor	10/100/1000Base-TX, RJ-45 x 2
<b>I/O Port</b>	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	USB 2.0 x 4, RS-232 x 2, RS-232/422/485 x 1, LAN x 2, VGA x 1
<b>Storage Disk Drive</b>	CFast™ Socket x 1, SATA 2.5" HDD bay x 1	2.5" SATA HDD/ CompactFlash™ slot (internal)
<b>Expansion Slot</b>	Mini-Card x 2 (Full Size, Half Size)	Mini-Card x 1
<b>OS support</b>	Windows® 10, Windows® 8.1, Windows® 7, WES 7, Linux kernel 2.6.x or above, Android 4.4.4	Windows® XP Embedded, Windows® XP, Windows® 7 32-bit, Windows® Embedded Standard 7 32-bit, Linux kernel 2.6.3 or above
<b>Mechanical</b>		
<b>Construction</b>	Plastic (ABS) front bezel + metal chassis	IP65 plastic front panel, plastic gray panel
<b>Color</b>	—	PMS 5425C + Gray
<b>Mounting</b>	VESA 100/ VESA 75/ Panel mount	VESA 100/ VESA 75/ Panel mount
<b>Dimension</b>	16.02" x 12.22" x 2.3" (407mm x 310.5mm x 58.3mm)	16"(W) x 12.2"(H) x 2.6"(D) (407mm x 310.5mm x 65mm)
<b>Carton Dimension</b>	—	20.67"(W) x 18.31"(H) x 9.1"(D) (525mm x 465mm x 230mm)
<b>Gross Weight</b>	14.96 lb (6.8 kg)	11.9 lb (5.4 kg)
<b>Net Weight</b>	—	—
<b>Environmental</b>		
<b>Operating Temperature</b>	-10°C ~ 60°C with 0.5 m/s airflow (N2807) -10°C ~ 50°C with 0.5 m/s airflow (J1900)	32°F ~ 122°F (0°C ~ 50°C)
<b>Storage Temperature</b>	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Storage Humidity</b>	90% @40°C, non-condensing	5%~90% @ 40°C, non-condensing
<b>Vibration</b>	—	3 Grms/ 5~ 500Hz/ operation – with HDD
<b>Shock</b>	—	20 G peak acceleration (11 msec. duration)
<b>EMC</b>	—	CE/FCC class A
<b>Power Supply</b>		
<b>DC input</b>	DC 12V/DC 9 ~ 30 V	DC 12V w/ 3-pin terminal block
<b>LCD</b>		
<b>Display type</b>	15" TFT-LCD, LED backlight	15" TFT-LCD
<b>Max Resolution</b>	1024 x 768	1024 x 768
<b>Max. Colors</b>	16.7M colors (8-bit for R,G,B)	16.7M colors
<b>Luminance</b>	450 cd/m <sup>2</sup>	HTT: 450 cd/m <sup>2</sup> , STT: 800 cd/m <sup>2</sup>
<b>Viewing Angle</b>	160°(H), 140°(V)	HTT: 160(H), 140(V) / STT: 160°(H), 140°(V)
<b>Back Light</b>	—	LED
<b>Back Light MTBF (Hours)</b>	100,000	HTT: 100,000/ STT:100,000
<b>Touchscreen</b>		
<b>Type</b>	5-wire, analog resistive	5-wire, analog resistive
<b>Light Transmission</b>	80%	80%
<b>Life Time</b>	10 million activations	10 million activations

# System Level Products

## Industrial HMI Touch Panel Solutions



Model	AHP-1125	AHP-1123
<b>System</b>		
<b>Processor</b>	Intel® Atom™ N3700 processor, 1.6 GHz (Quad-Core) Intel® Atom™ N3050 processor, 1.6 GHz (Dual-Core)	Onboard Intel® Atom™ D2550 1.86 GHz
<b>System Memory</b>	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
<b>LCD/CRT Controller</b>	Intel® Atom™ N3700/N3050 Processor SoC	Integrated in processor
<b>Ethernet</b>	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 2
<b>I/O Port</b>	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
<b>Storage Disk Drive</b>	CFast™ x 1, 2.5" SATA HDD bay x 1	2.5" SATA HDD/ CFast™ slot (internal)
<b>Expansion Slot</b>	Half-size Mini-Card x 1 (Internal) Full size Mini-Card x 1 (Internal)	Mini-Card x 1
<b>OS support</b>	Windows® 7, Windows® 8.1, Windows® 10, Linux kernel 2.6.3 or above	Windows® XP Embedded, Windows® XP, Windows® 7 32-bit, Windows® Embedded Standard 7 32-bit, Linux kernel 2.6.3 or above
<b>Mechanical</b>		
<b>Construction</b>	Plastic Front Bezel + Aluminum Chassis	IP65 plastic front bezel
<b>Color</b>	—	—
<b>Mounting</b>	VESA 100/ Panel mount/ Stand	VESA100/ Panel mount
<b>Dimension</b>	—	12.5"(W) x 9.6"(H) x 2.5"(D) (317mm x 243mm x 63.5mm)
<b>Carton Dimension</b>	—	—
<b>Gross Weight</b>	—	10.1 lb (4.6 kg)
<b>Net Weight</b>	—	7.9 lb (3.6 kg)
<b>Environmental</b>		
<b>Operating Temperature</b>	32°F ~ 131°F (0°C ~ 55°C) w/ airflow 32°F ~ 122°F (0°C ~ 50°C) w/o airflow	32°F ~ 131°F (0°C ~ 55°C) w/ airflow 32°F ~ 122°F (0°C ~ 50°C) w/o airflow
<b>Storage Temperature</b>	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
<b>Storage Humidity</b>	90% @40°C, non-condensing	10~95% @40°C, non-condensing
<b>Vibration</b>	1 Grms / 5~ 500Hz / operation – with HDD	1 Grms / 5~ 500Hz / operation – with HDD
<b>Shock</b>	15G peak acceleration (11 msec. duration) – with HDD	15G peak acceleration (11 msec. duration) – with HDD
<b>EMC</b>	CE/FCC class A	CE/FCC class A
<b>Power Supply</b>		
<b>DC input</b>	DC12V, DC 9~30V	DC 12V input, w/3-pin terminal block
<b>LCD</b>		
<b>Display type</b>	12.1" TFT-LCD, LED	12.1" TFT LCD
<b>Max Resolution</b>	1024 x 768	1024 x 768
<b>Max. Colors</b>	16.2M colors (6/8-bit for R,G,B)	16.2M colors
<b>Luminance</b>	500 cd/m <sup>2</sup>	500 cd/m <sup>2</sup>
<b>Viewing Angle</b>	160°(H), 160°(V)	160°(H), 160°(V)
<b>Back Light</b>	LED	LED
<b>Back Light MTBF (Hours)</b>	50,000	50,000
<b>Touchscreen</b>		
<b>Type</b>	5-wire resistive	5-wire, analog resistive
<b>Light Transmission</b>	80%	80%
<b>Life Time</b>	10 million activations	10 million activations

# System Level Products

## Industrial HMI Touch Panel Solutions



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



# System Level Products

## Wide Temp. HMI Touch Panel Solutions



Model	AHP-2173	AHP-2176
<b>System</b>		
<b>Processor</b>	Onboard Intel® Atom™ D2550, 1.86 GHz	Onboard Intel® Celeron® 827E, 1.4 GHz/ Core™ i7-2610UE, 1.5 GHz
<b>System Memory</b>	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
<b>LCD/CRT Controller</b>	Integrated in NM10	Integrated in Intel® QM67 chipset
<b>Ethernet</b>	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 2
<b>I/O Port</b>	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
<b>Storage Disk Drive</b>	2.5" SATA HDD/ CFast™ slot (internal)	2.5" SATA HDD/ CFast™ slot (internal)
<b>Expansion Slot</b>	Mini-Card x 1	Mini-Card x 1
<b>OS support</b>	Windows® XP Embedded, Windows® XP, Windows® 7 32-bit, Windows® Embedded Standard 7 32-bit, Linux kernel 2.6.3 or above	Windows® XP Embedded, Windows® XP, Windows® 7 32-bit, Windows® Embedded Standard 7 32-bit, Linux kernel 2.6.3 or above
<b>Mechanical</b>		
<b>Construction</b>	IP65/ NEMA4 aluminum die cast front bezel & aluminum chassis	IP65/ NEMA4 aluminum die cast front bezel & aluminum chassis
<b>Color</b>	—	—
<b>Mounting</b>	Panel mount/ Desktop/ VESA100/ Wallmount	Desktop/ VESA100/ Rackmount/ Wallmount/ Panel mount
<b>Dimension</b>	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)
<b>Carton Dimension</b>	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)
<b>Gross Weight</b>	18.7 lb (8.5 kg)	23.1 lb (10.5 kg)
<b>Net Weight</b>	13.2 lb (6 kg)	17.82 lb (8.1 kg)
<b>Environmental</b>		
<b>Operating Temperature</b>	-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
<b>Storage Temperature</b>	-20°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
<b>Storage Humidity</b>	10~95% @40°C, non-condensing	10~95% @40°C, non-condensing
<b>Vibration</b>	1 Grms/5-500 Hz/ random operation (HDD)	3 Grms/ 5~500 Hz/ random operation (HDD)
<b>Shock</b>	20 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration)
<b>EMC</b>	CE/FCC class A	CE/FCC class A
<b>Power Supply</b>		
<b>DC input</b>	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
<b>LCD</b>		
<b>Display type</b>	17" TFT-LCD	17" TFT-LCD
<b>Max Resolution</b>	1280 x 1024	1280 x 1024
<b>Max. Colors</b>	16.7M colors	16.7M colors
<b>Luminance</b>	350 cd/m <sup>2</sup>	350 cd/m <sup>2</sup>
<b>Viewing Angle</b>	170°(H), 160°(V)	170°(H)/160°(V)
<b>Back Light</b>	LED	LED
<b>Back Light MTBF (Hours)</b>	50,000	50,000
<b>Touchscreen</b>		
<b>Type</b>	5-wire resistive	5-wire resistive
<b>Light Transmission</b>	80%	80%
<b>Life Time</b>	10 million activations	10 million activations

# System Level Products

## Wide Temp. HMI Touch Panel Solutions



Model	AHP-2153	AHP-2122
<b>System</b>		
<b>Processor</b>	Onboard Intel® Dual Core™ Atom™ D2550	Onboard Intel® Atom™ D525, 1.8 GHz
<b>System Memory</b>	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
<b>LCD/CRT Controller</b>	Integrated in processor	Integrated in Processor
<b>Ethernet</b>	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 2
<b>I/O Port</b>	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
<b>Storage Disk Drive</b>	2.5" SATA HDD/ CFast™ slot (internal)	2.5" SATA HDD/ CompactFlash™ Slot (Internal)
<b>Expansion Slot</b>	Mini-Card x 1	Mini-Card x 1
<b>OS support</b>	Windows® XP Embedded, Windows® XP, Windows® 7 32-bit, Windows® Embedded Standard 7 32-bit, Linux kernel 2.6.3 or above	Windows® XP, Windows® 7, Windows® CE, Linux Fedora
<b>Mechanical</b>		
<b>Construction</b>	IP65/ NEMA4 aluminum die cast front bezel & aluminum chassis	IP65/ NEMA4 aluminum die cast front bezel & metal chassis
<b>Color</b>	—	—
<b>Mounting</b>	Desktop/ VESA100/ Rackmount/ Wallmount/ Panel mount	Panel mount/ Wallmount/ VESA 100/ Desktop
<b>Dimension</b>	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)
<b>Carton Dimension</b>	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)
<b>Gross Weight</b>	18.96 lb (8.62 kg)	19.8 lb (9 kg)
<b>Net Weight</b>	13.64 lb (6.2 kg)	15.4 lb (7 kg)
<b>Environmental</b>		
<b>Operating Temperature</b>	-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
<b>Storage Temperature</b>	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
<b>Storage Humidity</b>	10~95% @ 40°C, non-condensing	10~95% @ 40°C, non-condensing
<b>Vibration</b>	1 Grms/ 5~500Hz/ random operation (HDD)	1 Grms/5~500Hz/ random operation (HDD)
<b>Shock</b>	20 G peak acceleration (11 msec. duration)	20 G peak acceleration (11 msec. duration)
<b>EMC</b>	CE/FCC class A	CE/FCC class A
<b>Power Supply</b>		
<b>DC input</b>	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
<b>LCD</b>		
<b>Display type</b>	15" TFT-LCD	12.1" TFT-LCD
<b>Max Resolution</b>	1024 x 768	1024 x 768
<b>Max. Colors</b>	16.7M colors	262k colors
<b>Luminance</b>	HTT: 450 cd/m <sup>2</sup> , STT: 800 cd/m <sup>2</sup>	HTT: 500 cd/m <sup>2</sup> , STT: 1000 cd/m <sup>2</sup>
<b>Viewing Angle</b>	160°(H)/ 140°(V)	HTT: 160°(H)/160°(V), STT: 160°(H)/140°(V)
<b>Back Light</b>	LED	HTT: LED, STT: LED
<b>Back Light MTBF (Hours)</b>	HTT: 50,000, STT: 100,000	HTT: 50,000, STT: 100,000
<b>Touchscreen</b>		
<b>Type</b>	5-wire resistive	5-wire, analog resistive
<b>Light Transmission</b>	80%	80%
<b>Life Time</b>	10 million activations	10 million activations

# System Level Products

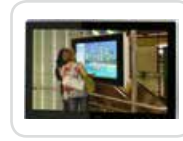
## Industrial Modular Touch Panel Solutions



Model	OMNI-2155	OMNI-2215-BT
<b>System</b>		
<b>Processor</b>	Intel® Celeron® J1900, 2 GHz/ N2807, 1.58 GHz	Intel® N2807 processor, 1.58 GHz, Intel® J1900 processor, 2 GHz
<b>System Memory</b>	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB (J1900), 4 GB (N2807)	204-Pin DDR3L SODIMM x 1, default 2 GB, up to 8 GB (J1900) 204-Pin DDR3L SODIMM x 1, default 2 GB, up to 4 GB (N2807)
<b>LCD/CRT Controller</b>	Integrated in Processor	Integrated in processor
<b>Ethernet</b>	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 2
<b>I/O Port</b>	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)	DB9 Type RS-232/422/485 x 1 USB 2.0 x 3, USB 3.0 x 1, HDMI x 1 RJ-45 10/100/1000 LAN x 1, Lockable power input connector Power switch x 1
<b>Storage Disk Drive</b>	CFast™ socket x 1, SATA 2.5" HDD bay x 1	CFast™ x 1, 2.5" SATA HDD bay x 1
<b>Expansion Slot</b>	Mini-Card x 2 (Full Size)	Full size Mini-Card x 2
<b>OS support</b>	Windows® 7, WES 7, Windows® 8, Windows® 10, Linux kernel 2.6.x or above	Window® 7, Window® 8.1, Window® 10, Linux kernel 2.6.3 or above
<b>Mechanical</b>		
<b>Construction</b>	Aluminum front bezel + metal chassis	Aluminum design
<b>Color</b>	—	—
<b>Mounting</b>	VESA 100/ Panel mount	VESA 100/ Panel mount
<b>Dimension</b>	16.54" x 10.43" x 2.36" (420 mm x 265 mm x 60 mm)	—
<b>Carton Dimension</b>	—	—
<b>Gross Weight</b>	6.6 lb (3 kg)	—
<b>Net Weight</b>	—	—
<b>Environmental</b>		
<b>Operating Temperature</b>	-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)
<b>Storage Temperature</b>	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
<b>Storage Humidity</b>	90% @40°C, non-condensing	90% @40°C, non-condensing
<b>Vibration</b>	1 Grms/ 5 ~ 500 Hz/ Operation (HDD)	1 Grms / 5~ 500Hz / operation – with HDD
<b>Shock</b>	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration) – with HDD
<b>EMC</b>	CE/FCC class A	CE/FCC class A
<b>Power Supply</b>		
<b>DC input</b>	DC 9 ~ 30 V	DC 9~30V, with lockable power adapter
<b>LCD</b>		
<b>Display type</b>	15.6" TFT-LCD, LED backlight	21.5" TFT-LCD, LED
<b>Max Resolution</b>	1366 x 768	1920 x 1080
<b>Max. Colors</b>	16.7M colors (8-bit for R,G,B)	16.7M colors (6/8-bit for R,G,B)
<b>Luminance</b>	400 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Viewing Angle</b>	160°(H), 140°(V)	170°(H), 160°(V)
<b>Back Light</b>	—	LED
<b>Back Light MTBF (Hours)</b>	50,000	50,000
<b>Touchscreen</b>		
<b>Type</b>	P-CAP/ 5-wire resistive	P-CAP/ 5-wire resistive
<b>Light Transmission</b>	Projective capacitive multi-touch (2-point)	Projective capacitive multi-touch (2-point)

# System Level Products

## Infotainment Multi-Touch Panel Solutions



Model	ACP-5217	ACP-5153
<b>System</b>		
<b>Processor</b>	Intel® Core™ i7-3610QE, Intel® Core™ i5-3610ME Intel® Celeron® 1020E	Intel® Atom™ D2550 processor, 1.86 GHz
<b>System Memory</b>	DDR3 SODIMM x 1, up to 8 GB, default 2 GB	DDR3 SODIMM up to 4 GB, default 2 GB
<b>LCD/CRT Controller</b>	Integrated in Intel® QM77 chipset	Integrated in Intel® NM10 chipset
<b>Ethernet</b>	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 2
<b>I/O Port</b>	RS-232 x 1, USB 2.0 x 6 (2 on side, 4 on rear), Line-out x 1, DVI-I x 1	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 connector, power switch x 1
<b>Storage Disk Drive</b>	2.5" SATA HDD/ CFast™ slot (internal)	2.5" SATA HDD/ CFast™ (internal)
<b>Expansion Slot</b>	Mini-Card x 1	Mini-PCIe card x 1
<b>OS support</b>	Windows® XP (T/S: Single point), Linux Fedora (T/S: multi-point), Windows® 7 (T/S: multi-point)	Windows® XP 32-bit, Windows® 7 32-bit, Linux kernel 2.6.3 or above
<b>Mechanical</b>		
<b>Construction</b>	IP65/ NEMA4 plastic front bezel, IPX1 for plastic back chassis	IP65 / NEMA 4 plastic front bezel, IPX1 plastic chassis
<b>Color</b>	—	—
<b>Mounting</b>	VESA 100	VESA 75/100
<b>Dimension</b>	21.57" x 13.7" x 2.2" (546mm x 348.1mm x 86mm)	15.5" x 10.7" x 2.44" (394mm x 272mm x 62mm)
<b>Carton Dimension</b>	26" x 19.52" x 7.87" (661mm x 496mm x 200mm)	20.47" x 18.5" x 9.06" (520mm x 470mm x 230mm)
<b>Gross Weight</b>	24.2 lb (11 kg)	12.1 lb (5.5 kg)
<b>Net Weight</b>	19.8 lb (9 kg)	—
<b>Environmental</b>		
<b>Operating Temperature</b>	32°F ~ 104°F (0°C ~ 40°C) (w/o airflow)	32°F ~ 104°F (0°C ~ 40°C) w/o airflow
<b>Storage Temperature</b>	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
<b>Storage Humidity</b>	10~95% @ 40°C, non-condensing	10%~90% @40°C, non-condensing
<b>Vibration</b>	1 Grms/ 5~500Hz/ random operation (HDD)	1 Grms/ 5~ 500Hz/ operation – with HDD
<b>Shock</b>	20 G peak acceleration (11 msec. duration)	20 G peak acceleration (11 msec. duration) – with HDD
<b>EMC</b>	CE/FCC class A	CE/FCC class A
<b>Power Supply</b>		
<b>DC input</b>	DC 12V, with lockable AC power adapter	DC12V, with lockable power adapter
<b>LCD</b>		
<b>Display type</b>	21.5" TFT-LCD, LED	15.6" TFT-LCD, LED
<b>Max Resolution</b>	1920 x 1080	1366 x 768
<b>Max. Colors</b>	16.7 M colors (6/8-bit for R,G,B)	16.7M colors (6/8-bit for R,G,B)
<b>Luminance</b>	250 cd/m <sup>2</sup>	400 cd/m <sup>2</sup>
<b>Viewing Angle</b>	170°(H), 160°(V)	160°(H), 140°(V)
<b>Back Light</b>	LED	LED
<b>Back Light MTBF (Hours)</b>	30,000	50,000
<b>Touchscreen</b>		
<b>Type</b>	Projected capacitive multi-touch (2-point)	Projected capacitive multi-touch (2-point)
<b>Light Transmission</b>	88%	90%
<b>Life Time</b>	—	—

# System Level Products

## Infotainment Multi-Touch Panel Solutions



Model	ACP-1104	ACP-1103
<b>System</b>		
<b>Processor</b>	Intel® Atom™ J1900 processor, 2 GHz Intel® Atom™ N2807 processor, 1.58 GHz	Intel® Atom™ N2600 1.6 GHz processor
<b>System Memory</b>	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
<b>LCD/CRT Controller</b>	—	Integrated in Intel® NM10 chipset
<b>Ethernet</b>	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 1
<b>I/O Port</b>	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
<b>Storage Disk Drive</b>	Half size mSATA x 1 (Installation by AAEON recommended)	Half size mSATA storage (Installation by AAEON recommended)
<b>Expansion Slot</b>	Full size Mini-Card x 1	WiFi (by module)
<b>OS support</b>	Window® 7, Window® 8.1, Linux kernel 2.6.3 or above, Android 4.4.4	Windows® XP 32-bit, Windows® 7 32-bit, Linux kernel 2.6.3 or higher
<b>Mechanical</b>		
<b>Construction</b>	Aluminum Design	IP65/NEMA 4 Aluminum front bezel, aluminum back chassis
<b>Color</b>	—	—
<b>Mounting</b>	VESA 75/ Panel mount/ Stand	VESA 75/ Panel mount/ Stand
<b>Dimension</b>	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)
<b>Carton Dimension</b>	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)
<b>Gross Weight</b>	5.5 lb (2.5 kg)	5.5 lb (2.5 kg)
<b>Net Weight</b>	—	—
<b>Environmental</b>		
<b>Operating Temperature</b>	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
<b>Storage Temperature</b>	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
<b>Storage Humidity</b>	5% ~ 90% @40°C, non-condensing	95% @40°C, non-condensing
<b>Vibration</b>	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
<b>Shock</b>	15 G peak acceleration (11 msec. duration) – with HDD	15 G peak acceleration (11 msec. duration) – with HDD
<b>EMC</b>	CE/FCC class A	CE/FCC class A
<b>Power Supply</b>		
<b>DC input</b>	DC12V, with lockable power adapter	DC 12V, with lockable power adapter
<b>LCD</b>		
<b>Display type</b>	10.1" TFT-LCD, LED	10.1" TFT-LCD, LED
<b>Max Resolution</b>	1280 x 800	1280 x 800
<b>Max. Colors</b>	262k	262K
<b>Luminance</b>	250 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Viewing Angle</b>	160°(H), 160°(V)	160°(H), 160°(V)
<b>Back Light</b>	LED	LED
<b>Back Light MTBF (Hours)</b>	—	20,000
<b>Touchscreen</b>		
<b>Type</b>	Projected capacitive multi-touch (2-point)	Projected capacitive multi-touch (2-point)
<b>Light Transmission</b>	—	>86%
<b>Life Time</b>	—	—

# System Level Products

## Infotainment Multi-Touch Panel Solutions

Infotainment Multi-Touch Panel Solutions/ Industrial Touch Display Solutions



Model	ACP-1074	ACP-1073	ACP-2153
<b>System</b>			
<b>Processor</b>	Intel® N2807 processor, 1.58 GHz Intel® J1900 processor, 2 GHz	Intel® Atom™ N2600 1.6 GHz processor	Intel® Atom™ D2550 processor, 1.86 GHz
<b>System Memory</b>	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	DDR 3 SODIMM up to 4 GB, default 2 GB
<b>LCD/CRT Controller</b>	Integrated in processor	Intel® NM10 integrated graphics	Integrated in Intel® NM10 chipset
<b>Ethernet</b>	10/100/1000Base-TX, RJ-45 x 2	10/100/1000Base-TX, RJ-45 x 1	10/100/1000Base-TX, RJ-45 x 2
<b>I/O Port</b>	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	RS-232 x 2, RS-232/422/485 x 1 USB 2.0 x 4, Line-out x 1, VGA out x 1, RJ-45 x 2, Power input 3-pins terminal block x 1, Power switch x 1
<b>Storage Disk Drive</b>	Half size mSATA storage x 1 (Installation by AAeon recommended)	Half-size mSATA storage (installation by AAeon recommended)	2.5" SATA HDD/ CFast™
<b>Expansion Slot</b>	Full size Mini-Card x 1	WiFi (by module)	Mini-PCIe card x 1
<b>OS support</b>	Window® 7, Window® 8.1, Window® 10, Linux kernel 2.6.3 or above	Windows® XP 32-bit, Windows® 7 32-bit, Linux kernel 2.6.3 or higher	Windows® XP 32-bit, Windows® 7 32-bit, Linux Fedora
<b>Mechanical</b>			
<b>Construction</b>	Aluminum Design	IP65/NEMA 4 aluminum front bezel, aluminum back chassis	Open frame
<b>Color</b>	—	—	—
<b>Mounting</b>	VESA 75/ Panel mount/ Stand	VESA 75 stand/ Panel mount	VESA 75/100/ Panel mount
<b>Dimension</b>	—	7.96" x 5.28" x 1.46" (202.19mm x 134.18mm x 37.2mm)	14.12" x 10.75" x 2.75" (358.6mm x 273.1mm x 69.8 mm)
<b>Carton Dimension</b>	—	13.58" x 7.87" x 9.65" (345mm x 200mm x 245mm)	20.67"(W) x 18.31"(H) x 9.1"(D) (525mm x 465mm x 230mm)
<b>Gross Weight</b>	—	5.5 lb (2.5 kg)	16.5 lb (7.48 kg)
<b>Net Weight</b>	—	—	13.17 lb (5.98 kg)
<b>Environmental</b>			
<b>Operating Temperature</b>	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	-4°F ~ 140°F (-20°C ~ 60°C) w/o airflow
<b>Storage Temperature</b>	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
<b>Storage Humidity</b>	5%~90% @40°C, non-condensing	95% @40°C, non-condensing	10%~90% @40°C, non-condensing
<b>Vibration</b>	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
<b>Shock</b>	15G peak acceleration (11 msec. duration) – with HDD	15 G peak acceleration (11 msec. duration) – with HDD	20 G peak acceleration (11 msec. duration) – with HDD
<b>EMC</b>	CE/FCC class A	CE/FCC class A	CE/FCC class A
<b>Power Supply</b>			
<b>DC input</b>	DC12V, with lockable power adapter	DC12V, with lockable power adapter	9~30V 3-pin terminal block
<b>LCD</b>			
<b>Display type</b>	7" TFT-LCD, LED	7" TFT-LCD, LED	15" TFT-LCD
<b>Max Resolution</b>	1024 x 600	1024 x 600	1024 x 768
<b>Max. Colors</b>	26M colors (6/8-bit for R,G,B)	26M colors (6/8-bit for R,G,B)	16.7M colors (6/8-bit for R,G,B)
<b>Luminance</b>	250 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	450 cd/m <sup>2</sup>
<b>Viewing Angle</b>	150°(H), 145°(V)	150°(H), 145°(V)	160°(H), 140°(V)
<b>Back Light</b>	LED	LED	LED
<b>Back Light MTBF (Hours)</b>	20,000	20,000	—
<b>Touchscreen</b>			
<b>Type</b>	Projected capacitive multi-touch (2-point)	Projected capacitive multi-touch (2-point)	Projective capacitive multi-touch (2-point)
<b>Light Transmission</b>	90%	90%	88%
<b>Life Time</b>	—	—	—

# System Level Products

## Industrial Touch Display Solutions



Model	AGD-317D	AGD-315D	AGD-315D V2
<b>System</b>			
<b>Input Signal</b>	VGA/DVI	VGA/DVI	VGA/DVI
<b>On Screen Display Control</b>	LCD On/Off, Brightness +, Brightness -	MENU, AUTO, LCD On/Off, UP, DOWN	MENU, AUTO, LCD On/Off, UP, DOWN
<b>I/O Connector</b>	VGA/DVI, RS-232/ Mini-USB (For T/S), DIP Switch, USB x 2 (on front panel) (AGD-317DHTT-A2)	VGA/DVI, RS-232/ Mini-USB (For T/S), DIP Switch, USB x 2 (AGD-315DHTT-A2)	VGA/DVI, RS-232 (For T/S)
<b>OS Support</b>	Windows® XP, Windows® 7, Linux Fedora	Windows® XP, Windows® 7, Linux Fedora	Windows® XP, Windows® 7, Windows® 8.1, Windows® 10, Linux Fedora
<b>Mechanical</b>			
<b>Construction</b>	IP65/ NEMA4 aluminum die cast front bezel & steel chassis	IP65/ NEMA4 aluminum die cast front bezel & steel chassis	IP65/ NEMA4 aluminum die cast front bezel & steel chassis
<b>Mounting</b>	Panel mount/ Rackmount/ VESA 75/100/ Wallmount/ Desktop	Panel mount/ Rackmount/ VESA 75/100/ Wallmount/ Desktop	Panel mount/ Rackmount/ VESA 75/100/ Wallmount/ Desktop
<b>Dimension</b>	16.54" x 14.1" x 2.84" (420mm x 358mm x 72mm)	15.35" x 12.74" x 2.84" (390mm x 323.5mm x 72mm)	15.35" x 12.74" x 2.84" (390mm x 323.5mm x 72mm)
<b>Carton Dimension</b>	26" x 19.53" x 7.87" (661mm x 496mm x 200mm)	20" x 18.11" x 8.26" (510mm x 460mm x 210mm)	20" x 18.11" x 8.26" (510mm x 460mm x 210mm)
<b>Gross Weight</b>	18.59 lb (8.45 kg)	13 lb (5.9 kg)	13 lb (5.9 kg)
<b>Net Weight</b>	14.3 lb (6.5 kg)	9 lb (4.1 kg)	9 lb (4.1 kg)
<b>Environmental</b>			
<b>Operating Temperature</b>	32°F ~122°F (0°C ~50°C)	32°F ~ 122°F (0°C ~ 50°C)	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Storage Temperature</b>	-4°F ~ 140°F (-20°C ~60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Storage Humidity</b>	10~95% @ 40°C, non-condensing	10~95% @ 40°C, non-condensing	10~95% @ 40°C, non-condensing
<b>Vibration</b>	1 Grms/ 5~500Hz/ random operation	1 Grms/ 5~500Hz/ random operation	1 Grms/ 5~500Hz/ random operation
<b>Shock</b>	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration)
<b>EMC</b>	CE/FCC class A	CE/FCC class A	CE/FCC class A
<b>Power Supply</b>			
<b>DC input</b>	DC 9~30V, w/3-pin terminal block Over-voltage (31VDC) Under-voltage (8VDC) Reverse-voltage protection Surge protection (1000VDC)	9~30V DC, w/3-pin terminal block Over-voltage (31VDC), Under-voltage (8VDC), Reverse-voltage protection, Surge protection (1000VDC)	DC 12V or DC 9~30V, w/3-pin terminal block Over-voltage (31VDC), Under-voltage (8VDC), Reverse-voltage protection, Surge protection (1000VDC)
<b>LCD</b>			
<b>Display type</b>	17" TFT-LCD	15" TFT-LCD	15" TFT-LCD
<b>Max Resolution</b>	1280 x 1024	1024 x 768	1024 x 768
<b>Max. Colors</b>	16.7M colors (6/8-bit for R,G,B)	16.7M colors (6/8-bit for R,G,B)	16.7M colors (6/8-bit for R,G,B)
<b>Luminance</b>	350 cd/m <sup>2</sup>	450 cd/m <sup>2</sup>	450 cd/m <sup>2</sup>
<b>Viewing Angle</b>	170°(H), 160°(V)	160°(H), 140°(V)	160°(H), 140°(V)
<b>Back Light</b>	LED	LED	LED
<b>Back Light MTBF (Hours)</b>	50,000	100,000	100,000
<b>Touchscreen</b>			
<b>Type</b>	5-wire resistive	5-wire resistive	5-wire resistive (V2A/V2A)
<b>Light Transmission</b>	80%	80%	80%
<b>Life Time</b>	10 million activations	10 million activations	10 million activations

# System Level Products

## Industrial Touch Display Solutions



Model	AGD-312D	AGD-312D V2
<b>System</b>		
<b>Input Signal</b>	VGA/DVI	VGA/DVI
<b>On Screen Display Control</b>	LCD On/Off, Brightness +, Brightness -	LCD On/Off, Brightness +, Brightness -
<b>I/O Connector</b>	VGA/DVI, RS-232/ Mini-USB (For T/S), DIP Switch, USB x 2 (on front panel)(AGD-312DHTT-A2)	VGA/DVI, RS-232 (For T/S), USB x 2 (on the front panel)
<b>OS Support</b>	Windows® XP, Windows® 7, Linux Fedora	Windows® XP, Windows® 7, Windows® 8.1, Windows® 10, Linux Fedora
<b>Mechanical</b>		
<b>Construction</b>	IP65/ NEMA4 aluminum die cast front bezel & steel chassis	IP65/ NEMA4 aluminum die cast front bezel & steel chassis
<b>Mounting</b>	Panel mount/ Rackmount/ VESA 75/100/ Wallmount/ Desktop	Panel mount/ Rackmount/ VESA 75/100/ Wallmount/ Desktop
<b>Dimension</b>	13.61" x 10.46" x 2.41" (345.8mm x 265.8mm x 61.1mm)	13.61" x 10.46" x 2.41" (345.8mm x 265.8mm x 61.1mm)
<b>Carton Dimension</b>	20.67" x 18.31" x 9.1" (525mm x 465mm x 230mm)	20.67" x 18.31" x 9.1" (525mm x 465mm x 230mm)
<b>Gross Weight</b>	13 lb (5.9 kg)	13 lb (5.9 kg)
<b>Net Weight</b>	9 lb (4.1 kg)	9 lb (4.1 kg)
<b>Environmental</b>		
<b>Operating Temperature</b>	-4°F ~ 140°F (-20°C~60°C)	-4°F ~ 140°F (-20°C~60°C)
<b>Storage Temperature</b>	-4°F ~ 140°F (-20°C~60°C)	-4°F ~ 140°F (-20°C~60°C)
<b>Storage Humidity</b>	10~95% @ 40°C, non-condensing	10~95% @ 40°C, non-condensing
<b>Vibration</b>	1 Grms/ 5~500Hz/ random operation	1 Grms/ 5~500Hz/ random operation
<b>Shock</b>	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration)
<b>EMC</b>	CE/FCC class A	CE/FCC class A
<b>Power Supply</b>		
<b>DC input</b>	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)
<b>LCD</b>		
<b>Display type</b>	12.1" TFT-LCD	12.1" TFT-LCD
<b>Max Resolution</b>	1024 x 768	1024 x 768
<b>Max. Colors</b>	16.7M colors (6/8-bit for R,G,B)	16.7M colors (6/8-bit for R,G,B)
<b>Luminance</b>	500 cd/m <sup>2</sup>	500 cd/m <sup>2</sup>
<b>Viewing Angle</b>	170°(H), 160°(V)	170°(H), 160°(V)
<b>Back Light</b>	LED	LED
<b>Back Light MTBF (Hours)</b>	50,000	50,000
<b>Touchscreen</b>		
<b>Type</b>	5-wire resistive	5-wire resistive (V2A/V2B)
<b>Light Transmission</b>	80%	80%
<b>Life Time</b>	10 million activations	10 million activations



# System Level Products

## Industrial Touch Display Solutions



Model	ACD-110D	ACD-515D
<b>System</b>		
<b>Input Signal</b>	VGA, DVI-D	VGA/ DVI-D
<b>On Screen Display Control</b>	Auto, Menu, Up, Down, LCD On/Off	Menu, Auto, LCD On/Off, Up, Down
<b>I/O Connector</b>	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
<b>OS Support</b>	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)
<b>Mechanical</b>		
<b>Construction</b>	IP65 aluminum front bezel & SGCC chassis	IP65/ NEMA4 for plastic front bezel, IPX1 for plastic chassis
<b>Mounting</b>	VESA75/ Panel mount/ Stand	VESA 75/100
<b>Dimension</b>	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)
<b>Carton Dimension</b>	—	20.47" x 18.5" x 9.06" (520mm x 470mm x 230mm)
<b>Gross Weight</b>	4.4 lb (2.6 kg)	11.02 lb (5 kg)
<b>Net Weight</b>	2.64 lb (1.4 kg)	6.6 lb (3 kg)
<b>Environmental</b>		
<b>Operating Temperature</b>	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)
<b>Storage Temperature</b>	14°F ~ 140°F (-10°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Storage Humidity</b>	5%~90% @40°C, non-condensing	10~95% @ 40°C, non-condensing
<b>Vibration</b>	1 Grms/ 5 ~ 500Hz/ operation – with HDD	1 Grms/ 5~500Hz/ random operation
<b>Shock</b>	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration)
<b>EMC</b>	CE/FCC class A	CE/FCC class A
<b>Power Supply</b>		
<b>DC input</b>	DC 12V with Lockable Power adapter	DC 12V, with lockable power adapter
<b>LCD</b>		
<b>Display type</b>	10.1" TFT LCD	15.6" TFT-LCD, LED type
<b>Max Resolution</b>	1280 x 800	1366 x 768
<b>Max. Colors</b>	262K colors	16.7M colors (6/8-bit for R,G,B)
<b>Luminance</b>	250 cd/m <sup>2</sup>	400 cd/m <sup>2</sup>
<b>Viewing Angle</b>	160°(H)/ 160°(V)	160°(H)/140°(V)
<b>Back Light</b>	LED	LED
<b>Back Light MTBF (Hours)</b>	20,000	50,000
<b>Touchscreen</b>		
<b>Type</b>	Projective capacitive multi-touch (2-point)	Projected capacitive multi-touch (2-point)
<b>Light Transmission</b>	86%	90%
<b>Life Time</b>	—	—

# System Level Products

## Rugged Stainless Touch Panel Solutions

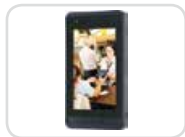
Rugged Stainless Touch Panel Solutions/ Rugged Tablet Computers



Model	AFP-6152	AFP-6123
<b>System</b>		
<b>Processor</b>	Onboard Intel® Atom™ D525 Dual Core Processor, 1.8 GHz	Onboard Intel® Atom™ D2550 Dual Core Processor
<b>Memory</b>	DDR3 SODIMM x 1 up to 4 GB (Wide-Temp. and Factory-Installed), default 2 GB	DDR3 SODIMM x 1 up to 4 GB (Wide-Temp. and Factory-installed), default 2 GB
<b>LCD/CRT Controller</b>	Integrated in Processor	Integrated in Processor
<b>Ethernet</b>	10/100/1000Base-TX x 1	10/100/1000Base-TX x 1
<b>I/O Port</b>	M12 x 1 for USB 2.0 x 2 M12 x 1 for RS-232 x 1 M12 x 1 for RS-232/422/485 x 1 M12 x 1 for LAN x 1 Power input x 1	M12 x 1 for USB 2.0 x 2 M12 x 1 for RS-232 x 1 M12 x 1 for RS-232/422/485 x 1 M12 x 1 for LAN x 1, Power input x 1
<b>Storage Disk Drive</b>	2.5" SATA HDD x 1/ CompactFlash™ Slot x 1 (internal) (Wide-Temp. and Factory-installed)	2.5" SATA HDD x 1/ CFast™ Slot x 1 (internal) (Wide-Temp. and Factory-installed)
<b>Expansion Slot</b>	Mini-Card x 1	Mini-Card x 1
<b>OS Support</b>	Windows® XP, Windows® 7, Linux Fedora	Windows® XP, Windows® 7 32-bit, Linux Fedora
<b>Mechanical</b>		
<b>Construction</b>	IP66 / NEMA4x for stainless front bezel & stainless chassis	IP66 / NEMA4x stainless steel front bezel & chassis
<b>Mounting</b>	VESA 75/100	VESA 75/100
<b>Dimension</b>	15.75" (W) x 12.76" (H) x 3.32" (D) (390 mm x 324mm x 84.5mm)	14.6" x 11.2" x 3.42" (370mm x 285mm x 87mm)
<b>Carton Dimension</b>	20.47" x 18.5" x 9.06" (520mm x 470mm x 230mm)	20" x 18.1" x 8.26" (510mm x 460mm x 210mm)
<b>Gross Weight</b>	16.1 lb (7.5kg) 13.2 lb (6 kg)	18.1 lb (8.2 kg) 15.2 lb (6.93 kg)
<b>Environmental</b>		
<b>Operating Temperature</b>	-4°F ~ 122°F (-20°C ~ 50°C) ambient without airflow -4°F ~ 130°F (-20°C ~ 55°C) ambient with airflow	-4°F ~ 122°F (-20°C ~ 50°C) ambient without airflow -4°F ~ 130°F (-20°C ~ 55°C) ambient with airflow
<b>Storage Temperature</b>	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
<b>Storage Humidity</b>	8%~90% @40°C, non-condensing	5%~90% @40°C, non-condensing
<b>Vibration</b>	1 Grms/ 5~500Hz/ random operation (HDD)	1 Grms/ 5~500Hz/ random operation (HDD)
<b>Shock</b>	20 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration)
<b>EMC</b>	CE/FCC class A	CE/FCC class A
<b>Power Supply</b>		
<b>DC input</b>	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
<b>LCD</b>		
<b>Display type</b>	15" TFT-LCD	12.1" TFT-LCD
<b>Max Resolution</b>	1024 x 768	1024 x 768
<b>Max. Colors</b>	262K colors	262k colors
<b>Luminance</b>	400	500
<b>Viewing Angle</b>	160°(H)/140°(V)	160°(H)/160°(V)
<b>Back Light</b>	LED	LED
<b>Back Light MTBF (Hours)</b>	50,000	50,000
<b>Touchscreen</b>		
<b>Type</b>	5-wire resistive	5 wire resistive
<b>Light Transmission</b>	80%	80%
<b>Life Time</b>	10 million activations	10 million activations

# System Level Products

## Rugged Tablet Computers



Model	RTC-600A	RTC-700A
<b>System</b>		
<b>Processor</b>	OMAP 4470 up to 1.5 GHz Processor	NVIDIA® TEGRA™ 2 1.0 GHz Dual Core Processor
<b>Memory &amp; Storage</b>	LPDDR2 1 GB SDRAM &	1 GB LPDDRII
<b>Chipset</b>	—	—
<b>LCD Display</b>	5.7" TFT LCD with LED backlight	7" TFT-LCD (1280 x 800)/ 16:10
<b>I/O</b>	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)
<b>Communication</b>	Wifi support IEEE 802.11 b/g/n 5GHz/2.4GHz Band, BT 3.0(HS) with integrated class 1 PA and BLE	Bluetooth v2.1, Wi-Fi (802.11 b/g/n), NFC / RFID (13.56MHz), 3G (Optional)
<b>Storage</b>	16 GB eMMC Flash	16GB eMMC
<b>WWAN(optional)</b>	3G: WCDMA/CDMA	—
<b>Navigation</b>	GPS, GLONASS, Beidou, AGPS, *AGPS only available when the 3G module is enabled.	GPS, Glonass(Optional), AGPS* is enabled with 3G
<b>BCS (optional)</b>	1D Scanner support CMOS engine (optional), 2D Scanner support LED engine	—
<b>RFID (optional)</b>	HF RFID based on 13.56MHz compatible with NFC	—
<b>Camera</b>	5M Pixel AF camera with flash light	Front-facing: 1.2MP, Rear-facing: 5MP
<b>Sensors</b>	Light Sensor, G-Sensor, 3-axis digital gyroscope,vibrator	S-sensor, E-compass, Gyroscope, Light-sensor
<b>Expansion Slot</b>	—	—
<b>OS</b>	—	Android™ 3.2/4.0.3
<b>Mechanical</b>		
<b>Construction</b>	—	—
<b>Color</b>	Black	Black
<b>Dimension (W x H x D)</b>	4.13" x 8.27" x 0.83" (105mm x 210mm x 21mm)	5.38" x 8.58" x 0.83" (136.6mm x 219mm x 21mm)
<b>Carton Dimension</b>	—	—
<b>Gross Weight</b>	0.94 lb (0.43 kg)	1.254 lb (0.57 kg)
<b>Environmental</b>		
<b>Operating Temperature</b>	Battery charging status: -4°F ~ 122°F (-20°C ~ 50°C) Battery discharging status: -4°F ~ 104°F (-20°C ~ 40°C)	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Storage Temperature</b>	-67°F ~ 167°F (-55°C ~ 75°C)	-67°F ~ 158°F (-55°C ~ 70°C)
<b>Operating Humidity</b>	10% to 95%	50°C; 5% ~ 90%RH; 120 hours
<b>Water &amp; Dust Proof</b>	IP67	IP65
<b>Vibration</b>	Meet Mil Std 810G-514.6, Procedure I	MIL-STD-810G Method 514.6 Procedure I, Cat. 24, Fig. 514.6E-1 & E-2
<b>Drop</b>	Mil-STD-810G-516.6, Procedure IV	MIL-STD-810G Method 516.6 Procedure IV - Height of Drop: 122cm (48 inch; 4ft), - Number of Drop: 26 times, - Floor: Two-inch plywood backed by concrete, - For all surfaces, edges and corners
<b>ESD</b>	Air +/- 8KV , Contact +/- 4KV	Air charge: +/- 8KV, Contact charge: +/- 4KV
<b>EMI / Safety</b>	CE / FCC Class B / UL	UL: UL60950-1, CE/LVD: EN60950-1, FCC, CE
<b>Power Supply</b>		
<b>AC / DC Adapter</b>	AC input 100V-240V, 50Hz-60Hz; DC output: 12V	AC Power: 100~240V, 24W, DC Power:12V/2A
<b>Battery Life</b>	Hotswappable Lithium-Polymer high capacity battery, support up to 8hrs	Li-polymer High Capacity Battery, up to 8 Hours Battery Life, Li-polymer High Capacity Battery, up to 6 Houes Battery Life, one hard pack removable
<b>Master Battery</b>	External Battery: 7.4V 1530mAH	—
<b>Slave Battery</b>	Internal Battery: 7.4V 1530mAH	—
<b>LCD</b>		
<b>Display</b>	5.7" TFT LCD with LED backlight	7" TFT-LCD / 16:10
<b>Resolution</b>	1280 x 720 Pixels	1280 x 800 pixel
<b>Max. Color</b>	—	16.7M
<b>Dot Size</b>	—	0.117 x 0.117(H)
<b>Brightness</b>	420 nits	400 nits, 680 nits (optional)
<b>Viewing angle</b>	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)
<b>Touch Screen</b>		
<b>Touch Screen</b>	Projected Capacitive Multi-Touch panel	Projected capacitive multi-touch screen (PCT)
<b>Light Transmission</b>	≥ 87%	Min 87% (ASTM D1003; Wavelength = 550nm)

# System Level Products

## Rugged Tablet Computers



Model	RTC-700B	RTC-700C	RTC-700M
<b>System</b>			
<b>Processor</b>	Intel® Atom™ x 5-Z8300 CHT-T3 Quad Core 1.92 GHz Processor	Intel® Atom™ Z2760 1.8 GHz Dual Core Processor, (Clover Trail Platform)	Ti® OMAP™ 4470 1.5GHz Dual Core Processor
<b>Memory &amp; Storage</b>	DDR3L-RS 1600 2GB	2GB LPDDRIII-800MHz	1GB LPDDRIII
<b>Chipset</b>	—	—	—
<b>LCD Display</b>	7" TFT-LCD (1280 x 800) / 16:10	7" TFT-LCD (1280 x 800) / 16:10	7" TFT-LCD (1280 x 800) / 16:10
<b>I/O</b>	DC-in jack x 1, MicroSD Card x 1, SIM card slot x 1, USB 2.0 x 2 (A Type x 1, Mini USB x 1), USB 3.0 x 1 (Type C), 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)	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)	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)
<b>Communication</b>	Bluetooth v4.0, Wi-Fi (802.11 a/b/g/n), NFC / RFID (13.56MHz), 3G (Optional),	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),
<b>Storage</b>	64GB Flash eMMC	64GB eMMC 4.4.1	16GB eMMC
<b>WWAN(optional)</b>	—	—	—
<b>Navigation</b>	GPS, Glonass	GPS+Glonass, AGPS* is enabled with 3G	GPS, Glonass(Optional), AGPS* is enabled with 3G
<b>BCS (optional)</b>	—	—	—
<b>RFID (optional)</b>	—	—	—
<b>Camera</b>	2 MP front camera, 8 MP auto-focus rear camera with flash	Front-facing: 2MP, 720p; Rear-facing: 8MP, 1080p HD, auto-focus with flash	Rear-facing: 5MP (8MP: optional)
<b>Sensors</b>	S-sensor, E-compass, Gyroscope, Light-sensor	S-sensor, E-compass, Gyroscope, Light-sensor	S-sensor, E-compass, Gyroscope, Light-sensor
<b>Expansion Slot</b>	—	—	—
<b>OS</b>	Windows® 10, Android™ 5.0	Windows® Industry Pro 8.1	Android™ 4.2
<b>Mechanical</b>			
<b>Construction</b>	—	—	—
<b>Color</b>	Black	Black	Black
<b>Dimension (W x H x D)</b>	5.38" x 8.58" x 0.83" (136.6mm x 219mm x 21mm)	5.38" x 8.58" x 0.83" (136.6mm x 219mm x 21mm)	5.38" x 8.58" x 0.83" (136.6mm x 219mm x 21mm)
<b>Carton Dimension</b>	—	—	—
<b>Gross Weight</b>	1.254 lb (0.57 kg)	1.254 lb (0.57 kg)	1.254 lb (0.57 kg)
<b>Environmental</b>			
<b>Operating Temperature</b>	-20 °C ~ 60 °C (-4 °F ~ 140°F)	-20 °C ~ 60 °C (-4 °F ~ 140°F)	-4°F ~ 122°F (-20°C ~ 50°C)
<b>Storage Temperature</b>	-67°F ~ 158°F (-55 °C ~ 70 °C)	-67°F ~ 158°F (-55 °C ~ 70 °C)	-67°F ~ 158°F (-55°C ~ 70°C)
<b>Operating Humidity</b>	50°C; 5% ~ 90%RH; 120 hours	50°C; 5% ~ 90%RH; 120 hours	50°C; 5% ~ 90%RH; 120 hours
<b>Water &amp; Dust Proof</b>	IP65	IP65	IP65
<b>Vibration</b>	MIL-STD-810G Method 514.6 Procedure I, Cat. 24, Fig. 514.6E-1 & E-2		
<b>Drop</b>	MIL-STD-810G Method 516.6 Procedure IV - Height of Drop: 122cm (48 inch; 4ft), - Number of Drop: 26 times, - Floor: Two-inch plywood backed by concrete, - For all surfaces, edges and corners		
<b>ESD</b>	Air charge: +/- 8KV, Contact charge: +/- 4KV	Air charge: +/- 8KV, Contact charge: +/- 4KV	Air charge: +/- 8KV, Contact charge: +/- 4KV
<b>EMI / Safety</b>	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
<b>Power Supply</b>			
<b>AC / DC Adapter</b>	AC Power: 100~240V, 24W, DC Power: 12V	AC Power: 100~240V, 24W, DC Power: 12V	AC Power: 100~240V, 24W, DC Power output:12V/2A
<b>Battery Life</b>	Li-polymer High Capacity Battery, up to 8 Hours Battery Life, Li-polymer High Capacity Battery, up to 6 Hours Battery Life, one hard pack removable		
<b>LCD</b>			
<b>Display</b>	7" TFT-LCD / 16:10	7" TFT-LCD / 16:10	7" TFT-LCD / 16:10
<b>Resolution</b>	1280 x 800 pixel	1280 x 800 pixel	1280 x 800 pixel
<b>Max. Color</b>	16.7M	16.7M	16.7M
<b>Dot Size</b>	0.117x 0.117(H)	0.117x 0.117(H)	0.117x 0.117(H)
<b>Brightness</b>	400 nits	400 nits	400 nits, 680 nits (optional)
<b>Viewing angle</b>	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)
<b>Touch Screen</b>			
<b>Touch Screen</b>	Projected capacitive multi-touch screen (PCT)	Projected capacitive multi-touch screen (PCT)	Projected capacitive multi-touch screen (PCT)
<b>Light Transmission</b>	Min 87% (ASTM D1003; Wavelength = 550nm)	Min 87% (ASTM D1003; Wavelength = 550nm)	Min 87% (ASTM D1003; Wavelength = 550nm)

# System Level Products

## Rugged Tablet Computers



Model	RTC-900R	RTC-900B
<b>System</b>		
<b>Processor</b>	Nvidia® Tegra 2 1.0 GHz Dual Core Processor	Intel® Atom™ E3825 1.33 GHz Dual Core Processor, up to E3827 1.75 GHz
<b>Memory &amp; Storage</b>	LPDDR2 1GB	DDR3L 4 GB (Default) SODIMM socket x 1, up to 8 GB, 32GB mSATA (Default) up to 128GB (Optional)
<b>Chipset</b>	—	—
<b>LCD Display</b>	10.1" WXGA (1280 x 800) TFT LCD up to 900 nits (Optional)	10.1" WXGA (1280 x 800) TFT LCD up to 800 nits (Optional)
<b>I/O</b>	Mini USB 2.0 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 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, DC-in Jack x 1, Docking (optional)
<b>Communication</b>	WLAN 802.11 b/g/n + Bluetooth 2.1, 3G module (Optional)	WLAN 802.11 a/b/g/n + Bluetooth 4.0, 3G/4G module (Optional)
<b>Storage</b>	16GB eMMC	32GB mSATA (Default) up to 256 GB (Optional)
<b>WWAN(optional)</b>	—	—
<b>Navigation</b>	GPS, AGPS	U-blox AMY-6M
<b>BCS (optional)</b>	—	—
<b>RFID (optional)</b>	—	—
<b>Camera</b>	Front Camera: 1.2 Mega, Real Camera : 5Mega	Front Camera: 2Mega, Real Camera : 5Mega
<b>Sensors</b>	—	—
<b>Expansion Slot</b>	—	Docking (optional)
<b>OS</b>	Android 4.0	Windows® Embedded Standard 7, Windows® Embedded 8.1, Windows® 10
<b>Mechanical</b>		
<b>Construction</b>	—	—
<b>Color</b>	Black	Black
<b>Dimension (W x H x D)</b>	10.65" x 7.42" x .96" (270.4mm x 188.4mm x 24.29mm)	10.65" x 7.42" x .96" (270.4mm x 188.4mm x 24.29mm)
<b>Carton Dimension</b>	—	—
<b>Gross Weight</b>	2.4 lb (1.1 kg)	2.7 lb (1.24 kg)
<b>Environmental</b>		
<b>Operating Temperature</b>	-4°F~131°F (-20°C~55°C)	-4°F~131°F (-20°C~55°C)
<b>Storage Temperature</b>	-67°F~131°F (-55°C~55°C)	-67°F~131°F (-55°C~55°C)
<b>Operating Humidity</b>	10 to 95% @ 40°C, non-condensing	10 to 95% @ 40°C, non-condensing
<b>Water &amp; Dust Proof</b>	IP65 Compliant	IP65 Compliant
<b>Vibration</b>	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)	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)
<b>Drop</b>	26 drop of 48 inches height to 2" plywood over concrete with uNits 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
<b>ESD</b>	Air +/- 8KV, Contact +/- 4KV, IEC61000-4-2	Air +/- 8KV, Contact +/- 4KV, IEC61000-4-2
<b>EMI / Safety</b>	CE/FCC Class B/UL	CE/FCC Class B/UL
<b>Power Supply</b>		
<b>AC / DC Adapter</b>	AC Power input: 100V-240V, 50Hz-60Hz, 24W, DC Power output: 12V/2A	AC Power input: 100V-240V, 50Hz-60Hz, 48W, DC Power output: 12V
<b>Battery Life</b>	2S1P 6-Cell (6,810 mAh) battery, up to 10-Hours battery life	2S1P 6-Cell (6,810 mAh) battery, up to 7-Hours battery life
<b>Master Battery</b>	—	—
<b>Slave Battery</b>	—	—
<b>LCD</b>		
<b>Display</b>	10.1" 16:10 TFT LCD	10.1" 16:10 TFT LCD
<b>Resolution</b>	1280 x 800	1280 x 800
<b>Max. Color</b>	16.7M colors	16.7M colors
<b>Dot Size</b>	0.0565x 0.1695 mm	0.0565x 0.1695 mm
<b>Brightness</b>	350/900 nits (Optional)	350/800 nits (Optional)
<b>Viewing angle</b>	Vertical 60° (R)/60° (L), Horizontal 70° (U)/70° (L)	Vertical 60° (R)/60° (L), Horizontal 70° (U)/70° (L)
<b>Touch Screen</b>		
<b>Touch Screen</b>	Projected Multi-Touch Panel	Projected Multi-Touch Panel
<b>Light Transmission</b>	≥87%	≥87%

# System Level Products

## Rugged Tablet Computers



Model	RTC-1000i	RTC-1000S
<b>System</b>		
<b>Processor</b>	Intel® Core™ i7-620UE 1.06GHz	6th Generation Intel® Core i3-6100U 2.3GHz
<b>Memory &amp; Storage</b>	DDR3 onboard 2GB(Default)+SODIMM socket x 1, up to 6GB	One DDR3L SODIMM Socket , up to 8 GB
<b>Chipset</b>	Intel® QM57 Express chipset	—
<b>LCD Display</b>	10.2" WSVGA (1024x600) TFT LCD with Touch Screen (AOT)	—
<b>I/O</b>	COM (RX-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	SIM Card x 1, Micro SD Card Slot x 1, USB 2.0 x 2, USB 3.0 x 1, RJ45 x 1, RS232 x 1, Mini HDMI x 1, 3.5mm stereo headphone jack x 1, DC-In Jack x 1, Built-in Speaker & Microphone
<b>Communication</b>	Gigabit Ethernet, WLAN 802.11 b/g+Bluetooth 2.0 Class 1, 3.5G Modem module (Optional)	WiFi support IEEE 802.11 a/b/g/n 5GHz/2.4GHz Band, Bluetooth 4.0(HS)
<b>Storage</b>	2.5" SATA Hard Disk/SSD (Optional)	64 GB M.2 SSD, up to 512 GB
<b>WWAN(optional)</b>	—	3G: WCDMA/CDMA
<b>Navigation</b>	—	GPS, GLONASS
<b>BCS (optional)</b>	—	—
<b>RFID (optional)</b>	—	—
<b>Camera</b>	—	Front Camera: 2MP, Rear: 5MP
<b>Sensors</b>	—	Light Sensor, G-Sensor, 3-axis digital gyroscope
<b>Expansion Slot</b>	PCMCIA (Default) or Smart Card x 1, Mini-Card x 2, CompactFlash x 1 or SDHC x 1, SIM x 1	—
<b>OS</b>	Windows Embedded Standard 2009, Windows Embedded Standard 7, Linux Ubuntu 9.04	—
<b>Mechanical</b>		
<b>Construction</b>	Al-Mg alloy	—
<b>Color</b>	Black	Black
<b>Dimension (W x H x D)</b>	10.63" x 7.24" x 1.93" (270mm x 184mm x 49mm)	12.22" x 7.87" x 0.96"(310.4 mm x 200 mm x 24.5 mm)
<b>Carton Dimension</b>	17.95" x 11.69" x 15.27" (456mm x 297mm x 388mm)	—
<b>Gross Weight</b>	5 lb (2.3 kg), including 9-cell battery, hand strap and bumpers	3.52 lb (1.6 kg) (including two removable batteries)
<b>Environmental</b>		
<b>Operating Temperature</b>	-4°F~140°F (-20°C~60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Storage Temperature</b>	-67°F~167°F (-55°C~75°C)	-67°F ~ 167°F (-55°C ~ 75°C)
<b>Operating Humidity</b>	10 to 95%@ 40°C, non-condensing	10% to 95%
<b>Water &amp; Dust Proof</b>	IP54 Compliance	IP65
<b>Vibration</b>	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)	Meets Mil Std 810G-514.6, Procedure I
<b>Drop</b>	26 drop of 48 inches height to 2" plywood over concrete with uNits off MIL-STD-810G-516.6, Procedure IV	Mil-STD-810G-516.6, Procedure IV
<b>ESD</b>	Air +/- 8KV, Contact +/- 4KV, IEC61000-4-2	Air +/- 16KV , Contact +/- 8KV
<b>EMI / Safety</b>	CE/FCC Class B/UL	CE / FCC Class B / UL
<b>Power Supply</b>		
<b>AC / DC Adapter</b>	AC Power input: 100V-240V, 50Hz-60Hz, 65W, DC Power output: 19V	AC input 100V-240V, 50Hz-60Hz; DC output: 19V
<b>Battery Life</b>	3SSP 9-Cell (7,800 mAh) battery, up to 5-Hours battery life	Two hotswappable Li-Ion high capacity batteries, support up to 8hrs
<b>Master Battery</b>	—	2200mAh x 2
<b>Slave Battery</b>	—	—
<b>LCD</b>		
<b>Display</b>	10.2" 16:9 TFT LCD	11.6" TFT LCD with LED backlight
<b>Resolution</b>	1024 x 600	1920 x 1080 Full HD
<b>Max. Color</b>	262K colors	—
<b>Dot Size</b>	0.2175 x 0.2175	178"(V)/ 178"(H)
<b>Brightness</b>	200/500 nits (Optional)	1000 nits
<b>Viewing angle</b>	Vertical 60° (R)/60° (L), Horizontal 70° (U)/70° (L)	—
<b>Touch Screen</b>		
<b>Touch Screen</b>	4-wire, Analog Resistive	Projected Capacitive Multi-Touch panel
<b>Light Transmission</b>	≥87%	≥ 87%

# System Level Products

## Ultra Slim Fanless BOX PC Solutions



Model		BOXER-6401	BOXER-6402
CPU		Intel® Atom™ Processor N2600	Intel® Atom™ Processor N2600
Chipset		Intel NM10	Intel NM10
System Memory		204-pin DDR3 800/1066 SODIMM x 1, Max. 4GB	204-pin DDR3 800/1066 SODIMM x 1, up to 4 GB
Display Interface	VGA	—	—
	DVI	—	—
	HDMI	Mini HDMI x 1	Mini HDMI x 1
	DP	—	—
	Others	—	—
Storage Device	HDD/SSD	—	—
	CFast	—	—
	mSATA	Half-size mSATA bay x 1	Half-size mSATA bay x 1
Network	LAN	RJ-45 x 1	RJ-45 x 1
	Wireless	—	—
Front I/O	USB Port	USB type A x 4 for USB2.0	USB type A x 2 for USB2.0
	LAN	—	—
	Serial Port	—	—
	Display	Mini HDMI x 1	Mini HDMI x 1
	DIO	—	—
	Audio	—	—
	PS/2	—	—
	Others	Power button	Power button, 2-pins for CAN bus
	USB Port	—	—
Rear I/O	LAN	RJ-45 x 1 for 10/100/1000 base-TX	RJ-45 x 2 for 10/100/1000 base-TX
	Serial Port	RJ-45 x 2 for 2x RS-232/422/485, RJ-45 x 1 for RS-232	RJ-45 x 2 for 2x RS-232/422/485
	Display	—	—
	Others	Lockable DC-jack x 1	Lockable DC-jack x 1
	PCIe	—	—
Expansion	PCI	—	—
	Mini Card	Half size Mini-card slot x 1 for mSATA only	Half size Mini-card slot x 1 for mSATA only
	USB	Onboard USB pin header x 1	Onboard USB pin header x 1
	Others	—	—
Indicator	Front	—	—
	Rear	—	—
Power Requirement		DC 12V input with lockable connector	DC 12V input with lockable connector
Power Consumption		—	—
System Cooling		Passive	Passive
Mounting	Din Rail mount	Yes (option)	Yes (option)
	VESA mount	VESA 75 (option)	VESA 75 (option)
Operating Temperature		0°C ~ 40°C (-4°F ~ 104°F) without airflow 0°C ~ 50°C (-4°F ~ 122°F) with 0.5 m/s airflow	0°C ~ 40°C (-4°F ~ 104°F) without airflow 0°C ~ 50°C (-4°F ~ 122°F) with 0.5 m/s airflow
Storage Temperature		-20°C ~ 70°C (-4°F ~ 158°F) 5 ~ 95% @ 40°C, non-condensing	-20°C ~ 70°C (-4°F ~ 158°F) 5 ~ 95% @ 40°C, non-condensing
Anti-Vibration		3G rms/ 5 ~ 500Hz/ operation – mSATA	3G rms/ 5 ~ 500Hz/ operation –mSATA
Anti-Shock		50G peak acceleration (11 msec. duration) – mSATA	50G peak acceleration (11 msec. duration) – mSATA
MTBF (Hours)		50,000	50,000
Certification	EMC	CE /FCC Class A	CE /FCC Class A
	Safety	—	—
Dimension (W x H x D)		136mm x 79.6mm x 20mm (5.35" x 3.13" x 0.79")	136mm x 79.6mm x 20mm (5.35" x 3.13" x 0.79")
Gross Weight		1.20 Kg (2.64 lb)	1.20 Kg (2.64 lb)
Note		Windows® 7 (32 bit) Windows® XP (32 bit), Windows® Embedded Standard 7 Windows® Embedded Standard 2009 Linux Federa	Windows® 7 (32 bit) Windows® XP (32 bit), Windows® Embedded Standard 7 Windows® Embedded Standard 2009 Linux Federa\

# System Level Products

## Ultra Slim Fanless BOX PC Solutions

Ultra Slim Fanless BOX PC Solutions/ Compact Fanless BOX PC Solutions



Model		BOXER-6403	BOXER-6403WT
CPU		Intel® Celeron® Processor J1900, N2930, N2807, Atom™ Processor E3825	Intel® Celeron® Processor J1900, N2807
Chipset		—	—
System Memory		204-pin DDR3L 1333MHz SODIMM slot x 1, up to 8 GB (J1900/N2930/E3825) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB (N2807)	204-pin DDR3L 1333MHz SODIMM slot x 1, up to 8 GB (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB (N2807)
Display Interface	VGA	—	—
	DVI	—	—
	HDMI	HDMI x 1	HDMI x 1
	DP	—	—
	Others	—	—
Storage Device	HDD/SSD	—	—
	CFast	—	—
	mSATA	Half-size mSATA bay x 1	Half-size mSATA bay x 1
Network	LAN	Intel® Gigabit Ethernet	Intel® Gigabit Ethernet
	Wireless	Optional by Mini-card module	Optional by Mini-card module
	USB Port	USB type A x 1 for USB3.0, USB type A x 3 for USB2.0	USB type A x 1 for USB3.0, USB type A x 3 for USB2.0
Front I/O	LAN	—	—
	Serial Port	—	—
	Display	—	—
	DIO	Digital input x 4, Digital output x 2 Support Dry Contact & Wet Contact	Digital input x 4, Digital output x 2 Support Dry Contact & Wet Contact
	Audio	—	—
	PS/2	—	—
	Others	Power button	Power button
	USB Port	—	—
Rear I/O	LAN	RJ-45 x 2 for 10/100/1000 base-TX	RJ-45 x 2 for 10/100/1000 base-TX
	Serial Port	RJ-45 x 2 for RS-232/422/485 (BIOS selection)	RJ-45 x 2 for RS-232/422/485 (BIOS selection)
	Display	HDMI x 1	HDMI x 1
	Others	Lockable DC-jack x 1	Lockable DC-jack x 1
Expansion	PCIe	—	—
	PCI	—	—
	Mini Card	Half size Mini-card slot x 1 for mSATA only, Full size Mini-card slot x 1	Half size Mini-card slot x 1 for mSATA only, Full size Mini-card slot x 1
	USB	Onboard USB 2.0 pin header x 1	Onboard USB 2.0 pin header x 1
Indicator	Others	Onboard LPC connector x 1, LVDS x 1	Onboard LPC connector x 1, LVDS x 1
	Front	—	—
	Rear	—	—
Power Requirement		DC 12V input with lockable connector	DC 12V input with lockable connector
Power Consumption		—	—
System Cooling		Passive	Passive
Mounting	Din Rail mount	Yes (option)	Yes (option)
	VESA mount	VESA 75 (option)	VESA 75 (option)
Operating Temperature		-30°C ~ 60°C (-22°F ~ 140°F) with 0.5m/s airflow	-30°C ~ 70°C (-22°F ~ 158°F) with 0.5m/s airflow
Storage Temperature		-30°C ~ 80°C (-22°F ~ 176°F) 5 ~ 95% @ 40°C, non-condensing	-30°C ~ 80°C (-22°F ~ 176°F) 5 ~ 95% @ 40°C, non-condensing
Anti-Vibration		3G rms/ 5 ~ 500Hz/ operation –mSATA	3G rms/ 5 ~ 500Hz/ operation –mSATA
Anti-Shock		20 G peak acceleration (11 msec. duration) – mSATA	20 G peak acceleration (11 msec. duration) – mSATA
MTBF (Hours)		94,101	—
Certification	EMC	CE /FCC Class A	CE /FCC Class A
	Safety	—	—
Dimension (W x H x D)		158mm x 95mm x 20mm (6.22" x 3.74" x 0.79")	158mm x 95mm x 29mm (6.22" x 3.74" x 1.41")
Gross Weight		1.16kg (2.56 lb)	1.35kg (2.98 lb)
Note		Windows® 10 Windows® 8.1 Windows® 7 Windows® Embedded 8 Standard Windows® Embedded Standard 7 Linux Federa	Windows® 10 Windows® 8.1 Windows® 7 Windows® Embedded 8 Standard Windows® Embedded Standard 7 Linux Federa



# System Level Products

## Ultra Slim Fanless BOX PC Solutions



Model		BOXER-6403M	BOXER-6404
CPU		Intel® Celeron® Processor J1900, N2807	Intel® Celeron® Processor J1900, N2807
Chipset		—	—
System Memory		204-pin DDR3L 1333MHz SODIMM slot x 1, up to 8 GB (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB (N2807)	204-pin DDR3L 1333MHz SODIMM slot x 1, up to 8 GB (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB (N2807)
Display Interface	VGA	—	—
	DVI	—	—
	HDMI	HDMI x 1	HDMI x 2
	DP	—	—
	Others	—	—
Storage Device	HDD/SSD	2.5" HDD/SSD bay x 1	—
	CFast	—	CFast™ Slot x 1
	mSATA	Half-size mSATA bay x 1	—
Network	LAN	Intel® Gigabit Ethernet	Intel® Gigabit Ethernet
	Wireless	Optional by Mini-card module	Optional by Mini-card module
Front I/O	USB Port	USB type A x 1 for USB3.0, USB type A x 3 for USB2.0	USB type A x 1 for USB3.0, USB type A x 2 for USB2.0
	LAN	—	—
	Serial Port	—	—
	Display	—	HDMI x 2
	DIO	Digital input x 4, Digital output x 2 Support Dry Contact & Wet Contact	—
	Audio	—	—
	PS/2	—	—
	Others	Power button	Power button
	—	—	—
Rear I/O	USB Port	—	—
	LAN	RJ-45 x 2 for 10/100/1000 base-TX	RJ-45 x 4 for 10/100/1000 base-TX
	Serial Port	RJ-45 x 2 for RS-232/422/485 (BIOS selection)	DB-9 x 1 for RS-232
	Display	HDMI x 1	—
Expansion	Others	Lockable DC-jack x 1	Lockable DC-jack x 1
	PCIe	—	—
	PCI	—	—
	Mini Card	Full size Mini-card slot x 1	Full size Mini-Card slot x 1 (USB Interface only)
	USB	Onboard USB 2.0 pin header x 1	—
	Others	Onboard LPC connector x 1, LVDS x 1	Onboard SATA connector x 1
Indicator	Front	—	—
	Rear	—	—
Power Requirement		DC 12V input with lockable connector	DC 12V input with lockable connector
Power Consumption		—	—
System Cooling		Passive	Passive
Mounting	Din Rail mount	Yes (option)	Yes (option)
	VESA mount	VESA 75 (option)	VESA 75 (option)
Operating Temperature		-30°C ~ 70°C (-22°F ~ 158°F) with 0.5m/s airflow	-30°C ~ 65°C (-22°F ~ 149°F) with 0.5m/s airflow
Storage Temperature		-30°C ~ 80°C (-22°F ~ 176°F) 5 ~ 95% @ 40°C, non-condensing	-30°C ~ 80°C (-22°F ~ 176°F) 5 ~ 95% @ 40°C, non-condensing
Anti-Vibration		3G rms/ 5 ~ 500Hz/ operation -HDD	5G rms/ 5 ~ 500Hz/ operation -CFast
Anti-Shock		20 G peak acceleration (11 msec. duration) – HDD	50 G peak acceleration (11 msec. duration) – CFast
MTBF (Hours)		—	152,670
Certification	EMC	CE /FCC Class A	CE /FCC Class A
	Safety	—	—
Dimension (W x H x D)		158.0mm x 95.0mm x 41.5mm (6.22" x 3.74" x 1.63")	166mm x 106.6mm x 30mm (6.53" x 4.20" x 1.18")
Gross Weight		1.45kg (3.20 lb)	1.30kg (2.90 lb)
Note		Windows® 10 Windows® 8.1 Windows® 7 Windows® Embedded 8 Standard Windows® Embedded Standard 7 Linux Federa	Windows® 10 Windows® 8.1 Windows® 7 Windows® Embedded 8 Standard Windows® Embedded Standard 7 Linux Federa

# System Level Products

## Ultra Slim Fanless BOX PC Solutions

Ultra Slim Fanless BOX PC Solutions/ Compact Fanless BOX PC Solutions



Model		BOXER-6404WT	BOXER-6404M
CPU		Intel® Celeron® Processor J1900, N2807	Intel® Celeron® Processor J1900, N2807
Chipset		—	—
System Memory		204-pin DDR3L 1333MHz SODIMM slot x 1, up to 8 GB (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB (N2807)	204-pin DDR3L 1333MHz SODIMM slot x 1, up to 8 GB (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB (N2807)
Display Interface	VGA	—	—
	DVI	—	—
	HDMI	HDMI x 2	HDMI x 2
	DP	—	—
	Others	—	—
Storage Device	HDD/SSD	—	2.5" HDD/SSD bay x 1
	CFast	CFast™ Slot x 1	CFast™ Slot x 1
	mSATA	—	—
	LAN	Intel® Gigabit Ethernet	Intel® Gigabit Ethernet
Network	Wireless	Optional by Mini-card module	Optional by Mini-card module
	USB Port	USB type A x 1 for USB3.0, USB type A x 2 for USB2.0	USB type A x 1 for USB3.0, USB type A x 2 for USB2.0
Front I/O	LAN	—	—
	Serial Port	—	—
	Display	HDMI x 2	HDMI x 2
	DIO	—	—
	Audio	—	—
	PS/2	—	—
	Others	Power button	Power button
	USB Port	—	—
Rear I/O	LAN	RJ-45 x 4 for 10/100/1000 base-TX	RJ-45 x 4 for 10/100/1000 base-TX
	Serial Port	DB-9 x 1 for RS-232	DB-9 x 1 for RS-232
	Display	—	—
	Others	Lockable DC-jack x 1	Lockable DC-jack x 1
Expansion	PCIe	—	—
	PCI	—	—
	Mini Card	Full size Mini-Card slot x 1 (USB Interface only)	Full size Mini-Card slot x 1 (USB Interface only)
	USB	—	—
	Others	Onboard SATA connector x 1	Onboard SATA connector x 1
Indicator	Front	—	—
	Rear	—	—
Power Requirement		DC 12V input with lockable connector	DC 12V input with lockable connector
Power Consumption		—	—
System Cooling		Passive	Passive
Mounting	Din Rail mount	Yes (option)	Yes (option)
	VESA mount	VESA 75 (option)	VESA 75 (option)
Operating Temperature		-30°C to 75°C (-22°F ~ 167°F) with 0.5m/s airflow	-30°C to 75°C (-22°F ~ 167°F) with 0.5m/s airflow
Storage Temperature		-30°C ~ 80°C (-22°F ~ 176°F) 5 ~ 95% @ 40°C, non-condensing	-30°C ~ 80°C (-22°F ~ 176°F) 5 ~ 95% @ 40°C, non-condensing
Anti-Vibration		5G rms/ 5 ~ 500Hz/ operation -CFast	5G rms/ 5 ~ 500Hz/ operation -CFast
Anti-Shock		50 G peak acceleration (11 msec. duration) – CFast	50 G peak acceleration (11 msec. duration) – CFast
MTBF (Hours)		—	—
Certification	EMC	CE /FCC Class A	CE /FCC Class A
	Safety	—	—
Dimension (W x H x D)		166mm x 106.6mm x 40.5mm (6.53" x 4.20" x 1.59")	166mm x 106.6mm x 52mm (6.53" x 4.20" x 2.05")
Gross Weight		1.63kg (3.59 lb)	1.73kg (3.81 lb)
Note		Windows® 10 Windows® 8.1 Windows® 7 Windows® Embedded 8 Standard Windows® Embedded Standard 7 Linux Federa	Windows® 10 Windows® 8.1 Windows® 7 Windows® Embedded 8 Standard Windows® Embedded Standard 7 Linux Federa

# System Level Products

## Compact Fanless BOX PC Solutions



Model		BOXER-6615	BOXER-6614
CPU		Intel® Pentium® N3700, 1.6 GHz	Intel® Celeron™ J1900 2.0 GHz/ Celeron® N2930 1.83 GHz/ N2807 1.58 GHz/ Atom™ E3845, 1.91 GHz
Chipset		SoC	Intel® System on Chip
System Memory		204-pin DDR3L 1600/1333 SODIMM x 1, up to 8 GB	DDR3L 1333 SODIMM x 1, up to 8 GB
Display Interface	VGA	VGA x 1	DB-15 x 1 for VGA
	DVI	—	—
	HDMI	HDMI x 1	HDMI x 1
	Others	—	—
Storage Device	CF-SATA	—	CFast™ slot x 1 (w/Cover protection)
	HDD/SSD	2.5" HDD bay x 1, mSATA x 1	2.5" HDD Drive Bay x 1
	Others	—	—
Network	LAN	Gigabit Ethernet x 2	Intel® Gigabit Ethernet x 2
	Wireless	Optional by Mini-Card wireless module	—
Front I/O	USB Port	USB type A x 2 for USB 2.0	USB type A x 2 for USB 2.0
	LAN	—	—
	Serial Port	DB-9 x 2 for RS-232	—
	DIO	—	—
	Audio	Audio jack x 1 for Line-out	Line-out x 1
	KB/MS	—	—
	Others	Power switch x 1	Power On/Off Switch x 1, CFast™ slot x 1, Antenna hole x 2
Rear I/O	USB Port	USB type A x 2 for USB 3.0 x 2	USB type A x 1 for USB 3.0, USB type A x 1 for USB 2.0
	LAN	RJ-45 x 2 for 10/100/1000Base-TX	RJ-45 x 2
	Serial Port	DB-9 x 2 for RS-232, DB-9x 2 for RS-232/422/485	DB-9 x 2 for RS-232, DB-9 x 2 for RS-232/422/485 with autoflow
	DIO	—	—
	Audio	—	—
	KB/MS	—	—
Expansion	PCIe	Full-size Mini-Card x 1, Half-size Mini-Card x 1 (mSATA), SIM card slot x 1	—
	PCI	—	—
	Mini-Card	—	Full-size Mini-Card x 1, Half-size Mini-Card x 1 (Only for Factory-install)
	Mini PCI	—	—
	Others	—	SIM Card Socket x 1
Indicator	Front	Power LED x 1	Power LED x 1, HDD active LED x 1
	Rear	HDD LED x 1	—
Power Requirement		DC-in 3-pin terminal block (9~30V) or DC Jack Locable for DC 12V	DC-in 3-pin terminal block (9~30V) or DC-in 12V with DC jack lockable
Power Consumption		—	N2930 0.75A@12V (9W), without USB Loading
System Cooling		Passive	Passive
Mounting		Wallmount	Wallmount/VESA/DIN Rail
Operating Temperature		-4°F ~ 140°F (-20°C ~ 60°C) According to IEC60068-2, 0.5m/s air flow	-4°F ~ 131°F (-20°C ~ 55°C) W/T CFast™ (with 0.5 m/s AirFlow) -4°F ~ 140°F (-20°C ~ 60°C) W/T HDD (with 0.5 m/s AirFlow) with industrial grade device (according to IEC68-2-14)
Storage Temperature		-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
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
Anti-Shock		50 G peak acceleration (11 msec. duration) – mSATA & SSD 20 G peak acceleration (11 msec. duration) – HDD	50 G peak acceleration (11 msec. duration) –CFast™ Card 20 G peak acceleration (11 msec. duration) – HDD
MTBF (Hours)		—	64,000
Certification	EMC	CE/FCC class A	CE/FCC class A
	Safety	—	—
	Others	—	—
Dimension (W x H x D)		7.76" x 4.33" x 2.17" (197mm x 110mm x 55.1mm)	8.35" x 4.21" x 2.53" (212.15mm x 107mm x 64.2mm)
Gross Weight		—	6.6 lb (2.8 kg)
Net Weight		4.4 lb (2 kg)	4.4 lb (2 kg)
Note		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 14.04/ Kernel 3.13.0

# System Level Products

## Compact Fanless BOX PC Solutions

Compact Fanless BOX PC Solutions



Model	AEC-6613	AEC-6612 Rev. B	
CPU	Intel® Atom™ D2550 1.86 GHz	Intel® Atom™ D525 1.8 GHz	
Chipset	Intel® NM10	Intel® ICH8M	
System Memory	DDR3 800/1066 SODIMM x 1, up to 4 GB	204-pin DDR3 SODIMM 667/800 MHz x 1, Max 4G	
Display Interface	VGA	DB-15 x 1	
	DVI	DVI-D x 1 (For A3/A4/A3M/A4M)	
	HDMI	—	
	Others	—	
Storage Device	CF-SATA	CFast™ Slot x 1 (w/Cover protection)	
	HDD/SSD	2.5" SATA HDD bay x 1 (AEC-6613-A2/AEC6613-A2M)	
	Others	Compact Flash™ Slot x 1	
Network	LAN	Gigabit Ethernet	
	Wireless	Optional by Mini-Card	
Front I/O	USB Port	USB 2.0 x 2	
	LAN	—	
	Serial Port	—	
	DIO	—	
	Audio	Line-out x 1	
	KB/MS	—	
	Others	Power ON/OFF Switch x 1, Power LED x 1, HDD LED x 1, CFast™ slot x 1, antenna hole x 2	
Rear I/O	USB Port	USB 2.0 x 2	
	LAN	RJ-45 x 2	
	Serial Port	RS-232 x 3 (optional extra 2), RS-232/422/485 x 1	
	DIO	—	
Expansion	PCIe	—	
	PCI	—	
	Mini-Card	1	
	Mini PCI	—	
Indicator	Front	Power LED x 1, HDD active LED x 1	
	Rear	—	
Power Requirement	DC-in 12V, with DC jack lockable, DC 9 ~ 30V with 3-pin terminal block	DC-in 12V/DC-in 9 ~ 30V	
Power Consumption	Intel® Atom™ D2550 1.86 GHz, 1.21A@12V (14.52W) without USB loading	Intel® Atom™ D525 1.8 GHz, 1.7A@12V (20.4W) without USB loading	
System Cooling	Passive	Passive	
Mounting	Wallmount	Wallmount	
Operating Temperature	Ambient with airflow: 5°F ~ 131°F (-15°C ~ 55°C) - HDD 5°F ~ 140°F (-15°C ~ 60°C) - CFast™	No airflow: 5°F ~ 122°F (-15°C ~ 50°C) - HDD 5°F ~ 131°F (-15°C ~ 55°C) - CFast™	Ambient with airflow -4°F ~ 122°F (-20°C ~ 50°C) - CFD -4°F ~ 131°F (-20°C ~ 55°C) - HDD -4°F ~ 122°F (-20°C ~ 50°C) - HDD
	Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation – CFast™ 1 Grms/ 5 ~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation – CFast™ 1 Grms/ 5 ~ 500Hz/ operation – HDD	
Anti-Shock	50 G peak acceleration (11 msec. duration) – CFast™ 20 G peak acceleration (11 msec. duration) – HDD	50 G peak acceleration (11 msec. duration) – CFast™ 20 G peak acceleration (11 msec. duration) – HDD	
MTBF (Hours)	56,000	99,000	
Certification	EMC	CE /FCC Class A	
	Safety	—	
	Others	—	
Dimension (W x H x D)	8.35" (W) x 3.1" (H) x 2.25" (D) (212.15mm x 78.88mm x 107mm)	7.76" (W) x 2.26" (H) x 4.34" (D) (197mm x 57.2mm x 110mm)	
Gross Weight	8.38 lb (3.8 kg)	4.85 lb (2.2 kg)	
Net Weight	4.75 lb (2.76 kg)	—	
Note	Windows® XP, Windows® 7 32-bit, WES2009, WES7 32-bit, Linux Fedora15/Kernel 2.6.38.6	Windows® XP, Windows® 7 32-bit/64-bit, WES2009, WES7 32-bit/64-bit, WinCE 6.0, WEC7, Linux Fedora14/ Kernel 2.6.35.6	

# System Level Products

## Compact Fanless BOX PC Solutions



Model	BOXER-6638U	AEC-6638
CPU	Intel® 5th Generation Core™ i3-5010U Processor	4th Generation Intel® Core™ i7-4700EQ 2.4 GHz/ i5-4400E 2.7 GHz/ i3-4100E 2.4 GHz Processor (37W)
Chipset	SoC	Intel® QM87
System Memory	204-pin SODIMM DDR3L 1600 MHz, up to 8 GB	204-pin DDR3L 1333/1600 MHz SODIMM x 1, up to 8GB
Display Interface	VGA	VGA x1
	DVI	—
	HDMI	—
	Others	DP x 1
Storage Device	CF-SATA	—
	HDD/SSD	2.5" Drive bay x 1
	Others	—
Network	LAN	—
	Wireless	—
Front I/O	USB Port	—
	LAN	—
	Serial Port	—
	DIO	—
	Audio	—
	KB/MS	—
	Others	—
	Others	—
Rear I/O	USB Port	USB type A x 2 for USB 3.0
	LAN	—
	Serial Port	DB-9 x 2 for RS-232, DB-9 x 2 for RS-232/422/485
	DIO	—
	Audio	Audio jack x 1 for Line-out
	KB/MS	—
Expansion	PCle	—
	PCI	—
	Mini-Card	Full-size Mini-Card and SIM slot x 1 (optional for mSATA), Half-size Mini-Card x 1
	Mini PCI	—
	Others	—
Indicator	Front	Power LED x 1, HDD LED x 1
	Rear	—
Power Requirement	DC-in 9-24 V	DC 9 ~ 30V with 3-pin terminal block
Power Consumption	—	Core i5-4400E 1.8A@19V (34.2W) without USB loading
System Cooling	Passive	Passive
Mounting	Wallmount	Wallmount
Operating Temperature	-20°C ~ 60°C According to IEC60068-2, 0.5m/s air flow	Intel® Core™ i7/i5/i3 37W BGA CPU: (1) 5°F ~ 122°F (-15°C ~ 50°C) W/ T Fast™ (with AirFlow), (2) 5°F ~ 131°F (-15°C ~ 55°C) W/T HDD (with AirFlow) with industrial grade device (according to IEC68-2-14)
Storage Temperature	-45°C ~ 80°C	-4°F ~ 158°F (-20°C ~ 70°C)
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation – mSATA & SSD 1 Grms/ 5 ~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation – CFast™ 1 Grms/ 5 ~ 500Hz/ operation – HDD
Anti-Shock	50 G peak acceleration (11 msec. duration) – mSATA & SSD 20 G peak acceleration (11 msec. duration) – HDD	50 G peak acceleration (11 msec. duration) – CFast™ 20 G peak acceleration (11 msec. duration) – HDD
MTBF (Hours)	—	78,000
Certification	EMC	CE/FCC class A
	Safety	—
	Others	—
Dimension (W x H x D)	7.76" x 5.63" x 2.17" (197mm x 143mm x 55mm)	8.35" x 6.14" x 2.53" (212.2mm x 156mm x 64.3mm)
Gross Weight	—	7.94 lb (3.6 kg)
Net Weight	—	6.0 lb (2.7kg)
Note	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 14.04/ Kernel 3.13.0

# System Level Products

## Compact Fanless BOX PC Solutions

Compact Fanless BOX PC Solutions



Model	AEC-6637	AEC-6636	
CPU	Intel® Core™ i7-3610QE 2.3/ i5-3610ME 2.7 GHz processor	Intel® Core™ i7-2710QE 2.1 GHz/i5-2510E 2.5 GHz, Intel® Celeron® -B810 1.6 GHz	
Chipset	Intel® QM77	Intel® QM67	
System Memory	DDR3 1066/1333 MHz SODIMM x 1, up to 8 GB	DDR3 1066/1333 MHz SODIMM x 1, up to 8 GB	
Display Interface	VGA	DB-15 x 1	
	DVI	DVI-D x 1(AEC-6637-C1/C2)	DVI-D x 1 (for A5/A6/A5M/A6M/A7M)
	HDMI	—	—
	Others	—	—
Storage Device	CF-SATA	Onboard CFast™ x 1	Onboard CFast™ x 1
	HDD/SSD	2.5" SATA HDD bay x 1	2.5" SATA HDD bay x 1
	Others	—	—
Network	LAN	Gigabit Ethernet	RJ-45 x 2
	Wireless	—	—
Front I/O	USB Port	USB 2.0 x 2	USB 2.0 x 2
	LAN	—	—
	Serial Port	—	—
	DIO	—	—
	Audio	Line-out x 1	1
	KB/MS	—	—
Others	Power ON/OFF Switch x 1, antenna hole x 2	Power ON/OFF Switch x 1, antenna hole x 2	
Rear I/O	USB Port	USB 3.0 x 2	USB 2.0 x 2
	LAN	RJ-45 x 2	RJ-45 x 2
	Serial Port	RS-232 x 3, RS-232/422/485 x 1	RS-232 x 3, RS-232/422/485 x 1
	DIO	—	—
	Audio	—	—
	KB/MS	—	—
Others	Power input x 1, VGA x 1	Power input x 1, VGA x 1	
Expansion	PCIe	—	—
	PCI	—	—
	Mini-Card	Mini-Card x 1	Mini-Card x 1
	Mini PCI	—	—
Others	—	—	
Indicator	Front	Power LED x 1, HDD active LED x 1	Power LED x 1, HDD active LED x 1
	Rear	—	—
Power Requirement	DC 9 ~ 30V with 3-pin terminal block	DC-in 12V, with DC jack, lockable (for 6636-A1/A2) or DC 9 ~ 30V with 3-pin terminal block (for 6636-A1M/A2M/A3M)	
Power Consumption	Intel® Core™ i7-3610QE 2.3 GHz processor, 3.26A@19V (61.94 W) without USB loading	Intel® Core™ i5-2510E 2.5 GHz, 3.3A@+12V	
System Cooling	Passive	Passive	
Mounting	Wallmount	Wallmount	
Operating Temperature	5°F ~ 122°F (-15°C ~ 50°C) W/T CFast™ (with AirFlow)	14°F ~ 113°F (-10°C ~ 45°C) CFast™ w/o Airflow	
	5°F ~ 131°F (-15°C ~ 55°C) W/T HDD (with AirFlow) with industrial grade device (according to IEC68-2-14)	14°F ~ 122°F (-10°C ~ 50°C) HDD w/o Airflow	
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)	
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation – mSATA & SSD 1 Grms/ 5 ~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation – CFast™ 1 Grms/ 5 ~ 500Hz/ operation – HDD	
Anti-Shock	50 G peak acceleration (11 msec. duration) – CFast™ 20 G peak acceleration (11 msec. duration) – HDD	50 G peak acceleration (11 msec. duration) – CFast™ 20 G peak acceleration (11 msec. duration) – HDD	
MTBF (Hours)	49,000	49,000	
Certification	EMC	CE /FCC Class A	CE /FCC Class A
	Safety	—	—
	Others	—	—
Dimension (W x H x D)	8.35" (W) x 2.52" (H) x 6.2"(D) (212mm x 64mm x 156mm)	8.35" (W) x 2.52" (H) x 6.2"(D) (212mm x 64mm x 156mm)	
Gross Weight	7.94 lb (3.6 kg)	7.94 lb (3.6 kg)	
Net Weight	—	—	
Note	Win 7 32/64-bit, Win 8.1 32/64-bit, Win 10 32/64-bit, WES 7 32/64-bit, WES 8 32/64-bit	Win XP, Win 7 32/64-bit, Win 8.1 32/64-bit, Win 10 32/64-bit, WES 7 32/64-bit, WES 8 32/64-bit	

# System Level Products

## Compact Fanless BOX PC Solutions



Model	AEC-6635	AEC-6625
CPU	Intel® Core™ i7 620M 2.66 GHz / Intel® Core™ i5 520M 2.4 GHz	Intel® P4500 1.86 GHz
Chipset	Intel® QM57	Intel® QM57
System Memory	204-pin DDR3 SODIMM x 1, up to 4 GB	204-pin DDR3 SODIMM x 1, up to 4 GB
Display Interface	VGA	DB-15 x 1, shared system memory up to 512 MB
	DVI	DVI-D x 1
	HDMI	—
	Others	DisplayPort x 1
Storage Device	CF-SATA	CompactFlash™ Slot x 1 (w/Cover protection)
	HDD/SSD	2.5" SATA HDD drive bay x 1
	Others	—
Network	LAN	Gigabit Ethernet x 2
	Wireless	—
Front I/O	USB Port	USB 2.0 x 2
	LAN	—
	Serial Port	—
	DIO	4 DI + 4 DO
	Audio	—
	KB/MS	—
	Others	Power switch x 1, Power reset x 1, SYS LED x 1, HDD LED x 1
Rear I/O	USB Port	USB 2.0 x 4
	LAN	RJ-45 x 2
	Serial Port	RS-232 x 3, RS-232/422/485 x 1
	DIO	—
	Audio	—
	KB/MS	—
	Others	Power input x 1, DVI-D x 1, VGA x 1
Expansion	PCIe	—
	PCI	—
	Mini-Card	1
	Mini PCI	—
	Others	—
Indicator	Front	Power LED x 1, HDD active LED x 1
	Rear	—
Power Requirement	DC-in 9 – 30V	DC-in 9–30V
Power Consumption	Intel® Core™ i7 620M 2.56 GHz (35W), 1.58A@19V	Intel® P4500, 1.25A@30V
System Cooling	Passive	Passive cooling
Mounting	Wallmount	Wallmount
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C) without Airflow	Ambient with airflow: -4°F ~ 140°F (-20°C ~ 60°C)
	-4°F ~ 131°F (-20°C ~ 55°C) with Airflow	No airflow: -4°F ~ 122°F (-20°C ~ 50°C)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation – CFD	5 Grms/ 5 ~ 500Hz/ operation – CompactFlash™
	1 Grms/ 5~ 500Hz/ operation – HDD	1 Grms/ 5~ 500Hz/ operation – HDD
Anti-Shock	50 G peak acceleration (11 msec. duration) – CFD	20 G peak acceleration (11 msec. duration)
	20 G peak acceleration (11 msec. duration) – HDD	—
MTBF (Hours)	50,000	50,000
Certification	EMC	CE /FCC Class A
	Safety	—
	Others	—
Dimension (W x H x D)	8.35" (w) x 2.52" (H) x 9.8" (D) (212mm x 64mm x 249mm)	8.35" x 2.52" x 6.22" (212mm x 64mm x 158mm)
Gross Weight	10.34 lb (4.7 kg)	10.34 lb (4.7 kg)
Net Weight	—	—
Note	Win XP, Win7 32/64-bit, WES7 32/64-bit	Windows® XP Embedded, Windows® XP, Windows® 7 Support

# System Level Products

## Compact Fanless BOX PC Solutions



Model	AEC-6646B	AEC-6643
<b>CPU</b>	LGA1155 socket for Desktop Intel® Core™/Pentium® processor (Max. 55W); supports: Intel® Pentium® G540 @ 2.50 GHz/G850 @ 2.90 GHz, Intel® Core™ i3-2120 (3M Cache, 3.30 GHz)/i3-3220 (3M Cache, 3.10 GHz)	Onboard Intel® Atom™ D2550 B3 Processor
<b>Chipset</b>	Intel® H61	Intel® NM10
<b>System Memory</b>	204-pin DDR3 1333/1066 MHz SODIMM x 2, up to 16 GB	204-pin DDR3 800/1066 MHz SODIMM x 2, up to 4 GB
<b>Display Interface</b>	<b>VGA</b>	DB-15 x 1
	<b>DVI</b>	—
	<b>HDMI</b>	HDMI x 2
	<b>Others</b>	—
<b>Storage Device</b>	<b>CF-SATA</b>	—
	<b>HDD/SSD</b>	2.5" SATA HDD bay x 1
	<b>Others</b>	—
<b>Network</b>	<b>LAN</b>	Gigabit Ethernet
	<b>Wireless</b>	—
<b>Front I/O</b>	<b>USB Port</b>	—
	<b>LAN</b>	—
	<b>Serial Port</b>	—
	<b>DIO</b>	—
	<b>Audio</b>	—
	<b>KB/MS</b>	—
	<b>Others</b>	—
<b>Rear I/O</b>	<b>USB Port</b>	USB 2.0 x 6
	<b>LAN</b>	RJ-45 x 2
	<b>Serial Port</b>	RS-232/422/485 x 1, RS-232 x 3
	<b>DIO</b>	—
	<b>Audio</b>	Mic-In/ Line-Out/ Line-In
	<b>KB/MS</b>	PS/2 x 1 for keyboard & mouse
	<b>Others</b>	Power input x 1, Power Button x 1
<b>Expansion</b>	<b>PCIe</b>	—
	<b>PCI</b>	—
	<b>Mini-Card</b>	Mini-Card x 1
	<b>Mini PCI</b>	—
	<b>Others</b>	—
<b>Indicator</b>	<b>Front</b>	—
	<b>Rear</b>	Power LED x 1, HDD active LED x 1
<b>Power Requirement</b>	Lockable DC jack x 1 for DC12V	Lockable DC jack x 1 for DC12V
<b>Power Consumption</b>	Core i3-3220 3.68A@12V (44.16W) without USB loading	D2550, 1.21A@12V (14.52W) without USB loading
<b>System Cooling</b>	Passive	Passive
<b>Mounting</b>	Wallmount	Wallmount/VESA/Din Rail
<b>Operating Temperature</b>	23°F ~ 113°F (-5°C ~ 45°C) with W/T HDD (with Airflow) with industrial grade device (according to IEC68-2-14)	23°F ~ 113°F (-5°C ~ 45°C) with W/T HDD (with Airflow) with industrial grade device (according to IEC68-2-14)
<b>Storage Temperature</b>	14°F ~ 140°F (-10°C ~ 60°C)	14°F ~ 140°F (-10°C ~ 60°C)
<b>Anti-Vibration</b>	1 Grms/ 5 ~ 500Hz/ operation – HDD	1 Grms/ 5 ~ 500Hz/ operation – HDD
<b>Anti-Shock</b>	10 G peak acceleration (11 msec. duration)	20 G peak acceleration (11 msec. duration)
<b>MTBF (Hours)</b>	115,000	178,000
<b>Certification</b>	<b>EMC</b>	CE /FCC Class A
	<b>Safety</b>	—
	<b>Others</b>	—
<b>Dimension (W x H x D)</b>	11.81" (W) x 3.05" (H) x 7.48" (D) (300mm x 77.5mm x 190mm)	11.81" (W) x 1.83" (H) x 7.48" (D) (300mm x 46.5mm x 190mm)
<b>Gross Weight</b>	12.98 lb (5.9 kg)	—
<b>Net Weight</b>	—	—
<b>Note</b>	Windows® XP, Windows® 7 (32/64-bit), Windows® 8.1 (32/64-bit), WES2009, WES7 32/64-bit, WES8 32/64-bit, Linux Fedora 15/ Kernel 2.6.38.6	Windows® XP Pro 32-bit, Windows® Embedded Standard 32-bit, Windows® 7 32-bit, Linux Ubuntu 15/ Kernel 2.6.38.6



# System Level Products

## Compact Fanless BOX PC Solutions



Model		BOXER-6652	BOXER-6651
CPU		Intel® Core™ i5-4402E (2.7 GHz, 25W)	Intel® Atom™ E3845 Quad Core 1.91 GHz Processor SoC
Chipset		Intel QM87 PCH	Intel® SoC
System Memory		204-pin DDR3L 1333/1600MHz SODIMM x 1, up to 16 GB	204-pin DDR3L SODIMM x 1, support DDR3L 1333, up to 8 GB
Display Interface	VGA	VGA x 1	D-Sub 15 x 1, Resolution: up to 2560 x 1600 @ 60 Hz
	DVI	DVI-D x 1	DVI-D x 1, Resolution: up to 1920 x 1080 @ 60 Hz
	HDMI	HDMI x 1	—
Storage Device	CF-SATA	CFast slot x 1	CFast™ slot x 1 (with SIM Card Socket)
	HDD/SSD	2.5" HDD bay x 1	2.5" SATA HDD/SSD Bay x 1
	Others	—	—
Network	LAN	Gigabit Ethernet x 2	Gigabit Ethernet, RJ-45 x 2
	Wireless	Optional by Mini-Card wireless module	Optional by Mini-Card wireless module
Front I/O	USB Port	USB type A x 2 for USB 2.0	USB 2.0 x 2
	LAN	—	—
	Serial Port	DB-9 x 2 for RS-232	DB9 x 2 for COM 5/6: RS-232
	DIO	—	—
	Audio	Audio jack x 1 for Line-out	—
	KB/MS	—	—
	Others	Power switch x 1, CFast slot x 1, SIM card slot x 1	CFast™ slot x 1 (with SIM Card Socket), Power switch x 1, LED x 6 for System/HDD/LAN1 TX/LAN1 RX/LAN2 TX/LAN2 RX
	Other	—	—
Rear I/O	USB Port	USB type A x 2 for USB 3.0, USB type A x 2 for USB 2.0	USB 3.0 x 1, USB 2.0 x 3
	LAN	RJ-45 x 2 for 10/100/1000Base-TX	Intel® Gigabit Ethernet, RJ-45 x 2
	Serial Port	DB-9 x 2 for RS-232 DB-9 x 2 for RS-232/422/485 (isolated)	DB9 x 4 for COM 1: RS-232 (Ring / +5V / +12V) (Jumper select), COM 2 RS-232 (Ring / +5V / +12V) (Jumper select), COM 3, 4 RS-232/422/485 with Auto Flow & isolation 2500Vdc (RS-232/422/485 by Jumper select)
	DIO	—	—
	Audio	—	Line-in x 1 / Line-out x 1
	KB/MS	—	VGA x 1, DVI-D x 1
	Others	3-pin terminal block x 1 for DC9-30V, DVI-D x 1, HDMI x 1	—
Expansion	PCIe	—	—
	PCI	—	—
	Mini-Card	Full-size Mini-Card x 1, Half-size Mini-Card x 1	Full size x 1, Half size x 1
	Mini PCI	—	—
	Others	—	SIM Card Socket x 1
Indicator	Front	System LED x 1, HDD LED x 1, LAN1 Tx LED x 1, LAN1 Rx LED x 1, LAN2 Tx LED x 1, LAN2 Rx LED x 1	LED x 6, for System/HDD/LAN1 TX/LAN1 RX/LAN2 TX/LAN2 RX
	Rear	—	—
Power Requirement		DC-in 3-pin terminal block (9–30V)	DC 9 – 30V with 3-pin terminal block
Power Consumption		—	—
System Cooling		Passive	Passive cooling
Mounting		Wallmount	—
Operating Temperature		-20°C ~ 60°C according to IEC60068-2, 0.5m/s air flow	-13°F ~ 149°F (-25°C ~ 65°C) with industrial grade device (with 0.5 m/s airflow, according to IEC68-2-14)
Storage Temperature		-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C) with industrial grade device (according to IEC68-2-1, IEC68-2-2, IEC68-2-3)
Anti-Vibration		5 Grms/ 5 ~ 500Hz/ operation – mSATA & SSD 1 Grms/ 5 ~ 500Hz/ operation – HDD	5 Grms/5~500Hz/ operation - CFast™ & SSD 1 Grms/5~500Hz/ operation - HDD
Anti-Shock		50 G peak acceleration (11 msec. duration) – mSATA & SSD 20 G peak acceleration (11 msec. duration) – HDD	50 G peak acceleration - CFast™ Card 50 G peak acceleration - SSD, 20 G peak acceleration - HDD
MTBF (Hours)		52,000	100,000
Certification	EMC	CE/FCC class A	CE /FCC Class A
	Safety	—	—
	Others	—	—
Dimension (W x H x D)		10.4" x 2.74" x 7.62" (264.16mm x 69.62mm x 193.5mm)	10.4" x 2.7" x 7.6" (264.2 mm x 69.6 mm x 193.5 mm)
Gross Weight		12.1 lb (5.5 kg)	1.1 lb (5 kg)
Net Weight		—	—
Note		Windows® 7, Windows® 8/8.1, Windows® 10, Linux Fedora	Windows® 7, Windows® 8.1, WEST, WES8, Linux Ubuntu 12.04 / Kernel 3.2.0

# System Level Products

## Compact Fanless BOX PC Solutions/Expandable Fanless BOX PC Solutions

Compact Fanless BOX PC Solutions/Expandable Fanless BOX PC Solutions

Launching in Q2



Model		BOXER-6639	BOXER-6852
CPU		Intel® Core™ i7-6700TE, Quad Core, 2.4 GHz, 8M cache/ i5-6500TE, Quad Core, 2.3 GHz, 6M cache/ i3-6100TE, Dual Core, 2.7 GHz, 4M cache (TDP: 35W)	Intel® Core™ i5-4402E (2.7 GHz, 25W)
Chipset		Q170	Intel QM87
System Memory		204-pin DDR4 1866/2133 SODIMM x 2, up to 16 GB	204-pin DDR3L 1333/1600MHz SODIMM x 1, up to 16 GB
Display Interface	VGA	Support un-buffered and non-ECC type SODIMM	VGA x 1
	DVI	DVI-I x 1	DVI-D x 1
	HDMI	HDMI x 2	HDMI x 1
Others		—	—
Storage Device	CF-SATA	CFast slot x 1	CFast slot x 1
	HDD/SSD	2.5" HDD bay x 1	2.5" HDD bay x 1
	Others	—	—
Network	LAN	Gigabit Ethernet x 3	Gigabit Ethernet x 2
	Wireless	Optional by Mini-Card wireless module	Optional by Mini-Card wireless module
Front I/O	USB Port	—	USB type A x 2 for USB 2.0
	LAN	—	—
	Serial Port	DB-9 x 6 for RS-232/422/485 with automatic flow control	DB-9 x 2 for RS-232
	DIO	DB-44 or DC-37 Female for 32-pin non-isolation DIO (TTL level)	—
	Audio	—	Audio jack x 1 for Line-out
	KB/MS	—	—
	Others	Power switch x 1, 2 pin Remote power on/off connector x 1, Reset switch x 1, DVI-I x 1, HDMI x 2, 3-pin terminal block x 1 for DC9-30V	Power switch x 1, CFast slot x 1, SIM card slot x 1
	Others	—	—
Rear I/O	USB Port	USB type A x 6 for USB 3.0	USB type A x 2 for USB 3.0, USB type A x 2 for USB 2.0
	LAN	RJ-45 x 3 for 10/100/1000Base-TX	RJ-45 x 2 for 10/100/1000Base-TX
	Serial Port	—	DB-9 x 2 for RS-232, DB-9 x 2 for RS-232/422/485 (isolated)
	DIO	—	—
	Audio	Audio jack x 1 (Mic-in, Line-out)	—
	KB/MS	—	—
Expansion	Others	—	3-pin terminal block x 1 for DC 9-30V, DVI-D x 1, HDMI x 1
	PCIe	—	PCIe [x1]
	PCI	—	PCI x 2
	Mini-Card	Full-size Mini-Card x 2, Half-size Minicard x 1 (optional for mSATA)	Full-size Mini-Card x 1, Half-size Mini-Card x 1
	Mini PCI	—	—
Indicator	Others	SYS LED x 1, HDD LED x 1	—
	Front	—	System LED x 1, HDD LED x 1, LAN1 Tx LED x 1, LAN1 Rx LED x 1, LAN2 Tx LED x 1, LAN2 Rx LED x 1
Power Requirement	DC-in 3-pin terminal block (9-30V)	DC-in 3-pin terminal block (9-30V)	
Power Consumption	—	—	
System Cooling	Passive	Passive	
Mounting	Wallmount	Wallmount	
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) according to IEC60068-2, 0.5m/s air flow	-20°C ~ 60°C according to IEC60068-2, 0.5m/s air flow	
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)	-4°F ~ 158°F (-20°C ~ 70°C)	
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	
Anti-Shock	100G peak acceleration (11 msec. duration) – CFast/SSD/mSATA	50 G peak acceleration (11 msec. duration) – mSATA & SSD 20 G peak acceleration (11 msec. duration) – HDD	
MTBF (Hours)	—	—	
Certification	EMC	CE/FCC class A	CE/FCC class A
	Safety	—	—
	Others	—	—
Dimension (W x H x D)	—	10.4" x 7.62" x 4.3" (264.16mm x193.5mm x 109.3mm)	
Gross Weight	—	11 lb (5 kg)	
Net Weight	—	—	
Note	Windows® 7, Windows® 8/8.1, Windows® 10, Linux Fedora	Windows® 7, Windows® 8/8.1, Windows® 10, Linux Fedora	

# System Level Products

## Expandable Fanless BOX PC Solutions



Model		AEC-6877	AEC-6876
CPU		Intel® Core™ i7-3610QE 2.3 GHz, i5-3610ME 2.7 GHz/ i7-2710QE 2.1 GHz/ i5-2510E 2.5 GHz/ Celeron® B810 1.6 GHz with socket PGA988	Intel® Core™ i7-2710QE/ i5-2510E 2.5 GHz/ i3-2330E/ Celeron® B810 1.6 GHz
Chipset		Intel® QM77	Intel® QM67
System Memory		204-pin dual-channel DDR3 1066/1333/1600 MHz SODIMM x 2, up to 16 GB	DDR3 1066/1333 MHz SODIMM x 2, up to 16 GB
Display Interface	VGA	DB-15 x 1	DB-15 x 1
	DVI	DVI-D x 1, supports 1920 x 1200 @ 60 Hz	DVI-D x 1
	HDMI	—	HDMI x 1, support 1920 x 1080 @ 60 Hz
	Others	DisplayPort™ x 2	—
Storage Device	CF-SATA	CFast™ slot	CFast™ slot
	HDD/SSD	SATA 6.0Gb/s x 2, support RAID 0,1	SATA 6.0 Gb/s x 1 (SATA 0, 2)
	Others	—	—
Network	LAN	10/100/1000Base-TX	Gigabit ethernet, RJ-45 x 2
	Wireless	Optional by Mini-Card	Optional by Mini-Card
Front I/O	USB Port	—	—
	LAN	—	—
	Serial Port	DB-9 x 1 for RS-232	RS-232 x 3
	DIO	—	—
	Audio	—	—
	KB/MS	—	—
	Others	Power button x 1, standard antenna hole x 2	Power button x 1
	USB Port	USB 3.0 x 4	USB 2.0 x 4
Rear I/O	LAN	RJ-45 x 2	RJ-45 x 2
	Serial Port	DB-9 x 1 for RS-232/422/485	RS-232/422/485 x 1
	DIO	—	—
	Audio	Mic-in, Line-in, Line-out	Mic-in, line-in, line-out
	KB/MS	PS/2 KB x 1+ MS x 1	PS/2 KB x 1+ MS x 1
	Others	Power input x 1	Power input x 1
Expansion	PCIe	AxM: PCIe[x4], supports max. 217 mm (length) for expansion card	1 (optional), AxM: PCIe-E[x4], supports max. 217 mm (length) for expansion card
	PCI	BxM: PCI x 2, supports max. 217 mm (length) for expansion card	2 (optional), BxM: PCI x 2, supports max. 217 mm (length) for expansion card
	Mini-Card	—	1
	Mini PCI	—	—
	Others	—	—
Indicator	Front	Power LED x 1, HDD active LED x 1	Power LED x 1, HDD active LED x 1
	Rear	—	—
Power Requirement		DC 9 ~ 30V with 3-pin terminal block	DC-in 12V, with DC lockable jack, DC 9 ~ 30V with 3-pin terminal block
Power Consumption		Intel® Core™ i7-3610QE 2.3 GHz, 3.02A@19V (57.38W) without USB loading	Intel® Core™ i7-2710QE 3.02A@19V(57.38W) without USB loading
System Cooling		Passive cooling	Passive cooling
Mounting		Wallmount	Wallmount
Operating Temperature		32°F ~ 122°F (0°C ~ 50°C) – without airflow	No airflow: 32°F ~ 122°F (0°C ~ 50°C) wide temperature CFD with WT RAM x 2 Ambient with airflow: 5°F ~ 131°F (-15°C ~ 55°C) wide temperature CFD with WT RAM x 2
Storage Temperature		-4°F ~ 158°F (-20°C ~ 70°C) 10%~95% @40°C, non-condensing	-4°F ~ 158°F (-20°C ~ 70°C)
Anti-Vibration		5 Grms/ 5 ~ 500Hz/ operation – CFast™ 1 Grms/ 5 ~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation – CFD 1 Grms/ 5 ~ 500Hz/ operation – HDD
Anti-Shock		20 G peak acceleration (11 msec. duration) – HDD	50 G peak acceleration (11 msec. duration) – CFD 20 G peak acceleration (11 msec. duration) – HDD
MTBF (Hours)		50,000	50,000
Certification	EMC	CE/FCC class A	CE/FCC class A
	Safety	—	—
	Others	—	—
Dimension (W x H x D)		8.19" x 4.02" x 9.37" (208mmx 102mm x 238mm)	8.19"(W) x 4.02"(H) x 9.37"(D) (208mmx 102mm x 238mm)
Gross Weight		13.2 lb (6 kg)	13.2 lb (6 kg)
Net Weight		—	—
Note		Windows® XP Embedded, Windows® 7 32/64-bit, WES2009, WES 7 32/64-bit, Linux Fedora 13/ kernel 2.6.33.3	Windows® XP Embedded, Windows® 7 32/64-bit, WES 2009, WES 7 32/64-bit, Linux Fedora 14/ Kernel 2.6.35.3

# System Level Products

## Automation Fanless BOX PC Solutions



Model		BOXER-6914	AEC-6977
CPU		Intel® Atom™ D2550 (1M Cache, 1.86 GHz)	Intel® Core™ i7/i5/i3/Celeron® processor with (BGA)
Chipset		Intel® NM10	Intel® QM77
System Memory		DDR3 800/1066 SODIMM x 2, Max. 4 GB	DDR3 1066/1333 MHz SODIMM x 2, up to 16 GB
Display Interface	VGA	DB-15 x 1 for VGA	DB-15 x 1, shared system memory above 512MB/ DVMT 5.0
	DVI	DVI-D x 1	DVI-D x 1 (optional 2nd DVI), supports 1920 x 1200 @ 60 Hz
	HDMI	—	HDMI x 1, supports 1920 x 1200 @ 60 Hz
	Others	—	Dual-channel 24-bit LVDS (optional extension kit)
Storage Device	CF-SATA	CFast™ slot x 1 (w/ cover protection)	CFast™ slot
	HDD/SSD	2.5" HDD bay x 1	SATA 6.0 Gb/s x 2 (SATA 0, 2), SATA 3.0 Gb/s x 2 (SATA 2, 3),
	Others	—	Support RAID 0,1,5,10
Network	LAN	Gigabit Ethernet	Gigabit Ethernet
	Wireless	Optional by Mini-Card wireless module	Optional by Mini-Card
Front I/O	USB Port	USB type A x 2 for USB 2.0	USB 2.0 x 2
	LAN	—	—
	Serial Port	—	RS-232 x 1, RS-232/422/485 x 1, both support optional 2.5KV isolation, RS-232 x 2
	DIO	—	8-bit programmable, optional 2.5KV isolation protection
	Audio	—	—
	KB/MS	—	PS/2 x 1
	Others	Power On/Off Button x 1, CFast™ slot x 1, SIM card slot x 1, Line-out x 1, 2-pin terminal block x 1 for remote power on/off	Power switch x 1, Reset button x 1, LED x 2, SMA antenna x 3 if needed
	Others	—	—
Rear I/O	USB Port	USB type A x 2 for USB 3.0, USB type A x 2 for USB 2.0	USB 3.0 x 4
	LAN	RJ-45 x 2 for Gigabit Ethernet (Intel®)	RJ-45 x 2
	Serial Port	DB-9 x 2 for RS-232/422/485 (cableless), DB-9 x 12 for RS-232 (cableless) DB-9 x 2 for RS-232 by cable (optional)	RS-232 x 2
	DIO	Programmable 30 channel digital I/O	—
	Audio	—	Mic-in, line-in, line-out
	KB/MS	—	—
Expansion	Others	DC-in 3-pin terminal block (9–30V), Antenna hole x 2, DB-15 x 1 for VGA, DVI-D x 1	VGA x 1, DVI-D x 1, HDMI x 1, mic in x 1
	PCIe	—	Riser card: PCI-E[x4] x 2, or PCI-E[x4] and PCI x 1, supports up to 167 mm (length) for expansion card
	PCI	—	Riser card: PCI x 2, supports up to 167 mm (length) for expansion card
	Mini-Card	Full-size Mini-PCIe x 2	2
	Mini PCI	—	—
Indicator	Front	HDD LED x 1, System LED x 1 on power button	System LED x 1, HDD LED x 1
	Rear	—	—
Power Requirement	DC-in 3-pin terminal block (9–30V)	DC-in 9–30V input, 100–240V (optional)	
Power Consumption	—	—	
System Cooling	Passive	Passive	
Mounting	Wallmount	Wallmount	
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C), ambient with airflow, with wide-temp CFast™ & RAM	-4°F ~ 131°F (-20°C ~ 55°C), without airflow, with wide-temp CFast™ & RAM	Without airflow, with wide-temp storage & RAM -4°F ~ 122°F (-20°C ~ 50°C) -35W TDP CPU -4°F ~ 149°F (-20°C ~ 65°C) -17W TDP CPU -4°F ~ 167°F (-20°C ~ 75°C) -17W TDP CPU. not include riser card
	-4°F ~ 131°F (-20°C ~ 55°C), ambient with airflow, with wide-temp HDD & RAM	-4°F ~ 122°F (-20°C ~ 50°C), without airflow, with wide-temp HDD & RAM	Ambient with airflow, with wide-temp storage & RAM -4°F ~ 140°F (-20°C ~ 60°C) -35W TDP CPU -4°F ~ 167°F (-20°C ~ 75°C) -17W TDP CPU. not include riser card
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)
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation – CFast™, 1 Grms/ 5 ~ 500Hz/ operation – HDD	3 Grms/ 5 ~ 500Hz/ operation – CFD, 1 Grms/ 5 ~ 500Hz/ operation – HDD	3 Grms/ 5 ~ 500Hz/ operation – CFD, 1 Grms/ 5 ~ 500Hz/ operation – HDD
Anti-Shock	50 G peak acceleration (11 msec. duration) – CFast™ 20 G peak acceleration (11 msec. duration) – HDD	50 G peak acceleration (11 msec. duration) – CFD 20 G peak acceleration (11 msec. duration) – HDD	50 G peak acceleration (11 msec. duration) – CFD 20 G peak acceleration (11 msec. duration) – HDD
MTBF (Hours)	55,000	59,000	59,000
Certification	EMC	CE/FCC class A	CE/FCC class A
	Safety	—	—
	Others	—	—
Dimension (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)	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)	13.2 lb (6.0 kg)
Net Weight	6.17 lb (2.8 kg)	—	—
Note	Windows® 7, Windows® XP, Linux Fedora	Windows® XP Embedded, Windows® XP, Windows® 7, Linux Fedora 10	Windows® XP Embedded, Windows® XP, Windows® 7, Linux Fedora 10

# System Level Products

## Automation Fanless BOX PC Solutions



Model	AEC-6967		AEC-6950
CPU	Intel® 2nd generation Core™ i Series Processor		Intel® Core™ i7 3517UE 1.7 GHz
Chipset	Intel® QM67 or Intel® QM77		Intel® QM77PCH
System Memory	DDR3 1066/1333 MHz SODIMM x 2, up to 16 GB		DDR3 1333/1600 SODIMM x 2, up to 16 GB
Display Interface	VGA	DB-15 x 1	—
	DVI	DVI-D x 1	DVI-I x 1
	HDMI	HDMI x 1 (optional 2nd DVI)	DVI-D x 1
	Others	Dual-channel 24-bit LVDS (optional extension kit)	—
Storage Device	CF-SATA	CFAST™ slot	CFAST™ slot x 1
	HDD/SSD	SATA 6.0 Gb/s x 2 (SATA 0, 2), SATA 3.0 Gb/s x 2 (SATA 2, 3), support RAID 0,1,5,10	2.5" SATA HDD x 1
	Others	—	—
Network	LAN	Gigabit Ethernet	Gigabit Ethernet
	Wireless	Optional by Mini-Card	Optional by Mini-Card
Front I/O	USB Port	USB 2.0 x 2	USB type A x 2 for USB 2.0, USB type A x 2 for USB 3.0
	LAN	—	—
	Serial Port	RS-232 x 1, RS-232/422/485 x 1, 2.5 KV isolation, RS-232 x 2	DB-9 x 2 for RS-232/422/485 x 2, DB-9 x 4 for RS-232 x 4
	DIO	2.5 KV isolation protection	—
	Audio	—	Line out
	KB/MS	PS/2 x 1	—
	Others	Power switch x 1, Reset button x 1	DVI-I x 1, DVI-D x 1, SIM card slot x 1, SMA antenna opening x 3, CFAST™ slot x 1, Power switch x 1, Indicator x 2 (System x 1 and HDD x 1)
Rear I/O	USB Port	USB 2.0 x 4	USB type A x 2 for USB 2.0
	LAN	RJ-45 x 2	RJ-45 x 2
	Serial Port	RS-232 x 2	Isolated Digital Input/Output x 10 pins (DI x 4, DO x 4)(3KV) Isolated DB-9 x 2 for RS-232/422/485 x 2 (3KV, jumper selection)
	DIO	—	—
	Audio	Mic-in, line-in, line-out	—
	KB/MS	—	—
Expansion	Others	DB-15 x 1 for VGA, DVI-D x 1, HDMI x 1	3-pin terminal block x 1, Grounding screw x 1, Isolated CAN Bus x 2 (optional, 2KV), PCI x 2 or PCe [x1]/PCe [x16]
	PCIe	2 (optional), supports up to 167 mm (length) for expansion card	Riser card: PCe [x1]/PCe [x16]
	PCI	2 (optional, limited 2.1A@12V), supports up to 167 mm (length) for expansion card	Riser card: PCI x 2 (optional)
	Mini-Card	2 (optional)	—
	Mini PCI	—	—
Indicator	Others	SIM x 1 (optional)	SIM card slot x 1
	Front	System LED x 1, HDD LED x 1	HDD LED x 1, System LED x 1
Power Requirement	DC-in 9–30V input, optional 100–240V		DC-in 9–30V input, optional AC-in 100–240V
Power Consumption	Intel® Core™ i7-2610UE, 3.46A@9V or 1A@30V		—
System Cooling	Passive		Passive
Mounting	Wallmount		Wallmount
Operating Temperature	Without airflow (not include riser card)	Ambient with airflow (not include riser card)	-4°F ~ 122°F (-20°C ~ 50°C) w/o airflow
	-4°F ~ 122°F (-20°C ~ 50°C) -35W TDP CPU -4°F ~ 149°F (-20°C ~ 65°C) -17W TDP CPU	-4°F ~ 140°F (-20°C ~ 60°C) -35W TDP CPU -4°F ~ 167°F (-20°C ~ 75°C) -17W TDP CPU	-4°F ~ 131°F (-20°C ~ 55°C) with airflow *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)
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – CFAST™, 1 Grms/ 5 ~ 500Hz/ operation – HDD		3 Grms/ 5 ~ 500Hz/ operation – CFAST™, 1 Grms/ 5 ~ 500Hz/ operation – HDD
Anti-Shock	50 G peak acceleration (11 msec. duration) – CFD 20 G peak acceleration (11 msec. duration) – HDD		50 G peak acceleration (11 msec. duration) – CFD 20 G peak acceleration (11 msec. duration) – HDD
MTBF (Hours)	43,000		54,000
Certification	EMC	CE/FCC class A	CE/FCC class A, UL
	Safety	—	—
	Others	—	—
Dimension (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)
Gross Weight	—		11 lb (5 kg)
Net Weight	—		—
Note	Windows® XP Embedded, Windows® XP, Windows® 7, Linux Fedora 15-2.6.38.6 Support		—

# System Level Products

## Automation Fanless BOX PC Solutions/ Transportation BOX PC Solutions



Model		AEC-6913	Model	BOXER-6313VS	BOXER-6301VS
CPU		Intel® Core™ D2550 1.86 GHz	CPU		Intel® Atom™ E3845 1.91 GHz Processor (Optional for J1900, N2807)
Chipset		Intel® NM10	Chipset		Intel® QM87
System Memory		DDR3 800/1066 MHz SODIMM x 1, up to 4 GB	System Memory		DDR3L 1333/1600MHz SODIMM x 1, up to 8 GB
Display Interface	VGA	—	Display Interface	VGA	DB-15 x 1 for VGA
	DVI	DVI-I x 1		HDMI	HDMI x 1
Storage Device	CF-SATA	CFast™ slot	Storage Device	CF-SATA	CFast™ slot x 1 (w/Cover protection)
	HDD/SSD	2.5" SATA HDD bay x 1		HDD/SSD	2.5" HDD bay x 2
Network	LAN	Gigabit Ethernet	Network	Others	—
	Wireless	Optional by Mini-Card		LAN	Gigabit Ethernet x 2
Front I/O	USB Port	USB 2.0 type A x 2, USB 3.0 type A x 2	Rear I/O	Wireless	Optional by Mini-Card wireless module
	LAN	Gigabit Ethernet, RJ-45 x 2		Audio	—
	Serial Port	RS-232 x 4, RS-232/422/485 x 2		Others	VGA, HDMI, CANbus, Power on/off
	DIO	—		USB Port	USB type A x 1 for USB 3.0, USB type A x 3 for USB 2.0
	Audio	Line-out		LAN	RJ-45 x 2 for 10/100/1000Base-TX
Rear I/O	KB/MS	—	Expansion	Serial Port	DB-9 x 2 for RS-232, DB-9 x 2 for RS-232/422/485 (isolated)
	Others	DVI-I x 1, antenna hole x 3, Power switch, LED x 2, CFast™ slot x 1, SIM card slot x 1		DIO	—
	USB Port	USB type A x 2 for USB 2.0		Audio	Audio jack x 1 (Mic-in, Line-out)
	LAN	RJ-45 x 2		Others	—
	Serial Port	Isolated RS-232/422/485 x 2 (3KV, jump selection)		PCIe	Full-size Mini-PCIe x 2
Expansion	PCIe	Riser card: PCI-E[x1] x 1	Indicator	Others	—
	PCI	Riser card: PCI x 2 (optional)		Front	Onboard system power LED x 1 (green), Onboard HDD active LED x 1 (red) Onboard power status LED x 1 (green)
	Mini-Card	2		Rear	—
Indicator	Front	—	Power Requirement		DC-in 9~30V input, optional AC-in 100~240V
	Rear	System LED x 1, HDD LED x 1	Power Consumption		Passive
Power Requirement		DC-in 9~30V input, optional AC-in 100~240V	System Cooling		Passive
Power Consumption		Passive	Mounting		Wallmount
System Cooling		Passive	Operating Temperature		-4°F ~ 149°F (-20°C ~ 65°C) w/o airflow -4°F ~ 167°F (-20°C ~ 75°C) w/ airflow Power consumption of add-on PCI/PCIe card must be under 30W.G40
Mounting		Wallmount	Storage Temperature		-4°F ~ 158°F (-20°C ~ 70°C)
Operating Temperature		-4°F ~ 149°F (-20°C ~ 65°C) w/o airflow -4°F ~ 167°F (-20°C ~ 75°C) w/ airflow Power consumption of add-on PCI/PCIe card must be under 30W.G40	Anti-Vibration		3 Grms/ 5 ~ 500Hz/ operation – CFD 1 Grms/ 5~ 500Hz/ operation – HDD
Storage Temperature		-4°F ~ 158°F (-20°C ~ 70°C)	Anti-Shock		50 G peak acceleration (11 msec. duration) – CFD 20 G peak acceleration (11 msec. duration) – HDD
Anti-Vibration		3 Grms/ 5 ~ 500Hz/ operation – CFD 1 Grms/ 5~ 500Hz/ operation – HDD	MTBF (Hours)		55,000
Anti-Shock		50 G peak acceleration (11 msec. duration) – CFD 20 G peak acceleration (11 msec. duration) – HDD	Certification		CE/FCC class A
MTBF (Hours)		55,000	Certification	EMC	CE/FCC class A
Certification		CE/FCC class A		Others	—
Dimension (W x H x D)		8.4" x 3.9" x 9.5" (214mm x 100mm x 241mm)	Dimension (W x H x D)		10" x 7.5" x 3.5" (255mm x 190mm x 88mm)
Gross Weight		11 lb (5 kg)	Gross Weight		10.8 lb (4.9 kg)
Net Weight		—	Net Weight		8.6 lb (3.9 kg)
Note		Windows® XP Embedded, Windows® XP, Windows® 7, Linux Fedora 10	Note		Windows® 7, Windows® 8/8.1, Windows® 10, Linux Fedora

# System Level Products

## Transportation BOX PC Solutions



Model		BOXER-6357VS
CPU		Intel® Core™ i7-3517UE (4M Cache, up to 2.80 GHz)
Chipset		Intel® QM77
System Memory		DDR3 1333/1600 SODIMM x 2, up to 16 GB
Display Interface	VGA	DB-15 x 1 for VGA
	DVI	DVI-I x 1
Storage Device	CF-SATA	CFast™ slot x 1
	HDD/SSD	2.5" SATA HDD bay x 2 (w/ HDD Pluggable LED Switch), *Hot plugable, hot swappable *Suports RAID 0, 1
Network	LAN	Gigabit Ethernet
	Wireless	Optional by Mini-Card wireless module
Front I/O	USB Port	USB 2.0 x 2 (M12, Female) M12 female x 1 for USB 2.0 x 2
	LAN	M12 female x 2 for Gigabit Ethernet (Intel®)
	Serial Port	M12 female x 1 for RS-232/422/485
	Others	Power on/off LED button x 1, VGA x 1, DVI-I x 1, CFast™ slot x 1 (covered), SIM card slot x 1 (covered), Removable 2.5" HDD kit (SATA III-6.0 G) x 2, HDD pluggable LED switch (via cable), PoE x 4 (802.3 af)
Rear I/O	USB Port	USB type A x 2 for USB 3.0
	LAN	RJ-45 x 2 for Gigabit Ethernet (Intel®)
	Serial Port	DB-9 x 1 for RS-232/422/485 (isolated), DB-9 x 2 for RS-232/422/485
	DIO	Digital input x 4 (isolated), Digital Output x 2 (isolated)
	Audio	Line-out x 1, mic x 1
Expansion	Others	M12 4-pin male x 1 for DC-in (16.5 ~ 75V, 43~160V), Antenna hole x 3
	Mini-Card	Full-sized Mini-Card x 3 (BOM optional mSATA)
Indicator	Front	System LED x 1 on power button
Power Requirement		M12 4-pin male x 1 for DC-in (16.5 ~ 75V, 43~160V)
System Cooling		Passive
Mounting		Wallmount
Operation Temperature		-40°C to 70°C, 85°C for 10 minutes
Humidity		Conforms to EN 50155/EN50125-1 Test method EN 60068-2-30 (variant 1)
Altitude		<2500meters
Salt Mist		Conforms to EN50155
Insulation Resistance		Conforms to EN50155
Voltage withstand		- Conforms to EN50155 - Power supply voltage range conforms to Italian standard ST306158 0.6-U/Un<1,5 - Power supply variation conforms to Italian SCMT 0.6-U/Un<1,67 during 0,1 sec - Power supply voltage switching (EN 50155 § 3.1.3) Class C1
Mechanical Earth Continuity		Conforms to Standard STM-E-001, Acceptance criteria = R<100 mΩ Every metallic part accessible to the user must be connected to mechanical earth (NF F 60100)
Pollution		Compliant with EN60721-3-5 standard
EMC		Compliant with EN50121 standard, EN55022/ EN55024
ESD		Conforms to EN 50155
Expansion Slot		PCIe Mini-Card x 3
Radiated Electromagnetic Fields		Radiated immunity test method EN 61000-4-3
Immunity to Fast Transients Bursts		Conforms to Standard reference: EN 50155 (§ 10.2.7)/ EN 50121-3-2, Fast transient burst immunity, Test method EN 61000-4-4
Surges Immunity		Standard reference: EN 50155 (§ 10.2.6.2)/ EN 50121-3-2, Surge immunity, Test method EN 50155 (§ 10.2.6.2)
Conducted Disturbances Induced By Radio-Frequency Fields		Test method EN 61000-4-6, 150kHz-80MHz 1kHz, 80%AM, 10 Vrms
Emission Measurement		Conducted emissions standard reference: EN 50155 (§ 10.2.8.2)/ EN 50121-3-2 Radiated emission, test method EN 55011, Class A, 30MHz-230MHz 40dBµV, 230MHz-2.4GHz 47dBµV.
Protection Against Electrical Hazards		PD2 environment as defined in EN50124, Over-Voltage degree (OV2) rationale
Fire and Smoke		Conforms to NF F 16101 for cables and NF F 16102 for equipment
Shocks and Vibrations		Test method EN 61373 (random vibration)
Dimension (W x H x D)		11.26" x 6.86" x 5.32" (286mm x 174.2mm x 135mm)
Gross Weight		18.2 lb (8.3 kg)
Note		Windows® 7, Windows® 8.1, Windows® XP

# System Level Products

## Transportation BOX PC Solutions

Transportation BOX PC Solutions/ Network Video Recorder & Mobile DVR



Model	AEV-6356
<b>System</b>	
<b>Processor</b>	Intel® Core™ i7-3517UE up to 2.8 GHz, Intel® Celeron® 827E, 1.4 GHz
<b>Chipset</b>	Intel® QM77
<b>System Memory</b>	DDR3 SODIMM x 1, up to 8 GB
<b>Display Interface</b>	DB-15 x 1 for VGA, DVI-D x 1
<b>Storage Device</b>	CFAST™ x 1, SATA 6.0 Gb/s x 2 (Support RAID 0,1)
<b>Front I/O connector</b>	USB 2.0 x 2 (M12), RS-232/422/485 x 1 (M12), Giga LAN x 2 (M12), VGA x 1 (DB-15), DVI-I x 1, Power button, CFAST™ slot x 1, SIM card slot x 1
<b>Rear I/O connector</b>	Digital input x 6, Digital output x 2, USB 3.0 x 2 (Type A), RS-232 x 2 (DB-9), RS-232/422/485 x 1 (DB-9, Isolated), Line-out x 1, mic x 1, Power input (17 ~ 30VDC) (M12)
<b>Digital Input</b>	Isolated digital input, Max. voltage input: Logic level 0: +2.5 V max., Logic level 1: +5 V
<b>Digital Output</b>	Isolated digital output, Max. frequency of IDO Max. voltage output: +5 V, Max. current output: 50mA Isolated 5V Output (with short protection) , Max. voltage output: +5 V max. , Max. current output: 200mA
<b>Serial Interface</b>	RS-485: isolated 1000V <sub>DC</sub> (Rear I/O)
<b>Expansion Slot</b>	Full-size Mini-PCle x 1, Half-size Mini-PCle x 1 (WiFi/ 3G/ GPS)(Optional)
<b>Indicator</b>	System LED x 1
<b>OS Support</b>	Window® XP Embedded, Window® XP, Windows® 7, Window® Embedded Standard 7, Linux Fedora
<b>Mechanical</b>	
<b>Mounting</b>	Wallmount
<b>Dimension</b>	11.26" x 6.46" x 3.62" (286mm x 164.2mm x 92mm )
<b>Gross Weight</b>	15.4 lb (7 kg)
<b>Power Supply</b>	
<b>DC Input</b>	DC 17 ~ 30V (M12), Over-voltage protection, Low-voltage protection, Short circuit protection

### Environment Test

<b>System</b>	
<b>Operation Temperature</b>	-40°F ~ 158°F(-40°C ~ 70°C)(85°C for 10 Minutes), EN500155 Tx
<b>Humidity</b>	Conforms to EN 50155/EN50125-1. Test method EN 60068-2-30 (variant 1): Yearly average at 75 % HR, 30 days at 95 % HR, Occasionally at 100 % HR Tropicalisation and mist constraints
<b>Insulation Resistance</b>	Conforms to EN50155
<b>Voltage withstand</b>	Conforms to EN50155, Power supply voltage range 0.7u < u < 1.25u, u = normal Voltage, 24V
<b>Mechanical Earth Continuity</b>	Compliant with EN50155 standard
<b>Pollution</b>	Compliant with: EN60721-3-5 standard
<b>EMC</b>	Compliant with EN50121 standard
<b>ESD</b>	Conforms to EN 50155
<b>Radiated Electromagnetic Fields</b>	Radiated immunity test method EN 61000-4-3: The frequency range for the tests shall be done until 2.4 GHz, and an attenuation of 20 V/m.
<b>Immunity To Fast Transients Bursts</b>	Conforms to Standard reference: EN 50155 (§ 10.2.7) / EN 50121-3-2 Fast transient burst immunity, Test method EN 61000-4-4, ± 2kV- repetition frequency: 5 kHz, ports referenced to the battery: direct injection, other signals: capacitive coupling.
<b>Surges Immunity</b>	Standard reference: EN 50155 (§ 10.2.6.2) / EN 50121-3-2 Surge immunity, Test method EN 50155 ±1kV
<b>Conducted Disturbances Induced By Radio-Frequency Fields</b>	Test method EN 61000-4-6, 150kHz-80MHz 1kHz, 80%AM, 10 Vrms
<b>Emission Measurement</b>	Conducted emissions standard reference: EN 50155 (§ 10.2.8.2) / EN 50121-3-2 radiated emission, Test method EN 55011, Class A, 30MHz-230MHz 40dBµV, 230MHz-2.4GHz 47dBµV.
<b>Shocks and Vibrations</b>	Test method EN 61373 (random vibration), operating test (duration > 10 min), Frequency range = 5-150 Hz, 0,7 m/s2 (longitudinal & transversal axis), 1 m/s2 Test method EN 61373 (random vibration), frequency range = 5-150 Hz, Test with equipment powered down for 5 hr, 5,5 m/s2 (longitudinal & transversal axis). Test method EN 61373 (random vibration), 50 m/s2 for 30 ms (longitudinal & transversal axis), 30 m/s2 for 30 ms (vertical axis), 3 shocks x 2 directions x 3 axes = 18 shocks
<b>Certification</b>	CE, FCC, EN50155, EN50121, EN45545



# System Level Products

## Network Video Recorder & Mobile NVR



Model	NVR-6300S	NVR-CV	NVR-Q67	NVR-Q67S
<b>System</b>				
<b>Form Factor</b>	4U Rackmount	Tower Station	2U Rackmount	2U Rackmount
<b>Processor</b>	Intel® 4th Gen. Core™ i3/i5/i7 Processor	Intel® Atom™ D2250	Intel® 2nd Gen. Core™ i3/i5/i7 Processor	Intel® 2nd Gen. Core™ i3/i5/i7 Processor
<b>Chipset</b>	Intel® Q87	Intel® ICH10R	Intel® Q67	Intel® Q67
<b>Main Memory</b>	Up to 32GB, DDR3, Non-ECC 1333MHz, 240-pin DIMM	Up to 4GB, DDR3, Non-ECC, 1066MHz 204-pin SODIMM	Up to 32GB, DDR3, Non-ECC 1333MHz, 240-pin DIMM	Up to 32GB, DDR3, Non-ECC 1333MHz, 240-pin DIMM
<b>Display</b>	HDMI x 1, DP x 1, VGA x 1	DVI-D x 1, VGA x 1	DVI-D x 1, VGA x 1, DP x 1	DVI-D x 1, VGA x 1, DP x 1
<b>Ethernet</b>	10/100/1000Base-TX x 2	10/100/1000Base-TX x 2	10/100/1000Base-TX x 2	10/100/1000Base-TX x 2
<b>PoE Ethernet Port</b>	2 ports (optional)	—	—	—
<b>RAID support</b>	0/1/5/10	0/1/5	0/1/5/10	0/1/5/10
<b>Expansion Slot</b>	PCI-E [x16] x 1, PCI-E [x4] x 1	PCI-E [x4] x 1	PCI-E [x16] x 1, PCI-E [x4] x 1, PCI x 2	PCI-E [x16] x 1, PCI x 2
<b>GPS</b>	—	Upto	—	—
<b>Front I/O Panel</b>	Power Button x 1, Reset Button x 1 Power LED x 1 USB3.0 x 2, USB2.0 x 1 Slim optical disk drive x 1	Power Button x 1 Reset Button x 1 Power & HDD LED USB2.0 x 2	Power Button x 1 Reset Button x 1 Power & HDD LED USB2.0 x 2 (only for RM-S model)	Power Button x 1 Reset Button x 1 Power & HDD LED USB2.0 x 2 (only for RM-S model)
<b>Rear I/O Panel</b>	USB3.0 x 2 USB2.0 x 2 LAN (RJ-45) Ports x 2 (PoE optional) HDMI x 1, DP x 1, VGA x 1 Audio Jack x 3 PS/2 keyboard/Mouse x 1	VGA x 1, DVI-D x 1 LAN (RJ-45) port x 2 USB 2.0 x 4 COM console x 2 Audio jack x 3	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)	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)
<b>Environmental</b>				
<b>Operating Temperature</b>	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
<b>Storage Temperature</b>	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Storage Humidity</b>	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing
<b>Vibration/Shock</b>	IEC68-2-64	IEC68-2-64	IEC68-2-64	IEC68-2-64
<b>Certification</b>	CE/FCC Class A	CE/FCC Class A, CCC	CE/FCC Class A, CCC	CE/FCC Class A, CCC
<b>Power Requirement</b>				
<b>Power Supply</b>	600W ATX single PS2	200W AC power input	460W ATX PS2	1U 500W PSU, 80 plus Gold
<b>Mechanical</b>				
<b>Hot Swappable HDD Tray</b>	3.5" x 12, 2.5" x 1	3.5" or 2.5" x 4	—	3.5" x 8
<b>Internal System HDD Bay</b>	3.5" x 1 or 2.5" x 1 (SATA DOM optional)	2.5" HDD x 1 (SATA DOM optional)	2.5" HDD x 1 (SATA DOM optional)	2.5" HDD x 1 (SATA DOM optional)
<b>Dimension</b>	19.02" x 25" x 7.01" (483mm x 635mm x 178mm)	7.87" x 11.93" x 9.84" (200mm x 303mm x 250mm)	19.41" x 16.61" x 3.46" (493mm x 422mm x 88mm)	25.98" x 16.93" x 3.46" (660mm x 430mm x 88mm)
<b>Gross Weight</b>	33 lb (15 Kg)	19.8 lb (9 kg)	26.4 lb (12 kg)	28.7 lb (13 kg)
<b>Note</b>	—	—	—	—

# System Level Products

## Network Video Recorder & Mobile NVR



Model	NVR-B75	VPC-3300S	VPC-5500S
<b>System</b>			
<b>Form Factor</b>	Tower Station	In-Vehicle NVR	In-Vehicle NVR
<b>Processor</b>	Intel® 3rd Gen. Core™ i3/i5/i7 Processor	Intel® Celeron® J1900 Processor	Intel® 4th Gen. Core™ i3/i5/i7 Processor
<b>Chipset</b>	Intel® B75	Quad Core SoC	Intel® QM87
<b>Main Memory</b>	Up to 16GB, DDR3, Non-ECC 1333MHz, 240-pin DIMM	Up to 8GB, DDR3L 204-pin SODIMM	Up to 16GB, DDR3L 204-pin SODIMM
<b>Display</b>	VGA x 1, HDMI port x 3	VGA x 1, HDMI x 1	VGA x 1, HDMI x 1, DP x 1
<b>Ethernet</b>	10/100/1000Base-TX x 2	10/100/1000Base-TX x 6	10/100/1000Base-TX x 5
<b>PoE Ethernet Port</b>	—	4 ports	4 ports
<b>RAID support</b>	—	0/1	0/1
<b>Expansion Slot</b>	—	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
<b>GPS</b>	—	On board(GPS/GLOS)	On board(GPS/GLOS)
<b>Front I/O Panel</b>	Power Button x 1 Reset Button x 1 Power & HDD LED USB3.0 x 2	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 1 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
<b>Rear I/O Panel</b>	HDMI x 3 DVI-D x 1 LAN (RJ-45) port x 2 USB 2.0 x 4 Audio jack x 3 PS/2 x 1 (Keyboard + Mouse)	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 CanBus connector x 1 USB2.0 x 2 Audio Line-out x 1, Mic-In x 1
<b>Environmental</b>			
<b>Operating Temperature</b>	32°F ~ 104°F (0°C ~ 40°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
<b>Storage Temperature</b>	-4°F ~ 140°F (-20°C ~ 60°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
<b>Storage Humidity</b>	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing
<b>Vibration/Shock</b>	IEC68-2-64	MIL-STD-810G	MIL-STD-810G
<b>Certification</b>	CE/FCC Class A	CE & FCC Class A, eMARK 13	CE & FCC Class A, eMARK 13
<b>Power Requirement</b>			
<b>Power Supply</b>	SFX 400W PSU	DC 9-36V, with Ignition Pin	DC 10-35V
<b>Mechanical</b>			
<b>Hot Swappable HDD Tray</b>	3.5" x 5	2.5" HDD x 2 (optional)	2.5" HDD x 2 (optional)
<b>Internal System HDD Bay</b>	3.5" HDD x 1 (SATA DOM optional)	2.5" HDD x 1 (optional with 2 HDD)	2.5" HDD x 2
<b>Dimension</b>	10.83" x 8.07" x 11.81" (275mm x 205mm x 300mm)	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)
<b>Gross Weight</b>	22 lb (10 kg)	5.7 lb (2.6 kg)	8.3 lb (3.8 kg)
<b>Note</b>	—	—	—

# System Level Products

## Digital Signage System



Model		DSS-TN40
CPU		Intel® Atom™ E3845 1.91 GHz Processor (Optional for J1900, N2807)
Chipset		—
System Memory		204-pin DDR3L 1066/1333MHz SODIMM x 1, up to 8 GB (J1900 & N2807 don't support 1066MHz SODIMM)
Display Interface	VGA	VGA x 1
	DVI	—
	HDMI	HDMI x 4
	Others	—
Storage Device	SSD	Optional mSATA x 1
	HDD	2.5" SATA HDD bay x 1
	Others	—
Network	LAN	Gigabit Ethernet
	Wireless	Optional by Mini-Card
Front I/O	USB Port	USB3.0 x 2; USB2.0 x 2
	LAN	—
	Serial Port	RS-422/485 x 1
	DIO	—
	Audio	—
	KB/MS	KB/MS x 1
	Others	Power Switch x 1
Rear I/O	USB Port	—
	LAN	—
	Serial Port	—
	DIO	—
	Audio	Line out x 1, Mic-in x 1
	Others	Power input x 1
Expansion	PCIe	—
	PCI	—
	Mini-Card	Mini-Card x 1
	Mini PCI	—
	Others	—
Indicator	Front	Power
	Rear	—
Power Requirement		12V DC-in
Power Consumption		AMD R-260H APU, DDR3 1333 4GB, 2.92A@12V
System Cooling		Thermal Module
Mounting		VESA Mount Holes
Operating Temperature		32°F ~ 113°F (0°C ~ 45°C)
Storage Temperature		-40°F ~ 176°F (-40°C ~ 80°C)
Anti-Vibration		0.5 Grms /5 ~ 500Hz /operation – HDD type 3.5 Grms /5 ~ 500Hz /operation – SSD or mSATA
Anti-Shock		10 G peak acceleration (11 msec. duration) – HDD 20 G peak acceleration (11 msec. duration) – SSD
MTBF (Hours)		136,000
Certification	EMC	CE/ FCC class A
	Safety	—
	Others	—
Dimension (W x H x D)		9.84" x 1.3" x 6.89" (250mm x 33mm x 175mm)
Gross Weight		4.18 lb (1.9 Kg)
Net Weight		—
Note		—

# System Level Products

## Turn-Key Chassis Solutions



Model		TKS-EMB	TKS-P20-CV01	TKS-E21-HD07
CPU		By Mini-ITX board	Intel® Atom™ N2600 Processor 1.6 GHz	AMD® G-Series T56N/T40N processor
Chipset		By Mini-ITX board	Intel® Atom™ N2600 + NM10	AMD® A55E
System Memory		By Mini-ITX board	DDR3 800 MHz SODIMM up to 2 GB	DDR3 1066/1333 MHz SDRAM SODIMM x 1, up to 4 GB
Display Interface	VGA	—	DB-15 x 1	DB-15 x 1
	DVI	—	—	(Optional)
	HDMI	—	HDMI type C (Mini-HDMI) x 1	—
	Others	—	—	—
Storage Device	CF-SATA	—	mSATA x 1 (half size)	mSATA x 1
	HDD/SSD	—	Optional	2.5" SATA HDD bay x 1
	Others	—	—	—
Network	LAN	—	Gigabit Ethernet	Gigabit Ethernet
	Wireless	—	—	Optional by Mini-Card
Front I/O	USB Port	USB Type A x 2 for USB 2.0	USB 2.0 x 2	USB2.0 x 2
	LAN	—	RJ-45 x 1	—
	Serial Port	—	RS-232 x 1, RS-232/424/485 x 1	RS-232 x 2
	Audio	Line-out x 1, Mic-in x 1	—	Mic in/Line out
	KB/MS	—	Through USB port	—
	Others	Power On/Off button x 1	System & HDD indicator LED x 2, Power switch, DC-in 2-pin	Power switch x 1, antenna hole x 2
Rear I/O	USB Port	—	USB 2.0 x 3	USB2.0 x 4
	LAN	—	—	RJ-45 x 2
	Serial Port	—	—	RS-232/424/485 x 1 (COM2)
	DIO	—	DIO 4 bits with VCC and Ground pin	—
	Audio	—	Mic-in/ Line-out	—
Expansion	Others	Mini-ITX board I/O, AC-inlet x 1 for TKS-EMB-AC-A01	—	Power input x 1, VGA x 1
	PCIe	—	Half size Mini-Card (or mSATA)	—
	Mini-Card	—	—	1
	Others	—	—	mSATA x 1
Indicator	Front	Power ON LED x 1, HDD Active LED x 1	Power LED x 1, HDD active LED x 1	Power LED x 1, HDD active LED x 1
	Rear	—	—	—
Power Requirement		200W AC/DC power supply (For TKS-EMB-AC)	DC-in +12V ATX or DC-in +7~30V ATX (optional)	DC-in 12V, with DC jack, lockable
Power Consumption		—	Intel® Atom™ N2600 1.6 GHz, DDR3 800 2 GB 1.5A@+12V	19.56W
System Cooling		—	Fanless	Passive
Mounting		—	Wallmount, DIN RAIL (Optional)	Wallmount
Operating Temperature		32°F ~ 113°F (0°C ~ 45°C) w/ airflow 32°F ~ 104°F (0°C ~ 40°C) w/o airflow	32°F ~ 131°F (0°C ~ 55°C)	-4°F ~ 140°F (-20°C ~ 60°C) for industry HDD/mSATA 32°F ~ 122°F (0°C ~ 50°C) for standard HDD/mSATA
Storage Temperature		-4°F ~ 176°F (-20°C ~ 80°C)	-40°F ~ 176 °F (-40°C ~ 80°C)	-20°C ~ 70°C (-4°F ~ 158°F)
Anti-Vibration		1 Grms/ 5 ~ 500Hz/ operation – HDD	2 Grms/ 5 ~ 500Hz/ operation – mSATA	0.5 Grms/ 5 ~ 500Hz/ operation – HDD 3.5 Grms/ 5 ~ 500Hz/ operation – mSATA
Anti-Shock		20 G peak acceleration (11 msec. duration) – HDD	20 G peak acceleration (11 msec. duration) – mSATA	10 G peak acceleration (11 msec. duration) – HDD 20 G peak acceleration (11 msec. duration) – mSATA
MTBF (Hours)		—	128,000	61,000 (excluding power adapter)
Certification	EMC	CE/FCC class A (self-declaration)	CE/FCC class A	CE/FCC class A
	Safety	—	—	—
	Others	—	—	—
Dimension (W x H x D)		12.40" x 9.06" x 2.95" (315mm x 230mm x 75 mm)	4.7" x 2.3" x 4.3" (120mm x 59.5mm x 110mm)	7.68" x 6.01" x 1.73" (195mm x 152.6mm x 44mm)
Gross Weight		—	2.2 lb (1 kg)	4.54 lb (2.06 kg)
Net Weight		—	1.8 lb (820 g)	—
Note		—	Windows® XP Embedded, Windows® XP, Windows® 7, Linux Fedora	Windows® XP Embedded, Windows® XP, Windows® 7, Linux Fedora

# System Level Products

## Turn-Key Chassis Solutions



Model		NANO-001N	NANO-001F
<b>System</b>			
<b>CPU</b>		Intel® 5th gen. 14nm Core™ i7-5650U/ i5-5350U/ i3-5010U BGA CPU, 15W TDP.	Intel® 5th gen. 14nm Core™ i7-5650U/ i5-5350U/ i3-5010U BGA CPU, 15W TDP.
<b>Chipset</b>		Intergrate into SoC	Intergrate into SoC
<b>System Memory</b>		204-pin DIMM x 2, max. 16GB, DDR3L 1600 MHz, non-ECC, un-buffered memory.	204-pin DIMM x 2, max. 16GB, DDR3L 1600 MHz, non-ECC, un-buffered memory.
<b>I/O Chipset</b>		NCT5538D	NCT5538D
<b>Display Interface</b>		Integrated Graphics	Integrated Graphics
<b>DP</b>		DP 1.2a x 2, up to 3840 x 2160 @60Hz	DP 1.2a x 2, up to 3840 x 2160 @60Hz
<b>Storage Devices</b>		M.2 slot (M-key) x 1, length: 60mm	M.2 slot (M-key) x 1, length: 60mm
<b>Network</b>		LAN Realtek 8111G x 2, 10/100/1000Mb Base-TX	Realtek 8111G x 2, 10/100/1000Mb Base-TX
<b>I/O</b>			
<b>Front I/O</b>	<b>USB</b>	USB 3.0 ports x 2, USB 2.0 port x 2	USB 3.0 ports x 2, USB 2.0 port x 2
	<b>Audio</b>	Line-out (green) x 1, Mic-in (pink) x 1	Line-out (green) x 1, Mic-in (pink) x 1
	<b>Display</b>	—	—
	<b>Others</b>	On/Off Button x 1	On/Off Button x 1
<b>Rear I/O</b>	<b>USB</b>	USB 3.0 ports x 2	USB 3.0 ports x 2
	<b>Audio</b>	—	—
	<b>Display</b>	Display port connector x 2	Display port connector x 2
	<b>LAN</b>	RJ-45 connector x 2	RJ-45 connector x 2
	<b>Power</b>	Reset Switch x 1, DC Power x 1	Reset Switch x 1, DC Power x 1
<b>Expansion</b>	<b>Others</b>	Antenna output (from int. mini-card) x 1	Antenna output (from int. mini-card) x 1
	<b>Mini PCIe</b>	Mini-Card half size x 1 (default USB+PCIe, mSATA BOM change)	Mini-Card half size x 1 (default USB+PCIe, mSATA BOM change)
	<b>Storage</b>	—	—
<b>Indicator</b>	<b>Others</b>	RS-232 9-pin box header x 1, 5-pin USB 2.0 header (p=2.00mm) x 1	RS-232 9-pin box header x 1, 5-pin USB 2.0 header (p=2.00mm) x 1
	<b>Front</b>	Power LED x 1, HDD Active LED x 1	Power LED x 1, HDD Active LED x 1
<b>Rear</b>	—	—	
<b>Power</b>			
<b>Battery</b>		Lithium battery	Lithium battery
<b>Power Requirement</b>		DC: 12V~19V, (Wide rage:12V-5%~19V+10%)	DC: 12V~19V, (Wide rage:12V-5%~19V+10%)
<b>Mechanical</b>			
<b>Dimension (WxHxD)</b>		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)
<b>VESA Mounting</b>		VESA Mount: 75mm x 75mm	VESA Mount: 75mm x 75mm
<b>Anti-Vibration</b>		3.0 Grms/ 5~ 500Hz/ operation – SSD	3.0 Grms/ 5~ 500Hz/ operation – SSD
<b>Anti-Shock</b>		20 G peak acceleration (11 msec. duration) -SSD	20 G peak acceleration (11 msec. duration) -SSD
<b>Environmental</b>			
<b>Operating Temperature</b>		FANLESS: 32°F ~ 104°F (0°C ~ 40°C)	FAN: 32°F ~ 122°F (0°C ~ 50°C)
<b>Certificate</b>		CE & FCC Class A	CE & FCC Class A
<b>Operating System</b>			
<b>MS Windows</b>		Windows® 7 32/64 bit, Windows® 8.1 32/64 bit, Windows® 10 64bit	Windows® 7 32/64 bit, Windows® 8.1 32/64 bit, Windows® 10 64bit
<b>Linux</b>		Fedora (Kernal 3)	Fedora (Kernal 3)

# System Level Products

## Turn-Key Chassis Solutions



Model		ACS-1U01-BT4	ACS-1U01-H81B
<b>System</b>			
<b>CPU</b>		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® Haswell 22nm LGA 1150 socket Processor, Max. 65W TDPs (follow thin mini-ITX)
<b>Chipset</b>		—	—
<b>System Memory</b>		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	204pin SO-DIMM x 2, Max. 16GB, DDR3 1600/1333 MHz Non-ECC, un-buffered memory, Dual-channel memory architecture
<b>I/O Chipset</b>		Fintech 81866D	NCT6791D
<b>Display Interface</b>	<b>Chipset</b>	Intel® Graphics Media Accelerator	Intel® Graphics Media Accelerator
	<b>DP</b>	VGA x 1, Up to 1920 x 1200 @60 Hz HDMI x 1, Up to 1920 x 1200 @60 Hz	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
<b>Storage Devices</b>		2.5" HDD, Full-Size Mini-Card (optional)	2.5" HDD, Full-Size Mini-Card (optional)
<b>Network</b>	<b>LAN</b>	Realtek PCIe Gb LAN 8111G x 1	Realtek PCIe Gb LAN 8111G x 2
<b>I/O</b>			
<b>Front I/O</b>	<b>USB</b>	USB 2.0 port x 4	USB 2.0 port x 4
	<b>Audio</b>	—	—
	<b>Display</b>	VGA x 1	VGA x 1
	<b>Others</b>	On/Off Button x 1, Power LED + HD LED x 1, (COM port optional if not use VGA port)	On/Off Button x 1, Power LED + HD LED x 1, (COM port optional if not use VGA port)
<b>Rear I/O</b>	<b>USB</b>	USB 3.0/2.0 port x 1, USB 2.0 port x 2	USB 3.0/2.0 port x 2, USB 2.0 port x 2
	<b>Audio</b>	Line-out (green) x 1, Line-in (blue) x 1	Line-out (green) x 1, Mic-in (pink) x 1
	<b>Display</b>	HDMI x 1	HDMI x 1, DP x 1
	<b>LAN</b>	RJ-45 connector x 1	RJ-45 connector x 2
	<b>Power</b>	DC Power x 1	DC Power x 1
	<b>Others</b>	RS-232 connector x 1	—
<b>Expansion</b>	<b>Mini PCIe</b>	Full-size Mini-Card (PCIe +USB or mSATA) + SIM Card (mSATA default) x 1, Half-size Mini-Card (PCIe +USB) x 1	Half size Mini-Card (PCIe+USB) x 1
	<b>Storage</b>	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	Full-Size Mini-Card x 1, SATA3 (6.0Gb/s) x 2, SATA2 (3.0Gb/s)x 1, SATA power connector x 1
	<b>Others</b>	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)	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)
<b>Indicator</b>	<b>Front</b>	Power LED x 1, HDD Active LED x 1	Power LED x 1, HDD Active LED x 1
	<b>Rear</b>	—	—
<b>Power</b>			
<b>Battery</b>		Lithium battery	Lithium battery
<b>Power Requirement</b>		DC: 12V	DC: 12V~24V (± 5% wide range voltage input)
<b>Mechanical</b>			
<b>Dimension (WxHxD)</b>		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)
<b>VESA Mounting</b>		Wallmount	Wallmount
<b>Anti-Vibration</b>		0.5 Grms/ 5~ 500Hz/ operation – HDD	0.5 Grms/ 5~ 500Hz/ operation – HDD
<b>Anti-Shock</b>		10 G peak acceleration (11 msec. duration)	10 G peak acceleration (11 msec. duration)
<b>Environmental</b>			
<b>Operating Temperature</b>		32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 122°F (0°C ~ 50°C)
<b>Certificate</b>		CE & FCC Class A	CE & FCC Class A
<b>Operating System</b>			
<b>MS Windows</b>		Windows® 7 32/64 bit, Windows® 8.1 32/64 bit	Windows® 10 32/64 bit, Windows® 7 32/64 bit, Windows® 8.1 32/64 bit
<b>Linux</b>		Fedora	Fedora

# System Level Products

## Network Appliances



Launching in Q2



Model	FWS-2350	FWS-2270	FWS-2260
<b>Platform</b>			
<b>Form Factor</b>	Desktop 6-Port Network Appliance	Desktop 6-Port Network Appliance	Desktop 6-Port Network Appliance
<b>Processor</b>	Intel® Atom™ C2358 1.7 GHz (Dual Core) Intel® Atom™ C2558 2.4 GHz (Quad Core)	Intel® Apollo Lake Processor SoC	Intel® Celeron® N3060/N3160 Processor SoC
<b>Chipset</b>	—	—	—
<b>System Memory</b>	240-pin DDR3 1333MHz ECC or non-ECC SODDIMM x 2, up to 16GB	204-pin DDR3L 1867MHz SODIMM x 2, up to 16GB	204-pin DDR3L 1600MHz SODIMM x 2, up to 8GB
<b>Network</b>			
<b>Ethernet</b>	Intel® i211, Gigabit Ethernet x 2 (Optional additional Intel® i211, Gigabit Ethernet x 2), Marvell 88e1543 x 1	Intel® i211, Gigabit Ethernet x 6 (Optional Gigabit Ethernet x 8)	Intel® i211, Gigabit Ethernet x 6 (Optional Intel® i211, Gigabit Ethernet x 4)
<b>Bypass</b>	Supports up to 2 pairs bypass function	—	Supports up to 2 pairs bypass function
<b>Display</b>			
<b>Graphic Controller</b>	—	—	—
<b>Connector</b>	—	HDMI x 1	HDMI x 1
<b>Storage</b>			
<b>HDDs</b>	Internal 2.5" SATA HDD Bay x 1	Internal 2.5" SATA HDD Bay x 1 for SATA 6.0Gb/s x 1 (Optional SATA 6.0Gb/s x 2)	Internal 2.5" SATA HDD Bay x 1, SATA II Port x 1
<b>CF/CFast/mSATA</b>	CF socket x 1 (Optional CFast™ socket x 1)	CF socket x 1	CF socket x 1 (Optional CFast™ socket or mSATA socket x 1)
<b>Expansion/Internal Interface</b>			
<b>PCIe slot</b>	—	Optional Golden Finger x 1 (PCIe[x1] x 2)	—
<b>Mini-PCIe slot</b>	Mini-Card slot with SIM socket x 1 (Full size) (Optional Mini-Card slot up to 2)	Mini-Card slot with SIM socket x 1 (full size) (Optional Mini-Card slot 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)
<b>Keyboard &amp; Mouse</b>	Reserve pin-header	Reserve pin-header	Reserve pin-header
<b>Universal Serial Bus</b>	USB2.0 x 2	USB3.0 x 2, USB2.0 internal 2 x 5 pin-header x 1 (Optional)	USB3.0 x 2, USB3.0 internal pin-header x 1 (optional)
<b>Miscellaneous</b>			
<b>RTC</b>	Internal RTC	Internal RTC	Internal RTC
<b>Watchdog Timer</b>	1~255 steps by software programmable	1~255 steps by software programmable	1~255 steps by software programmable
<b>Software Button</b>	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1
<b>TPM</b>	Optional TPM v1.2/v2.0	Optional TPM v1.2/v2.0	Optional TPM v1.2/v2.0
<b>GPIO</b>	Reserve internal GPIO Pin header x 1	Reserve internal GPIO Pin header x 1	Reserve internal GPIO Pin header x 1
<b>FAN</b>	System Fan x 1	Fanless	Fanless
<b>MTBF (Hours)</b>	90,000	90,000	90,000
<b>Color</b>	Black	Black	Black
<b>Environmental Parameters and Dimension</b>			
<b>Power Requirement</b>	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/ 60W Power adapter x 1, 4-pin DC power out connector for HDD x 1	12V DC power in connector/ 60W Power adapter x 1, 4-pin DC power out connector for HDD x 1
<b>Operation Temp.</b>	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
<b>Storage Temp.</b>	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Operating Humidity</b>	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing
<b>Storage Humidity</b>	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing
<b>Vibration</b>	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
<b>Shock</b>	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	10 G peak acceleration (11 m sec. duration), operation, 20 G peak acceleration (11 m sec. duration), non-operation
<b>Chassis Dimension (W x D x H)</b>	10.24" x 7.01" x 1.73" (260mm x 178mm x 44mm)	10.24 x 7.01" x 1.73" (260mm x 178mm x 44mm)	10.23" x 7.01" x 1.73" (260mm x 178mm x 44mm)
<b>I/O Interfaces</b>			
<b>Front Panel</b>	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 LED x 1, LAN LED x 12	Power LED x 1, Status LED x 1, HDD Active LED x 1 Bypass LED x 2, LAN LED x 12
<b>Rear Panel</b>	12V DC Power Input x 1, Power Button x 1, USB2.0 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	12V DC Power Input x 1, Power Button x 1, USB3.0 x 2, RJ-45 LAN x 6, RJ-45 Console x 1, Software Programmable Button x 1, HDMI x 1 (Optional)	12V DC Power Input x 1, Power Button x 1, USB3.0 x 2, RJ-45 LAN x 6, RJ-45 Console x 1, Software Programmable Button x 1, HDMI x 1

Note: All specifications are subject to change without notice.

# System Level Products

## Network Appliances



Model	FWS-2253	FWS-2252	FWS-2251
<b>Platform</b>			
<b>Form Factor</b>	Desktop 4-Port Network Appliance	Desktop 4-Port Network Appliance	Desktop 4-Port Network Appliance
<b>Processor</b>	Intel® Celeron® N2807 2.0 GHz (Dual Core) Intel® Celeron® J1900 2.0 GHz (Quad Core)	Intel® Celeron® J1900 2.0 GHz (Quad Core)	Intel® Celeron® J1900 2.0 GHz (Quad Core)
<b>Chipset</b>	—	—	—
<b>System Memory</b>	204-pin Dual channel DDR3L 1333/1600MHz SODIMM x 2, up to 8GB	204-pin Dual channel DDR3L 1333MHz SODIMM x 2, up to 8GB	204-pin Dual channel DDR3L 1333/1600MHz SODIMM x 2, up to 8GB
<b>Network</b>			
<b>Ethernet</b>	Intel® i211, Gigabit Ethernet x 4 Supports 1 pair bypass function	Intel® i211, Gigabit Ethernet x 4 Supports 1 pair bypass function	Intel® i211, Gigabit Ethernet x 4
<b>Display</b>			
<b>Graphic Controller</b>	Reserve internal VGA pin header x 1	Reserve internal VGA pin header x 1	Reserve internal VGA pin header x 1
<b>Connector</b>	—	—	—
<b>Storage</b>			
<b>HDDs</b>	—	2.5" HDD Bay x 1	Optional SATA II connector x 1 (SATA DOM Horizontal and no housing type only)
<b>CF/CFast/mSATA</b>	CF socket x 1	CF socket x 1	CF socket x 1
<b>Expansion/ Internal Interface</b>			
<b>PCIe slot</b>	—	—	—
<b>Mini-PCIe slot</b>	Mini-Card Slot x 1 (Half size)	Mini-Card Slot x 1 (Half size)	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)
<b>Keyboard &amp; Mouse</b>	Reserve pin-header	Reserve pin-header	Reserve pin-header
<b>Universal Serial Bus</b>	USB2.0 x 2, USB3.0 x 1	USB2.0 x 2, USB3.0 x 1	USB3.0 x 1
<b>Miscellaneous</b>			
<b>RTC</b>	Internal RTC	Internal RTC	Internal RTC
<b>Watchdog Timer</b>	1-255 steps by software programmable	1-255 steps by software programmable	1-255 steps by software programmable
<b>Software Button</b>	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1
<b>TPM</b>	—	—	—
<b>GPIO</b>	—	—	—
<b>FAN</b>	Fanless	Fanless	Fanless
<b>MTBF (Hours)</b>	—	—	90,000
<b>Color</b>	Black	Black	White
<b>Environmental Parameters and Dimension</b>			
<b>Power Requirement</b>	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	12V DC power in connector/ 40W Power adapter x 1, 4-pin DC power out connector for HDD x 1
<b>Operation Temp.</b>	-4°F ~ 158°F (-20°C ~ 70°C), N2807 -4°F ~ 131°F (-20°C ~ 55°C), J1900	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
<b>Storage Temp.</b>	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Operating Humidity</b>	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing
<b>Storage Humidity</b>	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing
<b>Vibration</b>	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
<b>Shock</b>	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	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation
<b>Chassis Dimension (W x D x H)</b>	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)	8.27" x 4.09" x 1.38" (210mm x 104mm x 35mm)
<b>I/O Interfaces</b>			
<b>Front Panel</b>	Power LED x 1, Status LED x 1, HDD Active LED x 1, LAN LED x 8	Power LED x 1, Status LED x 1, HDD Active LED x 1, LAN LED x 8	Power LED x 1, HDD Active LED x 1, LAN LED x 8 RSSI LED x 2, Accessible SIM cover x 1
<b>Rear Panel</b>	12V DC Power Input x 1, Power Button x 1 USB3.0 x 1, USB2.0 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 USB3.0 x 1, USB2.0 x 2, RJ-45 LAN x 4 RJ-45 Console x 1, Software Programmable Button x 1, VGA Port x 1 (Optional)	12V DC Power Input x 1, Power Button x 1 USB3.0 x 1, RJ-45 LAN x 4, RJ-45 Console x 1 Software Programmable Button x 1



# System Level Products

## Network Appliances



Model	FWS-2250	FWS-2200
<b>Platform</b>		
<b>Form Factor</b>	Desktop 4-Port Network Appliance	Desktop 6-Port Network Appliance
<b>Processor</b>	Intel® Atom™ E3815 1.46 GHz (Single Core) Intel® Atom™ E3827 1.75 GHz (Dual Core) Intel® Celeron® J1900 2.0 GHz (Quad Core)	Intel® Atom™ D525 1.8 GHz (Dual Core)
<b>Chipset</b>	—	Intel® ICH8M
<b>System Memory</b>	204-pin Dual channel DDR3L 1333/1600MHz SODIMM x 2, up to 8GB (E3815 Single Channel)	204-pin Single channel DDR3 800MHz SODIMM x 2, up to 4 GB
<b>Network</b>		
<b>Ethernet</b>	Intel® i211, Gigabit Ethernet x 4	Intel® 82574L, Gigabit Ethernet x 6
<b>Bypass</b>	Supports 1 pair bypass function	Supports up to 2 pairs bypass function
<b>Display</b>		
<b>Graphic Controller</b>	Reserve internal VGA pin header x 1	Reserve internal VGA pin header x 1
<b>Connector</b>	—	—
<b>Storage</b>		
<b>HDDs</b>	Optional SATA II connector x 1	Internal 2.5" SATA HDD Bay x 1
<b>CF/CFast/mSATA</b>	CF socket x 1	CF socket x 1
<b>Expansion/ Internal Interface</b>		
<b>PCIe slot</b>	—	—
<b>Mini-PCIe slot</b>	Mini-Card slot x 1 (Half size)	Mini-Card slot x 1
<b>Keyboard &amp; Mouse</b>	Reserve pin-header	Reserve pin-header
<b>Universal Serial Bus</b>	USB2.0 x 2, USB3.0 x 1	USB2.0 x 2
<b>Miscellaneous</b>		
<b>RTC</b>	Internal RTC	Internal RTC
<b>Watchdog Timer</b>	1~255 steps by software programmable	1~255 steps by software programmable
<b>Software Button</b>	GPIO Programmable push button x 1	GPIO Programmable push button x 1
<b>TPM</b>	—	—
<b>GPIO</b>	—	—
<b>FAN</b>	Fan/Fanless refers to order information	System Fan x 1
<b>MTBF (Hours)</b>	90,000	90,000
<b>Color</b>	White	Black
<b>Environmental Parameters and Dimension</b>		
<b>Power Requirement</b>	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/ 60W Power adapter x 1 4-pin DC power out connector for HDD x 1
<b>Operation Temp.</b>	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
<b>Storage Temp.</b>	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Operating Humidity</b>	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing
<b>Storage Humidity</b>	10%~80% @40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing
<b>Vibration</b>	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
<b>Shock</b>	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
<b>Chassis Dimension (W x D x H)</b>	6.3" x 4.09" x 1.38" (160mm x 104mm x 35mm)	10.24" x 7.01" x 1.73" (260mm x 178mm x 44mm)
<b>I/O Interfaces</b>		
<b>Front Panel</b>	Power LED x 1, Status LED x 1, HDD Active LED x 1 Bypass LED x 1 (Optional) LAN LED x 8	Power LED x 1, Status LED x 1, HDD Active LED x 1 Bypass LED x 2 (Optional) LAN LED x 12
<b>Rear Panel</b>	12V DC Power Input x 1 Power Button x 1 USB3.0 x 1 USB2.0 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 USB2.0 x 2 RJ-45 LAN x 1 RJ-45 Console x 1 Software Programmable Button x 1

# System Level Products

## Network Appliances



Model	FWS-7820	FWS-7811	FWS-7810
<b>Platform</b>			
<b>Form Factor</b>	1U Rackmount Network Platform	1U Rackmount Network Platform	1U Rackmount Network Platform
<b>Processor</b>	Intel® 6th Generation Core™/ Xeon Processors	Intel® LGA1150 4th Gen Core™/ Xeon Processor	Intel® LGA1150 4th Gen Core™/ Xeon Processor
<b>Chipset</b>	Intel® C236	Intel® C226	Intel® C226
<b>System Memory</b>	DDR4 1600/1866/2133 UDIMM/ECC, Up to 64GB, 288-pin DIMM x 4	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
<b>Network</b>			
<b>Ethernet</b>	1GbE x 6 + NIM	1GbE x 8 + NIM	1GbE x 8 + NIM
<b>Bypass</b>	Depends on NIM	2 ~ 4 (Depends on NIM)	2 ~ 4 (Depends on NIM)
<b>NIM Slot</b>	4	1	1
<b>Display</b>			
<b>Graphic Controller</b>	Intel® Integrated	Intel® Integrated	Intel® Integrated
<b>Connector</b>	VGA cable (Optional)	VGA cable (Optional)	VGA cable (Optional)
<b>Storage</b>			
<b>HDDs</b>	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)
<b>CF/FAST/mSATA</b>	CF socket x 1 (Optional CFast™ socket or mSATA slot)	CF socket x 1	CF socket x 1
<b>Expansion/Internal Interface</b>			
<b>PCIe slot</b>	PCIe [x4] signal use [x16] slot (Optional)	PCIe [x8] slot x 1 (Optional)	PCIe [x8] slot x 1 (Optional) or PCIe [x8] slot x 2, cannot use w/ NIM (Optional)
<b>Mini-card slot</b>	—	—	—
<b>IPMI</b>	—	—	—
<b>Keyboard &amp; Mouse</b>	Reserve pin-header	Reserve pin-header	Reserve pin-header
<b>Universal Serial Bus</b>	USB 3.0 x 2 Box Header (2.0mm) (optional)	USB 2.0 x 2 Box Header (2.0mm) (optional)	USB 2.0 x 2 Box Header (2.0mm) (optional)
<b>Miscellaneous</b>			
<b>RTC</b>	Internal RTC	Internal RTC	Internal RTC
<b>Watchdog Timer</b>	1-255 steps by software programmable	1-255 steps by software programmable	1-255 steps by software programmable
<b>Software Button</b>	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1
<b>TPM</b>	Yes	—	—
<b>GPIO</b>	8 bits, BIOS default 4 bits input, 4 bits output.	—	—
<b>FAN</b>	3	2	2
<b>MTBF (Hours)</b>	—	97,000	115,000
<b>Color</b>	Black	Black	Black
<b>Environmental Parameters and Dimension</b>			
<b>Power Requirement</b>	250W ATX PSU	275W Redundant PSU	250W ATX PSU
<b>Operation Temp.</b>	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
<b>Storage Temp.</b>	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Operating Humidity</b>	10 ~ 80%	10 ~ 80%	10 ~ 80%
<b>Storage Humidity</b>	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing
<b>Vibration</b>	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
<b>Shock</b>	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	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation
<b>Chassis Dimension (W x D x H)</b>	16.93" x 18.7" x 1.73" (430mm x 475mm x 44mm)	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)
<b>I/O Interfaces</b>			
<b>Front Panel</b>	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, 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
<b>Rear Panel</b>	AC Power Input x 1, Power Switch x 1 VGA port (Optional) Rear Expansion Slot x 1 (Optional PCIe [x4] signal use [x16] slot)	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)

# System Level Products

## Network Appliances



Model	FWS-7520	FWS-7400	FWS-7350
<b>Platform</b>			
<b>Form Factor</b>	1U Rackmount Network Platform	1U Rackmount Network Platform	1U Rackmount Network Platform
<b>Processor</b>	Intel® Xeon Processor SoC	Intel® LGA1150 4th Gen Core™ Processor	Onboard Intel® C2758/C2558 4 Core™/ 8 Core™ 2.4 GHz Processor SoC
<b>Chipset</b>	Integrated	Intel® H81	Integrated
<b>System Memory</b>	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	DDR3L 1600 UDIMM/ECC, up to 64GB, 240-pin DIMM x 4
<b>Network</b>			
<b>Ethernet</b>	1GbE x 1 + 10 GbE x 2 + NIM	1GbE x 6 + NIM	1GbE x 4 + NIM
<b>Bypass</b>	Depends on NIM	2 ~ 4 (Depends on NIM)	2 ~ 4 (Depends on NIM)
<b>NIM Slot</b>	3	1	1
<b>Display</b>			
<b>Graphic Controller</b>	IPMI integrated (Optional)	Intel® Integrated	Mini-card VGA (Optional)
<b>Connector</b>	VGA cable (Optional)	VGA cable (Optional)	VGA cable (Optional)
<b>Storage</b>			
<b>HDDs</b>	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)
<b>CF/FAST/mSATA</b>	CF socket x 1 (Optional CFast™ socket or mSATA slot)	CF socket x 1	CF socket x 1
<b>Expansion/Internal Interface</b>			
<b>PCIe slot</b>	PCIe [x4] signal use [x8] slot	PCIe [x8] slot x 1 (Optional), cannot use w/ NIM	PCIe [x4] signal use [x8] slot
<b>Mini-card slot</b>	—	—	—
<b>IPMI</b>	Optional Module	—	—
<b>Keyboard &amp; Mouse</b>	Reserve pin-header	Reserve pin-header	Reserve pin-header
<b>Universal Serial Bus</b>	USB 3.0 x 2 Box Header (2.0mm) (optional)	USB 2.0 x 2 Box Header (2.0mm) (optional)	USB 2.0 x 1 Box Header (2.0mm) (optional)
<b>Miscellaneous</b>			
<b>RTC</b>	Internal RTC	Internal RTC	Internal RTC
<b>Watchdog Timer</b>	1~255 step by software programmable	1~255 steps by software programmable	1~255 steps by software programmable
<b>Software Button</b>	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1
<b>TPM</b>	Yes	—	—
<b>GPIO</b>	8bits, BIOS default 4 bits input, 4bits output.	—	—
<b>FAN</b>	3	2	1
<b>MTBF (Hours)</b>	—	106,000	109,000
<b>Color</b>	Black	Black	Black
<b>Environmental Parameters and Dimension</b>			
<b>Power Requirement</b>	180W ATX PSU or 220W Redundant PSU (Optional)	250W ATX PSU	100W ATX PSU
<b>Operation Temp.</b>	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
<b>Storage Temp.</b>	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Operating Humidity</b>	10 ~ 80%	10 ~ 80%	10 ~ 80%
<b>Storage Humidity</b>	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing
<b>Vibration</b>	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
<b>Shock</b>	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	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation
<b>Chassis Dimension (W x D x H)</b>	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)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)
<b>I/O Interfaces</b>			
<b>Front Panel</b>	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	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
<b>Rear Panel</b>	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)	AC Power Input x 1, Power Switch x 1, VGA port (Optional), Rear Expansion Slot x 2 (Optional PCIe [x4] signal use [x8] slot)

# System Level Products

## Network Appliances



Model	FWS-7250	FWS-8500
<b>Platform</b>		
<b>Form Factor</b>	1U Rackmount Network Platform	2U Rackmount Network Platform
<b>Processor</b>	Intel® Atom™ E3845, up to 1.91 GHz/ Celeron® J1900 up to 2.42 GHz	Intel® Haswell-EP Xeon E5-2600 v3 Series, LGA 2011
<b>Chipset</b>	Integrated	Intel® Coletto Creek 8925 PCH
<b>System Memory</b>	DDR3(L) 1333 SODIMM, up to 8GB, 204 Pin DIMM x 2	DDR4 1600/1866/2133 RDIMM, Up to 128GB, 288-Pin DIMM x 16 (8 DIMM Per CPU)
<b>Network</b>		
<b>Ethernet</b>	1GbE x 4	Depends on NIM, onboard 1GbE LAN x 1 (Optional 1GbE LAN x 2)
<b>Bypass</b>	2	Depends on NIM
<b>NIM Slot</b>	—	8
<b>Display</b>		
<b>Graphic Controller</b>	Intel Integrated	Mini-card VGA (Optional)
<b>Connector</b>	VGA cable (Optional)	VGA cable (Optional)
<b>Storage</b>		
<b>HDDs</b>	2.5" SATA HDD x 1 (Optional)	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)
<b>CF/CFast/mSATA</b>	CF socket x 1	CF socket x 1
<b>Expansion/Internal Interface</b>		
<b>PCIe slot</b>	—	PCIe [x8] slot x 2 (Optional)
<b>Mini-card slot</b>	1	1
<b>IPMI</b>	—	—
<b>Keyboard &amp; Mouse</b>	Reserve pin-header	Reserve pin-header
<b>Universal Serial Bus</b>	USB 2.0 x 1 Box Header (2.0mm) (optional)	USB x 2 for internal pin-header (optional)
<b>Miscellaneous</b>		
<b>RTC</b>	Internal RTC	Internal RTC
<b>Watchdog Timer</b>	1-255 steps by software programmable	1-255 steps by software programmable
<b>Software Button</b>	GPIO Programmable push button x 1	GPIO Programmable push button x 1
<b>TPM</b>	—	TPM v1.2
<b>GPIO</b>	—	8 bits, BIOS default 4 bits input, 4 bits output.
<b>FAN</b>	2	5
<b>MTBF (Hours)</b>	110,000	—
<b>Color</b>	Black	Black
<b>Environmental Parameters and Dimension</b>		
<b>Power Requirement</b>	100W ATX PSU	650W Redundant PSU
<b>Operation Temp.</b>	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
<b>Storage Temp.</b>	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Operating Humidity</b>	10 ~ 80%	10 ~ 80%
<b>Storage Humidity</b>	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing
<b>Vibration</b>	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
<b>Shock</b>	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
<b>Chassis Dimension (W x D x H)</b>	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)
<b>I/O Interfaces</b>		
<b>Front Panel</b>	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 RJ-45 LAN x 2)
<b>Rear Panel</b>	AC Power Input x 1 Power Switch x 1 VGA port (Optional)	AC Power Input x 1 Power Switch x 1 Rear Expansion Slot x 1 (Optional PCIe [x8])

# System Level Products

## IoT Gateway



Model	AIOT-QG	AIOT-QA	AIOT-QM	AIOT-DRM
<b>System</b>				
<b>Processor</b>	Intel® Quark SoC x1021	Intel® Quark SoC x1021	Intel® Quark SoC x1021	Intel® Quark SoC x1021
<b>System Memory</b>	Onboard 1 GB DDR3 800MHz ECC, un-buffered memory	Onboard 1 GB DDR3 800MHz ECC, un-buffered memory	Onboard 1 GB DDR3 800MHz ECC, un-buffered memory	Onboard 512MB DDR3 800MHz ECC, un-buffered memory
<b>Ethernet</b>	10/100, RJ-45 x 2	10/100, RJ-45 x 2	10/100, RJ-45 x 2	10/100, RJ-45 x 1
<b>Rear I/O</b>	USB 2.0 Ports x 2 Mini USB Port x 1 Serial Port (RS-232/422/485) x 1 LAN (RJ-45) Ports x 2 RESET Button x 1 Lockable DC connector (9~24V) x 1 Antenna hole x 2	USB 2.0 Ports x 2 Mini USB Port x 1 Serial Port (RS-232/422/485) x 1 LAN (RJ-45) Ports x 2 RESET Button x 1 Lockable DC connector (9~24V) x 1 Digital I/O x 1 Power input x 1 Antenna hole x 2 Serial Port (RS-232) x 1	USB 2.0 Ports x 2 Mini USB Port x 1 Serial Port (RS-232/422/485) x 1 LAN (RJ-45) Ports x 2 RESET Button x 1 Lockable DC connector (9~24V) x 1	PC board- RS-232 x 1 (D-sub 9-pin) USB 2.0 x 1 mini USB 2.1 x 1 10/100 LAN x 1 I/O board- DI x 6, DO x 2 ADC x 4, DAC x 1 Isolated RS-485 x 1 (terminal block) Analog Input x 1 Antenna hole x 2 Power LED x 1 SD card LED x 1
<b>Front I/O</b>	Analog Input x 1 Digital IO x 1 RS-232 x 1 Power input x 1 Antenna hole x 2	Analog Input x 1 Antenna hole x 2 Power LED x 1 SD card LED x 1	Analog Input x 1 Digital IO x 1 RS-232 x 1 Power input x 1	—
<b>Storage</b>	Micro SD Slot x 1 (default 4G card)	Micro SD Slot x 1 (default 4G card)	Micro SD Slot x 1 (default 4G card)	eMMC 4GB
<b>Expansion Slot</b>	Full Size Mini-PCIe Slot for PCIe and USB Host Interface x 1 Half Size Mini-PCIe Slot for PCIe x 1 SPI Slot for optional module	Full Size Mini-PCIe Slot for PCIe and USB Host Interface x 1 Half Size Mini-PCIe Slot for PCIe x 1 SPI Slot for optional module	Full Size Mini-PCIe Slot for PCIe and USB Host Interface x 1 Half Size Mini-PCIe Slot for PCIe x 1 SPI Slot for optional module	PCIe Mini card x 1
<b>OS support</b>	Wind River Linux Yocto Linux (MOQ required)	Wind River Linux Yocto Linux (MOQ required)	Wind River Linux Yocto Linux (MOQ required)	Wind River Linux
<b>Mechanical</b>				
<b>Mounting</b>	VESA/ Wallmount	Din-Rail mounted	VESA/Wallmount	Din-Rail mounted
<b>Dimension</b>	44.2" x 4.77" x 1.26" (174mm x 121.2mm x 32mm)	6.6" x 4.53" x 1.77" (168mm x 115mm x 45mm)	44.2" x 4.77" x 1.26" (174mm x 121.2mm x 32mm)	8.84" x 6.42" x 1.81" (224.5mm x 163mm x 46mm)
<b>Gross Weight</b>	—	—	—	—
<b>Net Weight</b>	—	—	—	—
<b>Environmental</b>				
<b>Operating Temperature</b>	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 122°F (-20°C ~ 50°C)
<b>Storage Temperature</b>	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
<b>Storage Humidity</b>	10%~95% @40°C, non-condensing	10%~95% @40°C, non-condensing	10%~95% @40°C, non-condensing	10%~95% @40°C, non-condensing
<b>Power Supply</b>				
<b>DC input</b>	DC 9-24V	DC 9-24V	DC 9-24V	DC 24V
<b>Optional Connectivity</b>				
<b>Support Connectivity</b>	3G/ Wi-Fi/ ZigBee/ Bluetooth	3G/ Wi-Fi/ ZigBee/ Bluetooth	3G/ Wi-Fi/ ZigBee/ Bluetooth	3G/ Wi-Fi/ Bluetooth

# System Level Products

## Industrial Chassis — Rackmount



Model	ARC-645	ARC-645M	ARC-625M
<b>System</b>			
<b>Construction</b>	1.2 mm SECC Zinc-coated Steel	1.2mm SECC Zinc-coated Steel (Japanese Manufactured)	1.2mm SECC Zinc-Coated Steel
<b>Storage</b>	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
<b>System Fan</b>	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
<b>Front Panel</b>	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
<b>Rear Panel</b>	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
<b>Color</b>	Black	Black	Black
<b>Dimensions</b>	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)
<b>Carton Size</b>	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)
<b>Net Weight</b>	26.4 lb (12 kg)	26.4 lb (12 kg)	22 lb (10 kg)
<b>Gross Weight</b>	30.8 lb (14 kg)	30.8 lb (14 kg)	26.4 lb (12 kg)
<b>Environmental</b>			
<b>Operating Temperature</b>	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 122°F (0°C ~ 50°C)
<b>Storage Temperature</b>	-4°F ~ 176°F (-20°C ~ 80°C)	-4°F ~ 176°F (-20°C ~ 80°C)	-4°F ~ 176°F (-20°C ~ 80°C)
<b>Storage Humidity</b>	10 ~ 90% @ 40°C, non-condensing	10 ~ 90% @ 40°C, non-condensing	10 ~ 90% @ 40°C, non-condensing
<b>Vibration</b>	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
<b>Shock</b>	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
<b>EMC</b>	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A

# System Level Products

## Industrial Chassis — Wallmount



Model	AMC-280M	AMC-262	AEC-206	AEC-204
<b>System</b>				
<b>Construction</b>	Heavy-duty Steel	Heavy-duty steel	Heavy-duty Steel	
<b>Storage</b>	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
<b>System Fan</b>	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
<b>Front Panel</b>	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	—
<b>Rear Panel</b>	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
<b>Color</b>	White	White	Black	White
<b>Dimensions</b>	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)
<b>Carton Size</b>	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)
<b>Net Weight</b>	19.8 lb (9 kg)	12.1 lb (5.5 kg)	17 lb (7.8 kg)	12.1 lb (5.5 kg)
<b>Gross Weight</b>	22 lb (10 kg)	13.9 lb (6.3 kg)	20 lb (9.2 kg)	13.9 lb (6.3 kg)
<b>Environmental</b>				
<b>Operating Temperature</b>	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)
<b>Storage Temperature</b>	-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)
<b>Storage Humidity</b>	10 ~ 90% @ 40°C, non-condensing	10 ~ 90% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing
<b>Vibration</b>	0.5 Grms/ 5 ~ 500Hz/ operation	0.5 Grms/ 5 ~ 500Hz/ operation (2.5" Hard Disk Drive) 1.5 Grms/ 5 ~ 500Hz/ non operation	1 Grms/ 5 ~ 500Hz/ random operation	1 Grms/ 5 ~ 500Hz/ random operation
<b>Shock</b>	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)
<b>EMC</b>	CE/FCC Class A	CE/FCC Class A	CE/FCC class A	CE/FCC class A

# Memo

Memo

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