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2013 Embedded Boards & SoMs

SYSTEM ON MODULE
EMBEDDED SINGLE BOARD COMPUTER
INDUSTRIAL MOTHERBOARD
SLOT CPU CARD

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Embedded Boards & SoMs

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Embedded Boards & SoMs

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Embedded
Boards &
SoMs

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Axiomtek Embedded Boards & SoMs

Axiomtek Single Board Computer Solutions

Intel Solution

Chipset	Full-size 1.3	Full-size 1.0	Half-size 1.3	Half-size 1.0	3.5" CAPA	Pico ITX	EPIC	Nano ITX	PC/104	ATX	Mini ITX	COM Express	ETX	STX
C226										IMB210				
Q87	SHB130									IMB211				
C216										IMB208	MANO871			
Q77	SHB120									IMB207	MANO871 MANO872 MANO873			
B75										IMB204				
QM77											MANO870			
3450	SHB105													
B65		SBC81210												
C206	SHB108													
Q67	SHB106									IMB206				
H61											MANO861			
Q57	SHB103									IMB205	MANO800			
Q45	SHB102									IMB203				
QM67/HM65			SHB213								MANO860	CEM860		
QM57/HM55	SHB111													
GM45			SHB211				EP850				SBC86850	CEM850		
Q35	SHB101	SBC81205									SBC86860			
945G	SHB100	SBC81203												
945GC		SBC81206									SBC86834			
945GME	SHB110		SHB210				EP830				SBC86831 SBC86832	CEM830	ETM830	
910GMLE				SBC82820										
ICH8M		SBC81207	SHB212		CAPA800 CAPA801									
945GSE + ICH7M					SBC84831 SBC84832 SBC84833						SBC86836	CEM831	ETM831	STX88831
US15W						PICO820 PICO821								
US15WPT					SBC84823 SBC84826									
NM10					CAPA830 CAPA831	PICO830 PICO831		NANO830 NANO831			MANO825 MANO830 MANO831			

VIA Solution

Chipset	Full-size 1.3	Full-size 1.0	Half-size 1.3	Half-size 1.0	3.5" CAPA	Pico-ITX	EPIC	Nano-ITX	PC/104	ATX	Mini ITX	COM Express	ETX	STX
CN700		SBC81700		SBC82700 SBC82702	SBC84700									
CX700M					SBC84710								ETM710	

AMD Solution

Chipset	Full-size 1.3	Full-size 1.0	Half-size 1.3	Half-size 1.0	3.5" CAPA	Pico-ITX	EPIC	Nano-ITX	PC/104	ATX	Mini ITX	COM Express	ETX	STX
LX800					SBC84620 SBC84621 SBC84622				AX12260		SBC86620		ETM620	
A50M					CAPA110 CAPA111	PICO100	EP100	NANO100 NANO101						
A55E					CAPA112							CEM100		

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Axiomtek Embedded Boards & SoMs

COM Express™, ETX and STX Form Factors

With many years of experience, Axiomtek provides product solutions from components (SBC, chassis and accessory individually) to platforms (SBC with embedded OS ported plus system enclosure and related wiring kits integrated). This is an evolution milestone that improves customers' system design TTM (Time-to-Market) and speeds up the turnover without increasing business overhead; especially, for project-based business essence. In addition, to reduce the entry barrier for tailor-made requirements as embedded applications are frequently asked to, the COM Express, ETX & STX are born to be a suitable and reliable path to the way of satisfaction through customized baseboard design with less R&D time and efforts, and without dealing with the critical core logic tune-up.

Therefore, Axiomtek continues to lead the way to benefit both customers and suppliers with better design concepts and pre/post-service considerations.

Embedded Boards & SoMs

Axiomtek began to provide embedded SBC's in 1996 with compact size form factors, these compact size form factors include Pico-ITX, EPIC boards, 3.5" Capa boards, Nano ITX, Mini ITX, Micro ATX industrial motherboard, ATX industrial motherboard, PICMG 1.3 system host boards (full-size & half-size), PICMG 1.0 CPU cards (full-size & half-size), STX, ETX & COM Express, PC/104 modules and customized sizes as well. The computing architecture for these boards is categorized as IBM PC-based compliant from 486 up to Intel® Core™ i/ Xeon. They are widely applied onto various embedded applications, such as GUI intensive like traditional industrial automation, human machine interface, transaction terminals, DVR and transportation equipments as well as data processing like networking appliances.

Reliability: To enhance system reliability for critical demands, Axiomtek's embedded SBC's are designed with precise Watchdog timer, a fanless low power consumption system, USB DOM (DiskOnModule), PC/104 and PC/104+ expansion interface, SSD with onboard Flash, NVRAM, DiskOnChip and CompactFlash etc.

Communication: For better communication interactive demands, the SBC's have auto flow control RS-232/422/485, Wake-on-LAN Ethernet with RPL/PXE Boot ROM.

Multimedia: The SBC's are equipped with user-friendly SmartView BIOS, DualView (also advanced Dual LVDS) and high quality audio playback.

Security: For security purposes, the SBC's have a unique ID and MiniPCI interface for hardware encryption/authentication acceleration.

Critical Approach: These SBC's have an extended temperature for extreme working environments.

System on Modules with eSMART Services

Customization is a universal demand form embedded application field, but it comes along with high entry threshold such as long developing time, high NRE charge and high business commitment requirements. COM has been created to resolve the issues mentioned above, to become the compromised solution and to reduce cost and enhance TTM (Time-to-Market). Axiomtek adapts COM Express, ETX and STX form factors as the first COM architecture to provide ISA supported core engine for various required projects.

Pre-configured HW & SW Combination for Your Embedded Board & SoM Solutions

Accessories

Embedded SBC

Extension Baseboard

LCD Lighting Service & User Friendly Accessories

Embedded OS

* All specifications and photos are subject to change without notice.

The Baseboard

The Baseboard is the I/O outlet for COM, which works through indicated interfaces. It is capable of providing standard converting and outputting PC I/O signals, such as COM port TTL-level signals to RS-232/422/485, AC-link to AC'97 audio via the AC'97 codec, Ethernet signals form digital to analog, and output to Parallel ports, IrDA, Floppy, USB, IDE, LCD, CRT, and more. The interfaces also provide PCI Express, three PCI and ISA support, which enables future designers to equip specific functions through standard PC bus interfaces.

In addition, to output secondary IDE, ZV port, TV-out, and other TTL LCD or LVDS signals, which are in excess of the 24-bit STX interface support, Axiomtek can create two 41-pin FPC interfaces to loop them into the baseboard for a more complete application solution.

eSMART Service = SoM + Customized Baseboard + Embedded OS

Axiomtek's eSMART service is an optimized process, which develops customized baseboards for Axiomtek's standard SoM's (System on Modules) and includes an embedded operating system. This process is extremely fast, with a low investment threshold. Through eSMART, three ready-to-run engineering samples will be produced within 30 days from the time of the order confirmation. Customers are able to reduce up to 85% of regular development time and costs with the eSMART service.

Advantages

- Fast Development Time: Standard developing platforms are synchronized with customer's specific software designs, and the customized Baseboard is ready for customer's evaluation within 30 days.
- High Scalability: Future upgrades are easily achievable by swapping out newer SoM's.
- Tailor Made: Designs are made to fit customer's needs and application purposes.
- Cost Effective: The customized design baseboard reduces cost and time in development when compared to normal single board computer cost.
- Low Threshold: The less business commitment to vendor, the more project possibilities.
- Low Profile: High integration features in a low profile board.

eSMART Service Flow
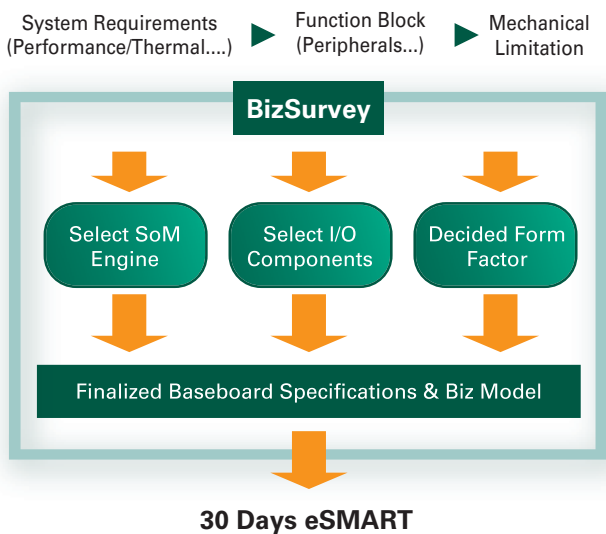
3 Engineer Samples Ready for Ship
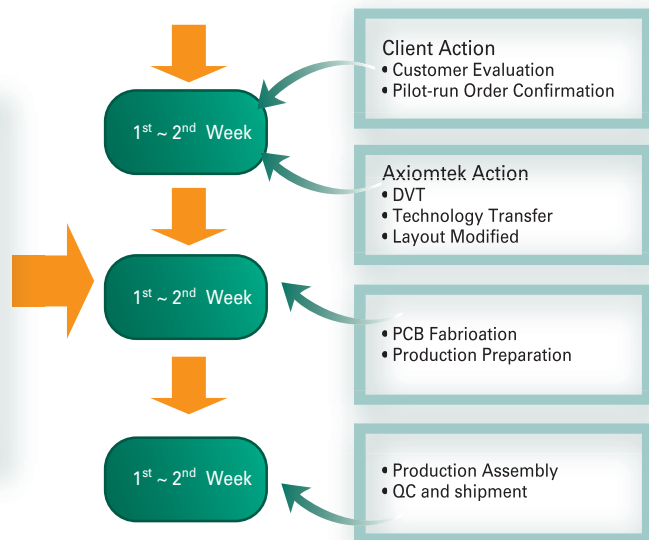
System Requirements (Performance/Thermal....) ▶ Function Block (Peripherals...) ▶ Mechanical Limitation

BizSurvey

Select SoM Engine

Select I/O Components

Decided Form Factor

Finalized Baseboard Specifications & Biz Model

30 Days eSMART

1st ~ 2nd Week

1st ~ 2nd Week

1st ~ 2nd Week

Client Action
- Customer Evaluation
- Pilot-run Order Confirmation

Axiomtek Action
- DVT
- Technology Transfer
- Layout Modified

- PCB Fabrioation
- Production Preparation

- Production Assembly
- QC and shipment

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Axiomtek Embedded Boards & SoMs

Embedded OS

To optimize system resource demand, reduced TCO (Total Cost of Ownership), improve system reliability and system design TTM (Time-to-Market); Axiomtek establishes the embedded OS service force since 1999. As a platform concept, ECP (Embedded Computing Platform) combines two elements, a hardware SBC body and an embedded OS soul which constitute the perfect match for many application targets.

Axiomtek's embedded OS solutions offer a wide range of Microsoft Windows® and Embedded Linux and QNX family-based products and services, which include:
● Windows® CE/CE 5.0, Windows® Embedded CE 6.0
● Windows® XP Embedded, Windows® Embedded Standard 2009/7
● Embedded Linux
● QNX Neutrino RTOS
With Axiomtek embedded OS solutions, the worry of dealing with various vendors, hardware suppliers, system integrators, and embedded OS distributors for tough projects, is cut to a minimum. Axiomtek is committed to helping customers; from the very beginning planning stages to successful complete system delivery, and fast time to market, Axiomtek is by your side. To better help achieve these goals, Axiomtek provides various services and solutions.

Windows® CE Integration Services
(Windows® CE 5.0/ CE 6.0/ Embedded Compact 7)

Integrated Windows® CE image by request based on:
● Selected hardware platforms
● Selected existing device drivers and IRQ settings
● Selected Windows® CE functions
● Customer proprietary device drivers and applications
● Bootloader and utilities

Features of the service:
● Full function test before any OS image is released
● Flexible product combinations
● Support of additional extension cards when IRQ allows
● Optional Instant-On solution implementation with special non-volatile memory

Windows® CE Embedded Ready Platforms
● Rugged and compact industrial grade single board computers or panel computers
● Flash disk with pre-configured Windows CE English and Chinese (Traditional & Simplified) image for target platform
● Platform SDK for Visual C++ and Visual Basic
● Windows® CE license
● Utility and sample code
● User manual

* All specifications and photos are subject to change without notice.

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

Windows® Embedded Integration Service

(Windows® XP Embedded/ Embedded Standard/ Embedded Standard 7/
Embedded 8)

Reduces Windows® Embedded size by request based on:

- Selected hardware platforms
- Customer applications requirements
- Required Windows® Embedded functions
- Customer target storage size

Features of the service

- Windows® Embedded is tailored to run from SSD on rugged compact industrial
  grade single board computers
- Direct I/O utility and sample code
- Optional Instant-On solution implementation with special non- volatile memory
- Reasonable development fee refundable after certain amount of
  Windows® Embedded licenses are purchased

Advantages of the service

- Customers focus on software development to take full advantage of necessary
  Windows® Embedded features
- Ready for mass production with standard hardware combined with Windows®
  Embedded license
- Optional service with eSMART
- Optional development kit

Embedded O/S Service Flow

Note:
1. Define/consult platform spec (H/W & S/W) spec
2. Design the hardware prototype for Windows® XP,
   Windows® CE, & Embedded Linux
3. Reference platform for prototype design
4. OS and device driver porting service

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Embedded Linux Integration Service

Integrated Embedded Linux image by request based on:
- Selected hardware platforms
- Selected existing device drivers and IRQ settings
- Selected Embedded Linux functions
- Customer proprietary device drivers and applications
- Bootloader and utilities

Features of the service:
- Full function test before any OS image releases
- Flexible product combination
- Additional extension cards supports when IRQ allows
- Optional Instant-On solution implementation with special non-volatile memory H/W

Advantages of the service:
- Customer focus on software development with embedded visual tools.
- Ready for mass production with standard hardware combined with Embedded Linux License.
- Optional service with eSMART
- Optional platform development kit
- Reference platform for prototype design
- OS and device driver porting service

For business model, the Axiomtek Kernel Embedded Linux is with free of charge run-time which at the same time is free to download from Axiomtek's web service upon request to Axiomtek's FAE team.

QNX Neutrino RTOS (realtime operating system)

The QNX Neutrino RTOS provides a comprehensive, integrated set of technologies to help quickly deliver robust, reliable embedded systems. It's a memory-protected microkernel architecture for maximum reliability unparalleled scalability and realtime performance for embedded applications.
- High availability solution
- Essential networking technologies including IPv4, IPv6, IPSec, FTP, HTTP, SSH, Telnet and more
- Photon microGUI a full featured embedded graphical user interface
- Integrated file systems for flash devices and rotating media
- System visibility and debugging support
- Scalability
- Portability

Embedded O/S Porting Status

The page contains a large matrix table titled "Embedded O/S Porting Status" cross-referencing Product Names (rows) against Operating Systems and versions (columns).

Column header groups (left to right): Linux (QNX 6.5, 6.4, 6.3; Embedded Linux Free BSD, 2.6, 2.4), uAPI, POSReady (JP, SC, TC, EN), WES 7 64bit (BSP, JP, SC, TC, EN), WES7 32bit (BSP, JP, SC, TC, EN), WES2009 (BSP, JP, SC, TC, EN), Windows® XPe SP3 (BSP, JP, SC, TC, EN), XPe SP2 (BSP, JP, SC, TC, EN), CE 7.0 (BSP, JP, SC, TC, EN), CE 6.0 (BSP, JP, SC, TC, EN), CE 5.0 (BSP, JP, SC, TC, EN).

Product Names (rows):
AX12260, AX12270, CAPA110, CAPA111, CAPA800, CAPA801, CAPA810, CAPA830, CAPA831, CEM830, CEM831, CEM850, DSA-142, DSA-300, eBOX310-830, eBOX510-820, eBOX511-820, eBOX530-820, eBOX531-820, eBOX550-100, eBOX620-800, eBOX620-801, eBOX620-823, eBOX620-831, eBOX621-801, eBOX630-100, eBOX630-821, eBOX630-830, eBOX630-850, eBOX639-836, eBOX646, eBOX646-FL500, eBOX646-LVDS, eBOX647, eBOX730-860, eBOX745, eBOX746A, eBOX830-822, eBOX830-831, eBOX832-831, EP100, EP830, EP850, ETM620, ETM831, FDK150-830, GOT3126TL, GOT3156-830, GOT3156T-823, GOT3570T, GOT3571T, GOT3840T, GOT5000F-5100-5120-5840-830, GOT615-801, GOT812

to be continued

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Embedded O/S Porting Status

* All specifications and photos are subject to change without notice.

to be continued

Product Name \ Language \ Version	CE 5.0 EN	TC	SC	JP	BSP	CE 6.0 EN	TC	SC	JP	BSP	CE 70 EN	TC	SC	JP	BSP	XPe SP2 EN	TC	SC	JP	BSP	XPe SP3 EN	TC	SC	JP	BSP	WES2009 EN	TC	SC	JP	BSP	WES7 32bit EN	TC	SC	JP	BSP	WES 7 64bit EN	TC	SC	JP	BSP	POSReady EN	TC	SC	JP	uAPI	Embedded Linux 2.4	2.6	Free BSD	QNX 6.3	6.4	6.5
GOT3846-832																															•																				
GOT5100T-832										•					•																•																				
GOT5120-832																															•																				
GOT808CV-801																																		•																		
GOT808R-801																													•		•	•																			
ICO-200																									•																										
IFO2175-850						•	•	•	•	•																																			•						
IFO2225-851																															•															•					
IMB-203																															•																				
IMB-205																															•	•																			
IPC-910H																			•												•	•																			
IPC912-211																																																			
IPC912-213																															•																				
IPC916-211																								•						•																					
IPC924-212						•	•			•																					•																				
MANO825																									•	•	•	•												•	•				•	•					
MANO860																													•		•		•			•		•		•	•										
MANO871																									•	•		•	•																						
MPC170-831						•	•		•	•										•	•								•																			•				
MPC175-851																															•	•															•	•				
MPC225-851																													•																	•	•					
NA-110																																																				
NA-340																																																				
NA-550																																																				
NA-551																																																				
NA-560																																																				
NA-810B																																																				
NA-810C																		•	•						•																											
NA-820																								•																												
NANO100																																																				
NANO831															•																																					
OFP240-825										•																																										
OFP921-834																																																				
OPS830																								•																												
OPS860																																																				
P1153-841										•														•																												
P1158-822																•		•	•	•	•	•		•	•					•	•																				
P1158-831															•							•		•																					•			•			
P1158-834						•	•	•	•	•											•	•	•	•					•															•			•			
P1175-831						•	•	•	•	•											•			•					•															•			•			
P1178-841																•	•	•	•	•	•	•		•	•	•				•															•			•			
P2170-831										•																																										
P2175-850FL																						•		•					•	•															•	•					
PICO100						•	•	•	•	•					•										•				•																		•					
PICO820						•	•	•	•	•								•	•	•	•		•	•					•																•			•			
PICO821																																																				
PICO822																																																				
PICO830																																																				
rBOX100						•	•	•	•	•															•	•	•	•		•	•	•															•	•	•			
rBOX104																																																				
rBOX101						•	•	•	•	•																																										
rBOX103																																																				
rBOX111																																																				
rBOX200						•	•	•	•	•																			•	•	•										•				•	•	•			
rBOX204						•	•	•	•	•																																										
rBOX201						•	•	•	•	•																															•										
SBC81203								•									•	•																																	
SBC81205								•									•	•																																	
SBC81206										•																																					•	•				
SBC81207																																															•	•				

Embedded O/S Porting Status

LCD Lighting Service & User Friendly Accessories

To make the system design with compact size to meet various embedded applications, LCD has been widely adopted as the display device. Unfortunately, there's no universal standard for the LCD interfacing connector. In order to help our customers, Axiomtek develops various LCD wiring kits and SmartView BIOS to easily install the chosen LCD module onto the targeted system.

The major 2 qualities of LCD enlightening service is making the physical wiring correct and modifying the VGA BIOS with proper registry configuration. The followings are the off-the-shelf solutions for this task:
● LCD wiring kits: TTL, TTL-to-LVDS, LVDS transmission and receiving kits
● SmartView VGA BIOS: 15 types of LCD selection, display sequence setting, and applications expansion feature. Axiomtek is continuous to provide LCD enlightening services; customers can get the most updated reference support list from Axiomtek's web.

Besides the LCD wiring kits, Axiomtek also provides different types of user-friendly accessories; such as, expansion riser cards for ISA/PCI/PCI-X buses, I/O cabling, I/O adapter boards, passive backplanes, functional I/O modules, thermal solutions and dedicated developing kits. These are very helpful peripherals for customers to simplify and shorten their system design time.

▶ LCD Lighting

▶ PCI-X Riser Card

▶ 4-slot Backplane

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Axiomtek Embedded Boards & SoMs

Form Factors

System on Module

COM Express™

Model name: CEMxxx

125 x 95 mm

ETX

Model name: ETMxxx
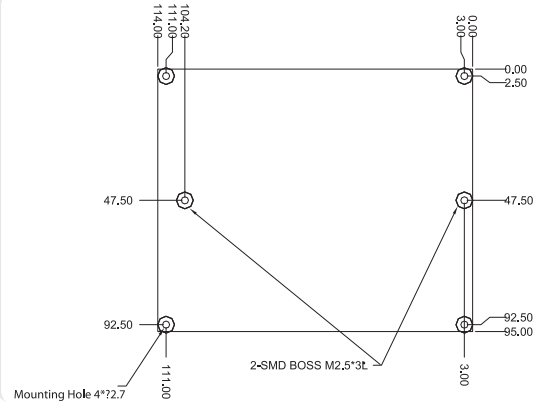
114 x 95 mm

STX

Model name: STX88xxx

96 x 90 mm

* All specifications and photos are subject to change without notice.
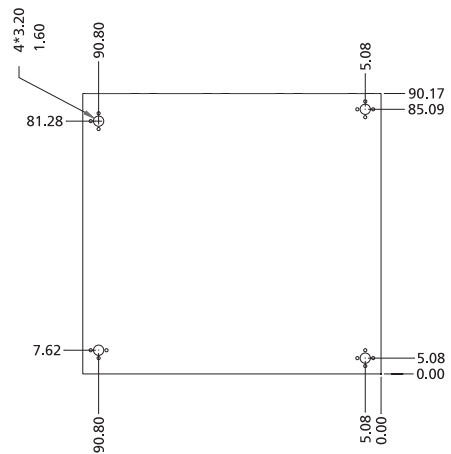
Form Factors

Embedded Single Board Computer

EPIC Board

Model name: EP8xx
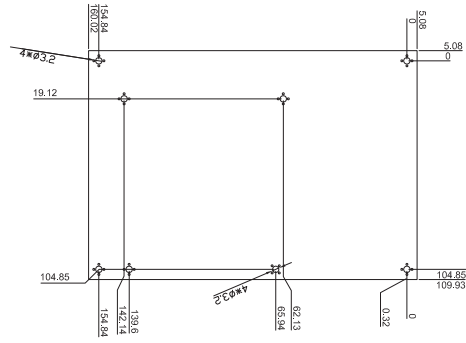
165 x 116 mm

3.5" Capa Board

Model name: CAPAxxx, SBC84xxx
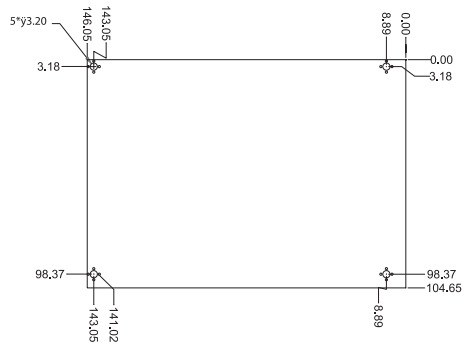
146 x 104 mm

Nano-ITX SBC

Model name: NANOxxx
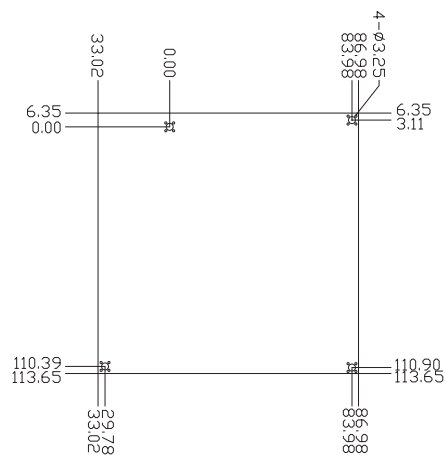
120 x 120 mm

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

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Axiomtek Embedded Boards & SoMs

Form Factors

Embedded Single Board Computer

Pico-ITX SBC

Model name: PICOxxx

97.03

2.97

3.04   3.04

68.96   68.96

97.03

2.97
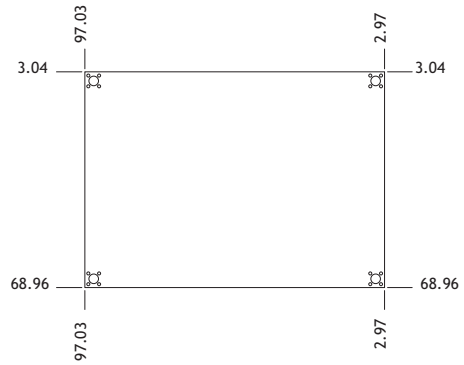
100 x 72 mm

PC/104 Module

Model name: AX122XX

90.17

1.4   0

95.89   0
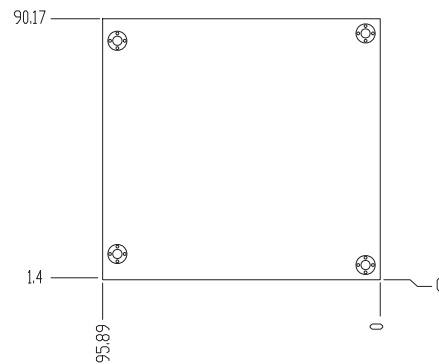
96 x 90 mm

Form Factors

Industrial Motherboard

Mini ITX

Model name: MANOxxx, SBC86xxx

163.83
6.35
0.00
0.00
10.16
33.02
170.00
170.00
165.10
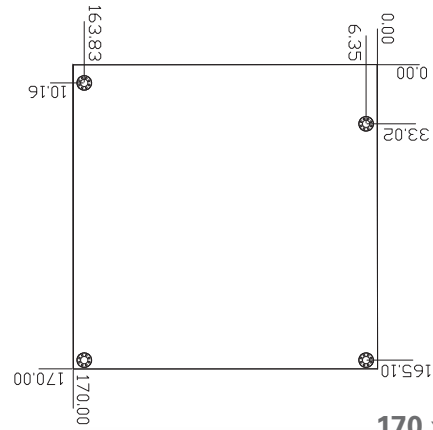
170 x 170 mm

Micro ATX

Model name: IMB1xx

209.55
203.20
20.32
34.29
177.84
177.84
154.94
22.86
0.00
10.16
10.16
209.55
203.20
0.00
34.29
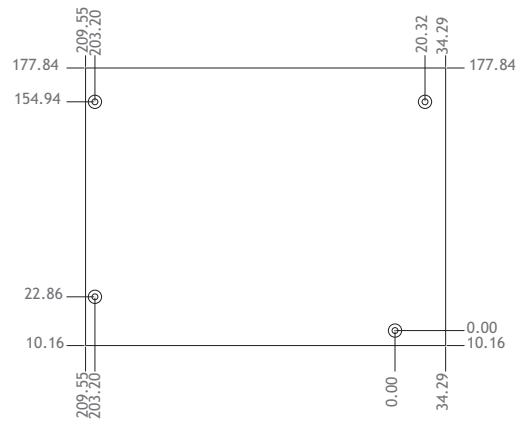
244 x 188 mm

ATX

Model name: IMB2xx

288.29
281.94
0.00
9*4.00
233.68
233.68
227.33
227.33
22.88
0.00
10.16
10.16
288.29
281.92
0.00
16.51
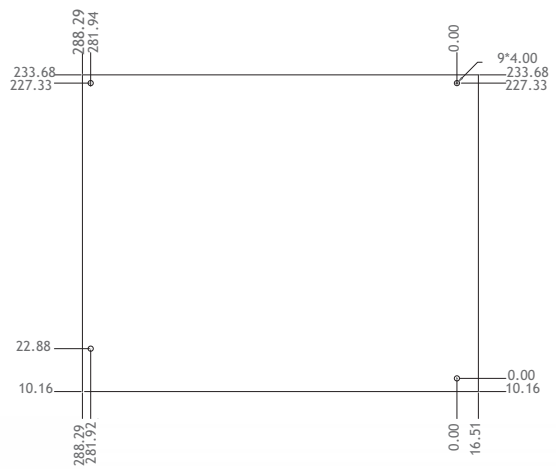
305 x 244 mm

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>Pico-ITX

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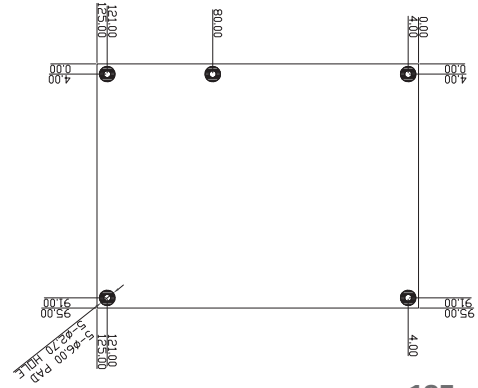Mother-
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Form Factors

Slot CPU Card

PICMG 1.3 System Host Board

Full-size
Model name: SHB1xx

338 x 126 mm

Half-size
Model name: SHB2xx

185 x 126 mm

PICMG 1.0 CPU Card

Full-size
Model name: SBC81xxx

338 x 122 mm

Half-size
Model name: SBC82xxx

185 x 122 mm

* All specifications and photos are subject to change without notice.
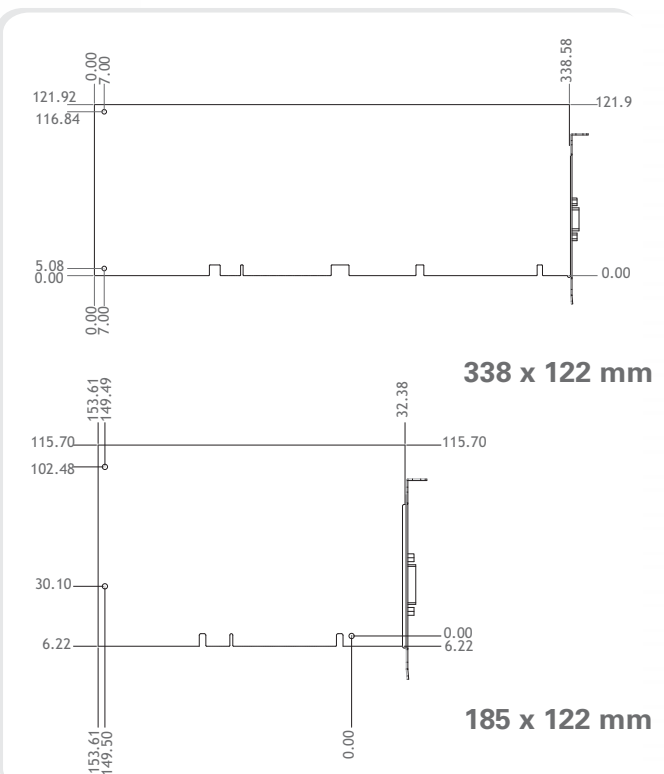
Form Factors

Accessory

MiniPCI

Model name: AX9xxxx

60

50.3
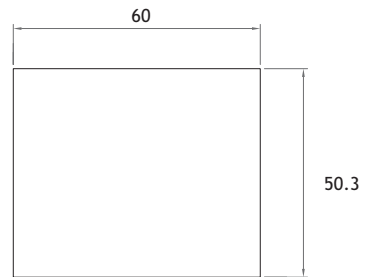
60 x 50.3 mm

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Axiomtek Embedded Boards & SoMs

Wide Operating Temperature Range for Rugged Environment

3.5 Capa Boards

SBC84833 >>Page 109
Intel® Atom™ N270 3.5" Embedded SBC with Intel® 945GSE + ICH7M Chipset, LVDS/VGA, DualView, 4 COM and Single LAN

☐ Military Temperature ☑ Industrial Temperature (-20°C ~ +70°C)

SBC84831 >>Page 111
Intel® Atom™ N270 3.5" Embedded SBC with Intel® 945GSE + ICH7M Chipset, VGA/LVDS, DualView, 6 COM and Dual LANs

☐ Military Temperature ☑ Industrial Temperature (-20°C ~ +70°C)

SBC84826 >>Page 112
Intel® Atom™ Z510PT 3.5" Embedded SBC with Intel® System Control Hub US15WPT Chipset, VGA/LVDS, Dual LANs and PCI Express Mini Card

☑ Military Temperature (-40°C ~ +85°C) ☐ Industrial Temperature

SBC84823 >>Page 113
Intel® Atom™ Z510PT/ Z520PT 3.5" Embedded SBC with Intel® System Control Hub US15WPT Chipset, VGA/LVDS, DualView and PCI Express Mini Card

☑ Military Temperature (-40°C ~ +85°C) ☐ Industrial Temperature

SBC84622 >>Page 118
AMD LX800 3.5" Embedded SBC with Dual LANs, 4 COM, 4 USB 2.0 and VGA/LVDS/TTL

☐ Military Temperature ☑ Industrial Temperature (-25°C ~ +70°C)
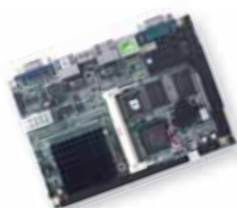
SBC84620 >>Page 120
AMD LX800 3.5" Embedded SBC with Dual LANs, 4 COM, 4 USB 2.0 and VGA/TTL

☑ Military Temperature (-40°C ~ +85°C) ☑ Industrial Temperature (-25°C ~ +70°C)

3.5 Capa Boards

SBC84621 >>Page 119

AMD LX800 3.5" Embedded SBC with Dual LANs, 4 COM, 4 USB 2.0 and VGA/LVDS

☑ Military Temperature (-40°C ~ +85°C)   ☑ Industrial Temperature (-25°C ~ +70°C)

CAPA801 >>Page 107

Intel® Atom™ N455/ D425/ D525 3.5" Embedded SBC with Intel® ICH8M Chipset, LVDS VGA, Dual LANs & Audio

☐ Military Temperature (-40°C ~ +85°C)   ☑ Industrial Temperature (-20°C ~ +70°C)

CAPA800 >>Page 108

Intel® Atom™ N450/ D410/ D510 3.5" Embedded SBC with Intel® ICH8M Chipset, LVDS/VGA, Dual LANs and Audio

☐ Military Temperature (-40°C ~ +85°C)   ☑ Industrial Temperature (-20°C ~ +70°C)

COM Express™ Type 6 Module

CEM860 >>Page 66

Intel® Core™ i7/ i5/ i3 COM Express™ Type 6 Module with Intel® QM67 PCH

☑ Military Temperature (-40°C ~ +80°C)   ☐ Industrial Temperature (-20°C ~ +70°C)

ETX V3.0 SoM

ETM620 >>Page 76

AMD Geode™ LX Family ETX V3.0 SoM with Multiple I/O Features

☑ Military Temperature (-40°C ~ +85°C)   ☐ Industrial Temperature

PC/104 CPU Modules

AX12260 >>Page 131

AMD LX PC/104 CPU Module with VGA/TTL, USB DoM and PC/104-Plus Expansion

☑ Military Temperature (-40°C ~ +85°C)   ☐ Industrial Temperature

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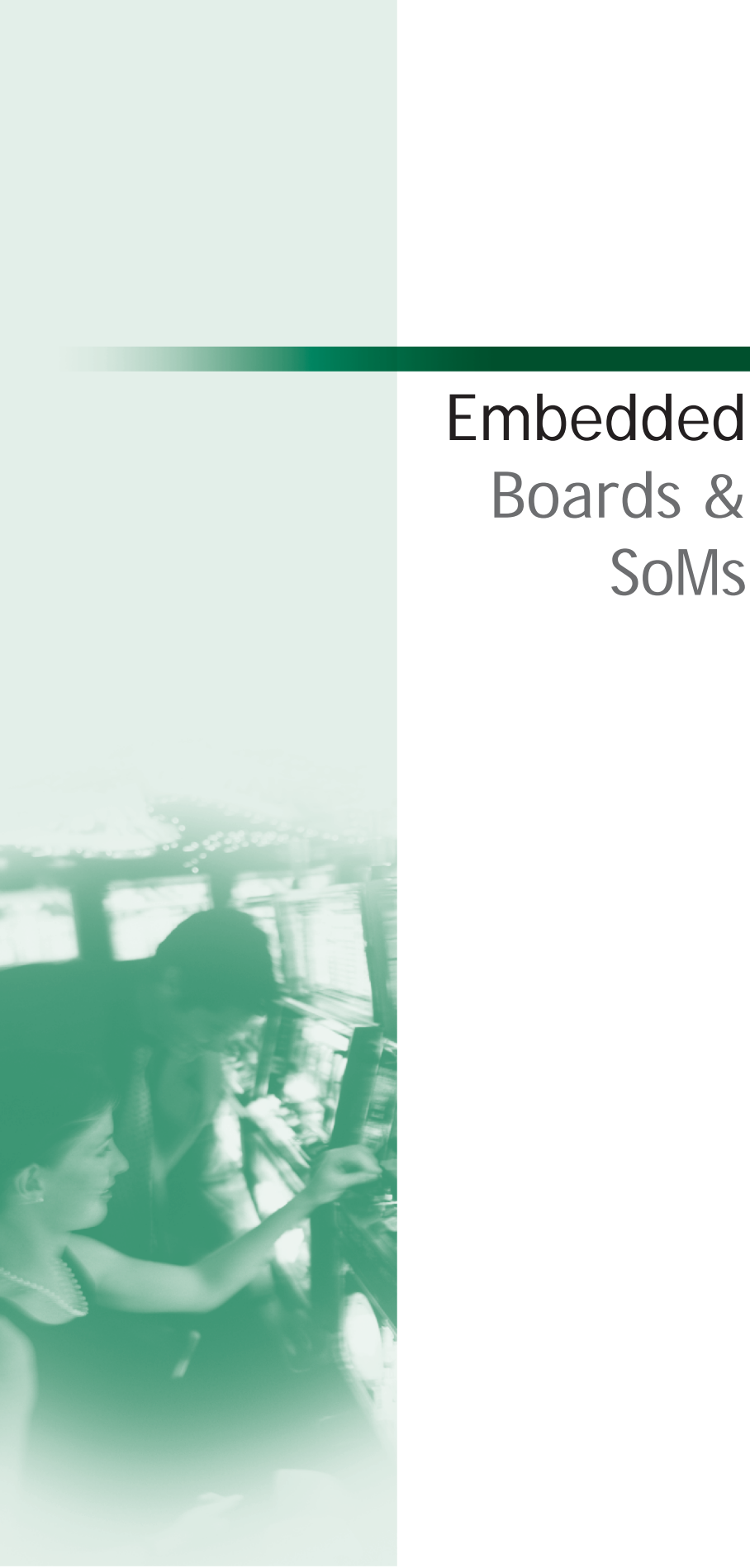
Embedded SBCs >PC/104

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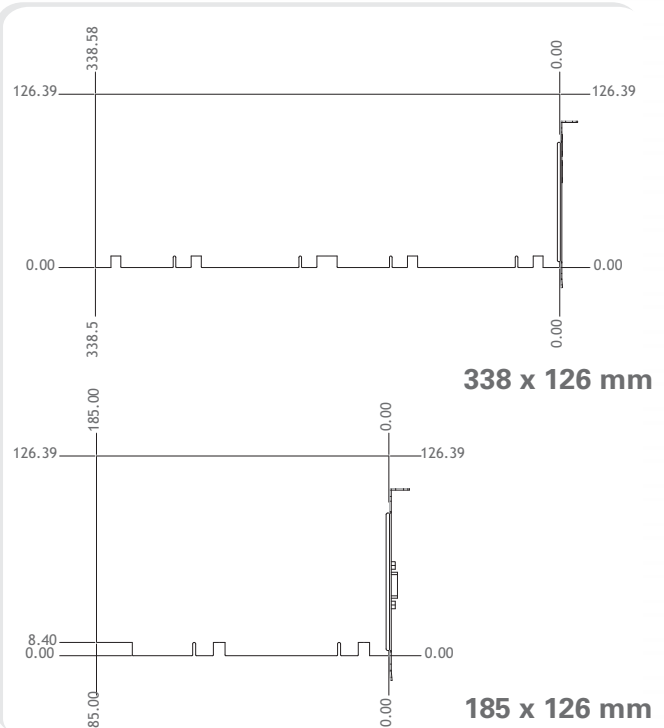
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2 System on Modules

SoM's, with a suitable baseboard, are the optimal solution for embedded applications with various customized demands that standard SBC's can't satisfy. Also it features a low TCO (Total Cost of Ownership) and improves the TTM (Time to Market). The STX form factor is PC/104 compliant and is adaptable to existing customer enclosures. The COM Express is a compact module designed with all necessary components and offering the most updated bus interfaces, PCI Express, delivering better system I/O throughput. The ETX module is very compact and a highly integrated computer-on-module. It integrates core CPU and memory functionality, common PC peripheral function such as graphics, USB, serial and parallel ports, Ethernet, IDE, SATA, PCI, and ISA buses.

Axiomtek's SoM (System on Module) Solutions

COM Express™, ETX and STX Form Factors

To meet the customization and flexibility demands of PC-based embedded solutions, Axiomtek provides both form factors to match various market segment; COM Express and STX. COM Express is initiated and defined by PICMG to give the most updated bus interface support; that is PCI Express. Compared to STX which is with both legacy PCI and ISA buses supported, the COM Express is focused on the ISA-free architecture applications.

The following technical information will provide a better understanding about COM Express and STX form factors.

COM Express™ Technical Notes

Overview for the COM Express™ Module Base

A Computer-On-Module, or COM, is a module with all components necessary for a bootable host computer, packaged as a super component. A COM requires a Carrier Board to bring out I/O and to power up. COMs are used to build single board computer solutions and offer OEMs fast time-to-market with reduced development cost. Like integrated circuits, they provide OEMs with significant freedom in meeting form-fit-function requirements. For all these reasons the COM methodology has gained much popularity with OEMs in the embedded industry.

COM Express™ is an open industry standard for Computer-On-Modules. It is designed to be future proof and to provide a smooth transition path from legacy parallel interfaces to LVDS (Low Voltage Differential Signaling) interfaces. These include the PCI bus and parallel ATA on the one hand and PCI Express and Serial ATA on the other.

Key features include:

- Rich complement of contemporary high bandwidth serial interfaces, including PCI Express, Serial ATA, USB 2.0, and Gigabit Ethernet
- 32-bit PCI, LPC and Parallel ATA options preserved for easy interface to a range of peripherals
- Extended power-management capabilities
- Robust thermal and mechanical concept
- Cost-effective design
- Legacy-free design (no Super I/O, PS2 keyboard or mouse)
- Compact module size with two footprint options to satisfy a range of performance requirements
- High-performance mezzanine connector with several pin-out types to satisfy a range of applications

The COM Express specification has been created to appeal to a range of vertical embedded markets. It has also been formulated to be applicable to a broad range of form factors, from floor-installed to bench-top to handheld. Markets and applications include but are not limited to:

- Healthcare - clinical diagnostic imaging systems, patient bedside monitors, etc.
- Retail & advertising - electronic shopping carts, billboards, kiosks, POS systems, etc.
- Test & measurement - scientific and industrial test and measurement instruments
- Gaming & entertainment - simulators, slot machines, etc.
- Industrial automation - industrial robots, vision systems, etc.
- Security - digital CCTV, luggage scanners, intrusion detectors, etc.
- Defense & government - unmanned vehicles, rugged laptops, wearable computers, etc.

Module Overview

■ Module Configuration

Three Module sizes are defined: Compact, Basic and Extended Modules. The primary difference between the different size Modules is the over-all physical size and the performance envelope supported by each. The Extended Module is larger and can support larger processor and memory solutions. The Compact Module, Basic Module and Extended Module use the same connectors and pin-outs and utilize several common mounting hole positions. This level of compatibility allows a Carrier Board to accommodate multiple Module sizes.

Up to 440 pins of connectivity are available between COM Express Modules and the Carrier Boards. Legacy buses such as PCI, parallel ATA, LPC, AC'97 can be supported as well as new high speed serial interconnectors such as PCI Express, Serial ATA or SAS, USB 2.0 / 3.0 and Gigabit Ethernet. To enhance interoperability between COM Express Modules and Carrier Boards, seven common signaling configurations (Pin-out Types) have been defined to ease system integration. Some Pin-out Types definitions require only a single 220-pin connector and others require both 220-pin connectors to supply all the defined signaling. All Pin-out Type definitions apply to either Compact Module, Basic Module or Extended Module sizes.

■ Feature Overview (size) - Compact Module

The Compact Module is intended for mobile systems and space-constrained stationary systems. Key features of the Compact Module include:
● Module size: 95mm x 95mm
● 5mm and 8mm stack height options (Module bottom to Carrier Board top)
● 18mm 'z' height with heat-spreader (using the 5mm stack option)
● Accommodates a single (or two stacked) horizontal mount SO-DIMM
● Single 220 pin or dual 220 pin connectors for up to 440 pins

■ Feature Overview (size) - Basic Module

The Basic Module is intended for mobile and space-constrained stationary systems. Key features of the Basic Module include:
● Module size: 125 mm x 95 mm
● 5mm and 8 mm stack height options (module bottom to Carrier Board top)
● 18 mm 'z' height with heat-spreader (with a 5 mm stack option)
● Accommodates a single (or two stacked) horizontal mount SO-DIMM
● Single 220 pin or dual 220 pin connectors for up to 440 pins

■ Feature Overview (size) - Extended Module

The Extended Module targets OEM applications that require larger amounts of system memory, feature a larger module size to accommodate full size DIMMs and larger chipsets and CPUs. The key features of the Extended Module include:
● Module size: 155 mm x 110 mm
● 5mm and 8 mm stack height options (module bottom to Carrier Board top)
● 18 mm 'z' height with heat-spreader (using the 5 mm stack option)
● Accommodates 2 full-size DIMM or mini DIMM memories or 2 horizontal mount or vertical mount SO-DIMMs
● Single 220-pin or dual 220-pin connectors for up to 440 pins
● Allows for the use of higher performance CPUs that can not be supported using the Compact Module or Basic Module

■ Feature Overview (pin-out types) -Pin-out Type 1

● Single 220 pin connector (A-B connector)
● Up to 8 USB 2.0 ports; 4 shared over-current lines
● Up to 4 Serial ATA or SAS ports
● Up to 6 PCI Express Gen1/Gen2 signaling lanes
● Support pins for up to 2 ExpressCards
● Dual 24-bit LVDS channels
● Analog VGA
● TV Out: Composite Video, S-Video, Component Video (YPbPr)
● AC '97/HDA digital audio interface (external CODEC(s) required)
● Single Ethernet interface with integrated PHY - pinned for Gigabit Ethernet
● LPC interface
● SPI
● 8 GPIO pins
● 68W maximum input power over module connector pins
● +12V primary power supply input
● +5V standby and 3.3V RTC power supply inputs

■ Feature Overview (pin-out types) -Pin-out Type 10

The type 10 Pin-out was introduced with COM Express Rev. 2.0.
● Single 220 pin connector (A-B connector)
● Up to 8 USB 2.0 ports; 4 shared over-current lines
● Up to 2 Serial ATA or SAS ports
● Up to 4 PCI Express Gen1/Gen2 signaling lanes
● Support pins for up to 2 ExpressCards

● Single 24-bit LVDS channel
● One Digital Display Interface configurable as SDVO, DP, or TMDS
● AC'97/HAD digital audio interface (external CODEC(s) required)
● Single Ethernet interface with integrated PHY - pinned for Gigabit Ethernet
● LPC interface
● Two TX/RX serial pairs
● SPI
● Fan control
● TPM support
● 8 GPIO pins
● 68W maximum input power over Module connector pins
● +12V primary power supply input
● +5V standby and 3.3V RTC power supply inputs

■ Feature Overview (pin-out types) -Pin-out Type 2

All Pin-out Type 1 features plus the following:
● Dual 200 pin connectors (A-B and C-D, 440 pins total)
● 32 bit PCI interface
● IDE port (to support legacy ATA devices such as CD-ROM drives and CompactFlash storage cards)
● Up to 22 PCI Express lanes (up to 6 on A-B and up to 16 on C-D)
● 16 of 22 PCI Express lanes commonly used for PCI Express Graphics
● SDVO option (pins shared with PCI Express Graphics)
● Maximum Module input power capability extended to 137W

■ Feature Overview (pin-out types) -Pin-out Type 3

All Pin-out Type 2 features with the exception of the following:
● IDE pins are reallocated to provide additional Gigabit Ethernet capability: no IDE
● Up to 3 Gigabit Ethernet channels

■ Feature Overview (pin-out types) -Pin-out Type 4

All Pin-out Type 2 features with the exception of the following:
● PCI pins are reallocated to provide additional PCI Express lanes: no PCI
● Up to 32 PCI Express lanes

■ Feature Overview (pin-out types) -Pin-out Type 5

All Pin-out Type 2 features with the exception of the following:
● Both IDE and PCI pins are reallocated: no IDE and no PCI
● Up to 32 PCI Express lanes
● Up to 3 Gigabit Ethernet channels

■ Feature Overview (pin-out types) -Pin-out Type 6

All Pin-out Type 2 features with the exception of the following:
● Both IDE and PCI pins are reallocated: no IDE and no PCI
● Up to 24 PCI Express lanes (16 on the PEG port)
● Reserved 16 pins to support the two extra differential pairs required for SuperSpeed USB 3.0. The 16 pins will allow SuperSpeed USB 3.0 support on up to four of the eight USB 2.0 ports. At this point in time, there is not enough information and silicon available for this subcommittee to determine the appropriate trace length and routing rules for SuperSpeed USB 3.0. The routing rules will be handled in a future version of this document
● Up to 3 Digital Display Interfaces

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Axiomtek SoM (System on Module) Solutions

COM Express™, ETX and STX Form Factors

Required and Optional Features

■ Module Pin-out Type Definitions

Seven pin-out types are defined. Pin-out Type 1 and Type 10 Modules have a single 220-pin connector, the A-B connector. Module Pin-out Types 2 through 6 use a pair of 220 pin connectors, designated A-B and C-D, for a total of 440 pins. The variations in Pin-out Type definitions are summarized in the table below.

Table 1: Module Pin-out Type Overview

Types	Connector Rows	PCI Express Lanes	PEG/ SDVO	PCI	IDE Ports	SATA Ports	LAN Ports	USB 2.0 / SuperSpeed USB	Display Interfaces
Type 1	A-B	Up to 6	-	-	-	4	1	8 / 0	VGA, LVDS
Type 2	A-B C-D	Up to 22	1/2	32 bit	1	4	1	8 / 0	VGA, LVDS, PEG/SDVO
Type 3	A-B C-D	Up to 22	1/2	32 bit	-	4	3	8 / 0	VGA, LVDS, PEG/SDVO
Type 4	A-B C-D	Up to 32	1/2	-	1	4	1	8 / 0	VGA, LVDS, PEG/SDVO
Type 5	A-B C-D	Up to 32	1/2	-	-	4	3	8 / 0	VGA, LVDS, PEG/SDVO
Type 6	A-B C-D	Up to 24	1/NA	-	-	4	1	8 / 4	VGA, LVDS, PEG, 3xDDI
Type 10	A-B	Up to 4	-/1	-	-	2	1	8 / 0	1xDDI

For Module Pin-out Types 2 through 6, a subset of the PCI Express lanes are commonly used as PCI Express Graphics (PEG) lanes. SDVO functions may be pin=shared with PEG lanes on Types 2-5. In Type 6 SDVO is moved from the PEG to Digital Display Interface 1. Type 10 does feature one DIGITAL Display Interface but no PEG lanes.

● Type 1

Modules allow for a minimal possible feature set using two of the four available connector rows. Type 1 represents a basic feature set with the benefit of simplified routing of the Carrier Board to allow a lower layer count board.

● Type 10

Modules are similar but not compatible to Type 1 Modules. These Modules feature less PCI Express and SATA interfaces. Type 10 Modules support a single 24 bit LVDS panel interface and a single Digital Display Interface.

● Type 2

Modules include PCI and IDE interfaces. These Modules either use on board graphics capabilities or may use 16 PEG lanes to connect to an external video controller. In case of on board graphics, PEG pins may be alternatively used for two SDVO ports.

● Type 3

Modules trade IDE port pins for two additional LAN ports, allowing up to three GBE interfaces.

● Type 4

Modules drop the PCI interface, to allow up to 32 PCI Express lanes for applications with large I/O bandwidth requirements. IDE support is still available.

● Type 5

Modules trade IDE and PCI pins for up to 32 PCI Express lanes and up to three GBE interfaces. These Modules are intended for applications with large I/O bandwidth requirements.

● Type 6

Modules trade IDE and PCI pins for up to 8 PCI Express lanes, up to three Digital Display Interface and 4 of the 8 USB ports can be used as USB 3.0.

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■ **Module Pin-out Type 1-6 & 10 - Required and Optional Features**

COM Express Required and Optional features are summarized in the following table. The features identified as Minimum (Min.) shall be implemented by all Modules. Features identified up to Maximum (Max) may be additionally implemented by a Module.

Table 2: Module Pin-out - Required and Optional Features A-B Connector

Feature	Type 10 (Single Conn.) Min/Max	Type 1 (Single Conn.) Min/Max	Type 2 (IDE + PCI) Min/Max	Type 3 (No IDE) Min/Max	Type 4 (No PCI) Min/Max	Type 5 (No IDE, No PCI) Min/Max	Type 6 (No IDE or PCI, add DDI + USB3) Min/Max
System I/O							
PCI Express Lanes 0 - 5	1 / 4	1 / 6	1 / 6	1 / 6	1 / 6	1 / 6	1 / 6
LVDS Channel A	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1
LVDS Channel B	NA	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1
VGA Port	NA	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1
TV-Out	NA	NA	NA	NA	NA	NA	NA
Digital Display Interface 0	0 / 1	NA	NA	NA	NA	NA	NA
Serial Ports 1 - 2	0 / 2	NA	NA	NA	NA	NA	NA
SATA / SAS Ports	1 / 2	1 / 4	1 / 4	1 / 4	1 / 4	1 / 4	1 / 4
AC'97 / HAD Digital Interface	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1
USB 2.0 Ports	4 / 8	4 / 8	4 / 8	4 / 8	4 / 8	4 / 8	4 / 8
USB Client	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1
LAN Port 0	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Express Card Support	0 / 2	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2
LPC Bus	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
SPI	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2
System Management							
SDIO (muxed on GPIO)	0 / 1	NA	NA	NA	NA	NA	NA
General Purpose I/O	8 / 8	8 / 8	8 / 8	8 / 8	8 / 8	8 / 8	8 / 8
SMBus	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
I²C	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Watchdog Timer	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1
Speaker Out	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
External BIOS ROM Support	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2
Reset Functions	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Power Management							
Thermal Protection	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1
Battery Low Alarm	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1
Suspend/ Wake Signals	0 / 3	0 / 3	0 / 3	0 / 3	0 / 3	0 / 3	0 / 3
Power Button Support	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Power Good	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
VCC_5V_SBY Contacts	4 / 4	4 / 4	4 / 4	4 / 4	4 / 4	4 / 4	4 / 4
Sleep Input	0 / 1	NA	NA	NA	NA	NA	0 / 1
Lid Input	0 / 1	NA	NA	NA	NA	NA	0 / 1
Fan Control Signals	0 / 2	NA	NA	NA	NA	NA	0 / 2
Trusted Platform Modules	0 / 1	NA	NA	NA	NA	NA	0 / 1
Power							
VCC_12V Contacts	12 / 12	12 / 12	12 / 12	12 / 12	12 / 12	12 / 12	12 / 12

Table 3: Module Pin-out - Required and Optional Features C-D Connector

Feature	Type 10 (Single Conn.) Min/Max	Type 1 (Single Conn.) Min/Max	Type 2 (IDE + PCI) Min/Max	Type 3 (No IDE) Min/Max	Type 4 (No PCI) Min/Max	Type 5 (No IDE, No PCI) Min/Max	Type 6 (No IDE or PCI, add DDI + USB3) Min/Max
System I/O							
PCI Express Lanes 16 - 31	NA	NA	0 / 16	0 / 16	0 / 16	0 / 16	0 / 16
PCI Express Graphics (PEG)	NA	NA	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1
Muxed SDVO Channels 1 - 2	NA	NA	0 / 2	0 / 2	0 / 2	0 / 2	NA
PCI Express Lanes 6 - 15	NA	NA	NA	NA	0 / 10	0 / 10	0 / 2
PCI Bus - 32 Bit	NA	NA	1 / 1	1 / 1	NA	NA	NA
PATA Port	NA	NA	1 / 1	NA	1 / 1	NA	NA
LAN Ports 1 - 2	NA	NA	NA	0 / 2	NA	0 / 2	NA
Digital Display Interfaces 1 - 3	NA	NA	NA	NA	NA	NA	0 / 3
USB 3.0 Ports	NA	NA	NA	NA	NA	NA	0 / 4
Power							
VCC_12V Contacts	NA	NA	12 / 12	12 / 12	12 / 12	12 / 12	12 / 12

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Axiomtek SoM (System on Module) Solutions

COM Express™, ETX and STX Form Factors

Mechanical Specifications

■ Module Size-Basic Module

The PCB size for the Basic Module shall be 125mm x 95mm. The PCB thickness may be 2mm to allow high layer count stack-ups and facilitate a standard ⊠ dimension between the Carrier Board and the top of the heat-spreader.

The holes shown in this drawing are intended for mounting the module / heat-spreader combination to the Carrier Board. An independent, implementation specific set of holes and spacers shall be used to attach the heat-spreader to the module.
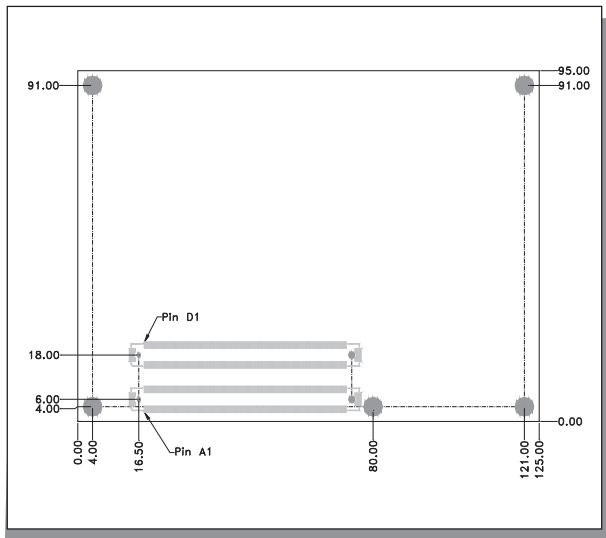
Figure 1: Basic Module Form Factor

■ Heat-Spreader

Modules should be equipped with a heat-spreader. This heat-spreader by it self does not constitute the complete thermal solution for a module but provides a common interface between modules and implementation-specific thermal solutions.

The overall module height from the bottom surface of the module board to the heat-spreader top surface shall be 13 mm for both the Basic and Extended Modules. The module PCB and heat-spreader plate thickness are vendor implementation specific, however, a 2-mm PCB with a 3-mm heat-spreader may be used which allows use of readily available standoffs.

Figure 1: Basic Module Form Factor

Figure 3: Basic Module Heat-Spreader

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Appendix

ETX Technical Notes

Overview for the ETX Module

ETX, standing for Embedded Technology extended, computer-on-module (COM) is a highly integrated and compact (3.7 x 4.4 in.) (95 x 114 mm) Single-board computer (SBC) that can be used in a design application much like an integrated circuit component. All ETX modules have a standardized form factor and a standardized connector layout that carry a specified set of signals. This standardization allows designers to create a single system baseboard that can accept present and future ETX modules. Each ETX COM integrates core CPU and memory functionality, common personal computer (PC) peripheral functions such as graphics, USB, serial, and parallel ports, keyboard/mouse, Ethernet, and IDE. The baseboard designer can optimize exactly how each of these functions is physically implemented. Connectors can be placed precisely where needed on a baseboard designed to optimally fit system packaging.

Peripheral PCI or ISA devices can be implemented directly on the baseboard rather than on mechanically unwieldy expansion cards. The ability to build a system on a single baseboard, using the computer as one plug-in component, simplifies packaging, eliminates cabling, and reduces system-level cost.

A single baseboard design may be used with a range of ETX modules. This flexibility can differentiate products at various price/performance points, or to design systems that have a built-in upgrade path. The modularity of an ETX solution also ensures against obsolescence as computer technology evolves. A properly designed ETX baseboard can be used with successive generations of ETX modules.

An ETX baseboard design has many of the advantages of a custom computer-board design but delivers better obsolescence protection, greatly reduces engineering effort, and achieves faster time to market.

The baseboard designer can optimize exactly how each of these functions implements physically. Designers can place connectors precisely where needed for the application on a baseboard designed to optimally fit a system packaging

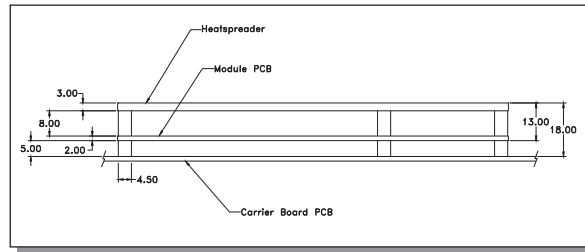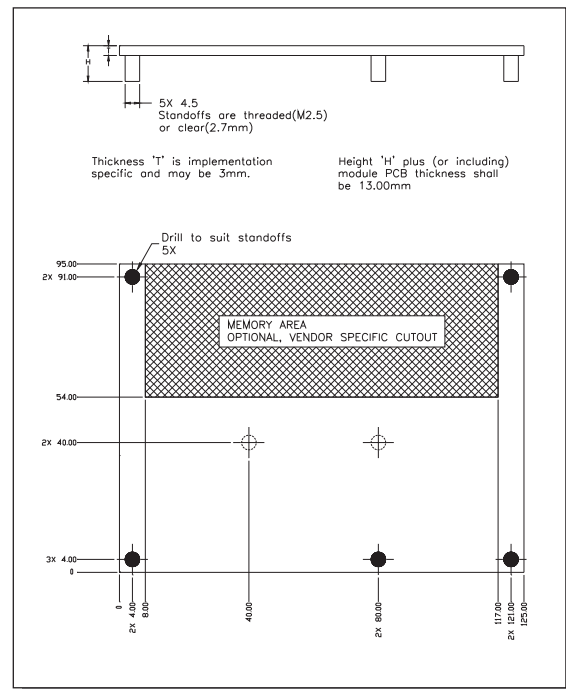## ETX Connector Pin-out

Connector X1 (PCI Bus, USB, Audio)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	VCC *	52	VCC *
3	PCICLK3	4	PCICLK4	53	PAR	54	SERR#
5	GND	6	GND	55	GPERR#	56	RSVD
7	PCICLK1	8	PCICLK2	57	PME#	58	USB2#
9	REQ3#	10	GNT3#	59	LOCK#	60	DEVSEL#
11	GNT2#	12	3V	61	TRDY#	62	USB3#
13	REQ2#	14	GNT1#	63	IRDY#	64	STOP#
15	REQ1#	16	3V	65	FRAME#	66	USB2
17	GNT0#	18	RSVD	67	GND	68	GND
19	VCC	20	VCC	69	AD16	70	CBE2#
21	SERIRQ	22	REQ0#	71	AD17	72	USB3
23	AD0	24	3V	73	AD19	74	AD18
25	AD1	26	AD2	75	AD20	76	USB0#
27	AD4	28	AD3	77	AD22	78	AD21
29	AD6	30	AD5	79	AD23	80	USB1#
31	CBE0#	32	AD7	81	AD24	82	CBE3#
33	AD8	34	AD9	83	VCC *	84	VCC *
35	GND	36	GND	85	AD25	86	AD26
37	AD10	38	AUXAL	87	AD28	88	USB0
39	AD11	40	MIC	89	AD27	90	AD29
41	AD12	42	AUXAR	91	AD30	92	USB1
43	AD13	44	ASVCC	93	PCIRST#	94	AD31
45	AD14	46	SNDL	95	INTC#	96	INTD#
47	AD15	48	ASGND	97	INTA#	98	INTB#
49	CBE1#	50	SNDR	99	GND	100	GND

Connector X2 (ISA Bus)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	VCC *	52	VCC *
3	SD14	4	SD15	53	SA6	54	IRQ5
5	SD13	6	MASTER#	55	SA7	56	IRQ6
7	SD12	8	DREQ7	57	SA8	58	IRQ7
9	SD11	10	DACK7#	59	SA9	60	SYSCLK
11	SD10	12	DREQ6	61	SA10	62	REFSH#
13	SD9	14	DACK6#	63	SA11	64	DREQ1
15	SD8	16	DREQ5	65	SA12	66	DACK1#
17	MEMW#	18	DACK5#	67	GND	68	GND
19	MEMR#	20	DREQ0	69	SA13	70	DREQ3
21	LA17	22	DACK0#	71	SA14	72	DACK3#
23	LA18	24	IRQ14	73	SA15	74	IOR#
25	LA19	26	IRQ15	75	SA16	76	IOW#
27	LA20	28	IRQ12	77	SA18	78	SA17
29	LA21	30	IRQ11	79	SA19	80	SMEMR#
31	LA22	32	IRQ10	81	IOCHRDY	82	AEN
33	LA23	34	IO16#	83	VCC *	84	VCC *
35	GND	36	GND	85	SD0	86	SMEMW#
37	SBHE#	38	M16#	87	SD2	88	SD1
39	SA0	40	OSC	89	SD3	90	NOWS#
41	SA1	42	BALE	91	DREQ2	92	SD4
43	SA2	44	TC	93	SD5	94	IRQ9
45	SA3	46	DACK2#	95	SD6	96	SD7
47	SA4	48	IRQ3	97	IOCHK#	98	RSTDRV
49	SA5	50	IRQ4	99	GND	100	GND

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Axiomtek SoM (System on Module) Solutions

COM Express™, ETX and STX Form Factors

Connector X3 (VGA, LCD, Video, COM1 and COM2, LPT/Floppy, Mouse, Keyboard)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	27	GND	28	GND
3	R	4	B	29	LCDDO4	30	LCDDO7
5	HSY	6	G	31	LCDDO5	32	LCDDO6
7	VSY	8	DDCK	33	GND	34	GND
9	DETECT#	10	DDDA	35	LCDDO1	36	LCDDO3
11	LCDDO16	12	LCDDO18	37	LCDDO0	38	LCDDO2
13	LCDDO17	14	LCDDO19	39	VCC *	40	VCC *
15	GND	16	GND	41	JILI_DAT	42	LTGIO0
17	LCDDO13	18	LCDDO15	43	JILI_CLK	44	BLON#
19	LCDDO12	20	LCDDO14	45	BIASON	46	DIGON
21	GND	22	GND	47	COMP	48	Y
23	LCDDO8	24	LCDDO11	49	SYNC	50	C
25	LCDDO9	26	LCDDO10				

ETX parallel-port interfaces can be configured either as conventional PC parallel ports or as an interface for floppy-disk drives. The operating mode can be selected by BIOS settings or by a select pin for a specific hardware mode.

Parallel Port Mode Pin-out				Floppy Support Mode Pin-out			
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
51	LPT/FPY#	52	RSVD	51	LPT/FPY#	52	RSVD
53	VCC *	54	GND	53	VCC *	54	GND
55	STB#	56	AFD#	55	RSVD	56	DENSEL
57	RSVD	58	PD7	57	RSVD	58	RSVD
59	IRRX	60	ERR#	59	IRRX	60	HDSEL#
61	IRTX	62	PD6	61	IRTX	62	RSVD
63	RXD2	64	INIT#	63	RXD2	64	DIR#
65	GND	66	GND	65	GND	66	GND
67	RTS2#	68	PD5	67	RTS2#	68	RSVD
69	DTR2#	70	SLIN#	69	DTR2#	70	STEP#
71	DCD2#	72	PD4	71	DCD2#	72	DSKCHG#
73	DSR2#	74	PD3	73	DSR2#	74	RDATA#
75	CTS2#	76	PD2	75	CTS2#	76	WP#
77	TXD2	78	PD1	77	TXD2	78	TRK0#
79	RI2#	80	PD0	79	RI2#	80	INDEX#
81	VCC *	82	VCC *	81	VCC *	82	VCC *
83	RXD1	84	ACK#	83	RXD1	84	DRV
85	RTS1#	86	BUSY	85	RTS1#	86	MOT
87	DTR1#	88	PE	87	DTR1#	88	WDATA#
89	DCD1#	90	SLCT#	89	DCD1#	90	WGATE#
91	DSR1#	92	MSCLK	91	DSR1#	92	MSCLK
93	CTS1#	94	MSDAT	93	CTS1#	94	MSDAT
95	TXD1	96	KBCLK	95	TXD1	96	KBCLK
97	RI1#	98	KBDAT	97	RI1#	98	KBDAT
99	GND	100	GND	99	GND	100	GND

Connector X4 (IDE 1, IDE 2, Ethernet, Miscellaneous)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	SIDE_IOW#	52	PIDE_IOR#
3	5V_SB	4	PWGIN	53	SIDE_DRQ	54	PIDE_IOW#
5	PS_ON	6	SPEAKER	55	SIDE_D15	56	PIDE_DRQ
7	PWRBTN#	8	BATT	57	SIDE_D0	58	PIDE_D15
9	KBINH#	10	LILED#	59	SIDE_D14	60	PIDE_D0
11	RSMRST#	12	ACTLED#	61	SIDE_D1	62	PIDE_D14
13	RMKBCS#	14	SPDLED#	63	SIDE_D13	64	PIDE_D1
15	EXT_PRG	16	I2CLK	65	GND	66	GND
17	VCC *	18	VCC *	67	SIDE_D2	68	PIDE_D13
19	OVCR#	20	GPCS#	69	SIDE_D12	70	PIDE_D2
21	EXTSMI#	22	I2DAT	71	SIDE_D3	72	PIDE_D12
23	SMBCLK	24	SMBDATA	73	SIDE_D11	74	PIDE_D3
25	SIDE_CS3#	26	SMBALRT#	75	SIDE_D4	76	PIDE_D11
27	SIDE_CS1#	28	DASP_S	77	SIDE_D10	78	PIDE_D4
29	SIDE_A2	30	PIDE_CS3#	79	SIDE_D5	80	PIDE_D10
31	SIDE_A0	32	PIDE_CS1#	81	VCC *	82	VCC *
33	GND	34	GND	83	SIDE_D9	84	PIDE_D5
35	PDIAG_S	36	PIDE_A2	85	SIDE_D6	86	PIDE_D9
37	SIDE_A1	38	PIDE_A0	87	SIDE_D8	88	PIDE_D6
39	SIDE_INTRQ	40	PIDE_A1	89	GPE2#	90	CBLID_P
41	BATLOW#	42	GPE1#	91	RXD#	92	PIDE_D8
43	SIDE_AK#	44	PIDE_INTRQ	93	RXD	94	SIDE_D7
45	SIDE_RDY	46	PIDE_AK#	95	TXD#	96	PIDE_D7
47	SIDE_IOR#	48	PIDE_RDY	97	TXD	98	HDRST#
49	VCC *	50	VCC *	99	GND	100	GND

■ **Mechanical Specification of the ETX Module**

An ETX module, including the heat spreader plate, has a maximum thickness of approxi-mately 12mm. The top components are up to 8mm high and the bottom components are up to 2mm high. Headers X1 to X4 (HIROSE FX8-100P-SV) on ETX module are 2.8mm high and connect to the corresponding receptacles on the ETX baseboard.
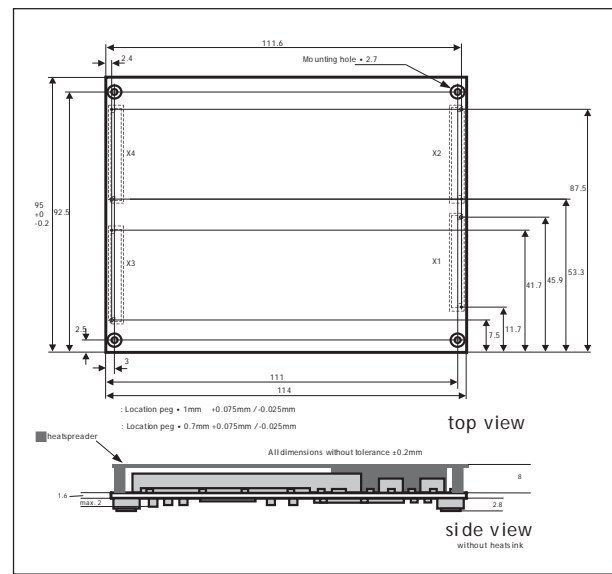

Figure 1: Dimension of ETX Module

■ **Mechanical Specification of the ETX Baseboard**

The outline shown here is for modules with a Y dimension of 95mm. Note that in order to ac-commodate both 95mm and 100mm ETX modules, the 95mm outline shown here should be expanded by 2.5mm on the top and 2.5mm on the bottom. The relative mounting holes and connector locations on the 95mm and 100mm modules are the same, only the Y envelope dimension varies. A given baseboard design can accommo-date both 95mm and 100mm modules provided sufficient clearance is allowed for the 100mm module. Headers X1 to X4 (HIROSE FX8-100S-SV) on ETX baseboard are 2.8mm high and connect to the corresponding receptacles on the ETX module.
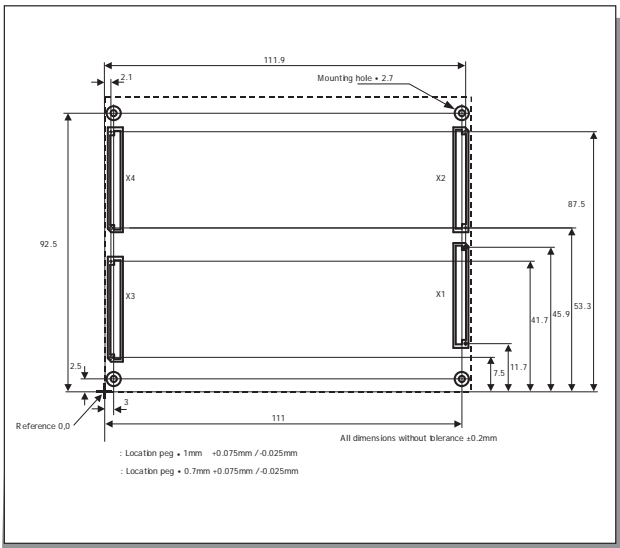

Figure 2: Dimensions of ETX Baseboard

■ **Heat-spreader and Heat-sink Considerations**

The heat-spreader is a 2mm thick aluminum plate. It provides a thermal interface surface for heat removal from the ETX module. Because of the thickness of the plate, components that must fit under the plate are limited to a height of 6mm unless clearance holes are provided. Clearance holes in the heat spreader plate are permitted for user access purposes (e.g. SO-DIMM removal) or to allow the use of high-profile components up to 8mm high. All hole loca-tions and sizes should be carefully considered so that the mechanical integrity of the heat spreader is maintained. The heat spreader is thermally coupled to the CPU die or package surface, it may also be coupled to other heat generating devices on the module. The heat spreader is the thermal interface surface for most of the heat generated within the module. The heat spreader is not intended as a heat sink, although it may be suitable for this purpose on low power modules operating under benign conditions. Higher power modules, or higher temperature conditions, will require heat removal devices (e.g. heat sink with fan, heat pipe, etc.) to be attached to the heat spreader or be thermally coupled to a chassis. Thermal dissipation varies considerably among ETX modules and proper heat removal from the heat spreader plate is an essential consideration for any ETX design. For maximum flexi-bility ETX cooling methods should be secured to as much of the heat spreader plate area as possible, since the location of the CPU may vary among different ETX module designs.

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Axiomtek SoM (System on Module) Solutions

COM Express™, ETX and STX Form Factors

STX Technical Notes

General Descriptions for the STX Modules & Baseboards

The STX module is a general purpose processing system-on-a-module with complete computing ability in a very compact size. Although the STX module is configured to various functions and power schemes, it always needs to be configured through its output interface and work with the baseboard. The STX baseboard provides a docking station for the STX module, supplies the module with power, and has peripheral interfaces and expansion slots. The STX baseboard can also be configured to be compatible with different form factors such as AT, ATX, LPX, NLX, PC/104, or can be custom formatted, so it can easily be applied to customized mechanical & ODM requirements.

In order for the STX module to fit properly on the baseboard, sufficient space is needed between the two for components. There are two different configurations for the STX Module, Type I & Type II:

● Type I.
The STX module uses 4.6mm height plugs. 4.5mm of space is reserved between the module and the baseboard for components. Please note that some components may not be compatible with this specific configuration.

● Type II.
The STX module uses 6.6mm height plugs. This configuration reserves at least 2mm below the STX module for components to be placed on the STX baseboard.

The Type II configuration is Axiomtek's standard STX module. This ensures better and more flexible designs in the future.

Configuration	Stacking Height	STX Module	Type Devices	Height Areas
			V1 max.	V2 max.
No. 1	B = 5 mm	Type I	---	2 mm
No. 2	B = 7 mm	Type II	2 mm	4 mm
No. 3	B = 13 mm	Type I	8 mm	10 mm
No. 4	B = 15 mm	Type II	10 mm	12 mm

Configuration No. 2 is Axiomtek's default STX Module combination.

■ **The STX Interface**

The STX interface is equipped with two pairs of 200-pin connectors: two plugs on the STX module and two receptacles on the STX baseboard. The plugs on the STX module are referred to as P1 and P2, while the opposite receptacles on the STX baseboard are referred to as J1 and J2. The following diagram and table shows assembly combinations for stacking heights, as well as 4 different configurations for the STX module and baseboard.
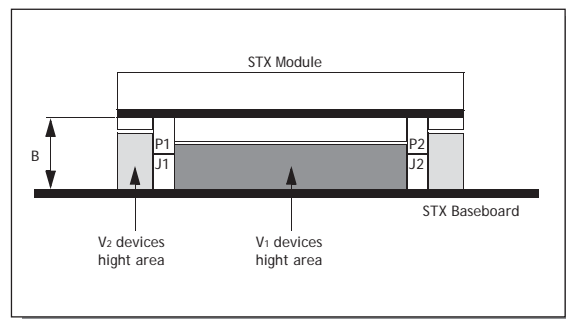

Figure 1. STX Baseboard Height Dimensions

Axiomtek SoM (System on Module) Solutions

COM Express™, ETX and STX Form Factors

The STX Module & Baseboard Mechanical Definitions

■ The STX Module

The bottom side of the STX module is defined as the side equipped with the STX interface plugs. In the following mechanical diagram, the bottom view is the module as seen from the bottom side.
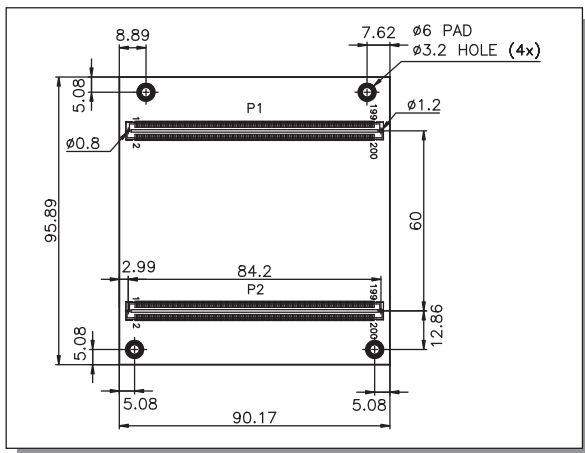

Figure 2. STX Module Dimensions (Bottom View)
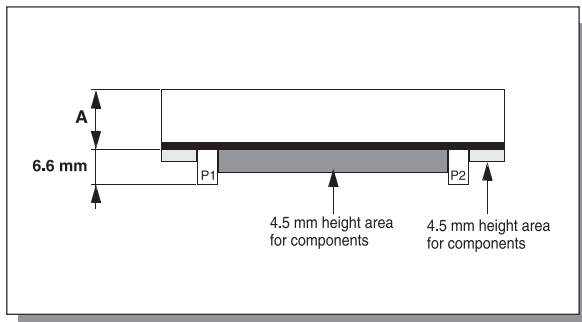
Figure 3. STX Module Type II

The fastening mechanism for the STX module consists of four mounting holes in the printed circuit board (PCB). The inner threads in the holes are 3x5mm.

■ The STX Baseboard

The top side of the STX baseboard is defined as the side equipped with the STX interface receptacles. The bottom side is the opposite side. The top view of the STX baseboard is defined as the view of the top side. The bottom view is a view of the bottom side. In the following mechanical diagram, only the receptacles and mounting holes are defined. The dimensions are defined for a "minimal" configuration, but a system designer can use any dimensions that will fit the application needs.
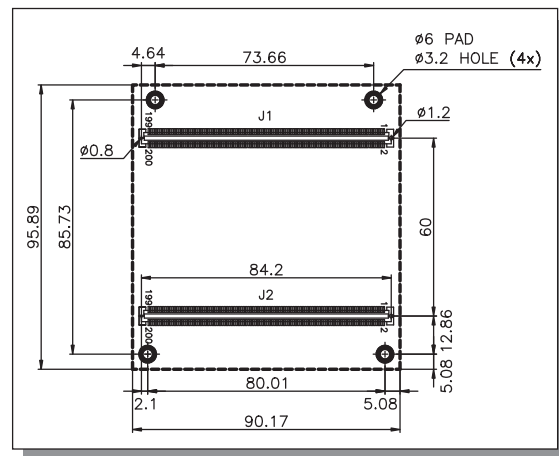
Figure 4. STX Baseboard Dimensions - "minimal" Configuration (Top View)

Like the STX Module, the STX Baseboard consists of four mounting holes in the PCB.

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System on Modules

Selection Guide

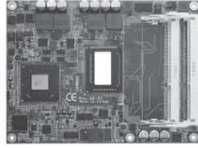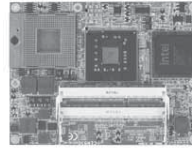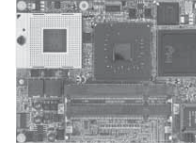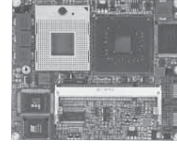|	Page 66	Page 67	Page 68
Features\Models	**CEM860**	**CEM850**	**CEM830**
Form Factor	COM Express™ type 6	COM Express™ type 2	COM Express™ type 2
CPU Level	Intel® Core™ i7/ i5/ i3	Intel® Core™2 Duo	Intel® Core™2 Duo
CPU Socket	Onboard	Socket P	Socket M
CPU FSB Frequency	N/A	667/800/1066 MHz	533/667 MHz
Core Logic Chipset	Intel® QM67	Intel® GM45 + ICH9M	Intel® 945GME + ICH7M
Memory Type	DDR3-1066/1333	DDR3-800/1066	DDR2-533/667
Max. DRAM Capacity	16 GB	8 GB	4 GB
Cache RAM Capacity	L2 in CPU	L2 in CPU	L2 in CPU
BIOS	AMI UEFI BIOS	AMI	Phoenix-Award
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	N/A	N/A	N/A
Onboard GPIO	4-IN & 4-OUT	4-IN & 4-OUT	4-IN & 4-OUT
I/O	**IDE**	N/A	1 x PATA-100	1 x PATA-100
	SATA	2 x SATA-600/2 x SATA-300	3 x SATA-300	2 x SATA-150
	FDD	N/A	N/A	N/A
	LPT	N/A	N/A	N/A
	Serial	**COM 1**	N/A	N/A	N/A
		COM 2	N/A	N/A	N/A
		COM 3	N/A	N/A	N/A
		COM 4	N/A	N/A	N/A
	USB	8 x USB 2.0 / 2 x USB 3.0 (optional)	8 x USB 2.0	8 x USB 2.0
	IrDA	N/A	N/A	N/A
Display	1 x VGA / 1 x LVDS / 3 x DDI	1 x VGA / 1 x LVDS	1 x VGA / 1 x LVDS
Onboard Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet
Onboard Audio	Codec on baseboard	Codec on baseboard	Codec on baseboard
Hardware Monitoring	N/A	N/A	N/A
SMBus	Yes	Yes	Yes
Expansion Interface	PCIe with 22 lanes	PCIe with 21 lanes / 4 x PCI	PCIe with 21 lanes / 4 x PCI
Power Management	ACPI	ACPI	ACPI
Battery	N/A	N/A	N/A
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE
Wide Temperature	By request	N/A	N/A

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* All specifications and photos are subject to change without notice.

Features\Models	CEM831	CEM100	ETM830
	Page 69	Page 70	Page 73
Form Factor	COM Express™ type 2	COM Express™ type 2	ETX
CPU Level	Intel® Atom™ N270	AMD G-Series APU	Intel® Core™2 Duo
CPU Socket	Onboard	Onboard	Socket M
CPU FSB Frequency	533 MHz	N/A	533/667 MHz
Core Logic Chipset	Intel® 945GME + ICH7M	AMD A55E FCH	Intel® 945GME + ICH7M
Memory Type	DDR2-533/667	DDR3-1066	DDR2-533/667
Max. DRAM Capacity	4 GB	8 GB	2 GB
Cache RAM Capacity	512KB	Integrated in CPU	L2 in CPU
BIOS	AMI	AMI UEFI BIOS	Phoenix-Award
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	N/A	N/A	N/A
Onboard GPIO	4-IN & 4-OUT	4-IN & 4-OUT	N/A
I/O IDE	1 x PATA-100	1 x PATA-100	1 x PATA-100
SATA	2 x SATA-150	4 x SATA-600	2 x SATA-150
FDD	N/A	N/A	1 x FDD (optional)
LPT	N/A	N/A	1 x LPT
Serial COM 1	N/A	N/A	UART's
COM 2	N/A	N/A	UART's
COM 3	N/A	N/A	N/A
COM 4	N/A	N/A	N/A
USB	8 x USB 2.0	8 x USB 2.0	4 x USB 2.0
IrDA	N/A	N/A	Yes
Display	1 x VGA 1 x LVDS	1 x VGA 1 x LVDS	1 x VGA 1 x LVDS
Onboard Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100Mbps Ethernet
Onboard Audio	Codec on baseboard	Codec on baseboard	AC'97 Codec
Hardware Monitoring	N/A	N/A	N/A
SMBus	Yes	Yes	Yes
Expansion Interface	PCIe with 19 lanes 4 x PCI	PCI & PCIe	4 x PCI ISA
Power Management	ACPI	ACPI	ACPI
Battery	N/A	Lithium	N/A
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE
Wide Temperature	N/A	By request	N/A

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SBC
Services
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Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

System on Modules
Selection Guide
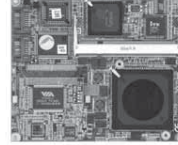
Features\Models	ETM831	ETM710	ETM620	STX88831
Form Factor	ETX	ETX	ETX	ETX
CPU Level	Intel® Atom™ N270	VIA V4 C7/Eden	AMD LX	Intel® Atom™ N270
CPU Socket	Onboard	Onboard	Onboard	Onboard
CPU FSB Frequency	533 MHz	400/533 MHz	N/A	533 MHz
Core Logic Chipset	Intel® 945GSE + ICH7M	VIA CX700M	AMD LX + CS5536AD	Intel® 945GSE + ICH7M
Memory Type	DDR2-400/533	DDR2-400/533	DDR-333/400	DDR2-400/533
Max. DRAM Capacity	2 GB	1 GB	1 GB	2 GB
Cache RAM Capacity	512KB in CPU	L2 in CPU	L2 in CPU	512KB
BIOS	AMI	Phoenix-Award	Phoenix-Award	AMI
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	N/A	N/A	N/A	N/A
Onboard GPIO	N/A	N/A	N/A	N/A

I/O		ETM831	ETM710	ETM620	STX88831
	IDE	1 x PATA-100	1 x PATA-133	2 x PATA-100	1 x PATA-100
	SATA	2 x SATA-150	2 x SATA-150	2 x SATA-150	1 x SATA-150
	FDD	1 x FDD (optional)	1 x FDD (optional)	1 x FDD (optional)	1 x FDD
	LPT	1 x LPT	1 x LPT	1 x LPT	1 x LPT
	Serial COM 1	UARTs	UART's	UART's	UART's
	Serial COM 2	UARTs	UART's	UART's	UART's
	Serial COM 3	N/A	N/A	N/A	N/A
	Serial COM 4	N/A	N/A	N/A	N/A
	USB	4 x USB 2.0	4 x USB 2.0	4 x USB 2.0	4 x USB 2.0
	IrDA	N/A	Yes	Yes	Yes

Features\Models	ETM831	ETM710	ETM620	STX88831
Display	1 x VGA 1 x LVDS	1 x VGA 1 x LVDS	1 x VGA 1 x TTL	1 x VGA 1 x LVDS 1 x TTL
Onboard Ethernet	1 x 10/100Mbps Ethernet	1 x 10/100Mbps Ethernet	1 x 10/100Mbps Ethernet	1 x 10/100Mbps Ethernet
Onboard Audio	HD Codec	HD Codec	AC'97 Codec	Codec on baseboard
Hardware Monitoring	Yes	Yes	Yes	Yes
SMBus	N/A	N/A	N/A	N/A
Expansion Interface	4 x PCI ISA	4 x PCI ISA	3 x PCI ISA	4 x PCI ISA
Power Management	ACPI	ACPI	ACPI	ACPI
Battery	N/A	N/A	N/A	N/A
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE	CE
Wide Temperature	By request	N/A	-40°C~ +85°C (-40°F ~+185°F)	N/A

* All specifications and photos are subject to change without notice.

CEM860

Intel® Core™ i7/ i5/ i3 COM Express™ Type 6
Module with Intel® QM67 PCH

SBC
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Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

Double deck
DDR3 SO-DIMM

Low Power	DDR3	USB 3.0	DualView	Full Solid Cap Design

Features

- 2nd Generation Intel® Core™ processors
- Intel® QM67 PCH
- 2 DDR3-1066/1333 SO-DIMMs max. up to 16 GB
- 22 lanes of PCIe Gen 2 at 5GT/s
- 2 SATA-600 & 2 SATA-300
- 8 USB 2.0 ports
- 2 USB 3.0 ports (optional)
- TPM 1.2 supported (optional)

▲ Rear view

Packing List

Quick installation guide, user's manual/utility CD

System

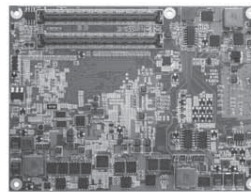| CPU	2nd Generation Intel® Quad/ Dual Core™ i7/ i5/ i3/ Celeron® processors
System Memory	2 x 204-pin SO-DIMMs support DDR3-1066/1333 max. up to 16 GB
Chipset	Intel® QM67 PCH
BIOS	AMI UEFI BIOS
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port 6 x PCIe lanes support for 6 x PCIe x1 or 1 x PCIe x4 + 2 x PCIe x1 devices
Battery	N/A
Power Requirements	Differentiate by onboard processor
Size	125 x 95 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x LPC interface 1 x SPI interface
SATA	2 x SATA-600, 2 x SATA-300
Hardware Monitoring	N/A
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82579LM
Audio	HD link interface to baseboard for external Codec
USB	8 x USB 2.0, 2 x USB 3.0 (optional)
TPM 1.2	Infineon SLB9635 for trusted platform (optional)
SMBus	Yes
Digital I/O	4 channels IN & 4 channels OUT

Display

Chipset	Intel® HD graphics 3000 code
Memory Size	Depending on integrnted GPU
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 3 x DDI (SDVO, DP, HDMI, DVI)

Ordering Information

Standard

CEM860DG-i5-2515E (P/N: E380860101)	COM Express type 6 module with Intel® Core™ i5-2515E 3.1 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM (recommended cooler P/N: E39J000101)
CEM860DG-i3-2340UE (P/N: E380860103)	COM Express type 6 module with Intel® Core™ i3-2340UE 1.3 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM (recommended cooler P/N: E39J000101)
CEM860DG-B810E (P/N: E380860104)	COM Express type 6 module with Intel® Celeron® B810E 1.6 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, TPM (recommended cooler P/N: E39J000102)
CEM860DG-i7-2715QE (P/N: E380860100)	COM Express type 6 module with Intel® Core™ i7-2715QE 3 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM (recommended cooler P/N: E39J000100)
CEM860DG-i7-2610UE (P/N: E380860102)	COM Express type 6 module with Intel® Core™ i7-2610UE 2.4 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet and TPM (recommended cooler P/N: E39J000100)
CEM860DG-i7-2610UE WT	COM Express type 6 module with Intel® i7-2610UE 2.4 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, TPM and W.T. (-40° ~ +80°C) (recommended cooler P/N: E39J000101)

Cooler with heatspreader

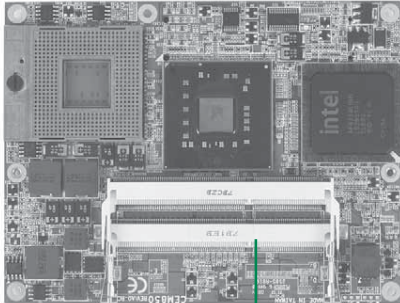|	
CEB94006	ATX form factor type 6 baseboard
E39J000100	TS000-CEM860-i7 with fan RC (up to 45W Core i CPU)
E39J000101	TS000-CEM860-i5/ i3 with fan RC (up to 35W Core i CPU)
E39J000102	TS000-CEM860-celeron with fan RC (up to 35W Core i CPU)

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CEM850

Socket P Intel® Core™2 Duo COM Express™ Type 2 Module with Intel® GM45 + ICH9M Chipset

Double deck DDR3 SO-DIMM

DDR3 DualView Full Solid Cap Design

System

|	
CPU	Socket P for Intel® Core™2 Duo processor with FSB 667/800/1066 MHz
System Memory	2 x 204-pin SO-DIMM support DDR3-800/1066 max. up to 8 GB
Chipset	Intel® GM45 + ICH9M
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 5 x PCIe lanes support for 1 x PCIe x4 + 1 x PCIe x1 or 5 x PCIe x1 devices 4 x 32-bit PCI bus masters
Battery	N/A
Power Requirements	Intel® Core™2 Duo T9400 @2.53 GHz, 2GB DDR3 Max. RMS: +5VSB @ 124mA, +12V @ 2.369A
Size	125 x 95 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x LPC interface
SATA	3 x SATA-300
Hardware Monitoring	N/A
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82574L
Audio	HD-Link audio interface to baseboard for external Codec
USB	8 x USB 2.0
SMBus	Yes
I2C	Yes
GPIO	4 Channels IN & 4 Channels OUT
ITP port	ITP7500 standard compliant

Display

Chipset	Intel® GMA 4500HD graphics core
Memory Size	Intel® DVMT 5.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Features

- Socket P for Intel® Core™2 Duo processor with FSB 667/800/1066 MHz
- Intel® GM45 + ICH9M chipset
- With high performance integrated graphics controller and discrete solution through PCIe x16 interface
- 21 lanes of PCI Express
- 8 USB 2.0 ports
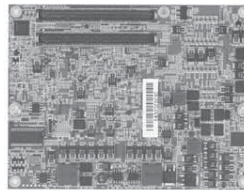
▲ Rear view

Packing List

Quick installation guide, user's manual/utility CD

Ordering Information

Standard

CEM850VG (P/N: E38D850100)	COM Express type 2 module with socket P, VGA/LVDS LCD, 10/100/1000Mbps Ethernet

Optional

CEB94000	ATX form factor baseboard
5078D850100E	CEM850 heatspreader module for PGA type CPU
5078D830100E	COM Express SoM low profile cooling kit with fan

* All specifications and photos are subject to change without notice.

CEM830

Socket M Intel® Core™2 Duo COM Express™ Type 2 Module with Intel® 945GME + ICH7M Chipset
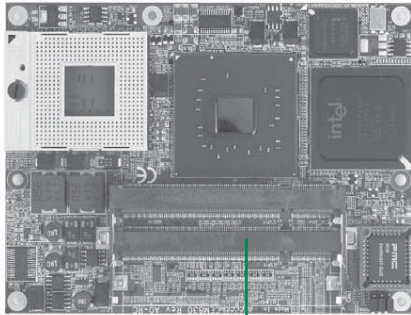
Double deck DDR2 SO-DIMM

Low Power   DualView   Full Solid Cap Design

Features

- Socket M Intel® Core™2 Duo processor with FSB 533/667 MHz
- Intel® 945GME + ICH7M chipset
- With high performance integrated graphics controller and discrete solution through PCIe x16 interface
- 19 lanes of PCI Express
- 8 USB 2.0 ports
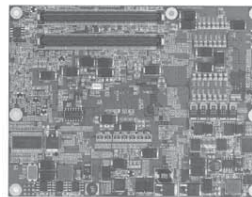
▲ Rear view

Packing List

Quick installation guide, user's manual/utility CD

Ordering Information

Standard

CEM830VG (PN: E38D830102)	COM Express type 2 module with socket M, VGA/LVDS LCD, 10/100/1000Mbps Ethernet

Optional

CEB94000	ATX form factor baseboard
5078D820000E	CEM830/820 heatspreader module for BGA type CPU
5078D820100E	CEM830/820 heatspreader module for PGA type CPU
5078D830100E	COM Express SoM low profile cooling kit with fan
5078D830200E	COM Express SoM low profile cooling kit without fan

System

|	
CPU	Socket M for Intel® Core™2 Duo/ Core™ Duo/ Core™ Solo/ Celeron® M processors with FSB 533/667 MHz; Intel Core™2 Duo processor L7400 and Celeron M processor ULV 423 onboard
System Memory	2 x 200-pin SO-DIMM supports DDR2-533/667 max. up to 4 GB
Chipset	Intel® 945GME + ICH7M/ICH7M-DH
BIOS	Phoenix-Award
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 3 x PCIe lanes support for 3 x PCIe x1 devices 4 x 32-bit PCI bus masters
Battery	N/A
Power Requirements	Intel® Celeron® M 440 @1.86 GHz, 2GB DDR2 Max. RMS: +5VSB @ 24mA, +12V @ 1.835A
Size	125 x 95 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x LPC interface
SATA	2 x SATA-150
Hardware Monitoring	N/A
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82573L
Audio	HD/AC'97 link interface to baseboard for external Codec
USB	8 x USB 2.0
SMBus	Yes
I²C	1 x I²C
GPIO	4 channels IN & 4 channles OUT

Display

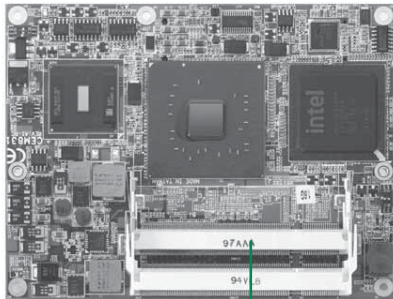|	
Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

CEM831

Intel® Atom™ N270 COM Express™ Type 2 Module with Intel® 945GME + ICH7M Chipset

Double Deck DDR2 SO-DIMM

Supports Intel Atom inside | Fanless | Low Power | DualView | Full Solid Cap Design

System

|	
CPU	Intel® Atom™ processor N270 1.6 GHz onboard with FSB 533 MHz
System Memory	2 x 200-pin SO-DIMM supports DDR2-533/667 max. up to 4 GB
Chipset	Intel® 945GME + ICH7M/ICH7M-DH
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 3 x PCIe lanes support for 3 x PCIe x1 devices (ICH7M) 5 x PCIe lanes support for 5 x PCIe x1 or 1 x PCIe x4 + 1 x PCIe x1 devices (ICH7M-DH) 4 x 32-bit PCI bus masters
Battery	N/A
Power Requirements	Intel® Atom™ N270 @1.6 GHz, 2GB DDR2 Max. RMS: +12V @ 1.171A
Size	125 x 95 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PATA-100 IDE 1 x LPC interface
SATA	2 x SATA-150 ports
Hardware Monitoring	N/A
Ethernet	1 port as 10/100/1000Mbps supports Auto MDI-X, Wake-on-LAN, RPL/PXE Boot ROM with Intel 82583V
Audio	HD/AC'97 link interface to baseboard for external Codec
USB	8 x USB 2.0
SMBus	Yes
GPIO	4 channels IN & 4 channles OUT

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Features

- Intel® Atom™ processor N270 1.6 GHz with FSB 533 MHz
- Intel® 945GME + ICH7M chipset
- 2 DDR2 SO-DIMM up to 4 GB
- 19 lanes for PCIe
- 8 USB 2.0 ports
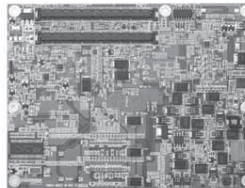
▲ Rear view

Packing List

Quick installation guide, user's manual/utility CD

Ordering Information

Standard

CEM831VG-N270 (P/N: E38D831100) (Fanless)	COM Express type 2 module with Intel® Atom™ N270 CPU, VGA, LVDS, and 10/100/1000Mbps Ethernet

Optional

CEB94000	ATX form factor baseboard
5078D831000E	CEM831 Heatspreader
5078D830100E	COM Express SoM cooling kit with fan
5078D830200E	COM Express SoM cooling kit without fan

CEM100

AMD G-Series APU COM Express™ Type 2
Basic Module with AMD A55E FCH Chipset
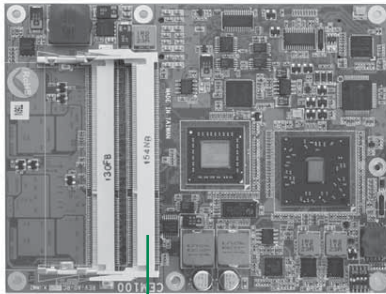
Double deck DDR3 SO-DIMM

Fanless | Low Power | DDR3 | Full Solid Cap Design

System

CPU	AMD G-Series APU T56N 1.65 GHz/ T40R 1.0 GHz onboard
System Memory	2 x 204-pin SO-DIMMs support DDR3-1066 max. up to 8 GB
Chipset	AMD A55E FCH
BIOS	AMI UEFI BIOS
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	8 x PCIe x1 devices 4 x 32-bit PCI bus masters
Battery	N/A
Power Requirements	TBD
Size	125 x 95 mm
Board Thickness	2.0 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x LPC interface 1 x SPI interface 1 x IDE; PATA-100
SATA	4 x SATA-600 with RAID 0/1/5/10
Hardware Monitoring	N/A
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Broadcom BCM50610 PHY
Audio	HD link interface to baseboard for external Codec
USB	8 x USB 2.0
TPM 1.2	Infineon SLB9635 for trusted platform
SMBus	Yes
Digital I/O	4 channels IN & 4 channels OUT

Display

Chipset	AMD
Memory Size	Depending on integrated GPU
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 2 x Digital output ports (DP, HDMI, DVI; DPO port is available if LVDS not used)

Features

- AMD G-Series APU T56N 1.65 GHz/ T40R 1.0 GHz
- AMD A55E FCH
- 2 DDR3-1066 SO-DIMMs max. up to 8 GB
- 8 lanes of PCIe Gen 2 at 5GT/s
- 4 SATA-600 with RAID 0, 1, 5, 10
- DirectX11, OpenGL 4.0, and OpenCL 1.0 supported
- TPM 1.2 supported

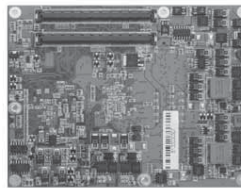

▲ Rear view

Packing List

Quick installation guide, user's manual/utility CD

Ordering Information

Standard

CEM100VG-T56N (P/N: E38D100100)	COM Express type 2 module with T56N 1.6 GHz APU, VGA/LVDS, 10/100/1000Mbps Ethernet, USB and TPM
CEM100VG-T40R (Fanless) (P/N: E38D100101)	COM Express type 2 module with T40R 1 GHz APU, VGA/LVDS, 10/100/1000Mbps Ethernet, USB and TPM

Optional

CEB94000	ATX form factor type 2 baseboard
5078D100000E	CEM100 heatspreader module
5078D100100E	COM Express SoM cooling kit with fan
5078D100200E	COM Express SoM cooling kit without fan

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CEB94006

COM Express™ Type 6 Development
Baseboard

Features

- COM Express™ type 6 baseboard for evaluation purpose
- USB 3.0 supported
- Port 80 display for debugging
- Switch button for PWRBTN, RESET, SLEEP, LID

▲ Side view

System

CPU	COM Express™ type 6 module
System Memory	On the module
Chipset	On the module
BIOS	On the module
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 slot 1 x PCIe x4 slot 1 x PCI Express Mini Card 1 x ExpressCard slot 2 x PCIe x1 slot
Battery	Lithium 3V/220mAH
Power Requirements	TBD
Size	244 x 291 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

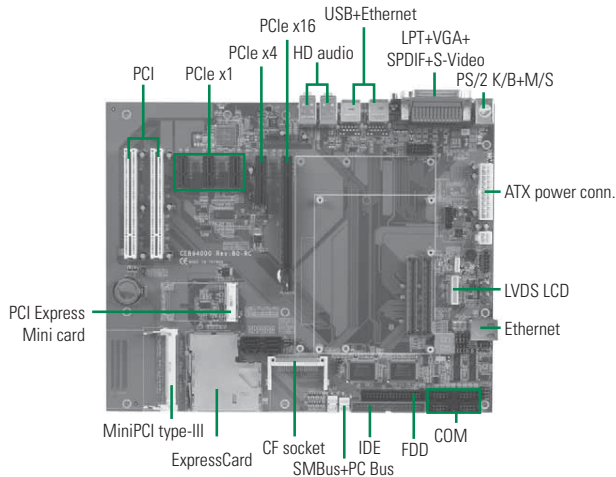|	
MIO	1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT 2 x RS-232
SATA	4 x SATA-600 connector
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	1 x RJ-45 for 10/100/1000Mbps
Audio	HD audio with Line-in/Line-out/MIC-in
USB	2 x USB 2.0, 4 x USB 3.0
SPI	Yes
SMBus	Yes
Digital I/O	4 channels IN & 4 channels OUT
Port 80 Display	Dual 7 segments Port 80 display for convenient debugging purpose through LPC interface
Display	1 x LVDS; 18/24-bit single/dual channel 1 x VGA 1 x DisplayPort 1 x HDMI 1 x DVI-D

Packing List

Quick installation guide, user's manual/utility CD

Ordering Information

Standard	
CEB94006DGA (P/N: E394006100)	COM Express™ type 6 evaluation baseboard with PCI Express Mini Card, 1 10/100/1000Mbps Ethernet, DisplayPort/HDMI and multiple I/O features

Compliant Modules	
CEM860DG -i7-27150E (P/N: E380860100)	COM Express™ type 6 module with Intel® Quad Core™ i7-2715QE 2.1 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM (recommended cooler P/N: E39J000100)
CEM860DG -i7-2610UE (P/N: E380860102)	COM Express™ type 6 module with Intel® Core i7-2610UE 1.5 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet and TPM (recommended cooler P/N: E39J000101)
CEM860DG -i5-2515E (P/N: E380860101)	COM Express™ type 6 module with Intel® Core™ i5-2515E 2.5 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM (recommended cooler P/N: E39J000101)
CEM860DG -i3-2340UE (P/N: E380860103)	COM Express™ type 6 module with Intel® Core™ i3-2340UE 1.3 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM (recommended cooler P/N: E39J000101)
CEM860DG -B810E (P/N: E380860104)	COM Express™ type 6 module with Intel® Celeron® B810E 1.6 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, TPM (recommended cooler P/N: E39J000102)
CEM860DG -i7-2610UE WT	COM Express™ type 6 module with Intel® Core™ i7-2610UE 1.5 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet and TPM (recommended cooler P/N: E39J000101)

* All specifications and photos are subject to change without notice.

CEB94000

COM Express™ Type 2 Development
Baseboard

Features

- Standard ATX form factor for development purpose
- 1 PCIe x16, 1 PCIe x4, 3 PCIe x 1 and 2 PCI slots
- 1 ExpressCard, 1 PCI Express Mini Card and 1 MiniPCI

▲ Side view

System

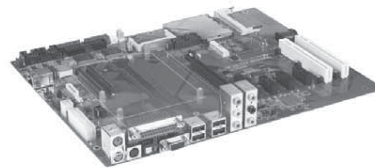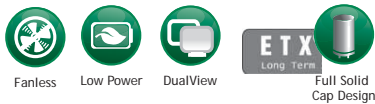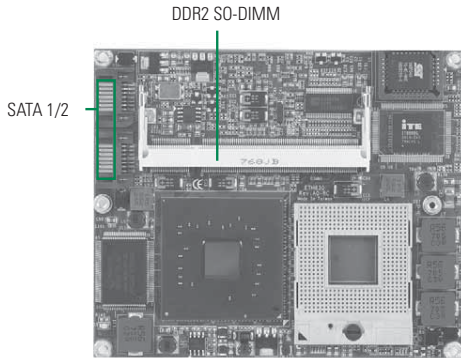|	
CPU	COM Express™ type 2 basic or extended module
System Memory	On the module
Chipset	On the module
BIOS	On the module; optional socket on the baseboard
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 slot for graphics and SDVO ADD2+ card 1 x PCIe x4 or 3 x PCIe x1 slot 2 x 32-bit/33MHz PCI slot 1 x ExpressCard slot 1 x PCI Express Mini Card socket 1 x MiniPCI type-III socket
Battery	Lithium 3V/196 mAH
Size	305 x 244 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x RS-232 (COM 2) 1 x RS-232 (COM 1) 1 x LPT; with SPP/EPP/ECP supported 1 x IrDA
SATA	4 x SATA
Hardware Monitoring	Supported by CPU module
Ethernet	1 x RJ-45 for 10/100/1000Mbps
Audio	HD Audio with rear surround/side surround/sub woofer, Line-in/line-out/MIC-in and SPIF
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control interface
Port 80 Display	Dual 7 segments Port 80 display for convenient debugging purpose through LPC interface
Display	1 x S-Video (depending on CPU module) 1 x LVDS LCD interface 1 x CRT D-Sub connector

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59382601000E	Ultra DMA66 IDE cable 40-pin 455mm	1
593826A0000E	SATA signal cable 500mm	2
59381400000E	FDD cable, P=2.54, L=300mm	1
59380703000E	COM port x 2 w/ bracket	1

Ordering Information

Standard

CEB94000VEA (P/N: E394000100)	COM Express™ baseboard with ExpressCard, PCI Express Mini Card, MiniPCI, 1 x RJ-45 and multiple I/O features

Compliant Modules and Accessories

CEM850VG	COM Express™ baseboard with socket P and 10/100/1000Mbps
CEM830VG	COM Express™ SoM with socket M and 10/100/1000Mbps
CEM820VG	COM Express™ SoM with socket 478 and 10/100/1000Mbps
CEM831VG	COM Express™ SoM with Intel Atom processor N270 and 10/100/1000Mbps
PK95300	LVDS-to-TTL 18-bit LCD converter for Hirose DF9-31P-1V
PK95301	LVDS-to-TTL 18-bit LCD converter for Hirose DF9-41P-1V
AX93221	LVDS-to-DVI converter
AX93218L	ADD2+ card for LVDS LCD
AX93218D	ADD2+ card for DVI-D

* All specifications and photos are subject to change without notice.
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ETM830

Intel® Core™2 Duo ETX V3.0 SoM with Intel® 945GME + ICH7M Chipset and Multiple I/O Features

DDR2 SO-DIMM

SATA 1/2

| Fanless | Low Power | DualView | Full Solid Cap Design |

System

| CPU	Socket M for Intel® Core™2 Duo/ Core™ Duo/ Core™ Solo/ Celeron® M processors with FSB 533/667 MHz; Intel® Core™2 Duo processor L7400 and Celeron® M processor ULV 423 onboard
System Memory	1 x 200-pin SO-DIMM supports DDR2-533/667 max. up to 2 GB
Chipset	Intel® 945GME + ICH7M
BIOS	Phoenix-Award
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	4 x 32-bit PCI bus masters 16-bit ISA bus
Battery	N/A
Power Requirements	Intel® Core™2 Duo T7200 @ 2.0 GHz, 1GB DDR2 Max. RMS: +5V @ 6.883A
Size	114 x 95 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x FDD/LPT(default); with SPP/EPP/ECP supported 1 x PS/2 keyboard 1 x PS/2 mouse 2 x UARTs 1 x IrDA
SATA	2 x SATA-150
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	1 port as 10/100Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8139DL
Audio	AC'97 Codec audio as MIC-in/Line-in/Line-out/ speaker-out with Realtek ALC655
USB	4 x USB 2.0

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Features

- Intel® Core™2 Duo/ Core™ Duo/ Core™ Solo/ Celeron® M processor with FSB 533/667 MHz
- Intel® 945GME + ICH7M chipset
- DDR2-533/667 max. up to 2 GB
- 2 SATA-150, 1 PATA-100 supported
- DualView with different content & resolution
- 24-bit single/dual channel LVDS LCD supported
- 4 PCI Bus master, ISA Bus supported
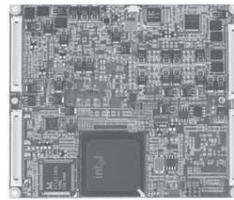
▲ Rear view

Packing List

Quick installation guide, user's manual/utility CD, cable

Ordering Information

Standard

ETM830VEA (P/N: E38G830100)	ETX 3.0 SoM with Socket M, VGA/LVDS LCD, 10/100Mbps Ethernet, AC'97 audio and 2 UARTs ports

Optional

ETM830VEA-1G (P/N: E38G830101) (Fanless)	ETX 3.0 SoM with ULV Intel® Celeron® M (423) 1.06 GHz/ 1MB L2 cache CPU onboard, VGA/LVDS LCD, 10/100Mbps Ethernet, AC'97 audio and 2 UARTs ports
ETB9F000	ATX form factor baseboard
5078G820000E	ETM820/830 heatspreader module for BGA type CPU (114 x 51 x 8 mm)
5078G820100E	ETM820/830 heatspreader module for PGA type CPU (114 x 51 x 8 mm)
5078G830100E	ETM SoM low profile cooling kit with fan
5078G830200E	ETM SoM low profile cooling kit without fan

* All specifications and photos are subject to change without notice.

ETM831

Intel® Atom™ N270 ETX V3.0 SoM with Intel® 945GSE + ICH7M Chipset and Multiple I/O Features

SATA

DDR2 SO-DIMM

Fanless   Low Power   DualView   ETX® 3.0 Long Term Support   Full Solid Cap Design

System

CPU	Intel® Atom™ processor N270 1.6 GHz onboard with FSB 533 MHz
System Memory	1 x 200-pin SO-DIMM supports DDR2-400/533 max. up to 2 GB
Chipset	Intel® 945GSE + ICH7M
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	4 x 32-bit PCI bus master 16-bit ISA bus
Battery	N/A
Power Requirements	Intel® Atom™ N270 @1.6 GHz, 1GB DDR2 Max. RMS: +5V @ 2.521A
Size	114 x 95 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation -20°C ~ +70°C (-4°F ~ +158°F) as option
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 IDE 1 x FDD/ LPT (default); with SPP/ EPP/ ECP supported 1 x PS/2 keyboard 1 x PS/2 mouse 2 x UARTs 1 x IrDA (optional)
SATA	2 x SATA-150; with RAID 0/1 (ETM831VEAR only)
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	1 port as 10/100Mbps supports Wake-on-LAN, PXE Boot ROM with Realtek RTL8103EL
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Features

- Intel® Atom™ processor N270 1.6 GHz with FSB 533 MHz
- Intel® 945GSE + ICH7M chipset
- DDR2-400/533 max. up to 2 GB
- 2 SATA-150, 1 PATA-100 supported
- DualView with different content & resolution
- 18-bit single/dual channel LVDS LCD supported
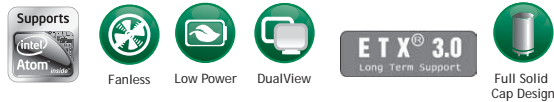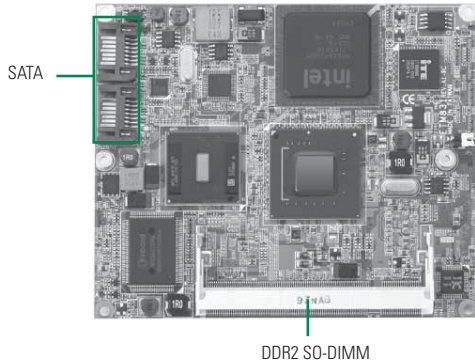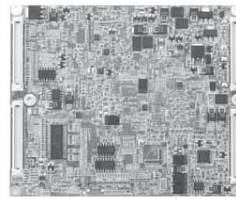- 4 PCI Bus master, ISA Bus supported

▲ Rear view

Packing List

Quick installation guide, user's manual/utility CD, cable

Ordering Information

Standard

ETM831VEA-N270 (P/N: E38G831100) (Fanless)	ETX 3.0 SoM with Intel® Atom™ processor N270, VGA, LVDS, 10/100Mps Ethernet, HD audio and 2 UARTs ports

Optional

ETM831VEA-N270 -WT (P/N: TBD) (Fanless)	ETX 3.0 SoM with Intel® Atom™ processor N270, VGA, LVDS, 10/100Mps Ethernet, HD audio and 2 UARTs ports (-20°C ~ +70°C)
5078G831000E	ETM831 heatspreader
5078G830200E	ETM SoM low profile cooling kit without fan
5078G830100E	ETM SoM low profile cooling kit with fan

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX
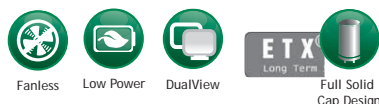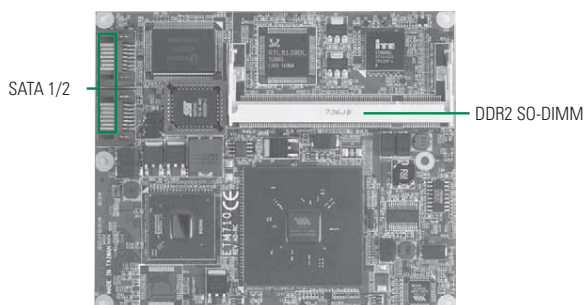
Embedded SBCs >PC/104

Industrial Mother-boards

Slot CPU Cards

Accessories

Appendix

ETM710

VIA V4 ETX V3.0 SoM with Multiple I/O Features

SATA 1/2

DDR2 SO-DIMM

Fanless **Low Power** **DualView** **Full Solid Cap Design**

System

|	
CPU	VIA V4 compliant Eden/C7 processor onboard with FSB 400/533 MHz
System Memory	1 x 200-pin SO-DIMM supports DDR2-400/533 max. up to 1 GB
Chipset	VIA CX700M
BIOS	Phoenix-Award
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	4 x 32-bit PCI bus master 16-bit ISA bus
Battery	N/A
Power Requirements	VIA Eden @ 1.0 GHz, 1GB DDR2 Max. RMS: +5V @ 1.825A
Size	114 x 95 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-133 1 x FDD/LPT(default); with SPP/EPP/ECP supported 1 x PS/2 keyboard 1 x PS/2 mouse 2 x UARTs 1 x IrDA
SATA	2 x SATA-150
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	1 port as 10/100Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8139DL
Audio	HD Codec audio as MIC-in/Line-in/Line-out with VIA VT1708B
USB	4 x USB 2.0

Display

Chipset	VIA CX700M intergrated
Memory Size	Max. up to 128 MB
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Features

- VIA V4 compliant C7/Eden processor onboard
- VIA CX700M + ITE8888G chipset
- DDR2-400/533 up to 1 GB
- 2 SATA-150, 1 PATA-133 supported
- DualView with different content & resolution
- 4 PCI Bus master, ISA Bus supported
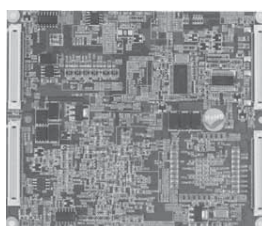
▲ Rear view

Packing List

Quick installation guide, user's manual/utility CD, cable

Ordering Information

Standard	
ETM710VEA-1GE (P/N: E38G710101) (Fanless)	ETX 3.0 module with V4 compliant Eden 1GHz CPU onboard, VGA/LVDS LCD, 10/100Mbps Ethernet, HD audio and 2 UARTs ports

Optional	
ETM710VEA-500E (P/N: E38G710100) (Fanless)	ETX 3.0 module with ULV V4 compliant Eden 500MHz CPU onboard, VGA/LVDS LCD, 10/100Mbps Ethernet, HD audio and 2 UARTs ports
ETM710VEA-1.5G (P/N: E38G710103)	ETX 3.0 module with V4 compliant C7 1.5GHz CPU onboard, VGA/LVDS LCD, 10/100Mbps Ethernet, HD audio and 2 UARTs ports
ETB9F000	ATX form factor baseboard
5078G710000E	ETM710 heatspreader (114 x 51 x 8mm)
5078G830100E	ETM SoM low profile cooling kit with fan
5078G830200E	ETM SoM low profile cooling kit without fan

* All specifications and photos are subject to change without notice.

ETM620

AMD Geode™ LX Family ETX V3.0 SoM
with Multiple I/O Features

SATA 1/2

DDR SO-DIMM

Fanless Low Power Extended Temperature ETX® 3.0 Long Term Support Full Solid Cap Design

Features

- AMD Geode™ LX800 processor onboard
- AMD LX800 + CS5536AD + ITE8888G chipset
- DDR SO-DIMM up to 1 GB
- 2 SATA-150, 2 PATA-100 supported
- Supports CRT, TTL LCD
- 3 PCI Bus master, ISA Bus supported
- TV-out (optional)
- Extended operating temperature (optional)

▲ Rear view

Packing List

Quick installation guide, user's manual/utility CD, cable

System

CPU	AMD Geode™ LX800 processor onboard
System Memory	1 x 200-pin SO-DIMM supports DDR-333/400 max. up to 1 GB
Chipset	AMD LX800 + CS5536AD
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II (optional; for PIO mode support only)
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	4 x 32-bit PCI bus master 16-bit ISA bus
Battery	N/A
Power Requirements	AMD LX800 @500 MHz, 512MB DDR Max. RMS: +5V @ 1.547A
Size	114 x 95 mm
Board Thickness	1.6 mm
Operating	Standard: 0° ~ +60°C (32°F ~ 140°F)
Temperature	Optional: -40°C ~ +85°C (-40°F ~ +185°F)
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

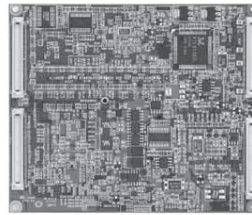|	
MIO	2 x IDE; PATA-100 1 x FDD (optional) 1 x LPT; with SPP/EPP/ECP supported 1 x PS/2 keyboard 1 x PS/2 mouse 2 x UARTs 1 x IrDA
SATA	2 x SATA-150
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8139DL
Audio	AC'97 Codec audio as MIC-in/Line-in/Line-out with Realtek ALC203
USB	4 x USB 2.0

Display

Chipset	AMD LX intergrated
Memory Size	Max. up to 254 MB
Display Interface	1 x VGA 1 x TTL LCD; Max up to 24-bit

Ordering Information

Standard

ETM620VEA-500 (P/N: E38G620100) (Fanless)	ETX 3.0 SoM with AMD Geode™ LX800 CPU onboard, VGA/TTL LCD, 10/100Mbps Ethernet, AC 97 audio and 2 UARTs ports

Optional

ETM620VEA-500 -ET (P/N: E38G620102) (Fanless)	ETX 3.0 SoM with AMD Geode™ LX800 CPU onboard, VGA/TTL LCD, 10/100Mbps Ethernet, AC'97 audio, 2 UARTs ports and W.T. (-40°C ~ +85°C)
ETB9F000	ATX form factor baseboard

* W.T.: Wide Temperature
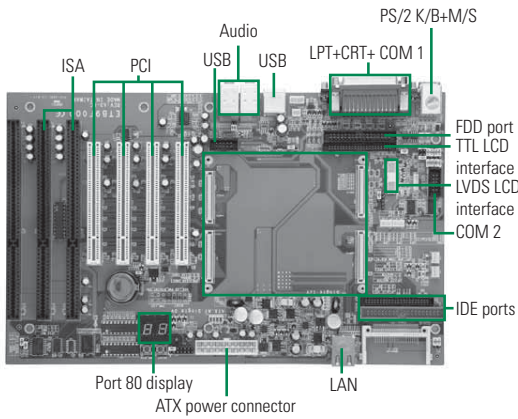
SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

axiomtek.com

ETB9F000

ETX Development Baseboard

Features

- VIA V4 compliant C7/Eden processor onboard
- VIA CX700M + ITE8888G chipset
- DDR2-400/533 up to 1 GB
- 2 SATA-150, 1 PATA-133 supported
- DualView with different content & resolution
- 4 PCI Bus master, ISA Bus supported

▲ Side view

System

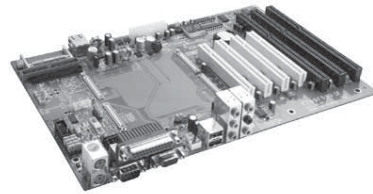| CPU	ETX module
System Memory	On the module
Chipset	On the module
BIOS	On the module; optional socket on the baseboard
SSD	1 x CompactFlash™ type-II
Watchdog Timer	N/A
Expansion Interface	4 x PCI 3 x ISA
Battery	Lithium 3V/220 mAH
Size	304.8 x 190 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

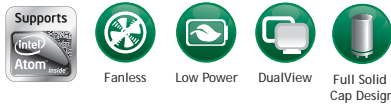| MIO	2 x IDE; PATA-100 1 x LPT/FDD (default as LPT enabled) 1 x PS/2 keyboard 1 x PS/2 mouse 1 x RS-232 (COM 2) 1 x RS-232/422/485 (COM 1) 1 x IrDA
SATA	N/A
Hardware Monitoring	Provided by CPU module
Ethernet	1 port as 10/100Mbps
Audio	AC'97/HD audio with rear surround/sub woofer, AC'97 compliant Line-in/Line-out/Mic-in
USB	4 x USB 2.0
Display	VGA D-Sub connector TTL/LVDS LCD interface

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59382601000E	Ultra DMA66 IDE cable 40-pin 455mm	1
59386831000E	USB cable w/ bracket, USB x 2, 2 x 5P, P=2.54, L=175mm	1
59380402010E	COM port cable w/ bracket	1

Ordering Information

Standard

ETM9F000VEA (P/N: E39F000100)	ETX baseboard

Compliant Modules and Accessories

ETM830VEA	ETX SoM with socket M
ETM820VEA	ETX SoM with socket 478
ETM831VEA	ETX SoM with Intel® Atom™ N270 CPU
ETM710VEA	ETX SoM with VIA V4 CPU
ETM620VEA	ETX SoM with AMD LX CPU
PK8980	LCD kit for 18-bit TTL LCD
PK95000-24	LCD kit for 24-bit LVDS LCD

* All specifications and photos are subject to change without notice.

STX88831

Intel® Atom™ N270 STX SoM with Intel® 945GSE + ICH7M Chipset and Multiple I/O Features

- LVDS
- SATA
- DDR2 SO-DIMM

Supports Intel Atom inside | Fanless | Low Power | DualView | Full Solid Cap Design

Features

- Intel® Atom™ processor N270 1.6 GHz with FSB 533 MHz
- Intel® 945GSE + ICH7M chipset
- DualView with different content & resolution
- 2 UARTs and 4 USB 2.0 supported
- TTL/LVDS LCD supported
- SATA-150 supported

▲ Rear view

Packing List

Quick installation guide, user's manual/utility CD, cable, SoM cooler

Ordering Information

Standard

STX88831VEA (P/N: E388831100)	STX SoM with Intel® Atom™ processor N270, VGA, LVDS, 10/100Mbps Ethernet, 2 UARTs

System

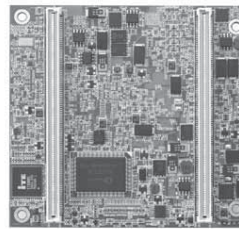|	
CPU	Intel® Atom™ processor N270 1.6 GHz onboard with FSB 533 MHz
System Memory	1 x 200-pin SO-DIMM supports DDR2-400/533 max. up to 2 GB
Chipset	Intel® 945GSE + ICH7M
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	4 x 32-bit PCI bus master 16-bit ISA bus
Battery	N/A
Power Requirements	Intel® Atom™ N270 @1.6 GHz, 1GB DDR2 Max. RMS: +5VSBV @ 43mA, +5V @ 2.34A, +3.3V @ 87mA
Size	96 x 90 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 IDE 1 x FDD 1 x LPT; with SPP/EPP/ECP supported 1 x PS/2 keyboard 1 x PS/2 mouse 2 x UARTs 1 x IrDA (optional)
SATA	1 x SATA-150
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	1 port as 10/100Mbps supports Wake-on-LAN, PXE Boot ROM with Realtek RTL8103EL
Audio	AC'97 link interface to baseboard for external Codec
USB	4 x USB 2.0
SMBus	N/A

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA 1 x TTL LCD; 18-bit as default through STX interface connector to baseboard 1 x LVDS; 18/24-bit single/dual channel on module

STB86600

ATX Form Factor STX Baseboard with
Multiple I/O Features

Features

- VGA and LCD supported
- 1 10/100Mbps Ethernet
- AC'97 Audio
- 4 COM ports
- DiskOnChip and CompactFlash™

▲ Side view

System

CPU	STX SoM
SSD	1 x DiskOnChip® 1 x CompactFlash™
Watchdog Timer	0.5~1600 sec with 64 levels; system reset or NMI
Expansion Interface	3 x 32-bit PCI 2.2 4 x 16-bit ISA
Battery	Lithium 3V/220 mAH
Size	305 x 220 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	2 x IDE; PATA-100 1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 3 x RS-232 (COM 2/3/4) 1 x RS-232/422/485 (COM 1) 1 x LPT; with SPP/EPP/ECP supported 1 x IrDA
SATA	N/A
Hardware Monitoring	Provided by CPU module
Ethernet	10/100Mbps
Audio	AC'97 Codec audio as MIC-in/Line-in/Line-out/Speaker-out with VIA VT1612A
USB	2 x USB 1.1a
Digital I/O	8 channels IN and 8 channels OUT
Display	D-Sub 15-pin for CRT; 44+20-pin box-header for TTL-level LCD

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59382601000E	Ultra DMA66 IDE cable 40-pin 455mm	1
59381400000E	FDD cable, P=2.54, L=300mm	1
59484500010E	44-44-40 Pin IDE cable L=200mm+200mm	1
59408660010E	FFC 41P cable, L=60mm	1
59408660020E	FFC 41P cable, L=60mm reverse	1
59380703000E	COM port x 2 w/ bracket	1
59408660110E	S video cable+wafer 4P 2.0mm, L=300mm	1
59408660100E	RCA cable+wafer 2P 2.0mm, L=300mm RC	1

Ordering Information

Standard

STB86600VEA (P/N: E386600100)	STX Baseboard with VGA/LCD, 10/100Mbps and audio

Optional

PK8980	LCD kit for 18-bit TTL LCD with Hirose DF9-41P-1V connector
PK95000-24	LCD kit for 24-bit single channel LVDS
PK95000-48	LCD kit for 48-bit dual channel LVDS

* All specifications and photos are subject to change without notice.

STB97300

PC/104 Form Factor STX Baseboard with
Multiple I/O Features

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
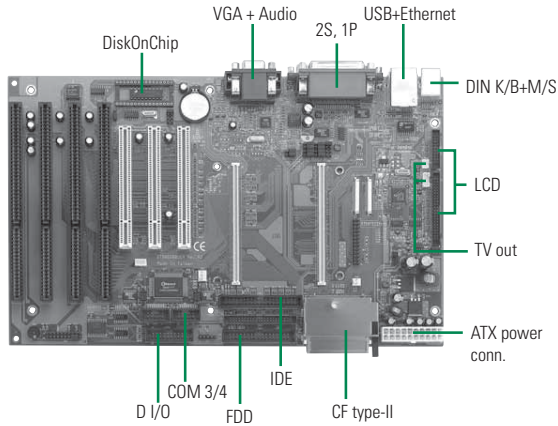SBCs
>PC/104

Industrial
Mother-
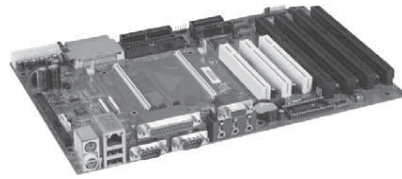boards

Slot
CPU
Cards

Accessories

Appendix
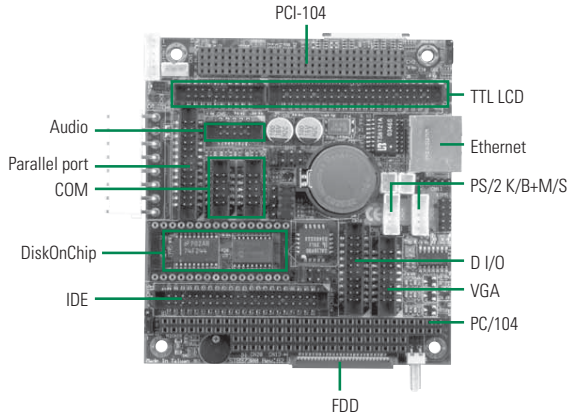
Features

- VGA and LCD supported
- 1 10/100Mbps Ethernet
- AC'97 Audio
- DiskOnChip®
- PC/104 and PCI-104 expansion
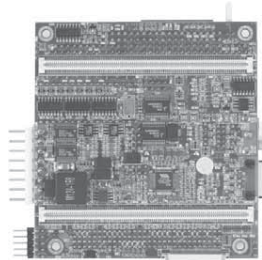
▲ Rear view

System

CPU	STX SoM
SSD	DiskOnChip®
Watchdog Timer	0.5~1600 sec with 64 levels; system reset or NMI
Expansion Interface	1 x PC/104 and PCI104 1 x PCI104 for 32-bit PCI 1 x PC/104 for 8/16-bit ISA
Battery	Lithium 3V/220 mAH
Size	96 x 90 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x RS-232 (COM 1) 1 x RS-232/422/485 (COM 2) 1 x LPT; with SPP/EPP/ECP supported 1 x IrDA
SATA	N/A
Hardware Monitoring	Provided by CPU module
Ethernet	1 RJ-45 for 10/100Mbps
Audio	AC'97 codec audio as Mic-in/Line-in/Speaker-out with VIA VT1612A
USB	2 x USB 1.1a
Digital I/O	8 channels IN and 8 channels OUT
Display	16-pin box-header for CRT; 44 + 20-pin box-header for TTL-level LCD

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59408000090E	FFC 26P cable, L=290mm	1
59408000010E	FFC 26P cable, L=210mm	1
59408660010E	FFC 41P cable, L=60mm	1
59384500000E	COM + printer cable w/ bracket 2.0 pitch	1
59397300110E	USB cable w/ bracket, L=215mm	1
59384500100E	Audio cable w/ bracket 2.0 pitch 450mm	1
59381560000E	DIN 6P to 6P PS/2 K/B+M/S	1
59397300200E	K/B & M/S cable, 2 x 5, P=2.0, L=300mm	1
59382620000E	COM port cable w/ bracket, P=2.0, L=300mm	1
59397300000E	VGA cable, L=180mm	1

Ordering Information

Standard

STB97300VEA (P/N: E3973000100)	STX Baseboard with VGA/LCD, 10/100Mbps, and AC'97 audio

Optional

|	
59381550010E	USB Cable
PK8980	LCD kit for 18-bit TTL LCD with hirose DF9-41P-1V connector
PK95000-24	LCD kit for 24-bit single channel LVDS
PK95000-48	LCD kit for 48-bit dual channel LVDS

Enclosure Option

EM60301	Extensible MicroBox for PC/104 F.F STX baseboards

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3

Embedded Single Board Computers

Axiomtek's Embedded Single Board Computers include EPIC boards, 3.5" Capa boards, Nano-ITX boards, Pico-ITX boards and PC/104 modules. The EPIC board is small industrial-grade embedded SBC with the option of I/O expansion via PC/104, PC/104-Plus, USB, Ethernet, etc. and supports advanced processors plus complex I/O functions for various applications. The 3.5" Capa board is created from low power consumption architecture with ruggedized fanless reliability requirements for various applications in need of a compact size. The Nano-ITX board is the highly efficient embedded board to provide best performance per watt and best performance per mm^2.On the other hand, the Pico-ITX board is the world's smallest x86 embedded board, measuring 100 x 72mm only which delivers excellent computing performance at remarkably low power consumption.

Axiomtek EPIC Form Factor Technical Notes

Embedded Platform for Industrial Computing (EPIC)

Introduction of EPIC Board

Designers are always striving to add more functionality in less space. Advances in semiconductor density, packaging technology, and connector technology have made this possible. PC/104 and PC/104-Plus are recognized standards as well as EBX; however, there is no industry standard for a mid-size board. EPIC board defines a new standard, open-architecture, embedded platform that its size is midway between the industry standard PC/104 module and EBX board. This size board will support advanced processors plus complex I/O functions for applications involving data acquisition, video processing, telecommunications, networking, motion control plus the associated field wiring termination, I/O circuit protection, etc. The 4.5- x 6.5-inch EPIC board's area is 29.4 square inches. The table 1 compares the size of EPIC, PC/104 and EBX.

Table 1: Comparison of PC/104, EPIC and EBX form-factor size

Relative Size	Name	Dimensions	Board Area
Small	PC/104	90 x 96 mm (3.550 x 3.775-in.)	86.4 cm2 (13.4-in2)
Medium	EPIC	115 x 165 mm (4.53- x 6.5-in.)	190 cm2 (29.4-in2)
Large	EBX	146 x 203 mm (5.75- x 8.0-in.)	296 cm2 (46-in2)
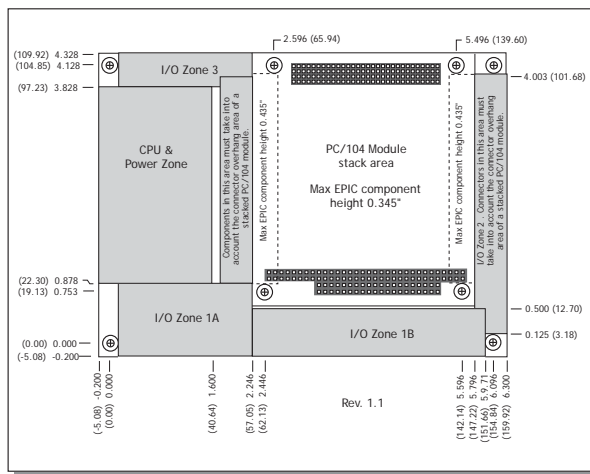
Figure 1: Dimensions of the EPIC Format

I/O and Vertical Clearance Zones

The EPIC board is subdivided into four zones. Refer to Figure 1, these zones are in addition to the area defined for the PC/104 module stack. Certain zones have a specified vertical dimension so as to avoid conflict with an adjacent board or cable assembly.

■ Zone 1
Zone 1 is defined for I/O connectors. It is split into Zone 1A and Zone 1B for a total length of 5.8 inches. This zone extends from inside the mounting holes on the bottom of the board.

■ Zone 1A
Zone 1A extends for 2.121 inches. Its depth extends to 1.078 inches to allow for deeper connectors, such as currently exists for Ethernet, CompactFlash, ExpressCard, and certain stackable molded PC-type connectors.

■ Zone 1B
Zone 1B extends for 3.725 inches at a depth of 0.7 inches. It will support industry standard 0.100-inch IDC type connectors, terminal blocks, USB, and other molded PC-type connectors. There is a 0.175- x 0.375-inch overlap with Zone 2.

■ Zone 2
Zone 2, located on the right side of the EPIC board, is the second I/O zone. It is specified as 3.878-inches long and 0.5-inches wide. There is a possible height restriction of 0.6-inches if a PC/104 module is plugged into the EPIC board. The first module's cable or connector will be above Zone 2.

■ Zone 3
Zone 3 extends for 2.45-inches. Its depth is specified as 0.5-inches. There is a 0.15- x 0.35-inch overlap with the PC/104 I/O Zone if a module is plugged into the stack and if there is a connector in this area.

* All specifications and photos are subject to change without notice.

Axiomtek EPIC Express Form Factor Technical Notes

EPIC Express = EPIC + PCI Express

Stackable PCI Express Expansion for EPIC

The PCI Express, the next generation serial interconnect bus, uses familiar software and configuration interfaces of the conventional PCI bus architecture, but provides a new high-performance physical interface while retaining software compatibility with the existing conventional PCI infrastructure. It is the logical evolution of the EPIC specification in that it adds PCI Express expansion capability to this industrial computing platform. The reason for adding PCI Express was to provide a bridge to the future while maintaining legacy support for the vast number of PC/104 expansion modules available worldwide. None of the dimensions or I/O zones of an EPIC board change, only the replacement of the parallel PCI bus (as implemented through the PC/104-Plus connector) with a serial PCI Express connector. Similarly, the I/O boards that stack on top of EPIC Express are PC/104-size with the PC/104-Plus connector removed and replaced with a PCI Express stacking connector.

Stackable PCI Express Architecture

A PCI Express link can be scaled on a device-by-device basis to meet different I/O controller's bandwidth and application objectives. The PCI Express Base Specification defines the configuration of serial links as x1, x2, x4, x8, x16, and x32. The EPIC Express supports four x1 and two x4 links. This is implemented in two configurations: Standard and Full.

The Standard option is a replacement for existing, standard PC/104-Plus devices using four x1 links (A   D). It allows up to four boards to be stacked yet requires only a single 28-pin connector. The connector is about 1/3 the size of a PC/104-Plus connector which frees up valuable printed circuit board real estate, quadruples the bandwidth of the link, and eliminates the slot selection switch.

Table 2: EPIC Express Configuration Options

	Standard	Full
Connector Size	1-bank	3-bank
Links	A, B, C, D	A, B, C, D, E, F
Lane Width	Four x1	Four x1, Two x4
Clocks	A, B, C	A, B, C, D, E, F
Power	+5V, PERST#, 3.3Vaux +12V, -12V	+5V, PERST#, 3.3Vaux

The other configuration supports more bandwidth-intensive controllers and more PCI Express links. It supports the four x1 links on the first connector bank and the two x4 links (E &F) plus more clocks, power and ground. This adds two additional connector banks which take up approximately the same amount of area as a PC/104-Plus connector. This is called the Full EPIC Express configuration since it has more capacity and requires a larger connector with three 28-pin banks.

The height of a stack is maintained at 0.662-inches. This permits the same spacers and PC/104 cards to be used. Unlike a PC/104 stack, the stacking order for the EPIC expansion modules is significant. The Full x4 EPIC Express expansion module must be closest to the root SBC. Stacked above that would be any x1 lane modules and finally standard PC/104-compatible modules. Even though the standard and full configurations require different EPIC Express connectors, a 1 bank, Standard EPIC Express Module can plug into a 3-bank, Full EPIC Express Module but not vice versa. The reason is that a 3-bank connector is simply a 1-bank connector replicated two more times in a contiguous housing to support additional pins.
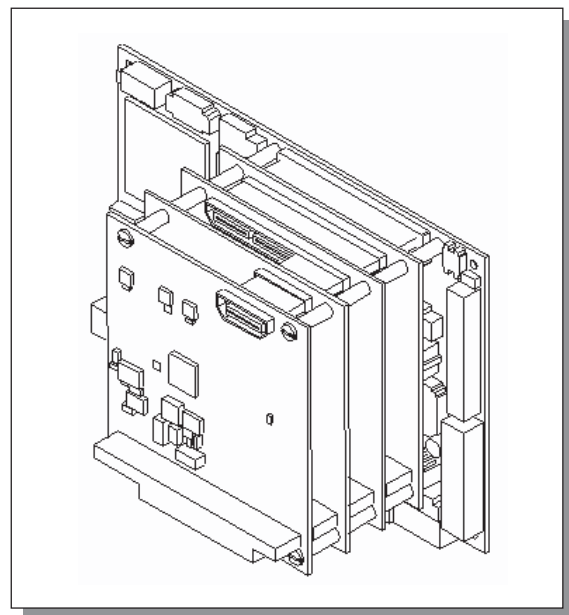
Figure 2: EPIC Express SBC with one Full and two Standard Expansion Cards

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

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Axiomtek EPIC Express Form Factor Technical Notes
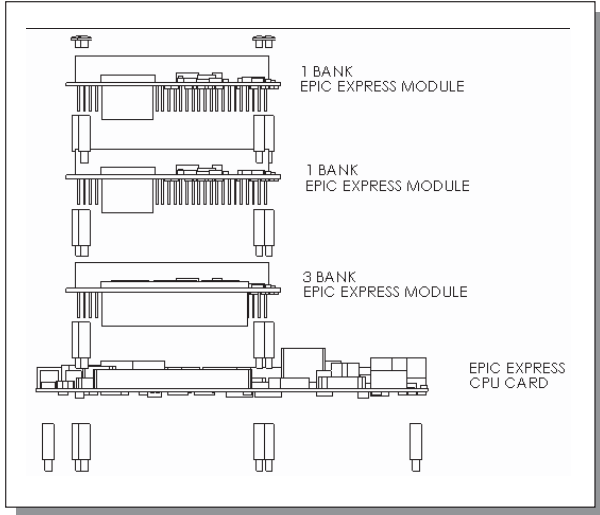
Figure 3: Exploded view of EPIC Express Stack

Mechanical Specification

◼ EPIC Express-One-Bank Connector
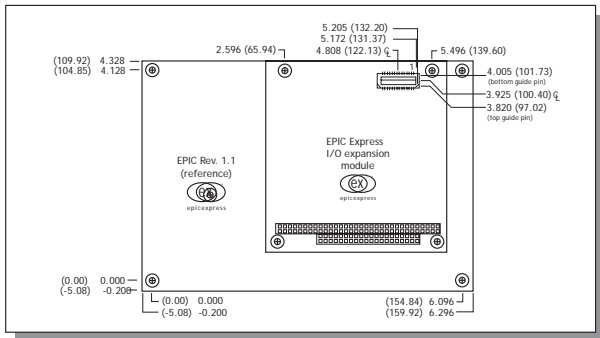
◼ EPIC Express: Three-Bank Connector
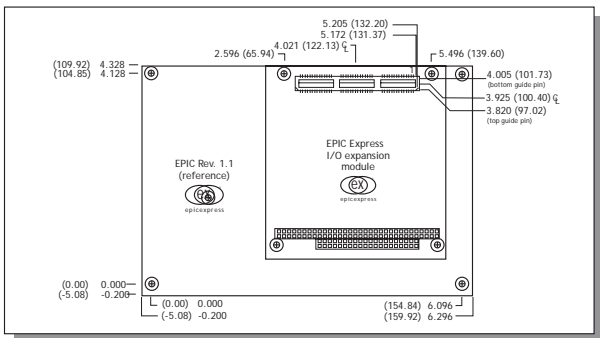
◼ EPIC Express Expansion Card: Three-Bank Connector
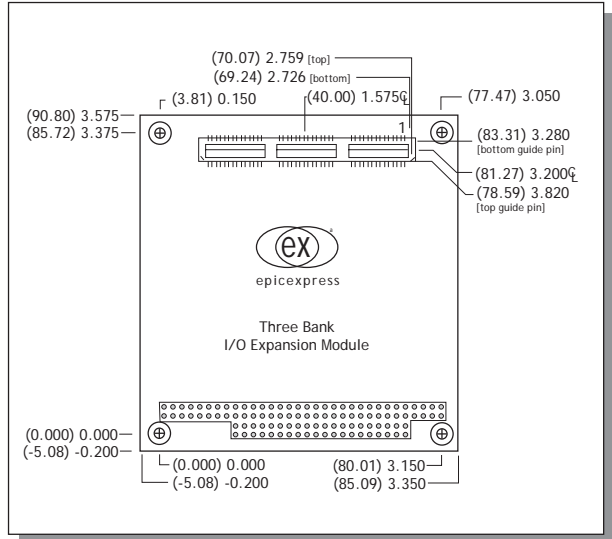
◼ EPIC Express Expansion Card: One-Bank Connector

* All specifications and photos are subject to change without notice.
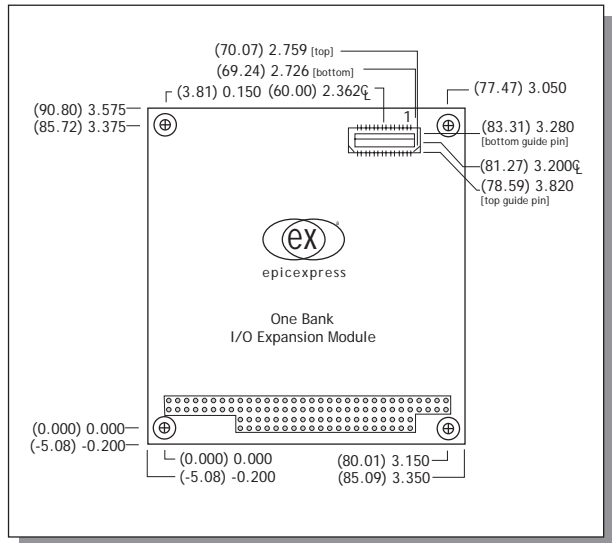
Axiomtek ZIO Form Factor Technical Notes

ZIO Embedded Compact Extended Form Factor

ZIO is an embedded compact extended form factor that provides a flexible and functional design for single-board embedded systems. ZIO form factor is a solution for those who face limited expandability from the use of conventional single-board designs and has the ability to extend I/O modules in a flexible manner. ZIO form factor SBC can help drive market demand for various vertical applications using a more efficient approach. Included is a wide variety of interfaces such as DP (DisplayPort), PCIe, USB, LPC, Audio Line-out and power, meeting requirements for system integrations.

The ZIO form factor is an integrated interface standard defined by Axiomtek and has been adopted as one of our specifications in our 3.5" CAPA single board computers to meet concerns regarding insufficient expansion interfaces in small form factor (SFF) single board computers.

Specification Requirements

The dimensions of the ZIO form factor SBC are 80 mm x 55 mm and it places on the Region II of the bottom side of 3.5" Capa single board computers. While it stacks under the Region I, I/O connector, of 3.5" Capa single board computers, it looks like a 2nd layer of I/O connector.
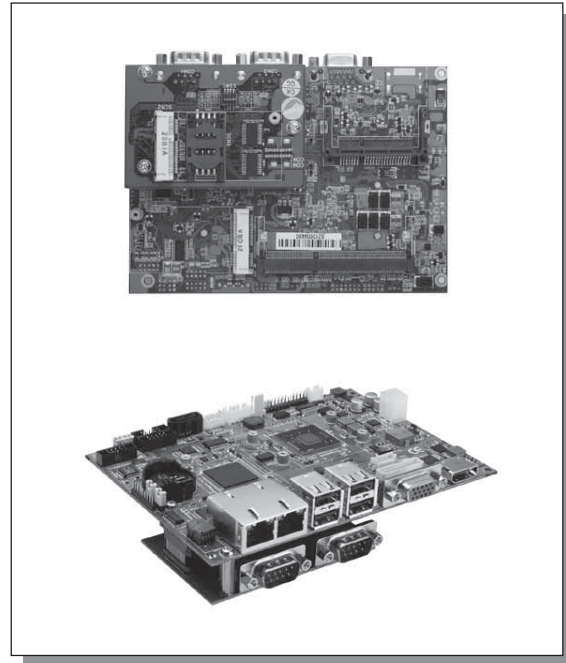
Figure 1: 3.5" CAPA Board with ZIO Module AX93262
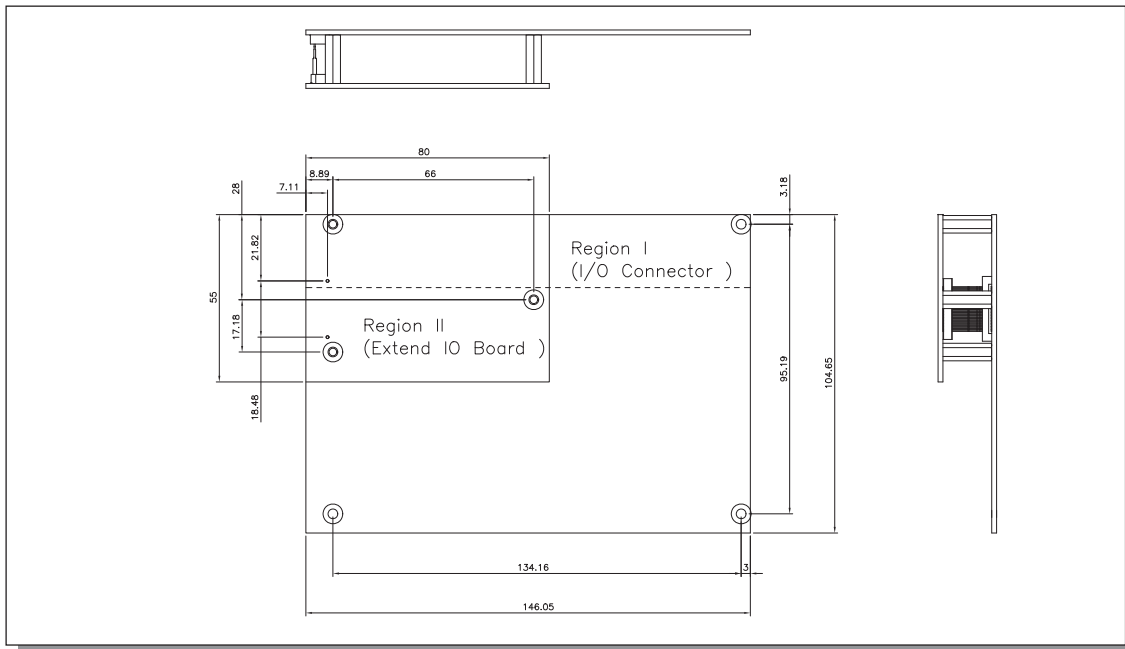
Figure 2: Board Dimensions and Mounting Holes

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Axiomtek Nano-ITX Form Factor Technical Notes

Overview of Nano-ITX Form Factor

The new Nano-ITX form factor is designed as a high integrated native x86 embedded platform, measuring a mere 120 mm x 120 mm which measures in at 50% smaller than the Mini-ITX form factor. The Nano-ITX form factor is available with a rich feature set and is targeted at the fast-emerging embedded markets, allowing developers to highly customize their system designs in the low-profile and fully-configured embedded devices. This ultra compact board format is designed to bring the performance of x86 architecture to the very broad field of embedded design, which underpins almost every aspect of daily life.

The Nano-ITX boards are highly efficient embedded boards to provide best performance per watt and best performance per mm2.
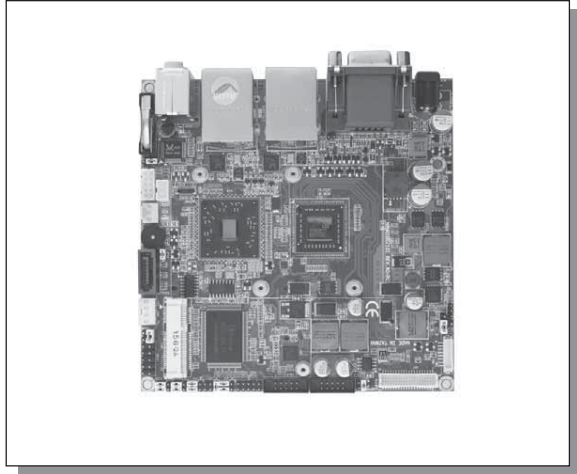
Figure 1: Axiomtek Nano-ITX Form Factor SBC - NANO100

Dimensions of Nano-ITX Form Factor
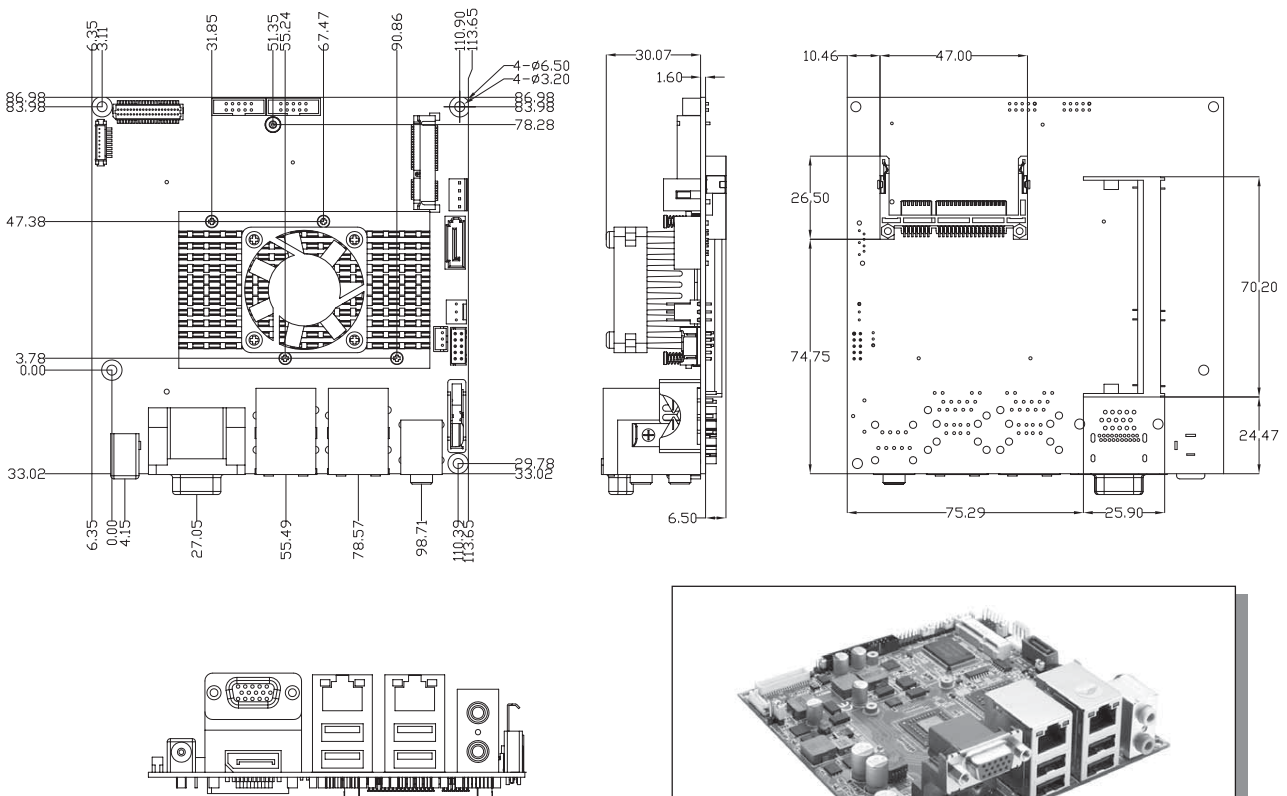
Rich rear I/O for cableless solution

* All specifications and photos are subject to change without notice.

Axiomtek Pico-ITX Form Factor Technical Notes

Overview of Pico-ITX Form Factor

The new Pico-ITX form factor, the world's smallest x86 embedded board, is developed by VIA Technologies, Inc. as part of its "Small is Beautiful" strategy of shrinking the x86 platform in order to inspire innovative system design and to make x86 accessible for a new generation of smaller computing and connecting devices.

Measuring of 100mm x 72mm only, the Pico-ITX form factor furnishes system developers and OEMs with a standardized, ultra compact yet highly integrated platform that can be utilized across multiple embedded systems, from car PC, in-flight entertainment system to industrial automation system and even ultra portable devices.

A Broad Field of Applications

The Pico-ITX form factor opens up a new world of possibilities for system design with the potential for x86 devices across the commercial, industrial, medical, retail, travel, utility or personal environments. The standard PC computing and communicating functionality can be catered in the smaller than ever packages with the Pico-ITX form factor, even into portable devices for handbag or briefcase.

This ultra compact form factor is also designed to bring the x86 perform-ance to a broad field of embedded designs, which underpin almost every aspect of daily life. Automation, DSA, retail management, gaming, traffic management, factory, and more embedded information and entertainment applications can be given higher level of intelligence, and can now be built into smaller chassis with the Pico-ITX form factor.

Dimensions of Pico-ITX Form Factor
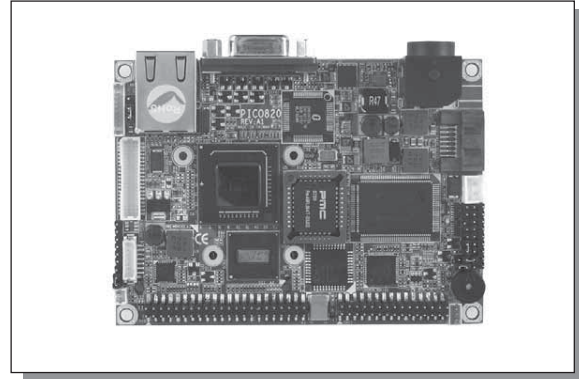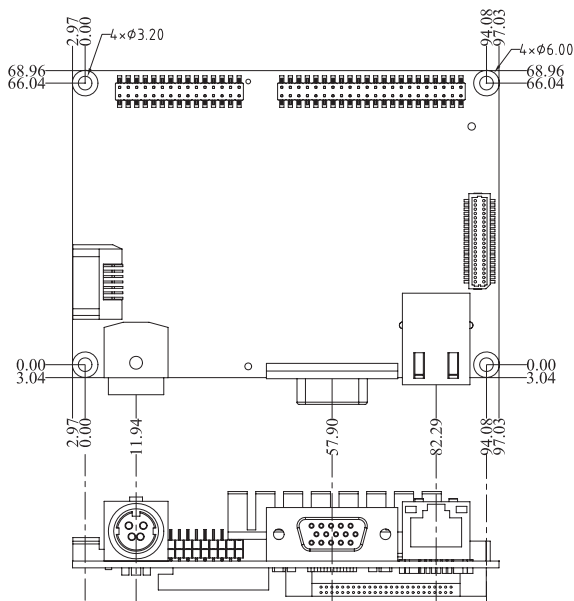
Figure 1: Axiomtek Pico-ITX Form Factor SBC - PICO820

Figure 2: Axiomtek Ultra Compact Embedded System with Pico-ITX SBC - eBOX530-820-FL

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Mother-boards

Slot CPU Cards

Accessories

Appendix

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Axiomtek PC/104 Expansion Module Technical Notes
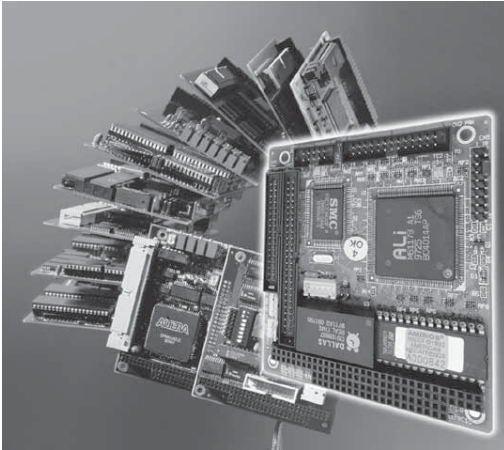
PC/104 Expansion Modules
Embedded-PC Module for Compact
Industrial Solution

The Need for an Embedded-PC Standard

Over the past decade, the PC architecture has become an accepted platform for far more than desktop applications. Dedicated and embedded applications for PCs are beginning to be found everywhere! PCs are used as controllers within vending machines, laboratory instruments, communications devices, and medical equipment, to name a few examples.

By standardizing hardware and software around the broadly supported PC architecture, embedded system designers can substantially reduce development costs, risks, and time. This means faster time-to-market and hitting critical market windows with timely product introductions. Another important advantage of using the PC architecture is that its widely available hardware and software are significantly more economical than traditional bus architectures such as STD, VME, and Multibus. This means lower product costs. For these reasons, companies that embed microcomputers as controllers within their products seed ways to reap the benefits of using the PC architecture. However, the standard PC bus form-factor (12.4" x 4.8") and its associated card cages and backplanes are too bulky (and expensive) for more embedded control applications.

The only practical way to embed the PC architecture in space- and power-sensitive applications has been to design a PC chip-by-chip directly into the product. But this runs counter to the growing trend away from "reinventing the wheel." Wherever possible, top management now encourages out-souring of components and technologies, to reduce development cost and accelerate product design cycles.

A need therefore arose for a more compact implementation of the PC bus, satisfying the reduced space and power constraints of embedded control applications. Yet these goals had to be realized without sacrificing full hardware and software compatibility with the popular PC bus standard. This would allow the PC's hardware, software, development tools, and system design knowledge to be fully leveraged.

PC/104 was developed in response to this need. It offers full architecture, hardware, and software compatibility with the PC bus, but in ultra-compact (3.6" x 3.8") stackable modules. PC/104 is therefore ideally suited to the unique requirements of embedded control applications.
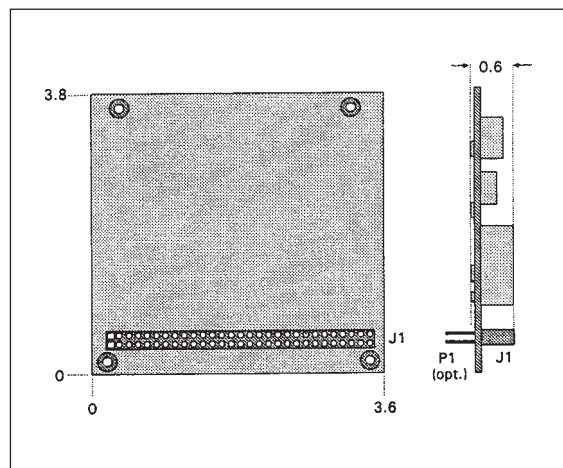
Figure 1. Basic Mechanical Dimensions (8-bit Version)

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Axiomtek PC/104 Expansion Module Technical Notes

Two Ways to Use PC/104 Modules

Although configuration and application possibilities with PC/104 modules are practically limitless, there are two basic ways they tend to be used in embedded system designs:

● Standalone module stacks
As shown in Figure 2, PC/104 modules are self-stacking.
In this approach, the modules are used like ultra-compact bus boards, but without needing backplanes or card cages. Stacked modules are spaced 0.6 inches apart. (The three-module stack shown in Figure 2 measures just 3.6 by 3.8 by 2 inches.) Companies using PC/104 module stacks within their products frequently create one or more of their one or more of their own application-specific PC/104 modules.

● Component-like Applications
Another way to use PC/104 modules is illustrated in Figure 3. In this configuration, the modules function as highly integrated components, plugged into custom carrier boards which contain application-specific interfaces and logic. The modules' self-stacking bus can be useful for installing multiple modules in one location. This facilitates future product upgrades or options, and allows temporary addition of modules during system debug or test.

Total Solutions for Embedded System

Axiomtek designs & manufactures a whole series of embedded systems computers and industrial I/O module that support the PC/104 standard for OEM and industrial and laboratory applications. The Axiomtek PC/104 product line includes the 386SX, SBC (single board computer); RAM/ROM/FLASH disk, PCMCIA IC memory drive, SVGA module and eight data acquisition modules that provide A/D, D/A, DIO, Counter/Timer and RS-422/485, etc.
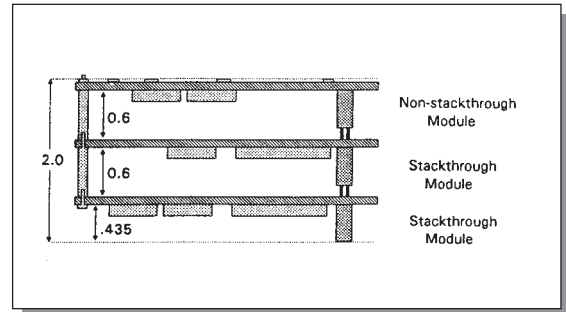
Figure 2. Standalone Module Stacks
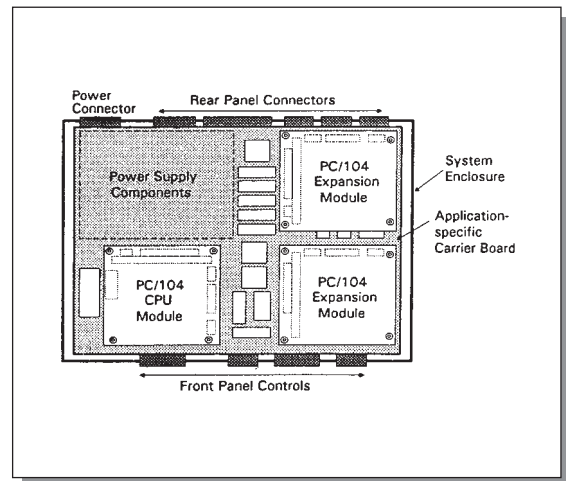
Figure 3. Component-like Application
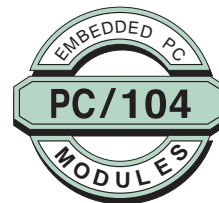
SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
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EPIC Boards

Selection Guide
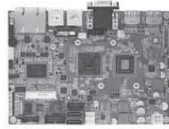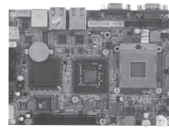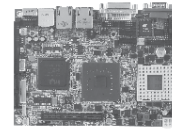
|	Page 102	Page 103	Page 104
Features\Models	**EP100**	**EP850**	**EP830**
Form Factor	EPIC	EPIC	EPIC
CPU Level	AMD G-Series APU T56N/ T40R	Intel® Core™2 Duo	Intel® Core™2 Duo
CPU Socket	Onboard	Socket P	Socket M
CPU FSB Frequency	N/A	667/800/1066 MHz	533/667 MHz
Core Logic Chipset	AMD A50M	Intel® GM45 + ICH9M	Intel® 945GME + ICH7M
Memory Type	DDR3-1066/1333	DDR3-800/1066	DDR2-533/667
Max. DRAM Capacity	4 GB	4 GB	2 GB
Cache RAM Capacity	Integrated in APU	Integrated in CPU	Integrated in CPU
BIOS	AMI UEFI BIOS	AMI	Phoenix-Award
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	1 x CFast ™	1 x CompactFlash™	1 x CompactFlash™
Onboard Digital I/O	8-IN/OUT	3-IN & 5-OUT	8-IN/OUT
I/O — IDE	N/A	N/A	1 x PATA-100
SATA	2 x SATA-600	2 x SATA-300	2 x SATA-150
FDD	N/A	N/A	N/A
LPT	N/A	N/A	N/A
Serial — COM 1	RS-232/422/485	RS-232	RS-232/422/485
COM 2	RS-232	RS-232	RS-232
COM 3	RS-232	N/A	RS-232
COM 4	RS-232	N/A	RS-232
USB	6 x USB 2.0	6 x USB 2.0	4 x USB 2.0
SIM Card Slot	Yes	N/A	N/A
IEEE 1394a	N/A	N/A	2
Display	1 x VGA, 2 x DisplayPort or 1 x VGA, 1 x DisplayPort, 1 x LVDS	1 x VGA 1 x LVDS	1 x DVI-I 1 x LVDS
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	HD Codec	HD Codec	AC'97 Codec
Hardware Monitoring	Yes	Yes	Yes
SMBus	Yes	Yes	Yes
Expansion Interface	2 x PCI Express Mini Card	1 x PCI-104	N/A
Power Management	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE
Wide Temperature	N/A	N/A	N/A

* All specifications and photos are subject to change without notice.

3.5" Capa Boards

Selection Guide

Features\Models	CAPA831	CAPA830	CAPA801
Form Factor	3.5" Capa	3.5" Capa	3.5" Capa
CPU Level	Intel® Atom™ D2550/ N2600/ N2800	Intel® Atom™ D2550/ N2600/ N2800	Intel® Atom™ N455/ D425/ D525
CPU Socket	Onboard	Onboard	Onboard
CPU FSB Frequency	N/A	N/A	N/A
Core Logic Chipset	Intel® NM10	Intel® NM10	Intel® ICH8M
Memory Type	DDR3-800/1066	DDR3-800/1066	DDR3-667/800
Max. DRAM Capacity	4 GB	4 GB	4 GB
Cache RAM Capacity	Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS	AMI UEFI BIOS	AMI UEFI BIOS	AMI
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	1 x CFast™	1 x CFast™	1 x CompactFlash™
Onboard Digital I/O	8-IN/OUT	8-IN/OUT	8-IN/OUT
I/O IDE	N/A	N/A	N/A
SATA	1 x SATA-300	1 x SATA-300	2 x SATA-300
FDD	N/A	N/A	N/A
LPT	N/A	N/A	N/A
Serial COM 1	RS-232/422/485	RS-232/422/485	RS-232/422/485
COM 2	RS-232/422/485	RS-232	RS-232
COM 3	RS-232	N/A	RS-232
COM 4	RS-232	N/A	RS-232
COM 5	N/A	N/A	N/A
COM 6	N/A	N/A	N/A
USB	6 x USB 2.0	6 x USB 2.0	6 x USB 2.0
SIM Card Slot	N/A	N/A	N/A
IEEE 1394a	N/A	N/A	N/A
Display	1 x VGA 1 x DisplayPort 1 x LVDS	1 x VGA 1 x HDMI 1 x LVDS	1 x VGA 1 x LVDS
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	HD Codec	HD Codec	HD Codec
Hardware Monitoring	Yes	Yes	Yes
SMBus	Yes	Yes	Yes
Expansion Interface	1 x PCI Express Mini Card	1 x PCI Express Mini Card 1 x USB, 1 x PCIe x1, 1 x LPC, 1 x SMBus (through ZIO connector)	1 x PCI Express Mini Card
Power Management	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	-20°C ~ +70°C (-4°F ~ +158°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE
Wide Temperature	N/A	N/A	-20°C ~ +70°C (-4°F ~ +158°F)

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

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Slot CPU Cards

Accessories

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3.5" Capa Boards

Selection Guide
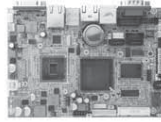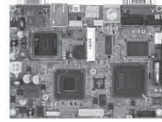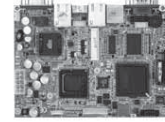
| Features\Models	CAPA800	SBC84833	SBC84832
	Page 108	Page 109	Page 110
Form Factor	3.5" Capa	3.5" Capa	3.5" Capa
CPU Level	Intel® Atom™ N450/ D410/ D510	Intel® Atom™ N270	Intel® Atom™ N270
CPU Socket	Onboard	Onboard	Onboard
CPU FSB Frequency	N/A	533 MHz	533 MHz
Core Logic Chipset	Intel® ICH8M	Intel® 945GSE + ICH7M	Intel® 945GSE + ICH7M
Memory Type	DDR2-667/800	DDR2-400/533	DDR2-400/533
Max. DRAM Capacity	2 GB	2 GB	2 GB
Cache RAM Capacity	Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS	AMI	AMI	AMI
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	1 x CompactFlash™	1 x CompactFlash™	1 x CompactFlash™
Onboard Digital I/O	8-IN/OUT	8-IN/OUT	3-IN & 5-OUT
I/O / IDE	N/A	N/A	N/A
SATA	2 x SATA-300	2 x SATA-150	2 x SATA-150
FDD	N/A	N/A	N/A
LPT	N/A	N/A	N/A
Serial / COM 1	RS-232/422/485	RS-232/422/485	RS-232
COM 2	RS-232	RS-232	RS-232
COM 3	RS-232	RS-232	N/A
COM 4	RS-232	RS-232	N/A
COM 5	N/A	N/A	N/A
COM 6	N/A	N/A	N/A
USB	8 x USB 2.0	7 x USB 2.0	6 x USB 2.0
SIM Card Slot	N/A	N/A	N/A
IEEE 1394a	N/A	N/A	N/A
Display	1 x VGA 1 x LVDS	1 x VGA 1 x LVDS	1 x VGA 1 x LVDS
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	HD Codec	HD Codec	HD Codec
Hardware Monitoring	Yes	Yes	Yes
SMBus	Yes	Yes	Yes
Expansion Interface	1 x PCI Express Mini Card	1 x PCI Express Mini Card	1 x PCI Express Mini Card
Power Management	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE
Wide Temperature	-20°C ~ +70°C (-4°F ~ +158°F)	-20°C ~ +70°C (-4°F ~ +158°F)	N/A

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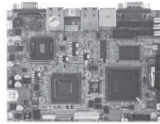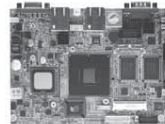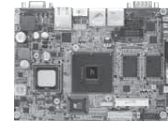
Features\Models		SBC84831	SBC84826	SBC84823
Form Factor		3.5" Capa	3.5" Capa	3.5" Capa
CPU Level		Intel® Atom™ N270	Intel® Atom™ Z510PT	Intel® Atom™ Z510PT/ Z520PT
CPU Socket		Onboard	Onboard	Onboard
CPU FSB Frequency		533 MHz	400 MHz	400/533 MHz
Core Logic Chipset		Intel® 945GSE + ICH7M	Intel® US15WPT	Intel® US15WPT
Memory Type		DDR2-400/533	DDR2-400/533	DDR2-400/533
Max. DRAM Capacity		2 GB	2 GB	2 GB
Cache RAM Capacity		Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS		AMI	Phoenix-Award	Phoenix-Award
Watchdog Timer		255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD		1 x CompactFlash™	1 x CompactFlash™	1 x CompactFlash™
Onboard Digital I/O		3-IN & 5-OUT	3-IN & 5-OUT	3-IN & 5-OUT
I/O	IDE	N/A	N/A	N/A
	SATA	2 x SATA-150	1 x SATA-300	1 x SATA-300
	FDD	N/A	N/A	N/A
	LPT	N/A	N/A	N/A
	Serial COM 1	RS-232	RS-232	RS-232
	COM 2	RS-232	RS-232	RS-232
	COM 3	RS-232	RS-232	RS-232
	COM 4	RS-232	RS-232	RS-232
	COM 5	RS-232	N/A	N/A
	COM 6	RS-232	N/A	N/A
	USB	4 x USB 2.0	4 x USB 2.0	6 x USB 2.0
SIM Card Slot		N/A	N/A	N/A
IEEE 1394a		N/A	N/A	N/A
Display		1 x VGA 1 x LVDS	1 x VGA 1 x LVDS	1 x VGA 1 x LVDS
Onboard Ethernet		2 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet 1 x 10/100Mbps Ethernet	1 x 10/100/1000Mbps Ethernet
Onboard Audio		AC'97 Codec	HD Codec	HD Codec
Hardware Monitoring		Yes	Yes	Yes
SMBus		Yes	Yes	Yes
Expansion Interface		N/A	1 x PCI Express Mini Card	1 x PCI Express Mini Card
Power Management		ACPI	ACPI	ACPI
Battery		Lithium	Lithium	Lithium
Operating Temperature		0° ~ +60°C (32°F~ 140°F)	-40° ~ +85°C (-40°F~ 185°F)	-40° ~ +85°C (-40°F~ 185°F)
Relative Humidity		10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance		CE	CE	CE
Wide Temperature		-20°C ~ +70°C (-4°F ~ +158°F)	N/A	N/A

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3.5" Capa Boards

Selection Guide

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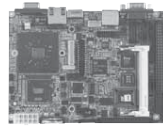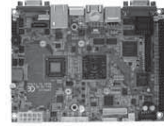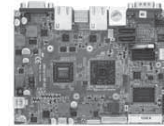
|	Page 114	Page 115	Page 116
Features\Models	**SBC84710**	**CAPA112**	**CAPA111**
Form Factor	3.5" Capa	3.5" Capa	3.5" Capa
CPU Level	VIA V4	AMD G-Series APU T40E/ T40R/ T16R	AMD G-Series APU T40E/ T40R
CPU Socket	Onboard	Onboard	Onboard
CPU FSB Frequency	400/533 MHz	N/A	N/A
Core Logic Chipset	VIA CX700M	AMD A55E	AMD A50M
Memory Type	DDR2-400/533	DDR3-1066	DDR3-1066
Max. DRAM Capacity	1 GB	4 GB	4 GB
Cache RAM Capacity	Integrated in CPU	Integrated in CPU	Integrated in APU
BIOS	Phoenix-Award	AMI UEFI BIOS	AMI UEFI BIOS
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	1 x CompactFlash™	1 x CFast™	1 x CompactFlash™
Onboard Digital I/O	N/A	8 IN/OUT	8-IN/OUT
I/O — IDE	1 x PATA-133	N/A	N/A
I/O — SATA	1 x SATA-150	1 x SATA-600	2 x SATA-600
I/O — FDD	1 x FDD	N/A	N/A
I/O — LPT	1 x LPT	1 x LPT	N/A
I/O — Serial — COM 1	RS-232/422/485	RS-232/422/485	RS-232/422/485
I/O — Serial — COM 2	RS-232	RS-232	RS-232
I/O — Serial — COM 3	RS-232	RS-232	RS-232
I/O — Serial — COM 4	RS-232	RS-232	RS-232
I/O — Serial — COM 5	N/A	N/A	N/A
I/O — Serial — COM 6	N/A	N/A	N/A
I/O — USB	4 x USB 2.0	6 x USB 2.0	6 x USB 2.0
SIM Card Slot	N/A	Yes	N/A
IEEE 1394a	N/A	N/A	N/A
Display	1 x VGA 1 x LVDS	1 x VGA 1 x LVDS	1 x VGA 1 x LVDS
Onboard Ethernet	1 x 10/100Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	HD Codec	HD Codec	HD Codec
Hardware Monitoring	Yes	Yes	Yes
SMBus	N/A	Yes	Yes
Expansion Interface	1 x MiniPCI 1 x PC/104	1 x PCI Express Mini Card 1 x PC/104	1 x PCI Express Mini Card
Power Management	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE
Wide Temperature	N/A	-20°C ~ +70°C (-4°F ~ +158°F)	N/A

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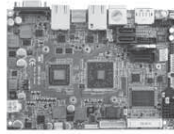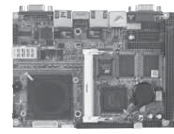
Features\Models	CAPA110	SBC84622	SBC84621
Form Factor	3.5" Capa	3.5" Capa	3.5" Capa
CPU Level	AMD G-Series APU T56N	AMD LX800	AMD LX800
CPU Socket	Onboard	Onboard	Onboard
CPU FSB Frequency	N/A	N/A	N/A
Core Logic Chipset	AMD A50M	AMD CS5536AD	AMD CS5536AD
Memory Type	DDR3-1333	DDR-333/400	DDR-333/400
Max. DRAM Capacity	4 GB	1 GB	1 GB
Cache RAM Capacity	Integrated in APU	Integrated in APU	Integrated in APU
BIOS	AMI UEFI BIOS	Phoenix-Award	Phoenix-Award
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	1 x CompactFlash™	1 x CompactFlash™	1 x CompactFlash™
Onboard Digital I/O	8-IN/OUT	8-IN/OUT	8-IN & 8-OUT
I/O IDE	N/A	1 x PATA-100	1 x PATA-100
SATA	2 x SATA-600	N/A	N/A
FDD	N/A	N/A	1 x FDD
LPT	N/A	1 x LPT	1 x LPT
Serial COM 1	RS-232/422/485	RS-232	RS-232/422/485
COM 2	RS-232	RS-232	RS-232
COM 3	RS-232	RS-232	RS-232
COM 4	RS-232	RS-232	RS-232
COM 5	N/A	N/A	N/A
COM 6	N/A	N/A	N/A
USB	6 x USB 2.0	4 x USB 2.0	4 x USB 2.0
SIM Card Slot	N/A	N/A	N/A
IEEE 1394a	N/A	N/A	N/A
Display	1 x VGA 1 x LVDS 1 x DisplayPort	1 x VGA 1 x LVDS/TTL	1 x VGA 1 x LVDS
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100Mbps Ethernet	2 x 10/100Mbps Ethernet
Onboard Audio	HD Codec	AC'97 Codec	AC'97 Codec
Hardware Monitoring	Yes	Yes	Yes
SMBus	Yes	Yes	Yes
Expansion Interface	1 x PCI Express Mini Card	N/A	1 x MiniPCI 1 x PC/104
Power Management	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE
Wide Temperature	N/A	-25° ~ +70°C (-13°F~ 158°F)	-40° ~ +85°C (-40°F~ 185°F) -25° ~ +70°C (-13°F~ 158°F)

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3.5" Capa Boards

Selection Guide
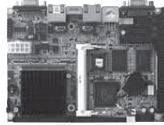
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Features\Models			SBC84620
Form Factor			3.5" Capa
CPU Level			AMD LX800
CPU Socket			Onboard
CPU FSB Frequency			N/A
Core Logic Chipset			AMD CS5536AD
Memory Type			DDR-333/400
Max. DRAM Capacity			1 GB
Cache RAM Capacity			Integrated in APU
BIOS			Phoenix-Award
Watchdog Timer			255 levels, 1~255 sec.
Onboard SSD			1 x CompactFlash™
Onboard Digital I/O			8-IN & 8-OUT
I/O	**IDE**		1 x PATA-100
	SATA		N/A
	FDD		1 x FDD
	LPT		1 x LPT
	Serial	**COM 1**	RS-232/422/485
		COM 2	RS-232
		COM 3	RS-232
		COM 4	RS-232
		COM 5	N/A
		COM 6	N/A
	USB		4 x USB 2.0
SIM Card Slot			N/A
IEEE 1394a			N/A
Display			1 x VGA 1 x TTL
Onboard Ethernet			2 x 10/100Mbps Ethernet
Onboard Audio			AC'97 Codec
Hardware Monitoring			Yes
SMBus			Yes
Expansion Interface			1 x MiniPCI 1 x PC/104
Power Management			ACPI
Battery			Lithium
Operating Temperature			0° ~ +60°C (32°F~ 140°F)
Relative Humidity			10% to 95%, non-condensing
EMI Compliance			CE
Wide Temperature			-40° ~ +85°C (-40°F~ 185°F) -25° ~ +70°C (-13°F~ 158°F)

* All specifications and photos are subject to change without notice.

Nano-ITX SBC

Selection Guide

Features\Models	NANO831	NANO830	NANO100	NANO101
Form Factor	Nano-ITX	Nano-ITX	Nano-ITX	Nano-ITX
CPU Level	Intel® Atom™ N2600	Intel® Atom™ D2550	AMD G-Series APU T56N	AMD G-Series APU T40E/ T40R
CPU Socket	Onboard	Onboard	Onboard	Onboard
CPU FSB Frequency	N/A	N/A	N/A	N/A
Core Logic Chipset	Intel® NM10	Intel® NM10	AMD A50M	AMD A50M
Memory Type	DDR3-800	DDR3-1066	DDR3-1333	DDR3-1066
Max. DRAM Capacity	2 GB	4 GB	4 GB	4 GB
Cache RAM Capacity	Integrated in CPU	Integrated in CPU	Integrated in APU	Integrated in APU
BIOS	AMI UEFI BIOS	AMI UEFI BIOS	AMI UEFI BIOS	AMI UEFI BIOS
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	1 x CFast™	1 x CFast™	1 x CFast™	1 x CFast™
Onboard Digital I/O	8-IN/OUT	8-IN/OUT	8-IN/OUT	8-IN/OUT
I/O	IDE	N/A	N/A	N/A	N/A
	SATA	1 x SATA-300	1 x SATA-300	1 x SATA-600	1 x SATA-600
	FDD	N/A	N/A	N/A	N/A
	LPT	N/A	N/A	N/A	N/A
	Serial COM 1	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485
	Serial COM 2	RS-232	RS-232	RS-232	RS-232
	Serial COM 3	N/A	N/A	N/A	N/A
	Serial COM 4	N/A	N/A	N/A	N/A
	USB	6 x USB 2.0	6 x USB 2.0	6 x USB 2.0	6 x USB 2.0
SIM Card Slot	N/A	N/A	N/A	N/A
IEEE 1394a	N/A	N/A	N/A	N/A
Display	1 x VGA 1 x LVDS	1 x VGA 1 x DisplayPort 1 x LVDS	1 x VGA 1 x DisplayPort 1 x LVDS	1 x VGA 1 x LVDS
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	HD Codec	HD Codec	HD Codec	HD Codec
Hardware Monitoring	Yes	Yes	Yes	Yes
SMBus	Yes	Yes	Yes	Yes
Expansion Interface	1 x PCI Express Mini Card	1 x PCI Express Mini Card	1 x PCI Express Mini Card	1 x PCI Express Mini Card
Power Management	ACPI	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	-20° ~ +70°C (-4°F~ +158°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE	CE
Wide Temperature	N/A	N/A	N/A	N/A

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Pico-ITX SBC

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Features\Models	PICO100	PICO831	PICO830	PICO822
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Form Factor	Pico-ITX	Pico-ITX	Pico-ITX	Pico-ITX
CPU Level	AMD G-Series APU T40E/ T40R	Intel® Atom™ N2600/ N2800	Intel® Atom™ N2600/ N2800	Intel® Atom™ E600 series
CPU Socket	Onboard	Onboard	Onboard	Onboard
CPU FSB Frequency	N/A	N/A	N/A	N/A
Core Logic Chipset	AMD A50M	Intel® NM10	Intel® NM10	Intel® PCH EG20T
Memory Type	DDR3-1066	DDR3-800/1066	DDR3-800/1066	DDR2-667/800
Max. DRAM Capacity	4 GB	4 GB	4 GB	1 GB
Cache RAM Capacity	Integrated in APU	Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS	AMI UEFI BIOS	AMI UEFI BIOS	AMI UEFI BIOS	AMI UEFI BIOS
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	1 x CompactFlash™	N/A	1 x CFast™	SATA NANDrive
Onboard GPIO	N/A	N/A	N/A	N/A
Onboard Digital I/O	N/A	N/A	N/A	8-IN/OUT
I/O — IDE	N/A	N/A	N/A	N/A
I/O — SATA	1 x SATA-600	1 x SATA-300	1 x SATA-300	1 x SATA-300
I/O — FDD	N/A	N/A	N/A	N/A
I/O — LPT	N/A	N/A	N/A	N/A
I/O Serial — COM 1	RS-232	RS-232/422/485	RS-232/422/485	RS-232
I/O Serial — COM 2	RS-232	RS-232	RS-232	RS-232
I/O Serial — COM 3	N/A	N/A	N/A	N/A
I/O Serial — COM 4	N/A	N/A	N/A	N/A
I/O — USB	4 x USB 2.0	4 x USB 2.0	4 x USB 2.0	5 x USB 2.0 (1 client port)
SIM Card Slot	N/A	Yes	N/A	N/A
IEEE 1394a	N/A	N/A	N/A	N/A
Display	1 x VGA or 1 x DisplayPort 1 x LVDS	1 x VGA 1 x LVDS	1 x VGA or 1 x DisplayPort 1 x LVDS	1 x LVDS
Onboard Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet
Onboard Audio	HD Codec	HD Codec	HD Codec	HD Codec
Hardware Monitoring	Yes	Yes	Yes	Yes
SMBus	Yes	Yes	Yes	Yes
Expansion Interface	N/A	1 x Full-size PCI Express Mini Card 1 x Half-size PCI Express Mini Card	N/A	1 x SDVO, 1 x PCIe x1, 1 x UART, 1 x SMBus (through board to board connector)
Power Management	ACPI	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE	CE
Wide Temperature	N/A	N/A	N/A	N/A

* All specifications and photos are subject to change without notice.

SBC
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Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

Features\Models			PICO821	PICO820
Form Factor			Pico-ITX	Pico-ITX
CPU Level			Intel® Atom™ Z510/ Z530	Intel® Atom™ Z510/ Z530
CPU Socket			Onboard	Onboard
CPU FSB Frequency			400/533 MHz	400/533 MHz
Core Logic Chipset			Intel® US15W	Intel® US15W
Memory Type			DDR2-400/533	DDR2-400/533
Max. DRAM Capacity			2 GB	2 GB
Cache RAM Capacity			Integrated in APU	Integrated in APU
BIOS			Phoenix-Award	Phoenix-Award
Watchdog Timer			255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD			1 x CompactFlash™	1 x CompactFlash™
Onboard Digital I/O			6-IN/OUT	4-IN & 4-OUT
I/O	IDE		1 x PATA-100	N/A
	SATA		N/A	1 x SATA-300
	FDD		N/A	N/A
	LPT		N/A	N/A
	Serial	COM 1	RS-232	RS-232
		COM 2	N/A	RS-232
		COM 3	N/A	N/A
		COM 4	N/A	N/A
	USB		4 x USB 2.0 1 x client USB 2.0	4 x USB 2.0
SIM Card Slot			N/A	N/A
IEEE 1394a			N/A	N/A
Display			1 x LVDS	1 x VGA 1 x LVDS
Onboard Ethernet			1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet
Onboard Audio			HD Codec	HD Codec
Hardware Monitoring			Yes	Yes
SMBus			Yes	Yes
Expansion Interface			N/A	N/A
Power Management			ACPI	ACPI
Battery			Lithium	Lithium
Operating Temperature			0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity			10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance			CE	CE
Wide Temperature			N/A	N/A

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PC/104 CPU Modules

Selection Guide

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Features\Models			AX12260
Form Factor			PC/104
CPU Level			AMD LX800
CPU Socket			Onboard
CPU FSB Frequency			N/A
Core Logic Chipset			AMD CS5536AD
Memory Type			DDR-333/400
Max. DRAM Capacity			1 GB
Cache RAM Capacity			Integrated in CPU
BIOS			Phoenix-Award
Watchdog Timer			255 levels, 1~255 sec.
Onboard SSD			1 x USB DiskOnModule
Onboard Digital I/O			3-IN & 5-OUT
I/O	**IDE**		1 x PATA-100
	SATA		N/A
	FDD		N/A
	LPT		N/A
	Serial	**COM 1**	RS-232
		COM 2	RS-232
		COM 3	N/A
		COM 4	N/A
	USB		4 x USB 2.0
IEEE 1394a			N/A
Display			1 x VGA 1 x TTL
Onboard Ethernet			1 x 10/100Mbps Ethernet
Onboard Audio			AC'97 Codec
Hardware Monitoring			Yes
SMBus			Yes
Expansion Interface			1 x PCI-104 1 x PC/104
Power Management			ACPI
Battery			Lithium
Operating Temperature			0° ~ +60°C (32°F~ 140°F)
Relative Humidity			10% to 95%, non-condensing
EMI Compliance			CE
Wide Temperature			-40° ~ +85°C (-40°F~ 185°F)

EP100

AMD G-Series APU EPIC SBC with AMD
A50M FCH, Dual DisplayPort/VGA/LVDS,
Dual LANs and Audio

- PCI Express Mini Card
- SATA
- Audio
- COM 2
- COM 3/4
- Ethernet 1/2
- USB 3/4
- USB 1/2
- VGA+COM 1
- DisplayPort 1/2

Fanless Low Power DDR3 CFast™ PCIe Mini AiRD Full Solid Cap Design

System

CPU	AMD G-Series APU T40R 1.0 GHz single core or T56N 1.65 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1066/1333 max. up to 4 GB
Chipset	AMD A50M FCH
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card 1 x PCI Express Mini Card with SIM slot
Battery	Lithium 3V/220mAH
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power ON function supported
Power Requirements	AMD G-Series APU T56N @1.65 GHz, 1GB DDR3 Max. RMS: +12V @ 1.74A AMD G-Series APU T40R @ 1.0 GHz, 1GB DDR3 Max. RMS: +12V @ 1.24A
Size	165 x 115 mm
Board Thickness	1.6 mm
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 3 x RS-232 (COM 2/3/4) ; with +5V/+12V powered
SATA	2 x SATA-600
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio as MIC-in/Line-in/Line-out/Speaker-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmable

Features

- AMD G-Series APU T40R (1.0 GHz)/ T56N (1.65 GHz)
- AMD A50M FCH
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 6 USB 2.0 ports
- 4 COM ports
- DirectX 11 supported

▲ Top view   DDR3 SO-DIMM   SIM Slot   ▲ Rear view

CFast™

PCI Express
Mini Card

▲ Slim I/O
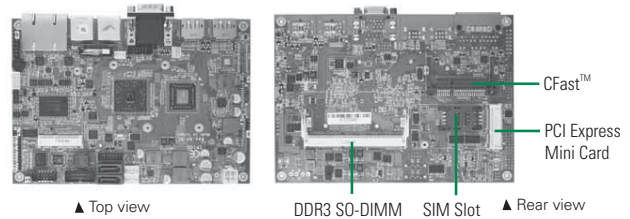
Display

Chipset	AMD G-Series APU integrated graphics engine T56N - Radeon™ HD6320 T40R - Radeon™ HD6250
Memory Size	Max. up to 2 GB in 4 GB DDR3 module
Display Interface	1 x VGA + 2 x DisplayPort or 1 x VGA + 1 x DisplayPort + 1 x LVDS; 18/24-bit single/ dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59382620000E	1 x COM w/ bracket P=2.0mm, L=300mm	1
59384500100E	Audio cable w/ bracket P=2,450mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180mm	1

Optional

59380000300E	2 x COM w/ bracket P=1.27 x 2.54 L=300mm	
59070213000E	DisplayPort to VGA cable, L=100mm	
59040131000E	DisplayPort to DVI cable, L=220mm	
59050203000E	DisplayPort to HDMI cable, L=185mm	
59091501000E	DisplayPort to DisplayPort cable, L=1500mm	

Ordering Information

Standard

EP100VPGGA-T56N w/ slim I/O (P/N: E38B100100)	EPIC SBC with AMD G-Series APU T56N 1.65 GHz, A50M FCH, VGA/Dual DisplayPort, 2 10/100/1000Mbps Ethernet and audio
EP100VLGGA-T40R w/ rich I/O (fanless) (P/N: E38B100102)	EPIC SBC with AMD G-Series APU T40R 1.0GHz, A50M FCH, VGA/DisplayPort/LVDS, 2 10/100/1000Mbps Ethernet and audio

SBC
Services
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Systems
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Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

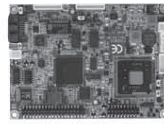Industrial
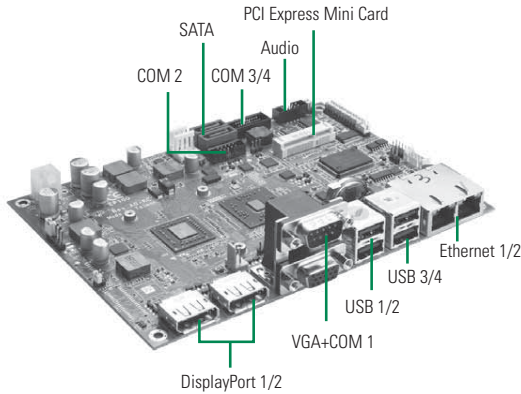Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

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EP850

Socket P Intel® Core™2 Duo EPIC SBC with Intel® GM45 + ICH9M Chipset, VGA/LVDS and PCI-104 Expansion

DualView DDR3 AiRD

Features

- Socket P for Intel® Core™2 Duo processor with FSB 667/800/1066 MHz
- Intel® GM45/GL45 + ICH9M chipset
- High performance integrated graphics controller
- 6 USB 2.0 ports
- PCI-104 for 32-bit PCI expansion

▲ Top view   ▲ Rear view

System

CPU	Socket P for Intel® Core™2 Duo processor with FSB 667/800/1066 MHz
System Memory	1 x 204-pin SO-DIMM supports DDR3-800/1066 max. up to 4 GB
Chipset	Intel® GM45 + ICH9M
BIOS	AMI
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI-104 for 32-bit PCI supports 3 bus masters
Battery	Lithium 3V/220mAH
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power ON function supported
Power Requirements	Intel® Core™2 Duo T9400 @2.53 GHz, 1GB DDR3 Max. RMS: +12V @ 2.518A
Size	165 x 115 mm
Board Thickness	1.6 mm
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard and mouse 2 x RS-232; with +5V/+12V powered
SATA	2 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROMs with Realtek RTL8111B
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC662
USB	6 x USB 2.0; with USB DiskOnModule supported
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	3 Channels IN and 5 Channels OUT

Display

Chipset	Intel® GMA 4500HD graphics core
Memory Size	Intel® DVMT 5.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, accessory

Accessories

Part Number	Description	Qty
59384500100E	Audio cable w/ bracket P=2.0 L=450mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket L=180mm	1
5078B850200E	CPU heatsink w/ fan	1

Ordering Information

Standard

EP850VGGA (P/N: E38B850100)	Socket P EPIC SBC with Intel® Core™2 Duo CPU, VGA/LVDS LCD, 2 10/100/1000Mbps Ethernet, HD audio and 2 COM

EP830

Socket M Intel® Core™2 Duo EPIC SBC
with Intel® 945GME + ICH7M Chipset,
DVI-I/LVDS and Firewire

+12V only power input
Socket M
COM 2/3/4
LVDS
USB 3/4
SATA 2
PATA IDE
SMBus
Audio
PS/2
K/B+M/S
USB 1/2
Ethernet
DVI-I
D I/O
IEEE 1394a
COM 1

Fanless   Low Power   DualView

Features

- Socket M for Intel® Core™2 Duo/ Core™ Duo/ Core™ Solo processor with FSB 533/667 MHz
- Intel® 945GME + ICH7M chipset
- DVI-I interface for both CRT and DVI external display devices
- 4 COM ports, 4 USB 2.0 and 2 IEEE 1394a ports

▲ Top view

▲ Rear view

DDR2 SO-DIMM
CF type-II

System

CPU	Socket M for Intel® Core™2 Duo/ Core™ Duo/ Core™ Solo/ Celeron® M processors with FSB 533/667 MHz; Intel® Celeron® M processor ULV 423 onboard
System Memory	1 x 200-pin SO-DIMM supports DDR2-533/667 max. up to 2 GB
Chipset	Intel® 945GME + ICH7M
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	N/A
Battery	Lithium 3V/220 mAH
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power ON function supported
Power Requirements	Intel® Core™2 Duo T7600 @2.33 GHz, 1GB DDR2 Max. RMS: +12V @ 2.488A
Size	165 x 115 mm
Board Thickness	1.6 mm
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x PS/2 keyboard and mouse 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x RS-232/422/485 (COM 1); with +5V/+12V powered
SATA	2 x SATA-150
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
Audio	AC'97 Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC655
USB	4 x USB 2.0
Firewire	2 x IEEE 1394a
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmable

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x LVDS; 18/24-bit single/dual channel 1 x DVI-I

Packing List

Standard

Quick installation guide, user's manual/utility CD, accessory

Accessories

Part Number	Description	Qty
59308300000E	IEE1394 cable w/ bracket, P= 2.0mm L=330mm	1
59384500100E	Audio cable w/ bracket P=2.0 L=450mm	1
59484500010E	44-44-40 pin IDE cable L=200mm+200mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket L=180mm	1
59384500200E	COM x 2 w/ bracket, P=2.0, L=250mm	1
593826A0000E	SATA singal cable 500mm	1
50784830200E	CPU heatsink w/ fan (41 x 41mm)	1

Ordering Information

Standard

EP830DGGAF (P/N: E38B830100)	Socket M EPIC SBC with DVI-I/LVDS LCD, 2 10/100/1000 Mbps Ethernet, AC'97 audio, 4 COM ports and firewire

Optional

EP830DGGAF-1G (fanless) (P/N: E38B830101)	EPIC SBC with ULV423 Intel® Celeron® M 1GHz onboard, DVI-I/LVDS LCD, 2 10/100/1000Mbps Ethernet, AC'97 audio, 4 COM ports and firewire

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX
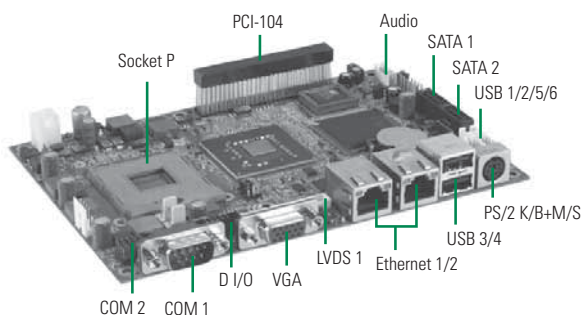
Embedded SBCs >PC/104

Industrial Mother-boards

Slot CPU Cards

Accessories

Appendix

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CAPA831

Intel® Atom™ D2550/ N2600/ N2800 3.5"
Embedded SBC with Intel® NM10 Chipset,
LVDS/DisplayPort/VGA, Dual LANs and
Audio

COM 3/4   SATA
LVDS LCD   COM 2
PCI Express Mini Card

VGA
Ethernet 1
USB 3~6
Ethernet 2
USB 1/2
DisplayPort
Audio   COM 1

Supports Intel Atom inside | Fanless | Low Power | DDR3 | CFast™ | AiRD | Full Solid Cap Design

System

CPU	Intel® Atom™ processor D2550 1.86 GHz, N2800 1.86 GHz, N2600 1.6 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-800/1066 max. up to 4 GB (N2600 supports DDR3 800 max. up to 2 GB)
Chipset	Intel® NM10
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220mAH
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power ON function supported
Power Requirement	Intel® Atom™ D2550 @ 1.86 GHz, 1GB DDR3 Max RMS: +12V @ 1.48A
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating Temperature	Standard: 0°C ~ +60°C (32°F ~ 140°F) Optional: -20°C ~ +70°C (-4°F ~ +158°F)
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	2 x RS-232/422/485 (COM 1~2); with +5V/+12V powered 2 x RS-232 (COM 3~4) ; with +5V/+12V powered
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000 Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	System Management Bus for Advanced monitoring/control
Digital I/O	8 channels IN/OUT programmable
TPM	Infineon SLB9635 with TPM 1.2 compliant

Display

Chipset	Intel® GMA 3650 graphics core for D2550/ N2800 Intel® GMA 3600 graphics core for N2600
Memory Size	Share system memory
Display Interface	1 x VGA 1 x DisplayPort 1 x LVDS; 18/24-bit single/dual channel

105

Features

- Intel® Atom™ processor D2550 (1.86 GHz)/ N2800 (1.86 GHz)/ N2600 (1.6 GHz)
- Intel® NM10 chipset
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 6 USB 2.0 ports
- 4 COM ports

CFast™

▲ Top view   ▲ Rear view   DDR3 SO-DIMM

Packing List

Ordering Information

Standard

CAPA831VPGGA-N2800 (fanless) (P/N: E38E831103)	3.5" SBC with Intel® Atom™ N2800 1.86 GHz, VGA/ DisplayPort/ LVDS, 2 10/100/1000 Ethernet and audio
CAPA831VPGGA-N2600 (fanless) (P/N: E38E831105)	3.5" SBC with Intel® Atom™ N2600 1.6 GHz, VGA/ DisplayPort/ LVDS, 2 10/100/1000 Ethernet and audio
CAPA831VPGGA-D2550 (fanless) (P/N: E38E831108)	3.5" SBC with Intel® Atom™ D2550 1.86 GHz, VGA/ DisplayPort/ LVDS, 2 10/100/1000 Ethernet and audio
CAPA831VPGGA-D2550 (P/N: E38E831106)	3.5" SBC with Intel® Atom™ D2550 1.86 GHz, VGA/ DisplayPort/ LVDS, 2 10/100/1000 Ethernet, audio and heatsink fan

Optional

CAPA831VPGGA-N2800 w/ WT (fanless)	3.5" SBC with Intel® Atom™ N2800 1.86GHz, VGA/ DisplayPort/LVDS, 2 10/100/1000 Ethernet, audio and WT (-20°C ~ +70°C)
CAPA831VPGGA-D2550 w/ WT (fanless)	3.5" SBC with Intel® Atom™ D2550 1.86GHz, VGA/ DisplayPort/LVDS, 2 10/100/1000 Ethernet, audio and WT (-20°C ~ +70°C)

* All specifications and photos are subject to change without notice.

CAPA830

Intel® Atom™ D2550/ N2600/ N2800 3.5"
Embedded SBC with Intel® NM10 Chipset,
LVDS/HDMI/VGA, Dual LANs, Audio and ZIO

Labels on board image:
USB 5/6, COM 1, COM 2, SATA, Audio, LVDS, ZIO connector (1 x PCIe x1, 1 x USB, 1 x LPC, 1 x SMbus), ZIO module AX93262, USB 3/4, Ethernet 1/2, USB 1/2, VGA, HDMI

Supports Intel Atom inside

Fanless | Low Power | Extended Temperature | DDR3
CFast™ | PCIe Mini | AiRD | Full Solid Cap Design

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

Features

- Intel® Atom™ processor D2550 (1.86 GHz)/ N2800 (1.86 GHz)/ N2600 (1.6 GHz)
- Intel® NM10 chipset
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 6 USB 2.0 ports
- 2 COM ports
- ZIO connector

Labels: SIM slot, ZIO module AX93262, CFast, PCI Express Mini Card, DDR3 SO-DIMM, PCI Express Mini Card

▲ Top view   ▲ Rear view

System

CPU	Intel® Atom™ processor D2550 1.86 GHz/ N2800 1.86 GHz/ N2600 1.6 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-800/1066 max. up to 4 GB (N2600 supports DDR3 800 max. up to 2 GB)
Chipset	Intel® NM10
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2 1 x USB, 1 x PCIe x1, 1 x LPC, 1 x SMBus through a ZIO connector
Battery	Lithium 3V/220mAH
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power ON function supported
Power Requirements	Intel® Atom™ N2600 @ 1.6 GHz, 1GB DDR3 Max. RMS: +12V @ 1.077A Intel® Atom™ N2800 @ 1.86 GHz, 1GB DDR3 Max. RMS: +12V @ 1.156A Intel® Atom™ D2550 @ 1.86 GHz, 1GB DDR3 Max. RMS: +12V @ 1.44A
Size	146 x 104 mm
Board Thickness	1.6 mm
OperatingTemperature	-20°C ~ +70°C (-4°F ~ +158°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	Refer to ordering information
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000 Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	System Management Bus for Advanced monitoring/control
Digital I/O	8 channels IN/OUT programmable
TMP	Infineon SLB9635 with TPM 1.2 compliant

Display

Chipset	Intel® GMA 3650 graphics core for D2550/ N2800 Intel® GMA 3600 graphics core for N2600
Memory Size	Share system memory
Display Interface	1 x VGA 1 x HDMI 1 x LVDS; 18/24-bit single/dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59382620000E	1 x COM w/ bracket P=2.0mm, L=300mm	1
59384500100E	Audio cable w/ bracket P=2,450mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180mm	1

Ordering Information

Standard

Models	Fanless	PCI Express Mini Card	SIM Slot	RS-232/ 422/485	RS-232
CAPA830VHGGA-D2550 (P/N: E38E830103)	Heatsink fan	1	N/A	1	1
CAPA830VHGGA-N2800 (P/N: E38E830102)	Yes	1	N/A	1	1
CAPA830VHGGA-N2600 (P/N: E38E830101)	Yes	1	N/A	1	1
CAPA830VHGGA-D2550-ZIO (P/N: E38E830106)	Heatsink fan	2	1	3	3
CAPA830VHGGA-N2800-ZIO (P/N: E38E830105)	Yes	2	1	3	3
CAPA830VHGGA-N2600-ZIO (P/N: E38E830104)	Yes	2	1	3	3

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CAPA801

Intel® Atom™ N455/ D425/ D525 3.5"
Embedded SBC with Intel® ICH8M Chipset,
LVDS VGA, Dual LANs and Audio

PCI Express Mini Card
LVDS
SATA
COM 2
COM 3/4
Audio
COM 1
USB 1/2
Ethernet 2
USB 3–6
Ethernet 1
VGA

Supports Intel® Atom inside

Fanless Low Power DDR3 PCIe Mini AiRD

Features

- Intel® Atom™ processor N455 (1.66 GHz), D425/ D525 (1.8 GHz)
- Intel® ICH8M chipset
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 6 USB 2.0
- 4 COM ports
- PCI Express Mini Card expansion

CF type-II
DDR3 SO-DIMM

▲ Top view   ▲ Rear view
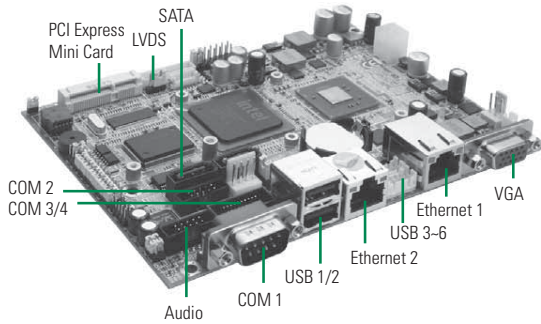
System

CPU	Intel® Atom™ processor N455 1.66 GHz, D425 1.8 GHz single core or D525 1.8 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-667/800 max. up to 4 GB (N455 supports DDR3-667 max. up to 2 GB. D425/D525 supports DDR3-800 max. up to 4 GB)
Chipset	Intel® ICH8M
BIOS	AMI
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220mAH
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power ON function supported
Power Requirements	*Intel® Atom™ N455 @1.66 GHz, 1GB DDR3 Max. RMS: +12V @ 851mA *Intel® Atom™ D425 @1.8 GHz, 1GB DDR3 Max. RMS: +12V @ 1.077A *Intel® Atom™ D525 @1.8 GHz, 1GB DDR3 Max. RMS: +12V @ 1.145A
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating Temperature	Standard: 0° ~ +60°C (32°F ~ 140°F) Optional: -20°C ~ +70°C (-4°F ~ +158°F)
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	3 x RS-232 (COM 2 ~ 4) ; with +5V/+12V powered 1 x RS-232/422/485 (COM 1) ; with +5V/+12V powered
SATA	2 x SATA-300
Hardware Monitoring	Detect system temperature, voltage and fan speed
Ethernet	1st port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® 82567V 2nd port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-in/Line-out/Speaker-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmable

Display

Chipset	Intel® GMA 3150 graphics core
Memory Size	Intel® DVMT 4.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18-bit single channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380000300E	2 x COM w/ bracket P=1.27 x 2.54 L=300mm	1
59384500100E	Audio cable w/ bracket P=2,450mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180mm	1

Ordering Information

Standard

CAPA801VGGA-N455 (fanless) (P/N: E38E801100)	3.5" SBC with Intel® Atom™ processor N455, VGA/LVDS, 2 10/100/1000Mbps Ethernet, 4 COM, 6 USB and audio
CAPA801VGGA-D525 (heatsink fan included) (P/N: E38E801102)	3.5" SBC with Intel® Atom™ processor D525, VGA/LVDS, 2 10/100/1000Mbps Ethernet, 4 COM, 6 USB and audio

Optional/MOQ

CAPA801VGGA-D425 (heatsink fan included) (P/N: E38E801101)	3.5" SBC with Intel® Atom™ processor D425, VGA/LVDS, 2 10/100/1000Mbps Ethernet, 4 COM, 6 USB and audio
AX95601 (P/N: E395601100)	LVDS converter for scale up to 1920 x 1080 48bit
AX95601 (P/N: E395601101)	LVDS converter for pixel compensated to 1280 x 1024 48bit

* All specifications and photos are subject to change without notice.

CAPA800

Intel® Atom™ N450/ D410/ D510 3.5"
Embedded SBC with Intel® ICH8M Chipset,
LVDS/VGA, Dual LANs and Audio

Labels on diagram:
- COM 3/4
- LVDS
- PCI Express Mini Card
- SATA
- COM 2
- Audio
- COM 1
- USB 1/2
- Ethernet 2
- USB 3–8
- Ethernet 1
- VGA

Icons: Supports Intel Atom inside, Fanless, Low Power, PCIe Mini, AiRD

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

Features

- Intel® Atom™ processor N450/ D410/ D510 1.66 GHz
- Intel® ICH8M chipset
- 1 DDR2 SO-DIMM supports up to 2 GB memory capacity
- 8 USB 2.0 ports
- 4 COM ports
- PCI Express Mini Card expansion

▲ Top view   ▲ Rear view

Labels: CF type-II, DDR2 SO-DIMM

System

CPU	Intel® Atom™ processor N450/ D410 1.66 GHz single core & D510 1.66 GHz dual core onboard
System Memory	1 x 200-pin SO-DIMM supports DDR2-667/800 max. up to 4 GB (N450 supports DDR2-667 max. up to 2 GB)
Chipset	Intel® ICH8M
BIOS	AMI
SSD	1 x CompactFlash™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220mAH
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power ON function supported
Power Requirements	*Intel® Atom™ N450 @1.66 GHz, 1GB DDR2 Max. RMS: +12V @ 907mA *Intel® Atom™ D410 @1.66 GHz, 1GB DDR2 Max. RMS: +12V @ 1.02A *Intel® Atom™ D510 @1.66 GHz, 1GB DDR2 Max. RMS: +12V @ 1.207A
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating Temperature	Standard: 0° ~ +60°C (32°F ~ 140°F) Optional: -20°C ~ +70°C (-4°F ~ +158°F)
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	3 x RS-232 (COM 2~4); with +5V/+12V powered 1 x RS-232/422/485 (COM1); with +5V/+12V powered
SATA	2 x SATA-300
Hardware Monitoring	Detect system temperature, voltage and fan speed
Ethernet	1st port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® 82567V 2nd port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Realtek RTL8111DL
Audio	HD Codec audio as MIC-in/Line-in/Line-out/Speaker-out with Realtek ALC662
USB	8 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmable

Display

Chipset	Intel® GMA 3150 graphics core
Memory Size	Intel® DVMT 4.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18-bit single channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

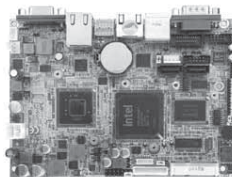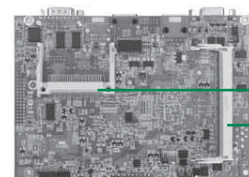| Part Number	Description	Qty
59380000300E	2 x COM w/ bracket P=1.27 x 2.54 L=300mm	1
59384500100E	Audio cable w/ bracket P=2,450mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180mm	1

Ordering Information

Standard

CAPA800VGGA-N450 (fanless) (P/N: E38E800100)	3.5" SBC with Intel® Atom™ processor N450, VGA/LVDS, 2 10/100/1000Mbps Ethernet, 4 COM, 8 USB and audio
CAPA800VGGA-D510 (heatsink fan included) (P/N: E38E800103)	3.5" SBC with Intel® Atom™ processor D510, VGA/LVDS, 2 10/100/1000Mbps Ethernet, 4 COM, 8 USB and audio

Optional/MOQ

CAPA800VGGA-D410 (heatsink fan included) (P/N: E38E800102)	3.5" SBC with Intel® Atom™ processor D410, VGA/LVDS, 2 10/100/1000Mbps Ethernet, 4 COM, 8 USB and audio
AX95601 (P/N: E395601100)	LVDS converter for scale up to 1920 x 1080 48bit
AX95601 (P/N: E395601101)	LVDS converter for pixel compensated to 1280 x 1024 48bit

SBC84833

Intel® Atom™ N270 3.5" Embedded SBC with Intel® 945GSE + ICH7M Chipset, LVDS/VGA, DualView, 4 COM and Single LAN

PCI Express Mini Card
COM 3/4
USB 3/4
LVDS
Audio

SATA

COM 2
PS/2 K/B+M/S
USB 5/6/7
USB 1/2
COM 1
Ethernet
VGA

Supports
intel Atom inside

Fanless   Low Power   DualView   PCIe Mini

System

CPU	Intel® Atom™ processor N270 1.6 GHz onboard with FSB 533 MHz
System Memory	1 x 200-pin SO-DIMM supports DDR2-400/533 max. up to 2 GB
Chipset	Intel® 945GSE + ICH7M
BIOS	AMI
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220 mAH
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power ON function supported
Power Requirements	Intel® Atom™ N270 @1.6 GHz, 1GB DDR2 Max. RMS: +12V @ 978mA
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating	Standard: 0° ~ +60°C (32°F ~ 140°F)
Temperature	Optional: -20°C ~ +70°C (-4°F ~ +158°F)
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard and mouse 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x RS-232/422/485 (COM 1); with +5V/+12V powered
SATA	2 x SATA-150
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111DL
Audio	HD Codec audio as MIC-in/Line-in/Line-out/Speaker-out with Realtek ALC662
USB	7 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmable

Features

- Intel® Atom™ processor N270 1.6 GHz with FSB 533 MHz
- Intel® 945GSE + ICH7M chipset
- With Intel® Gen 3.5 high performance integrated graphic controller for VGA and LVDS
- 7 USB 2.0 ports
- 4 COM ports
- PCI Express Mini Card expansion

CF type-II
DDR2 SO-DIMM

▲ Top view   ▲ Rear view

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18-bit single channel (SBC84833VGA-N270 w/18-bit LVDS) 1 x LVDS; 18/24-bit single/dual channel (SBC84833VGA-N270 w/24-bit LVDS)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

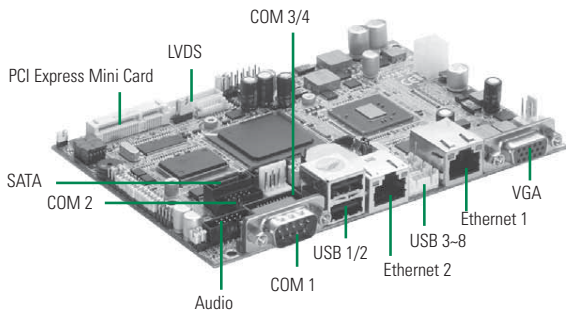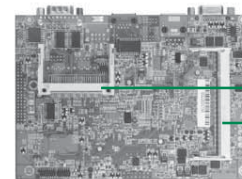| Part Number	Description	Qty
59380000300E	2 x COM w/ bracket P=1.27 x 2.54 L=300mm	1
59384500100E	Audio cable w/ bracket P=2,450mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180mm	1

Ordering Information

Standard

SBC84833VGA-N270 w/ 24-bit LVDS (P/N: E384833100)	3.5" SBC with Intel® Atom™ processor N270, VGA/24-bit LVDS, 10/100/1000Mbps Ethernet, audio, 4 COM, 7 USB and PCI Express Mini Card
SBC84833VGA-N270 w/ 18-bit LVDS (P/N: E384833101)	3.5" SBC with Intel® Atom™ processor N270, VGA/18-bit LVDS, 10/100/1000Mbps Ethernet, audio, 4 COM, 7 USB and PCI Express Mini Card

Optional/MOQ

SBC84833VGA-N270 w/18-bit LVDS & WT (P/N: E384833102)	3.5" SBC with Intel® Atom™ processor N270, VGA/18-bit LVDS, 10/100/1000Mbps Ethernet, audio, 4 COM, 7 USB and W.T. (-20°C ~ +70°C)

* W.T.: Wide Temperature

* All specifications and photos are subject to change without notice.

SBC84832

Intel® Atom™ N270 3.5" Embedded SBC with Intel® 945GSE + ICH7M Chipset, LVDS/VGA, DualView, 2 COM and Dual LANs

PCI Express Mini Card
LVDS
Audio
USB 3/4
Ethernet
VGA
PS/2 K/B+M/S
SATA
Ethernet
USB 5/6
COM 1
USB 1/2
COM 2

Supports Intel Atom inside

Fanless Low Power DualView PCIe Mini
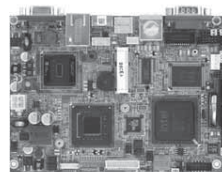
System

CPU	Intel® Atom™ processor N270 1.6 GHz onboard with FSB 533 MHz
System Memory	1 x 200-pin SO-DIMM supports DDR2-400/533 max. up to 2 GB
Chipset	Intel® 945GSE + ICH7M
BIOS	AMI
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220 mAH
Power Input	2 x 5-pin connector ATX standard power source AT Auto Power ON function supported
Power Requirements	Intel® Atom™ N270 @1.6 GHz, 1GB DDR2 Max. RMS: +5VSB @ 25.12mA, +5V @ 1.677A, +12V @ 184mA
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard and mouse 2 x RS-232; with +5V/+12V powered
SATA	2 x SATA-150
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B (Standard version supports single LAN)
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	3 channels IN and 5 channels OUT

Features

- Intel® Atom™ processor N270 1.6 GHz with FSB 533 MHz
- Intel® 945GSE + ICH7M chipset
- With Intel® Gen 3.5 high performance integrated graphics controller for VGA and LVDS
- 6 USB 2.0 ports
- 2 COM ports
- PCI Express Mini Card expansion

CF type-II
DDR2 SO-DIMM

▲ Top view   ▲ Rear view

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18-bit single channel (SBC84832VGA-N270 w/18-bit LVDS) 1 x LVDS; 18/24-bit single/dual channel (SBC84832VGGA-N270 w/24-bit LVDS; SBC84832VGA-N270 w/24-bit LVDS)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
593826A0000E	SATA singal cable 500mm/ced	1
59384500100E	Audio cable w/ bracket P=2,450mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180mm	1
59402010000E	ATX power cable 10P L=150mm	1

Optional

59382620000E	1 x COM cable w/ bracket P=2.0mm, L=300mm	

Ordering Information

Standard

SBC84832VGA-N270 w/18-bit LVDS (P/N: E384832102)	3.5" SBC with Intel® Atom™ processor N270, VGA/18-bit LVDS,10/100/1000Mbps Ethernet, 2 COM, 6 USB audio and PCI Express Mini Card
SBC84832VGA-N270 w/24-bit LVDS (P/N: E384832101)	3.5" SBC with Intel® Atom™ processor N270, VGA/24-bit LVDS, 10/100/1000Mbps Ethernet, 2 COM, 6 USB audio and PCI Express Mini Card

Optional

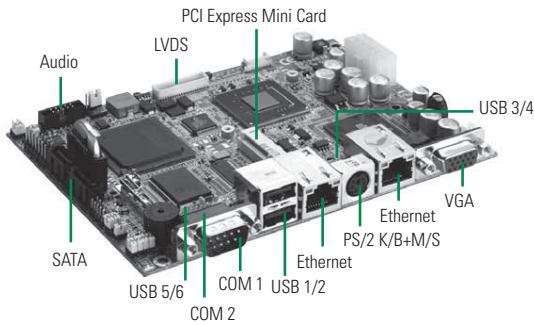| SBC84832VGGA-N270 w/24-bit LVDS (P/N: E384832100)	3.5" SBC with Intel® Atom™ processor N270, VGA/24-bit LVDS, 2 10/100/1000Mbps Ethernet, 2 COM, 6 USB audio and PCI Express Mini Card

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

SBC84831

Intel® Atom™ N270 3.5" Embedded SBC with Intel® 945GSE + ICH7M Chipset, VGA/LVDS, DualView, 6 COM and Dual LANs

USB 3/4
LVDS
Audio
SATA
COM 2~6
COM 1
USB 1/2
Ethernet 2
PS/2 K/B+M/S
Ethernet 1
VGA

Supports Intel Atom inside

Fanless | Low Power | DualView | Extended Temperature

Features

- Intel® Atom™ processor N270 1.6 GHz onboard with FSB 533 MHz
- Intel® 945GSE + ICH7M chipset
- With Intel® Gen 3.5 high performance integrated graphics controller for VGA and LVDS
- 4 USB 2.0 ports
- 6 COM ports

▲ Top view   ▲ Rear view

CF type-II
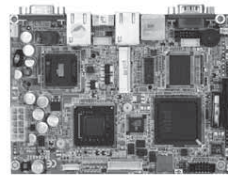
DDR2 SO-DIMM

System

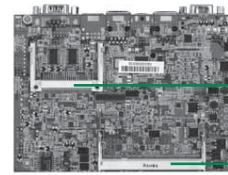|	
CPU	Intel® Atom™ processor N270 1.6 GHz onboard with FSB 533 MHz
System Memory	1 x 200-pin SO-DIMM supports DDR2-400/533 max. up to 2 GB
Chipset	Intel® 945GSE + ICH7M
BIOS	AMI
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	N/A
Battery	Lithium 3V/220 mAH
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power ON function supported
Power Requirements	Intel® Atom™ N270 @1.6 GHz, 1GB DDR2 Max. RMS: +12V @ 1.11A
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating Temperature	Standard: 0° ~ +60°C (32°F ~ 140°F) Optional: -20°C ~ +70°C (-4°F ~ +158°F)
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard and mouse 6 x RS-232; with +5V/+12V powered
SATA	2 x SATA-150
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
Audio	AC'97 Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC203
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	3 channels IN and 5 channels OUT

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18-bit single channel (SBC84831VGGA-N270 w/18-bit LVDS) 1 x LVDS; 18/24-bit single/dual channel (SBC84831VGGA-N270 w/24-bit LVDS)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
593826A0000E	SATA singal cable 500mm/red	1
59384500100E	Audio cable w/ bracket P=2,450mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180mm	1
59384500200E	2 x COM cable w/ bracket P=2.0mm, L=250mm	1

Ordering Information

Standard

SBC84831VGGA-N270 w/ 18-bit LVDS (P/N: E384831100)	3.5" SBC with Intel® Atom™ processor N270, VGA/18-bit LVDS, 2 10/100/1000Mbps Ethernet, 6 COM, 4 USB audio and CF
SBC84831VGGA-N270 w/ 24-bit LVDS (P/N: E384831101)	3.5" SBC with Intel® Atom™ processor N270, VGA/24-bit LVDS, 2 10/100/1000Mbps Ethernet, 6 COM, 4 USB audio and CF

Optional/MOQ

SBC84831VGGA-N270 w/ 24-bit LVDS & WT (P/N: E384831111)	3.5" SBC with Intel® Atom™ processor N270, VGA/24-bit LVDS, 2 10/100/1000Mbps Ethernet, 6 COM, 4 USB audio, CF and W.T. (-20°C ~ +70°C)
SBC84831VGGA-N270 w/ 18-bit LVDS & WT (P/N: E384831110)	3.5" SBC with Intel® Atom™ processor N270, VGA/18-bit LVDS, 2 10/100/1000Mbps Ethernet, 6 COM, 4 USB audio, CF and W.T. (-20°C ~ +70°C)

* W.T.: Wide Temperature

* All specifications and photos are subject to change without notice.

SBC84826

Intel® Atom™ Z510PT 3.5" Embedded SBC
with Intel® System Control Hub US15WPT
Chipset, VGA/LVDS, Dual LANs and PCI
Express Mini Card (-40°C ~ +85°C)

LVDS
PCI Express Mini Card
Audio
USB 3/4
COM 3/4
SATA
VGA
Ethernet 1
PS/2 K/B+M/S
USB 1/2
Ethernet 2
COM 1
COM 2

Supports Intel Atom inside

Fanless | Low Power | Extended Temperature | PCIe Mini | Full Solid Cap Design

Features

- Intel® Atom™ processor Z510PT 1.1 GHz with FSB 400 MHz
- Intel® system control hub US15WPT chipset
- Integrated graphics controller for VGA and LVDS
- 4 USB 2.0 ports
- 4 COM ports
- PCI Express Mini Card expansion (USB only)
- Supports wide range temperature of -40°C ~ +85°C

CF type-II
DDR2 SO-DIMM

▲ Top view   ▲ Rear view
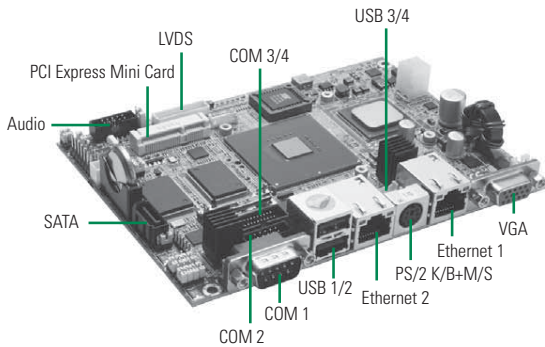
System

CPU	Intel® Atom™ processor Z510PT 1.1 GHz onboard with FSB 400 MHz
System Memory	1 x 200-pin SO-DIMM supports DDR2-400/533 max. up to 2 GB
Chipset	Intel® system control Hub US15WPT
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II socket
Watchdog Timer	255 levels, 0~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2 (USB only, PCIe x1 optional)
Battery	Lithium 3V/195mAH
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power ON function supported
Power Requirement	Intel® Atom™ Z510PT @1.1 GHz, 1GB DDR2 Max. RMS: +12V @ 651mA
Size	146 x 102 mm
Board thickness	1.6 mm
Operating Temperature	-40°C ~ +85°C (-40°F ~ +185°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard and mouse 4 x RS-232; with +5V/+12V powered
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1st port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82574IT 2nd port as 10/100Mbps with AX88772B
Audio	HD Codec audio as MIC-in/Line-in/Line-out/Speaker-out with Realtek ALC662
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	3 channels IN and 5 channels OUT

Display

Chipset	Intel® GMA 500 graphics core
Memory Size	Max. up to 256 MB
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380000300E	2 x COM w/ bracket P=1.27 x 2.54 L=300mm	1
59384500100E	Audio cable w/ bracket P=2,450mm	1
59382620000E	1 x COM cable w/ bracket P=2.0mm, L=300mm	1

Ordering Information

Standard

SBC84826VGEA -Z510PT-RC w/WT (P/N: E384826100)	3.5" SBC with Intel® Atom™ processor Z510PT 1.1 GHz, VGA/LVDS, 1 10/100/100 Mbps & 1 10/100Mbps Ethernet, 4 COM, 4 USB, audio and W.T. (-40°C ~ +85°C)

* W.T.: Wide Temperature

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX
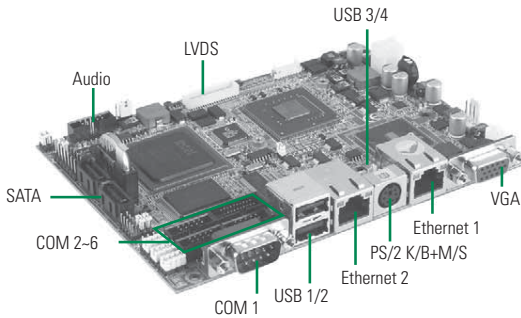
Embedded SBCs >PC/104

Industrial Mother-boards

Slot CPU Cards

Accessories

Appendix

SBC84823

Intel® Atom™ Z510PT/ Z520PT 3.5"
Embedded SBC with Intel® System Control
Hub US15WPT Chipset, VGA/LVDS,
DualView and PCI Express Mini Card
(-40°C ~ +85°C)

PCI Express Mini Card
Audio
LVDS
USB 5/6
VGA
Ethernet
PS/2 K/B+M/S
USB 3/4
USB 1/2
SATA
COM 2
COM 1
COM 3/4

Supports Intel Atom inside

Fanless | Low Power | DualView | Extended Temperature | PCIe Mini | Full Solid Cap Design

System

CPU	Intel® Atom™ processor Z510PT 1.1 GHz and Z520PT 1.33 GHz onboard with FSB 400/533 MHz
System Memory	1 x 200-pin SO-DIMM supports DDR2-400/533 max. up to 2 GB
Chipset	Intel System Controller Hub US15WPT
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2 (USB only, PCIe x1 optional)
Battery	Lithium 3V/195 mAH
Power Input	2 x 2-pin connector +8V~+24V DC-in (+12 powered COM and LVDS inverter are supported with DC-in over +12V) AT Auto Power ON function supported

Power Requirements	*Intel® Atom™ Z520PT @1.33 GHz, 1GB DDR2
	  Max. RMS: +12V @ 736mA
	*Intel® Atom™ Z510PT @1.1 GHz, 1GB DDR2
	  Max. RMS: +12V @ 732mA

Size	146 x 104 mm
Board Thickness	1.6 mm
Operating Temperature	-40°C ~ +85°C (-40°F ~ +185°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard and mouse 4 x RS-232; with +5V/+12V powered
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82574IT
Audio	HD Codec audio as MIC-in/Line-in/Line-out/Speaker-out with Realtek ALC886
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	3 channels IN & 5 channles OUT

Features

- Intel® Atom™ processor Z510PT (1.1 GHz)/ Z520PT (1.3 GHz) series with FSB 533 MHz
- Intel® system control hub US15WPT chipset
- Integrated graphics controller for VGA and LVDS
- 6 USB 2.0 ports
- 4 COM ports
- PCI Express Mini Card expansion (USB only)
- Supports wide range temperature of -40°C ~ +85°C

CF type-II
DDR2 SO-DIMM

▲ Top view   ▲ Rear view

Display

Chipset	Intel® GMA 500 graphics core
Memory Size	Max. up to 256 MB
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380000300E	2 x COM w/ bracket P=1.27 x 2.54 L=300mm	1
59384500100E	Audio cable w/ bracket P=2, 450mm	1
59382620000E	1 x COM cable w/ bracket P=2.0mm, L=300mm	1

Ordering Information

Standard

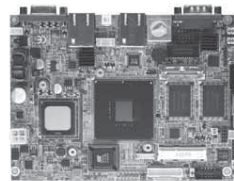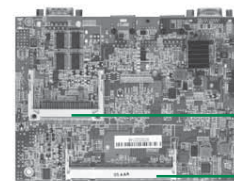|	
SBC84823VGA-Z510PT -RC w/WT (P/N: E384823100)	3.5" SBC with Intel® Atom™ processor Z510PT 1.1 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, 4 COM, 6 USB, audio and W.T. (-40°C ~ +85°C)
SBC84823VGA-Z520PT -RC w/WT (P/N: E384823102)	3.5" SBC with Intel® Atom™ processor Z520PT 1.3 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, 4 COM, 6 USB, audio and W.T. (-40°C ~ +85°C)

* W.T.: Wide Temperature

* All specifications and photos are subject to change without notice.

SBC84710

VIA V4 3.5" Embedded SBC with VIA
CX700M Chipset, VGA/LVDS, DualView,
4 COM and PC/104

Fanless Low Power DualView PCIe Mini

System

CPU	VIA V4 compliant Eden/C7 processor onboard with FSB 400/533 MHz
System Memory	1 x 200-pin SO-DIMM supports DDR2-400/533 max. up to 1 GB
Chipset	VIA CX700M
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Board Unique ID	Board Unique ID (optional)
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x MiniPCI 1 x PC/104 for 16-bit ISA bus
Battery	Lithium 3V/220 mAH
Power Input	2 x 5-pin connector ATX standard power source Optional DC-12V in only Optional DC-5V in only (+12V is required for +12V powered COM and LVDS inverter) AT Auto Power on function supported
Power Requirements	*VIA Eden @ 1.0 GHz, 1GB DDR2 Max. RMS: +5V @ 1.77A, +12V @ 130.7mA *VIA Eden @ 500 MHz, 1GB DDR2 Max. RMS: +5VSB @ 92.7mA, +5V @ 1.575A, +12V @ 67.99mA
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-133 1 x PS/2 keyboard and mouse 1 x RS-232/422/485 (COM 1); with +5V/+12V powered 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x LPT; with SPP/EPP/ECP supported
SATA	1 x SATA-150
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	1 port as 10/100Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8139DL
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with VIA VT1708B
USB	4 x USB 2.0
Digital I/O	N/A

Features

- Low power fanless VIA V4 Eden/C7 processor onboard
- VIA CX700M chipset
- DualView with different content & resolution
- 4 COM ports and 4 USB 2.0 ports
- PC/104 and MiniPCI slots for expansion

▲ Top view   ▲ Rear view

Display

Chipset	VIA CX700M intergrated
Memory Size	Max. up to 128 MB
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59484500010E	44-44-40 pin IDE cable L=200mm+200mm	1
59402010000E	ATX power cable 10P L=150mm	1
59384500000E	COM + printer cable w/ bracket P=2.0, L=250mm	1
59384500100E	Audio cable w/ bracket P=2.0 L=450mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket L=180mm	1
59380000300E	COM port x 2 w/ bracket, P=1.27 x 2.54 L=300mm	1
593826A0000E	SATA singal cable 500mm	1

Ordering Information

Standard

SBC84710VEA-1GE (P/N: E384710119)	3.5" SBC with V4 Eden 1 GHz CPU, VGA/ LVDS, 10/100Mbps Ethernet, 4 COM, 4 USB, audio and 4 COM ports

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
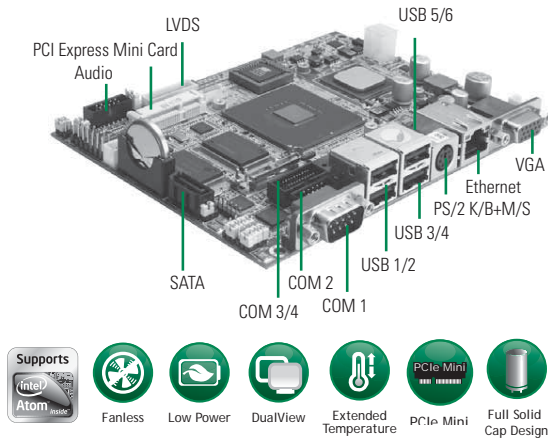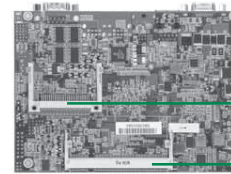>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

CAPA112

AMD G-Series APU 3.5″ Embedded SBC with AMD A55E FCH, LVDS/VGA, Dual LANs and Audio

NEW

Labels on board: Audio, LPT, LVDS, USB 3 ~ 6, Power conn., SATA, VGA, Ethernet 1, PS/2 K/B+M/S, Ethernet 2, USB 1/2, COM 1, COM 2, COM 3, COM 4, PC104

Fanless | Low Power | DualView | Extended Temperature | DDR3 | PCIe Mini | CFast™

Features

- AMD G-Series APU T16R (615 MHz)/ T40R (1.0 GHz)/ T40E (1.0 GHz)
- AMD A55E FCH
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 6 USB 2.0 ports
- 4 COM ports

▲ Top view   ▲ Rear view

CFast, DDR 3 SO-DIMM, PCI Express Mini Card

System

CPU	AMD G-Series APU T16R 615 MHz/ T40R 1.0 GHz single core/ T40E 1.0 GHz onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1066 max. up to 4 GB
Chipset	AMD FCH A55E
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card w/ mSATA support 1 x PC/104 for 16bit ISA bus
Battery	Lithium 3V/220mAH
Power Input	2 x 5-pin connector ATX standard power source DC+5V only (+12V is required for +12V powered COM and LVDS inverter) AT Auto Power ON function supported
Power Requirement	TBD
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating Temperature	Standard: 0°C ~ +60°C (32°F ~ 140°F) Optional: -25°C ~ +70°C (-13°F ~ +158°F)
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x PS/2 keyboard and mouse 1 x LPT; with SPP/EPP/ECP supported
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 port 10/100/1000 Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmed

Display

Chipset	AMD G-Series APU integrated graphic engine – Radeon™ HD6250
Memory Size	Max. up to 2 GB in 4 GB DDR3 module
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD and cable

Cable

Part Number	Description	Qty
59382620000E	1 x COM w/bracket P=2.0mm, L=300mm	1
59384500100E	Audio cable w/bracket P=2,450mm	1
59382631000E	2 x USB 2.0 wafer cable w/bracket	1

Ordering Information

Standard

CAPA112VGGA-T16R	3.5" SBC with AMD G-Series APU T16R 615 MHz and FCH A55E chipset, VGA/LVDS, 2 10/100/1000Mbps Ethernet and audio
CAPA112VGGA-T40R	3.5" SBC with AMD G-Series APU T40R 1.0 GHz and FCH A55E chipset VGA/LVDS, 2 10/100/1000Mbps Ethernet and audio
CAPA112VGGA-T40E	3.5" SBC with AMD G-Series APU T40E 1.0 GHz and FCH A55E chipset VGA/LVDS, 2 10/100/1000Mbps Ethernet and audio

* All specifications and photos are subject to change without notice.

CAPA111

AMD G-Series APU 3.5" Embedded SBC with AMD A50M FCH, LVDS/VGA, Dual LANs and Audio

COM 3/4
LVDS
PCI Express Mini Card
COM 2
VGA
Ethernet 1
USB 3~6
Ethernet 2
USB 1/2
SATA
COM 1
Audio

AMD EMBEDDED SOLUTIONS G-SERIES APU | Fanless | Low Power | DualView | DDR3 | PCIe Mini | AiRD

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

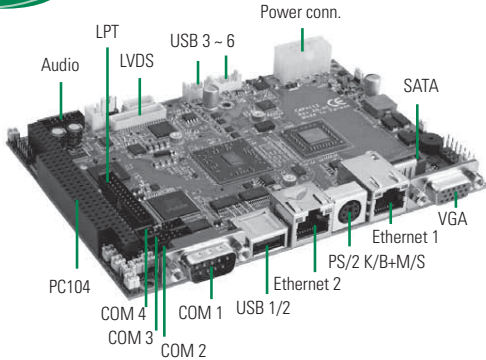Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

Features

- AMD G-Series APU T40R (1.0 GHz)/ T40E (1.0 GHz)
- AMD A50M FCH
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 2 SATA-600 supported
- 6 USB 2.0 ports
- 4 COM ports
- DirectX 11 support

▲ Top view

▲ Rear view

CF type-II
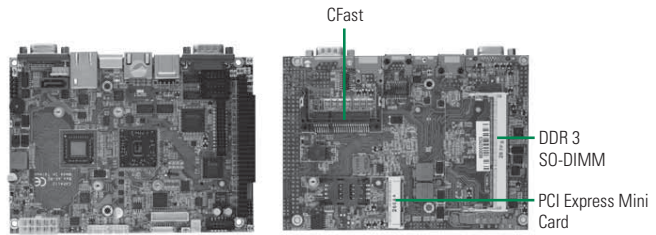DDR SO-DIMM

System

CPU	AMD G-Series APU T40R 1.0 GHz single core and T40E 1.0 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1066 max. up to 4 GB
Chipset	AMD A50M FCH
BIOS	AMI UEFI BIOS
SSD	1 x CompactFlash™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220mAH
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power ON function supported
Power Requirement	AMD G-Series APU T40E @ 1.0 GHz, 1GB DDR3 Max. RMS: +12V @ 1.06A AMD G-Series APU T40R @ 1.0 GHz, 1GB DDR3 Max. RMS: +12V @ 0.96A
Size	146 x 104mm
Board Thickness	1.6 mm
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 3 x RS-232 (COM 2/3/4) ; with +5V/+12V powered
SATA	2 x SATA-600
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports 10/100/1000 Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio as MIC-in/Line-in/Line-out/Speaker-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control (optional)
Digital I/O	8 channels IN/OUT programmable

Display

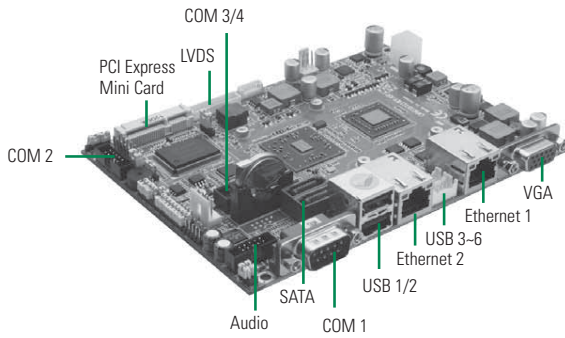|	
Chipset	AMD G-Series APU integrated graphic engine T40E/T40R - Radeon™ HD6250
Memory Size	Max. up to 2 GB in 4 GB DDR3 module
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59382620000E	1 x COM w/ bracket P=2.0mm, L=300mm	1
59384500100E	Audio cable w/ bracket P=2,450mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180mm	1

Optional

59380000300E	2 x COM w/ bracket P=1.27 x 2.54 L=300mm	

Ordering Information

Standard

CAPA111VGGA-T40R (P/N: E38E111101)	3.5" SBC with AMD G-Series APU T40R 1.0 GHz, A50M chipset, VGA/LVDS, 2 10/100/1000Mbps Ethernet, 2 SATA-600, 4 COM, 6 USB and audio
CAPA111VGGA-T40E (P/N: E38E111100)	3.5" SBC with AMD G-Series APU T40E 1.0 GHz and A50M chipset VGA/LVDS, 2 10/100/1000Mbps Ethernet, 2 SATA-600, 4 COM, 6 USB and audio

CAPA110

AMD G-Series APU 3.5" Embedded SBC
with AMD A50M FCH, LVDS/DisplayPort/
VGA, Dual LANs and Audio

SATA
COM 1
LVDS
PCI Express Mini Card
COM2
COM 3/4
Audio
DisplayPort
USB 1/2
Ethernet 2
USB 3~6
Ethernet 1
VGA

AMD EMBEDDED SOLUTIONS G-SERIES APU

Low Power | DualView | DDR3 | PCIe Mini | AiRD

System

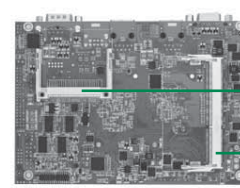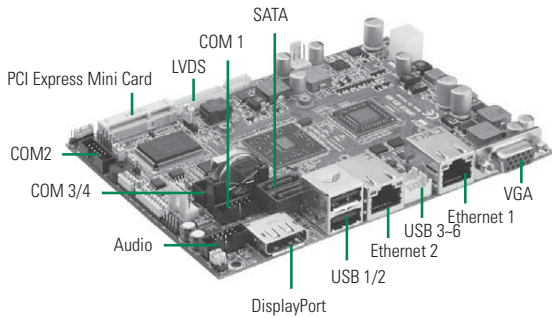| CPU	AMD G-Series APU T56N 1.65 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3 1333 max. up to 4 GB
Chipset	AMD A50M FCH
BIOS	AMI UEFI BIOS
SSD	1 x CompactFlash™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220mAH
Power Input	3. 2 x 2-pin connector +12V DC-in only AT Auto Power ON function supported
Power Requirement	AMD G-Series APU T56N @ 1.65 GHz, 1GB DDR3 Max. RMS: +12V @ 1.5A
Size	146 x 104mm
Board Thickness	1.6 mm
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485 (COM1); with +5V/+12V powered 3 x RS-232 (COM2/3/4) ; with +5V/+12V powered
SATA	2 x SATA-600
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 port 10/100/1000 Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio as MIC-in/Line-in/Line-out/Speaker-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control (optional)
Digital I/O	8 channels IN/OUT programmable

Display

Chipset	AMD G-series APU integrated graphic engine T56N - Radeon™ HD6320
Memory Size	Max. up to 2 GB in 4 GB DDR3 module
Display Interface	1 x VGA 1 x DisplayPort 1 x LVDS; 18/24-bit single/dual channel

Features

- AMD G-Series APU dual core T56N (1.65 GHz)
- AMD A50M FCH
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 2 SATA-600 supported
- 6 USB 2.0 ports
- 4 COM ports
- DirectX 11 support

CF type-II
DDR
SO-DIMM

▲ Top view   ▲ Rear view

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59382620000E	1 x COM w/ bracket P=2.0mm, L=300mm	1
59384500100E	Audio cable w/ bracket P=2, 450mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180mm	1

Optional

59380000300E	2 x COM w/ bracket P=1.27 x 2.54 L=300mm	
59070213000E	DisplayPort to VGA cable, L=100mm	
59040131000E	DisplayPort to DVI cable, L=220mm	
59050203000E	DisplayPort to HDMI cable, L=185mm	
59091501000E	DisplayPort to DisplayPort cable, L=1500mm	

Ordering Information

Standard

CAPA110VPGGA-T56N (P/N: E38E110105)	3.5" SBC with AMD G-Series APU T56N 1.65 GHz, VGA/ DisplayPort/LVDS, 2 10/100/1000Mbps Ethernet 2 SATA-600, 4 COM, 6 USB and audio

* All specifications and photos are subject to change without notice.

SBC84622

AMD LX800 3.5" Embedded SBC with Dual LANs, 4 COM, 4 USB 2.0 and VGA/LVDS/TTL

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

AMD EMBEDDED SOLUTIONS G-SERIES APU

Low Power

DualView

Features

- Low power fanless AMD LX800 processor
- AMD CS5536AD chipset
- Dual 10/100Mbps Ethernet supported
- 4 COM ports and 4 USB 2.0 ports
- VGA and LVDS/TTL LCD

▲ Top view

▲ Rear view

System

CPU	AMD LX800 processor onboard
System Memory	1 x 200-pin SO-DIMM supports DDR-333/400 max. up to 1 GB
Chipset	AMD CS5536AD
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	N/A
Battery	Lithium 3V/220 mAH
Power Input	1 x 4-pin connector +5V DC-in only (+12V is required for +12V powered COM and LVDS inverter) AT Auto Power On function supported
Power Requirements	AMD LX800 @ 500 MHz, 1GB DDR Max. RMS: +5V @ 1.544A, +12V @ 33mA
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating	Standard: 0° ~ +60°C (32°F ~ 140°F)
Temperature	Optional: -25°C ~ +70°C (-13°F ~ +158°F)
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE PATA-100 1 x PS/2 keyboard and mouse 4 x RS-232; with +5V/+12V powered 1 x LPT; with SPP/EPP/ECP supported
SATA	N/A
Hardware Monitoring	Detect CPU/system temperature and voltage
Digital I/O	3 channel IN and 5 channel OUT
Ethernet	2 ports as 10/100Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8139DL
Audio	AC'97 Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC203
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control

Display

Chipset	AMD LX intergrated
Memory Size	Max. up to 254 MB
Display Interface	1 x VGA 1 x LCD interface for TTL (max. up to 24-bit) or LVDS (18/24-bit single channel)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59384500200E	COM w/ bracket P=2.0mm L=250mm	1

Ordering Information

Standard

SBC84622VEEA-500 W/TTL LCD (P/N: E384622100)	3.5" SBC with AMD LX800, VGA/TTL LCD, 2 10/100Mbps Ethernet 4 COM, 4 USB and AC'97 audio
SBC84622VEEA-500 w/ 24-bit LVDS LCD (P/N: E384622102)	3.5" SBC with AMD LX800, VGA/24-bit LVDS LCD, 2 10/100Mbps Ethernet 4 COM, 4 USB and AC'97 audio
SBC84622VEEA-500 w/ 18-bit LVDS LCD (P/N: E384622101)	3.5" SBC with AMD, VGA/18-bit LVDS LCD, 2 10/100Mbps Ethernet 4 COM, 4 USB and AC'97 audio

* W.T.: Wide Temperature

SBC84621

AMD LX800 3.5" Embedded SBC with Dual LANs, 4 COM, 4 USB 2.0 and VGA/LVDS (-40°C ~ +85°C)

Fanless   Low Power   Extended Temperature
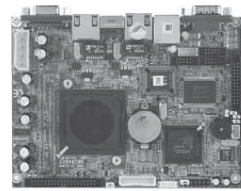
System

CPU	AMD LX800 processor onboard
System Memory	1 x 200-pin SO-DIMM supports DDR-333/400 max. up to 1 GB
Chipset	AMD CS5536AD
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Board Unique ID	Board unique ID (optional)
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Mini PCI 1 x PC/104 for 16-bit ISA bus
Battery	Lithium 3V/196 mAH
Power Input	2 x 5-pin connector +5V DC-in only (+12V is required for +12V powered COM and LVDS inverter) AT Auto Power ON function supported
Power Requirements	AMD LX800 @ 500 MHz, 512MB DDR Max. RMS: +5VSB @ 62.91mA, +3.3V @ 24.31mA, +5V @ 1.071A, +12V @ 24mA, -12V @ 25mA
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating	Standard: 0° ~ +60°C (32°F ~ 140°F)
Temperature	Optional: -40°C ~ +85°C (-40°F ~ +185°F) -25°C ~ +70°C (-13°F ~ +158°F)
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x FDD (optional) 1 x PS/2 keyboard and mouse 1 x RS-232/422/485 (COM 1); with +5V/+12V powered 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x LPT; with SPP/EPP/ECP supported
SATA	N/A
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 ports as 10/100Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8139DL
Audio	AC'97 Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC203
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	Refer to Ordering information

Display

Chipset	AMD LX integrated
Memory Size	Max. up to 254 MB
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single channel

Features

- Low power fanless AMD LX800 processor
- AMD CS5536AD chipset
- Dual 10/100Mbps Ethernet
- 4 COM ports and 4 USB 2.0 ports
- PC/104 and MiniPCI slots for expansion
- VGA and LVDS LCD
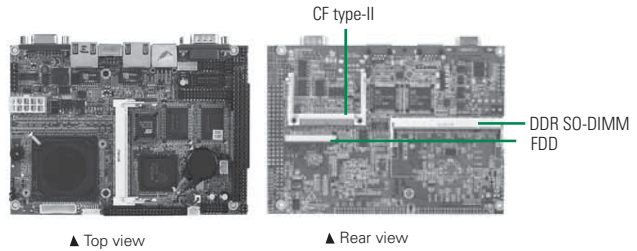
▲ Top view   ▲ Rear view

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	SBC84621 VEEA-500	SBC84621 VEA-500	SBC84621 VEE-500
		Qty	Qty	Qty
59484500010E	44-44-40 pin IDE cable	1	1	1
59402010000E	ATX power cable 10P	1	1	1
59384500000E	COM + printer cable	1	1	
59384500100E	Audio cable w/ bracket	1	1	
59382631000E	2 x USB 2.0 wafer cable	1	1	1
59380000300E	COM port x 2 w/ bracket	1	1	
59380010300E	COM port x 1 w/ bracket			1

Ordering Information

Standard

Models	CPU	LCD	Ethernet	Audio	COM	PC/104	D I/O
SBC84621 VEEA-500 (P/N: E384621100)	LX800 500 MHz	VGA/18-bit LVDS	2	Yes	4	Yes	8-In and 8-Out
SBC84621 VEA-500 (P/N: E384621101)	LX800 500 MHz	VGA/18-bit LVDS	1	Yes	4	Yes	8-In and 8-Out
SBC84621 VEE-500 (P/N: E384621102)	LX800 500 MHz	VGA/18-bit LVDS	2	N/A	2	N/A	3-In and 5-Out
SBC84621 VEEA-500 (P/N: E384621106)	LX800 500 MHz	VGA/24-bit LVDS	2	Yes	4	Yes	8-In and 8-Out
SBC84621 VEA-500 (P/N: E384621107)	LX800 500 MHz	VGA/24-bit LVDS	1	Yes	4	Yes	8-In and 8-Out

Optional

Models	CPU	LCD	Ethernet	Audio	COM	PC/104	D I/O	W.T.
SBC84621 VEA-500 (P/N: E384621109)	LX800 500 MHz	VGA/18-bit LVDS	1	Yes	4	Yes	8-In and 8-Out	-25°C~ +70°C
SBC84621 VEA-500 (P/N: E384621123)	LX800 500 MHz	VGA/24-bit LVDS	1	Yes	4	Yes	8-In and 8-Out	-25°C~ +70°C

* All specifications and photos are subject to change without notice.

SBC84620

AMD LX800 3.5" Embedded SBC with Dual LANs, 4 COM, 4 USB 2.0 and VGA/TTL (-40°C ~ +85°C)

Labels around the board image:
- D I/O
- Audio
- Battery
- IDE
- MiniPCI
- LPT
- USB 3/4
- LVDS
- Power conn.
- SMBus
- PC/104
- COM 2/4
- COM 3
- COM 1
- USB 1/2
- Ethernet
- PS/2 K/B+M/S
- Ethernet
- VGA

Icons: Fanless | Low Power | Extended Temperature

Features

- Low power fanless AMD LX800 processor
- AMD CS5536AD chipset
- Dual 10/100 Mbps Ethernet
- 4 COM ports and 4 USB 2.0 ports
- PC/104 and MiniPCI slots for expansion
- VGA and TTL LCD

- CF type-II
- DDR SO-DIMM
- FDD

▲ Top view   ▲ Rear view

System

CPU	AMD LX800 processor onboard
System Memory	1 x 200-pin SO-DIMM supports DDR-333/400 max. up to 1 GB
Chipset	AMD CS5536AD
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Board Unique ID	Board unique ID (optional)
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x MiniPCI 1 x PC/104 for 16-bit ISA bus
Battery	Lithium 3V/196 mAH
Power Input	2 x 5-pin connector +5V DC-in only (+12V is required for +12V powered COM and LVDS inverter) AT Auto Power ON function supported
Power Requirements	AMD LX800 @ 500 MHz, 1GB DDR Max. RMS: +5VSB @ 98mA, +5V @ 1.295A, +12V @ 21mA, -12V @ 21mA
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating	Standard: 0° ~ +60°C (32°F ~ 140°F)
Temperature	Optional: -40°C ~ +85°C (-40°F ~ +185°F) -25°C ~ +70°C (-13°F ~ +158°F)
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

|	
MIO	1 x IDE; PATA-100 1 x FDD 1 x PS/2 keyboard and mouse 1 x RS-232/422/485 (COM 1); with +5V/+12V powered 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x LPT; with SPP/EPP/ECP supported
SATA	N/A
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 ports as 10/100Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8139DL
Audio	AC'97 Codec audio as MIC-in / Line-in/ Line-out/ Speaker-out with Realtek ALC203
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	Refer to ordering information

Display

Chipset	AMD LX intergrated
Memory Size	Max. up to 254 MB
Display Interface	1 x VGA 1 x TTL LCD; max. up to 24-bit

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	SBC84620 VEEA-500 Qty	SBC84620 VEA-500 Qty	SBC84620 VEE-500 Qty
59484500010E	44-44-40 pin IDE cable	1	1	1
59402010000E	ATX power cable 10P	1	1	1
59384500000E	COM + printer cable	1	1	
59384500100E	Audio cable w/ bracket	1	1	
59382631000E	2 x USB 2.0 wafer cable	1	1	1
59380000300E	COM port x 2 w/ bracket	1	1	
59380010300E	COM port x 1 w/ bracket			1

Ordering Information

Standard

Models	CPU	LCD	Ethernet	Audio	COM	PC/104	D I/O
SBC84620 VEEA-500 (P/N: E384620100)	LX800 500 MHz	VGA/TTL	2	Yes	4	Yes	8-In and 8-out
SBC84620 VEA-500 (P/N: E384620101)	LX800 500 MHz	VGA/TTL	1	Yes	4	Yes	8-In and 8-out
SBC84620 VEE-500 (P/N: E384620102)	LX800 500 MHz	VGA/TTL	2	N/A	2	N/A	3-In and 5-out

Optional

Models	CPU	LCD	Ethernet	Audio	COM	PC/104	D I/O	W.T.
SBC84620 VEE-500 (P/N: E384620114)	LX800 500 MHz	VGA/TTL	2	N/A	2	N/A	3-In and 5-out	-25°C~ +70°C
SBC84620 VEEA-500 (P/N: E384620113)	LX800 500 MHz	VGA/TTL	2	Yes	4	Yes	8-In and 8-out	-25°C~ +70°C

* W.T.: Wide Temperature

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

NANO831

Intel® Atom™ N2600 Nano-ITX SBC with
Intel® NM10 Chipset, LVDS/VGA, Dual LANs
and Audio

PCI Express
Mini Card

COM 1   SATA

USB 5/6

LVDS

Audio

Ethernet+ USB 3/4

Ethernet+ USB 1/2

VGA+COM 2

+12V power input

Supports Intel Atom inside

Fanless | Low Power | DDR3 | CFast™ | PCIe Mini | AiRD | Full Solid Cap Design

System

CPU	Intel® Atom™ processor N2600 1.6 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-800 max. up to 2 GB
Chipset	Intel® NM10
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220mAH
Power Input	DC power jack connector +12V DC-in only AT Auto Power ON function supported
Power Requirement	Intel® Atom™ N2600 @1.6 GHz, 1GB DDR3 Max. RMS: +12V @ 0.995A
Size	120 x 120 mm
Board Thickness	1.6 mm
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 1 x RS-232 (COM 2) ; with +5V/+12V powered
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000 Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmable
TPM	Infineon SLB9635 with TPM 1.2 compliant

Display

Chipset	Intel® GMA 3600 graphics core
Memory Size	Share system memory
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Features

- Intel® Atom™ processor N2600 (1.6 GHz)
- Intel® NM10 chipset
- 1 DDR3 SO-DIMM supports up to 2 GB memory capacity
- 6 USB 2.0 ports
- 2 COM ports
- Supports CFast™

DDR3
SO-DIMM

CFast™

▲ Top view   ▲ Rear view

▲ Internal power connector (Optional)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59382620000E	1 x COM cable w/ bracket P=2.0 mm, L=300mm	1

Optional

59382631000E	2 x USB 2.0 wafer cable w/ bracket 180mm

Ordering Information

Standard

NANO831VGGA-N2600 (P/N: E38K831100)	Nano-ITX SBC with Intel® Atom® processor N2600, VGA/ LVDS, 2 10/100/1000Mbps Ethernet 2 COM, 6 USB, CFast and audio

* All specifications and photos are subject to change without notice.

NANO830

Intel® Atom™ D2550 Nano-ITX SBC with
Intel® NM10 Chipset, LVDS/DisplayPort/
VGA, Dual LANs and Audio

- PCI Express Mini Card
- COM 2
- COM 1
- SATA
- USB 5/6
- LVDS
- Audio
- Ethernet+ USB 3/4
- Ethernet+ USB 1/2
- VGA+DisplayPort
- +12V power input

Low Power   DDR3   CFast™   PCIe Mini   AiRD   Full Solid Cap Design
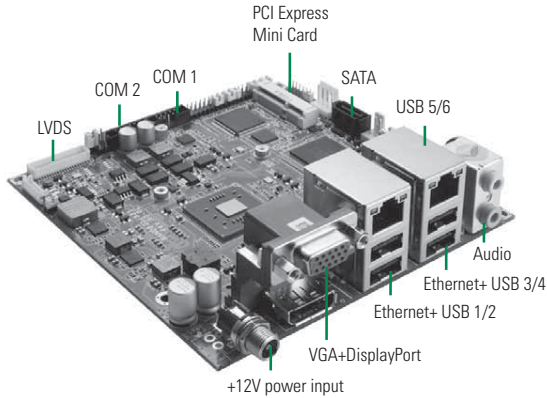
System

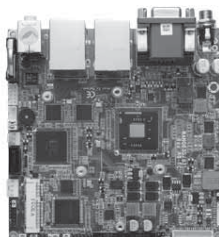| CPU	Intel® Atom™ processor D2550 1.86 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1066 max. up to 4 GB
Chipset	Intel® NM10
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220mAH
Power Input	DC power jack connector +12V DC-in only AT Auto Power ON function supported
Power Requirement	Intel® Atom™ D2550 @1.86 GHz, 1GB DDR3 Max. RMS: +12V @ 1.25A
Size	120 x 120 mm
Board Thickness	1.6 mm
OperatingTemperature	-20° ~ +70°C (-4°F ~ +158°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

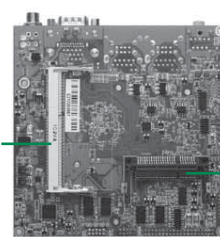| MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 1 x RS-232 (COM 2) ; with +5V/+12V powered
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000 Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmable
TPM	Infineon SLB9635 with TPM 1.2 compliant

Display

Chipset	Intel® GMA 3650 graphics core
Memory Size	Share system memory
Display Interface	1 x VGA 1 x DisplayPort 1 x LVDS; 18/24-bit single/dual channel

Features

- Intel® Atom™ processor D2550 (1.86 GHz)
- Intel® NM10 chipset
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 6 USB 2.0 ports
- 2 COM ports
- Supports CFast™

▲ Top view

- DDR3 SO-DIMM
- CFast™

▲ Rear view

▲ Internal power connector (Optional)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59382620000E	1 x COM cable w/ bracket P=2.0 mm, L=300mm	1

Optional

59382631000E	2 x USB 2.0 wafer cable w/ bracket 180mm	
59070213000E	DisplayPort to VGA cable, L=100mm	
59040131000E	DisplayPort to DVI cable, L=220mm	
59050203000E	DisplayPort to HDMI cable, L=185mm	
59091501000E	DisplayPort to DisplayPort cable, L=1500mm	

Ordering Information

Standard

NANO830VPGGA-D2550 (heatsink fan included) (P/N: E38K830100)	Nano-ITX SBC with Intel Atom processor D2550 1.86 GHz, VGA/DisplayPort/LVDS, 2 10/100/1000Mbps Ethernet 2 COM, 6 USB, CFast and audio

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Mother-boards

Slot CPU Cards

Accessories

Appendix

NANO100

AMD G-Series APU Nano-ITX SBC with
AMD A50M FCH, LVDS/DisplayPort/VGA,
Dual LANs and Audio

Labels: LVDS, COM 2, COM 1, PCI Express Mini Card, SATA, USB 5/6, Audio, Ethernet+ USB 3/4, Ethernet+ USB 1/2, VGA+DisplayPort, +12V power input

Icons: AMD EMBEDDED SOLUTIONS G-SERIES APU, Low Power, DualView, DDR3, CFast™, PCIe Mini, AiRD, Full Solid Cap Design

Features

- AMD G-Series APU T56N (1.65 GHz)
- AMD A50M FCH
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 6 USB 2.0 ports
- Supports CFast™
- DirectX 11 supported

▲ Top view

▲ Rear view

Labels: DDR3 SO-DIMM, CFast™

▲ Internal power connector (Optional)

System

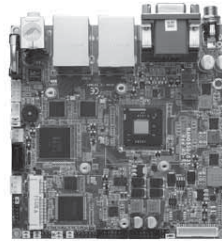|	
CPU	AMD G-Series APU T56N 1.65 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1333 max. up to 4 GB
Chipset	AMD A50M FCH
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220mAH
Power Input	DC power jack connector +12V DC-in only AT Auto Power ON function supported
Power Requirement	AMD G-Series APU T56N @1.65 GHz, 1GB DDR3 Max. RMS: +12V @ 1.65A
Size	120 x 120mm
Board Thickness	1.6 mm
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 1 x RS-232 (COM 2) ; with +5V/+12V powered
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmable

Display

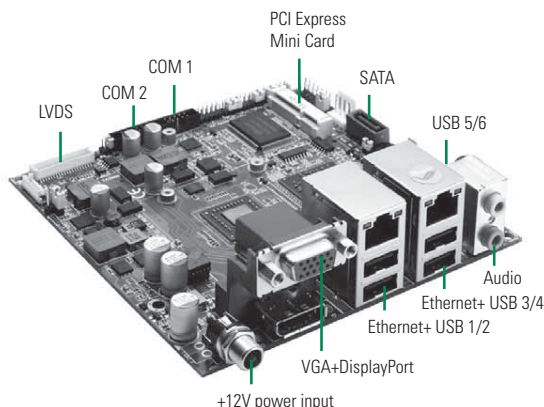|	
Chipset	AMD G-Series APU integrated graphic engine T56N-Radeon™ HD6320
Memory Size	Max. up to 2 GB in 4 GB DDR3 module
Display Interface	1 x VGA 1 x DisplayPort 1 x LVDS; 18/24-bit single/dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59382620000E	1 x COM cable w/ bracket P=2.0 mm, L=300mm	1

Optional

59382631000E	2 x USB 2.0 wafer cable w/ bracket 180mm	
59070213000E	DisplayPort to VGA cable, L=100mm	
59040131000E	DisplayPort to DVI cable, L=220mm	
59050203000E	DisplayPort to HDMI cable, L=185mm	
59091501000E	DisplayPort to DisplayPort cable, L=1500mm	

Ordering Information

Standard

NANO100VPGGA -T56N (P/N: E38K100100)	Nano-ITX SBC with AMD G-Series APU T56N 1.65 GHz, A50M FCH, VGA/DisplayPort/ LVDS, 2 10/100/1000Mbps Ethernet, 2 COM, 6 USB, CFast and audio

* All specifications and photos are subject to change without notice.

NANO101

AMD G-Series APU Nano-ITX SBC with
AMD A50M FCH, LVDS/VGA, Dual LANs
and Audio

LVDS
COM 1
PCI Express
Mini Card
SATA
USB 5/6
Audio
Ethernet+ USB 3/4
Ethernet+ USB 1/2
+12V power input
VGA+COM 2

AMD EMBEDDED SOLUTIONS G-SERIES APU

Fanless | Low Power | DualView | DDR3

CFast™ | PCIe Mini | AiRD | Full Solid Cap Design

System

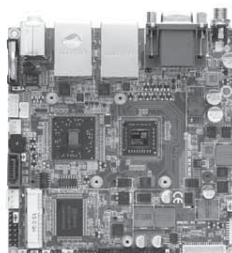| CPU	AMD G-Series APU T40R 1.0 GHz single core or T40E 1.0 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1066 max. up to 4 GB
Chipset	AMD A50M FCH
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220mAH
Power Input	DC power jack connector +12V DC-in only AT Auto Power ON function supported
Power Requirement	AMD G-Series APU T40E @1.0 GHz, 1GB DDR3 Max. RMS: +12V @ 1.11A AMD G-Series APU T40R @1.0 GHz, 1GB DDR3 Max. RMS: +12V @ 1.06A
Size	120 x 120mm
Board Thickness	1.6 mm
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

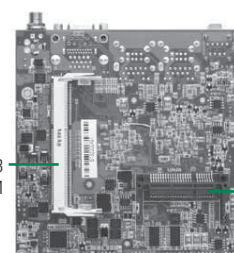| MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 1 x RS-232 (COM 2) ; with +5V/+12V powered
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 ports as 10/100/1000 Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmable

Display

Chipset	AMD G-Series APU integrated graphic engine T40E/ T40R-Radeon™ HD6250
Memory Size	Max. up to 2 GB in 4 GB DDR3 module
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

*All specifications and photos are subject to change without notice.
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Features

- AMD G-Series APU T40R (1.0 GHz)/ T40E (1.0 GHz)
- AMD A50M FCH
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 6 USB 2.0 ports
- Supports CFast™
- DirectX 11 supported

DDR3 SO-DIMM

CFast™

▲ Top view   ▲ Rear view

▲ Internal power connector (Optional)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59382620000E	1 x COM cable w/ bracket P=2.0 mm, L=300mm	1

Optional

59382631000E	2 x USB 2.0 wafer cable w/ bracket 180mm	

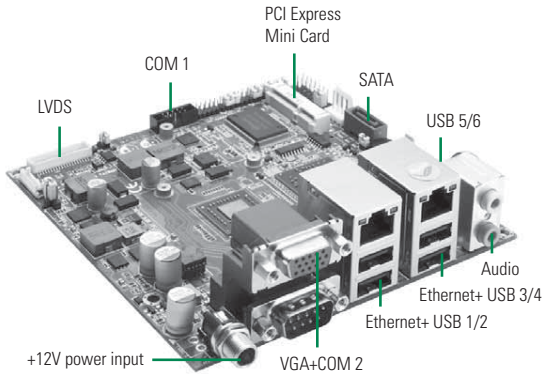## Ordering Information

Standard

NANO101VGGA-T40R (P/N: E38K101100)	Nano-ITX SBC with AMD G-Series APU T40R 1.0 GHz, A50M FCH, VGA/LVDS, 2 10/100/1000Mbps Ethernet, 2 COM, 6 USB, CFast and audio
NANO101VGGA-T40E (P/N: E38K101101)	Nano-ITX SBC with AMD G-Series APU T40E 1.0 GHz, A50M FCH, VGA/LVDS, 2 10/100/1000Mbps Ethernet, 2 COM, 6 USB, CFast and audio

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Mother-boards

Slot CPU Cards

Accessories

Appendix

PICO100

AMD G-Series APU Pico-ITX SBC with
AMD A50M FCH, LVDS/DisplayPort (VGA),
LAN and Audio

Ethernet | DisplayPort | +5V power input | SATA | LVDS | USB 1/2/3/4 | K/B+M/S | COM 1/2 | Audio | VGA

Fanless | Low Power | DDR3 | Full Solid Cap Design

Features

- AMD G-Series APU T40E (1.0 GHz)/ T40R (1.0 GHz)
- AMD A50M FCH
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 4 USB 2.0 ports
- 2 COM ports

▲ Side view

DDR3 SO-DIMM

▲ Rear view
CF type-II
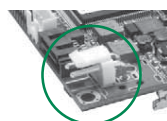
▲ Internal power connector (Optional)

▲ Assembly view

System

CPU	AMD G-Series APU T40E 1.0 GHz dual core or T40R 1.0 GHz single core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1066 max. up to 4 GB
Chipset	AMD A50M FCH
BIOS	AMI UEFI BIOS
SSD	1 x CompactFlash™
Watchdog Timer	255 levels, 1 ~ 255 sec.
Expansion Interface	N/A
Battery	Lithium 3V/220mAH
Power Input	DC power jack connector +5V DC-in only AT Auto Power On function supported
Power Requirements	*AMD G-Series APU T40E @1.0 GHz, 1GB DDR3 Max. RMS: +5V @ 3.16A *AMD G-Series APU T40R @1.0 GHz, 1GB DDR3 Max. RMS: +5V @ 2.93A
Size	100 x 72 mm
Board Thickness	1.6 mm
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard and mouse 2 x RS-232
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port 10/100/1000 Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	N/A

Display
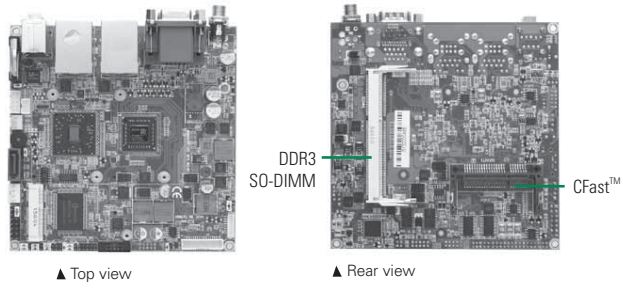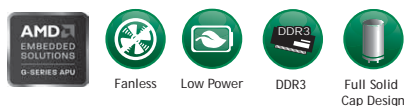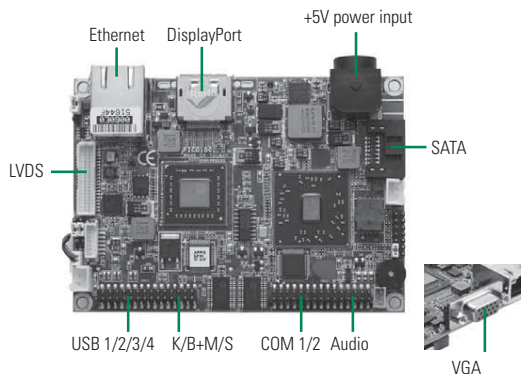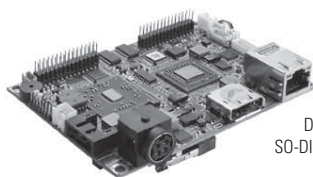
Chipset	AMD G-Series APU integrated graphics engine T40E/ T40R - Radeon™ HD6250
Memory Size	Max. up to 2 GB in 4 GB DDR3 module
Display Interface	1 x VGA or 1 x DisplayPort 1 x LVDS; 18 bit single channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable and accessories

Accessories

Part Number	Description	Qty
E393238101	AX93238 I/O board	1
594PICO8200E	DC power cable	1
59411208000E	SATA cable	1
59405300610E	SATA power cable	1

Ordering Information

Standard

PICO100VGA-T40E (P/N: E38H100109)	Pico-ITX SBC with AMD G-Series APU T40E 1.0 GHz processor, VGA/LVDS, 1 10/100/1000Mbps Ethernet, 2 COM, SATA-600 and audio
PICO100PGA-T40E (P/N: E38H100111)	Pico-ITX SBC with AMD G-Series APU T40E 1.0 GHz processor, DisplayPort/LVDS, 1 10/100/1000Mbps Ethernet, 2 COM, SATA-600 and audio
PICO100VGA-T40R (fanless) (P/N: E38H100110)	Pico-ITX SBC with AMD G-Series APU T40R 1.0 GHz processor, VGA/LVDS, 1 10/100/1000Mbps Ethernet, 2 COM, SATA-600 and audio
PICO100PGA-T40R (fanless) (P/N: E38H100112)	Pico-ITX SBC with AMD G-Series APU T40R 1.0 GHz processor, DisplayPort/LVDS, 1 10/100/1000Mbps Ethernet, 2 COM, SATA-600 and audio

Optional

5938H820010E	COM x 2 + audio cable
5938H820000E	USB x 4 + Mini DIN cable
5948H823000E	DC power cable (for internal power connector)
59040131000E	DisplayPort to DVI cable, L=220mm
59050203000E	DisplayPort to HDMI cable, L=185mm
59091501000E	DisplayPort to DisplayPort cable, L=1500mm

* All specifications and photos are subject to change without notice.

PICO831

Intel® Atom™ N2600/ N2800 Pico-ITX SBC
with Intel® NM10 Chipset, LVDS/ VGA, LAN
and Audio
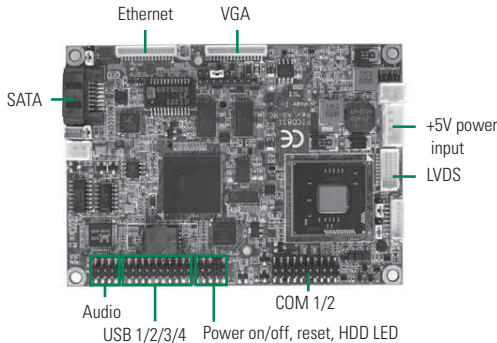
Ethernet   VGA

SATA

+5V power
input

LVDS

Audio
USB 1/2/3/4   Power on/off, reset, HDD LED   COM 1/2

Supports Intel® Atom inside	Fanless	Low Power	DualView	DDR3
PCIe Mini	+5V	AiRD	Full Solid Cap Design	

System

CPU	Intel® Atom™ processor N2800 1.8 GHz, N2600 1.6 GHz dual core onboard
System Memory	1 x 204-pin DDR3-800/1066 SO-DIMM max. up to 4 GB (N2600 supports DDR3 800 max. up to 2 GB)
Chipset	Intel® NM10
BIOS	AMI UEFI BIOS
SSD	SATA SSD 16 GB (optional)
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x full-Size Mini PCI Express Mini Card with mSATA supported 1 x half-Size Mini PCI Express Mini Card
Battery	Lithium 3V/220mAH
Power Input	1 x 4-pin connector +5V DC-in only AT Auto Power On function supported
Power Requirements	Intel® Atom™ N2800 @ 1.86 GHz, 1GB DDR3 Max. RMS: +5V @ 2.9A Intel® Atom™ N2600 @ 1.6 GHz, 1GB DDR3 Max. RMS: +5V @ 2.6A
Size	100 x 72 mm
Board Thickness	1.6 mm
Temperature	0°C ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

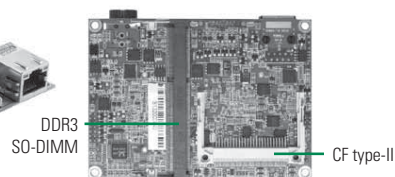|	
MIO	1 x RS-232/422/485 1 x RS-232
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100/1000 Mbps supports Wake-on-LAN, RPL/ PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	N/A

Display

Chipset	Intel® integrated Gfx graphic engine
Memory Size	Share System memory
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single channel

* All specifications and photos are subject to change without notice.
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SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

Features

- Intel® Atom™ processor N2800 (1.8 GHz)/ N2600 (1.6 GHz) dual core onboard
- Intel® NM10 chipset
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 4 USB 2.0 ports
- 2 COM ports

Full-size PCI Express Mini Card
SATA Nandrive (optional)

SIM Slot
DDR3
SO-DIMM

Half-size PCI Express
Mini Card   ▲ Rear view

▲ Assembly view

Packing List

Standard

Quick installation guide, user's manual/utility CD and accessories

Accessories

Part Number	Description	Qty
85932651000E	AX93265 I/O board	1
85932671000E	AX93267 I/O board	1
59406308010E	SATA cable	1
59405300610E	SATA power cable	1
5078H831000E	Heatspreader	1
5078H100200E	Heatsink	1

Optional

594H8302800E	USB CABLE 20x2P P=2.0 L=200mm	
594H8303000E	AUDIO CABLE 20x2P P=2.0 L=200mm	
594H8301600E	Power/Reset button + LED CABLE	
594H8302100E	COM CABLE 10x2P P=2.0 L=200mm	
59340000200E	USB+AUDIO+LED CABLE L=200mm	

Ordering Information

Standard

PICO831VGA-N2600 (P/N: E38H831101)	Pico-ITX SBC with Intel® Atom™ processor N2600 1.6 GHz, VGA/LVDS, 1 10/100/1000Mbps, 2 COM, 4 USB and Audio
PICO831VGA-N2800 (P/N: E38H831100)	Pico-ITX SBC with Intel® Atom™ processor N2800 1.8 GHz, VGA/LVDS, 1 10/100/1000Mbps, 2 COM, 4 USB and Audio

PICO830

Intel® Atom™ N2600/ N2800 Pico-ITX
SBC with Intel® NM10 Chipset, LVDS/
DisplayPort or VGA, LAN and Audio

System

CPU	Intel® Atom™ processor N2800 1.86 GHz/ N2600 1.6 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-800/1066 max. up to 4 GB (N2600 supports DDR3 800 max. up to 2 GB)
Chipset	Intel® NM10
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1 ~ 255 sec.
Expansion Interface	N/A
Battery	Lithium 3V/220mAH
Power Input	DC power jack connector +5V DC-in only AT Auto Power On function supported
Power Requirements	Intel® Atom™ N2800 @ 1.86 GHz, 1GB DDR3 Max. RMS: +5V @ 3A Intel® Atom™ N2600 @ 1.6 GHz, 1GB DDR3 Max. RMS: +5V @ 2.7A
Size	100 x 72 mm
Board Thickness	1.6 mm
Operating Temperature	0°C ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

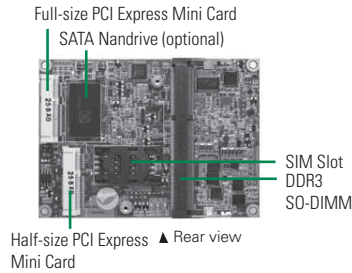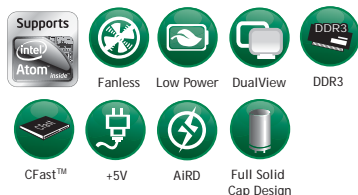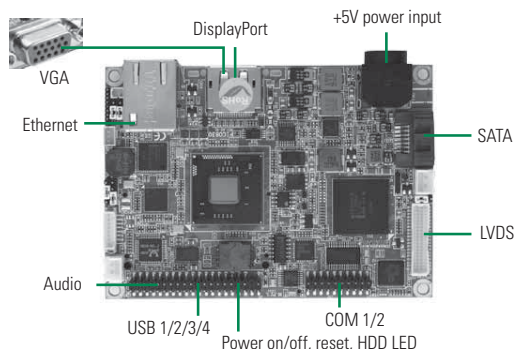|	
MIO	1 x RS-232/422/485 1 x RS-232
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100/1000 Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	N/A

Display

Chipset	Intel® GMA 3650 graphics core for N2800 Intel® GMA 3600 graphics core for N2600
Memory Size	Share system memory
Display Interface	1 x VGA or 1 x DisplayPort 1 x LVDS; 18/24-bit single/dual channel

Features

- Intel® Atom™ processor N2800 (1.86 GHz)/ N2600 (1.6 GHz)
- Intel® NM10 chipset
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 4 USB 2.0 ports
- 2 COM ports

▲ Side view

▲ Rear view

▲ Assembly view
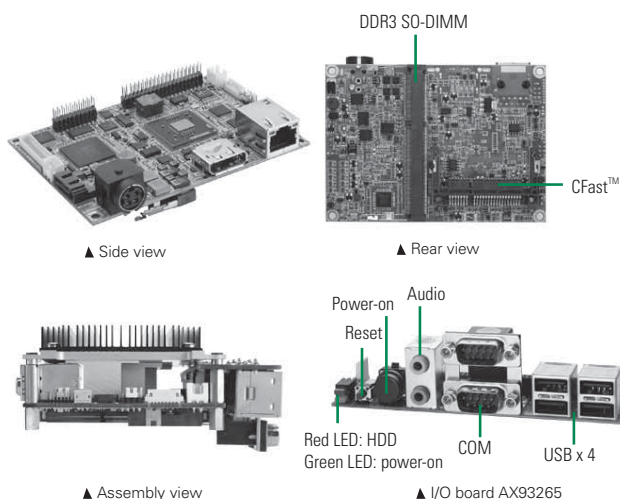
▲ I/O board AX93265

Packing List

Standard

Quick installation guide, user's manual/utility CD and accessories

Accessories

Part Number	Description	Qty
85932651000E	AX93265 I/O board	1
594PICO8200E	DC power cable	1
594K5328200E	SATA+power wire cable L=60mm	1
5078H830000E	Heatspreader	1
5078H100200E	Heatsink	1

Optional

Part Number	Description
59040131000E	DisplayPort to DVI cable, L=220mm
59050203000E	DisplayPort to HDMI cable, L=185mm
59091501000E	DisplayPort to DisplayPort cable, L=1500mm
594H8302800E	USB CABLE 20x2P P=2.0 L=200mm
594H8303000E	AUDIO CABLE 20x2P P=2.0 L=200mm
594H8301600E	Power/Reset button + LED CABLE
594H8302100E	COM CABLE 10x2P P=2.0 L=200mm
59340000200E	USB+AUDIO+LED CABLE L=200mm

Ordering Information

Standard

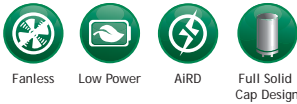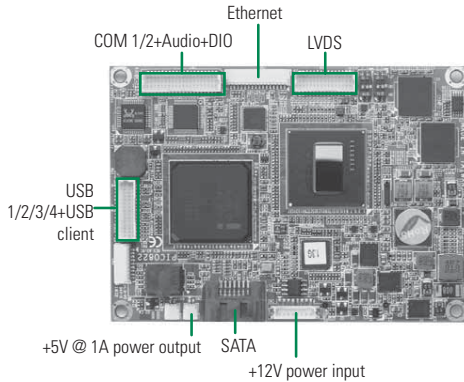|	
PICO830VGA-N2600 (P/N: E38H830100)	Pico-ITX SBC with Intel® Atom™ processor N2600 1.6 GHz, VGA/LVDS, 1 10/100/1000Mbps, 2 COM and audio
PICO830PGA-N2600 (P/N: E38H830102)	Pico-ITX SBC with Intel® Atom™ processor N2600 1.6 GHz, DisplayPort/LVDS, 1 10/100/1000Mbps, 2 COM and audio
PICO830VGA-N2800 (P/N: E38H830101)	Pico-ITX SBC with Intel® Atom™ rocessor N2800 1.8 GHz, VGA/LVDS, 1 10/100/1000Mbps, 2 COM and audio
PICO830PGA-N2800 (P/N: E38H830103)	Pico-ITX SBC with Intel® Atom™ processor N2800 1.8 GHz, DisplayPort/LVDS, 1 10/100/1000Mbps, 2 COM and audio

* All specifications and photos are subject to change without notice.

PICO822

Intel® Atom™ E620T/ E680T Pico-ITX SBC
with LVDS, SATA, LAN and SSD

- Ethernet
- COM 1/2+Audio+DIO
- LVDS
- USB 1/2/3/4+USB client
- +5V @ 1A power output
- SATA
- +12V power input

Fanless | Low Power | AiRD | Full Solid Cap Design

System

CPU	Intel® Atom™ E620T/ E680T
System Memory	1 GB DDR2-800 onboard
Chipset	Intel® EG20T PCH
BIOS	AMI UEFI BIOS
SSD	SATA SSD 8GB/16GB/32GB (optional)
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x SDVO, 1 x PCIe x1, 1 x UART, 1 x SMBus, 1 x USB (through expansion connector)
Battery	Lithium 3V/ 225mAH
Power Input	Customed connector via power cable +12V DC-in only
Power Requirements	Intel® Atom™ E620T 600 MHz, 1GB DDR2 Max RMS: +12V @ 1.8A Intel® Atom™ E680T 1.6 GHz, 1GB DDR2 Max RMS: +12V @ 2.1A
Size	100 x 72 mm
Board Thickness	1.6 mm
Operating Temperature	Refer to ordering information
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

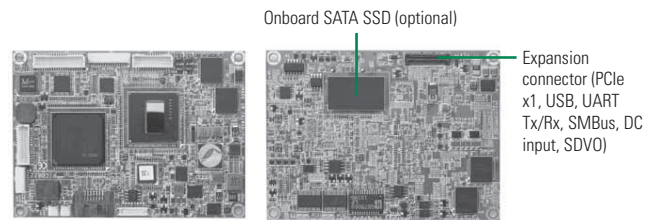|	
MIO	2 x RS-232
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/System temperature and voltage
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio as Mic-in/Line-in/Line-out with Realtek ALC886
USB	4 x USB 2.0 1 x client USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT

Display

Chipset	Intel® GMA 600 graphics core
Memory Size	256MB
Display Interface	1 x LVDS; 18/24-bit single channel

Features

- Ultra low power Intel® Atom™ E620T/ E680T
- Intel® EG20T PCH
- 2 COM and 4 USB 2.0 + 1 client USB 2.0 supported
- LVDS LCD and backlight brightness control
- 1 10/100/1000Mbps Ethernet
- Onboard SATA SSD (optional)

Onboard SATA SSD (optional)

Expansion connector (PCIe x1, USB, UART Tx/Rx, SMBus, DC input, SDVO)

▲ Top view   ▲ Rear view

PCI Express Mini card

▲ Side view with heatspreader   VGA ▲ AX93268
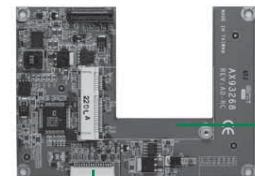
Packing List

Standard

Quick installation guide, user's manual/utility CD and accessories

Accessories

Part Number	Description	Qty
594H8222700E	Ethernet cable w/ RJ45	1
594H8223000E	Cable for COM, audio	1
594H8222810E	USB cable w/o USB client	1
594H8220200E	Power cable	1
594H8220600E	SATA power cable	1
59406308010E	SATA power cable	1
5078H822100E	Heatsink	1
5078H822000E	Heatspreader	1

Ordering Information

Standard

Model	Display Board	Operation Temperature	PCI Express Mini Card
PICO822LGA-E620T (P/N: E38H822101)	AX93221 24bit LVDS to DVI-D	-20°C ~ +70°C (-4°F ~ +158°F)	N/A
PICO822LGA-E680T (P/N: E38H822105)	AX93221 24bit LVDS to DVI-D	-20°C ~ +70°C (-4°F ~ +158°F)	N/A
PICO822LGA-E620T w/AX93268 (P/N: E38H822107)	AX93268 VGA	0°C ~ +60°C (32°F ~ 140°F)	1
PICO822LGA-E680T w/AX93268 (P/N: E38H822108)	AX93268 VGA	0°C ~ +60°C (32°F ~ 140°F)	1

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

PICO821

Intel® Atom™ Z510/ Z530 Pico-ITX SBC
with LVDS, PATA, LAN and CF

Ethernet
USB1/2/3/4
LVDS
+5V power input
SMBus
USB client
K/B & M/S
COM
DIO
IDE
Audio

Supports
intel
Atom inside

Fanless   Low Power

Features

- Ultra low power Intel® Atom™ processor Z510/ Z530
- Intel® System Controller Hub US15W
- 1 COM and 5 USB 2.0 (1 client port) supported
- LVDS LCD supported
- 1 PATA and 1 CompactFlash™
- 1 10/100/1000Mbps Ethernet
- Minimum 9 Watt power requirement

DDR2
SO-DIMM
CF type-II

▲ Rear view

System

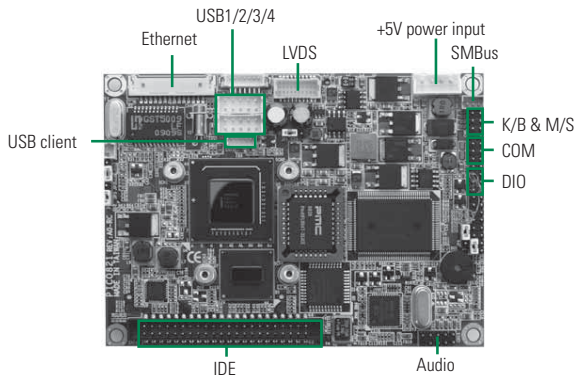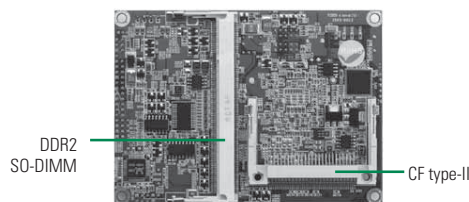|	
CPU	Intel® Atom™ processor Z510 1.1 GHz and Z530 1.6 GHz onboard with FSB 400/533 MHz
System Memory	1 x 200-pin SO-DIMM supports DDR2-400/533 max. up to 2 GB
Chipset	Intel® System Controller Hub US15W
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	N/A
Battery	Lithium 3V/225 mAH
Power Input	1 x 4-pin connector +5V DC-in only AT Auto Power on function supported
Power Requirements	*Intel® Atom™ Z530 @1.6 GHz, 1GB DDR2 Max. RMS: +5V @ 1.59A *Intel® Atom™ Z510 @1.1 GHz, 1GB DDR2 Max. RMS: +5V @ 1.387A
Size	100 x 72 mm
Board Thickness	1.6 mm
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x PS/2 keyboard and mouse 1 x RS-232
SATA	N/A
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN RPL/PXE Boot ROM with Realtek RTL8111B
Audio	HD Codec audio as Mic-in/Line-in/Line-out with Realtek ALC886
USB	4 x USB 2.0 1 x client USB 2.0
SMBus	System Management Bus for advanced monitoring/control interface
Digital I/O	6 channels IN/OUT programmable

Display

Chipset	Intel® GMA 500 graphics core
Memory Size	Max. up to 256MB
Display Interface	1 x LVDS; 18/24-bit single channel

Packing List

Standard

Quick installation guide, user's manual/utility CD and accessories

Accessories

Part Number	Description	Qty
E393221101	AX93221 24bit LVDS to DVI-D Bd.	1
5938H821040E	PICO821 LVDS to AX93221 cable	1
59382631000E	2 x USB cable	2
5938H821030E	USB client port cable	1
5938H821000E	COM + KB cable	1
5938H821010E	audio cable	1
85932021000E	AX93202 RJ-45 Bd.	1
59093201000E	PICO821 to AX93202 cable	1
5938H821020E	Power in cable	1

Ordering Information

Standard

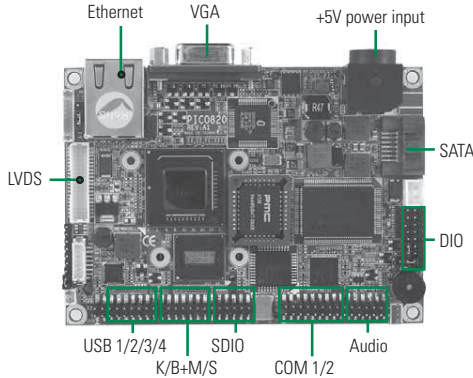|	
PICO821LGA-Z510 (P/N:E38H821100)	Pico-ITX SBC with Intel® Atom™ processor Z510 1.1 GHz, LVDS, PATA, 10/100/1000Mbps Ethernet, CF and DVI-D kit
PICO821LGA-Z530 (P/N:E38H821102)	Pico-ITX SBC with Intel® Atom™ processor Z530 1.6 GHz, LVDS, PATA, 10/100/1000Mbps Ethernet, CF and DVI-D kit

* All specifications and photos are subject to change without notice.

PICO820

Intel® Atom™ Z510/ Z530 Pico-ITX SBC
with VGA/LVDS, SATA, LAN and SDIO

Ethernet VGA +5V power input
LVDS
SATA
DIO
USB 1/2/3/4 SDIO Audio
K/B+M/S COM 1/2

Supports
Intel
Atom
inside

Fanless Low Power

System

CPU	Intel® Atom™ processor Z510 1.1 GHz and Z530 1.6 GHz onboard with FSB 400/533 MHz
System Memory	1 x 200-pin SO-DIMM supports DDR2-400/533 max. up to 2 GB
Chipset	Intel System Controller Hub US15W
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	N/A
Battery	Lithium 3V/225 mAH
Power Input	DC power jack connector +5V DC-in only AT Auto Power On function supported
Power Requirements	*Intel® Atom™ Z530 @1.6 GHz, 1GB DDR2 Max. RMS: +5V @ 1.625A *Intel® Atom™ Z510 @1.1 GHz, 1GB DDR2 Max. RMS: +5V @ 1.451A
Size	100 x 72 mm
Board Thickness	1.6 mm
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

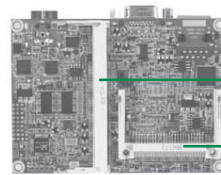|	
MIO	1 x PS/2 (through I/O pin-header) 2 x RS-232 (through I/O pin-header) 1 x SDIO (through I/O pin-header)
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC886
USB	4 x USB 2.0
SMBus	System management bus for advanced monitoring/control interface
Digital I/O	4 channels IN and 4 channels OUT

Display

|	
Chipset	Intel® GMA 500 graphics core
Memory Size	Max. up to 256MB
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single channel

Features

- Ultra low power Intel® Atom™ processor Z510/ Z530
- Intel® System Controller Hub US15W
- Compact size: 100 x 72mm
- 2 COM and 4 USB 2.0 supported
- CRT/LVDS LCD supported
- 1 SATA-300 port
- 1 10/100/1000Mbps Ethernet
- 1 SDIO port
- Minimum 8 Watt power requirement

DDR2 SO-DIMM
CF type-II

▲ Rear view

▲ Internal power connector (Optional)

K/B+M/S COM SD USB x 4
Audio
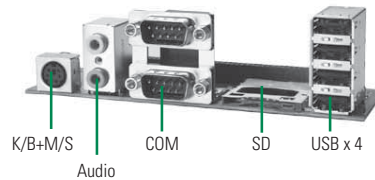
▲ I/O board

Packing List

Standard

Quick installation guide, user's manual/utility CD and accessories

Accessories

Part Number	Description	Qty
E393238100	AX93238 I/O board	1
594PICO8200E	DC power cable	1
59411208000E	SATA cable	1
59405300610E	SATA power cable	1

Ordering Information

Standard

PICO820VGA-Z510 (P/N: E38H820100)	Pico-ITX SBC with Intel® Atom™ processor Z510 1.1 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, SATA-300 and HD audio
PICO820VGA-Z530 (P/N: E38H820101)	Pico-ITX SBC with Intel® Atom™ processor Z530 1.6 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, SATA-300 and HD audio

Optional

PICO820VGA-Z510 90D PWR Connector (P/N: E38H820109)	Pico-ITX SBC with Intel® Atom™ processor Z510 1.1 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, SATA-300, 90D power connector and HD audio
PICO820VGA-Z530 90D PWR Connector (P/N: E38H820110)	Pico-ITX SBC with Intel® Atom™ processor Z530 1.6 GHz, VGA/LVDS, 10/100/1000Mbps Ethernet, SATA-300, 90D power connector and HD audio
5938H820010E	COM x 2 + audio cable
5938H820000E	USB x 4 + Mini DIN cable
5948H823000E	DC power cable (for internal power connector)

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104
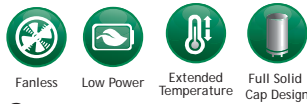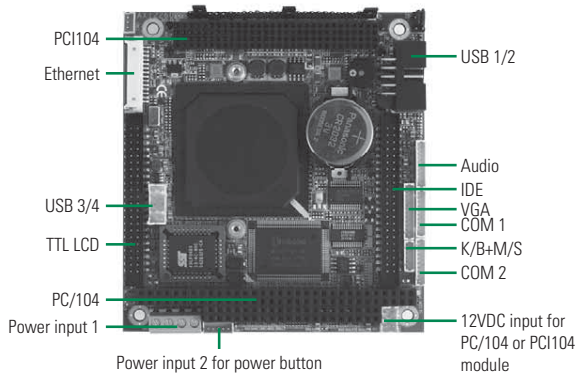
Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

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AX12260

AMD LX PC/104 CPU Module with VGA/
TTL, USB DoM and PC/104-Plus Expansion

PCI104
Ethernet
USB 1/2
Audio
IDE
USB 3/4
VGA
COM 1
TTL LCD
K/B+M/S
COM 2
PC/104
Power input 1
12VDC input for
PC/104 or PCI104
module
Power input 2 for power button

Fanless Low Power Extended
Temperature Full Solid
Cap Design

System

| CPU	AMD LX800 processor onboard
System Memory	1 x 200-pin SO-DIMM supports DDR-333/400 max. up to 1 GB
Chipset	AMD CS5536AD
BIOS	Phoenix-Award
SSD	1 x USB DoM
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI-104 for 32-bit PCI supports 3 bus masters 1 x PC/104 for 16-bit ISA bus
Battery	Lithium 3V/220 mAH
Power Input	1 x 4-pin Phoenix connector +5V DC-in only
Power Requirements	AMD LX800, 1GB DDR 400 Max. RMS: 5V @ 1.846A
Size	96 x 90 mm
Board Thickness	1.6 mm
Operating	Standard: 0° ~ +60°C (32°F ~ 140°F)
Temperature	Optional: -40°C ~ +85°C (-40°F ~ +185°F)
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x PS/2 keyboard & mouse 1 x PS/2 mouse 2 x RS-232
SATA	N/A
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8139DL
Audio	AC'97 Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC203
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmable

Display

Chipset	AMD LX intergrated
Memory Size	8 channels IN/OUT programmable
Display Interface	1 x VGA 1 x TTL LCD; Max up to 24-bit

Features

- Low power fanless AMD LX800 processor
- AMD CS5536AD
- 4 USB 2.0 ports for high speed peripherals & DoM
- PC/104-Plus slot for 16-bit ISA, 1 x 32-bit PCI expansion
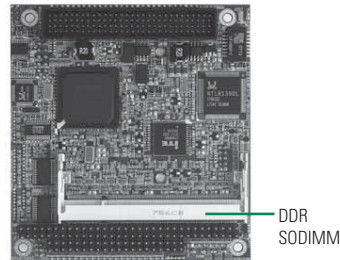
DDR
SODIMM

▲ Rear view

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59484500010E	44-44-40 pin IDE cable L=200mm+200mm	1
59382631000E	2xUSB 2.0 wafer cable w/ bracket, L=180mm	1
59386831000E	USB cable w/ bracket, USB x 2, 2 x 5P, P=2.54, L=175mm	1
59312260020E	Audio cable w/ bracket, P=1.25, L=450mm	1
59412260010E	PS/2 cable, P=1.25, 6P to PS/2, L=150mm	1
59312260010E	COM port x 2 w/ bracket, P=1.25, L=250mm	1
59412260000E	ATX power cable, 4P+5P+6P, L=150mm	1
59312260000E	VGA cable, DB15P, P=1.25, 12P, L=200mm	1
59093201000E	AX93201 to AX93202 LAN cable, L=200mm	1

Ordering Information

Standard

AX12260VEA-500 (P/N: E112260100)	PC/104 CPU module with AMD LX800 500 MHz CPU, VGA/TTL, 10/100Mbps Ethernet, AC'97 audio and 2 COM ports

Optional

AX12260VEA-500-ET (P/N: E112260102)	PC/104 CPU module with AMD LX800 500 MHz CPU, VGA/TTL, 10/100Mbps Ethernet, AC'97 audio, 2 COM ports and W.T. (-40°C ~ +85°C)

* W.T.: Wide Temperature

* All specifications and photos are subject to change without notice.

AX12600

VGA and LCD Display Module

PCI104

TTL LCD

LVDS

VGA

PC/104
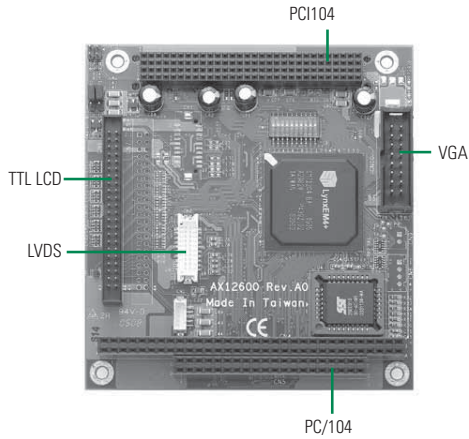
Features

- VGA, TTL LCD and TFT LVDS LCD
- DualView for different resolutions & contents
- Direct 3D Acceleration
- Landscape and Portrait rotation

System

Chipset	SMI712EM+ Graphics Controller
Display Memory	4MB SDRAM integrated
Bus Interface	PCI v2.1 compliant
CRT Monitor	Interlace and non-interlace
LCD Monitor	TTL interface ~ supports for 3, 9, 12, 18, 24, 36-bit TFT and 16 or 24-bit DSTN panels up to 1280x1024 resolution
Display Mode	VGA only: Up to 1280 x 1024 24bpp colors @ 60Hz Simultaneous mode: Up to 1024 x 768 24bpp colors @ 60Hz DualView mode: Display 1 up to 1024 x 768 16bpp colors; Display 2 up to 1024 x 768 8bpp colors
OS Support	Windows 95/98/NT/2000
Expansion Interface	PC/104+

Physical/Environmental

Size/Weight	96 x 90 mm/0.15 Kg
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95%, non-condensing

Packing List

Driver CD, 1 x VGA cable, Stand-off, screw

Ordering Information

AX12600 (P/N: E112600101)	VGA and LCD display module

AX12500

PC/104-Plus to MiniPCI Carrier Module with USB 2.0

PCI104

MiniPCI

USB

PC/104

Full Solid
Cap Design

Features

- High performance (PC/104-Plus Bus)
- Flexible expansion through MiniPCI
- 4 USB 2.0

System

USB Controller	VIA VT6212
S/W Driver	Supports Windows 95/98/NT/2000/XP
USB Ports	4 x USB 2.0
Data Bus	32 bit data bus (compliant with PCI v2.1)
Mini PCI	1 slot MiniPCI Type-III socket
PCI Interface	3.3V (5V tolerance)

Physical/Environmental

Size/Weight	96 x 90 mm/0.094kg
Operating Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operating Humidity	10% ~ 95% relative humidity, non-condensing

Packing List

Quick installation guide, CD-ROM (manual, driver)

Ordering Information

AX12500 (P/N: E112500100)	1-slot MiniPCI carrier module with USB 2.0

* All specifications and photos are subject to change without notice.

PC/104

Expansion Modules

AX10460

Universal Expansion Module

- PC/104 breadboard
- For custom user interface circuits
- Stack through PC/104 connector
- 50-pin mating connector
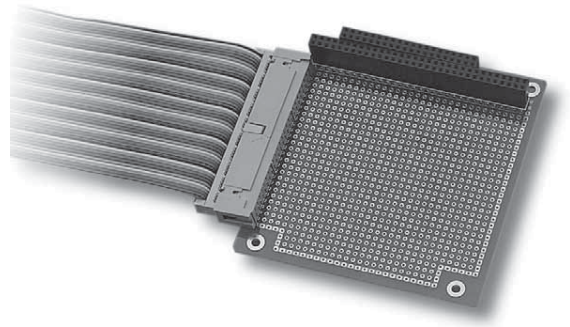
AX10461

Full Solid Cap Design

PC/104 to ISA-bus Converter Expansion Module

- PC/104 socket onboard
- Convert PC/104 bus to 16-bit ISA-bus
- External power supply connector
- Easy to design and test PC/104 modules
- Effective saving space height
- Size: 180 x 132mm
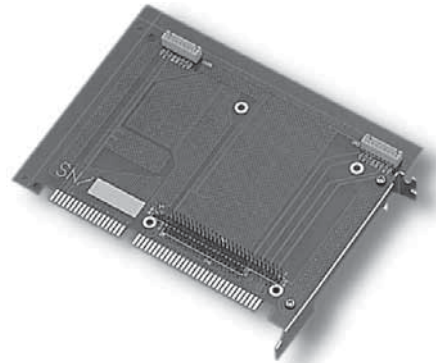
SBC
Services
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Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

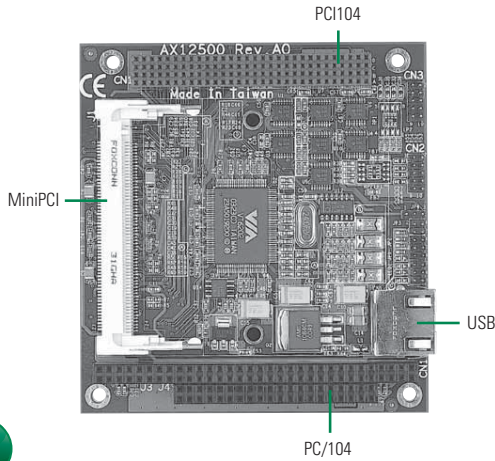Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

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4 Industrial Motherboards

The Industrial Motherboards in Axiomtek are from Intel® Core™ i up to Core™2 Quad/ Core™2 Extreme/ Core™2 Duo/ Core™ Duo/ Pentium® M/ Pentium® D/ Pentium® 4/ Celeron® M/ Celeron® D/ Celeron® and AMD processors. The ATX form factor is aimed at multiple slot expansion demands with PCIe x16, PCIe x4, PCIe x1, PCI and ISA bus interfaces. The Micro ATX is the balanced solution to meet the system requirements of expansion and space. And Mini ITX is specially tailored for space-concerned applications with various computing ranges and thermal solutions; it comes with AMD ultra low power, Intel® laptop and Intel® desktop silicon platforms.

Industrial Motherboards - Mini ITX Form Factor

Selection Guide

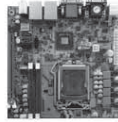| Features\Models		MANO873	MANO872	MANO871
Form Factor		Mini ITX	Mini ITX	Mini ITX
CPU Level		Intel® Core™ i7/ i5/ i3/ Celeron®	Intel® Core™ i7/ i5/ i3/ Celeron®	Intel® Core™ i7/ i5/ i3/ Celeron®
CPU Socket		LGA1155	LGA1155	LGA1155
CPU FSB Frequency		N/A	N/A	N/A
Core Logic Chipset		Intel® Q77	Intel® Q77	Intel® Q77
Memory Type		DDR3-1333/1600	DDR3-1333/1600	DDR3-1333/1600
Max. DRAM Capacity		16 GB	16 GB	16 GB
Cache RAM Capacity		Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS		AMI UEFI BIOS with OA 3.0 built	AMI UEFI BIOS with OA 3.0 built	AMI UEFI BIOS with OA 3.0 built
Watchdog Timer		255 levels, 0~255 sec.	255 Levels, 0~255 sec.	255 levels, 0~255 sec.
Onboard SSD		N/A	N/A	N/A
Onboard Digital I/O		8-IN/OUT	8-IN/OUT	4-IN & 4-OUT
I/O	IDE	N/A	N/A	N/A
	SATA	2 x SATA-300, 2 x SATA-600	2 x SATA 3.0, 2 x SATA 2.0	2 x SATA-300, 2 x SATA-200
	FDD	N/A	N/A	N/A
	LPT	N/A	N/A	N/A
	Serial COM 1	RS-232/422/485	RS-232/422/485	RS-232/422/485
	COM 2	RS-232	RS-232	RS-232
	COM 3	N/A	RS-232	RS-232
	COM 4	N/A	RS-232	RS-232
	COM 5	N/A	N/A	N/A
	COM 6	N/A	N/A	N/A
	USB	4 x USB 3.0, 4 x USB 2.0	4 x USB 3.0, 4 x USB 2.0	4 x USB 2.0, 4 x USB 3.0
	IrDA	N/A	N/A	N/A
SIM Card Slot		N/A	N/A	N/A
IEEE 1394a		N/A	N/A	N/A
Display		1 x VGA 1 x DVI-D	1 x DVI-I 1 x DisplayPort 1 x LVDS	1 x DVI-I, 1 x HDMI 1 x LVDS
Onboard Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio		HD Codec	HD Codec	HD Codec
Hardware Monitoring		Yes	Yes	Yes
SMBus		N/A	Yes	N/A
Expansion Interface		1 x PCIe x16 1 x PCI Express Mini Card	1 x PCIe x16 1 x PCI Express Mini Card	1 x PCIe x16 1 x PCI Express Mini Card
Power Management		ACPI 3.0	ACPI	ACPI 3.0
Battery		Lithium	Lithium	Lithium
Operating Temperature		0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity		10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance		CE	CE	CE
Wide Temperature		N/A	0°C ~ +60°C (32°F ~ 140°F)	By request

* All specifications and photos are subject to change without notice.
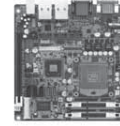
Features\Models	MANO870	MANO861	MANO860
Form Factor	Mini ITX	Mini ITX	Mini ITX
CPU Level	Intel® Core™ i7/ i5/ i3/ Celeron®	Intel® Core™ i7/ i5/ i3/ Celeron®	Intel® Core™ i7/ i5/ i3/ Celeron®
CPU Socket	rPGA 988 (socket G2)	LGA1155	rPGA 988 (socket G2)
CPU FSB Frequency	N/A	N/A	N/A
Core Logic Chipset	Intel® QM77	Intel® H61	Intel® QM67
Memory Type	DDR3-1333/1600	DDR3-1066/1333	DDR3-1066/1333
Max. DRAM Capacity	16 GB	16 GB	16 GB
Cache RAM Capacity	Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS	AMI UEFI BIOS with OA 3.0 built	AMI UEFI BIOS	AMI UEFI BIOS
Watchdog Timer	255 levels, 0~255 sec.	255 levels, 0~255 sec.	255 levels, 0~255 sec.
Onboard SSD	1 x CFast™	N/A	N/A
Onboard Digital I/O	4-IN & 4-OUT	4-IN & 4-OUT	N/A
I/O — IDE	N/A	N/A	N/A
I/O — SATA	2 x SATA-600, 3 x SATA-300	3 x SATA-300	2 x SATA3.0, 3 x SATA2.0
I/O — FDD	N/A	N/A	N/A
I/O — LPT	N/A	N/A	N/A
I/O — Serial — COM 1	RS-232	RS-232/422/485	RS-232
I/O — Serial — COM 2	RS-232	RS-232	RS-232
I/O — Serial — COM 3	RS-232	RS-232	RS-232
I/O — Serial — COM 4	N/A	RS-232	RS-232
I/O — Serial — COM 5	N/A	RS-232	N/A
I/O — Serial — COM 6	N/A	RS-232	N/A
I/O — USB	8 x USB 2.0, 4 x USB 3.0	6 x USB 2.0	12 x USB 2.0
I/O — IrDA	N/A	N/A	N/A
SIM Card Slot	N/A	N/A	N/A
IEEE 1394a	N/A	N/A	N/A
Display	1 x VGA 1 x DVI-D 1 x HDMI 1 x LVDS	1 x VGA 1 x DVI-D 1 x LVDS	1 x VGA 1 x DP 1 x HDMI 1 x LVDS
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	HD Codec	HD Codec	HD Codec
Hardware Monitoring	Yes	Yes	Yes
SMBus	N/A	N/A	N/A
Expansion Interface	1 x PCIe x16 1 x PCI Express Mini Card	1 x PCIe x4 1 x PCI Express Mini Card	1 x PCIe x16 1 x PCI Express Mini Card
Power Management	ACPI 3.0	ACPI 3.0	ACPI 3.0
Battery	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE
Wide Temperature	By request	By request	N/A

* All specifications and photos are subject to change without notice.

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Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

Industrial Motherboards - Mini ITX Form Factor

Selection Guide
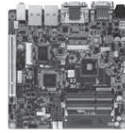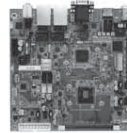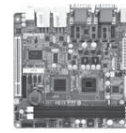
	Page 152	Page 153	Page 154
Features\Models	**MANO831**	**MANO830**	**MANO825**
Form Factor	Mini ITX	Mini ITX	Mini ITX
CPU Level	Intel® Atom™ D2550	Intel® Atom™ D2550	Intel® Atom™ D525
CPU Socket	Onboard	Onboard	Onboard
CPU FSB Frequency	N/A	N/A	up to 800 MHz
Core Logic Chipset	Intel® NM10	Intel® NM10	Intel® NM10
Memory Type	DDR3-1066	DDR3-1066	DDR3-800
Max. DRAM Capacity	4 GB	4 GB	4 GB
Cache RAM Capacity	Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS	AMI	AMI UEFI BIOS	AMI
Watchdog Timer	N/A	255 levels, 1~255 sec.	255 levels, 0~255 sec.
Onboard SSD	1 x CF	N/A	N/A
Onboard Digital I/O	4-IN & 4-OUT	4-IN & 4-OUT	N/A
I/O	**IDE**	N/A	N/A	N/A
	SATA	2 x SATA-300	2 x SATA-300	2 x SATA-300
	FDD	N/A	N/A	N/A
	LPT	N/A	1 x LPT	1 x LPT
	Serial **COM 1**	RS-232	RS-232	RS-232
	COM 2	RS-232	RS-232	RS-232
	COM 3	RS-232/422/485	RS-232	RS-232
	COM 4	RS-232/422/485	RS-232	RS-232
	COM 5	N/A	N/A	RS-232
	COM 6	N/A	N/A	RS-232
	USB	7 x USB 2.0	8 x USB 2.0	7 x USB 2.0
	IrDA	N/A	N/A	N/A
SIM Card Slot	N/A	N/A	N/A
IEEE 1394a	N/A	N/A	N/A
Display	1 x VGA 1 x DVI-D 1 x LVDS	1 x VGA 1 x HDMI 1 x LVDS	1 x VGA 1 x LVDS
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	HD Codec	HD Codec	HD Codec
Hardware Monitoring	Yes	Yes	Yes
SMBus	N/A	N/A	Yes
Expansion Interface	1 x PCI 1 x PCI Express Mini Card	1 x PCIe x1 1 x PCI Express Mini Card	1 x PCI 1 x PCI Express Mini Card
Power Management	ACPI 3.0	ACPI	ACPI
Battery	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE
Wide Temperature	By request	0°C ~ +60°C (32°F ~ 140°F)	By request

* All specifications and photos are subject to change without notice.

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
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Appendix
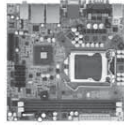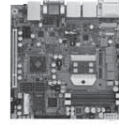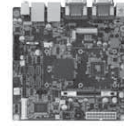
		Page 155	Page 156	Page 157
Features\Models		**MANO800**	**MANO120**	**MANO111**
Form Factor		Mini ITX	Mini ITX	Mini ITX
CPU Level		Intel® Core™ i7/ i5/ i3/ Pentium®	AMD G-Series APU T56N	AMD Embedded R-Series APU
CPU Socket		LGA1156	Onboard	FS1r2 socket
CPU FSB Frequency		N/A	N/A	N/A
Core Logic Chipset		Intel® Q57	AMD A55E	AMD A75 PCH
Memory Type		DDR3-1066/1333	DDR3-1333	DDR3-1333/1600
Max. DRAM Capacity		8 GB	4 GB	16 GB
Cache RAM Capacity		Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS		AMI UEFI BIOS	AMI	AMI UEFI BIOS with OA 3.0 built
Watchdog Timer		255 levels, 0~255 sec.	255 levels, 0~255 sec.	255 levels, 0~255 sec.
Onboard SSD		1 x CompactFlash™ or 1 x CFast™ (optional)	1 x CFast™	1 x CFast™
Onboard Digital I/O		8-IN/OUT	8-IN/OUT	4-IN & 4-OUT
I/O	IDE	N/A	N/A	N/A
	SATA	4 x SATA-300	5 x SATA-600	4 x SATA-600
	FDD	N/A	N/A	N/A
	LPT	N/A	N/A	N/A
	Serial COM 1	RS-232/422/485	RS-232	RS-232/422/485
	COM 2	RS-232	RS-232	RS-232
	COM 3	N/A	RS-232	RS-232
	COM 4	N/A	RS-232	RS-232
	COM 5	N/A	RS-232 with TTL box header	RS-232 with TTL box header
	COM 6	N/A	N/A	N/A
	USB	10 x USB 2.0	8 x USB 2.0	7 x USB 2.0, 4 x USB 3.0
	IrDA	N/A	N/A	N/A
SIM Card Slot		N/A	N/A	Yes
IEEE 1394a		N/A	N/A	N/A
Display		1 x DVI-D 1 x VGA	1 x VGA 1 x HDMI 1 x LVDS	2 x DVI-D 2 x DisplayPort 1 x LVDS
Onboard Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio		HD Codec	HD Codec	HD Codec
Hardware Monitoring		Yes	Yes	Yes
SMBus		Yes	Yes	N/A
Expansion Interface		1 x PCIe x4	1 x PCIe x4 1 x PCI Express Mini Card	1 x PCI 1 x PCI Express Mini Card
Power Management		ACPI	ACPI	ACPI
Battery		Lithium	Lithium	Lithium
Operating Temperature		0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity		10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance		CE	CE	CE
Wide Temperature		N/A	N/A	By request

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Industrial Motherboards - Mini ITX Form Factor

Selection Guide

Features\Models		SBC86850	SBC86860	SBC86831
Form Factor		Mini ITX	Mini ITX	Mini ITX
CPU Level		Intel® Core™2 Duo	Intel® Core™2 Quad	Intel® Core™2 Duo
CPU Socket		Socket P	Socket P	Socket M
CPU FSB Frequency		667/800/1067 MHz	800/1066/1333 MHz	533/667 MHz
Core Logic Chipset		Intel® GM45 + ICH9M + ATI M72	Intel® Q35 + ICH9	Intel® 945GME + ICH7M/-DH
Memory Type		DDR2-667/800	DDR2-800/1066	DDR2-533/667
Max. DRAM Capacity		4 GB	8 GB	4 GB
Cache RAM Capacity		Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS		AMI	Phoenix-Award	Phoenix-Award
Watchdog Timer		255 levels, 0~255 sec.	255 levels, 0~255 sec.	255 levels, 0~255 sec.
Onboard SSD		N/A	1 x CompactFlash™ (optional)	1 x USB DiskOnModule
Onboard Digital I/O		8-IN/OUT	8-IN/OUT	3-IN & 5-OUT
I/O	IDE	N/A	N/A	1 x PATA-100
	SATA	2 x SATA-300	4 x SATA-300	2 x SATA-150
	FDD	N/A	Optional	Optional
	LPT	N/A	1 x LPT	1 x LPT
	Serial COM 1	RS-232	RS-232/422/485	RS-232/422/485
	COM 2	RS-232	RS-232	RS-232
	COM 3	RS-232	RS-232	RS-232
	COM 4	RS-232	RS-232	RS-232
	COM 5	N/A	N/A	N/A
	COM 6	N/A	N/A	N/A
	USB	8 x USB 2.0	8 x USB 2.0	8 x USB 2.0
	IrDA	N/A	N/A	N/A
SIM Card Slot		N/A	N/A	N/A
IEEE 1394a		N/A	Yes	Yes
Display		1 x DVI-I (w/ ATI M72) 1 x LVDS 1 x VGA	1 x DVI-I 1 x LVDS	1 x VGA 1 x LVDS
Onboard Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio		HD Codec	HD Codec	AC'97 Codec
Hardware Monitoring		Yes	Yes	Yes
SMBus		Yes	Yes	Yes
Expansion Interface		1 x PCIe x4	1 x PCIe x4	1 x PCIe x16 1 x PCI
Power Management		ACPI	ACPI	ACPI
Battery		Lithium	Lithium	Lithium
Operating Temperature		0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity		10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance		CE	CE	CE
Wide Temperature		N/A	N/A	N/A

* All specifications and photos are subject to change without notice.

Features\Models		SBC86832	SBC86836	SBC86822
Form Factor		Mini ITX	Mini ITX	Mini ITX
CPU Level		Intel® Core™2 Duo	Intel® Atom™ N270	Intel® Pentium® M
CPU Socket		Socket M	Onboard	Socket 478
CPU FSB Frequency		533/667 MHz	533 MHz	400/533 MHz
Core Logic Chipset		Intel® 945GME + ICH7M	Intel® 945GSE + ICH7M	Intel® 910GMLE + ICH6M
Memory Type		DDR2-533/667	DDR2-400/533	DDR2-400/533
Max. DRAM Capacity		4 GB	2 GB	1 GB
Cache RAM Capacity		Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS		Phoenix-Award	Phoenix-Award	Phoenix-Award
Watchdog Timer		255 levels, 0~255 sec.	255 levels, 0~255 sec.	255 levels, 0~255 sec.
Onboard SSD		1 x USB DiskOnModule	1 x CompactFlash™	1 x CompactFlash™
Onboard Digital I/O		3-IN & 5-OUT	4-IN & 4-OUT	4-IN & 4-OUT
I/O	IDE	1 x PATA-100	N/A	1 x PATA-100
	SATA	2 x SATA-150	2 x SATA-150	2 x SATA-150
	FDD	Optional	N/A	N/A
	LPT	1 x LPT	N/A	N/A
	Serial COM 1	RS-232/422/485	RS-232	RS-232
	COM 2	RS-232	RS-232	RS-232
	COM 3	RS-232	RS-232	RS-232
	COM 4	RS-232	RS-232	RS-232
	COM 5	N/A	RS-232	RS-232
	COM 6	N/A	RS-232	RS-232
	USB	8 x USB 2.0	8 x USB 2.0	8 x USB 2.0
	IrDA	N/A	N/A	N/A
SIM Card Slot		N/A	N/A	N/A
IEEE 1394a		Yes	N/A	N/A
Display		1 x DVI-I 1 x LVDS	1 x VGA 1 x LVDS	1 x VGA 1 x LVDS
Onboard Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio		AC'97 Codec	AC'97 Codec	AC'97 Codec
Hardware Monitoring		Yes	Yes	Yes
SMBus		Yes	Yes	Yes
Expansion Interface		1 x PCI	1 x PCI	N/A
Power Management		ACPI	ACPI	ACPI
Battery		Lithium	Lithium	Lithium
Operating Temperature		0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity		10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance		CE	CE	CE
Wide Temperature		N/A	N/A	N/A

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
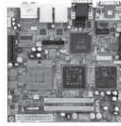>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

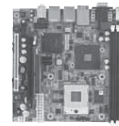Appendix

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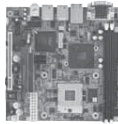# Industrial Motherboards - Mini ITX Form Factor

Selection Guide
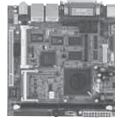
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Features\Models	SBC86620
Form Factor	Mini ITX
CPU Level	AMD LX800
CPU Socket	Onboard
CPU FSB Frequency	N/A
Core Logic Chipset	AMD LX800 + CS5536AD
Memory Type	DDR-333/400
Max. DRAM Capacity	1 GB
Cache RAM Capacity	Integrated in CPU
BIOS	Phoenix-Award
Watchdog Timer	255 levels, 0~255 sec.
Onboard SSD	1 x CompactFlash™
Onboard Digital I/O	8-IN/OUT
I/O **IDE**	2 x PATA-100
SATA	N/A
FDD	1 x FDD
LPT	1 x LPT
Serial **COM 1**	RS-232/422/485
COM 2	RS-232
COM 3	RS-232
COM 4	RS-232
COM 5	N/A
COM 6	N/A
USB	4 x USB 2.0
IrDA	N/A
SIM Card Slot	N/A
IEEE 1394a	N/A
Display	1 x VGA/TTL 1 x LVDS
Onboard Ethernet	2 x 10/100Mbps Ethernet
Onboard Audio	AC'97 Codec
Hardware Monitoring	Yes
SMBus	Yes
Expansion Interface	1 x PCI
Power Management	ACPI
Battery	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing
EMI Compliance	CE
Wide Temperature	N/A

* All specifications and photos are subject to change without notice.

Industrial Motherboards - ATX Form Factor

Selection Guide

Features\Models		IMB211	IMB210	IMB208
Form Factor		ATX	ATX	ATX
CPU Level		LGA1150 socket Intel® Core™ i7/ i5/ i3/ Celeron®	LGA1150 socket Intel® Xeon® E3/ Core™ i3/ Pentium®/ Celeron®	Intel® Core™ i7/ i5/ i3/ Celeron®
CPU Socket		LGA1150	LGA1150	LGA1155
CPU FSB Frequency		N/A	N/A	N/A
Core Logic Chipset		Intel® Q87	Intel® C226	Intel® C216
Memory Type		DDR3-1333/1600	DDR3-1333/1600	DDR3-1333/1600
Max. DRAM Capacity		32 GB	32 GB	32 GB
Cache RAM Capacity		Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS		AMI UEFI BIOS with OA 3.0 built	AMI UEFI BIOS with OA 3.0 built	AMI UEFI BIOS with OA 3.0 built
Watchdog Timer		255 levels, 0~255 sec.	255 levels, 0~255 sec.	255 levels, 0~255 sec.
Onboard SSD		N/A	1 x CFast™	1 x CFast™
Onboard Digital I/O		4-IN & 4-OUT	4-IN & 4-OUT	4-IN & 4-OUT
I/O	IDE	N/A	N/A	N/A
	SATA	4 x SATA-300	5 x SATA-300	2 x SATA-600, 3 x SATA-300
	FDD	N/A	N/A	N/A
	LPT	1 x LPT	N/A	N/A
	Serial COM 1	RS-232/422/485	RS-232/422/485	RS-232/422/485
	COM 2	RS-232	RS-232	RS-232
	COM 3	RS-232	RS-232	RS-232
	COM 4	RS-232	RS-232	RS-232
	COM 5	RS-232	RS-232	N/A
	COM 6	RS-232	RS-232	N/A
	USB	8 x USB 2.0, 5 x USB 3.0	6 x USB 2.0, 4 x USB 3.0	4 x USB 2.0, 8 x USB 3.0
	IrDA	N/A	N/A	N/A
SIM Card Slot		N/A	N/A	N/A
IEEE 1394a		N/A	N/A	N/A
Display		1 x DVI-D 1 x VGA 1 X DisplayPort 1 x HDMI	1 x DVI-I 1 x DisplayPort 1 x HDMI	1 x DVI-I 2 x DisplayPort
Onboard Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio		HD Codec Realtek ALC892	HD Codec Realtek ALC662	HD Codec
Hardware Monitoring		Yes	Yes	Yes
SMBus		N/A	Yes	N/A
Expansion Interface		4 x PCI 1 x PCIe x 1 1 x PCIe x 4 1 x PCIe x16 1 x PCI Express Mini Card	3 x PCI 1 x PCIe x1 1 x PCIe x4 2 x PCIe x16	1 x PCIe x16 1 x PCIe x4 2 x PCIe x1 3 x PCI
Power Management		ACPI	ACPI	ACPI 3.0
Battery		Lithium	Lithium	Lithium
Operating Temperature		0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity		10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance		CE	CE	CE
Wide Temperature		By request	By request	By request

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

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Industrial Motherboards - ATX Form Factor

Selection Guide

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Features\Models	**IMB207**	**IMB206**	**IMB205**	**IMB204**
Form Factor	ATX	ATX	ATX	ATX
CPU Level	Intel® Core™ i7/ i5/ i3/ Celeron®	Intel® Core™ i7/ i5/ i3/ Celeron®	Intel® Core™ i7/ i5/ i3/ Pentium®	Intel® Core™ i7/ i5/ i3/ Celeron®
CPU Socket	LGA1155	LGA1155	LGA1156	LGA115 1333/1600 MHz
CPU FSB Frequency	N/A	N/A	1066/1333 MHz	N/A
Core Logic Chipset	Intel® Q77	Intel® Q67	Intel® Q57	Intel® B75
Memory Type	DDR3-1333/1600	DDR3-1066/1333	DDR3-1066/1333	DDR3-1333/1600
Max. DRAM Capacity	32 GB	16 GB	32 GB	32 GB
Cache RAM Capacity	Integrated in CPU	Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS	AMI UEFI BIOS with OA 3.0 built	AMI UEFI BIOS with OA 3.0 built	AMI UEFI BIOS	AMI
Watchdog Timer	255 levels, 0~255 sec.	255 levels, 0~255 sec.	255 levels, 0~255 sec.	255 levels, 0~255 sec.
Onboard SSD	1 x CFast™	1 x CFast™	USB DOM	N/A
Onboard Digital I/O	4-IN & 4-OUT	8 IN/OUT or 4 IN/OUT	8 IN/OUT	4-IN & 4-OUT
I/O	**IDE**	N/A	N/A	N/A	N/A
	SATA	2 x SATA-600, 3 x SATA-300	3 x SATA-300, 2 x SATA 2.0	6 x SATA-300	1 x SATA-600; 5 x SATA-300
	FDD	N/A	N/A	1 x FDD	N/A
	LPT	N/A	N/A	1 x LPT	1 x LPT
	Serial	**COM 1**	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485
		COM 2	RS-232	RS-232	RS-232	RS-232
		COM 3	RS-232	RS-232	RS-232	RS-232
		COM 4	RS-232	RS-232	RS-232	RS-232
		COM 5	N/A	N/A	N/A	RS-232
		COM 6	N/A	N/A	N/A	RS-232
	USB	4 x USB 2.0, 8 x USB 3.0	12 x USB 2.0	12 x USB 2.0	12 x USB 2.0
	IrDA	N/A	N/A	N/A	N/A
SIM Card Slot	N/A	N/A	N/A	N/A
IEEE 1394a	N/A	N/A	N/A	N/A
Display	1 x DVI-I 2 x DisplayPort	1 x DVI-I 2 x DisplayPort	1 x VGA 1 x DisplayPort	1 x VGA 1 x DVI-D
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	HD Codec	HD Codec	HD Codec	HD Codec
Hardware Monitoring	Yes	Yes	Yes	Yes
SMBus	N/A	Yes	Yes	N/A
Expansion Interface	1 x PCIe x16 1 x PCIe x4 2 x PCIe x1 3 x PCI	1 x PCIe x16 1 x PCIe x4 2 x PCIe x1 3 x PCI	1 x PCIe x16 1 x PCIe x4 2 x PCIe x1 3 x PCI	1 x PCIe x16 1 x PCIe x4 1 x PCIe x1 4 x PCI
Power Management	ACPI 3.0	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE	CE
Wide Temperature	N/A	N/A	N/A	0°C ~ +60°C (32°F ~ 140°F)

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* All specifications and photos are subject to change without notice.

MANO873

LGA1155 Socket Intel® Core™ i7/ i5/ i3/
Celeron® Mini ITX SBC with Intel® Q77
PCH, VGA/DVI-D, Dual LANs and USB 3.0

NEW

Ethernet 1+USB 3.0 1/2
From uPD720202

Ethernet 2+
USB 3.0 1/2
From PCH

Audio

VGA+
DVI-D

COM 1/2

PS/2
KB+MS

SATA 3.0 1/2
SATA 2.0 1/2

ATX power
conn

PCIe x16

DDR3

| DualView | DDR3 | PCIe Mini | USB 3.0 | Full Solid Cap Design |

System

CPU	LGA1155 socket 3rd Generation Intel® core™ i7/ i5/ i3/ Celeron® processor
System Memory	2 x 204-pin SO-DIMM dual channel DDR3-1333/1600 max. up 16 GB
Chipset	Intel® Q77
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	N/A
Watchdog Timer	255 level, 1 ~ 255 sec
Expansion Interface	1 x PCIe x16 Gen3 1 x PCI Express Mini Card
Battery	Lithium 3V/220 mAH
Power Requirements	TBD
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485 (COM 1); with 5V/12V power 1 x RS-232 (COM 2) 1 x PS/2 keyboard and mouse
SATA	2 x SATA-300; 1 SATA-300 supports SATA DOM 2 x SATA-600 support RAID 0/1
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	1st port as 10/100/1000 Mbps support WOL, PXE with Intel® 82579LM/V (LAN 1) 2nd port as 10/100/1000 Mbps support WOL, PXE with Intel® 82583V (LAN 2)
Audio	HD Audio as Mic-in/Line-out with Realtek ALC662
USB	4 x USB 3.0 (2 USB 3.0 from PCH Q77; 2 USB 3.0 from Renesas uPD720202 with WinXP driver) 4 x USB 2.0
TPM	Infineon TPM1.2 SLB9635
Digital I/O	8 Channels (4-IN & 4-OUT)
SM BUS	N/A

Features

- LGA1155 socket 3rd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors
- Intel® Q77 PCH
- 2 DDR3-1333/1600 MHz max. up to 16 GB memory capacity
- PCIe x16 Gen3 support
- 2 SATA-600 with RAID 0,1
- 2 SATA-300 with 1 SATADOM supported
- 4 USB 3.0
- iAMT 8.0 supported
- TPM 1.2 supported

PCI Express
Mini Card

▲ Rear view   ▲ Side view

Display

Chipset	Intel® HD 2000/3000/4000 Graphics
Memory Size	Shared Memory
Display Interface	1 x VGA 1 x DVI-D

Packing List

Standard

User's manual/utility CD, cable

Ordering Information

Standard

MANO873	LGA1155 socket Mini ITX SBC with Intel® Core™ i7/ i5/ i3/ Celeron®, VGA/DVI-D, 2 10/100/1000Mbps and USB 3.0

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

MANO872

LGA1155 Socket Intel® Core™ i7/ i5/ i3/ Celeron® Mini ITX SBC with Intel® Q77 PCH, DisplayPort/DVI-I/LVDS, Dual LANs and USB 3.0

NEW

Ethernet 2 + USB 3.0 3-4
Ethernet 1 + USB 3.0 1-2
Audio
DP + DVI-I
COM 1 -2
COM 3-4

COM 3
SATA-600
SATA-300
LVDS
ATX
PCI Express x16
DDR3

DualView DDR3 PCIe Mini USB 3.0 Full Solid Cap Design
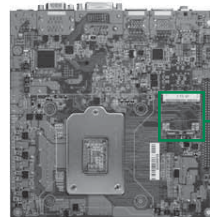
System

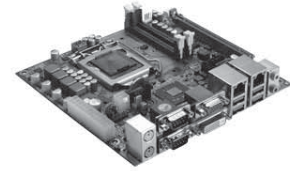| CPU	LGA1155 Socket 3rd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processor
System Memory	2 x 204-pin SO-DIMM dual channel DDR3-1333/1600 max up 16 GB
Chipset	Intel® Q77
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	N/A
Watchdog Timer	255 level, 1 ~ 255 sec.
Expansion Interface	1 x PCIe x16 Gen3 1 x PCI Express Mini Card
Battery	Lithium 3V/220 mAH
Power Requirements	TBD
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485 (COM 1) 3 x RS-232 (COM 2~4); COM 1 and COM 3 with 5V/12V power
SATA	2 x SATA-300; 1 SATA-300 supports SATA DOM 2 x SATA-600 support RAID 0/1/5/10
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	1st port as 10/100/1000 Mbps support WOL, PXE with Intel® 82579LM/V (LAN 1) 2nd port as 10/100/1000 Mbps support WOL, PXE with Intel® 82583V (LAN 2)
Audio	HD Audio as Mic-in/Line-out with Realtek ALC662
USB	4 x USB 3.0 4 x USB 2.0
TPM	Infineon TPM1.2 SLB9635
Digital I/O	8 Channels (4-IN & 4-OUT)
SM BUS	N/A

Features

- LGA1155 socket 3rd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors
- Intel® Q77 PCH
- 2 DDR3-1333/1600 MHz max. up to 16 GB memory capacity
- PCIe x16 Gen3 support
- 2 SATA-600 with RAID 0,1, 5 and 10
- 2 SATA-300 with 1 SATA DOM supported
- 4 USB 3.0
- iAMT 8.0 supported
- TPM 1.2 supported
- Triple view display
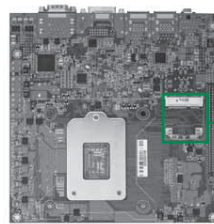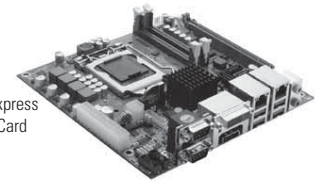
PCI Express Mini Card

▲ Rear view   ▲ Side view

Display

Chipset	Intel® HD 2000/3000/4000 Graphics
Memory Size	Shared Memory
Display Interface	1 x DisplayPort 1 x DVI-I 1 x LVDS

Packing List

Standard

User's manual/utility CD, cable, I/O bracket

Ordering Information

Standard

MANO872	LGA1155 socket Mini ITX SBC with Intel® Core™ i7/ i5/ i3/ Celeron®, DisplayPort/DVI-I/LVDS, 2 10/100/1000Mbps and 4 USB 3.0

* All specifications and photos are subject to change without notice.

MANO871

LGA1155 Socket Intel® Core™ i7/ i5/ i3/ Celeron® Mini ITX SBC with Intel® Q77 PCH, HDMI/DVI-I/LVDS, Dual LANs and USB 3.0

Ethernet 1+USB 3.0 1/2
Ethernet 2+USB 3.0 3/4
Audio
HDMI+DVI-I
COM 1/2
COM 3/4
USB 2.0 1~4
SATA-600
SATA-300
LVDS
ATX
PCI Express x16
DDR3

DDR3 | PCIe Mini | USB 3.0 | DualView | Full Solid Cap Design

System

CPU	LGA1155 socket 3rd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors
System Memory	2 x 204-pin SO-DIMM dual channel DDR3-1333/1600 max. up to 16 GB
Chipset	Intel® Q77
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	N/A
Watchdog Timer	255 level, 1 ~ 255 sec
Expansion Interface	1 x PCIe x16 Gen3 1 x PCI Express Mini card
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® Core™ i7-2700K 3.5 GHz, 8 GB DDR3 1333 x 2 +5V @ 1.5A, +12V @ 6.8A, -12V @ 0.1A, +5VSB @ 0.5A, +3.3V @ 1.0A
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485 (COM 1) 3 x RS-232 (COM2~4); COM 1 and COM 3 with 5V/12V power
SATA	2 x SATA-300; 1 SATA-300 supports SATA DOM 2 x SATA-600 support RAID 0/1/5/10
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	1st port as 10/100/1000 Mbps supports WOL, PXE with Intel® 82579LM/V (LAN1) 2nd port as 10/100/1000 Mbps supports WOL, PXE with Intel® 82583V (LAN2)
Audio	HD Audio as Mic-in/Line-out with Realtek ALC662
USB	4 x USB 3.0
	4 x USB 2.0
TPM	Infineon TPM1.2 SLB9635
SMBUS	N/A
Digital IO	4 Channels IN & 4 Channels OUT

Features

- LGA1155 socket 3rd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors
- Intel® Q77 PCH
- 2 DDR3-1333/1600 MHz up to 16 GB
- PCIe x16 Gen 3 supported
- 2 SATA-600 with RAID 0,1, 5 and 10 supported
- 2 SATA-300 with 1 SATADOM supported
- 4 USB 3.0 supported
- iAMT 8.0 supported
- TPM 1.2 supported
- Dual view display
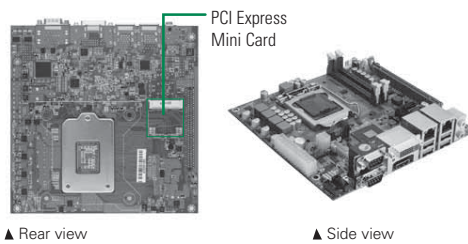
PCI Express Mini Card

▲ Rear view   ▲ Side view

Display

Chipset	Intel® HD 4000/2500 Graphics
Memory Size	Shared memory
Display Interface	1 x HDMI 1 x DVI-I 1 x LVDS

Packing List

Quick installation guide, user's manual/utility CD, cable

Ordering Information

Standard	
MANO871	LGA1155 socket Mini ITX SBC with Intel® Core™ i7/ i5/ i3/ Celeron®, HDMI/DVI-I/LVDS, 2 10/100/1000Mbps Ethernet and USB 3.0

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

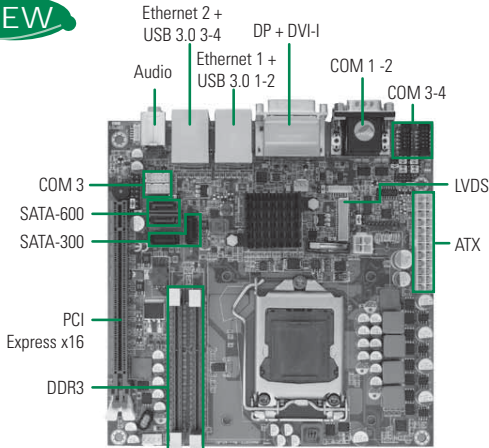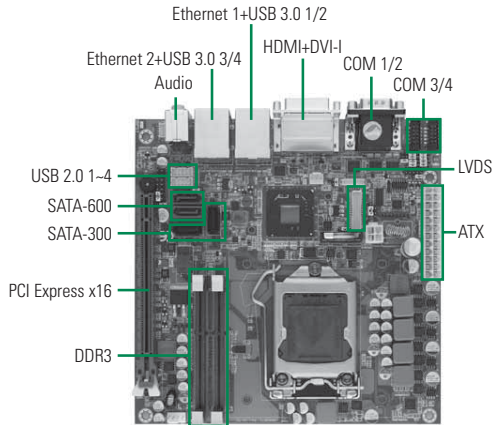Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

axiomtek.com

MANO870

Socket G2 Intel® Core™ i7/ i5/ i3/ Celeron®
Mini ITX SBC with Intel® QM77 PCH, HDMI/
DVI-D/VGA/LVDS, PCI Express Gen3,
SATA-600, Dual LANs and HD Audio

Ethernet 1+USB 3.0 1/2
Ethernet 2+USB 3.0 3/4
Audio
COM 1+HDMI
VGA+DVI-D
PS/2 K/B+M/S
COM 2/3
USB 2.0 5~12
PCIe x16
SATS-300 1~3
PCI Express Mini Card
LVDS
ATX power input
DDR3
SATA-600 1/2

DDR3 · PCIe Mini · USB 3.0 · CFast™ · DualView
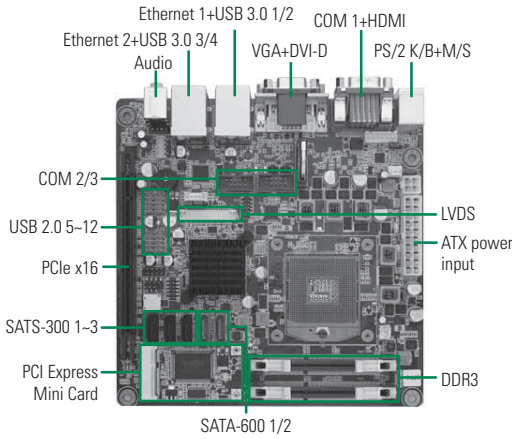
System

CPU	Socket G2 (rPGA 988B) for 3rd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors
System Memory	2 x 204-pin SO-DIMM dual channel DDR3-1333/1600 max. up to 16 GB
Chipset	Intel® QM77
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	1 x CFast™
Watchdog Timer	255 level, 1 ~ 255 sec
Expansion Interface	1 x PCIe x16 Gen3 1 x PCI Express mini card
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® Core™ i5-3610ME 2.7 GHz, 4GB DDR3 1333 x 2 +5V @ 1.4A, +12V @ 6.7A, -12V @ 0.1A, +5VSB @ 0.4A, +3.3V @ 1.0A
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 14°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard/mouse 3 x RS-232 (COM1~3) with 5V/12V power
SATA	2 x SATA-600; 3 x SATA-300; with RAID 0,1,5,10
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	1st port as 10/100/1000 Mbps supports WOL, PXE with Intel® 82579LM (LAN1) 2nd port as 10/100/1000 Mbps supports WOL, PXE with Intel® 82583V (LAN2)
Audio	HD Audio as Mic-in/Line-out with Realtek ALC892
USB	4 x USB 3.0 8 x USB 2.0
TPM	Infineon TPM 1.2 SLB9635
Digital I/O	8 Channels (4-IN & 4-OUT)
SM BUS	N/A

Features

- Socket G2 (rPGA 988B) for 3rd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors
- Intel® QM77 PCH
- 2 DDR3-1333/1600 MHz up to 16 GB
- PCIe x16 Gen 3 supported
- 4 USB 3.0 supported
- 2 SATA-600 supported
- CFast™ supported
- iAMT 8.0 supported
- TPM 1.2 supported
- Dual view display
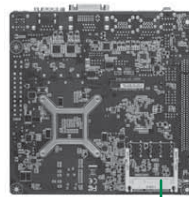
▲ Rear view   CFast™   ▲ Side view
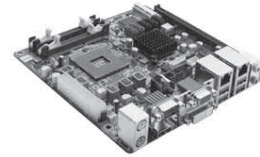
Display

Chipset	Intel® Integrated GMA
Memory Size	Shared memory
Display Interface	1 x HDMI 1 x DVI-D 1 x VGA 1 x LVDS

Packing List

User's manual/utility CD, cable

Ordering Information

Standard

MANO870	Socket G2 Mini ITX SBC with Intel® Core™ i7/ i5/ i3/ Celeron®, HDMI/DVI-D/VGA/LVDS, PCI Express Gen3, SATA-600, 2 10/100/1000Mbps and audio

* All specifications and photos are subject to change without notice.

MANO861

LGA1155 Socket Intel® Core™ i7/ i5/ i3/
Celeron® Mini ITX SBC with Intel® H61 PCH,
VGA/DVI-D/LVDS, Dual LANs and HD Audio

Labels: Ethernet 1 + USB 1/2, DVI-D+VGA, Ethernet 2 + USB 3/4, COM 1+COM 2, Audio, PS2+USB 5/6, LVDS, PCIe Mini Card, SATA 1 ~ 3, COM 3 ~ 6, PCIe x4, ATX power, DDR3, LPT header

DDR3 PCIe Mini DualView

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

Features

- LGA1155 socket 3rd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors
- Intel® H61 chipset
- 2 DDR3-1066/1333 MHz max. up to 16 GB
- 1 PCIe x4 supported
- 3 SATA-300 supported
- 6 USB 2.0 supported
- 6 COM ports supported
- Dual view display

▲ Side view

System

|	
CPU	LGA1155 socket 3rd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors
System Memory	2 x 204-pin SO-DIMM dual channel DDR3-1333/1600 max. up to 16 GB
Chipset	Intel® H61
BIOS	AMI UEFI BIOS
SSD	N/A
Watchdog Timer	255 levels, 1 ~ 255 sec.
Expansion Interface	1 x PCIe x4 1 x PCI Express Mini Card
Battery	Lithium 3V/ 220 mAH
Power Requirements	TBD
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

Display

Chipset	Intel® Integrated Graphics
Memory Size	Shared memory
Display Interface	1 x VGA 1 x DVI-D 1 x LVDS

Packing List

User's manual/utility CD, cable

Ordering Information

Standard

MANO861	LGA1155 socket Mini ITX SBC with Intel® Core™ i7/ i5/ i3/ Celeron®, VGA/DVI-D/LVDS, 2 10/100/1000Mbps, 6 COM and audio

I/O

MIO	1 x RS-232/422/485 (COM 1) 5 x RS-232 (COM 2~6)
SATA	3 x SATA-300
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	1st port as 10/100/1000 Mbps supports WOL, PXE with Realtek 8111E (LAN1) 2nd port as 10/100/1000 Mbps supports WOL, PXE with Realtek 8111E (LAN2)
Audio	HD audio as MIC-in/Line-out with Realtek ALC892
USB	6 x USB 2.0
TPM	N/A
SMBus	N/A
Digital IO	8 Channels (4-IN & 4-OUT)

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MANO860

Socket G2 Intel® Quad/Dual Core™ i7/ i5/ i3/ Celeron® Mini ITX SBC with Intel® QM67 PCH, DisplayPort/HDMI/VGA/LVDS, SATA-600, Dual LANs and RAID

Features

- Socket G2 (rPGA 988B) 2nd Generation Intel® Quad/ Dual Core™ i7/i5/ i3/ Celeron® processors
- Intel® QM67 PCH
- 2 DDR3-1066/1333 MHz, max. up to 16 GB
- PCIe x16 Gen. 2 supported
- SATA-600 with RAID 0/1/5/10 supported
- CFast™ supported
- iAMT supported
- TPM supported
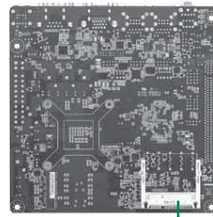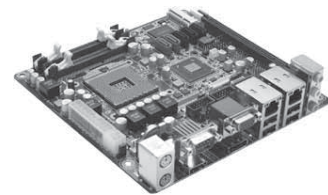
▲ Rear view   CFast   ▲ Side view
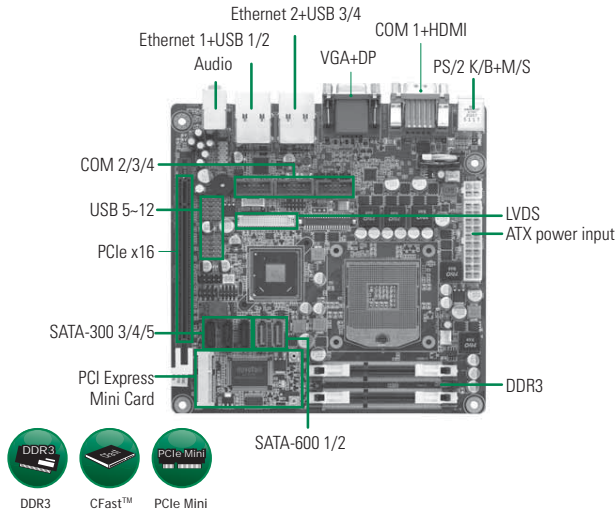
System

CPU	Socket G2 (rPGA 988B) for 2nd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors
System Memory	2 x 204-pin SO-DIMM support DDR3-1066/1333 max. up to 16 GB
Chipset	Intel® QM67 PCH
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 Gen. 2 1 x PCI Express Mini Card
Battery	Lithium 3 V/ 220 mAH
Power Requirements	+12V @ 4.86A, +5V @ 1.28A, +3.3V @ 1.05A, +5VSB @ 0.36A, -12V @ 0.41A
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard 1 x PS/2 mouse 4 x RS-232 (COM 2/3/4); with +5V/+12V powered
SATA	2 x SATA-600 & 3 x SATA-300 with RAID 0/1/5/10
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart fan control
Ethernet	1st port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® 82579LM 2nd port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-in/Line-out speaker-out with Realtek ALC892
USB	12 x USB 2.0 port
TPM	Infineon SLB9625 for trusted platform
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels (4-IN & 4-OUT)

Display

Chipset	Intel® HD Graphics 2000/3000
Memory Size	1.7 GB
Display Interface	1 x DP 1 x HDMI 1 x LVDS 1 x VGA

Packing List

User's manual/utility CD, SATA cable, I/O bracket

Ordering Information

Standard

MANO860PHGGA (P/N: E38M860100)	Socket G2 Mini ITX SBC with Intel® Core™ i7/ i5/ i3, VGA/ DisplayPort/HDMI/LVDS, 2 10/100/1000Mbps Ethernet, HD audio, 4 COM, 5 SATA and CFast

MANO831

Intel® Atom™ D2550 Mini ITX SBC with Intel® NM10 Chipset, VGA/DVI-D/LVDS, Dual LANs and HD Audio

Features

- Intel® Atom™ processor D2550 onboard
- 2 DDR3 1066 MHz up to 4 GB
- Dual view display via DVI-D/VGA/LVDS
- PCI/Mini PCIe expansion slot
- 2 x SATA-300 supported
- 7 USB 2.0 supported
- TPM 1.2 supported

▲ Side view

System

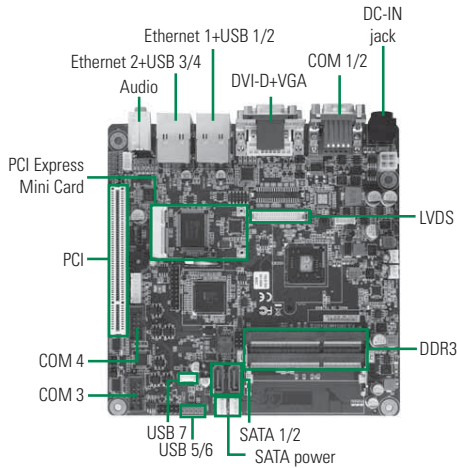|	
CPU	Intel® Atom™ processor D2550 onboard
System Memory	2 x 204-pin SO-DIMM, support DDR3-1066 max. up to 4 GB
Chipset	Intel® NM10 PCH
BIOS	AMI 16Mb flash ROM
SSD	N/A
Watchdog Timer	Reset: 1 to 255 sec/min per step
Expansion Interface	1 x PCI 1 x mini PCIe
Battery	Lithium 3V/220 mAH
Power Requirements	TBD
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	2 x RS-232 (COM 1 ~ 2) 2 x RS-232/422/485 (COM 3 ~ 4)
SATA	2 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart fan control
Ethernet	2 x Realtek RTL8111E for Gigabit LAN
Audio	HD Codec audio as MIC-in/Line-in/Line-out speaker-out with Realtek ALC892
USB	7 x USB 2.0
SMBus	N/A
Digital I/O	8 Channels (4-IN & 4-OUT)
TPM	Infineon TPM1.2 SLB9635

Display

Chipset	Intel® Graphics Media Accelerator (GMA) 3650
Memory Size	Share memory
Display interface	1 x VGA 1 x DVI-D 1 x LVDS

Packing List

User's manual/utility CD, cable

Ordering Information

Standard

MANO831	Mini ITX SBC with Intel® Atom™ D2550, VGA/DVI-D/LVDS, 2 10/100/1000Mbps Ethernet, 4 COM, 7 USB and HD audio

MANO830

Intel® Atom™ D2550 Mini ITX SBC with
Intel® NM10 Chipset, VGA/HDMI/LVDS, PCI
Express Mini Card, PCIe x1 and HD Audio

Features

- Intel® Atom™ processor D2550 onboard
- 1 DDR3-1066 MHz max. up to 4 GB
- PCIe x1 support
- 8 x USB 2.0
- 2 SATA-300 supported
- PCI Express Mini Card supported
- ATX power supported
- Dual view display

▲ Side view

Supports Intel Atom inside | Fanless | Low Power | DualView | DDR3 | PCIe Mini | +12V

System

CPU	Intel® Atom™ processor D2550 onboard
System Memory	1 x 204-pin SO-DIMM dual channel DDR3-1066 max. up to 4 GB
Chipset	Intel® NM10
BIOS	AMI UEFI BIOS
SSD	N/A
Watchdog Timer	Reset: 1 ~ 255 sec.
Expansion Interface	1 x PCIe x1 1 x PCI Express Mini Card (By jumper selection for mSATA or PCIe Mini Card)
Battery	Lithium 3V/220 mAH
Power Requirements	TBD
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard and mouse 4 x RS-232 (COM 1 ~ COM 4) with 5V/12V jumper selection 1 x LPT
SATA	2 SATA-300
Ethernet	2 x Realtek RTL8111E for Gigabit LAN
Audio	HD Audio as Mic-in/Line-out with Realtek ALC892
USB	8 x USB 2.0
TPM	N/A
Digital I/O	8 Channels (4-IN & 4-OUT)
SM BUS	N/A

Display

Display Chipset	Intel® GMA graphic core
Memory Size	Shared Memory
Display Interface	1 x VGA 1 x HDMI 1 x LVDS 24bit dual channel

Packing List

User's manual/utility CD, cable, I/O bracket

Ordering Information

Standard

MANO830	Mini ITX SBC with Intel® Atom™ D2550, VGA/HDMI/LVDS, PCI Express Mini Card, PCIe x1, 2 10/100/1000Mbps Ethernet, 4 COM, 8 USB and HD Audio

* All specifications and photos are subject to change without notice.

MANO825

Intel® Atom™ D525 Mini ITX SBC with Intel® NM10 Chipset, VGA/LVDS, Dual LANs and 6 COM

DualView   DDR3   PCIe Mini

Features

- Intel® Atom™ processor D525 1.8 GHz onboard
- 2 DDR3-800 MHz 240-pin DIMM max.up to 4 GB
- DualView with VGA & 24-bit LVDS
- 2 SATA-300 supported
- 6 COM ports supported
- PCI slot and PCI Express Mini Card

▲ Side view

System

CPU	Intel® Atom™ processor D525 1.8 GHz onboard
System Memory	2 x 240-pin DIMM support DDR3-800 max. up to 4 GB
Chipset	Intel® NM10
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI 1 x PCI Express Mini card
Battery	Lithium 3 V/ 220 mAH
Power Requirements	Intel® Atom™ D525 Dual Core Pineview-D, 2GB DDR3 x 2 Max. RMS: +5V @ 1.6A, +12V @ 0.6A, -12V @ 0.1A, +5VSB @ 0.1A, +3.3V @ 1.8A
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard 1 x PS/2 mouse 6 x RS-232; with +5V/+12V powered by jumper selection 1 x LPT
SATA	2 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and Smart fan control
Ethernet	2 ports as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Realtek 8111E
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	7 x USB 2.0 port
SMBus	System Management Bus for advanced monitoring/control
Digital IO	4 channels IN & 4 channels OUT

Display

Chipset	Intel® GMA3150 graphics core
Memory Size	Intel® DVMT 4.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single channel

Packing List

User's manual/utility CD, SATA cable

Ordering Information

Standard

MANO825VGGA-D525	Mini ITX SBC with Intel® Atom™ processor D525, VGA/LVDS, 2 10/100/1000Mbps Ethernet, 6 COM, HD audio and PCI expansion

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX
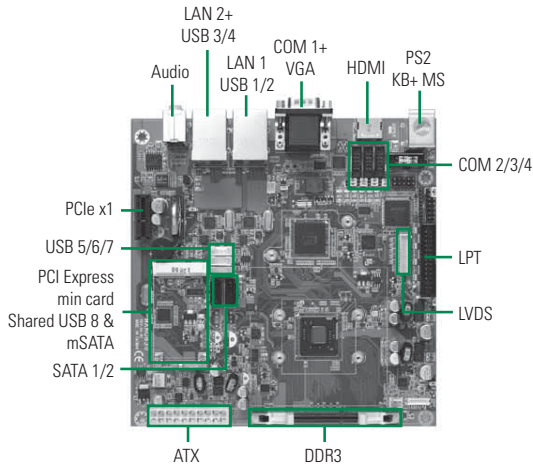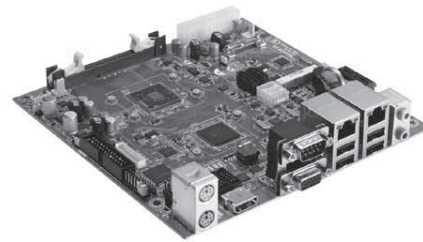
Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

MANO800

LGA1156 Intel® Core™ i7/ i5/ i3/ Pentium® Mini ITX SBC with Intel® Q57 Chipset, DVI-D/VGA, PCI Express x4 and 4 SATA RAID

Ethernet 2+USB 3/4
Ethernet 1 + USB 1/2
DVI-D/VGA
PS/2 K/B+M/S
Audio
COM 1
COM 2
USB 7/8/9/10
PCIe x4
SATA 1/2/3/4
DDR3
USB 5/6
20-pin ATX power conn.

DDR3   CFast™

Features

- LGA1156 socket for Intel® Core™ i7/ i5/ i3/ Pentium® processor with FSB 1066/1333 MHz
- Intel® Q57 chipset
- 2 DDR3-1066/1333 MHz max. up to 8 GB
- 4 SATA-300 with RAID 0, 1, 5, 10 supported
- CompactFlash™ type-II or CFast™ (optional)

▲ Side view

System

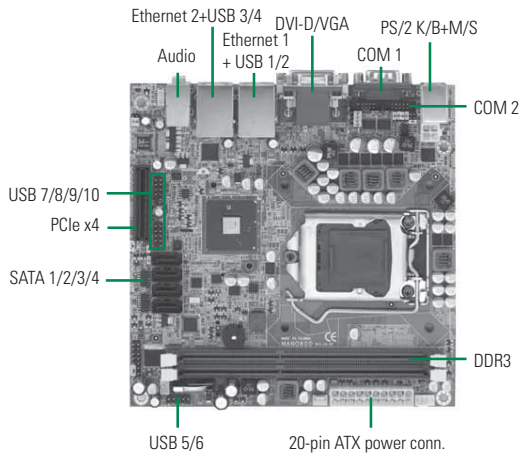|	
CPU	LGA1156 socket for Intel® Core™ i7/ i5/ i3/ Pentium® processor with FSB 1066/1333 MHz
System Memory	2 x 240-pin DIMM support DDR3-1066/1333 max. up to 8 GB
Chipset	Intel® Q57
BIOS	AMI UEFI BIOS
SSD	1 x CompactFlash™ type-II or 1 x CFast™ (optional)
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x4
Battery	Lithium 3 V/ 220 mAH
Power Requirements	Intel® Core™ i5-660 @3.33 GHz, 2GB DDR3 Max. RMS: +5V_SBY @ 0.022A, +3.3V @ 0.845A, +5V @ 1.252A, +12V @ 2.495A, -12V @ 0.034A
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard 1 x PS/2 mouse 1 x RS-232/422/485 (COM 1); with +5V/+12V powered 1 x RS-232 (COM 2); with +5V/+12V powered
SATA	4 x SATA-300 with RAID 0/1/5/10
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart fan
Ethernet	1st port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82578DM 2nd port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-in/Line-out speaker-out with Realtek ALC662
USB	10 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital IO	8 channels IN/OUT programmable

Display

Chipset	Intel® HD Graphics
Memory Size	Intel® DVMT 5.0 compliant
Display Interface	1 x VGA 1 x DVI-D

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

MANO800DGGA CF w/ CF (P/N: E38M800100)	LGA1156 Mini ITX SBC with DVI-D/VGA, 2 10/100/1000Mbps Ethernet, HD audio, 2 COM ports, 4 SATA and CF
MANO800DGGA (P/N: E38M800102)	LGA1156 Mini ITX SBC with DVI-D/VGA, 2 10/100/1000Mbps Ethernet, HD audio, 2 COM ports, 4 SATA

Optional

MANO800DGGA w/ CFast (P/N: E38M800101)	LGA1156 Mini ITX SBC with DVI-D/VGA, 2 10/100/1000Mbps Ethernet, HD audio, 2 COM ports, 4 SATA and CFast

* Discrete graphic card is necessary for display if the chosen CPU doesn't have integrated graphics support.

* All specifications and photos are subject to change without notice.

MANO120

AMD G-Series APU Mini ITX SBC with
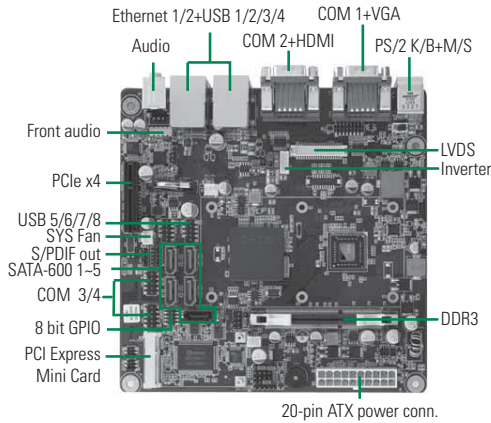AMD A55E FCH, HDMI/VGA/LVDS, Dual
LANs and SATA-600

Ethernet 1/2+USB 1/2/3/4
Audio
COM 2+HDMI
COM 1+VGA
PS/2 K/B+M/S

Front audio
LVDS
Inverter
PCIe x4
USB 5/6/7/8
SYS Fan
S/PDIF out
SATA-600 1~5
COM 3/4
8 bit GPIO
DDR3
PCI Express
Mini Card
20-pin ATX power conn.

AMD EMBEDDED SOLUTIONS G-SERIES APU	Low Power	DDR3	CFast™	PCIe Mini

System

CPU	AMD G-Series APU T56N 1.65 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1066/1333 max. up to 4 GB
Chipset	AMD A55E FCH
BIOS	AMI EFI 16Mb SPI
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x4 slot 1 x PCIe Mini Card 1 x CFast™
Battery	Lithium 3 V/ 220 mAH
Power Requirements	+5V @ 1.65A, +12V @ 1.7A, -12V @ 0.06A, +5VSB @ 0.09A, +3.3V @ 0.41A
Size	170 x 170 mm
Board Thicknes	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard 1 x PS/2 mouse 4 x RS-232 (with 2 powered COM)
SATA	5 x SATA-600 (Port 5 supports SATA DOM)
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart fan control
Ethernet	2 ports as 10/100/1000 Mbps support Wake-on-LAN, PXE Boot ROM with Realtek RTL8111DL
Audio	HD Codec audio as MIC-in/Line-out 2 CH support multiple streaming with Realtek ALC892 Speaker-out 3W x 2 with TPA3005D2 amplifier Front Audio pin header
USB	8 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control interface
Digital I/O	4 channels IN & 4 channels OUT

Features

- AMD G-Series APU T56N 1.65 GHz
- AMD A55E FCH
- 1 DDR3-1066/1333 MHz max. up to 4 GB
- 18 bit single channel LVDS
- Dual display combination with VGA, HDMI and LVDS
- PCIe x4 slot and PCI Express Mini Card
- SATA-600 supported
- CFast™ supported
- AT/ATX mode supported
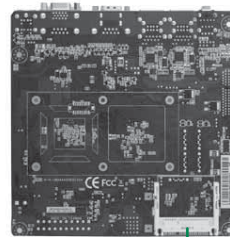
▲ Rear view   CFast   ▲ Side view
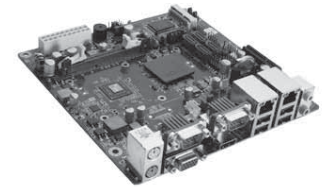
Display

Chipset	AMD Radeon™ HD6320 Graphic engine
Memory Size	2 GB
Display Interface	1 x HDMI 1 x VGA 1 x LVDS

Packing List

User's manual/utility CD, SATA cable and I/O bracket

Ordering Information

Standard

MANO120VGGA-T56N	AMD G-Series APU T56N Mini ITX SBC with A55E FCH, LVDS/HDMI/VGA, 2 10/100/1000Mbps Ethernet, HD audio, 4 COM, 8 USB ports and CFast

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

MANO111

AMD Embedded R-Series APU Mini ITX
SBC with AMD A75 FCH, DDR3, USB 3.0,
LVDS/DisplayPort/DVI-D and Dual LANs

DisplayPort 2+USB 3.0 3/4
Ethernet 1+COM 1
DisplayPort 1+USB 3.0 1/2
Ethernet 2+USB 2.0 5/6
DVI-D 1/2
USB 2.0 7~10
LVDS
PCI
SATA-600 1 ~ 4
SIM card slot
DDR3
COM 5
PCI Express Mini Card
COM 2 ~4
ATX power

DDR3   PCIe Mini   USB 3.0   AiRD   Full Solid Cap Design

System

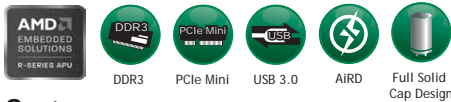|	
CPU	FS1r2 socket AMD Embedded R-Series APU
System Memory	2 x 204-pin SO-DIMM DDR3-1333/1600 max. up to 16 GB
Chipset	AMD A75 FCH
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	CFast™
Watchdog Timer	255 level, 1 ~ 255 sec
Expansion Interface	PCI, PCIe Mini Card, SIM card
Battery	Lithium 3V/220 mAH
Power Requirements	AMD R-Series R-464L 2.3 GHz, 8 GB DDR3 1600 x 2 +12V @ 3.4A.
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V. 4 x RS-232 (COM 2~5); with+5V/+12V.
SATA	4 SATA-600 with RAID 0, 1, 5 and 10
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart fan control
Ethernet	1st port as 10/100/1000Mbps supports wake-on-LAN PXE with Realtek RTL8111E. 2nd port as 10/100/1000Mbps supports wake-on-LAN, PXE and DUSH with Realtek RTL8111DP.
Audio	Supports 2.1channel audio lineout via HD Codec ALC662
USB	4 x USB 3.0 7 x USB 2.0 (USB 11 on the PCI Express Mini Card)
TPM	1.2
SMBus	N/A
Digital IO	4 Channels IN & 4 Channels OUT

Features

- FS1r2 socket AMD Embedded R-Series APU
- AMD A75 FCH
- Integrated graphics AMD Radeon HD 7 series
- DDR3 Dual channel SO-DIMM 1333/1600 max. up to 16 GB
- 4 SATA-600 support RAID 0,1,5,10
- 4 USB 3.0 supported
- 4 independent displays
- DisplayPort 2 supports multi-stream
- TPM 1.2 supported
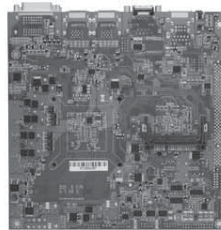
▲ Rear view   ▲ Side view
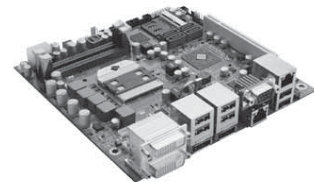
Display

Chipset	Integrated Gfx (AMD Radeon HD7000 series)
Memory Size	Shared memory
LCD Interface	18/24 bit Dual channel LVDS
Display Interface	1 x LVDS 2 x DisplayPort 2 x DVI-D

Packing List

User's manual/utility CD, cable

Ordering Information

Standard

MANO111	Mini ITX SBC with AMD R-Series APU, DDR3, USB 3.0, LVDS/DisplayPort/DVI-D, 5 COM, 4 USB 3.0 and 2 10/100/1000Mbps

* All specifications and photos are subject to change without notice.

SBC86850

Socket P Intel® Core™2 Duo Mini ITX SBC with Intel® GM45 + ICH9M Chipset, ATI M72 Graphics Chip, DualView, DVI-I/ LVDS and 4 COM

System

CPU	Socket P for Intel® Core™2 Duo/ Celeron® M processor with FSB 667/800/1066 MHz
System Memory	2 x 200-pin SO-DIMM support DDR2-667/800 max. up to 4 GB
Chipset	Intel® GM45 + ICH9M
Graphic Chip	ATI M72 graphics controller
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x4 slot supports 1 x PCIe x4 or 4 x PCIe x1 devices
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® Core™2 Duo T9400 2.53 GHz, 2G DDR2 Max. RMS: +5V_SBY @ 0.069A, +3.3V @ 0.827A, +5V @ 2.115A, +12V @ 1.796A, -12V @ NA
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard and mouse 4 x RS-232; with +5V/+12V powered
SATA	2 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROMs with Realtk RTL8111B
Audio	7.1 channel HD Codec audio as MIC-in/Line-out/ Speaker-out with Realtek ALC888
USB	8 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control interface
Digital I/O	8 channels IN/OUT programmable

Features

- Socket P for Intel® Core™2 Duo/ Celeron® M processor with FSB 667/800/1067 MHz
- Intel® GM45 + ICH9M chipset
- High performance ATI M72 graphics chip onboard
- 4 COM ports for transaction terminal applications
- 8 USB 2.0 ports supported
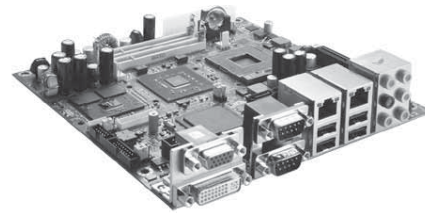
▲ Side view

Display

Chipset	ATI Radeon HD 3200 Graphics (w/ ATI M72) Intel® GMA 4500HD graphics Core (w/o ATI M72)
Memory Size	128 MB (w/ ATI M72) Intel® DVMT 5.0 compliant (w/o ATI M72)
Display Interface	w/ ATI M72: 1 x VGA; 1 x LVDS; 18/24-bit single/dual channel; 1 x DVI-I w/o ATI M72: 1 x VGA; 1 x LVDS; 18/24-bit single/dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable, CPU cooler

Cable

Part Number	Description	Qty
593826A0000E	SATA signal cables 500mm	1
59384500200E	COM x 2 w/ bracket, P=2.0, L=300mm	1

Ordering Information

Standard

SBC86850DGGA w/ ATI M72	Socket P Mini ITX SBC with DVI-I/LVDS LCD, 2 10/100/1000Mbps Ethernet, HD audio, 4 COM ports and ATI M72 graphics controller
SBC86850VGGA w/o ATI M72	Socket P Mini ITX SBC with VGA/LVDS LCD, 2 10/100/1000Mbps Ethernet, HD audio, 4 COM ports

Optional

E9C2D00016	ATP Z-U130 USB DoM 1GB 10P (RC)
E9C2D00026	ATP Z-U130 USB DOM 2GB 10P (RC)

SBC
Services
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Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
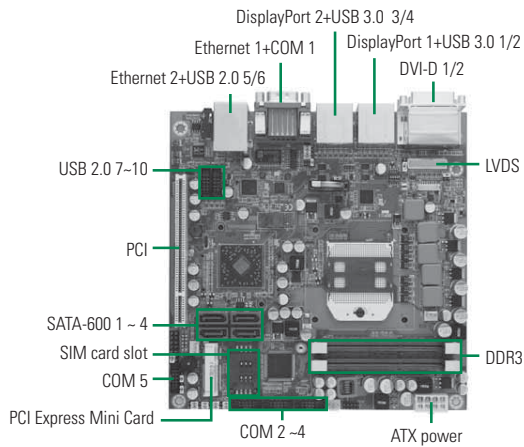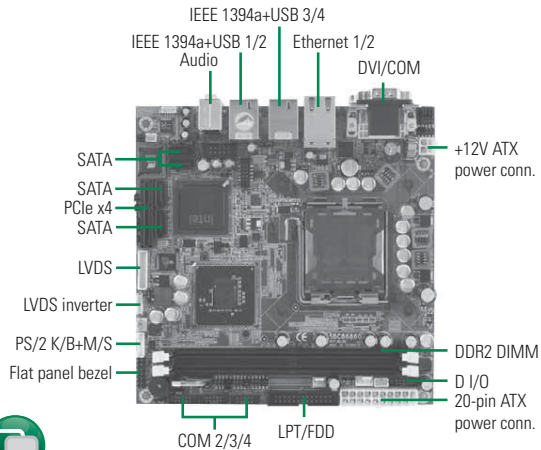SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

SBC86860

LGA775 Intel® Core™2 Quad/ Core™2 Duo Mini ITX SBC with Intel® Q35 + ICH9 Chipset, DVI-I/LVDS, PCI Express x4 and Firewire

DualView

Features

- LGA775 Intel® Core™2 Duo/ Core™2 Quad processor with FSB 800/1066/1333 MHz
- Intel® Q35 + ICH9 chipset
- 4 COM ports for transaction terminal applications
- 8 USB 2.0 ports and 2 IEEE 1394a ports
- TPM 1.2 trusted platform (optional)
- With high performance integrated graphics controller

▲ Side view

Display

Chipset	Intel® GMA 3100 graphics core
Memory Size	Intel® DVMT 4.0 compliant
Display Interface	1 x LVDS; 18/24-bit single/dual channel 1 x DVI-I

System

CPU	LGA775 socket for Intel® Core™2 Quad/ Core™2 Duo/ Celeron® processors with FSB 800/1066/1333 MHz
System Memory	2 x 240-pin DIMM supports DDR2-667/800 max. up to 4 GB
Chipset	Intel® Q35 + ICH9/ICH9DO
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II (optional)
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x4 (without CF version) or 4 x PCIe x1 devices
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® Core™2 Quad Q9400 2.66 GHz, 2G DDR2 Max. RMS: +5V_SBY @ 0.022A, +3.3V @ 0.682A, +5V @ 2.967A, +12V @ 2.707A, -12V @ 0.059A
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation (differentiated by CPU)
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD/LPT; with SPP/EPP/ECP supported 1 x PS/2 keyboard 1 x PS/2 mouse 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x RS-232/422/485 (COM 1); with +5V/+12V powered
SATA	4 x SATA-300; with RAID 0/1/10/5 (Optional with ICH9DO)
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
Audio	HD Codec audio as MIC-in/Line-out/Speaker-out with Realtek ALC262
USB	8 x USB 2.0
Firewire	2 x IEEE 1394a
TPM	Infineon SLB9365 for trusted platform (optional)
SMBus	System Management Bus for advanced monitoring/control interface
Digital I/O	8 channels IN/OUT programmable

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
593826A0000E	SATA signal cables 500mm	1
59384500200E	COM x 2 w/ bracket,P=2.0, L=250 mm	1
59386832000E	Wafer 2.00mm 6P to PS/2 cable, L=200 mm	1

Ordering Information

Standard

SBC86860DGGAF (P/N: E386860100)	LGA775 Mini ITX SBC with DVI-I/LVDS LCD, 2 10/100/1000Mbps Ethernet, HD audio, 4 COM ports and firewire

SBC86831

Socket M Intel® Core™2 Duo Mini ITX SBC with Intel® 945GME+ICH7M/-DH Chipset, VGA/LVDS, PCI Express x16 and Firewire

IEEE 1394a+USB 3/4
IEEE 1394a+USB 1/2
Ethernet 1/2   PS/2 K/B+M/S
Audio   COM+VGA

USB 5/6/7/8

LVDS   FDD/LPT
PCI
PCIe x16
PATA-100   COM 2/3/4

                        D I/O
                        DDR2 DIMM

SATA2   Socket M

Low Power   DualView   PCIe Mini

System

CPU	Socket M for Intel® Core™2 Duo/ Core™ Duo/ Core™ Solo/ Celeron® M processors with FSB 533/667 MHz; Intel® Celeron® M processor ULV 423 onboard
System Memory	2 x 240-pin DIMM supports DDR2-533/667 max. up to 4 GB
Chipset	Intel® 945GME + ICH7M/ICH7M-DH
BIOS	Phoenix-Award 4Mbit with RPL/PXE LAN Boot ROM, SmartView and customer CMOS backup
SSD	1 x CompactFlash™ type-II (optional)
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 1 x PCI for 32-bit PCI supports 2 bus masters 1 x PCI Express Mini Card (optional)
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® Core™2 Duo T7600 2.33 GHz, 2GB DDR2 Max. RMS: +5V_SBY @ 0.025A, +3.3V @ 0.105A, +5V @ 1.93A, +12V @ 1.583A, -12V @ NA
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x FDD/LPT(default); with SPP/EPP/ECP supported 1 x PS/2 keyboard; 1 x PS/2 mouse 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x RS-232/422/485 (COM 1); with +5V/+12V powered
SATA	2 x SATA-150; with RAID 0/1 (optional with ICH7M-DH)
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
Audio	AC'97 Codec audio as MIC-in/Line-out with Realtek ALC655
USB	8 x USB 2.0
Firewire	2 x IEEE 1394a
TPM	Infineon SLB9635 for trusted platform (optional)
SMBus	System Management Bus for advancedmonitoring/ control interface
Digital I/O	8 channels (3-IN & 5-OUT)

Features

- Socket M for Intel® Core™2 Duo/ Core™ Duo/ Core™ Solo processor with FSB 533/667 MHz
- Intel® 945GME + ICH7M/-DH chipset
- With high performance integrated graphics controller and discrete solution through PCIe x16 interface
- RAID 0/1 (optional with ICH7M-DH)
- 4 COM ports for transaction terminal applications
- 8 USB 2.0 ports and 2 IEEE 1394a ports

▲ Side view

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Packing List

Standard
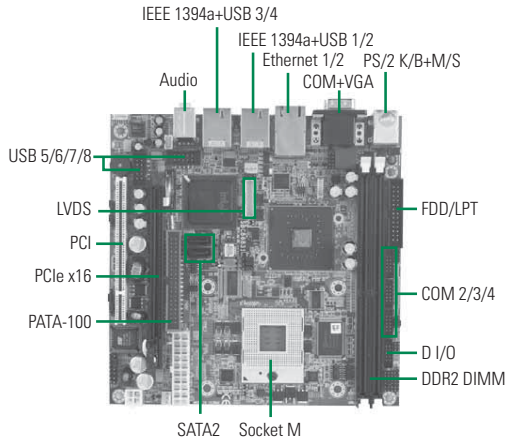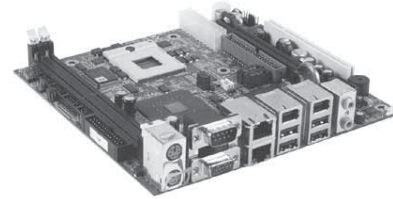
Quick installation guide, user's manual/utility CD, cable, CPU cooler

Cable

Part Number	Description	Qty
593826A0000E	SATA signal cable 500mm	1
59382601000E	Ultra DMA66 IDE cable 40-pin 455mm	1
59384500200E	COM x 2 w/ bracket, P=2.0, L=250mm	1
59386831000E	USB cable x 2 w/ bracket, P=2.54mm L=180mm	1

Ordering Information

Standard

SBC86831VGGAF (P/N: E386831100)	Socket M Mini ITX SBC with VGA/LVDS LCD, 2 10/100/1000Mbps Ethernet, AC'97 audio, 4 COM ports and firewire

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

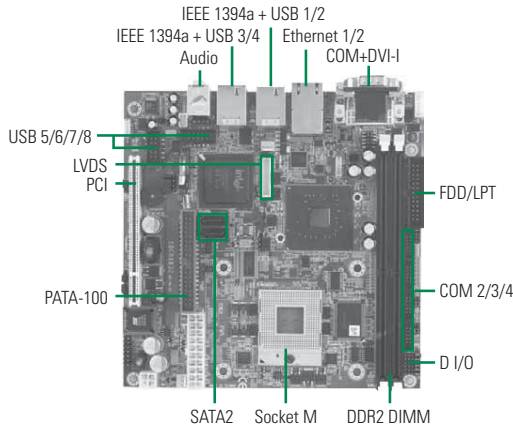Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

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axiomtek.com

SBC86832

Socket M Intel® Core™2 Duo Mini ITX SBC
with Intel® 945GME + ICH7M/-DH Chipset,
DVI-I/LVDS, 4 COM and Firewire

IEEE 1394a + USB 1/2
IEEE 1394a + USB 3/4   Ethernet 1/2
Audio   COM+DVI-I

USB 5/6/7/8
LVDS
PCI   FDD/LPT

PATA-100   COM 2/3/4

D I/O

SATA2   Socket M   DDR2 DIMM
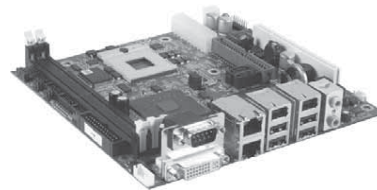
Low Power   DualView   PCIe Mini

System

CPU	Socket M for Intel® Core™2 Duo/ Core™ Duo/ Core™ Solo/ Celeron® M processors with FSB 533/667 MHz; Intel® Celeron® M processor ULV 423 onboard
System Memory	2 x 240-pin DIMM supports DDR2-533/667 max. up to 4 GB
Chipset	Intel® 945GME + ICH7M/ICH7M-DH
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II (optional)
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI for 32-bit PCI supports 2 bus masters 1 x PCI Express Mini Card (optional)
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® Core™2 Duo T7600 2.33 GHz, 2GB DDR2 Max. RMS: +5V_SBY @ 0.025A, +3.3V @ 0.106A, +5V @ 1.923A, +12V @ 1.584A, -12V @ NA
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x FDD/LPT(default); with SPP/EPP/ECP supported 1 x PS/2 keyboard; 1 x PS/2 mouse 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x RS-232/422/485 (COM 1); with +5V/+12V powered
SATA	2 x SATA-150; with RAID 0/1 (optional with ICH7M-DH)
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
Audio	AC'97 Codec audio as MIC-in/Line-out with Realtek ALC655
USB	8 x USB 2.0
Firewire	2 x IEEE 1394a
TPM	Infineon SLB9635 for trusted platform (optional)
SMBus	System Management Bus for advanced monitoring/control interface
Digital I/O	8 channels (3-IN & 5-OUT)

Features

- Socket M for Intel® Core™2 Duo/Core Duo/Core Solo processor with FSB 533/667 MHz
- Intel® 945GME + ICH7M/-DH chipset
- DVI-I interface for both VGA and DVI external display devices
- 4 COM ports for transaction terminal applications
- 8 USB 2.0 ports and 2 IEEE 1394a ports

▲ Side view

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x LVDS; 18/24-bit single/dual channel 1 x DVI-I

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable,CPU cooler

Cable

Part Number	Description	Qty
593826A0000E	SATA signal cable 500mm	1
59382601000E	Ultra DMA66 IDE cable 40-pin 455mm	1
59384500200E	COM x 2 w/ bracket, P=2.0, L=250mm	1
59386831000E	USB cable x 2 w/ bracket, P=2.54mm L=180mm	1
59386832000E	Wafer 2.00mm 6P to PS/2 cable, L=200mm	1
594826A0000E	DVI to VGA adaptor	1

Ordering Information

Standard

SBC86832DGGAF (P/N: E386832100)	Socket M Mini ITX SBC with LVDS/DVI-I, 10/100/1000Mbps Ethernet, AC 97 audio, 4 COM ports and firewire

* All specifications and photos are subject to change without notice.

SBC86836

Intel® Atom™ N270 Mini ITX SBC with Intel® 945GSE + ICH7M Chipset, VGA/LVDS, DualView, 6 COM and Dual LANs

Ethernet+USB 5/6 Audio
Ethernet+USB 3/4 VGA/ COM 3
K/B+M/S
COM 1/2
COM 4/5/6
PCI
USB 1/2/7/8
SATA
CF
LVDS
DDR2 DIMM
20-pin ATX power conn.

Supports Intel Atom inside®

Fanless · Low Power · DualView
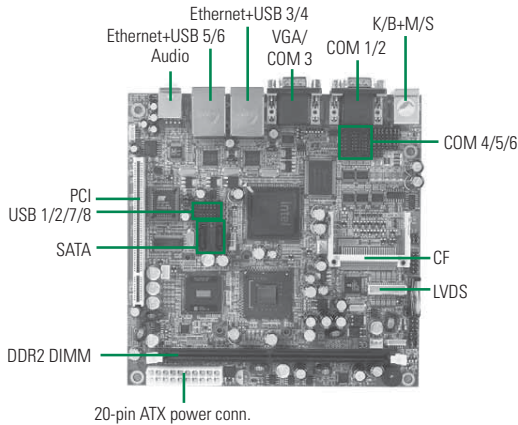
System

CPU	Intel® Atom™ processor N270 1.6 GHz onboard with FSB 533 MHz
System Memory	1 x 240-pin DIMM supports DDR2-400/533 max. up to 2 GB
Chipset	Intel® 945GSE + ICH7M
BIOS	AMI
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI for 32-bit PCI supports 2 bus masters
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® Atom™ N270 1.6 GHz, 1GB DDR2 Max. RMS: +5V_SBY @ 0.223A, +3.3V @ 0.767A, +5V @ 1.644A, +12V @ 0.123A, -12V @ 0.084A
Size	170mm x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard 1 x PS/2 mouse 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x RS-232/422/485 (COM 1); with +5V/+12V powered
SATA	2 x SATA-150
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
Audio	AC'97 Codec audio as MIC-in/Line-out/Speaker-out with Realtek ALC203
USB	8 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control interface
Digital I/O	8 channels (4-IN & 4-OUT)

Features

- Intel® Atom™ processor N270 1.6 GHz onboard with FSB 533 MHz
- Intel® 945GSE + ICH7M chipset
- Intel® Gen 3.5 high performance integrated graphics controller for VGA and LVDS
- 8 USB 2.0 ports

▲ Side view

Display

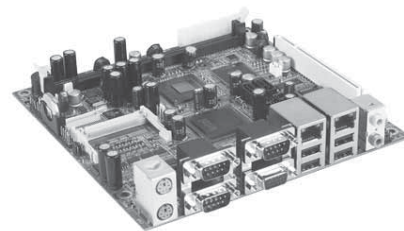| Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18-bit single channel (SBC86836VGGA-N270 w/18-bit LVDS) 1 x LVDS; 18/24-bit single/dual channel (SBC86836VGGA-N270 w/24-bit LVDS)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
593826A0000E	SATA signal cables 500mm	1

Ordering Information

Standard

SBC86836VGGA-N270 w/ 18-bit LVDS	Mini ITX SBC with Intel® Atom™ processor N270, VGA, 18-bit LVDS LCD, 2 10/100/100Mbps Ethernet, audio and PCI expansion
SBC86836VGGA-N270 w/ 24-bit LVDS	Mini ITX SBC with Intel® Atom™ processor N270, VGA, 24-bit LVDS LCD, 2 10/100/100Mbps Ethernet, audio and PCI expansion

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

SBC86822

Socket 478 Intel® Pentium® M Mini ITX SBC
with Intel® 910GMLE + ICH6M Chipset,
DualView, SATA and 6 COM Ports

Ethernet 2+USB 7/8
Audio   Ethernet 1+USB 5/6   COM 1/2
COM 3+VGA   PS/2 K/B+M/S

USB 1/2/3/4
SATA

PATA
PCI

DIO
COM 4/5/6
LPT

LVDS 1/2

DDR2
DIMM 1/2

ATX power conn.

Fanless   Low Power   DualView

System

CPU	Socket 478 for Intel® Pentium® M/ Celeron® M processors with FSB 400 MHz; ULV Intel® Celeron® M processor 600MHz/512KB or 1GHz/ZC onboard
System Memory	2 x 240-pin DIMM supports DDR2-400/533 max. up to 2 GB
Chipset	Intel® 910GMLE + ICH6M
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II with DMA mode support (optional)
Watchdog Timer	255 levels, 1~255 sec.
Expansion interface	1 x PCI for 32-bit PCI supports 2 bus masters
Battery	Lithium 3V/220 mAH
Power Requirements	*Intel® Celeron® 1.0 GHz/ZC, 1GB DDR2 Max. RMS: +5V_SBY @ 0.022A, +3.3V @ 0.68A, +5V @ 0.98A, +12V @ 0.579A, -12V @ 0.064A *Intel® Pentium® M 2.0 GHz, 1GB DDR2 Max. RMS: +5V_SBY @ 0.022A, +3.3V @ 0.87A, +5V @ 3.876A, +12V @ 0.759A, -12V @ 0.079A
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x PS/2 keyboard; 1 x PS/2 mouse 6 x RS-232; with +5V/+12V powered 1 x LPT; with SPP/EPP/ECP supported
SATA	2 x SATA-150
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
Audio	AC'97 Codec audio as MIC-in/Line-out/Speaker-out with Realtek ALC655
USB	8 x USB 2.0
SMBus	System Management Bus for advanced monitoring/ control interface
Digital I/O	8 channels (4-IN & 4-OUT)

Features

- Socket 478 for Intel® Pentium® M/ Celeron® M processor with FSB 400 MHz
- Intel® 910GMLE + ICH6M chipset
- DualView with different content & resolution
- 8 USB 2.0 ports for high speed peripherals
- 2 Serial ATA-150 supported
- 6 COM ports

▲ Side view

Display

Chipset	Intel® GMA 900 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable, CPU cooler (socket type)

Cable

Part Number	Description	Qty
593836A0030E	SATA power cable 150mm	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

SBC86822VGGA (P/N: E386822100)	Socket 478 Mini ITX SBC with VGA, 18-bit single/dual LVDS LCD, 2 10/100/1000Mbps Ethernet (RTL8111B), AC 97 audio and 6 COM ports
SBC86822VGGA-1GE (P/N: E386822101) (fanless)	Mini ITX SBC with ULV Intel® Celeron® M 1 GHz/0K CPU onboard, VGA/LVDS LCD, 2 10/100/1000Mbps Ethernet (RTL8111B), AC 97 audio and 6 COM ports

* All specifications and photos are subject to change without notice.

SBC86620

AMD LX Mini ITX SBC with Dual LANs, 4 COM and USB 2.0

Ethernet+USB 3/4
Ethernet+USB1/2
Audio
LPT+COM 1+VGA
PS/2 K/B+M/S

MiniPCI
PCI
CF
PATA IDE

PS/2 K/B
PS/2 M/S
COM 2/3/4
TTL LCD
LVDS LCD
FDD
DDR DIMM

Fanless   Low Power   PCIe Mini

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

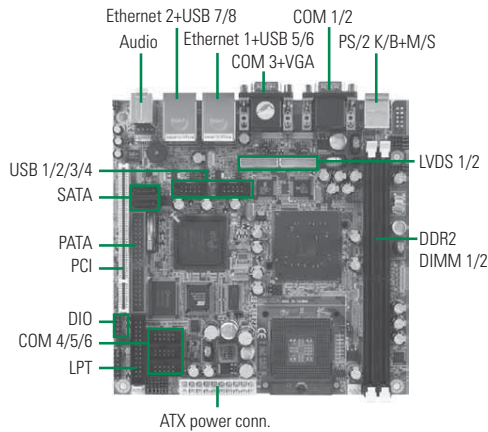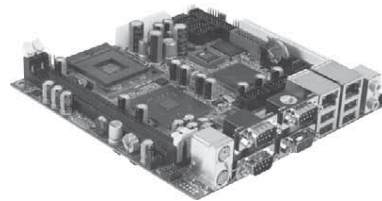Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

Features

- Low Power Fanless AMD LX800
- AMD LX + CS5536AD chipset
- Dual 10/100 Mbps Ethernet supported
- 4 COM and 4 USB 2.0 ports
- 1 PCI slot and MiniPCI socket for expansion

▲ Side view

System

CPU	AMD LX800 processor onboard
System Memory	1 x 184-pin DIMM supports DDR-333/400 max. up to 1 GB
Chipset	AMD LX800 + CS5536AD
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI for 32-bit PCI supports 2 bus masters 1 x MiniPCI
Battery	Lithium 3V/220 mAH
Power Requirements	AMD LX800, 1GB DDR Max. RMS: +5V_SBY @ 0.07A, +3.3V @ NA, +5V @ 1.255A, +12V @ 0.046A, -12V @ NA
Size	170 x 170 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x RS-232/422/485 (COM 1); with +5V/+12V powered 1 x LPT; with SPP/EPP/ECP supported
SATA	N/A
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 ports as 10/100Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8100C
Audio	AC'97 Codec audio as MIC-in/Line-out/Speaker-out with Realtek ALC203
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control interface
Digital I/O	8 channels IN/OUT programmable

Display

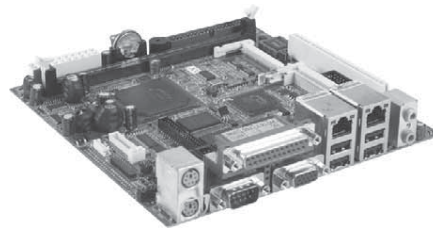|	
Chipset	AMD LX intergrated
Memory Size	Max. up to 254 MB
Display Interface	1 x VGA 1 x LCD interface for TTL (Max up to 24-bit) or LVDS (18/24-bit single channel)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380402010E	COM port cable w/ bracket	1
593836A0010E	40-40-40 IDE cable L=310+155mm	1

Ordering Information

Standard

SBC86620VEEA -500 (P/N: E386620101)	Mini ITX SBC with AMD LX800 500 MHz CPU, VGA/LCD, 2 10/100Mbps Ethernet, AC 97 audio and 4 COM ports

axiomtek.com
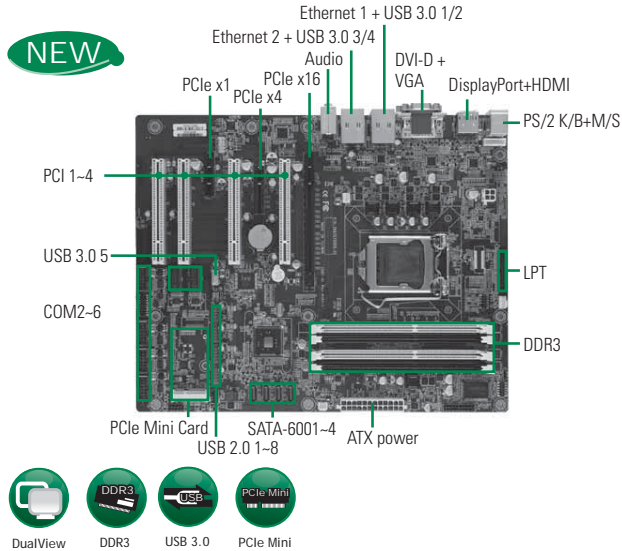
IMB211

LGA1150 Socket Intel® Core™ i7/ i5/ i3/ Celeron® ATX Industrial Motherboard with Intel® Q87 PCH, USB 3.0, SATA 3.0, Dual LAN, DisplayPort/VGA/DVI-D/HDMI and PCIe Mini Card
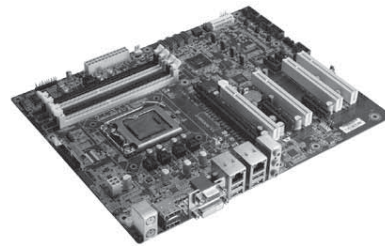
NEW

Ethernet 1 + USB 3.0 1/2
Ethernet 2 + USB 3.0 3/4
Audio
DVI-D + VGA
DisplayPort+HDMI
PCIe x1
PCIe x4
PCIe x16
PS/2 K/B+M/S
PCI 1~4
USB 3.0 5
LPT
COM2~6
DDR3
PCIe Mini Card
SATA-6001~4
ATX power
USB 2.0 1~8

DualView | DDR3 | USB 3.0 | PCIe Mini

Features

- LGA1150 socket 4th Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors
- Intel® Q87 PCH
- 4 DDR3-1333/1600 MHz max. up to 32 GB memory capacity
- Triple view display
- PCIe x16 Gen. 3 supported
- 4 SATA-600 with RAID 0, 1, 5 and 10
- 4 USB 3.0 supported
- TPM header supported
- iAMT9.0 supported

▲ Side view

System

CPU	LGA1150 socket 4th Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors
System Memory	4 x 240-pin DIMM support IMB210 supports Non ECC DDR3-1333/1600 max. up to 32GB
Chipset	Intel® Q87 PCH
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	N/A
Watchdog Timer	255 levels
Expansion Interface	1 x PCIe x16 Gen. 3 slots 1 x PCIe x4 Gen. 2 1 x PCIe x1 Gen. 2 4 x PCI 1 x PCI Express Mini Card, co-layout with mSATA
Battery	Lithium 3 V/220 mAH
Power Requirements	TBD
Size	305 x 244 mm
Board Thickness	1.6 mm
Temperature	0°C ~ +60°C, operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard 1 x PS/2 mouse 5 x RS-232 (Internal box header) 1 x RS-232/422/485 (Internal box header)
SATA	4 x SATA-300 with RAID 0/1/5/10
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart fan control
Ethernet	1st port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM, iAMT with Intel® i218LM 2nd port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i210AT
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC892
USB	8 x USB 2.0 ports and 5 x USB 3.0 ports
TPM	TPM header
SMBus	N/A
Digital I/O	8 channels (4-IN & 4-OUT)

Display

Display Chipset	Intel® HD Integrated Graphics
Memory Size	TBD
Display Interface	1 x DisplayPort 1 x HDMI 1 x DVI-D 1 x VGA

Packing List

User's manual/utility CD, cable

Ordering Information

Standard

IMB211	LGA1150 socket ATX industrial motherboard with Intel® Core™ i7/ i5/ i3/ Celeron®, USB 3.0, SATA3.0, Dual LAN, DisplayPort/VGA/DVI-D/HDMI and PCIe Mini Card

* All specifications and photos are subject to change without notice.

IMB210

LGA1150 Socket Intel® Xeon® E3/ Core™ i3/ Pentium®/ Celeron® ATX Industrial Motherboard with Intel® C226 PCH, ECC DDR3, USB 3.0, SATA 3.0, Dual LAN, DP/ DVI-I/HDMI and CFast™

NEW

COM 2/3/4/5/6
PCI
PCIe x8
PCIe x4
PCIe x16
PCIe x1
PCI
Audio
LAN 2 + USB 3.0 3/4
LAN 1 + USB 3.0 1/2
COM 1 + DVI-I
DisplayPort + HDMI
PS/2 KB & MS
DDR3
DIO
CFast™
USB 2.0 1/2/3/4/5/6
SATA-600 1/2/3/4/5
ATX Power

DualView | DDR3 | USB 3.0 | CFast™

System

CPU	LGA1150 socket 4th Generation Intel® Xeon® E3/ Core™ i3/ Pentium®/ Celeron® processors
System Memory	4 x 240-pin DIMM support IMB210 supports ECC DDR3-1333/1600 max. up to 32 GB
Chipset	Intel® C226 PCH
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	1 x CFast™
Watchdog Timer	255 levels
Expansion Interface	2 x PCIe x16 Gen. 3 slots (1 PCIe x16 or 2 PCIe x8 when use dual PCIe x8 concurrently) 1 x PCIe x4 Gen. 2 1 x PCIe x1 Gen. 2 3 x PCI
Battery	Lithium 3 V/220 mAH
Power Requirements	TBD
Size	305 x 244 mm
Board Thickness	1.6 mm
Temperature	0°C ~ +60°C, operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard 1 x PS/2 mouse 5 x RS-232 (Internal box header) 1 x RS-232/422/485 (Rear IO)
SATA	5 x SATA-300 with RAID 0/1/5/10
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart fan control
Ethernet	1st port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM, iAMT with Intel i217LM 2nd port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel i210AT
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662 speaker-out with 1W/8ohm x 2
USB	4 x USB 3.0 port & 6 x USB 2.0 port
TPM	Infineon SLB9635 for trusted platform
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels (4-IN & 4-OUT)

Features

- LGA1150 socket 4th Generation Intel® Xeon® E3/ Core™ i3/ Pentium®/ Celeron® processors
- Intel® C226 PCH
- 4 DDR3-1333/1600 MHz max. up to 32 GB memory capacity
- Triple view display
- PCIe x16 Gen. 3 supported
- 5 SATA-600 with RAID 0, 1, 5 and 10
- 4 USB 3.0 supported
- TPM 1.2 supported
- iAMT9.0 supported

▲ Side view

Display

Display Chipset	Intel® HD Integrated Graphics
Memory Size	TBD
Display Interface	1 x DisplayPort 1 x HDMI 1 x DVI-I

Packing List
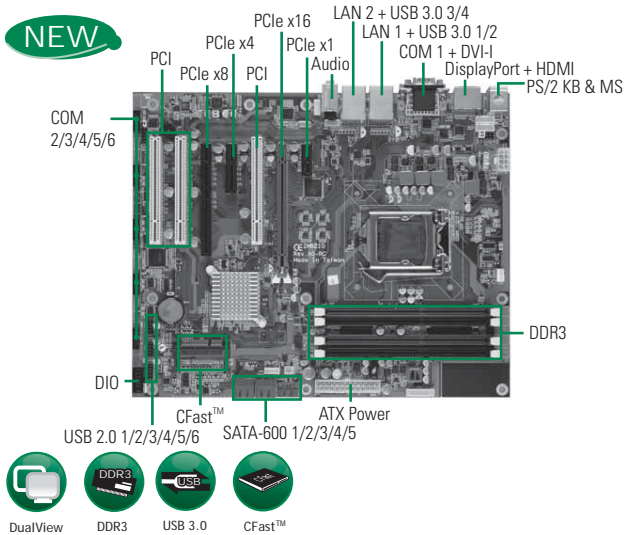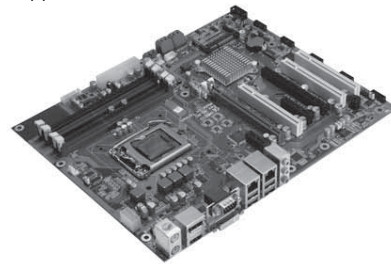
User's manual/utility CD, cable

Ordering Information

Standard

IMB210	LGA1150 socket ATX industrial motherboard with Intel® Xeon® E3/ Core™ i3/ Pentium®/ Celeron®, ECC DDR3, USB3.0, SATA3.0, Dual LAN, DP/DVI-I/HDMI and CFast™

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX
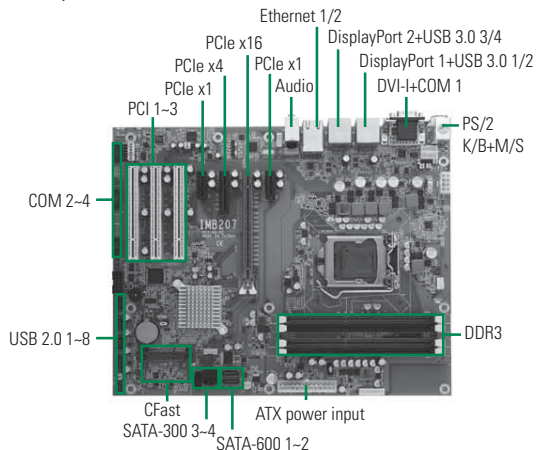
Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

IMB208

LGA1155 Socket Intel® Core™ i7/ i5/ i3/ Celeron® ATX Industrial Motherboard with Intel® C216 PCH, USB 3.0, DisplayPort/DVI-I (VGA), Dual LANs and CFast™
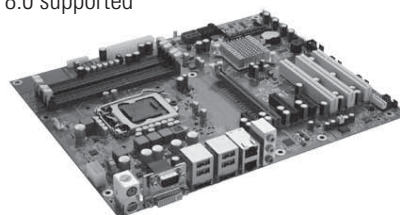

System

CPU	LGA1155 socket 3rd Generation Intel® Core® i7/ i5/ i3/ Celeron® processors (Ivy Bridge)
System Memory	4 x 240-pin DIMM support ECC DDR3-1333/1600 max. up to 32 GB
Chipset	Intel® C216 PCH
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 Gen. 3 (slot 2) 1 x PCIe x4 Gen. 2 2 x PCIe x1 Gen. 2 3 x PCI
Battery	Lithium 3 V/220 mAH
Power Requirements	E3-1275V2 3.5 GHz DDR3, 8GB 1600 x 1 +5v@2.8A, +12V@9.3A, -12V@0.4A, +5VSB@0.4A, +3.3V@2.1A
Size	305 x 244 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard 1 x PS/2 mouse 3 x RS-232 (COM 2/3/4) 1 x RS-232/422/485 (COM 1)
SATA	2 x SATA-600 & 3 x SATA-300 with RAID 0/1/5
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart fan control
Ethernet	1st port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM, iAMT with Intel® 82579LM 2nd port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662 speaker-out with 1W/8ohm x 2
USB	4 x USB 3.0 & 8 x USB 2.0
TPM	Infineon SLB9635 for trusted platform
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels (4-IN & 4-OUT)

Features

- LGA1155 socket 3rd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors (Ivy Bridge)
- Intel® C216 PCH
- 4 DDR3-1333/1600 MHz up to 32 GB
- Triple view display
- PCIe Gen. 3 supported
- 2 SATA-600 with RAID 0, 1
- 4 USB 3.0 supported
- CFast™ supported
- TPM 1.2 supported
- iAMT 8.0 supported

▲ Side view

Display

| Display Chipset	Intel® HD 4000/2500 Graphics
Memory Size	Max. 1.7GB
Display Interface	2 x DisplayPort 1 x DVI-I

Packing List

User's manual/utility CD, cable

Ordering Information

Standard

IMB208	LGA1155 socket ATX Industrial Motherboard with Intel® Core™ i7/ i5/ i3/ Celeron, USB 3.0, 2 10/100/1000Mbps, DisplayPort/DVI-I (VGA) and CFast™

* All specifications and photos are subject to change without notice.

IMB207

LGA1155 Socket Intel® Core™ i7/ i5/ i3/
Celeron® ATX Industrial Motherboard
with Intel® Q77 PCH, USB 3.0, DisplayPort/
DVI-I, Dual LANs and CFast™
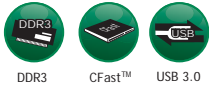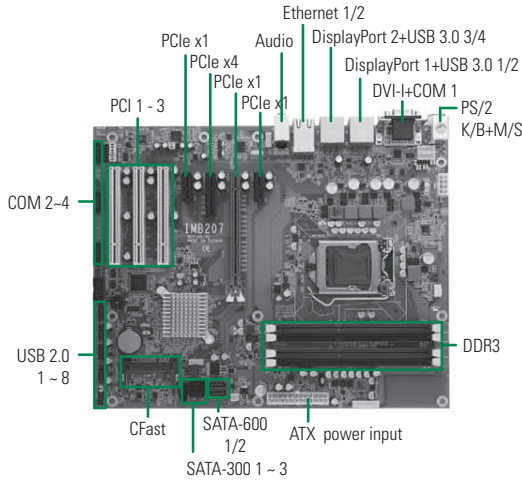
Features

- LGA1155 socket 3rd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors (Ivy Bridge)
- Intel® Q77 PCH
- 4 DDR3-1333/1600 MHz up to 32 GB
- Triple view display
- PCIe Gen. 3 supported
- 2 SATA-600 with RAID 0, 1, 5 and 10
- 4 USB 3.0 supported
- CFast™ supported
- TPM 1.2 supported
- iAMT 8.0 supported

▲ Side view

System

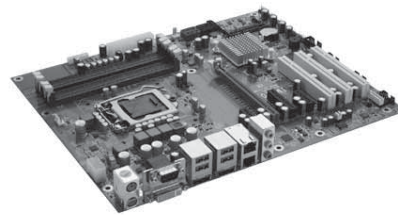|	
CPU	LGA1155 socket 3rd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors (Ivy Bridge)
System Memory	4 x 240-pin DIMM support DDR3-1333/1600 max. up to 32 GB
Chipset	Intel® Q77 PCH
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 Gen. 3 (Slot 2) 1 x PCIe x4 Gen. 2 2 x PCIe x1 Gen. 2 3 x PCI
Battery	Lithium 3 V/220 mAH
Power Requirements	Intel® Core™ i7-3770K 3.5 GHz, 8 GB DDR3 1600 x 1 +5V @ 2.2A, +12V @ 7.1A, -12V @ 0.2A, +5VSB @ 0.2A, +3.3V @ 1.4A
Size	305 x 244 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard 1 x PS/2 mouse 3 x RS-232 (COM 2/3/4) 1 x RS-232/422/485 (COM 1)
SATA	2 x SATA-600 & 3 x SATA-300 with RAID 0/1/5/10
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart fan control
Ethernet	1st port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM, iAMT with Intel® 82579LM 2nd port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662 speaker-out with 1W/8ohm x 2
USB	4 x USB 3.0 port & 8 x USB 2.0 port
TPM	Infineon SLB9635 for trusted platform
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels (4-IN & 4-OUT)

Display

Display Chipset	Intel® HD 4000/2500 Graphics
Memory Size	Max. 1.7 GB
Display Interface	2 x DisplayPort 1 x DVI-I

Packing List

User's manual/utility CD, cable

Ordering Information

Standard

IMB207	LGA1155 socket ATX Industrial Motherboard with 3rd Gen Intel® Core™ i7/ i5/ i3/ Celeron®, USB 3.0, 2 10/100/1000Mbps, DisplayPort/ DVI-I, 4 COM and CFast

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
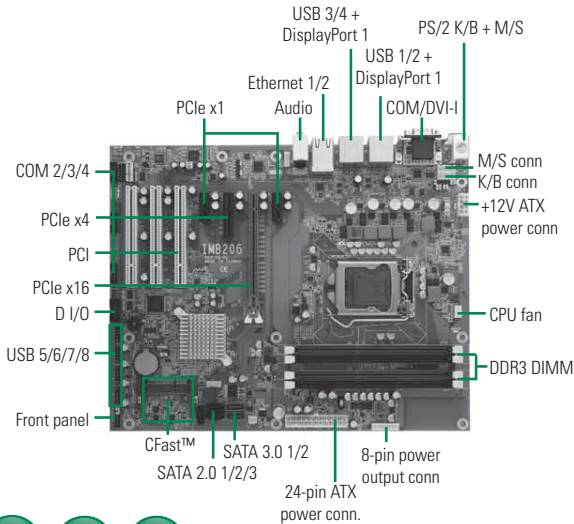>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

IMB206

LGA1155 Socket Intel® Core™ i7/ i5/ i3 ATX Industrial Motherboard with Intel® Q67 PCH Chipset, DVI-I/DisplayPort, Dual LANs and CFast™
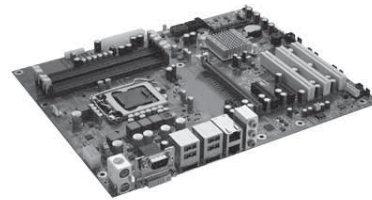

Labels around board diagram:
- USB 3/4 + DisplayPort 1
- PS/2 K/B + M/S
- USB 1/2 + DisplayPort 1
- Ethernet 1/2
- Audio
- COM/DVI-I
- PCIe x1
- COM 2/3/4
- M/S conn
- K/B conn
- +12V ATX power conn
- PCIe x4
- PCI
- PCIe x16
- D I/O
- CPU fan
- USB 5/6/7/8
- DDR3 DIMM
- Front panel
- CFast™
- SATA 3.0 1/2
- SATA 2.0 1/2/3
- 8-pin power output conn
- 24-pin ATX power conn.

DualView   DDR3   CFast™

Features

- LGA1155 socket 2nd Generation Intel® Core™ i7/ i5/ i3 processors (Sandy Bridge)
- Intel® Q67 PCH
- 4 DDR3-1066/1333 DIMM support up to 16 GB
- Dual View (2 x DisplayPort + 1 x DVI-D or VGA)
- PCIe Gen. 2 at 5GT/s
- SATA-600 supported
- 12 USB 2.0 ports supported
- CFast™ supported
- TPM supported
- iAMT 7.0 supported

▲ Side view

System

CPU	LGA1155 socket for 2nd Generation Intel® Core™ i7/ i5/ i3 processors (Sandy Bridge)
System Memory	4 x 240-pin DIMM supports DDR3-1066/1333 max. up to 16 GB
Chipset	Intel® Q67 PCH
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 Gen. 2 (slot 2) 1 x PCIe x4 Gen. 2 2 x PCIe x1 Gen. 2 3 x PCI
Battery	Lithium 3 V/220 mAH
Power Requirements	Intel® Quad core CPU, 8 GB DDR3, Max. RMS 12V @ 2.4A, +5V @ 1.6A, +3V @ 1.6A, 5V_SB @ 0.2A.
Size	305 x 244 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard 1 x PS/2 mouse 3 x RS-232 (COM 2/3/4) 1 x RS-232/422/485 (COM 1)
SATA	2 x SATA-600 & 3 x SATA-300 with RAID 0/1/5/10
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart fan control
Ethernet	1st port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM, iAMT with Intel® 82579LM 2nd port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662 speaker-out with 1W/8ohm x 2
USB	12 x USB 2.0 port
TPM	Infineon SLB9635 for trusted platform
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels (4-IN & 4-OUT)

Display

Chipset	Intel® HD 2000/3000 Graphics
Memory Size	Max. 1.7 GB
Display Interface	2 x DP 1 x DVI-I

Packing List

Standard

User's manual/utility CD, cable

Cable

Part Number	Description	Qty
593826A0000E	SATA signal cable 500mm	1
59380502000E	COM+printer cable w/ braket	1

Ordering Information

Standard

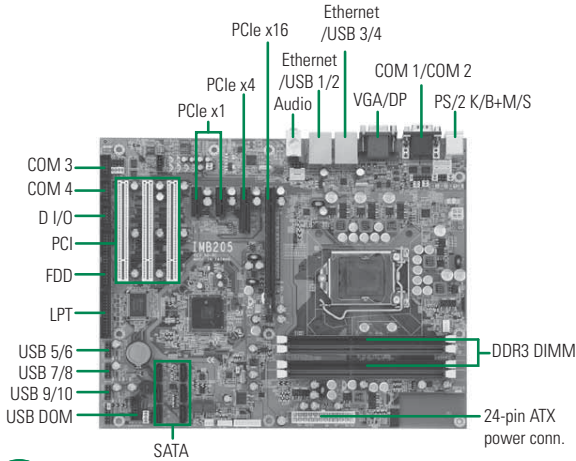|	
IMB206DGGA	LGA1155 socket ATX industrial M/B with DisplayPort/DVI-I, 2 10/100/1000Mbps Ethernet, 4 COM, RAID and HD audio

* Discrete graphic card is necessary for display if the chosen CPU doesn't have integrated graphics support.

* All specifications and photos are subject to change without notice.

IMB205

LGA1156 Socket Intel® Core™ i7/ i5/ i3/ Pentium® ATX Industrial Motherboard with Intel® Q57 Chipset, VGA/DisplayPort and Dual LANs

DDR3
DDR3

Features

- LGA1156 socket Intel® Core™ i7/ i5/ i3/ Pentium processor
- Intel® Q57 chipset
- 4 DDR3-1066/1333 DIMM support up to 16 GB
- 6 SATA-300 with RAID 0, 1, 5 and 10
- Intel® AMT & TPM (optional) supported

▲ Side view

System

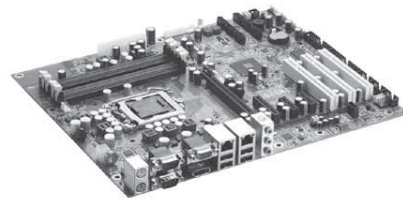|	
CPU	LGA1156 socket for Intel® Core™ i7/ i5/ i3 & Pentium® processors
System Memory	4 x 240-pin DIMM supports DDR3-1066/1333 max. up to 16 GB
Chipset	Intel® Q57
BIOS	AMI UEFI BIOS
SSD	USB DOM
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 1 x PCIe x4 (refer to user's manual for setting) 2 x PCIe x1 (refer to user's manual for setting) 3 x PCI
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® Core™ i5-660 @3.33 GHz, 2GB DDR3 Max. RMS: +5V_SBY @ 0.43A, +3.3V @ 0.8A, +5V @ 0.966A, +12V @ 2.533A, -12V @ 0.033A
Size	305 x 244 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD; 1 x PS/2 keyboard; 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x RS-232/422/485 (COM 1); with +5V/+12V powered
SATA	6 x SATA-300 with RAID 0/1/10/5
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	1st port as 10/100/1000Mbps supports iAMT, Wake-on-LAN, RPL/PXE Boot ROM with Intel 82578DM 2nd port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82574L
Audio	HD Codec audio as MIC-in/ Line-out/Speaker-out
USB	12 x USB 2.0; 4 ports on the rear I/O, 8 ports with pin-headers
TPM	Infineon SLB9635 for trusted platform (optional)
SMBus	System Management Bus for advanced monitoring/control interface
Digital I/O	8 channels IN/OUT programmable

Display

Chipset	Intel® HD Graphics
Memory Size	Intel® DVMT 5.0 compliant
Display Interface	1 x VGA 1 x DisplayPort

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
593826A0000E	SATA signal cable 500mm	1
59380502000E	COM + printer cable w/ bracket	1

Ordering Information

Standard

IMB205VGGA (P/N: E38F205100)	LGA1156 socket ATX industrial M/B with VGA/DisplayPort, 2 10/100/1000Mbps Ethernet, 4 COM, Audio, iAMT and RAID
IMB205VGGA TPM (P/N: E38F205101)	LGA1156 socket ATX industrial M/B with VGA/DisplayPort, 2 10/100/1000Mbps Ethernet, 4 COM, Audio, iAMT, TPM and RAID

* Discrete graphic card is necessary for display if the chosen CPU doesn't have integrated graphics support.

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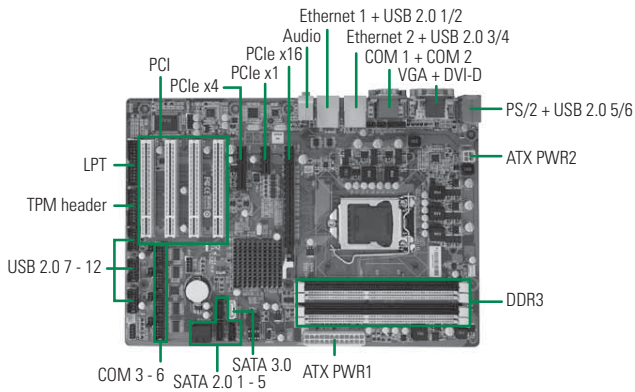
IMB204

LGA1155 Socket Intel® Core™ i7/ i5/ i3/
Celeron® ATX Industrial Motherboard with
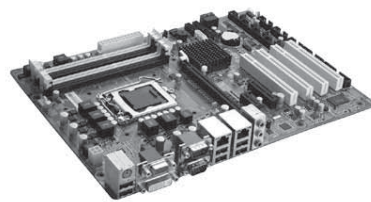Intel® B75 PCH, SATA3.0, Dual LANs,
DVI-D/VGA and LPT

Features

- LGA1155 socket 3rd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors
- Intel® B75 PCH
- 4 DDR3-1333/1600 DIMM support up to 32 GB
- Dual View display via DVI-D/VGA
- PCIe Gen. 3 supported
- 1 SATA-600 & 5 SATA-300
- 12 USB 2.0 supported
- TPM 1.0 header support

▲ Side view

System

CPU	LGA1155 socket Intel® Core™ i7/ i5/ i3/ Celeron® processors
System Memory	4 x 240-pin DIMM support non-ECC DDR3-1333/1600 max. up to 32 GB
Chipset	Intel® B75 PCH
BIOS	AMI
SSD	N/1
Watchdog Timer	255 levels
Expansion Interface	1 x PCIe x16 Gen. 3 1 x PCIe x4 Gen. 2 1 x PCIe x1 Gen. 2 4 x PCI
Battery	Lithium 3 V/ 220 mAH
Power Requirements	TBD
Size	305 x 244 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard and mouse 5 x RS-232 (COM 2/3/4/5/6) 1 x RS-232/422/485 (COM 1) 1 x LPT 1x TPM header
SATA	1 x SATA-600 & 5 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart fan control
Ethernet	1st port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM, iAMT with Intel® 82574LM 2nd port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® 82579V
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC892
USB	12 x USB 2.0
TPM	Support TPM1.0 header
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels (4-IN & 4-OUT)

Display

Chipset	Intel® HD 4000/2500 Graphics
Memory Size	Max. 1.7 GB
Display Interface	1 x VGA 1 x DVI-D

Packing List

Standard

User's manual/utility CD cable, I/O bracket

Ordering Information

Standard

IMB204	LGA1155 socket ATX industrial motherboard with Intel® Core™ i7/ i5/ i3/ Celeron®, 2 10/100/100Mbps Ethernet, DVI-D/VGA, 6 COM and LPT

* All specifications and photos are subject to change without notice.

5
Slot CPU Cards

The Slot CPU card family in Axiomtek is from VIA V4, Intel® Celeron®/ Celeron® D/ Celeron® M/ Pentium® 4/ Pentium® D/ Pentium® M/ Core™ Duo/ Core™2 Duo/ Core™2 Extreme up to Core™2 Quad and Core™ i series. The PICMG 1.0 full-size CPU card is focused on multiple-slot PCI and ISA expansion demands. The PICMG 1.0 half-size CPU card is mainly for small footprint with limited slot expansion. The PICMG 1.3 full-size CPU card is ideal for performance-demanding and bandwidth concernd applications. And the PICMG 1.3 half-size CPU card is specially designed for space concernd but performance applications.

PICMG 1.3 Full-size System Host Boards

Selection Guide

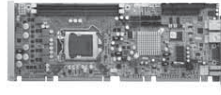|	Page 180	Page 181	Page 182
Features\Models	**SHB108**	**SHB106**	**SHB105**
Form Factor	PICMG 1.3	PICMG 1.3	PICMG 1.3
CPU Level	Intel® Xeon®/ Core™ i7/ i5/ i3	Intel® Core™ i7/ i5/ i3	Intel® Xeon®/ Core™ i5/ i3
CPU Socket	LGA1155	LGA1155	LGA1156
CPU FSB Frequency	N/A	N/A	N/A
Core Logic Chipset	Intel® C206	Intel® Q67	Intel® 3450
Memory Type	DDR3-1066/1333	DDR3-1066/1333	DDR3-1066/1333
Max. DRAM Capacity	16 GB	16 GB	8 GB
Cache RAM Capacity	Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS	AMI UEFI BIOS	AMI UEFI BIOS	AMI UEFI BIOS
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	N/A	N/A	N/A
Onboard Digital I/O	N/A	N/A	N/A
I/O — **DE**	N/A	N/A	N/A
SATA	4 x SATA-300, 2 x SATA-600	4 x SATA-300, 2 x SATA-600	6 x SATA-300
FDD	1 x FDD	1 x FDD	1 x FDD
LPT	1 x LPT	1 x LPT	1 x LPT
Serial COM 1	RS-232/422/485	RS-232/422/485	RS-232/422/485
COM 2	RS-232	RS-232	RS-232
COM 3	N/A	N/A	N/A
COM 4	N/A	N/A	N/A
COM 5	N/A	N/A	N/A
USB	14 x USB 2.0	14 x USB 2.0	12 x USB 2.0
IrDA	N/A	N/A	N/A
IEEE 1394a	N/A	N/A	N/A
Display	1 x VGA or DisplayPort	1 x VGA or DisplayPort	1 x VGA or DisplayPort
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	HD Codec	HD Codec	HD Codec
Hardware Monitoring	Yes	Yes	Yes
SMBus	Yes	Yes	Yes
Expansion Interface	1 x PCIe x16 1 x PCIe x4 or 4 x PCIe x1 4 x PCI	1 x PCIe x16 1 x PCIe x4 or 4 x PCIe x1 4 x PCI	1 x PCIe x16 or 2 x PCIe x8 1 x PCIe x4 or 4 x PCIe x1 4 x PCI
Power Management	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE
Wide Temperature	N/A	N/A	N/A

* All specifications and photos are subject to change without notice.

Features\Models	SHB103	SHB111	SHB102	SHB101
Form Factor	PICMG 1.3	PICMG 1.3	PICMG 1.3	PICMG 1.3
CPU Level	Intel® Core™ i7/ i5/ i3/ Pentium®	Intel® Core™ i7/ i5/ i3	Intel® Core™2 Quad/ Core™2 Duo/ Celeron®	Intel® Core™2 Quad/ Core™2 Duo/ Celeron®
CPU Socket	LGA1156	Socket G	LGA775	LGA775
CPU FSB Frequency	N/A	N/A	800/1066/1333 MHz	800/1066/1333 MHz
Core Logic Chipset	Intel® Q57	Intel® QM57	Intel® Q45 + ICH10DO	Intel® Q35 + ICH9R
Memory Type	DDR3-1066/1333	DDR3-800/1066	DDR3-800/1066	DDR2-667/800
Max. DRAM Capacity	8 GB	8 GB	8 GB	8 GB
Cache RAM Capacity	Integrated in CPU	Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS	AMI UEFI BIOS	AMI UEFI BIOS	AMI	Phoenix-Award
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	N/A	1 x CompactFlash™	N/A	1 x USB DoM
Onboard Digital I/O	N/A	N/A	N/A	N/A
DE	N/A	N/A	N/A	N/A
SATA	6 x SATA-300	6 x SATA-300	6 x SATA-300	6 x SATA-300
FDD	1 x FDD	1 x FDD	1 x FDD	1 x FDD
LPT	1 x LPT	1 x LPT	1 x LPT	1 x LPT
I/O — **Serial** — **COM 1**	RS-232/422/485	RS-232	RS-232	RS-232
COM 2	RS-232	RS-232/422/485	RS-232/422/485	RS-232/422/485
COM 3	N/A	N/A	N/A	N/A
COM 4	N/A	N/A	N/A	N/A
COM 5	N/A	N/A	N/A	N/A
USB	12 x USB 2.0	14 x USB 2.0	12 x USB 2.0	10 x USB 2.0
IrDA	N/A	N/A	N/A	N/A
IEEE 1394a	N/A	N/A	N/A	N/A
Display	1 x VGA or DisplayPort	1 x VGA 1 x LVDS	1 x VGA	1 x VGA
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	HD Codec	HD Codec	HD Codec	By audio converter
Hardware Monitoring	Yes	Yes	Yes	Yes
SMBus	Yes	Yes	Yes	Yes
Expansion Interface	1 x PCIe x16 1 x PCIe x4 or 4 x PCIe x1 4 x PCI	1 x PCIe x16 1 x PCIe x4 or 4 x PCIe x1 4 x PCI	1 x PCIe x16 1 x PCIe x4 or 4 x PCIe x1 4 x PCI	1 x PCIe x16 1 x PCIe x4 or 4 x PCIe x1 4 x PCI
Power Management	ACPI	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE	CE
Wide Temperature	N/A	N/A	N/A	N/A

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Mother-boards

Slot CPU Cards

Accessories

Appendix

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PICMG 1.3 Full-size System Host Boards

Selection Guide

Features\Models	SHB100	SHB110	SHB120	SHB130
Form Factor	PICMG 1.3	PICMG 1.3	PICMG 1.3	PICMG 1.3
CPU Level	Intel® Core™2 Duo/ Pentium® D/ Pentium® 4/ Celeron® D	Intel® Core™2 Duo/ Core™ Duo/ Core™ Solo/ Celeron® M	Intel® Core™ i7 /i5 /i3	Intel® Core™ i7/ i5/ i3
CPU Socket	LGA775	Socket M	LGA1155	LGA1150
CPU FSB Frequency	533/800/1066 MHz	533/667 MHz	N/A	N/A
Core Logic Chipset	Intel® 945G + ICH7R	Intel® 945GME + ICH7M-DH	Intel® Q77	Intel® Q87
Memory Type	DDR2-533/667	DDR2-533/667	DDR3-1333/1600	DDR3/L-1333/1600
Max. DRAM Capacity	4 GB	4 GB	16 GB	16 GB
Cache RAM Capacity	Integrated in CPU	Integrated in CPU	Integrated in CPU	Intergrated in CPU
BIOS	Phoenix-Award	Phoenix-Award	AMI UEFI BIOS with OA 3.0 built	AMI UEFI BIOS with OA 3.0 built
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	1 x CompactFlash™	1 x CompactFlash™	N/A	N/A
Onboard Digital I/O	N/A	N/A	N/A	N/A
I/O DE	1 x PATA-100	1 x PATA-100	N/A	N/A
SATA	4 x SATA-300	2 x SATA-150	4 x SATA-300, 2 x SATA-600	6 x SATA-600
FDD	1 x FDD	1 x FDD	1 x FDD	N/A
LPT	1 x LPT	1 x LPT	1 x LPT	1 x LPT
Serial COM 1	RS-232	RS-232	RS-232/422/485	RS-232/422/425
COM 2	RS-232/422/485	RS-232/422/485	RS-232	RS-232
COM 3	N/A	N/A	N/A	RS-232
COM 4	N/A	N/A	N/A	RS-232
COM 5	N/A	N/A	N/A	RS-232
USB	4 x USB 2.0	8 x USB 2.0	10 x USB 2.0, 4 x USB 3.0	6 x USB 2.0, 2 x USB 3.0
IrDA	N/A	N/A	N/A	N/A
IEEE 1394a	N/A	N/A	N/A	N/A
Display	1 x VGA	1 x VGA 1 x LVDS	1 x VGA or DisplayPort	1 x VGA or DisplayPort 1 x DVI-D
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	AC'97 Codec	AC'97 Codec	HD Codec	HD Codec
Hardware Monitoring	Yes	Yes	Yes	Yes
SMBus	N/A	N/A	Yes	Yes
Expansion Interface	1 x PCIe x16 1 x PCIe x4 or 4 x PCIe x1 4 x PCI	1 x PCIe x16 1 x PCIe x4 or 4 x PCIe x1 4 x PCI	1 x PCIe x16 1 x PCIex4 or 4 x PCIex1 4 x PCI	1 x PCIe x16 1 x PCIe x4 or 4 x PCIe x1 4 x PCI
Power Management	ACPI	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE	CE
Wide Temperature	N/A	N/A	N/A	N/A

* All specifications and photos are subject to change without notice.

PICMG 1.3 Half-size System Host Boards

Selection Guide
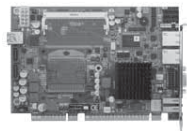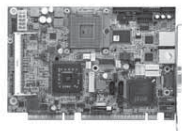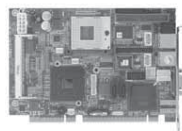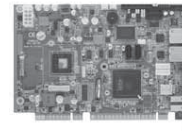
Features\Models	SHB213	SHB211	SHB210	SHB212
Form Factor	PICMG 1.3	PICMG 1.3	PICMG 1.3	PICMG 1.3
CPU Level	Intel® Core™ i7/ i5/ i3/ Celeron®	Intel® Core™2 Duo/ Celeron® M	Intel® Core™2 Duo/ Core™ Duo/ Celeron® M	Intel® Atom™ D525
CPU Socket	Socket G2	Socket P	Socket M	Onboard
CPU FSB Frequency	N/A	667/800/1066 MHz	533/667 MHz	N/A
Core Logic Chipset	Intel® HM65	Intel® GM45 + ICH9M	Intel® 945GME + ICH7M-DH	Intel® ICH8M
Memory Type	DDR3-1066/1333	DDR3-800/1066	DDR2-533/667	DDR3-800
Max. DRAM Capacity	8 GB	8 GB	4 GB	4 GB
Cache RAM Capacity	Integrated in CPU	Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS	AMI UEFI BIOS	AMI	Phoenix-Award	AMI
Watchdog Timer	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD	1 x CFast™	1 x CompactFlash™	1 x CompactFlash™	1 x CompactFlash™
Onboard Digital I/O	N/A	N/A	N/A	N/A
I/O — DE	N/A	N/A	1 x PATA-100	N/A
I/O — SATA	2 x SATA-600	2 x SATA-300	2 x SATA-150	2 x SATA-300
I/O — FDD	N/A	1 x FDD (Optional)	1 x FDD	1 x FDD
I/O — LPT	N/A	1 x LPT	1 x LPT	1 x LPT
I/O — Serial COM 1	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485
I/O — Serial COM 2	RS-232	RS-232	RS-232	RS-232
I/O — Serial COM 3	N/A	N/A	N/A	N/A
I/O — Serial COM 4	N/A	N/A	N/A	N/A
I/O — Serial COM 5	N/A	N/A	N/A	N/A
I/O — USB	2 x USB 3.0 / 6 x USB 2.0	6 x USB 2.0	6 x USB 2.0	6 x USB 2.0
I/O — IrDA	N/A	N/A	N/A	N/A
IEEE 1394a	N/A	N/A	N/A	N/A
Display	1 x VGA	1 x VGA / 1 x LVDS	1 x VGA / 1 x LVDS	1 x VGA / 1 x LVDS
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	N/A	HD Codec	By Audio converter	HD Codec
Hardware Monitoring	Yes	Yes	Yes	Yes
SMBus	Yes	Yes	N/A	Yes
Expansion Interface	1 x PCIe x16 / 1 x PCIe x4 or 4 x PCIe x1	1 x PCIe x16 / 1 x PCIe x4 or 4 x PCIe x1	1 x PCIe x16 / 1 x PCIe x4 or 4 x PCIe x1	1 x PCIe x4 or 4 x PCIe x1
Power Management	ACPI	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE	CE
Wide Temperature	N/A	N/A	N/A	N/A

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

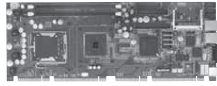Embedded SBCs >PC/104

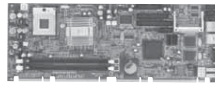Industrial Motherboards

Slot CPU Cards

Accessories

Appendix

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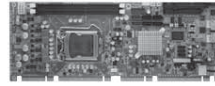
PICMG 1.0 Full-size CPU Cards

Selection Guide
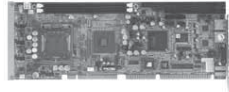
	Page 195	Page 196	Page 197
Features\Models	**SBC81205**	**SBC81206**	**SBC81207**
Form Factor	PICMG 1.0	PICMG 1.0	PICMG 1.0
CPU Level	Intel® Core™2 Quad/ Core™2 Duo/ Celeron	Intel® Core™2 Duo/ Pentium® D/ Pentium® 4/ Celeron® D	Intel® Atom™ D510
CPU Socket	LGA775	LGA775	Onboard
CPU FSB Frequency	800/1066/1333 MHz	533/800 MHz	N/A
Core Logic Chipset	Intel® Q35 + ICH9	Intel® 945GC + ICH7/7R	Intel® ICH8M + ITE8888G
Memory Type	DDR2-667/800	DDR2-400/533/667	DDR2-667/800
Max. DRAM Capacity	4 GB	2 GB	4 GB
Cache RAM Capacity	Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS	Phoenix-Award	Phoenix-Award	AMI
Watchdog Timer	255 levels, 0~255 sec.	255 levels, 0~255 sec.	255 levels, 0~255 sec.
Onboard SSD	N/A	IDE DoM	1 x CompactFlash™ (optional)
Onboard Digital I/O	N/A	N/A	N/A
I/O IDE	N/A	1 x PATA-100	1 x PATA-100
SATA	4 x SATA-300	4 x SATA-300	3 x SATA-300
FDD	1 x FDD	1 x FDD	1 x FDD
LPT	1 x LPT	1 x LPT	1 x LPT
Serial COM 1	RS-232	RS-232	RS-232
COM 2	RS-232/422/485	RS-232/422/485	RS-232/422/485
COM 3	N/A	N/A	N/A
COM 4	N/A	N/A	N/A
COM 5	N/A	N/A	N/A
USB	6 x USB 2.0	6 x USB 2.0	6 x USB 2.0
IrDA	N/A	N/A	N/A
IEEE 1394a	N/A	N/A	N/A
Display	1 x VGA	1 x VGA	1 x VGA
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	By audio converter	By audio converter	HD Codec
Hardware Monitoring	Yes	Yes	Yes
SMBus	N/A	Yes	Yes
Expansion Interface	PCI & ISA	PCI & ISA	PCI & ISA
Power Management	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance	CE	CE	CE
Wide Temperature	N/A	N/A	N/A

* All specifications and photos are subject to change without notice.

Features\Models			SBC81203	SBC81210
Form Factor			PICMG 1.0	PICMG 1.0
CPU Level			Intel® Core™2 Duo/ Pentium® D/ Pentium® 4/ Celeron® D	Intel® Core™ i7/ i5/ i3
CPU Socket			LGA775	LGA1155
CPU FSB Frequency			533/800/1066 MHz	N/A
Core Logic Chipset			Intel® 945G + ICH7R	Intel® B65
Memory Type			DDR2-400/533/667	DDR3-1066/1333
Max. DRAM Capacity			4 GB	8 GB
Cache RAM Capacity			Integrated in CPU	Integrated in CPU
BIOS			Phoenix-Award	AMI UEFI BIOS
Watchdog Timer			255 levels, 0~255 sec.	255 levels, 0~255 sec.
Onboard SSD			1 x CompactFlash™ (Optional)	N/A
Onboard Digital I/O			N/A	N/A
I/O	**IDE**		1 x PATA-100	N/A
	SATA		4 x SATA-300	1 x SATA-600 & 3 SATA-300
	FDD		1 x FDD	1 x FDD
	LPT		1 x LPT	1 x LPT
	Serial	**COM 1**	RS-232	RS-232
		COM 2	RS-232/422/485	RS-232/422/485
		COM 3	N/A	N/A
		COM 4	N/A	N/A
		COM 5	N/A	N/A
	USB		6 x USB 2.0	6 x USB 2.0
	IrDA		N/A	N/A
IEEE 1394a			N/A	N/A
Display			1 x VGA	1 x VGA
Onboard Ethernet			2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio			AC'97 Codec	By audio converter
Hardware Monitoring			Yes	Yes
SMBus			N/A	Yes
Expansion Interface			PCI	PCI
Power Management			ACPI	ACPI
Battery			Lithium	Lithium
Operating Temperature			0° ~ +60°C (32°F~ 140°F)	0° ~ +60°C (32°F~ 140°F)
Relative Humidity			10% to 95%, non-condensing	10% to 95%, non-condensing
EMI Compliance			CE	CE
Wide Temperature			N/A	N/A

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SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
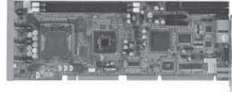>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

PICMG 1.0 Half-size CPU Cards

Selection Guide
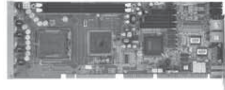

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Features\Models	SBC82820
Form Factor	PCI
CPU Level	Intel® Pentium® M/ Celeron® M
CPU Socket	Socket 478
CPU FSB Frequency	400 MHz
Core Logic Chipset	Intel® 910GMLE + ICH6M
Memory Type	DDR2-400/533
Max. DRAM Capacity	2 GB
Cache RAM Capacity	L2 in CPU
BIOS	Phoenix-Award
Watchdog Timer	255 levels, 0–255 sec.
Onboard SSD	1 x CompactFlash™
Onboard Digital I/O	N/A
I/O IDE	1 x PATA-100
SATA	2 x SATA-150
FDD	1 x FDD (optional)
LPT	1 x LPT
Serial COM 1	RS-232
COM 2	RS-232/422/485
COM 3	N/A
COM 4	N/A
COM 5	N/A
USB	4 x USB 2.0
IrDA	N/A
IEEE 1394a	N/A
Display	1 x VGA 1 x LVDS 1 x DVI-I
Onboard Ethernet	2 x 10/100/1000Mbps Ethernet
Onboard Audio	AC'97 Codec
Hardware Monitoring	Yes
SMBus	Yes
Expansion Interface	PCI
Power Management	ACPI
Battery	Lithium
Operating Temperature	0° ~ +60°C (32°F~ 140°F)
Relative Humidity	10% to 95%, non-condensing
EMI Compliance	CE
Wide Temperature	By Request

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* All specifications and photos are subject to change without notice.

SHB108

LGA1155 Intel® Core™ i7/ i5/ i3/ Xeon®
PICMG 1.3 Full-size CPU Card with Intel®
C206 PCH, VGA, Dual LANs, Audio and
ECC Memory

DDR3 DIMM
SATA-300
SATA-600
COM 1/2
FDD
LPT
Ethernet
VGA/DisplayPort
USB
LGA1155
Internal K/B+M/S

DDR3

Features

- LGA1155 socket for Intel® Xeon®/ Core™ i7/ i5/ i3 processors
- Intel® C206 PCH
- 2 DDR3-1066/1333 DIMM support up to 16 GB memory capacity
- Intel® AMT 7.0 & TPM supported
- SATA-600 supported
- PCIe Gen. 2 at 5GT/s supported
- Supports ECC memory

System

CPU	LGA1155 socket for Intel® Xeon®/ Core™ i7/ i5/ i3 processors
System Memory	2 x 240-pin DIMM support DDR3-1066/1333 max. up to 16 GB
Chipset	Intel® C206 PCH
BIOS	AMI UEFI BIOS
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 4 x PCIe lanes support 1 PCIe x4 or 4 PCIe x1 I/O devices 4 x 32-bit PCI bus masters
Battery Lithium	3V/220mAH
Power Requirements	Intel® Xeon® E3-1275 @ 3.4 GHz, 1 GB DDR3 +5V SBY @ 0.1A, +3.3V @ 0.7A, +5V @ 0.95A, +12V @ 2.23A, -12V @ 17mA
Size	338 x 126 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232/422/485 (COM 1) 1 x RS-232 (COM 2)
SATA	2 x SATA-600 & 4 x SATA-300 with RAID 0/1/10/5
Hardware Monitoring	Support CPU/System temperature, CPU/System voltage, and CPU/System Smart Fan features
Ethernet	1st port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM, iAMT with Intel® 82579LM 2nd port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® 82574L
Audio	HD Codec audio as MIC-in/Line-in/Line-out/Speaker-out with Realtek ALC662
USB	14 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
TPM	Infineon SLB9635 for trusted platform

Display

Chipset	Intel® HD graphics
Memory Size	Max. up to 352MB frame buffer dedicated memory
Display Interface	1 x VGA 1 x DisplayPort (optional)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM + Print cable w/ bracket	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

SHB108VGGA (P/N: E38C108100)	LGA1155 PICMG 1.3 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet and audio, BIOS x4
SHB108PGGA (P/N: E38C108101)	LGA1155 PICMG 1.3 Full-size CPU card with DisplayPort, 2 10/100/1000Mbps Ethernet and audio, BIOS x4

Optional

59384500100E	Audio cable w/ bracket, P=2.0 L=450mm
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm
593836A0030E	4-pin power cable to SATA x 2, L=150mm
59380000290E	PS/2 keyboard and mouse cable with bracket
E9B900C000	LGA1156 cooler 4-pin H:61.4mm
50761222000E	LGA1156 2U cooler 3pin H=68.8mm

* Discrete graphic card is necessary for display if the chosen CPU doesn't have integrated graphics support.

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SHB106

LGA1155 Intel® Core™ i7/ i5 /i3 PICMG 1.3
Full-size CPU Card with Intel® Q67 PCH,
VGA, Dual LANs and Audio

Features

- LGA1155 socket for Intel® Core™ i7/ i5/ i3 processors
- Intel® Q67 PCH
- 2 DDR3-1066/1333 DIMM support up to 16 GB memory capacity
- Intel® AMT 7.0 & TPM supported
- 2 SATA-600 supported
- PCIe Gen2 at 5GT/s supported

System

CPU	LGA1155 socket for Intel® Core™ i7/ i5 /i3 processors
System Memory	2 x 240-pin DIMM support DDR3-1066/1333 max. up to 16 GB
Chipset	Intel® Q67 PCH
BIOS	AMI UEFI BIOS
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port support for SDVO or PCIe x1 devices 4 x PCIe lanes support 1 PCIe x4 or 4 PCIe x1 I/O devices 4 x 32-bit PCI bus masters
Battery Lithium	3V/220mAH
Power Requirements	Intel® Core™ i5-2400 @ 3.1 GHz, 4GB DDR3 +5V SBY @ 6.2mA, +3.3 @ 0.8A, +5V @ 1.34A, +12V @ 2.94A, -12V @ 0.08A
Size	338 x 126 mm
BoardThickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232/422/485 (COM 1) 1 x RS-232 (COM 2)
SATA	2 x SATA-600/s & 4 x SATA-300/s with RAID 0/1/10/5
Hardware Monitoring	Supports CPU/System temperature, CPU/System voltage, and CPU/System Smart Fan features
Ethernet	1st port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM, iAMT with Intel® 82579LM 2nd port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® 82574L
Audio	HD Codec audio as MIC-in/Line-in/Line-out/Speaker-out with Realtek ALC662
USB	14 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
TPM	Infineon SLB9635 for trusted platform

Display

Chipset	Intel® HD graphics
Memory Size	Max. up to 352MB frame buffer dedicated memory
Display Interface	1x VGA 1x DisplayPort (optional)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM + Print cable w/ bracket	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

SHB106VGGA (P/N: E38C106100)	LGA1155 PICMG 1.3 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet, audio and BIOS x4
SHB106PGGA (P/N: E38C106101)	LGA1155 PICMG 1.3 Full-size CPU card with DisplayPort, 2 10/100/1000Mbps Ethernet, audio and BIOS x4
SHB106VGGA (P/N: E38C106102)	LGA1155 PICMG 1.3 Full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet, audio and BIOS x1
SHB106PGGA (P/N: E38C106103)	LGA1155 PICMG 1.3 Full-size CPU card with DisplayPort, 2 10/100/1000Mbps Ethernet, audio and BIOS x1

Optional

59384500100E	Audio cable w/ bracket, P=2.0 L=450mm
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm
593836A0030E	4-pin power cable to SATA x 2, L=150mm
59380000290E	PS/2 keyboard and mouse cable with bracket
E9B900C000	LGA1156 cooler 4-pin H: 61.4 mm
50761222000E	LGA1156 2U cooler 3pin H=68.8mm

* Discrete graphic card is necessary for display if the chosen CPU doesn't have integrated graphics support.

SHB105

LGA1156 Intel® Xeon® PICMG 1.3 Full-size
CPU Card with Intel® 3450 Chipset, VGA/
DisplayPort and ECC Memory

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

Features

- LGA1156 socket for Intel® Xeon®/ Core™ i5/ i3/ Pentium® processors
- Intel® 3450 chipset
- 2 DDR3 1066/1333 DIMM support up to 8 GB memory capacity
- Intel® AMT & TPM supported
- DisplayPort (optional)
- Supports unbuffered-ECC memory

Labels: DDR3 DIMM, SATA-300, COM 1/2, FDD, LPT, Ethernet, VGA/DisplayPort, USB, LGA1156, Internal PS/2 K/B+M/S

DDR3

System

CPU	LGA1156 socket for Intel® Xeon®/ Core™ i5/ i3/ Pentium® processors
System Memory	2 x 240-pin DDR3 1066/1333 DIMM max. up to 8 GB
Chipset	Intel® 3450
BIOS	AMI UEFI BIOS
SSD	N/A
Watchdog Timer	255 levels, 1 ~ 255 sec.
Expansion Interface	PCIe x16 (or 2 x PCIe x8) via SHB connector-A & B PCIe x4 (or 4 x PCIe x1) via SHB connector-A PCI with 4 bus masters via SHB connector-D
Battery	Lithium 3V/196mAH
Power Requirements	Intel® Core™ i5-660 @3.33 GHz, 1GB DDR3 +5V_SBY @ 23mA, +3.3V @ 1.372A, +5V @ 1.548A, +12V (System) @ 158mA, -12V @ 28mA, +12V (CPU) @ 1.809A
Size	338 x 126 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232/422/485 (COM 1) 1 x RS-232 (COM 2)
SATA	6 x SATA-300; with RAID 0/1/10/5
Hardware Monitoring	Supports CPU/System temperature, CPU/system voltage and CPU/system Smart Fan features
Ethernet	1st port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM, iAMT with Intel® 82578DM 2nd port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC662
USB	12 x USB 2.0 (2 on the rear I/O; 6 ports with pin-headers; 4 ports via SHB connector-C)
SMBus	System Management Bus for advanced monitoring/control interface
TPM	Supports TPM 1.2

Display

Chipset	According to CPU
Display Interface	VGA with D-sub 15-pin connector DisplayPort co-layout with VGA connector

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM + Print cable w/ bracket	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

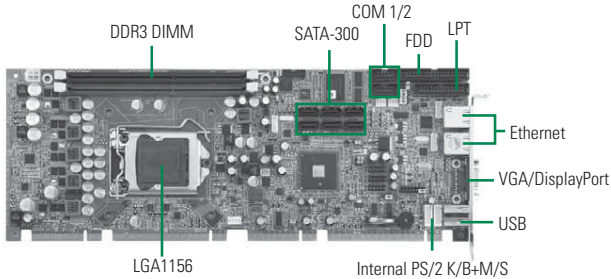|	
SHB105VGGA (P/N: E38C105101)	LGA1156 Intel® Xeon®/ Core™ i5/ i3/ Pentium® PICMG 1.3 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet and audio
SHB105PGGA (P/N: E38C105100)	LGA1156 Intel® Xeon®/ Core™ i5/ i3/Pentium® PICMG 1.3 full-size CPU card with DisplayPort and 2 10/100/1000Mbps Ethernet

Optional

59384500100E	Audio cable w/ bracket, P=2.0 L=450mm
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm
593836A0030E	4-pin power cable to SATA x 2, L=150mm
59380000290E	PS/2 keyboard and mouse cable with bracket
E9B900C000	LGA1156 cooler 4-pin H: 61.4 mm
50761222000E	LGA1156 2U cooler 3pin H=68.8mm

* Discrete graphic card is necessary for display if the chosen CPU doesn't have integrated graphics support.

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SHB103

LGA1156 Socket Intel® Core™ i7/ i5/ i3/
Pentium® PICMG 1.3 Full-size CPU Card
with Intel® Q57 Chipset, VGA, Dual LANs
and Audio

DDR3 DIMM   SATA-300   FDD
                         COM1/2   LPT
                                        Ethernet
                                        VGA/DisplayPort
                                        USB
LGA1156
                         Internal K/B+M/S

DDR3

Features

- LGA1156 socket for Intel® Core™ i7/ i5/ i3/ Pentium® (G6950) processors
- Intel® Q57 chipset
- 2 DDR3 1066/1333 DIMM support up to 8 GB memory capacity
- 6 x SATA-300 with RAID 0, 1, 10 and 5
- Intel® AMT & TPM supported
- DisplayPort supported (optional)

System

CPU	LGA1156 socket for Intel® Core™ i7/ i5/ i3/ Pentium® processors
System Memory	2 x 240-pin DIMM supports DDR3-1066/1333 max. up to 8 GB
Chipset	Intel® Q57
BIOS	AMI UEFI BIOS
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 4 x PCIe lanes support 1 PCIe x4 or 4 PCIe x1 I/O devices 4 x 32-bit PCI bus masters
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® Core™ i5-660 @3.33 GHz, 1GB DDR3 +5V_SBY @ 23mA, +3.3V @ 1.372A, +5V @ 1.548A, +12V (System) @ 158mA, -12V @ 28mA, +12V (CPU) @ 1.809A
Size	338 x 126 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232/422/485 (COM 1) 1 x RS-232 (COM2)
SATA	6 x SATA-300 with RAID 0/1/10/5
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart Fan control
Ethernet	1st port as 10/100/1000Mbps supports iAMT, Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82578DM 2nd port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC662
USB	12 x USB 2.0
TPM	Infineon SLB9635 for trusted platform
SMBus	System Management Bus for advanced monitoring/control

Display

Chipset	Intel® HD Graphics
Memory Size	Intel® DVMT 5.0 compliant
Display Interface	1 x VGA 1 x DisplayPort (optional)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM + Print cable w/ bracket	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

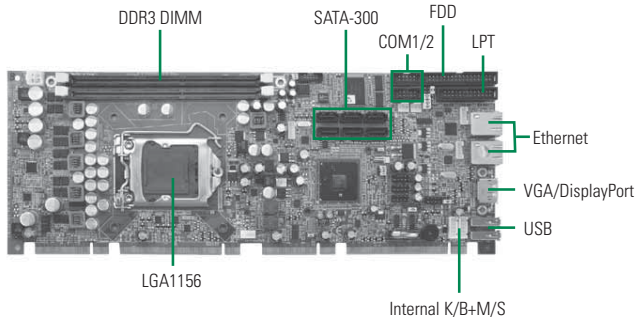|	
SHB103VGGA (P/N: E38C103101)	LGA1156 Intel® Core™ i7/ i5/ i3/ Pentium® PICMG 1.3 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet and audio
SHB103PGGA (P/N: E38C103100)	LGA1156 Intel® Core™ i7/ i5/ i3/ Pentium® PICMG 1.3 full-size CPU card with DisplayPort and 2 10/100/1000Mbps Ethernet

Optional

59384500100E	Audio cable w/ bracket, P=2.0 L=450mm
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm
593836A0030E	4-pin power cable to SATA x 2, L=150mm
59380000290E	PS/2 keyboard and mouse cable with bracket
E9B900C000	LGA1156 cooler 4-pin H: 61.4 mm
50761222000E	LGA1156 2U cooler 3pin H=68.8mm

* Discrete graphic card is necessary for display if the chosen CPU doesn't have integrated graphics support.

* All specifications and photos are subject to change without notice.

SHB111

Socket G Intel® Core™ i7/ i5/ i3 PICMG 1.3
Full-size CPU Card with Intel® QM57 Chipset,
VGA, LVDS, Dual LANs and Audio

DDR3 DIMM   SATA-300   CF
— Ethernet
— VGA
— USB
Socket G 988-pin

Low Power   DDR3

Features

- Socket G for Intel® Core™ i7/ i5/ i3 & Celeron® processors
- Intel® QM57 chipset
- 2 DDR3 800/1066 DIMM support up to 8 GB memory capacity
- 6 SATA-300 with RAID 0, 1, 5 and 10
- Intel® AMT & TPM supported (optional)

System

CPU	Socket G for Intel® Core™ i7/ i5/ i3 & Celeron® processors
System Memory	2 x 240-pin DIMM support DDR3-800/1066 max. up to 8 GB
Chipset	Intel® QM57
BIOS	AMI UEFI BIOS
SSD	1 x CompactFlash™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 4 x PCIe lanes support for 1 x PCIe x4 or 4 x PCIe x1 I/O devices 4 x 32-bit PCI bus masters
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® Core™ i7-620M @2.66 GHz, 1GB DDR3 +5V_SBY @ 63.52mA, +3.3V @ 842mA, +5V @ 869mA, +12V @ 2.178A
Size	338 x 126 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232 (COM 1) 1 x RS-232/422/485 (COM 2)
SATA	6 x SATA-300 with RAID 0/1/10/5
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart Fan control
Ethernet	1st port as 10/100/1000Mbps supports iAMT, Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82577LM 2nd port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-in/Line-out/ Speaker-out with Realtek ALC662
USB	14 x USB 2.0
TPM	Infineon SLB9635 for trusted platform
SMBus	System Management Bus for advanced monitoring/control

Display

Chipset	Intel® HD Graphics
Memory Size	Intel® DVMT 5.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM + Print cable w/ bracket	1
593826A0000E	SATA signal cable 500mm	1
5078C111100E	CPU PM989 cooler	1

Ordering Information

Standard

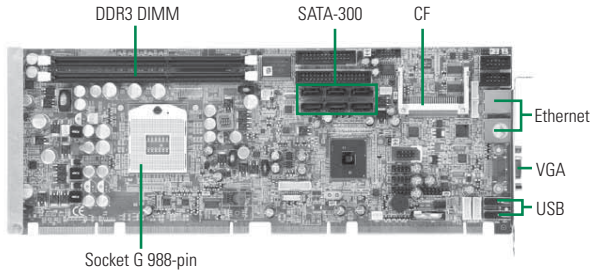|	
SHB111VGGA (P/N: E38C111100)	Socket G Intel® Core™ i7/ i5/ i3 & Celeron® PICMG 1.3 full-size CPU card with VGA, LVDS, 2 10/100/1000Mbps Ethernet, audio and BIOS x1
SHB111VGGA (P/N: E38C111102)	Socket G Intel® Core™ i7/ i5/ i3 & Celeron® PICMG 1.3 full-size CPU card with VGA, LVDS,2 10/100/1000Mbps Ethernet, audio and BIOS x4

Optional

59384500100E	Audio cable w/ bracket, P=2.0 L=450mm
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm
593836A0030E	4-pin power cable to SATA x 2, L=150mm
59380000290E	PS/2 keyboard and mouse cable with bracket

* Discrete graphic card is necessary for display if the chosen CPU doesn't have integrated graphics support.

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SHB102

LGA775 Intel® Core™2 Quad PICMG
1.3 Full-size CPU Card with Intel® Q45 +
ICH10DO Chipset, Dual LANs, iAMT and
iTPM

DDR3 DIMM   SATA-300   COM 1/2   FDD
LPT
Ethernet
VGA
Audio
USB
LGA775   USB
Internal K/B+M/S

DDR3

Features

- LGA775 for Intel® Core™2 Quad/ Core™2 Duo/ Celeron® processors with 800/1066/1333 MHz
- Intel® Q45 + ICH10DO chipset
- 4 DDR3-800/1066 DIMM support up to 8 GB
- With Intel® GMA X4500 high performance integrated graphics controller with DX10 and OpenGL 2.1
- 6 SATA-300 with RAID 0, 1, 10 and 5
- Intel® AMT & TPM supported
- Supports PCI Express 2.0 x16

System

CPU	LGA775 socket for Intel® Core™2 Quad/ Core™2 Duo/ Celeron® processors with FSB 800/1066/1333 MHz
System Memory	4 x 240-pin DIMM support DDR3-800/1066 max. up to 8 GB
Chipset	Intel® Q45 + ICH10DO
BIOS	AMI BIOS
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 4 x PCIe lanes support 1 PCIe x4 or 4 PCIe x1 I/O devices 4 x 32-bit PCI bus masters 16-bit ISA
Battery	Lithium 3V/196 mAH
Power Requirements	Intel® Q9400 @2.66 GHz, 2GB DDR3 +5V_SBY @ 502mA, +3.3V @ 921mA, +5V @ 2.283A, +12V (System) @ 362mA, -12V @ NA, +12V (CPU) @ 2.392A
Size	338 x 126 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232 (COM 1) 1 x RS-232/422/485 (COM 2)
SATA	6 x SATA-300 with RAID 0/1/10/5
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	1st port as 10/100/1000Mbps supports iAMT, Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82567LM 2nd port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82574L
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC888
USB	12 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control

Display

Chipset	Intel® GMA X4500 graphics core
Memory Size	Intel® DVMT 5.0 compliant
Display Interface	1 x VGA

Packing List

Standard

Quick installation guides, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM + Print cable w/ bracket	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

SHB102VGGA (P/N: E38C102100)	LGA775 socket PICMG 1.3 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet, iAMT, iTPM, RAID and Audio

Optional

593836A0030E	4-pin power cable to SATA x 2, L=150mm
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm
59384500100E	Audio cable P=2.0, L=450mm
59380000290E	PS/2 keyboard & mouse cable with bracket
E9C900B008	LGA775 slim cooler 3P H=25mm (for 1U Chassis)
E9C900B009	LGA775 cooler 3p H=66.8mm (for 2U/4U/Shoebox)
E9C900B010	LGA775 cooler 4p H=61.4mm (for 2U/4U/Shoebox)

* This product must use a proprietary CPU cooler.
  we strongly recommend purchasing from Axiomtek.

* All specifications and photos are subject to change without notice.

SHB101

LGA775 Intel® Core™2 Quad PICMG 1.3
Full-size CPU Card with Intel® Q35 + ICH9R
Chipset, VGA, Dual LANs and RAID

DDR2 DIMM · SATA-300 · FDD · COM 1/2 · LPT · Ethernet · HDA · VGA · USB · LGA775 · USB Internal K/B+M/S

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

Features

- LGA775 for Intel® Core™2 Quad/ Core™2 Duo/ Celeron® processors with 800/1066/1333 MHz
- Intel® Q35 GMCH integrated graphics media 3100
- 4 DDR2 DIMM support up to 8 GB memory capacity
- 6 SATA-300 with RAID 0, 1, 10 and 5
- 10 USB 2.0 ports

System

CPU	LGA775 socket for Intel® Core™2 Quad/ Core™2 Duo/ Celeron® processors with FSB 800/1066/1333 MHz
System Memory	4 x 240-pin DIMM support DDR2-667/800 max. up to 8 GB
Chipset	Intel® Q35 + ICH9R
BIOS	Phoenix-Award
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 4 x PCIe lanes support 1 PCIe x4 or 4 PCIe x1 I/O devices 4 x 32-bit PCI bus masters 16-bit ISA
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® E6400 @2.133 GHz , 1GB DDR2 +5V_SBY @ 43mA, +3.3V @ 750mA, +5V @ 2.405A, +12V (System) @ 125mA, -12V @ 28mA, +12V (CPU) @ 2.013A
Size	338 x 126 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232 (COM 1) 1 x RS-232/422/485 (COM2)
SATA	6 x SATA-300 with RAID 0/1/10/5
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82573L
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with audio kit AX93242 (optional)
USB	10 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control

Display

Chipset	Intel® GMA 3100 graphics core
Memory Size	Intel® DVMT 4.0 compliant
Display Interface	1 x VGA

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM + Print cable w/ bracket	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

SHB101VGG (P/N: E38C101100)	LGA775 socket PICMG 1.3 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet and 10 USB 2.0

Optional

593836A0030E	4-pin power cable to SATA x 2, L=150mm
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm
E393242100	AX93242-RC HD audio converter kit
59380000290E	PS/2 keyboard & mouse cable with bracket
E9C900B008	LGA775 slim cooler 3P H=25mm (for 1U Chassis)
E9C900B009	LGA775 cooler 3p H=66.8mm (for 2U/4U/Shoebox)
E9C900B010	LGA775 cooler 4p H=61.4mm (for 2U/4U/Shoebox)

* This product must use a proprietary CPU cooler.
  we strongly recommend purchasing from Axiomtek.

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SHB100

LGA775 Intel® Core™2 Duo PICMG 1.3
Full-size CPU Card with Intel® 945G +
ICH7R Chipset, VGA, Dual LANs and Audio

DDR2 DIMM   Printer port   FDD   IDE port   CF   COM port

Ethernet

VGA port

LGA775   SATA-300   Mini DIN Internal K/B+M/S
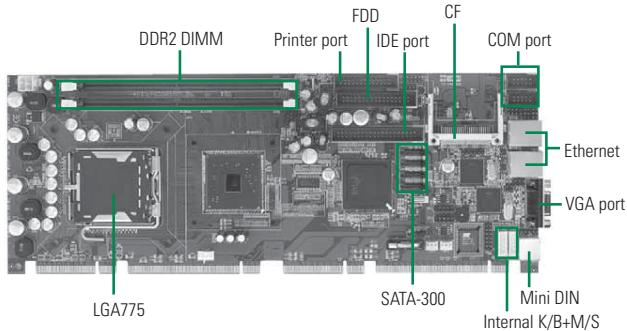
Features

- LGA775 for Intel® Core™2 Duo/ Celeron® processors
  with 533/800/1066 MHz
- Intel® 945G + ICH7R chipset
- 2 DDR2 DIMM support up to 4 GB memory
- With Intel® GMA 950 high performance integrated
  graphics controller
- 4 SATA-300 with RAID 0, 1, 10 and 5

System

CPU	LGA775 socket for Intel® Core™2 Duo/ Pentium® 4/ Pentium®/ Celeron® D/ Celeron® processors with FSB 533/800/1066 MHz
System Memory	2 x 240-pin DIMM support DDR2-400/533/667 max. up to 4 GB
Chipset	Intel® 945G + ICH7R
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II socket
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 4 x PCIe lanes support for 1 x PCIe x4 or 4 x PCIe x1 I/O devices 4 x 32-bit PCI bus masters 16-bit ISA
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® E6400 @2.133 GHz , 1GB DDR2 +5V_SBY @ 26mA, +3.3V @ 747mA, +5V @ 3.116A, +12V (System) @ 128mA, -12V @ 31mA, +12V (CPU) @ 1.975A 16-bit ISA
Size	338 x 126 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232 (COM 1) 1 x RS-232/422/485 (COM2)
SATA	4 x SATA-300; with RAID 0/1/10/5
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82573L
Audio	AC'97 Codec audio as MIC-in/Line-in/Line-out with Realtek ALC203
USB	4 USB 2.0
SMBus	N/A

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM + Print cable w/ bracket	1
59381400000E	FDD flat cable	1
59381560000E	Mini DIN Y-cable for PS/2 K/B + M/S	1
59382601000E	Ultra DMA66 IDE cable 40P 255mm	1
593826A0000E	SATA signal cable 500mm	1
593836A0030E	SATA power cable 150mm	1

Ordering Information

Standard

SHB100VGGA (P/N: E38C100103)	LGA775 socket PICMG 1.3 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet and audio
SHB100VGA (P/N: E38C100104)	LGA775 socket PICMG 1.3 full-size CPU card with VGA, 10/100/1000Mbps Ethernet and audio

Optional

E9C900B008	LGA775 slim cooler 3P H=25mm (for 1U Chassis)
E9C900B009	LGA775 cooler 3p H=66.8mm (for 2U/4U/Shoebox)
E9C900B010	LGA775 cooler 4p H=61.4mm (for 2U/4U/Shoebox)
59383600000E	Audio cable with bracket, P=2.54
59380000290E	PS/2 keyboard & mouse cable with bracket
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm

* This product must use a proprietary CPU cooler.
  we strongly recommend purchasing from Axiomtek.

* All specifications and photos are subject to change without notice.

SHB110

Socket M Intel® Core™2 Duo PICMG 1.3 Full-size CPU Card with Intel® 945GME + ICH7M-DH Chipset, VGA, Dual LANs and Audio

Low Power

Features

- Socket M for Intel® Core™2 Duo/ Celeron® processors with 533/667 MHz
- Intel® 945GME + ICH7M-DH chipset
- 2 DDR2 DIMM support up to 4 GB memory
- With Intel® GMA950 high performance integrated graphics controller
- 2 SATA-150 with RAID 0, 1

System

CPU	Socket M for Intel® Core™2 Duo/ Core™ Duo/ Core™ Solo/ Celeron® M processors with FSB 533/667 MHz
System Memory	2 x 240-pin DIMM support DDR2-533/667 max. up to 4 GB
Chipset	Intel® 945GME + ICH7M-DH
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 4 x PCIe lanes support for 1 x PCIe x4 or 4 x PCIe x1 I/O devices 4 x 32-bit PCI bus masters
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® T2400 @1.83 GHz, 1GB DDR2 +5V_SBY @ 35mA, +3.3V @ 942mA, +5V @ 1.782A, +12V @ 1.401A, -12V @ 63mA
Size	338 x 126 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232 (COM 1) 1 x RS-232/422/485 (COM2)
SATA	2 x SATA-150; with RAID 0/1
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82573L
Audio	AC'97 Codec audio as MIC-in/Line-in/Line-out with Realtek ALC203
USB	8 x USB 2.0
SMBus	N/A

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM + Print cable w/ bracket	1
59381400000E	FDD flat cable	1
59382601000E	Ultra DMA66 IDE cable 40P 255mm	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

SHB110VGGA (P/N: E38C110100)	Socket M PICMG 1.3 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet and audio
SHB110VGA (P/N: E38C110101)	Socket M PICMG 1.3 Full-size CPU card with VGA, 10/100/1000Mbps Ethernet and audio

Optional

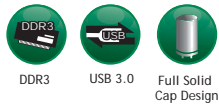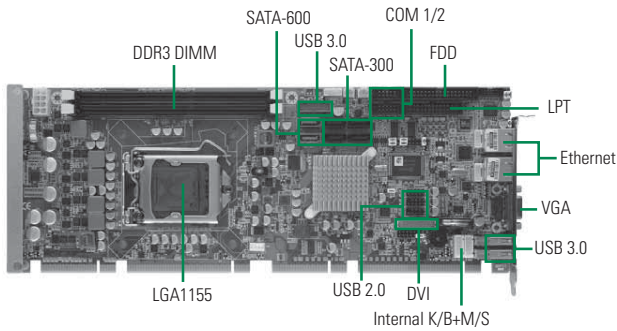| 593836A0030E	4-pin power cable to SATA x 2, L=150mm
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm
59383600000E	Audio cable with bracket, P=2.54
E9C900B001	LGA775 p4 cooler 3-pin H: 66.8mm
59380000290E	PS/2 keyboard & mouse cable with bracket

SHB120

LGA1155 Intel® Core™ i7/ i5/ i3 PICMG
1. 3 Full-size CPU Card with Intel® Q77 PCH,
SATA3, USB 3.0, VGA/DVI and Dual LANs

DDR3 / USB 3.0 / Full Solid Cap Design

Features

- LGA1155 for 3rd Generation Intel® Core™ i7/ i5/ i3 processors (Ivy Bridge)
- Intel® Q77 PCH
- 2 DDR3 DIMM support up to 16 GB memory
- Intel® iAMT 8.0 & TPM (optional) supported
- PCIe Gen. 3 at 8GT/s supported
- USB 3.0 supported
- DVI and VGA for dual displays

System

CPU	LGA1155 for 3rd Generation Intel® Core™ i7/ i5/ i3 processors (Ivy Bridge)
System Memory	2 x 240-pin DDR3 1333/1600 DIMM max. up to 16 GB
Chipset	Intel® Q77
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	N/A
Watchdog Timer	225 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 (or 2 x PCIe x8), Gen. 3 1 x PCIe x4 (or 4 PCIe x1), Gen. 2 4 x 32 bit PCI bus masters
Battery	Lithium 3v/220 mAH
Power Requirements	Intel® Core™ i7-2700K +5V @ 2.1A, +12V @ 8A, +5VSb @ 0.1A, +3.3V @ 2.3A
Size	338 x 122 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232 (COM 2) 1 x RS-232/422/425 (COM 1) 1 x DVI-D
RIO	2 x RJ45, VGA, 2 x USB 3.0
SATA	2 x SATA 6Gbps & 4 x SATA 3Gbps,with RAID 0/1/5/10
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	1st ports as 10/100/1000Mbps supports WOL, RPL/PXE Boot ROM with Intel® 82574L 2nd port as 10/100/1000Mbps support WOL, RPL/PXE Boot ROM with Intel® 82579LM
Audio	1 x HD Codec audio as MIC-in/Line-in/Line-out/ speaker-out with ALC662
USB	10 x USB 2.0, 4 x USB 3.0
SMBus	Yes
TPM	Infineon SLB9635 for trusted platform (optional)

Display

Chipset	Intel® HD Graphics
Memory Size	Max. up to 352MB frame buffer dedicated memory
Display Interface	1 x VGA (default) 1 x DVI-D (header) 1 x DisplayPort (optional)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM+Print cable w/bracket	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

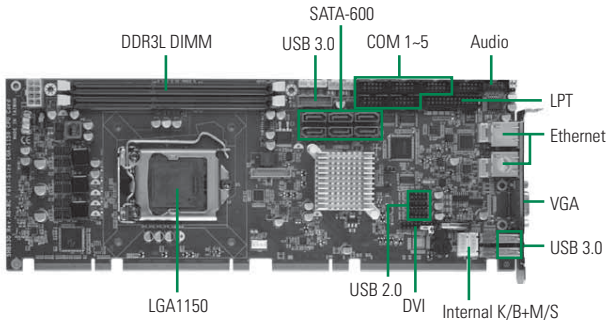|	
SHB120VGGA (P/N: E38C120100)	LGA1155 H2 PICMG1.3 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet and audio
SHB120PGGA (P/N: E38C120101)	LGA1155 H2 PICMG1.3 full-size CPU card with DisplayPort, 2 10/100/1000Mbps Ethernet and audio

Optional

E9B900C000	LGA1156 cooler 4-pin H:61.4mm
50761222000E	LGA1156 2U cooler 3-pin H:68.8mm
5938A808010E	2 x USB port cable, L=190mm
59380000290E	PS/2 keyboard & mouse cable with bracket
593826A0000E	SATA signal cable 500mm
593836A0030E	4 pin power cable to SATA x 2, L=150mm
594C1093500E	DVI cable 24-pin header to DVI-D, L=30cm
71193221200E	DVI bracket
59384500100E	Audio cable w/ bracket, P=2.0, L=450mm

* All specifications and photos are subject to change without notice.

SHB130

LGA1150 Intel® Core™ i7/ i5/ i3 PICMG
1.3 Full-size CPU Card with Intel® Q87 PCH,
SATA3, USB 3.0, DVI-D/VGA or DisplayPort
for Dual Display and Dual LANs

NEW

DDR3L DIMM | SATA-600 | USB 3.0 | COM 1~5 | Audio
LPT
Ethernet
VGA
USB 3.0
LGA1150 | USB 2.0 | DVI | Internal K/B/M/S

DualView | DDR3 | USB 3.0 | Full Solid Cap Design

Features

- LGA1150 socket 4th Generation Intel® Core™ processors
- Intel® Q87 PCH
- 2 DDR3/L un-buffered DIMM max. up to 16 GB memory capacity
- Intel® iAMT 9.0 & TPM supported (optional)
- PCIe Gen. 3 at 8GT/s supported
- DVI-D and VGA or DisplayPort dual display
- USB 3.0 supported

System

CPU	LGA1150 socket for 4th Generation Intel® Core™ processors, TDP up to 65W
System Memory	2 x 240-pin DDR3/L-1333/1600 un-buffered DIMM max. up to 16 GB
Chipset	Intel® Q87
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	N/A
Watchdog Timer	225 levels, 1~255 sec.
Expansion Interface	Edge Connector A: 1 x PCIe x16, Gen. 3 Edge Connector B: 1 x PCIe x4 or 4 x PCIe x1, Gen. 2 4 x 32 bit PCI bus masters
Battery	Lithium 3V/220 mAH
Power Requirements	TBD
Size	338 x 126mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 4 x RS-232 (COM 2/3/4/5) 1 x RS-232/422/425 (COM 1), mode selection by SW 1 x DVI-D 2 x Smart fan for system Fan 1/Fan 2 1 x DIO (4-IN & 4-OUT)
RIO	2 x RJ-45, VGA or DisplayPort, 2 x USB 3.0
SATA	6 x SATA 6Gbps with RAID 0/1/5/10
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	1st ports as 10/100/1000Mbps support WOL,RPL/PXE Boot ROM with Intel® i217LM with AMT 9.0 support 2nd port as 10/100/1000Mbps support WOL,RPL/PXE Boot ROM with Intel® i210AT
Audio	1 x HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with ALC662
USB	10 x USB 2.0, 4 x USB 3.0
SMBus	N/A
TPM	Infineon SLB9635 for trusted platform(optional)

Display

Chipset	Intel® HD Graphics
Memory Size	TBD
Display Interface	1 x VGA (default) 1 x DVI-D (header) 1 x DisplayPort (optional)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

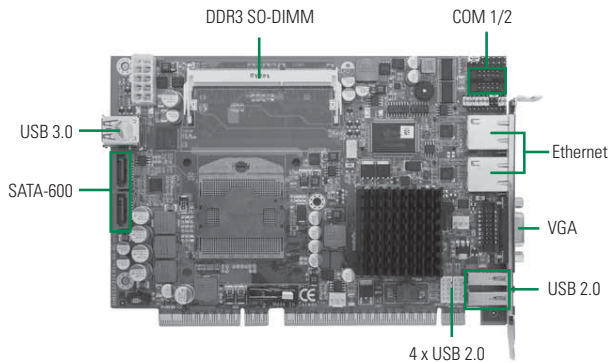| Part Number	Description	Qty
59380502000E	COM+Print cable w/bracket	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

SHB130VGGA-Q87 (P/N: E38C130100)	LGA1150 PICMG1.3 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet and audio
SHB130PGGA-Q87 (P/N: E38C130101)	LGA1150 PICMG1.3 full-size CPU card with DisplayPort, 2 10/100/1000Mbps Ethernet and audio

Optional

5938A808010E	2 x USB 2.0 port cable, L=190mm
59380000290E	PS/2 keyboard & mouse cable with bracket
593826A0000E	SATA signal cable 500mm
593836A0030E	4 pin power cable to SATA x 2, L=150mm
59384500100E	Audio cable w/ bracket P=2.0, L=450mm
594C1093500E	DVI cable 24-pin header to DVI-D, L=30mm
71193221200E	DVI bracket

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SHB213

Socket G2 Intel® Core™ i7/ i5/ i3/ Celeron®
PICMG 1.3 Half-size CPU Card with Intel®
HM65 Chipset, VGA, SATA3, USB 3.0 and
Dual LANs

DDR3 SO-DIMM   COM 1/2

USB 3.0

Ethernet

SATA-600

VGA

USB 2.0

4 x USB 2.0

DDR3   CFast™   USB 3.0   Full Solid
Cap Design

Features

- Socket G2 (rPGA 988B) 2nd Generation Intel® Core™
  i7/ i5/ i3/ Celeron® processors (Sandy Bridge)
- Intel® HM65 chipset (optional Intel® QM67)
- 2 DDR3 1066/1333 SO-DIMM support up to 8 GB
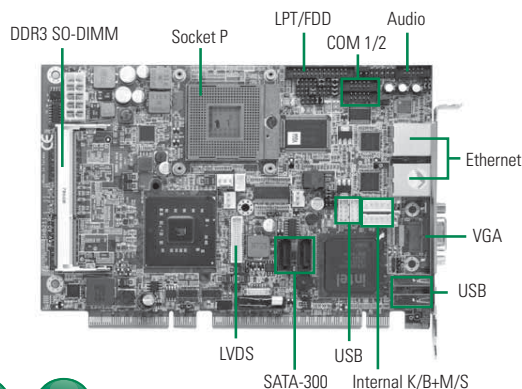 memory capacity
- Supports Intel® HD graphics

System

CPU	Socket G2 (rPGA 988B) 2nd Generation Intel® Core™ i7/ i5/ i3/ Celeron® processors (Sandy Bridge)
System Memory	2 x 204-pin DDR3 1066/1333 SO-DIMM max. up to 8 GB
Chipset	Intel® HM65 chipset (Intel® QM67 as option)
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	225 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 1 x PCIe x4 or 4 x PCIe x1
Battery Lithium	3v/220 mAH
Power Requirements	Intel® Core™ i7-2710QE @ 2.1 GHz, 8GB DDR3 (HM 65) -12V @ 1.9A +5VSB @ 0.1A +12V @ 1.8A +3.3V @ 2.5A
Size	185 x 126mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, on-condensing

I/O

MIO	1 x RS-232/422/485 (COM 1) 1 x RS-232 (COM 2)
SATA	2 x SATA-600 (straight, 180 , blue) Optional RAID 0/1 (only for Intel QM67)
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support WOL, RPL/PXE boot ROM with Realtek RTL8111E.
Audio	N/A
USB	2 x USB 3.0 (right angle, 90) 6 x USB 2.0 (4 x internal, 2 x external)
SMBus	System Management Bus for advanced monitoring/control

Display

Chipset	Intel® HD graphics
Memory Size	Max. up 352MB frame buffer dedicated memory
Display Interface	1 x VGA

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59384500200E	COM x 2 w/bracket, P=2.0, L=250mm	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

SHB213VGG-HM65 (P/N: E38C213101)	Socket G2 PICMG 1.3 half-size CPU card with HM65, VGA, SATA3, USB 3.0, 2 10/100/1000Mbps Ethernet

Optional

59382631000E	2 x USB 2.0 wafer cable with bracket, L=180mm
5078C111200E	CPU cooler PGA 989 JACDD01C
SHB213VGG-QM67 (P/N: E38C213100)	Socket G2 PICMG 1.3 half-size CPU card with QM67, VGA, SATA3, USB 3.0, 2 10/100/1000Mbps Ethernet

* All specifications and photos are subject to change without notice.

SHB211

Socket P Intel® Core™2 Duo PICMG 1.3
Half-size CPU Card with Intel® GM45 +
ICH9M/ICH9M-E Chipset, VGA/LVDS,
Dual LANs and Audio

Low Power   DDR3

Features

- Socket P for Intel® Core™2 Duo/ Celeron® M processors with 800/1066 MHz
- Intel® GM45 + ICH9M chipset (optional ICH9M-E)
- 2 DDR3 SODIMM support up to 8 GB
- With Intel® Gen 5 high performance integrated graphics controller for VGA and LVDS
- RAID 0, 1 (optional with ICH9M-E)

System

CPU	Socket P for Intel® Core™2 Duo/ Celeron® M processors with FSB 800/1066 MHz
System Memory	2 x 204-pin SO-DIMM support DDR3-800/1066 max. up to 8 GB
Chipset	Intel® GM45 + ICH9M/ICH9M-E
BIOS	AMI
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 4 x PCIe lanes support 1 x PCIe x4 or 4 x PCIe x1 I/O devices
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® T9400 @2.53 GHz, 1G DDR3 +5V_SBY @ 25mA, +3.3V @ 987mA, +5V @ 22mA, +12V @ 2.148A, -12V @ 22mA
Size	185 x 126 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD/LPT(default); with SPP/EPP/ECP supported 1 x PS/2 keyboard 1 x PS/2 mouse 1 x RS-232 (COM 2) 1 x RS-232/422/485 (COM 1)
SATA	2 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart Fan control
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control

Display

Chipset	Intel® GMA 4500HD graphics core
Memory Size	Intel® DVMT 5.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
593826A0000E	SATA signal cable 500mm	1
59384500000E	COM + Print cable w/ bracket	1

Ordering Information

Standard

SHB211VGGA (P/N: E38C211100)	Socket P PICMG 1.3 half-size CPU card with VGA/LVDS, 2 10/100/1000Mbps Ethernet and audio

Optional

5078B850200E	CPU heatsink with fan
593836A0030E	4-pin power cable to SATA x 2, L=150mm
59382631000E	2 x USB 2.0 wafer cable with bracket, L=180mm
59383600000E	Audio cable with bracket

SBC
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Systems
on
Modules

Embedded
SBCs
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SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
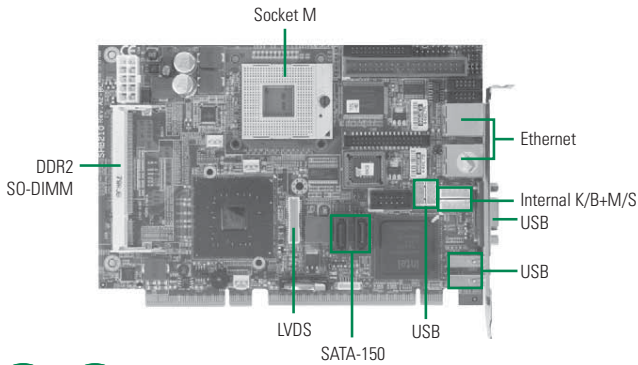SBCs
>PC/104

Industrial
Mother-
boards

Slot
CPU
Cards

Accessories

Appendix

SHB210

Socket M Intel® Core™2 Duo PICMG 1.3 Half-size CPU Card with Intel® 945GME + ICH7M-DH Chipset, VGA/LVDS and Dual LANs

Socket M
DDR2 SO-DIMM
Ethernet
Internal K/B+M/S
USB
USB
LVDS
USB
SATA-150

Low Power   Full Solid Cap Design

Features

- Socket M for Intel® Core™2 Duo/ Celeron® M processors with 533/667 MHz
- Intel® 945GME + ICH7M-DH chipset
- 2 DDR2-533/665 SODIMM support up to 4 GB
- With Intel® GMA 950 integrated graphics controller for VGA and LVDS

System

CPU	Socket M for Intel® Core™2 Duo/ Core™ Duo/ Core™ Solo/ Celeron® M processors with FSB 533/667 MHz
System Memory	2 x 200-pin SO-DIMM support DDR2-533/667 max. up to 4 GB
Chipset	Intel® 945GME + ICH7M-DH
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 4 x PCIe lanes support 1 x PCIe x4 or 4 x PCIe x1 I/O devices
Battery	Lithium 3V/196 mAH
Power Requirements	Intel® T7600 @2.33 GHz, 2G DDR2 +5V_SBY @ 21mA, +3.3V @ 916mA, +5V @ 112mA, +12V @ 2.332A, -12V @ 34mA
Size	185 x 126 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232 (COM 2) 1 x RS-232/422/485 (COM 1)
SATA	2 x SATA-150; with RAID 0/1
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with audio kit AX93242 (optional)
USB	6 x USB 2.0
SMBus	N/A

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59384500000E	COM + Print cable w/ bracket	1
59382601000E	Ultra DMA66 IDE cable 40-pin 455mm	1
59384500300E	FDD flat cable 2.54" to 2.0 pitch 320mm	1
593826A0000E	SATA signal cable 500mm	1
50784830200E	CPU heatsink with fan	1

Ordering Information
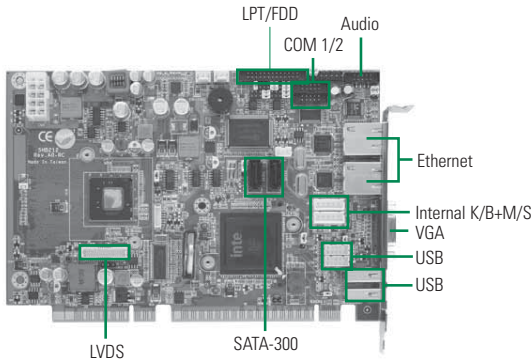
Standard

SHB210VGG (P/N: E38C210100)	Socket M PICMG 1.3 half-size CPU card with VGA/LVDS, 2 10/100/1000Mbps Ethernet and 6 USB
SHB210VG (P/N: E38C210101)	Socket M PICMG 1.3 half-size CPU card with VGA/LVDS, 10/100/1000Mbps Ethernet and 6 USB

Optional

593836A0030E	4-pin power cable to SATA x 2, L=150mm
59382631000E	2 x USB 2.0 wafer cable with bracket, L=180mm
E393242101	AX93242-RC HD audio converter kit

* All specifications and photos are subject to change without notice.

SHB212

Intel® Atom™ D525 PICMG 1.3 Half-size CPU Card with Intel® ICH8M Chipset, VGA/LVDS, Dual LANs and Audio

LPT/FDD
COM 1/2
Audio
Ethernet
Internal K/B+M/S
VGA
USB
USB
SATA-300
LVDS

Supports Intel Atom inside
Low Power
DDR3

Features

- Intel® Atom™ processor D525 (1.8 GHz)
- Intel® ICH8M chipset
- 1 DDR3 SO-DIMM support up to 4 GB memory capacity
- 6 USB 2.0 ports supported
- 2 COM ports supported

System

CPU	Intel® Atom™ processor D525 1.8 GHz
System Memory	1 x 204-pin SO-DIMM supports DDR3-800 max. up to 4 GB
Chipset	Intel® ICH8M
BIOS	AMI
SSD	1 x CompactFlash™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	4 x PCIe lanes support for 1 x PCIe x4 or 4 PCIe x1 I/O device Note: There is no PCIe x16 signal
Battery	Lithium 3V/196mAH
Power Requirements	*Intel® Atom™ D525 @ 1.8 GHz, 2GB DDR3 +5V+SBY @ 0A, +3.3V @ 0.7A, +12V @ 1.2A
Size	185 x 126 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD/LPT(default); with SPP/EPP/ECP supported 1 x PS/2 keyboard 1 x PS/2 mouse 1 x RS-232/422/485 (COM 1) 1 x RS-232 (COM 2)
SATA	2 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart Fan control
Ethernet	1st port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82567V 2nd port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82574L
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	N/A

Display

Chipset	Intel® GMA 3150 graphics core
Memory Size	Intel® DVMT 4.0 compliant
Output Interface	1x VGA 1x LVDS; 18-bit single channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

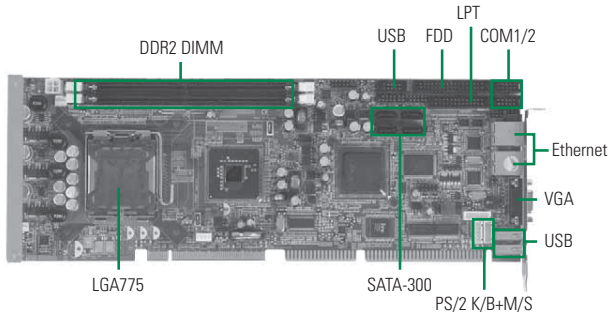| Part Number	Description	Qty
59384500000E	COM + Print cable w/ bracket	1
593826A0000E	SATA signal cable 500mm	1
5078E800000E	CPU heatsink with fan (for D525)	1

Ordering Information

Standard

SHB212VGGA-D525 (P/N: E38C212102)	Intel® Atom™ D525 PICMG 1.3 Half-size CPU card with VGA/LVDS, 2 10/100/1000Mbps Ethernet and audio

Optional

593836A0030E	4-pin power cable to SATA x 2 L=150mm
59382631000E	2 x USB 2.0 wafer cable with bracket, L=180mm
59383600000E	Audio cable with bracket

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Mother-boards

Slot CPU Cards

Accessories

Appendix

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SBC81205

LGA775 Intel® Core™2 Quad PICMG 1.0
Full-size CPU Card with Intel® Q35 + ICH9
Chipset, VGA and Dual LANs

Features

- LGA775 socket for Intel® Core™2 Quad/ Core™2 Duo/ Celeron® processors with FSB 800/1066/1333 MHz
- Intel® Q35 + ICH9 chipset
- 2 DDR2 DIMM support up to 4 GB memory
- Intel® Q35 GMCH integrated graphics media 3100
- ISA high drive supported

System

CPU	LGA775 socket for Intel® Core™2 Quad/ Core™2 Duo/ Celeron® processors with FSB 800/1066/1333 MHz
System Memory	2 x 240-pin DIMM support DDR2-667/800 max. up to 4 GB
Chipset	Intel® Q35 + ICH9
BIOS	Phoenix-Award
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	4 x 32-bit PCI bus masters 16-bit ISA bus
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® E5200@ 2.6 GHz, 1GB DDR2 +5V_SBY @ 34mA, +3.3V @ 77mA, +5V @ 2.902A, +12V (System) @ 207mA, -12V @ 27mA, +12V (CPU) @ 1.318A
Size	338 x 122 mm
BoardThickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232 (COM 1) 1 x RS-232/422/485 (COM2)
SATA	4 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed Ethernet 2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B Optional: 2 ports as 10/100/1000Mbps support wake-on-LAN, RPL/PXE Boot ROM with Intel 82583V
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with audio kit AX93242 (optional)
USB	6 x USB 2.0
SMBus	N/A

Display

Chipset	Intel® GMA 3100 graphics core
Memory Size	Intel® DVMT 4.0 compliant
Display Interface	1 x VGA

Packing List

Standard
Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM + Print cable w/ bracket	1
59381400000E	FDD flat cable	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

SBC81205VGG (P/N: E381205100)	LGA775 socket PICMG 1.0 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet (RTL8111B) and 6 USB
SBC81205VG (P/N: E381205101)	LGA775 socket PICMG 1.0 full-size CPU card with VGA, 1 10/100/1000Mbps Ethernet (RTL8111B) and 6 USB
SBC81205VGG (P/N: E381205105)	LGA775 socket PICMG 1.0 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet (Intel® 82583V) and 6 USB
SBC81205VG (P/N: E381205106)	LGA775 socket PICMG 1.0 full-size CPU card with VGA, 1 10/100/1000Mbps Ethernet (Intel® 82583V) and 6 USB

Optional

E9C900B003	CPU LGA775 cooler (for 2U/4U/Shoebox)
E9C900B004	CPU LGA775 cooler 4 pin H=61.4mm (for 2U/4U/Shoebox)
E9C900B005	CPU LGA775 cooler H=27mm P=2.0 (for 1U Chassis)
E9C900B006	LGA775 cooler 3p H=66.8mm (for 2U/4U/Shoebox)
E9C900B007	LGA775 slim cooler H=25mm (for 1U Chassis)
593826A0000E	SATA signal cable 500mm
593836A0030E	4-pin power cable to SATA x 2, L=150mm
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm
59380000290E	PS/2 keyboard & mouse cable with bracket
E393242100	AX93242-RC HD audio converter kit

* This product must use a proprietary CPU cooler.
  we strongly recommend purchasing from Axiomtek.

* All specifications and photos are subject to change without notice.

SBC81206

LGA775 Intel® Core™2 Duo PICMG 1.0
Full-size CPU Card with Intel® 945GC +
ICH7/7R Chipset, VGA and Dual LANs

Features

- LGA775 for Intel® Core™2 Duo/ Pentium® D/ Pentium® 4/ Celeron® processors with 533/800 MHz
- Intel® 945GC + ICH7/7R
- 2 DDR2 DIMM support up to 2 GB memory capacity
- With Intel® GMA 950 high performance integrated graphics controller
- ISA with up to 500mA high drive supported
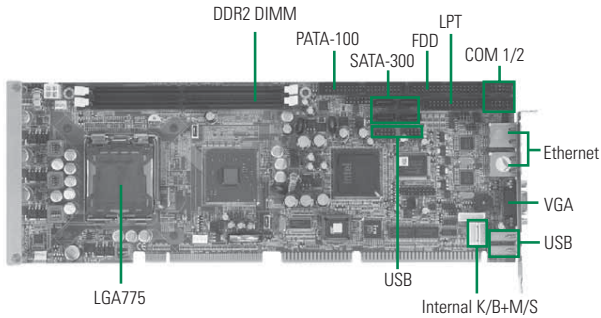
System

CPU	LGA775 socket for Intel® Core™2 Duo/ Pentium® 4/ Pentium®/Celeron® processors with FSB 533/800 MHz
System Memory	2 x 240-pin DIMM support DDR2-400/533/667 max. up to 2 GB
Chipset	Intel® 945GC + ICH7/7R
BIOS	Phoenix-Award
SSD	IDE DoM
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	4 x 32-bit PCI bus masters 16-bit ISA bus
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® Core™2 Duo E4500 @2.2 GHz, 1GB DDR2 +5V_SBY @ 24mA, +3.3V @ 130mA, +5V @ 1.486A, +12V (System) @ 951mA, -12V @ 44mA, +12V (CPU) @ 2.002A
Size	338 x 122 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232 (COM 1) 1 x RS-232/422/485 (COM 2)
SATA	4 x SATA-300; with RAID 0/1/10/5 (optional with ICH7R)
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with audio kit AX93242 (optional)
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control

Display

Chipset	Intel® GMA 950 graphics Core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA

Packing List

Standard
Quick installation guide, user's manual/utility CD and cable

Cable

Part Number	Description	Qty
59380502000E	COM+Print cable w/ bracket	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

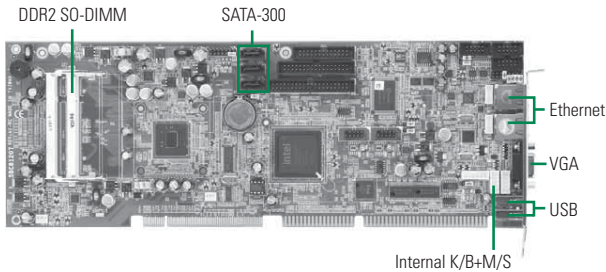|	
SBC81206VGG (P/N: E381206100)	LGA775 socket PICMG 1.0 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet
SBC81206VGGR (P/N: E381206101)	LGA775 socket PICMG 1.0 Full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet and RAID
SBC81206VG (P/N: E381206102)	LGA775 socket PICMG 1.0 full-size CPU card with VGA, 10/100/1000Mbps Ethernet

Optional

E9C900B003	CPU LGA775 cooler (for 2U/4U/Shoebox)
E9C900B004	CPU LGA775 cooler 4 pin H=61.4mm (for 2U/4U/Shoebox)
E9C900B005	CPU LGA775 cooler H=27mm P=2.0 (for 1U Chassis)
E9C900B006	LGA775 cooler 3p H=66.8mm (for 2U/4U/Shoebox)
E9C900B007	LGA775 slim cooler H=25mm (for 1U Chassis)
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm
59380000290E	PS/2 keyboard & mouse cable with bracket
E93242100	AX93242-RC HD audio converter kit

* This product must use a proprietary CPU cooler.
  we strongly recommend purchasing from Axiomtek.

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SBC81207

Intel® Atom™ D510 PICMG 1.0 Full-size
CPU Card with Intel® ICH8M Chipset, VGA,
Dual LANs and Audio

DDR2 SO-DIMM SATA-300

- Ethernet
- VGA
- USB

Internal K/B+M/S

Supports Intel Atom inside

Low Power

Features

- Intel® Atom™ processor D510 1.66 GHz
- Intel® ICH8M + ITE8888G chipset
- 2 DDR2 SO-DIMM support up to 4 GB memory capacity
- ISA with up to 500mA high drive supported

System

CPU	Intel® Atom™ processor D510 1.66 GHz dual core onboard
System Memory	2 x 200-pin SO-DIMM support DDR2-667/800 max. up to 4 GB
Chipset	Intel® ICH8M + ITE8888G
BIOS	AMI
SSD	1 x CompactFlash™ (optional)
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	4 x 32-bit PCI bus master 16-bit ISA bus
Battery	Lithium 3V/220 mAH
Power Requirements	*Intel® Atom™ D510, 1GB DDR2 +5V_SBY @ 15.15mA, +3.3V @ 45mA, +5V @ 2.115A, +12V @ 404.2mA, -12V @ 22mA
Size	338 x 122 mm
BoardThickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100; 1 x FDD 1 x PS/2 keyboard; 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232 (COM 1) 1 x RS-232/422/485 (COM 2)
SATA	3 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart Fan control
Ethernet	1st port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel 82567V 2nd port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111DL
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with Realtek ALC662
USB	6 x USB 2.0
SMBus	N/A

Display

Chipset	Intel® GMA 3150 graphics core
Memory Size	Intel® DVMT 4.0 compliant
Display Interface	1 x VGA

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM + Print cable w/ bracket	1
593826A0000E	SATA signal cable 500mm	1
50781700500E	CPU heatsink w/ fan (for D510)	1

Ordering Information

Standard

SBC81207VGGA-D510 (P/N: E381207102)	Intel® Atom™ D510 PICMG 1.0 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet and audio

Optional

593836A0030E	4-pin power cable to SATA x 2, L=150mm
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm
59380000290E	PS/2 keyboard & mouse cable with bracket

* All specifications and photos are subject to change without notice.

SBC81203

LGA775 Intel® Core™2 Duo PICMG 1.0
Full-size CPU Card with Intel® 945G +
ICH7R Chipset, VGA, Audio and Dual LANs

DDR2 DIMM
FDD
IDE
PRT
COM 1
COM 2
Ethernet
VGA
USB
LGA775
SATA-300
AIPI Cable
Internal K/B+M/S

Features

- LGA775 for Intel® Core™2 Duo/ Pentium® D/ Pentium® 4/ Celeron® processors with 533/800 MHz
- Intel® 945GC + ICH7/7R
- 2 DDR2 DIMM support up to 2 GB memory capacity
- With Intel® GMA 950 high performance integrated graphics controller
- ISA with up to 500mA high drive supported

System

CPU	LGA775 socket for Intel® Core™2 Duo/ Pentium® 4/ Pentium®/ Celeron® D/ Celeron® processors with FSB 533/800/1066 MHz
System Memory	2 x 240-pin DIMM support DDR2-400/533/667 max. up to 4 GB
Chipset	Intel® 945G + ICH7R
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II socket (optional)
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	4 x 32-bit PCI bus masters
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® E6400 @2.133 GHz, 1GB DDR2 +5V_SBY @ 23.6mA, +5V @ 3.686A, +12V (System) @ 25mA, -12V @ 26mA, +12V (CPU) @ 1.723A
Size	338 x 122 mm
BoardThickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232 (COM 1) 1 x RS-232/422/485 (COM 2)
SATA	4 x SATA-300; with RAID 0/1/10/5
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82573L
Audio	AC'97 Codec audio as MIC-in/Line-in/Line-out with Realtek ALC203
USB	6 x USB 2.0
SMBus	N/A

Display

Chipset	Intel® GMA 950 graphics Core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x VGA

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM + Print cable w/ bracket	1
59381400000E	FDD flat cable	1
59382601000E	Ultra DMA66 IDE cable 40-pin 455mm	1
593826A0000E	SATA signal cable 500mm	1

Ordering Information

Standard

SBC81203VGGA (P/N: E381203100)	LGA775 socket PICMG 1.0 full-size CPU card with VGA, 2 10/100/1000Mbps Ethernet and audio
SBC81203VGA (P/N: E381203101)	LGA775 socket PICMG 1.0 full-size CPU card with VGA, 10/100/1000Mbps Ethernet and audio

Optional

E9C900B008	LGA775 slim cooler 3P H=25mm (for 1U Chassis)
E9C900B009	LGA775 cooler 3p H=66.8mm (for 2U/4U/Shoebox)
E9C900B010	LGA775 Cooler 4p H=61.4mm (for 2U/4U/Shoebox)
593836A0030E	SATA power cable 4-pin, L=150mm
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm
59380000450E	Audio cable with bracket, P=2.54mm

* This product must use a proprietary CPU cooler.
we strongly recommend purchasing from Axiomtek.

axiomtek.com

SBC81210

LGA1155 Intel® Core™ i7/ i5/ i3 PICMG 1.0
Full-size CPU Card with Intel® B65/Q67, VGA
and Dual LANs

DDR3 DIMM   3 x SATA-300   COM 1/2
SATA-600   FDD
LPT
Ethernet
VGA/
DisplayPort
USB
LGA1155
Internal K/B+M/S

DDR3

Features

- LGA1155 socket for Intel® Core™ i7/ i5/ i3 processors
- Intel® B65 chipset (Q67 as option)
- 2 DDR3 1066/1333 DIMM support up to 8 GB memory capacity
- DisplayPort supported (optional)
- Supports Intel HD Graphics
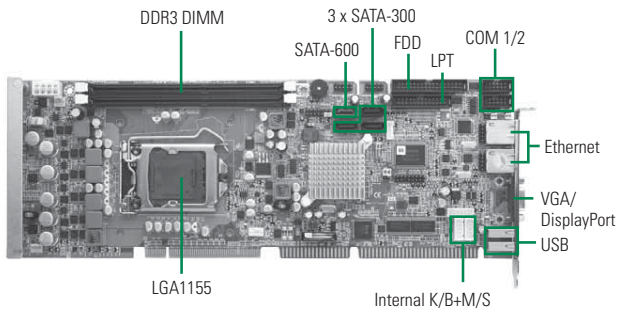
System

CPU	LGA1155 socket for Intel® Core™ i7/ i5/ i3 processor
System Memory	2 x 240-pin DDR3 1066/1333 DIMM max. up to 8 GB
Chipset	Intel® B65 (Q67 as option)
BIOS	AMI UEFI BIOS
SSD	N/A
Watchdog Timer	225 levels, 1~255 sec.
Expansion Interface	4 x 32 bit PCI bus masters No ISA bus support
Battery Lithium	3v/220 mAH
Power Requirements	Intel® i5-2500 @ 3.1 GHz, 4 G DDR3 +5V_SBY @ 41mA, +3.3V @ 26mA +5V @ 3.705A, +12V @ 698mA, -12V @ 26mA
Size	338 x 122mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232 (COM 1) 1 x RS-232/422/425 (COM 2)
SATA	1 x SATA-600 & 3 x SATA-300, optional RAID 0/1/10/5 (only for Intel® Q67)
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	1 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82579LM 2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with Audio kit AX93242 (optional)
USB	6 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control

Display

Chipset	Intel® HD Graphics
Memory Size	Max. up 352MB frame buffer dedicated memory
Display Interface	1 x VGA 1 x DisplayPort (optional)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380502000E	COM+Print cable w/bracket	1
593826A0000E	SATA signal cable 500mm	1
59381400000E	FDD cable	1

Ordering Information

Standard

SBC81210VGG-B65 (P/N: E381210100)	LGA1155 socket PICMG 1.0 full-size CPU card with B65 PCH, VGA, 2 10/100/1000Mbps Ethernet and 6 USB
SBC81210PGG-B65 (P/N: E381210101)	LGA1155 socket PICMG 1.0 full-size CPU card with B65 PCH, DisplayPort, 2 10/100/1000Mbps Ethernet and 6 USB

Optional

SBC81210VGG-Q67 (P/N: E381210102)	LGA1155 socket PICMG 1.0 full-size CPU card with Q67 PCH, VGA, 2 10/100/1000Mbps Ethernet and 6 USB
5938A808010E	2 x USB cable with bracket, P=2.54mm, L=190mm
59380000290E	PS/2 keyboard & mouse cable with bracket
E93242100	AX93242 HD audio converter kit
593826A0000E	SATA signal cable 500mm
593836A0030E	4 pin power cable to SATA x 2, L=150mm
E9B900C000	LGA1156 cooler 4-pin H:61.4mm
50761222000E	LGA1156 2U cooler 3pin H=68.8mm

* All specifications and photos are subject to change without notice.

SBC82820

Socket 479 Intel® Pentium® M PICMG 1.0
PCI Half-size CPU Card with Intel® 910GMLE
+ ICH6M Chipset, DVI-I/LVDS, Dual LANs
and Audio

Socket 479   LDT   PATA IDE

Power connector
DDR2 SO-DIMM
Audio
Ethernet
DVI-I
PS/2 K/B+M/S
LVDS   USB

Fanless   Low Power

Features

- Socket 479 for Intel® Pentium® M/ Celeron® M processors with FSB 400 MHz
- Intel® 910GMLE + ICH6M chipset
- 2 DDR2 SO-DIMM support up to 2 GB memory
- Dual 10/100/1000 Ethernet and Audio
- DVI-I for VGA and DVI-D display output
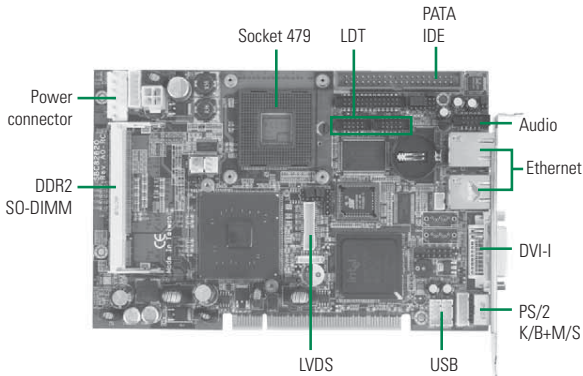
System

CPU	Socket 479 for Intel® Pentium® M/ Celeron® M processors with FSB 400/533 MHz; ULV Intel® Celeron® M processor 600MHz/512KB or 1GHz/ZC onboard
System Memory	2 x 200-pin SO-DIMM support DDR2-400/533 max. up to 2 GB
Chipset	Intel® 910GMLE + ICH6M
BIOS	Phoenix-Award BIOS
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI for 32-bit PCI supports 4 bus masters
Battery	Lithium 3V/220 mAH

Power Requirements	*Intel® Pentium® M @2.0 GHz, 1GB DDR2
	  Max.: +5VSB @ 38mA, +3.3V@54mA,+5V@2.253A,
	  -12V@22mA, +12V@1.361A
	*Intel® Pentium® M @1.0 GHz, 1GB DDR2
	  +5V_SBY @ 29mA, +3.3V @ 41mA, +5V @ 2.553A,
	  +12V (System) @ 30mA, -12V @ 21mA, +12V (CPU) @ 332mA

Size	185 x 122 mm
BoardThickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x FDD/LPT(default); with SPP/EPP/ECP supported 1 x PS/2 keyboard 1 x PS/2 mouse 1 x RS-232 (COM 1) 1 x RS-232/422/485 (COM 2)
SATA	2 x SATA-150
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
Audio	AC'97 Codec audio as MIC-in/Line-in/Line-out/speaker out with Realtek ALC203
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control

Display

Chipset	Intel® GMA 900 graphics core
Memory Size	Intel® DVMT 3.0 compliant
Display Interface	1 x DVI-I combined with CRT 1st LVDS; 18/24-bit single/dual channel 2nd LVDS; 18/24-bit single/dual channel (optional)

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59384500000E	COM + Print cable w/ bracket	1
59382601000E	Ultra DMA66 IDE cable 40-pin 455mm	1
593826A0000E	SATA signal cable 500mm	1
59382631000E	2 x USB 2.0 wafer cable with bracket, L=180mm	1
59384500100E	Audio cable with bracket 2.0 pitch 450mm	1
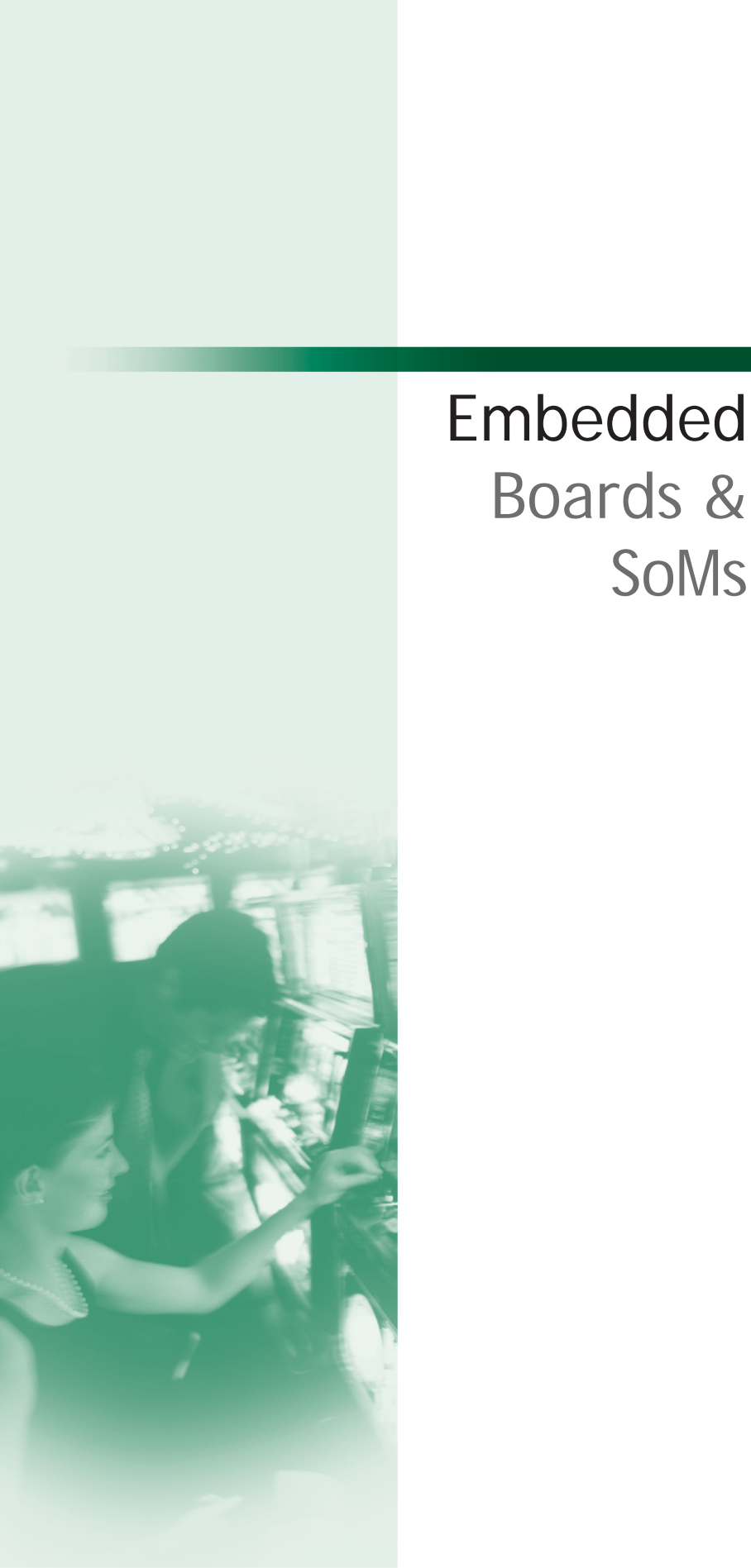
Ordering Information

Standard

SBC82820DGGA (P/N: E382820101)	Socket 479 PICMG 1.0 half-size CPU card with DVI-I/LVDS, 2 10/100/1000Mbps Ethernet audio and 4 USB
SBC82820DGGA-1GE (P/N: E382820100) (fanless)	PICMG 1.0 half-size CPU card with ULV Intel® Celeron® M 1 GHz/ZC CPU, DVI-I/LVDS, 2 10/100/1000Mbps Ethernet, audio and 4 USB

Optional

594826A0010E	DVI-I to CRT & DVI-D Y-cable
E39A003100	CK9A003; 1 x audio cable, 4 USB 2.0 cables

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Mother-boards

Slot CPU Cards

Accessories

Appendix

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Embedded
Boards &
SoMs

6 Accessories

Riser Card

AX96144

PCIe x4 riser card with 4-slot PCIe x1 add-on card which is aside the SBCs.
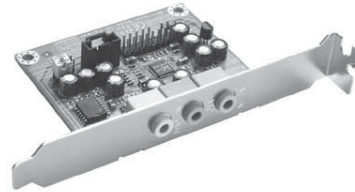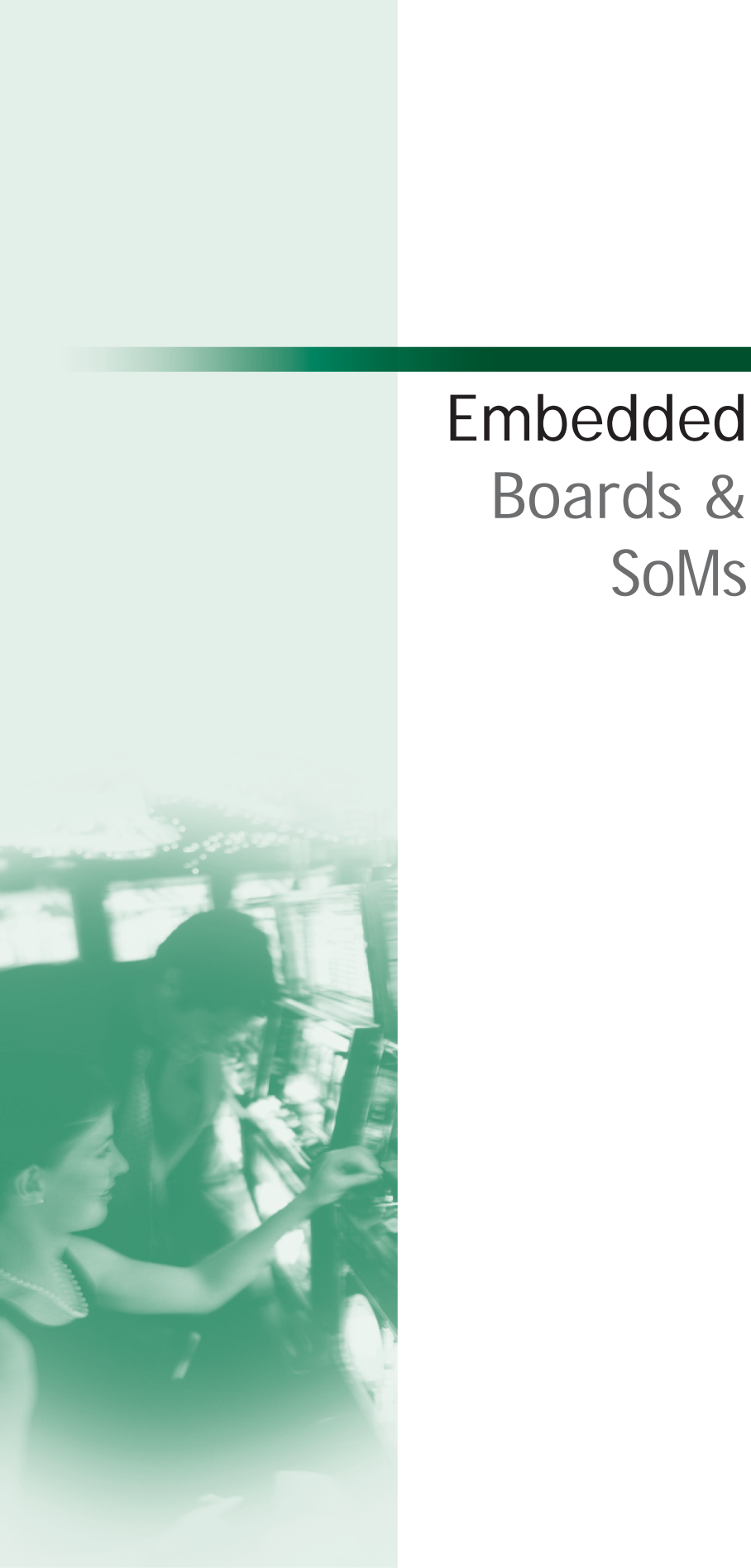(Applied for SBC86860, SBC86850, SBC86834)
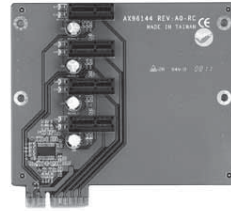
I/O Cable Kit

AX93242

HD audio converter board with bracket for SBC81205, SBC81206, SHB101 and SHB210
Mic-in/CD-in//Line-in/Line-out/Speaker-out

Ordering Information

AX93242 (P/N: E393242100)	HD audio kit for SBC81205, SBC81206, SHB101
AX93242 (P/N: E393242101)	HD audio kit for SHB210

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MiniPCI Modules

AX92200

MiniPCI Fast/Gigabit Ethernet Module
- Form Factor: MiniPCI type-III 124-pin interface
- Controller: Realtek RTL8100C/8110S
- Connector: One 14-pin interface for external RJ-45 adapter kit
- EMI Requirements: CE, FCC class A compliance
- Dimensions (W x D): 2.36"(60mm) x 1.97"(50.03mm)
- Accessories: 1 x Ethernet bracket, 1 x utility CD

Ordering Information

AX92200E	MiniPCI Fast Ethernet module
AX92200G	MiniPCI Gigabit Ethernet module

Full Solid
Cap Design
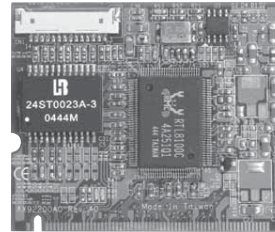
AX92203

MiniPCI Wireless LAN Module
- Form Factor: MiniPCI type-III 124-pin interface
- Controller: V/A, 802.11b/g
- Connector: Two antenna interfaces for Main and Aux wired antenna kits
- EMI Requirements: CE, FCC class A/B compliance
- Dimensions (W x D): 2.36"(60mm) x 1.73"(44mm)
- Accessories: 2 x cables and antennas, 1 x utility CD

Ordering Information

AX92203	MiniPCI wireless LAN module

* All specifications and photos are subject to change without notice.
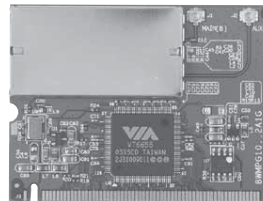
LVDS Convert Modules

AX95601

LVDS Converter
- From Factor: ECX stacking module
- Controller: Xilinx XC3S200AN
- Connector: 2 x 40-pins LVDS connectors
- Dimention: 65 x 43 mm
- Applied for CAPA800 and CAPA801

Ordering Information

AX95601 (P/N: E395601101)	LVDS converter for pixel compensated to 1280 x 1024 48 bit
AX95601 (P/N: E395601100)	LVDS converter for scale up to 1920 x 1080 48 bit

LVDS in   LVDS out

Full Solid
Cap Design

AX93221

LVDS to DVI-D Converter
- Input supports 18/36/24/48-bit LVDS through 40-pin LVDS connector
- Output supports DVI-D connector
- Size: 60 x 50mm

Full Solid
Cap Design

DVI-D

LVDS Input

SBC
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Systems
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Embedded
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>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

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Embedded
Boards &
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Appendix

Cable List

Part Number	59093201000E	59308300000E	59312260000E	59312260010E	59312260020E
Cable Description	AX93201 to AX93202 LAN cable, L=20mm	IEE1394 cable w/ bracket, P= 2.0mm, L=330mm	VGA cable, DB15P, P=1.25, 12P, L=200mm	COM port x 2 w/ bracket, P=1.25, L=250mm	Audio cable w/ bracket, P=1.25, L=450mm

Part Number	59327200000E	59380000300E	59380010300E	59380402010E	59380402020E
Cable Description	VGA+PS/2 cable, P=1.27 x 2.54, L=300mm	COM port x 2 w/ bracket, P=1.27 x 2.54, L=300mm	COM port x 1 w/ bracket, P=1.27 x 2.54, L=300mm	COM port cable w/ bracket P=2.54, L=300mm	COM port cable x1, P=2.0, L=300mm
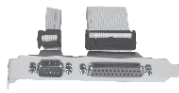
Part Number	59380502000E	59380703000E	59381400000E	59381560000E	59382601000E
Cable Description	COM + printer cable w/ bracket	COM port x 2 w/ bracket P=2.54	FDD cable, P=2.54, L=300mm	Mini DIN Y-Cable for PS/2 K/B+M/S	ULTRA DMA66 IDE cable 40P 455mm

Part Number	59382620000E	59382631000E	593826A0000E	59383600000E	593836A0000E
Cable Description	COM port x 1w/ bracket, P=2.0, L=300mm	2 x USB 2.0 wafer cable w/ bracket 180mm	SATA singal cable 500mm	Audio cable w/ bracket	USB cable, 5 x 2P, P=2.0, L=180mm

Part Number	593836A0010E	593836A0030E	59384500000E	59384500100E	59384500200E
Cable Description	40-40-40 IDE cable L=310+155mm	SATA power cable 150mm	COM + printer cable w/ bracket P=2.0, L=250mm	Audio cable w/ bracket, P=2.0 L=450mm	COM x 2 w/ bracket, P=2.0, L=250mm

* All specifications and photos are subject to change without notice.

Part Number	59384500300E	59386831000E	59386832000E	59397300000E	59397300110E
Cable Description	FDD flat cable "2.54 to 2.0 pitch" 320mm	USB cable w/ bracket, USB x 2, 2 x 5P, P=2.54, L=175mm	Wafer 2.00mm 6P to PS/2 cable, L=200mm	VGA cable, L=180mm	USB cable w/ bracket, L=215mm

Part Number	59397300200E	59402010000E	59408000010E	59408000090E	59408660010E
Cable Description	K/B & M/S cable, 2 x 5, P=2.0, L=300mm	ATX power cable 10P L=150mm	FFC 26P cable, L=210mm	FFC 26P cable, L=290mm	FFC 41P cable, L=60mm

Part Number	59408660020E	59408660100E	59408660110E	59412260000E	59412260010E
Cable Description	FFC 41P cable, L=60mm reverse	RCA cable+wafer 2P 2.0mm, L=300mm RC	S Video cable + wafer 4P 2.0mm, L=300mm	ATX power cable, 4P+5P+6P, L=150mm	PS/2 cable, P=1.25, 6P to PS/2, L=150mm

Part Number	59420040000E	59482630000E	59484500010E	594F2012900E	59908355000E
Cable Description	ATX power cable, 6P+4P, L=150mm	Printer port cable, P=2.0, L=270mm	44-44-40 pin IDE cable L=200mm+200mm	2 ports of IEEE1394a cables w/ bracket 2.54-pitch	Power cable 8-pin P=130mm

Part Number	59070213000E	59040131000E	59050203000E	59091501000E
Cable Description	DP to VGA cable L=85mm	DP to DVI cable L=210mm	DP to HDMI cable L=185mm	DP to DP cable L=1500mm

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Mother-boards

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Instructions of Backplane Installation

To make the ACPI (Advanced Configuration and Power Interface) feature work on the Embedded slot PC's, it is recommended to connect an ATX power supply and follow the instructions for wiring as shown below:
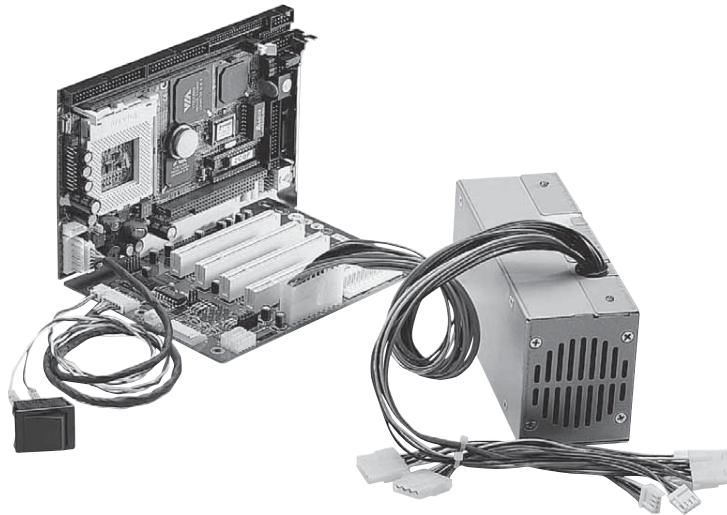
Photo 1 - Plug the ATX 20-pin male connector into the female connector of the Axiomtek backplane.
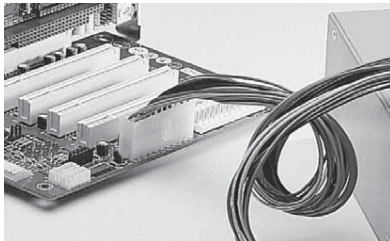
Photo 2 - Plug the 6-pin ACPI cable into the ACPI connector of the Axiomtek backplane.
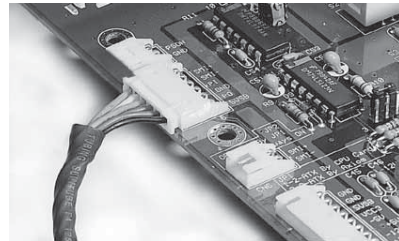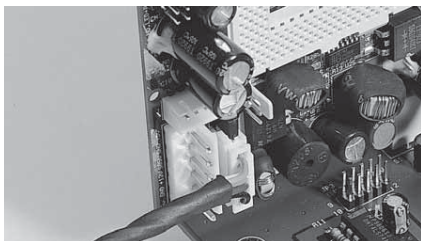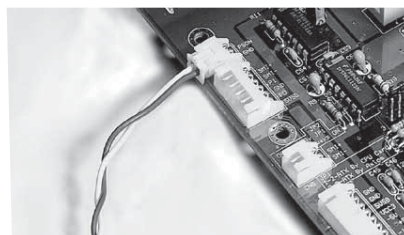

Photo 3 - Plug the ACPI cable into the ACPI connector of the Axiomtek SBC.

Photo 4 - Plug the soft switch bottom cable into the power connector of the Axiomtek backplane.

* All specifications and photos are subject to change without notice.

Installation of the LCD Wiring Kits

To simplify the process of lighting up an LCD for embedded applications, Axiomtek provides suitable cable kit to connect the LCD panel to the SBC. The following photos illustrate the proper way to complete the first step of wiring. After the hardware installation is finished, go to CMOS setup by pressing "DEL" during POST to select the correct LCD type in the BIOS Setup Menu

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>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

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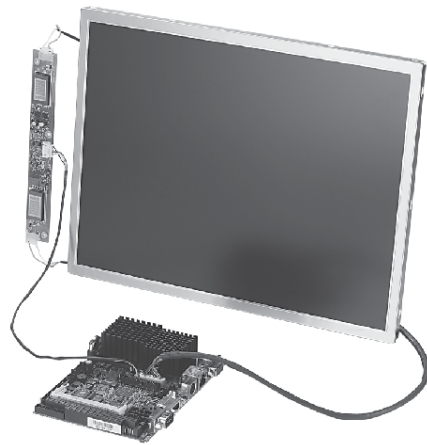
Photo 1 - - Install the SBC side adapter to the proper LCD interface on the Axiomtek SBC

Photo 2 - Plug the LCD side adapter to the applied LCD Panel
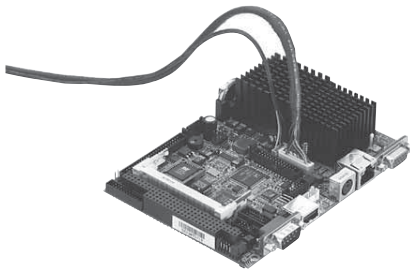
Photo 3 - - Connect the invertor cable from SBC side adapter to the invertor

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NOTES