



2016

Embedded Boards & SoMs



System on Modules
Embedded Single Board Computers
Industrial Motherboards
Slot CPU Cards
ARM Embedded Boards

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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

Platform	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
Sandy Bridge-S	SHB106 SHB108	SBC81210								IMB206	MANO861		
Sandy Bridge-H	SHB111		SHB213								MANO860	CEM860	
Ivy Bridge-S (WS)										IMB208	MANO871		
Ivy Bridge-S (DT)	SHB120									IMB207 IMB204	MANO871 MANO872 MANO873		
Ivy Bridge-H											MANO870		
Haswell-S (WS)										IMB210	MANO882		
Haswell-S (DT)					CAPA800						MANO882 MANO881		
Haswell-H					CAPA881								
Haswell-U	SHB131					PICO880						CEM881	
Haswell Refresh-S (WS)										IMB210	MANO882		
Haswell Refresh-S (DT)	SHB130		SHB230		CAPA800						MANO882 MANO881		
Haswell Refresh-H					CAPA881							CEM880	
Broadwell-H					CAPA881							CEM880	
Broadwell-U						PICO880						CEM881	
Skylake-S (WS)													
Skylake-S (DT)	SHB140				PICO500					IMB500 IMB501	MANO500		
Skylake-H												CEM500	
Skylake-U						PICO500						CEM501	
Pine Trail					CAPA800 CAPA801						MANO825		
Cedar Trail					CAPA830 CAPA831	PICO830 PICO831		NANO830 NANO831			MANO830 MANO831		
Bay Trail-D/M					CAPA842 CAPA843 CAPA848	PICO842 PICO843		NANO842			MANO840 MANO842	CEM841 CEM842	
Bay Trail-I					CAPA840 CAPA841	PICO840 PICO841		NANO840				CEM840 CEM846 CEM843	
Braswell					CAPA301	PICO300					MANO300	CEM300	

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
LX800					SBC84620 SBC84621 SBC84622				AX12260		SBC86620		ETM620
A50M					CAPA110 CAPA111	PICO100	EP100	NANO100 NANO101					
A55E					CAPA112							CEM100	

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

ARM
Embedded
Boards

Accessories

Appendix



Axiomtek Embedded Boards & SoMs

COM Express™, ETX and 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 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, ATX industrial motherboard, PICMG 1.3 system host boards (full-size & half-size), PICMG 1.0 CPU cards (full-size & half-size), 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.

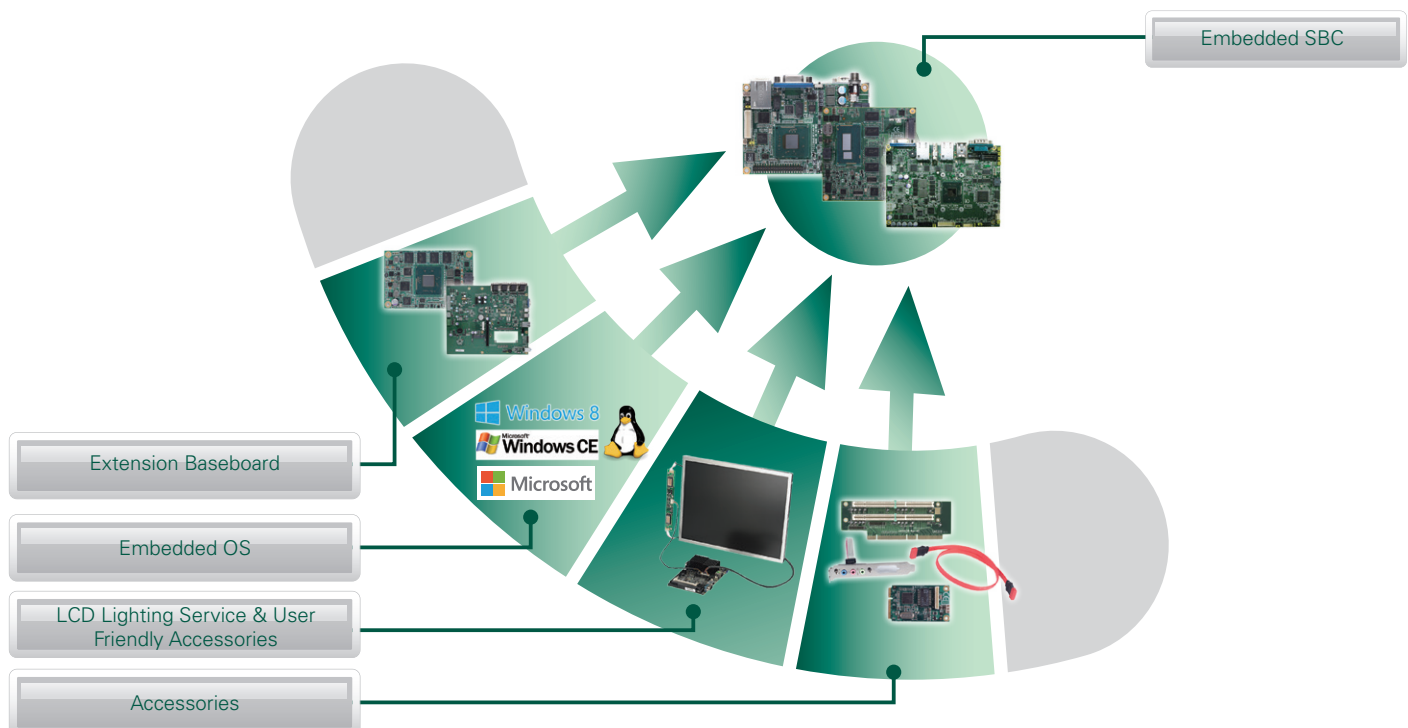
Communication: For better communication interactive demands, the SBC's have auto flow control RS-232/422/485, Wake-on-LAN Ethernet with RPL/PXE Boot ROM.

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.

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



Design-in Service

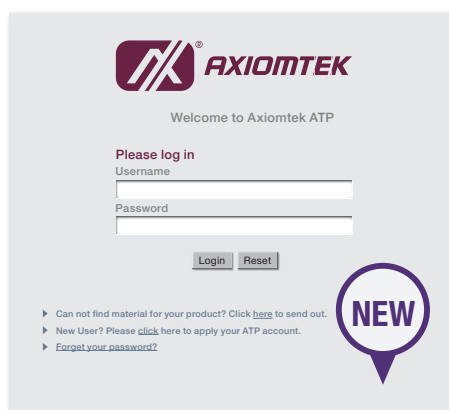
Axiomtek design-in services is a comprehensive support service which covers electronic engineering demands at the design-in stage and commit to bring benefits which can reduce the design and integration cycle, thereby minimizing uncertainty and risk in the development process.

- Reduce Design Effort
- Shorten Development Cycle
- Save Cost
- Speed up time to market

Axiomtek Technical Portal

Web-based support service

ATP (Axiomtek Technical Portal) is a useful tool that provides more technical support, mechanical information, and application notes. Please email us at info@axiomtek.com.tw or contact your sales representative to apply your ID and password and experience our valuable new portal!



Website: <http://atp.axiomtek.com.tw/atp/>

Benefits of Axiomtek Technical Portal:

- Quick and easy access
 - Automatic login to all applications on your ATP pages
 - Tools and information automatically provided to you
- Up-to-date information
 - Direct access to frequently used sites and applications
 - Download documents including technical product specifications, mechanical 2D/3D drawings, software utilities (uAPI, DIO and Watchdog) and brightness control utilities
 - Quick links to additional relevant information
- Secure site
 - ATP is a secure site and users need to login with a unique user ID and password provided by Axiomtek

Axiomtek Technical Portal is a 24 hours and 7 days non-stop supporting system. No matter what time it is and where you are, you can find useful technical information and utilities on it.

Design Assistance Service

The Design Assistance Service was created to offer indispensable help to achieve critical development tasks in the development process. It can help system designers deal with issues in electric design, heat dissipation, verification tests, production quality control and warranty support. These services will reduce design uncertainty and risk associated with customer's system integration completion.

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

ARM
Embedded
Boards

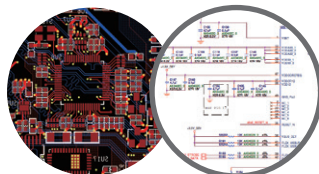
Accessories

Appendix



Initial Planning

- Product selection
- Domain knowledge sharing
- Comprehensive document support



Design

- Schematic review
- Layout review
- Thermal design
- BIOS, EOS customization



Debug

- Power on/off test
- Phenomenon duplicate
- Analysis & verification
- Solution & suggestion



Validation

- Functionality
- Reliability/safety
- Thermal profile test
- Electrostatic signal compatibility
- Certification test



Ready to Ship

- Production test
- Material maintain
- Schedule control
- Warranty support

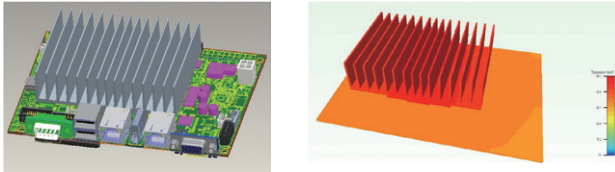


Thermal Solution Service

A successful thermal design can improve the reliability of the system and prevent early stage failures when the products go into the field. Axiomtek's thermal solution service can offer flexible and efficient solutions by providing proven thermal modules for embedded boards or systems. If a customer chooses to do the work by themselves, we can provide all of the necessary mechanical and thermal information needed to help them complete their project.

1. Proven thermal module

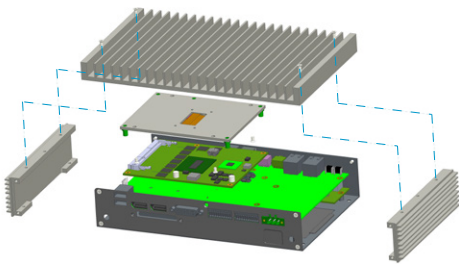
Axiomtek provides proven heatsink/cooler or system thermal solutions which has been qualified in different temperature condition.



2. Customized thermal solution

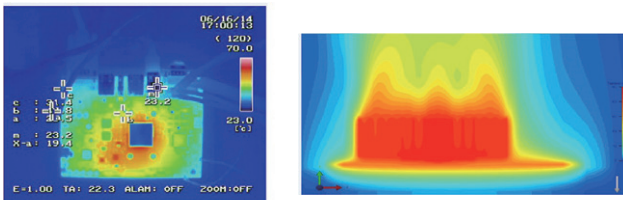
The thermal customization service is available upon request to meet different application environments.

Axiomtek can provide a custom designed heatsink or cooler based on the modularized thermal solution concept.



3. Design support for customer

Axiomtek has built up a thermal design database to offer customers board-level ME drawings to assist when designing system chassis. System thermal design is the most important task. Axiomtek can provide thermal hot spot images and feasibility studies by using the FloTHERM thermal simulation, which can predict airflow and heat transfer in and around electronic equipment to help reduce design risk and time.



Modularized Accessory Service

Axiomtek modularized accessory services will provides different level of customized services to achieve complicated and variable system application requirements.

• Fully-customized design service

Fully-customized design service provides a total solution from board-level design to system-level integration to deliver a valuable system for vertical applications.

• Semi-customized design service

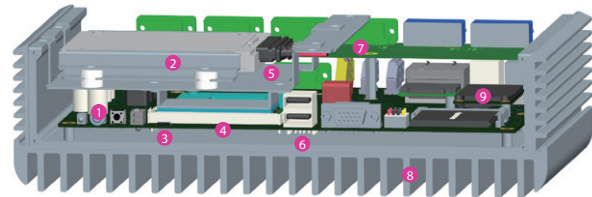
To satisfy the growing demand for embedded solutions, we offer our customer's a wide range of embedded boards or accessories which can be integrated in their systems. Whether a customer chooses to design their IO boards by themselves or receive assistance from Axiomtek: we will always provide all necessary information and cooperation in order to help our customers build their systems.

• Micro-customized design service

Through our micro-customized design service, customers can complete their systems quickly and easily with just a few minor configuration changes. No need to redesign, the almost ready embedded modules can speed up the product time to market.

Advantages:

- Increase flexibility and scalability
- Reduce design complexity
- Reduce system assembly parts
- Save cost and development time

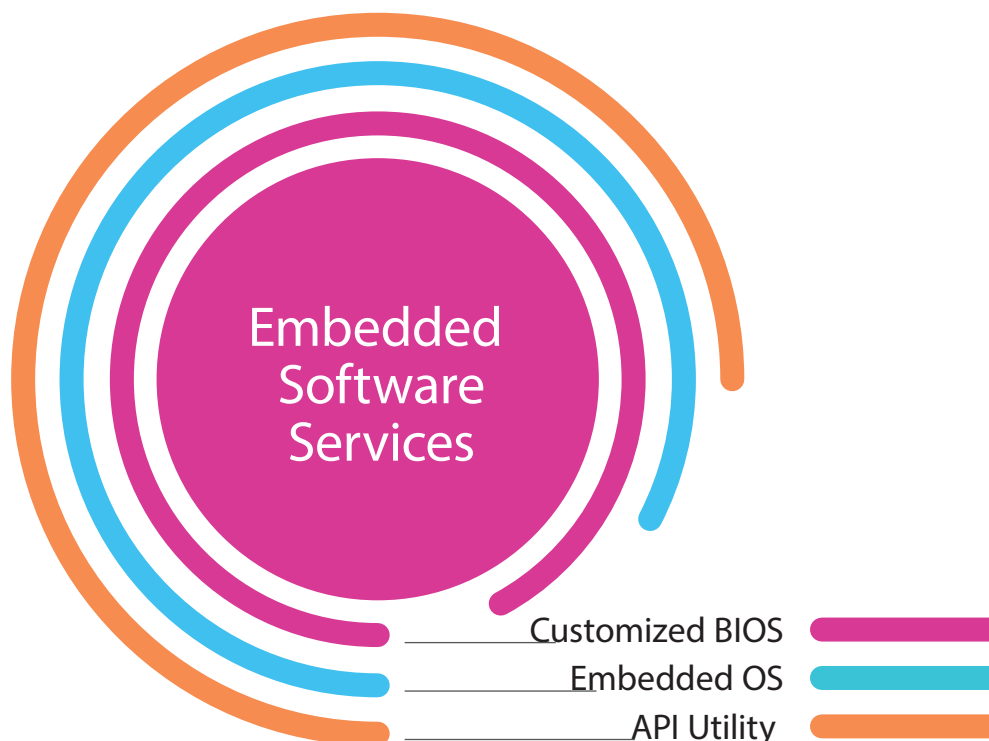


- | | | |
|--|--|--|
| ① Power modules
60W, 90W, 120W | ④ Memory modules | ⑦ I/O boards
DP/HDMI, USB, LAN |
| ② Storage devices
SSD, mSATA, CFast | ⑤ ZIO modules
Mini PCI Express, USB, COM, LAN | ⑧ Thermal solution
Heatsink, cooler, system enclosure |
| ③ Carrier boards | ⑥ Embedded boards
3.5" SBC, Pico-ITX, COM Express | ⑨ Embedded modules
Mini card for DIO, CAN, Wi-Fi |

Embedded Software Service

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 software soul which constitute the perfect match for many application targets.



Customized BIOS Services:

Axiomtek customized BIOS service can implement many specific features for industrial markets and help customers differentiate their embedded products and applications.

- Customized BIOS default setting
- Secure password
- LVDS panel resolution support
- I/O resource allocate
- Custom logo

Software API Utility and Driver Service:

Axiomtek's software API utility and driver service provides system environment protection, increased system reliability and enables remote management control.

- uAPI: hardware monitor, DIO, WatchDog
- AXView 2.0: remote management control
- Specific utilities and driver: CANbus,
- CANopen, EtherCAT, EMGD driver

Systems
on
ModulesEmbedded
SBCs
>EPICEmbedded
SBCs
>3.5" CapaEmbedded
SBCs
>Nano-ITXEmbedded
SBCs
>Pico-ITXEmbedded
SBCs
>PC/104Industrial
Mother-boardsSlot CPU
CardsARM
Embedded
Boards

Accessories

Appendix



Axiomtek Embedded Boards & SoMs

Embedded OS Service

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® 10 IoT Core Pro, Windows® Embedded Compact 7
- 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® 10 IoT Core Pro Integration Services

Integrated Windows® 10 IoT Core Pro image by request based on:

- Selected hardware platforms
- Selected existing device drivers
- Custom startup application
- Customer proprietary device drivers and applications

Features of the service:

- Full function test before any OS image is released
- Flexible product combinations
- Support of additional extension cards



Windows® 10 IoT Core Pro Ready Platforms

- Rugged and compact industrial grade single board computers or panel computers
- Flash disk with pre-configured Windows® 10 IoT Core Pro English and Chinese (Traditional & Simplified) image for target platform
- Windows® 10 IoT Core Pro license
- Utility and sample code
- User manual



Windows® Embedded Integration Service

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

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

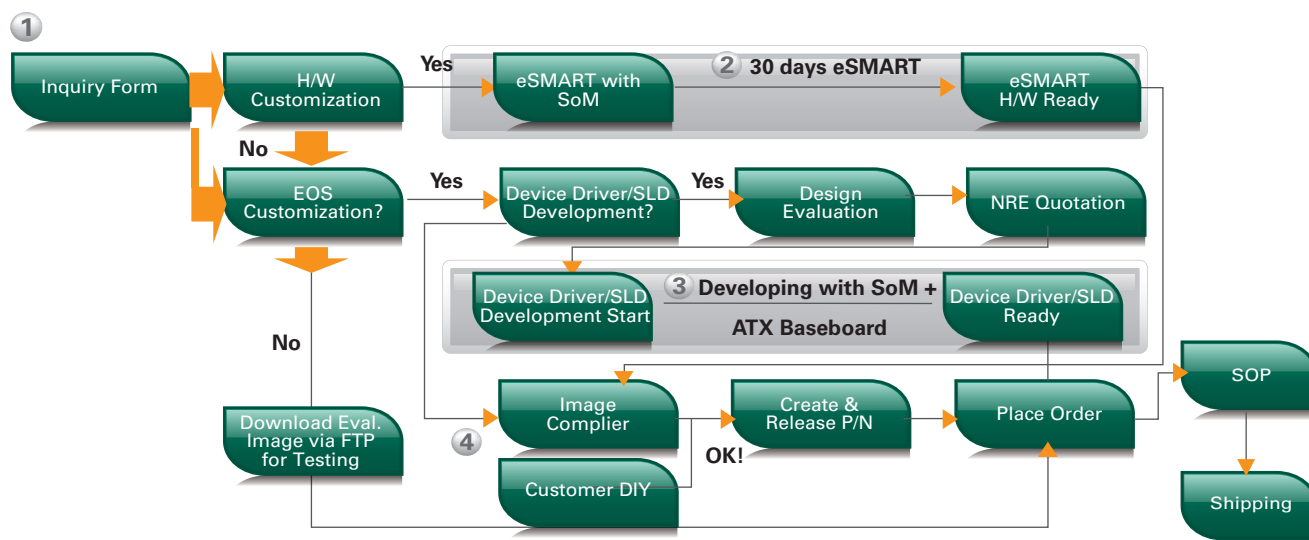
Advantages of the service

- 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

Windows Embedded 8



Embedded OS 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



Axiomtek Embedded Boards & SoMs



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



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 Mother-boards
	Slot CPU Cards
	ARM Embedded Boards
	Accessories
	Appendix

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466
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Embedded O/S Porting Status

OS Product Name \ Language \ Version	Platform												Linuxbase			
	CE 6.0			CE 7.0			XPe SP3			WES2009			WES7 32bit			uAPI
	EN	TC	SC	JP	BSP	EN	TC	SC	JP	BSP	EN	TC	SC	JP	BSP	
GOT812-834																
GOT846-832																
ICO-300																
IME-204																
IME-205																
IME-206																
IPC912-213																
IPC914-213																
IPC922-215																
IPC932-230																
IPC934-230																
MANO111																
MANO120																
MANO830																
MANO831																
MANO840																
MANO842																
MANO860																
MANO881																
MANO870																
MANO871																
MANO872																
MANO873																
MANO881																
MPC162-822																
MPC176-873																
MPC225-873																
NA-110																
NA-342																
NA-550																
NA-551																
NA-560																
NA-570																
NANO100																
NANO831																
OF921-834																
OPS830																
OPS860																
OPS860-HM																
OPS870																
OPS870HM																
OPS871HM																
OPS871																
OPS880-HM																
OPS880																
OPS882-HM																
OPS883-H																
OPS883																
OPS885																
P11x75(E)-871																
P11x75(E)-881																
PIC0100																
PIC0630																
PIC0831																
PIC0841																

to be continued

Embedded O/S Porting Status

OS Product Name \ Language \ Version	Platform																Linux-base																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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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:

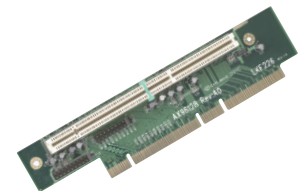
- LCD wiring kits: TTL, TTL-to-LVDS, LVDS transmission and receiving kits
- SmartView VGA BIOS: 15 types of LCD selection, display sequence setting, and applications expansion feature. Axiomtek is continuous to provide LCD enlightening services; customers can get the most updated reference support list 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.

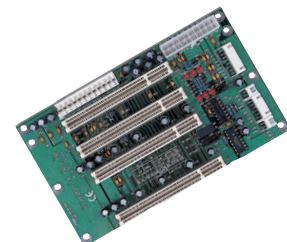
▶ LCD Lighting



▶ PCI-X Riser Card



▶ 4-slot Backplane



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
Mother-boards

Slot CPU
Cards

ARM
Embedded
Boards

Accessories

Appendix



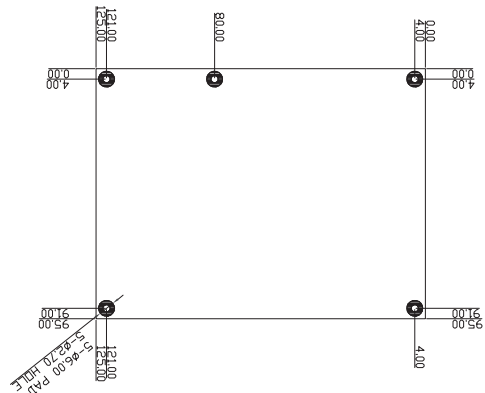
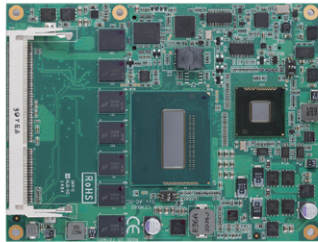
Axiomtek Embedded Boards & SoMs

Form Factors

System on Module

COM Express™

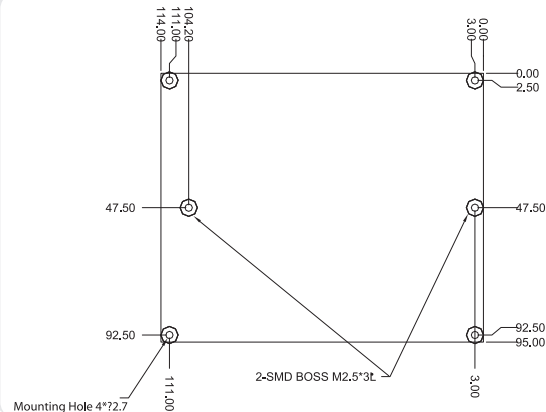
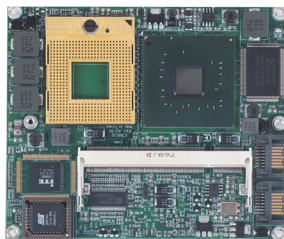
Model name: CEMxxx



125 x 95 mm

ETX

Model name: ETMxxx



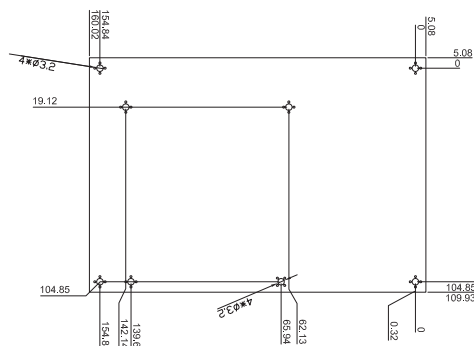
114 x 95 mm

Form Factors

Embedded Single Board Computer

EPIC Board

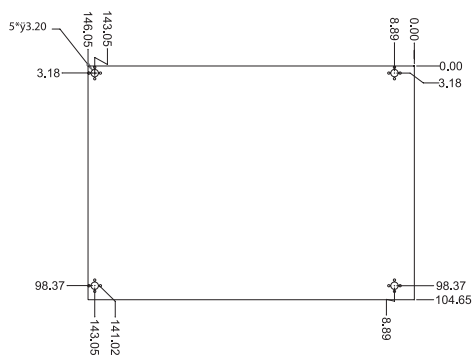
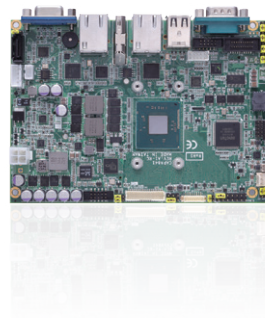
Model name: EPxxx



165 x 116 mm

3.5" Capa Board

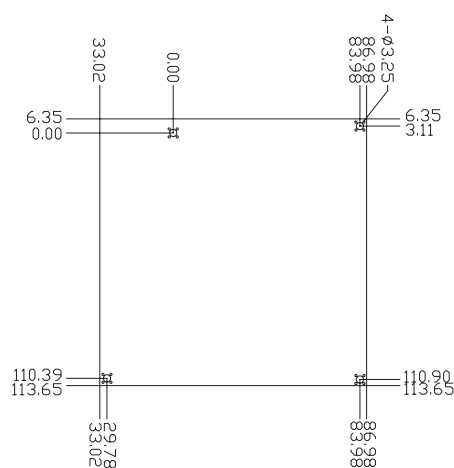
Model name: CAPAxxx, SBC84xxx



146 x 104 mm

Nano-ITX SBC

Model name: NANOxxx



120 x 120 mm



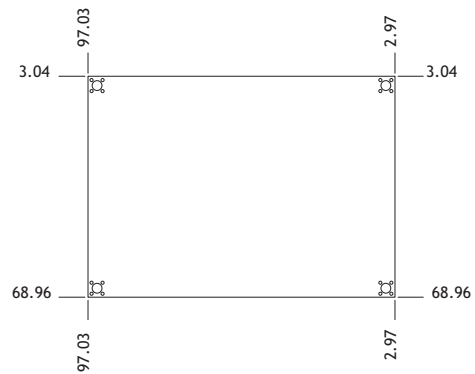
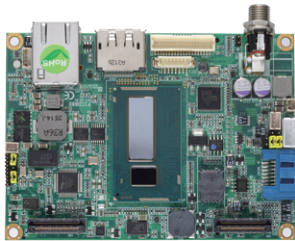
Axiomtek Embedded Boards & SoMs

Form Factors

Embedded Single Board Computer

Pico-ITX SBC

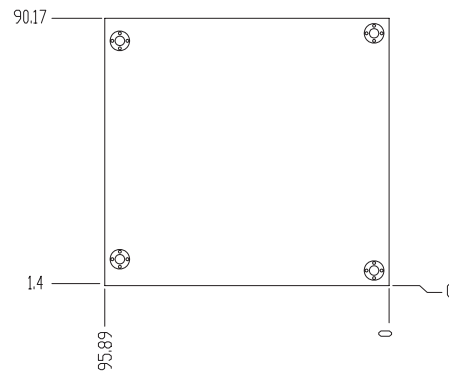
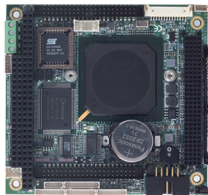
Model name: PICOxxx



100 x 72 mm

PC/104 Module

Model name: AX122XX



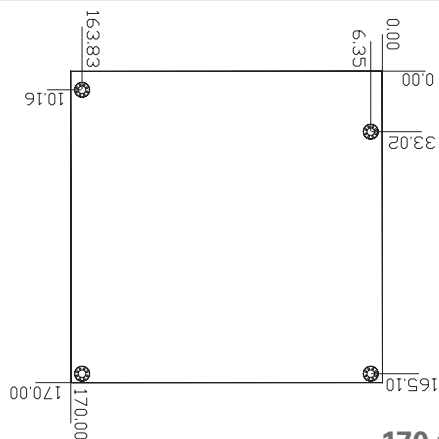
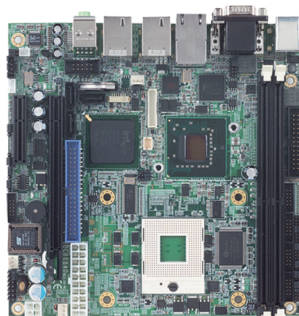
96 x 90 mm

Form Factors

Industrial Motherboard

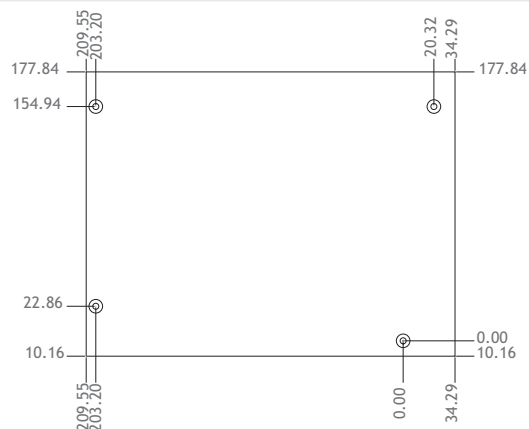
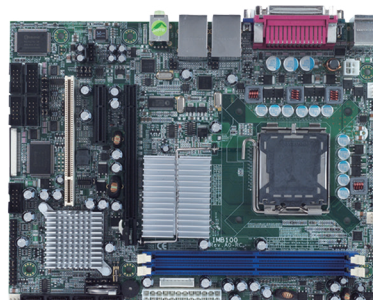
Mini ITX

Model name: MANOxxx, SBC86xxx



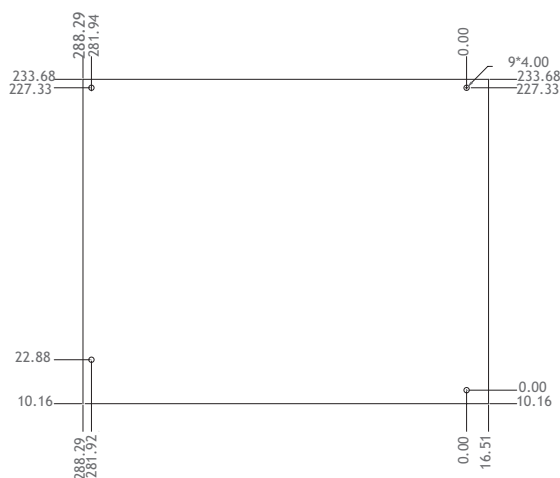
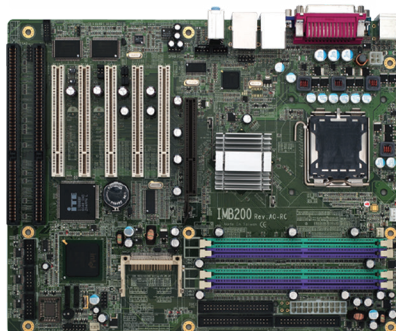
Micro ATX

Model name: IMB1xx



ATX

Model name: IMB2xx



Axiomtek Embedded Boards & SoMs

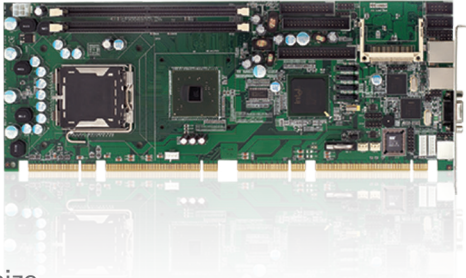
Form Factors

Slot CPU Card

PICMG 1.3 System Host Board

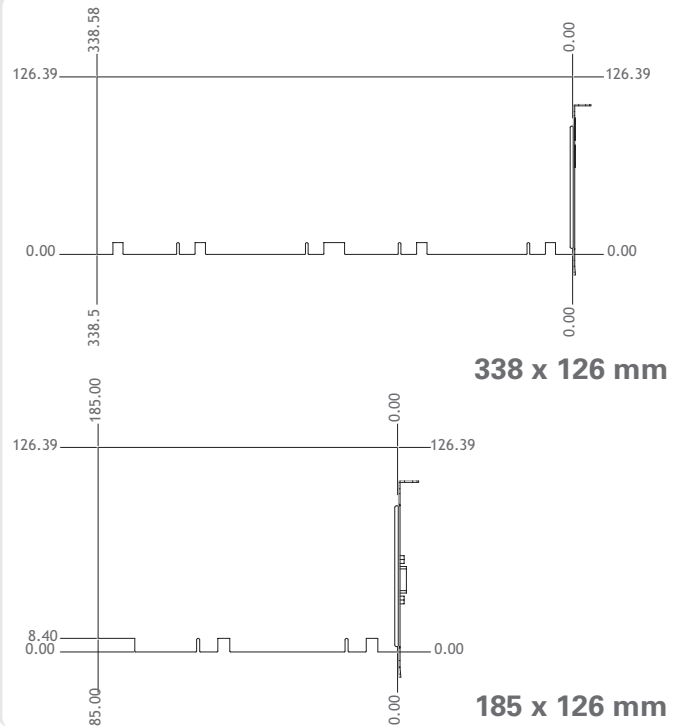
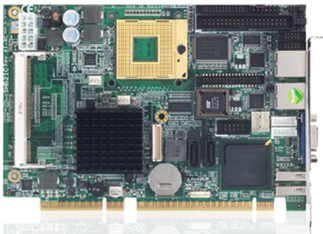
Full-size

Model name: SHB1xx



Half-size

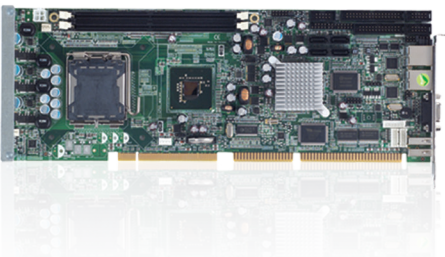
Model name: SHB2xx



PICMG 1.0 CPU Card

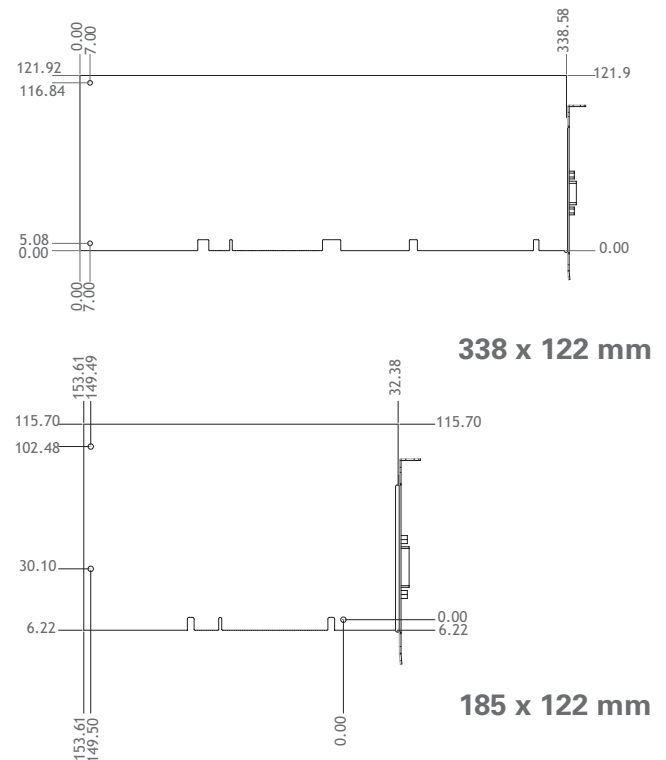
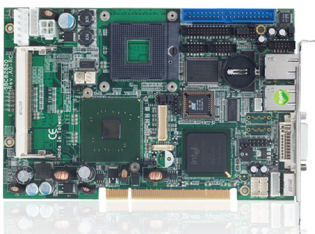
Full-size

Model name: SBC81xxx



Half-size

Model name: SBC82xxx

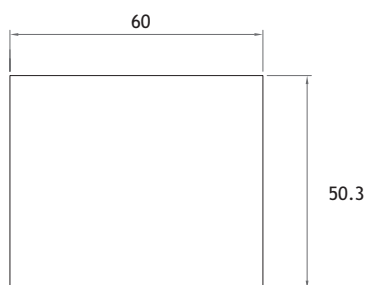


Form Factors

Accessory

MiniPCI

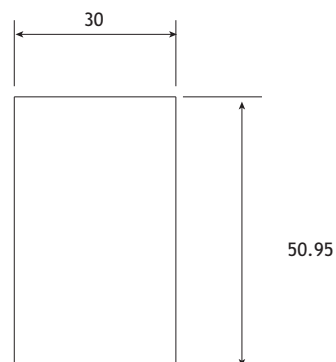
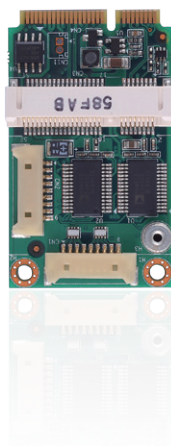
Model name: AX9xxxx



60 x 50.3 mm

Mini PCI Express Module

Model name: AX929xx



30 x 50.95 mm



Axiomtek Embedded Boards & SoMs

Wide Operating Temperature Range for Rugged Environment

3.5 Capa Boards



SBC84621 >>Page 123

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)



CAPA848 >>Page 114

Intel® Celeron® Processor N2807 3.5" Embedded SBC with LVDS/VGA/HDMI, LAN and Audio

☒ Military Temperature
(-40°C ~ +85°C)

☒ Industrial Temperature
(-20°C ~ +70°C)



CAPA840 >>Page 113

Intel® Atom™ Processor E3845/E3827 3.5" Embedded SBC with LVDS/VGA/HDMI, Dual LANs, Audio and ZIO

☒ Military Temperature
(-40°C ~ +85°C)

☒ Industrial Temperature
(-20°C ~ +70°C)



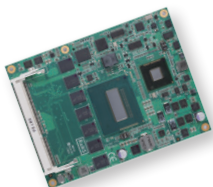
CAPA841 >>Page 116

Intel® Atom™ E3845/E3827 3.5" Embedded SBC with LVDS/HDMI/VGA, 65 Dual LANS and Audio

☒ Military Temperature
(-40°C ~ +85°C)

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

COM Express™ Type 6 Module



CEM880 >>Page 76

Intel® 4th Generation Intel® Core™ i7/i5/i3 & Celeron® COM Express™ Type 6 Module with Intel® QM87

☒ Military Temperature
(-40°C ~ +85°C)

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

PC/104 CPU Modules



AX12260 >>Page 143

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

☒ Military Temperature
(-40°C ~ +85°C)

☐ Industrial Temperature

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 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 COM Express™ Technical Notes	61
Axiomtek ETX Technical Notes	65
Selection Guide	69

NEW	CEM500	6th Generation Intel® Core™ i7/i5/i3 & Celeron® Processor COM Express Type 6 Module with Intel® QM170/HM170	74
NEW	CEM501	6th Generation Intel® Core™ i7/i5/i3 Processor COM Express Type 6 Module	75
	CEM880	5th Generation Intel® Core™ i7 & 4th Generation Intel® Core™ i7/i5/i3 & Celeron® Processor COM Express Type 6 Module with Intel® QM87	76
	CEM881	5th/4th Generation Intel® Core™ i7/i5/i3 & Celeron® Processor COM Express Type 6 Compact Module	77
	CEM860	Intel® Core™ i7/i5/i3 COM Express™ Type 6 Module with Intel® QM67	78
NEW	CEM300	Intel® Pentium® & Celeron® N3000 Family COM Express Type 10 Mini Module	79
NEW	CEM846	Intel® Atom™ Processor E3800 Family COM Express Type 10 Mini Module	80
	CEM840	Intel® Atom™ Processor E3800 Family COM Express Type 10 Mini Module	81
	CEM841	Intel® Celeron® Processor J1900/N2807 COM Express Type 2 Basic Module	82
	CEM842	Intel® Celeron® Processor J1900/N2807 COM Express Type 6 Compact Module	83
	CEM843	Intel® Atom™ Processor E3845 COM Express Type 6 Compact Module	84
	CEM100	AMD G-Series APU COM Express™ Type 2 Basic Module with AMD A55E	85
	ETM620	AMD Geode™ LX Family ETX V3.0 SoM with Multiple I/O	86

Axiomtek's SoM (System on Module) Solutions

COM Express™ and ETX 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 ETX. COM Express is initiated and defined by PICMG to give the most updated bus interface support; that is PCI Express. Compared to ETX 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 ETX 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, USB 3.0 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 whereas the 84x55 Mini Module targets, but is not limited to use the COM Express A-B connector, Type 10 and Type 1 pin-outs. In addition the Mini Module allows for wide range power supply operation. The different size Modules share several common mounting hole positions. This level of compatibility allows that a Carrier Board can be designed 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)

The Mini Module targets the next generation of mobile applications that require energy saving processors, high-end graphics combined with longer battery life. Key features of the Mini Module include:

- Modules size: 84 mm x 55 mm
- 5mm and 8mm stack height options (Module bottom to Carrier Board top)
- Wide-range power supply input (4.75-20V)
- Suggested pin-out: single 220 pin connector, Type 10
- Reduced Z height for components (optional)

Although not a requirement, Mini Modules are often implemented with memory and SSD storage soldered down on the Module. This facilitates their use in ruggedized, small form factor mobile systems.

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: 95 mm x 95 mm
- 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
- USB 3.0 support
- USB Client support
- 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 with option to overlay with eDP
- 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 with option to overlay CAN interface
- Fan control
- TPM support
- 8 GPIO pins
- 68W maximum input power over Module connector pins
- +12V primary power supply input
- Wide input voltage range for Mini form factor
- +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
- Allow eDP overlay of LVDS Channel A
- Two TX/RX serial pairs with option to overlay CAN interface

Axiomtek SoM (System on Module) Solutions

COM Express™ and ETX 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/EDP, PEG, 3xDDI
Type 10	A-B	Up to 4	-/1	-	-	2	1	8 / 2	LVDS/EDP, 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 completely 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 and eDP overlayed on LVDS Channel A and an option to allow a CAN bus to share SER1 pins. 2 of 8 USB ports can be used at USB 3.0.

• 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. Type 6 Modules support a single or dual channel 18/24 bit LVDS panel interface, three DDIs and an eDP overlayed on LVDS Channel A and an option to allow a CAN bus to share SER1 pins.

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.)	Type 1 (Single Conn.)	Type 2 (IDE + PCI)	Type 3 (No IDE)	Type 4 (No PCI)	Type 5 (No IDE, No PCI)	Type 6 (No IDE or PCI, add DDI + USB3)
	Min/Max	Min/Max	Min/Max	Min/Max	Min/Max	Min/Max	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
eDP on LVDS Channel pins	0 / 1	NA	NA	NA	NA	NA	0 / 1
VG A 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
USB 3.0 ports	0 / 2	NA	NA	NA	NA	NA	NA
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	0 / 1
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
iPC	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_SB Y 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_12 V 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.)	Type 1 (Single Conn.)	Type 2 (IDE + PCI)	Type 3 (No IDE)	Type 4 (No PCI)	Type 5 (No IDE, No PCI)	Type 6 (No IDE or PCI, add DDI + USB3)
	Min/Max	Min/Max	Min/Max	Min/Max	Min/Max	Min/Max	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_12 V Contacts	NA	NA	12 / 12	12 / 12	12 / 12	12 / 12	12 / 12



Axiomtek SoM (System on Module) Solutions

COM Express™ and ETX Form Factors

Mechanical Specifications

Module Size – Mini Module

The PCB size for the Mini Module shall be 84 mm x 55 mm. The PCB thickness should be 2 mm to allow high layer count stack-ups and facilitate a standard "z" dimension between the Carrier Board and the top of the heat-spreader.

The hole 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 spacer shall be used to attach the heat-spreader to the Module.

Module Size – Compact Module

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

The hole 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 spacer shall be used to attach the heat-spreader to the module.

Module Size-Basic Module

The PCB size for the Basic Module shall be 125 mm x 95 mm. The PCB thickness may be 2 mm 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.

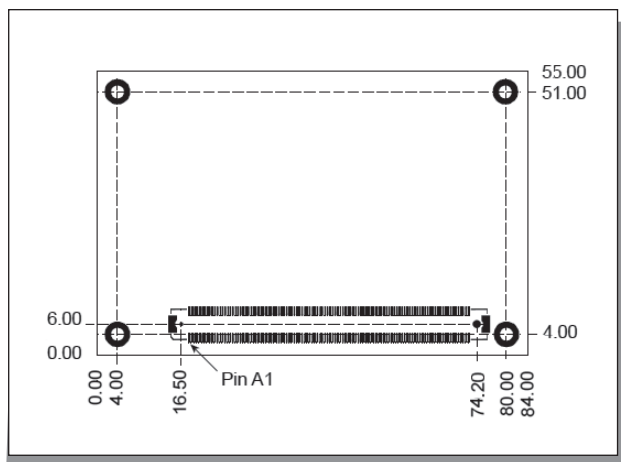


Figure 1: Mini Module Form Factor

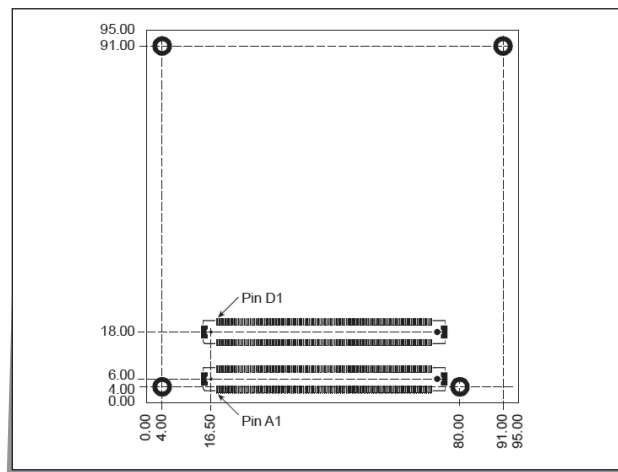


Figure 2: Compact Module Form Factor

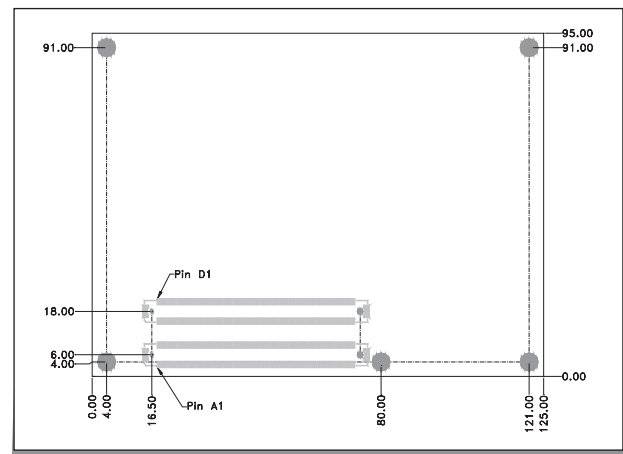


Figure 3: Basic Module Form Factor

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.

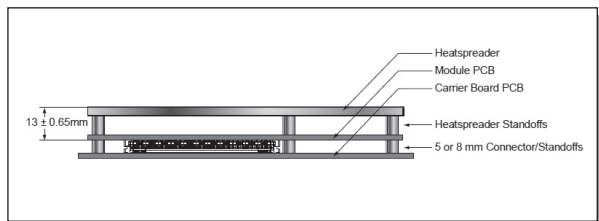


Figure 1: Overall Height for Heat-spreader in Mini, Compact, Basic and Extended Modules

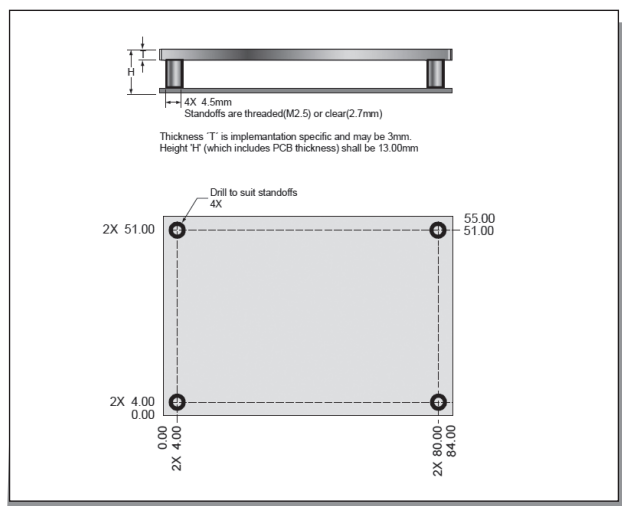


Figure 2: Mini Module Heat-spreader

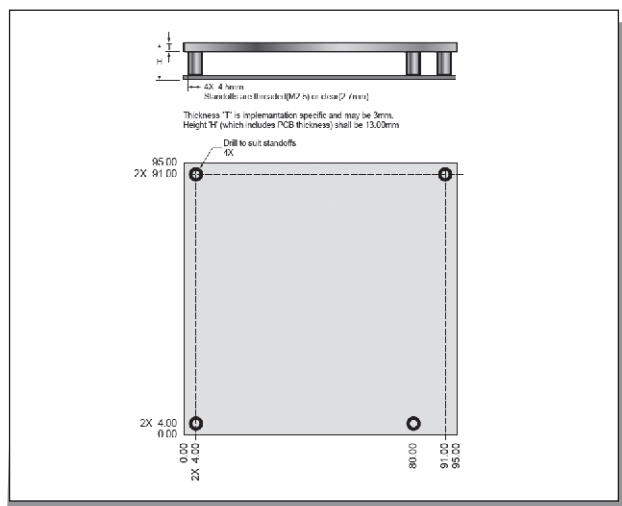


Figure 3: Compact Module Heat-spreader

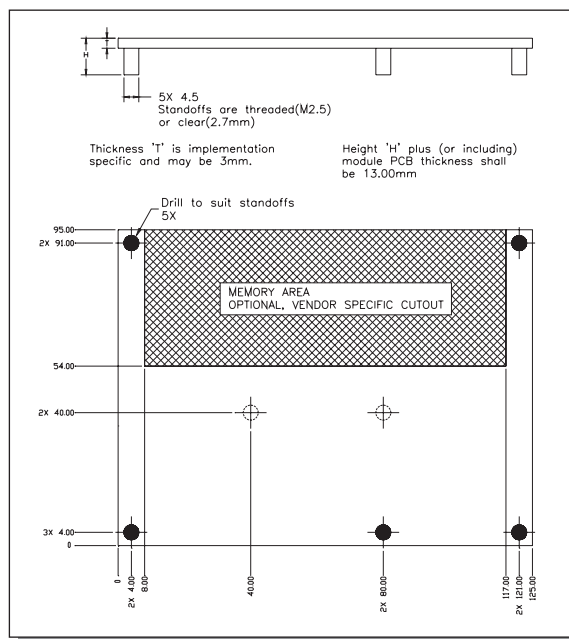


Figure 4: Basic Module Heat-spreader

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 aseboard 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 lug-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

Axiomtek SoM (System on Module) Solutions

COM Express™ and ETX Form Factors

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

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	OVCN#	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 approximately 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.

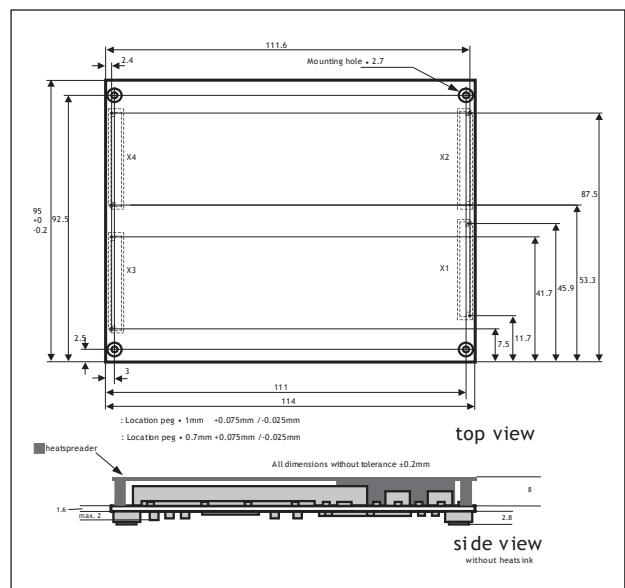


Figure 1: Dimension of ETX Module

Mechanical Specification of the ETX Baseboard

The outline shown here is for modules with a Y dimension of 95mm. Note that in order to accommodate 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 accommodate 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.

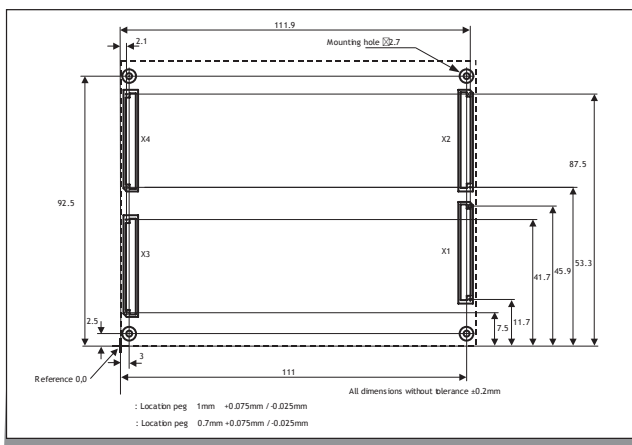


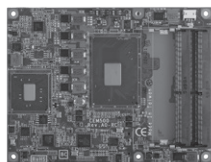
Figure 2: Dimensions of ETX Baseboard

Heat-spreader and Heat-sink Considerations

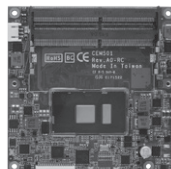
The heat-spreader is a 2mm thick aluminum plate. It provides a thermal interface surface for heat removal from the ETX module. Because of the thickness of the plate, components that must fit under the plate are limited to a height of 6mm unless clearance holes are provided. Clearance holes in the heat 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 locations 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 flexibility 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.

System on Modules

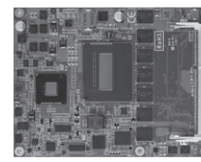
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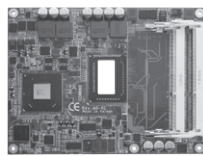


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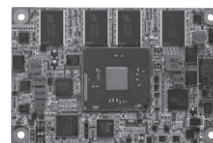
Features/Models		CEM500	CEM501	CEM880
Form Factor		COM Express™ type 6	COM Express™ type 6	COM Express™ type 6
CPU Level		6th Generation Intel® Core™ i7/i5/i3 & Celeron®	6th Generation Intel® Core™ i7/i5/i3	4th Generation Intel® Core™ i7/i5/i3 & Celeron®
CPU Socket		onboard	onboard	onboard
CPU FSB Frequency		N/A	N/A	N/A
Core Logic Chipset		Intel® QM170/HM170	SoC integrated	Intel® QM87
Memory Type		DDR4-2133	DDR4-2133	DDR3L-1066/1333
Max. DRAM Capacity		32 GB	32 GB	12 GB
Cache RAM Capacity		SoC integrated	SoC integrated	SoC integrated
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 GPIO		4-IN & 4-OUT	4-IN & 4-OUT (SDIO optional)	4-IN & 4-OUT
I/O	IDE	N/A	N/A	N/A
	SATA	4 x SATA-600	3 x SATA-600	4 x SATA-600
	FDD	N/A	N/A	N/A
	LPT	N/A	N/A	N/A
	Serial	COM 1	TX/RX	N/A
		COM 2	TX/RX	N/A
		COM 3	N/A	N/A
		COM 4	N/A	N/A
	USB	4 x USB 3.0 8 x USB 2.0	4 x USB 3.0 8 x USB 2.0	4 x USB 3.0 8 x USB 2.0
	IrDA	N/A	N/A	N/A
Display		1 x VGA (optional) 1 x LVDS (eDP optional) 3 x DDI	1 x VGA (optional) 1 x LVDS (eDP optional) 2 x DDI	1 x VGA 1 x LVDS 3 x DDI
Ethernet		1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet
Audio		Codec on baseboard	Codec on baseboard	Codec on baseboard
Hardware Monitoring		Yes	Yes	Yes
SMBus		Yes	Yes	Yes
Expansion Interface		max. PCIe with 24 lanes	PCIe with 6 lanes	max. PCIe with 24 lanes
Power Management		ACPI	ACPI	ACPI
Battery		N/A	N/A	N/A
Operating Temperature		-40°C ~ +85°C (-40°F~ 185°F)	-20°C ~ +70°C (-4°F~ 158°F)	-40°C ~ +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		-40°C ~ +85°C (-40°F~ 185°F)	N/A	-40°C ~ +85°C (-40°F~ 185°F)



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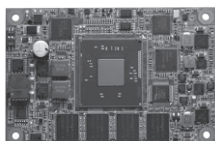
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Features/Models		CEM881	CEM860	CEM300
Form Factor		COM Express™ type 6	COM Express™ type 6	COM Express™ type 10
CPU Level		5th/4th Generation Intel® Core™ i7/i5/i3 & Celeron®	Intel® Core™ i7/i5/i3	Intel® Pentium® & Celeron® N3000 family
CPU Socket		onboard	Onboard	onboard
CPU FSB Frequency		N/A	N/A	N/A
Core Logic Chipset		SoC integrated	Intel® QM67	SoC integrated
Memory Type		DDR3L-1066/1333	DDR3-1066/1333	DDR3L-1066/1333
Max. DRAM Capacity		12 GB	16 GB	8 GB
Cache RAM Capacity		SoC integrated	L2 in CPU	SoC integrated
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 GPIO		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-600	2 x SATA-600/2 x SATA-300	2 x SATA-600
	FDD	N/A	N/A	N/A
	LPT	N/A	N/A	N/A
	Serial	COM 1	TX/RX	N/A
		COM 2	TX/RX	N/A
		COM 3	N/A	N/A
		COM 4	N/A	N/A
	USB	2 x USB 3.0 6 x USB 2.0	2 x USB 3.0 (optional) 8 x USB 2.0	2 x USB 3.0 8 x USB 2.0
	IrDA	N/A	N/A	N/A
Display		1 x LVDS 2 x DDI	1 x VGA 1 x LVDS 3 x DDI	1 x LVDS 1 x DDI
Ethernet		1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet
Audio		Codec on baseboard	Codec on baseboard	Codec on baseboard
Hardware Monitoring		Yes	N/A	Yes
SMBus		Yes	Yes	Yes
Expansion Interface		max. PCIe with 4 lanes	PCIe with 22 lanes	max. PCIe with 4 lanes
Power Management		ACPI	ACPI	ACPI
Battery		N/A	N/A	N/A
Operating Temperature		-40°C ~ +85°C (-40°F~ 185°F)	0°C ~ +60°C (32°F ~ 140°F)	-20°C ~ +70°C (-4°F~ 158°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		-40°C ~ +85°C (-40°F~ 185°F)	By request	N/A

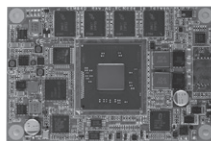


System on Modules

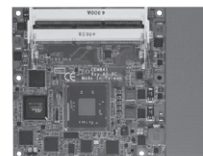
Selection Guide



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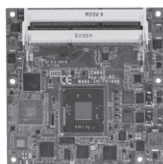


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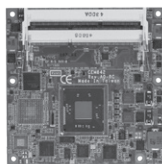


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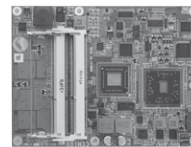
Features/Models		CEM846	CEM840	CEM841
Form Factor		COM Express™ type 10	COM Express™ type 10	COM Express™ type 2
CPU Level		Intel® Atom™ E3800 Family	Intel® Atom™ E3800 Family	Intel® Celeron® J1900/N2807
CPU Socket		onboard	onboard	onboard
CPU FSB Frequency		N/A	N/A	N/A
Core Logic Chipset		SoC integrated	SoC integrated	SoC integrated
Memory Type		DDR3L-1066/1333	DDR3L-1066/1333	DDR3L-1066/1333
Max. DRAM Capacity		4 GB	4 GB	8 GB
Cache RAM Capacity		SoC integrated	SoC integrated	SoC integrated
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 GPIO		4-IN & 4-OUT	4-IN & 4-OUT	4-IN & 4-OUT
I/O	IDE	N/A	N/A	1 PATA-100
	SATA	2 x SATA-300	2 x SATA-300	1 x SATA-300
	FDD	N/A	N/A	N/A
	LPT	N/A	N/A	N/A
	Serial	COM 1	TX/RX	N/A
		COM 2	TX/RX	N/A
		COM 3	N/A	N/A
		COM 4	N/A	N/A
	USB	1 x USB 3.0 8 x USB 2.0	1 x USB 3.0 8 x USB 2.0	8 x USB 2.0
	IrDA	N/A	N/A	N/A
Display		1 x DDI 1 x LVDS	1 x DDI 1 x LVDS	1 x VGA 1 x LVDS
Ethernet		1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet
Audio		Codec on baseboard	Codec on baseboard	Codec on baseboard
Hardware Monitoring		Yes	Yes	Yes
SMBus		Yes	Yes	Yes
Expansion Interface		max. PCIe with 4 lanes	max. PCIe with 4 lanes	max. PCIe with 8 lanes
Power Management		ACPI	ACPI	ACPI
Battery		N/A	N/A	N/A
Operating Temperature		-40°C ~ +85°C (-40°F ~ 185°F)	-40°C ~ +85°C (-40°F ~ 185°F)	0°C ~ +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		-40°C ~ +85°C (-40°F ~ 185°F)	-40°C ~ +85°C (-40°F ~ 185°F)	N/A



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Features\Models		CEM842	CEM843	CEM100
Form Factor		COM Express™ type 6	COM Express™ type 6	COM Express™ type 2
CPU Level		Intel® Celeron® J1900/N2807	Intel® Atom™ E3845	AMD G-Series APU
CPU Socket		onboard	onboard	Onboard
CPU FSB Frequency		N/A	N/A	N/A
Core Logic Chipset		SoC integrated	SoC integrated	AMD A55E FCH
Memory Type		DDR3L-1066/1333	DDR3L-1066/1333	DDR3-1066
Max. DRAM Capacity		8 GB	8 GB	8 GB
Cache RAM Capacity		SoC integrated	SoC integrated	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 GPIO		4-IN & 4-OUT	4-IN & 4-OUT	4-IN & 4-OUT
I/O	IDE	N/A	N/A	1 x PATA-100
	SATA	2x SATA-300	2 x SATA-300	4 x SATA-600
	FDD	N/A	N/A	N/A
	LPT	N/A	N/A	N/A
	Serial	COM 1	N/A	N/A
		COM 2	N/A	N/A
		COM 3	N/A	N/A
		COM 4	N/A	N/A
	USB	1 x USB 3.0 8 x USB 2.0	1 x USB 3.0 8 x USB 2.0	8 x USB 2.0
	IrDA	N/A	N/A	N/A
Display		1 x VGA 1 x LVDS 1 x DDI	1 x VGA 1 x LVDS 1 x DDI	1 x VGA 1 x LVDS
Ethernet		1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet
Audio		Codec on baseboard	Codec on baseboard	Codec on baseboard
Hardware Monitoring		Yes	Yes	N/A
SMBus		Yes	Yes	Yes
Expansion Interface		max. PCIe with 6 lanes	max. PCIe with 6 lanes	max. PCIe with 8 lanes 4 x PCI
Power Management		ACPI	ACPI	ACPI
Battery		N/A	N/A	N/A
Operating Temperature		0°C ~ +60°C (32°F ~ 140°F)	-40°C ~ +85°C (-40°F ~ 185°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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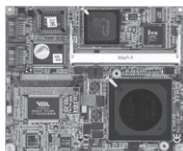
Appendix





System on Modules

Selection Guide



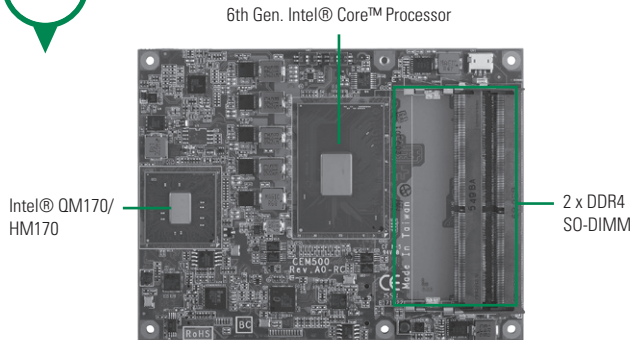
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Features/Models		ETM620
Form Factor		ETX
CPU Level		AMD LX
CPU Socket		Onboard
CPU FSB Frequency		N/A
Core Logic Chipset		AMD LX + CS5536AD
Memory Type		DDR-333/400
Max. DRAM Capacity		1 GB
Cache RAM Capacity		L2 in CPU
BIOS		Phoenix-Award
Watchdog Timer		255 levels, 1~255 sec.
Onboard SSD		N/A
Onboard GPIO		N/A
I/O	IDE	2 x PATA-100
	SATA	2 x SATA-150
	FDD	1 x FDD (optional)
	LPT	1 x LPT
	Serial	COM 1 UART's
		COM 2 UART's
		COM 3 N/A
		COM 4 N/A
	USB	4 x USB 2.0
	IrDA	Yes
Display		1 x VGA 1 x TTL
Ethernet		1 x 10/100Mbps Ethernet
Audio		AC'97 Codec
Hardware Monitoring		Yes
SMBus		N/A
Expansion Interface		3 x PCI ISA
Power Management		ACPI
Battery		N/A
Operating Temperature		0° ~ +60°C (32°F ~ 140°F)
Relative Humidity		10% to 95%, non-condensing
EMI Compliance		CE
Wide Temperature		-40°C ~ +85°C (-40°F ~ +185°F)

CEM500

6th Generation Intel® Core™ i7/i5/i3 & Celeron® Processor COM Express Type 6 Module with Intel® QM170/HM170

NEW



System

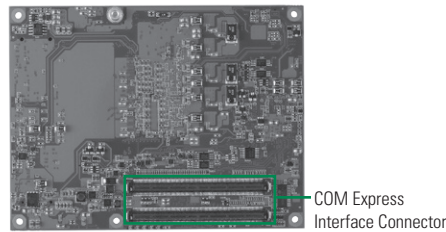
CPU	6th generation Intel® Core™ processor (Skylake) with i7-6820EQ (45W), i5-6440EQ (45W), i3-6100E (35W)
System Memory	2 x DDR4-2133 SO-DIMMs support max. up to 32 GB
Chipset	Intel® QM170/HM170
BIOS	AMI uEFI with Intel® Active Management Technology 11.0 supported
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 v3.0 8 x PCIe x1 (7 x1 while internal MAC is connected)
Battery Lithium	N/A
Power Input	ATX: +12V, +5VSB; AT: +12V
Size	125 x 95 mm
Board Thickness	2.0 mm
Temperature	-40°C ~ +85°C (-40°F ~ +185°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x LPC interface 1 x SPI interface 1 x I²C interface 2 x TX/RX serial interface
SATA	4 x SATA-600 support RAID 0/1/5/10
Hardware Monitoring	Yes
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i219LM
Audio	HD link interface to baseboard for Codec
USB	4 x USB 3.0 and 8 x USB 2.0
TPM	ST for trusted platform
SMBus	Yes
Digital I/O	4 channels IN & 4 channels OUT
Smart Battery	Yes

Features

- 6th generation Intel® Core™ i7/i5/i3 & Celeron® processor (Skylake-H)
- Intel® QM170/HM170 chipset
- 2 DDR4-2133 SO-DIMMs max. up to 32 GB
- Max. up to 24 lanes of PCIe
- 4 SATA-600
- 4 USB 3.0 and 8 USB 2.0
- Supports TPM function



▲ Rear view

Display

Chipset	Intel® Gen 9 Graphics Gfx APIs - DX11/12, OCL2.x, OGL 4.3/4.4 3 independent displays
Display Interface	1 x LVDS; 18/24-bit single/dual channel (optional with eDP) 3 x DDI (DP/HDMI/DVI); 1 x DDI optional w/VGA

Packing List

Quick installation guide, user's manual/utility CD

Ordering Information

Standard	
CEM500PG-i7-6820EQ	COM Express type 6 module with Intel® Core™ i7-6820EQ 2.8 GHz, DDI/LVDS, GbE LAN, USB 3.0 and TPM
CEM500PG-i5-6440EQ	COM Express type 6 module with Intel® Core™ i5-6440EQ 2.7 GHz, DDI/LVDS, GbE LAN, USB 3.0 and TPM
CEM500PG-i3-6100E	COM Express type 6 module with Intel® Core™ i3-6100E 2.7GHz, DDI/LVDS, GbE LAN, USB 3.0 and TPM
Optional	
CEB94011	ATX form factor type 6 evaluation board

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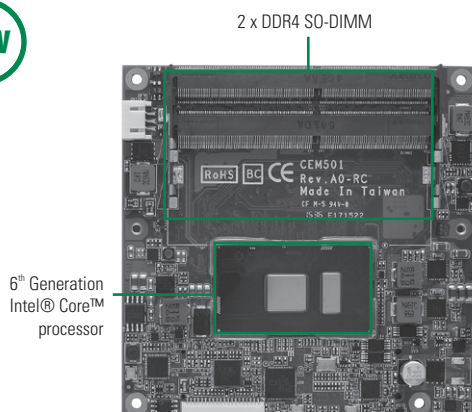
Appendix



CEM501

6th Generation Intel® Core™ i7/i5/i3
Processor COM Express Type 6 Module

NEW



System

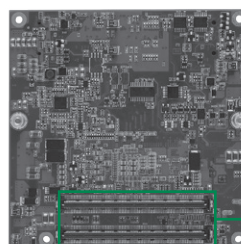
CPU	6th generation Intel® Core™ processor with i7-6600U 2.6 GHz, i5-6300U 2.4 GHz, i3-6100U 2.3 GHz (Skylake-U) onboard
System Memory	2 x 260pin DDR4-2133 SO-DIMM max. up to 32 GB
Chipset	SoC integrated
BIOS	AMI uEFI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec. or min.
Expansion Interface	6 lanes of PCI Express Gen. 3.0
Battery Lithium	N/A
Power Input	ATX: +12V, +5VSB AT: +12V
Size	95 x 95 mm
Board Thickness	2.0 mm
Temperature	-20°C ~ +70°C (-4°F ~ 158°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x LPC interface 1 x SPI interface 2 x Serial TX/RX 1 x I ² C
SATA	3 x SATA-600
Hardware Monitoring	Yes
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i219LM
Audio	HD link interface to baseboard for Codec
USB	4 x USB 3.0 and 8 x USB 2.0
TPM	Yes
SMBus	Yes
Digital I/O	4 channels IN & 4 channels OUT (SDIO optional)
Battery Support	Yes

Features

- 6th generation Intel® Core™ i7/i5/i3 processor (Skylake-U)
- 2 DDR4-2133 SO-DIMM max. up to 32 GB memory
- Max. up to 6 lanes of PCI Express
- 3 SATA-600
- 4 USB 3.0 and 8 USB 2.0



▲ Rear view

Display

Chipset	Intel® Gen 9 Graphics Engine support Gfx - DX12.0, OCL2.0, OGL4.3
Display Interface	2 x DDI (DP/HDMI/DVI). The 2nd DDI could be configured to VGA (optional). 1 x LVDS; 18/24-bit dual channel (eDP optional)

Packing List

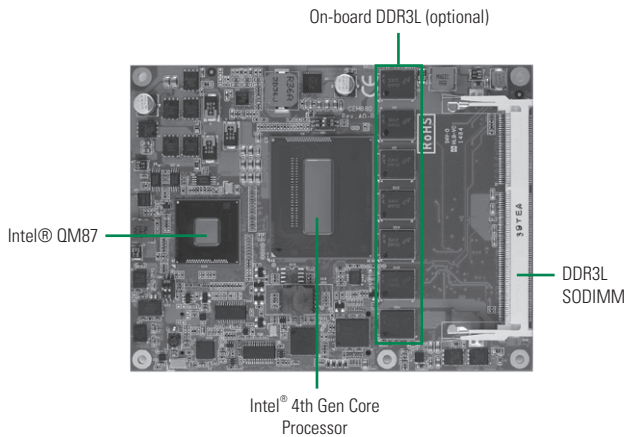
Quick installation guide

Ordering Information

Standard	
CEM501PG-i7-6600U	COM Express type 6 module with 6th generation Intel® Core™ i7-6600U (2.6 GHz), DP/LVDS, 10/100/1000 Mbps Ethernet, USB 3.0 and TPM
CEM501PG-i5-6300U	COM Express type 6 module with 6th generation Intel® Core™ i5-6300U (2.4 GHz), DP/LVDS, 10/100/1000 Mbps Ethernet, USB 3.0 and TPM
CEM501PG-i3-6100U	COM Express type 6 module with 6th generation Intel® Core™ i3-6100U (2.3 GHz), DP/LVDS, 10/100/1000 Mbps Ethernet, USB 3.0 and TPM

CEM880

5th Generation Intel® Core™ i7 & 4th Intel® Core™ i7/i5/i3 & Celeron® Processor COM Express Type 6 Module with Intel® QM87



System

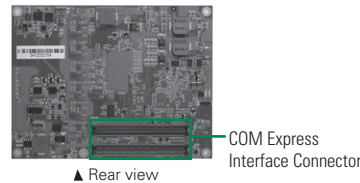
CPU	5th generation Intel® Core™ i processor (Broadwell), i7-5700EQ (47W), i7-5850EQ (47W) & 4th generation Intel® Core™ processor (Haswell/Haswell Refresh) with i7-4700EQ (47W), i5-4422E (25W), i3-4110E (37W), Celeron® 2000E (37W)
System Memory	1st bank as on-board extended temperature DDR3L chips up to 4 GB (optional) 1 x 204-pin SO-DIMM supports DDR3L up to max. up to 8 GB
Chipset	Intel® QM87
BIOS	AMI uEFI with Intel® Active Management Technology 9.0 supported
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 Gen 3.0 8 x PCIe lanes (7 x lanes while internal LAN is connected)
Battery Lithium	N/A
Power Requirements	TBD
Size	125 x 95 mm
Board Thickness	2.0 mm
Temperature	-40°C ~ +85°C (-40°F ~ +185°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x LPC interface 1 x SPI interface
SATA	4 x SATA-600, support Intel® Rapid Start Technology Intel® Smart Response Technology
Hardware Monitoring	Yes
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i218LM
Audio	HD link interface to baseboard for Codec
USB	8 x USB 2.0 and 4 x USB 3.0
TPM 1.2	ST for trusted platform
SMBus	Yes
Digital I/O	4 channels IN & 4 channels OUT

Features

- 5th generation Intel® Core™ i7 (Broadwell) & 4th generation Intel® Quad/Dual Core™ i7/i5/i3 & Celeron® processor (Haswell/Haswell Refresh)
- Intel® QM87 chipset
- On-board 4 GB DDR3L (optional) and 1 DDR3L SO-DIMM up to 8 GB
- Max. up to 24 lanes of PCIe
- 4 SATA-600 support RAID 0/1/5/10
- 4 USB 3.0
- TPM support



Display

Chipset	Intel® Iris Pro Graphic 6200 (i7-5850EQ) Intel® HD Graphic 5600 (i7-5700EQ) Intel® HD Graphic 4600 (i7-4700EQ) Intel® InTru™ 3D, Intel® Quick Sync Video 2.0, Intel® Clear Video HD Technology Gfx APIs - DX11.2, OCL1.1, OGL 4.3 3 independent displays
Memory Size	DVMT Gfx physical memory up to 256 MB DVMT Gfx pre-allocated memory up to 1024 MB
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 3 x DDI (DP, HDMI, DVI)

Packing List

Quick installation guide, user's manual/utility CD

Ordering Information

Standard	
CEM880PVG-i7-4700EQ	COM Express type 6 module with Intel® Core™ i7-4700EQ 2.4 GHz, (P/N: E38D880100)
CEM880PVG-i5-4422E	COM Express type 6 module with Intel® Core™ i5-4422E 1.8 GHz, (P/N: E38D880103)
CEM880PVG-i3-4110E	COM Express type 6 module with Intel® Core™ i3-4110E 2.6 GHz, (P/N: E38D880104)
CEM880PVG-CEL-2000E	COM Express type 6 module with Intel® Celeron® 2000E 2.2 GHz, (P/N: E38D880105)
CEM880PVG-i7-5850EQ	COM Express type 6 module with Intel® Core™ i7-5850EQ 2.7 GHz, (P/N: E38D880107)
CEM880PVG-i7-5700EQ	COM Express type 6 module with Intel® Core™ i7-5700EQ 2.6 GHz, (P/N: E38D880108)

Optional	
CEM94006	ATX from factor type 6 evaluation board (P/N: E394006100)
TS001-CEM880	High profile heatsink with fan (L=95 mm, W=125 mm, H=27 mm) (P/N: E39J001100)
TS002-CEM880	Low profile heatsink with fan (L=95 mm, W=125 mm, H=20 mm) (P/N: E39J002100)
TS003-CEM880	High profile heatsink without fan (L=95 mm, W=125 mm, H=27 mm) (P/N: E39J003100)
TS004-CEM880	Heatspreader for CEM880 (P/N: E39J004100)

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Embedded SBCs >PC/104

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ARM Embedded Boards

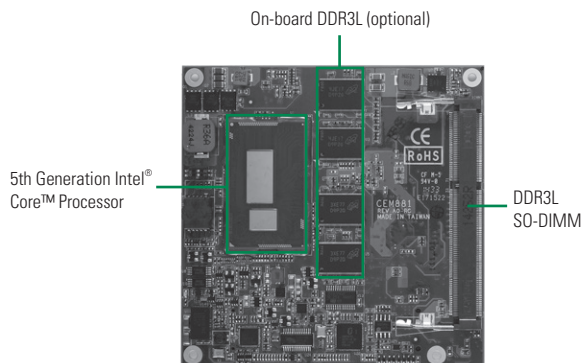
Accessories

Appendix



CEM881

5th/4th Generation Intel® Core™ i7/i5/i3 & Celeron® Processor COM Express Type 6 Compact Module



System

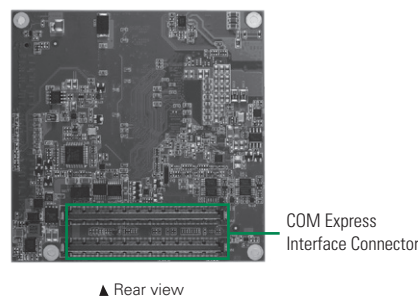
CPU	5th/4th generation Intel® Core™ i7/i5/i3 & Celeron® processor (Broadwell/Haswell)
System Memory	1st bank as on-board extended temperature non-ECC DDR3L chips up to 4 GB (optional) 2nd bank as non-ECC DDR3L SO-DIMM supports up to 8 GB
Chipset	SoC integrated
BIOS	AMI uEFI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec. or min.
Expansion Interface	4 lanes of PCI Express
Battery Lithium	N/A
Power Requirements	TBD
Size	95 x 95 mm
Board Thickness	2.0 mm
Temperature	-40°C ~ +85°C (-40°F ~ +185°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x LPC interface 1 x SPI interface 2 x TX/RX UARTs 1 x I ² C interface
SATA	4 x SATA-600, support Intel® Rapid Start Technology Intel® Smart Response Technology
Hardware Monitoring	Yes
Ethernet	1 port as 10/100/1000Mbps supports Wake_on_LAN and PXE Boot ROM with Intel® i218LM
Audio	HD link interface to baseboard for Codec
USB	2 x USB 3.0 and 6 x USB 2.0
TPM	ST for trusted platform
SMBus	Yes
Digital I/O	4 channels IN & 4 channels OUT

Features

- 5th/4th generation Intel® Core™ i7/i5/i3 & Celeron® processor (Broadwell/Haswell)
- Onboard 4 GB DDR3L (optional) and one SO-DIMM up to 8 GB
- Max. up to 4 lanes of PCIe
- 4 SATA-600
- 6 USB 2.0 and 2 USB 3.0
- TPM support
- 3 independent displays support



Display

Chipset	Intel® HD Graphics Gen 8 Gfx APIs-DX11.1, OGL 4.2 3 independent displays
Display Interface	1 x LVDS; 18/24-bit single/dual channel 2 x DDI (DP, HDMI, DVI)

Packing List

Quick installation guide, user's manual/utility CD

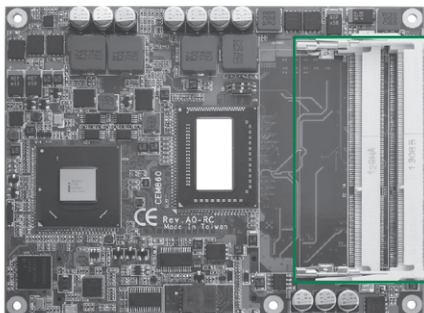
Ordering Information

Standard	
CEM881PG-i7-4650U (P/N: E38D881108)	COM Express type 6 module with Intel® Core™ i7-4650U 1.7 GHz, DP/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM
CEM881PG-i5-4300U (P/N: E38D881109)	COM Express type 6 module with Intel® Core™ i5-4300U 1.9 GHz, DP/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM
CEM881PG-i3-4010U (P/N: E38D881110)	COM Express type 6 module with Intel® Core™ i3-4010U 1.7 GHz, DP/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM
CEM881PG-CEL-2980U (P/N: E38D881111)	COM Express type 6 module with Intel® Celeron® 2980U 1.6 GHz, DP/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM
CEM881PG-i7-5650U (P/N: E38D881112)	COM Express type 6 module with Intel® Core™ i7-5650U 2.2 GHz, DP/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM
CEM881PG-i5-5350U (P/N: E38D881113)	COM Express type 6 module with Intel® Core™ i5-5350U 1.8 GHz, DP/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM
CEM881PG-i3-5010U (P/N: E38D881114)	COM Express type 6 module with Intel® Core™ i3-5010U 2.1 GHz, DP/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM
Optional	
CEM94006 (P/N: E394006100)	ATX from factor type 6 evaluation board
5078D881000E	Low profile heatsink (L=95 mm, W=95 mm, H=20 mm)
5078D881100E	Heatspreader for CEM881 (L=95 mm, W=95 mm, H=11 mm)
5078D881200E	CEM881 BDW Low profile heatsink w/fan (L=95 mm, W=95 mm, H=20 mm)
5078D881300E	CEM881 BDW Heatspreader (L=95 mm, W=95 mm, H=11 mm)

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

CEM860

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



Double deck
DDR3 SO-DIMM



System

CPU	2nd generation Intel® Quad/ Dual Core™ i7/i5/i3 & Celeron® processor
System Memory	2 x 204-pin SO-DIMM support DDR3-1066/1333 max. up to 16 GB
Chipset	Intel® QM67
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

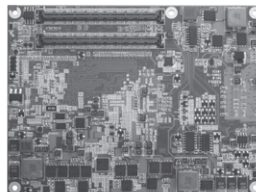
MIO	1 x LPC interface 1 x SPI interface
SATA	2 x SATA-600, 2 x SATA-300
Hardware Monitoring	N/A
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82579LM
Audio	HD link interface to baseboard for external Codec
USB	8 x USB 2.0, 2 x USB 3.0 (optional)
TPM 1.2	Infineon 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 integrtd GPU
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 3 x DDI (SDVO, DP, HDMI, DVI)

Features

- 2nd generation Intel® Core™ processor
- Intel® QM67 chipset
- 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

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: E39J000100)

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)

* W.T.: Wide Temperature

SBC
Services
and Solutions

2

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

ARM
Embedded
Boards

Accessories

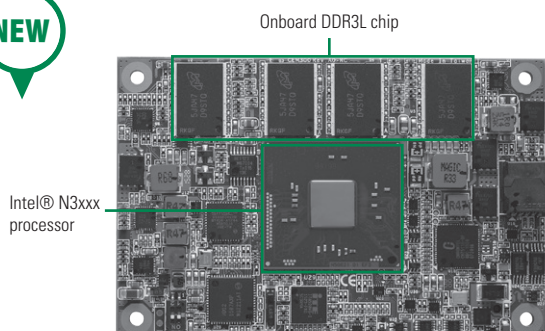
Appendix



CEM300

Intel® Pentium® & Celeron® N3000 Series Processors COM Express Type 10 Mini Module

NEW



System

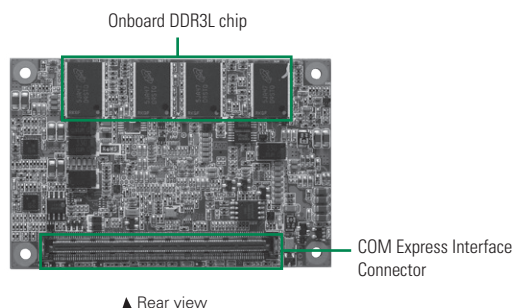
CPU	Intel® Pentium® & Celeron® N3000 series (Braswell) processors, N3700 1.6 GHz quad core, N3150 1.6 GHz quad core and N3050 1.6 GHz dual core onboard
System Memory	On-board DDR3L chips up to 8 GB
Chipset	SoC integrated
BIOS	AMI uEFI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec. or min.
Expansion Interface	4 x PCIe lanes (3 lanes while internal LAN is connected)
Battery Lithium	N/A
Power Input	ATX: 4.75V~20V, +5VSB AT: 4.75V~20V
Size	84 x 55 mm
Board Thickness	2.0 mm
Temperature	-20°C ~ +70°C (-4°F ~ 158°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x LPC interface 1 x SPI interface 2 x Serial TX/RX
SATA	2 x SATA-600
Hardware Monitoring	Yes
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i211AT
Audio	HD link interface to baseboard for Codec
USB	2 x USB 3.0 and 8 x USB 2.0
TPM	N/A
SMBus	Yes
Digital I/O	4 channels IN & 4 channels OUT
Smart Battery	Yes

Features

- Intel® Pentium®/Celeron® N3000 series Quad/Dual core processors (Braswell)
- Max. up to 8 GB DDR3L on-board memory
- Max. up to 4 lanes of PCI Express
- 2 SATA-600
- 2 USB 3.0 and 8 USB 2.0



▲ Rear view

Display

Chipset	Intel® Gen 8 Graphics Engine Supports Gfx - DX11.1, OCL1.2, OGL 4.2
Display Interface	1 x DDI (DP, HDMI, DVI) 1 x LVDS; 18/24-bit single channel (eDP option)

Packing List

Quick installation guide

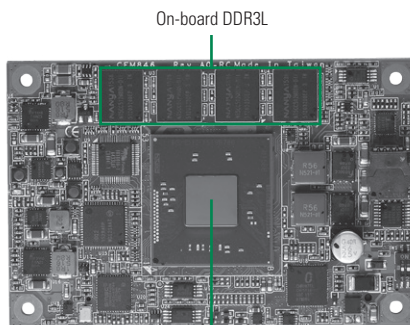
Ordering Information

Standard	
CEM300PG-N3700-4G	COM Express type 10 mini module with Intel® Pentium® N3700, 4 GB, DP/LVDS, USB 3.0 and 10/100/1000Mbps Ethernet
CEM300PG-N3150-4G	COM Express type 10 mini module with Intel® Celeron® N3150, 4 GB, DP/LVDS, USB 3.0 and 10/100/1000Mbps Ethernet
CEM300PG-N3050-4G	COM Express type 10 mini module with Intel® Celeron® N3050, 4 GB, DP/LVDS, USB 3.0 and 10/100/1000Mbps Ethernet

CEM846

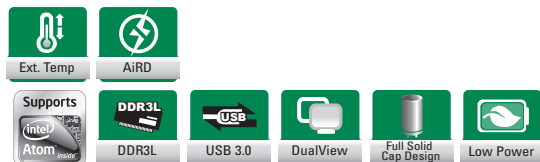
Intel® Atom™ E3800 Family COM Express Type 10 Mini Module

NEW



On-board DDR3L

E38xx SoC



System

CPU	Intel® Atom™ processor E3845 1.91 GHz quad core, Atom™ E3827 1.75 GHz dual core, or Atom™ E3815 1.46 GHz single core onboard
System Memory	Onboard extended temperature DDR3L chips up to 4 GB
Chipset	SoC integrated
BIOS	AMI uEFI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	4 x PCIe x1 devices (3 x 1 while internal LAN is connected)
Battery Lithium	N/A
Power Input	DC input: 4.75V ~ 20V or ATX 4.75V~20V/+5VSB
Size	84 x 55 mm
Board Thickness	2.0 mm
Temperature	-40°C ~ +85°C (-40°F ~ +185°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

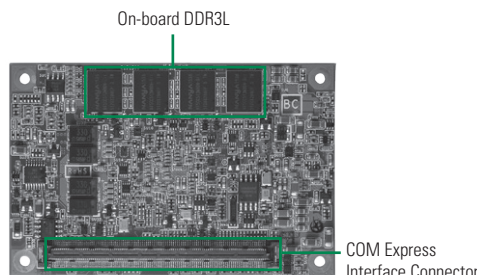
MIO	1 x LPC interface 2 x Serial TX/RX
SATA	2 x SATA-300 support
Hardware Monitoring	Yes
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i210IT
Audio	HD link interface to baseboard for Codec
USB	8 x USB 2.0 and 1 x USB 3.0
TPM	N/A
SMBus	Yes
Digital I/O	4 channels IN & 4 channels OUT

Display

Chipset	Intel® HD graphics (Gen 7 Gfx) display engine Gfx APIs – DX11, OCL 1.2, OGL 3.2 2 independent displays
Display Interface	1 x LVDS; 18/24-bit single channel 1 x DDI (DP, HDMI, DVI)

Features

- Intel® Quad/ Dual/ Single Core Atom™ processor (Bay Trail)
- Max. up to 4 GB DDR3L onboard memory
- Max. up to 4 lanes of PCIe
- 2 SATA-300 interfaces
- 8 USB 2.0 and 1 USB 3.0



On-board DDR3L

▲ Rear view

COM Express Interface Connector

Packing List

Quick installation guide, user's manual/utility CD

Ordering Information

Standard

CEM846PG-E3845-4G	COM Express type 10 mini module with Intel® Atom™ E3845, 4 GB, DP/LVDS, 10/100/1000Mbps Ethernet and USB 3.0
CEM846PG-E3827-4G	COM Express type 10 mini module with Intel® Atom™ E3827, 4 GB, DP/LVDS, 10/100/1000Mbps Ethernet and USB 3.0
CEM846PG-E3815-4G	COM Express type 10 mini module with Intel® Atom™ E3815, 4 GB, DP/LVDS, 10/100/1000Mbps Ethernet and USB 3.0
CEM846PG-E3845-2G	COM Express type 10 mini module with Intel® Atom™ E3845, 2 GB, DP/LVDS, 10/100/1000Mbps Ethernet and USB 3.0
CEM846PG-E3827-2G	COM Express type 10 mini module with Intel® Atom™ E3827, 2 GB, DP/LVDS, 10/100/1000Mbps Ethernet and USB 3.0
CEM846PG-E3815-2G	COM Express type 10 mini module with Intel® Atom™ E3815, 2 GB, DP/LVDS, 10/100/1000Mbps Ethernet and USB 3.0

Optional Accessories

CEM94008 (P/N: E394008100)	ATX from factor type 10 evaluation board
5078D840100E	CEM840 heat spreader
5078D840200E	CEM840 heat sink with fan
5078D840300E	CEM840 heatsink without fan

SBC Services and Solutions

2

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

ARM Embedded Boards

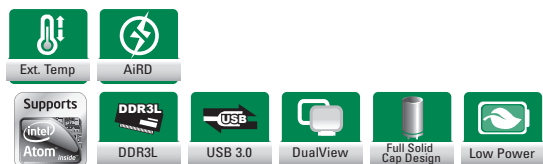
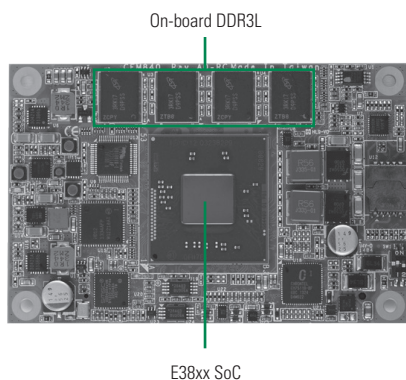
Accessories

Appendix



CEM840

Intel® Atom™ E3800 Family COM Express Type 10 Mini Module



System

CPU	Intel® Atom™ processor E3845 1.91 GHz quad core, Atom™ E3827 1.75 GHz dual core, or Atom™ E3815 1.46 GHz single core onboard
System Memory	Onboard extended temperature DDR3L chips up to 4 GB
Chipset	SoC integrated
BIOS	AMI uEFI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	4 x PCIe x1 devices (3 x 1 while internal LAN is connected)
Battery Lithium	N/A
Power Input	DC input: 4.75V ~ 20V or ATX +12V/+5VSB
Size	84 x 55 mm
Board Thickness	2.0 mm
Temperature	-40°C ~ +85°C (-40°F ~ +185°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

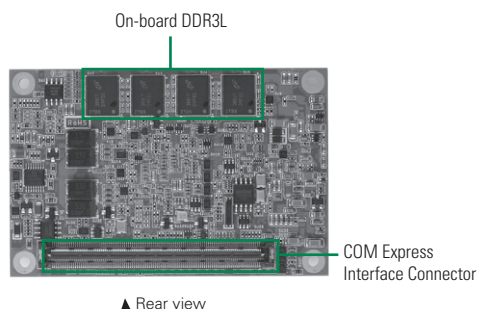
MIO	1 x LPC interface
SATA	2 x SATA-300 support
Hardware Monitoring	Yes
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i210IT
Audio	HD link interface to baseboard for Codec
USB	8 x USB 2.0 and 1 x USB 3.0
TPM	N/A
SMBus	Yes
Digital I/O	4 channels IN & 4 channels OUT

Display

Chipset	Intel® HD graphics (Gen 7 Gfx) display engine Gfx APIs – DX11, OCL 1.2, OGL 3.2 2 independent displays
Display Interface	1 x LVDS; 18/24-bit single channel 1 x DDI (DP, HDMI, DVI)

Features

- Intel® Quad/ Dual/ Single Core Atom™ processor (Bay Trail)
- Max. up to 4 GB DDR3L on-board memory
- Max. up to 4 lanes of PCIe
- 2 SATA-300 interfaces
- 8 USB 2.0 and 1 USB 3.0 ports



Packing List

Quick installation guide, user's manual/utility CD

Ordering Information

Standard

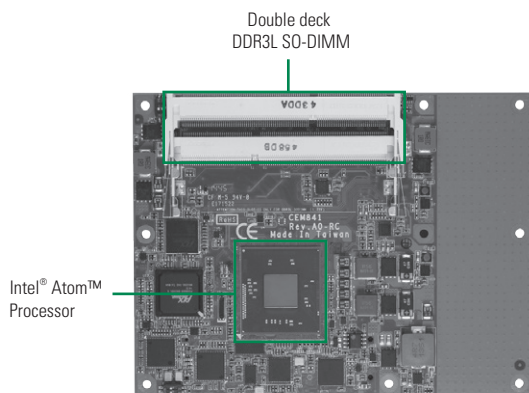
CEM840PG-E3845-4G (P/N:E38D840102)	COM Express type 10 mini module with Intel® Atom™ E3845, 4 GB, DP/LVDS, 10/100/1000Mbps Ethernet and USB 3.0
CEM840PG-E3827-4G (P/N:E38D840100)	COM Express type 10 mini module with Intel® Atom™ E3827, 4 GB, DP/LVDS, 10/100/1000Mbps Ethernet and USB 3.0
CEM840PG-E3815-4G (P/N:E38D840107)	COM Express type 10 mini module with Intel® Atom™ E3815, 4 GB, DP/LVDS, 10/100/1000Mbps Ethernet and USB 3.0
CEM840PG-E3845-2G (P/N:E38D840108)	COM Express type 10 mini module with Intel® Atom™ E3845, 2 GB, DP/LVDS, 10/100/1000Mbps Ethernet and USB 3.0
CEM840PG-E3827-2G (P/N:E38D840106)	COM Express type 10 mini module with Intel® Atom™ E3827, 2 GB, DP/LVDS, 10/100/1000Mbps Ethernet and USB 3.0
CEM840PG-E3815-2G (P/N:E38D840101)	COM Express type 10 mini module with Intel® Atom™ E3815, 2 GB, DP/LVDS, 10/100/1000Mbps Ethernet and USB 3.0

Optional Accessories

CEM94008 (P/N: E394008100)	ATX from factor type 10 evaluation board
5078D840100E	CEM840 heat spreader
5078D840200E	CEM840 heat sink with fan
5078D840300E	CEM840 heatsink without fan

CEM841

Intel® Celeron® Processor J1900/N2807
COM Express Type 2 Basic Module



System

CPU	Intel® Celeron® processor J1900 2 GHz or Celeron® N2807 1.58 GHz onboard
System Memory	2 SO-DIMM support DDR3L-1066/1333 max up to 8 GB
Chipset	SoC integrated
BIOS	AMI uEFI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec. or min.
Expansion Interface	1 PCIe x4 plus 4 x PCIe x1 (or 3 x PCIe x1 while internal LAN is connected)
Battery Lithium	N/A
Power Requirements	ATX: +12V and 5VSB or AT: +12V
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

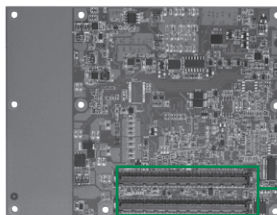
MIO	1 x LPC interface 1 x IDE
SATA	1 x SATA-300
Hardware Monitoring	Yes
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i210AT
Audio	HD link interface to baseboard for Codec
USB	8 x USB 2.0
SMBus	Yes
Digital I/O	4 channels IN & 4 channels OUT

Display

Chipset	Intel® HD graphics (Gen 7 Gfx) display engine Gfx APIs – DX11, OCL 1.2, OGL 3.0 2 independent displays
Display Interface	1 x VGA 1 x LVDS; 18/24-bit dual channel

Features

- Intel® Celeron® J1900/N2807 Quad/ Dual Core processor (Bay Trail)
- 2 SO-DIMM DDR3L-1066/1333 max up to 8 GB
- Max. up to 8 lanes of PCI Express
- 1 SATA-300 and 1 IDE interfaces
- 8 USB 2.0 ports



▲ Rear view

Packing List

Quick installation guide, user's manual/utility CD

Ordering Information

Standard

CEM841VG-N2807 (P/N: E38D841100)	COM Express type 2 with Intel® Celeron® N2807, VGA/ LVDS, USB and 10/100/1000Mbps Ethernet
CEM841VG-J1900 (P/N: E38D841101)	COM Express type 2 with Intel® Celeron® J1900, VGA/ LVDS, USB and 10/100/1000Mbps Ethernet

Optional Accessories

CEB94000 (P/N: E394000100)	ATX form factor type 2 evaluation baseboard
5078D841100E	CEM841/2/3 Heatspreader
5078D842200E	CEM841/2/3 Heatsink without fan

SBC
Services
and Solutions

2

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

ARM
Embedded
Boards

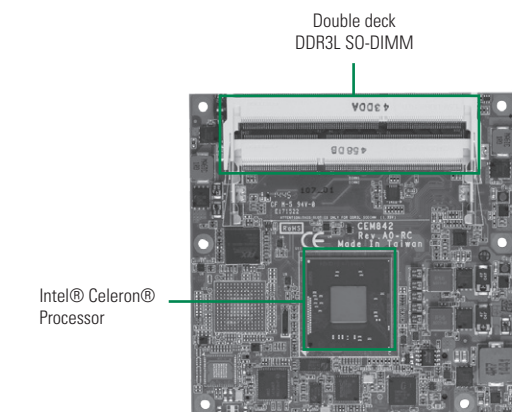
Accessories

Appendix



CEM842

Intel® Celeron® Processor J1900/N2807
COM Express Type 6 Compact Module



System

CPU	Intel® Celeron® processor J1900 2 GHz or Celeron® N2807 1.58 GHz onboard
System Memory	2 x 204-pin SO-DIMM support DDR3L-1066/1333 up to 8 GB
Chipset	SoC integrated
BIOS	AMI uEFI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec. or min.
Expansion Interface	Max. up to 6 lanes of PCIe
Battery Lithium	N/A
Power Input	ATX 12V/5VSB or AT 12V
Size	95 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

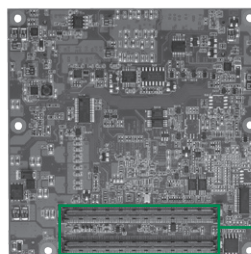
MIO	1 x LPC interface 1 x SPI interface
SATA	2 x SATA-300
Hardware Monitoring	Yes
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i210AT
Audio	HD link interface to baseboard for Codec
USB	8 x USB 2.0 and 1 x USB 3.0
TPM	ST33TPM12
SMBus	Yes
Digital I/O	4 channels IN & 4 channels OUT

Display

Chipset	Intel® HD graphics (Gen 7 Gfx) display engine Gfx APIs – DX11, OCL 1.2, OGL 3.0 2 independent displays
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 1 x DDI (DP, HDMI, DVI)

Features

- Intel® Quad/ Dual Core Celeron® processor (Bay Trail)
- 2 DDR3L-1066/1333 SO-DIMMs max. up to 8 GB
- Max. up to 6 lanes of PCIe
- 2 SATA-300 interfaces
- 8 USB 2.0 and 1 USB 3.0 ports



▲ Rear view

Packing List

Quick installation guide, user's manual/utility CD

Ordering Information

Standard

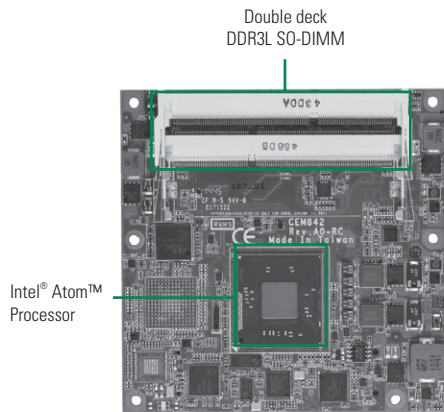
CEM842PVG-N2807 (P/N: E38D842100)	COM Express type 6 with Intel® Celeron® N2807, DDI/ VGA/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM
CEM842PVG-J1900 (P/N: E38D842101)	COM Express type 6 with Intel® Celeron® J1900, DDI/VGA/ LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM

Optional Accessories

CEB94006 (P/N: E394006100)	ATX form factor type 6 evaluation board
5078D841100E	CEM841/2/3 Heatspreader
5078D842200E	CEM841/2/3 Heatsink without fan

CEM843

Intel® Atom™ Processor E3845 COM Express Type 6 Compact Module



System

CPU	Intel® Atom™ processor E3845 1.91 GHz onboard
System Memory	2 x 204-pin SO-DIMM support DDR3L-1066/1333 up to 8 GB
Chipset	SoC integrated
BIOS	AMI uEFI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec. or min.
Expansion Interface	Max. up to 6 lanes of PCIe
Battery Lithium	N/A
Power Input	ATX: 12V/5VSB, AT: 12V
Size	95 x 95 mm
Board Thickness	2.0 mm
Temperature	-40°C ~ +85°C (-40°F ~ +185°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

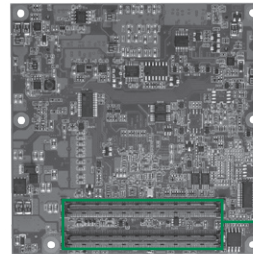
MIO	1 x LPC interface 1 x SPI interface
SATA	2 x SATA-300
Hardware Monitoring	Yes
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i210IT
Audio	HD link interface to baseboard for Codec
USB	8 x USB 2.0 and 1 x USB 3.0
TPM	ST33TPM12
SMBus	Yes
Digital I/O	4 channels IN & 4 channels OUT

Display

Chipset	Intel® HD graphics (Gen 7 Gfx) display engine Gfx APIs – DX11, OCL 1.2, OGL 3.0 2 independent displays
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 1 x DDI (DP, HDMI, DVI)

Features

- Intel® Quad Core Atom™ processor E3845 (Bay Trail)
- 2 DDR3L-1066/1333 SO-DIMMs max. up to 8 GB
- Max. up to 6 lanes of PCIe
- 2 SATA-300 ports
- 8 USB 2.0 and 1 USB 3.0 ports



▲ Rear view

Packing List

Quick installation guide, user's manual/utility CD

Ordering Information

Standard

CEM843PVG-E3845 (P/N: E38D843100)	COM Express type 6 with Intel® Atom™ E3845 1.91GHz, DDI/VGA/LVDS, 10/100/1000Mbps Ethernet, USB 3.0 and TPM
--------------------------------------	---

Optional Accessories

CEB94006 (P/N: E394006100)	ATX form factor type 6 evaluation baseboard
5078D841100E	CEM841/2/3 Heatspreader
5078D842200E	CEM841/2/3 Heatsink without fan

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SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
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Embedded
SBCs
>Pico-ITX

Embedded
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>PC/104

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Slot CPU
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ARM
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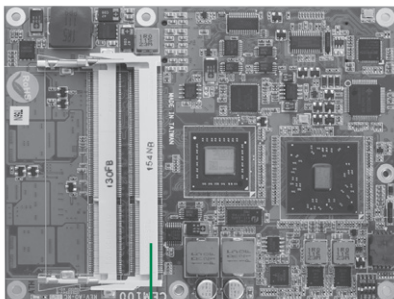
Accessories

Appendix



CEM100

AMD G-Series APU COM Express™ Type 2
Basic Module with AMD A55E



Double deck DDR3 SO-DIMM



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
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

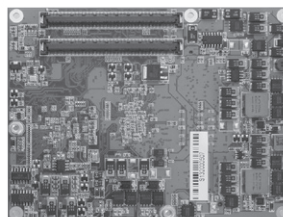
MIO	1 x LPC interface 1 x SPI interface 1 x IDE; PATA-100
SATA	4 x SATA-600 with RAID 0/1/5/10
Hardware Monitoring	N/A
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Broadcom BCM50610 PHY
Audio	HD link interface to baseboard for external Codec
USB	8 x USB 2.0
TPM 1.2	Infineon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

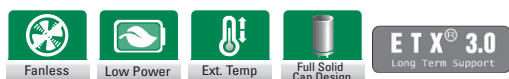
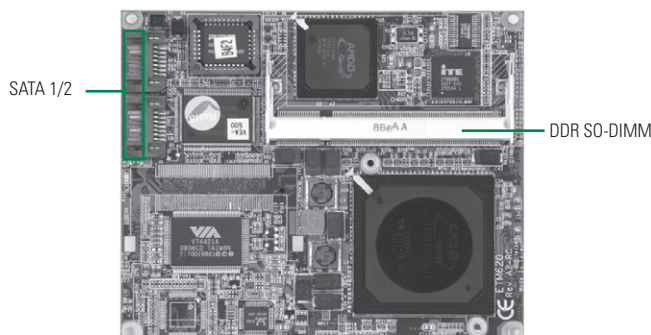
CEM100VG-T56N	COM Express type 2 module with T56N 1.6 GHz APU, VGA/LVDS, 10/100/1000Mbps Ethernet, USB and TPM
CEM100VG-T40R	COM Express type 2 module with T40R 1 GHz APU, (Fanless) VGA/LVDS, 10/100/1000Mbps Ethernet, USB and TPM
(P/N: E38D100100)	
(P/N: E38D100101)	

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

ETM620

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



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 Temperature	Standard: 0° ~ +60°C (32°F ~ 140°F) Optional: -40°C ~ +85°C (-40°F ~ +185°F)
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

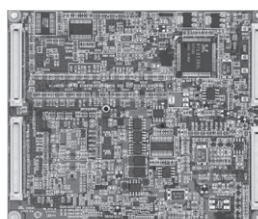
MIO	2 x IDE; PATA-100 1 x FDD (optional) 1 x LPT; with SPP/EPP/ECP supported 1 x PS/2 keyboard 1 x PS/2 mouse 2 x UARTs 1 x IrDA
SATA	2 x SATA-150
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8139DL
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 integrated
Memory Size	Max. up to 254 MB
Display Interface	1 x VGA 1 x TTL LCD; Max up to 24-bit

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

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

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>EPIC

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SBCs
>3.5" Capa

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>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
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Appendix



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 mm². 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.

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Axiomtek Pico-ITX Form Factor Technical Notes	91
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Selection Guide	95

EPIC Boards

EP100	AMD G-Series APU EPIC SBC with A50M FCH A50M, Dual DisplayPort/VGA/LVDS, Dual LANs and Audio	108
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3.5" Capa Boards

NEW CAPA880	LGA1150 4th Generation Intel® Core™ i7/i5/i3 Processor 3.5" Embedded SBC with LVDS/VGA/HDMI, Dual LANs and Audio	109
CAPA881	4th/5th Generation Intel® Core™ i7/i5/i3 & Celeron® Processor 3.5" Embedded SBC with Intel® HM86 (QM87 optional) LVDS/VGA/Dual HDMI, Dual LANs and Audio	110
NEW CAPA301	Intel® Pentium®/Celeron® Processor N3000 Family 3.5" Embedded SBC with LVDS/VGA/HDMI, Dual LANs, Audio	111
NEW CAPA843	Intel® Celeron® J1900 3.5" Embedded SBC with LVDS/VGA/HDMI, Dual LANs, Audio and ZIO	112
CAPA840	Intel® Atom™ Processor E3845/E3827 3.5" Embedded SBC with LVDS/VGA/HDMI, Dual LANs, Audio and ZIO	113
NEW CAPA848	Intel® Celeron® Processor N2807 3.5" Embedded SBC with LVDS/VGA/HDMI, LAN and Audio	114
CAPA842	Intel® Celeron® Processor J1900/N2807 3.5" Embedded SBC with LVDS/VGA/HDMI, Dual LANs and Audio	115
CAPA841	Intel® Atom™ Processor E3845/E3827 3.5" Embedded SBC with LVDS/VGA/HDMI, Dual LANs and Audio	116
CAPA831	Intel® Atom™ Processor D2550/N2600/N2800 3.5" Embedded SBC with Intel® NM10, LVDS/DisplayPort/VGA, Dual LANs and Audio	117
CAPA830	Intel® Atom™ Processor D2550/N2600/N2800 3.5" Embedded SBC with Intel® NM10, LVDS/HDMI/VGA, Dual LANs, Audio and ZIO	118
CAPA112	AMD G-Series APU 3.5" Embedded SBC with AMD A55E, LVDS/VGA, Dual LANs and Audio, Dual LANs, Audio and PC/104	119
CAPA111	AMD G-Series APU 3.5" Embedded SBC with AMD A50M, LVDS/VGA, Dual LANs and Audio	120
CAPA110	AMD G-Series APU 3.5" Embedded SBC with AMD A50M, LVDS/DisplayPort/VGA, Dual LANs and Audio	121
SBC84622	AMD LX800 3.5" Embedded SBC with Dual LANs, 4 COM, 4 USB 2.0 and VGA/LVDS/TTL	122

	SBC84621	AMD LX800 3.5" Embedded SBC with Dual LANs, 4 COM, 4 USB 2.0 and VGA/LVDS (-40°C ~ +85°C)	123
	SBC84620	AMD LX800 3.5" Embedded SBC with Dual LANs, 4 COM, 4 USB 2.0 and VGA/TTL (-40°C ~ +85°C)	124
	Nano-ITX SBC		
	NANO842	Intel® Celeron® Processor J1900/N2807 Nano-TX SBC with LVDS/VGA/HDMI, Dual LANs and Audio	125
	NANO840	Intel® Atom™ Processor E3845/E3827 Nano-ITX SBC with LVDS/ VGA/HDMI, Dual LANs and Audio	126
	NANO831	Intel® Atom™ Processor N2600 Nano-ITX SBC with Intel® NM10, LVDS/VGA, Dual LANs and Audio	127
	NANO830	Intel® Atom™ Processor D2550 Nano-ITX SBC with Intel® NM10, LVDS/DisplayPort/VGA, Dual LANs and Audio	128
	NANO100	AMD G-Series APU Nano-ITX SBC with AMD A50M FCH, LVDS/DisplayPort/VGA, Dual LANs and Audio	129
	NANO101	AMD G-Series APU Nano-ITX SBC with AMD A50M FCH, LVDS/VGA, Dual LANs and Audio	130
	Pico-ITX SBC		
	PICO500	6th Generation Intel® Core™ i7/i5/i3 and Celeron® Processor Pico-ITX SBC with HDMI/LVDS, LAN and Audio	131
	PICO880	4th/5th Generation Intel® Core™ i7/i5/i3 & Celeron® Processor Pico-ITX SBC with DP/LVDS, LAN and Audio	132
	PICO300	Intel® Pentium® processor N3700 Pico-ITX SBC with HDMI (VGA)/LVDS, LAN and Audio	133
	PICO843	Intel® Celeron® Processor J1900/N2807 Pico-ITX SBC with LVDS/VGA, LAN and Audio	134
	PICO842	Intel® Celeron® Processor J1900/N2807 Pico-ITX SBC with LVDS/VGA (HDMI), LAN and Audio	135
	PICO841	Intel® Atom™ Processor E3845/E3827 Pico-ITX SBC with LVDS/VGA, LAN and Audio	136
	PICO840	Intel® Atom™ Processor E3845/E3827 Pico-ITX SBC with LVDS/ VGA (HDMI), LAN and Audio	137
	PICO831	Intel® Atom™ Processor N2600/N2800 Pico-ITX SBC with Intel® NM10, LVDS/ VGA, LAN and Audio	138
	PICO830	Intel® Atom™ Processor N2600/N2800 Pico-ITX SBC with Intel® NM10, LVDS/DisplayPort or VGA, LAN and Audio	139
	PICO822	Intel® Atom™ E620T/E680T Pico-ITX SBC with LVDS, SATA, LAN and SSD	140
	PICO121	AMD Embedded G-Series SoC Pico-ITX SBC with VGA/LVDS, LAN & Audio	141
	PICO100	AMD G-Series APU Pico-ITX SBC with AMD A50M, LVDS/ DisplayPort (VGA), LAN and Audio	142
	PC/104 CPU Modules		
	AX12260	AMD LX PC/104 CPU Module with VGA/TTL, USB DoM and PC/104-Plus Expansion	143
	AX12600	VGA and LCD Display Module	144
	AX10460	Universal Expansion Module	145
	AX10461	PC/104 to ISA-bus Converter Expansion Module	145

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.

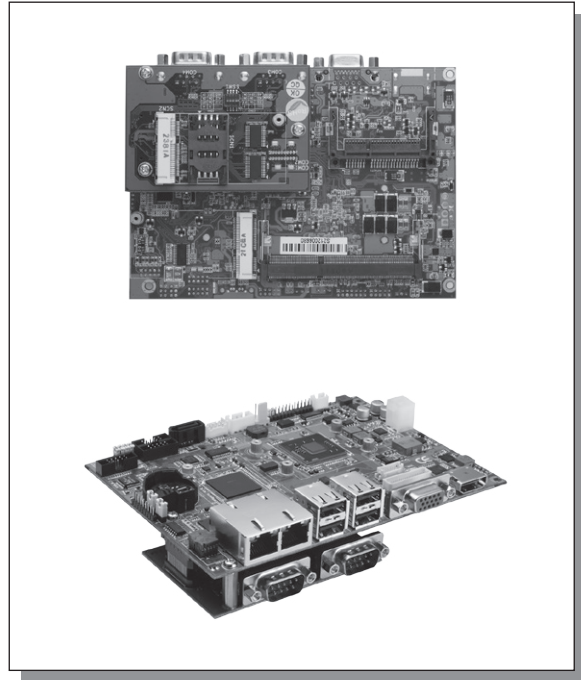


Figure 1: 3.5" CAPA Board with ZIO Module AX93262

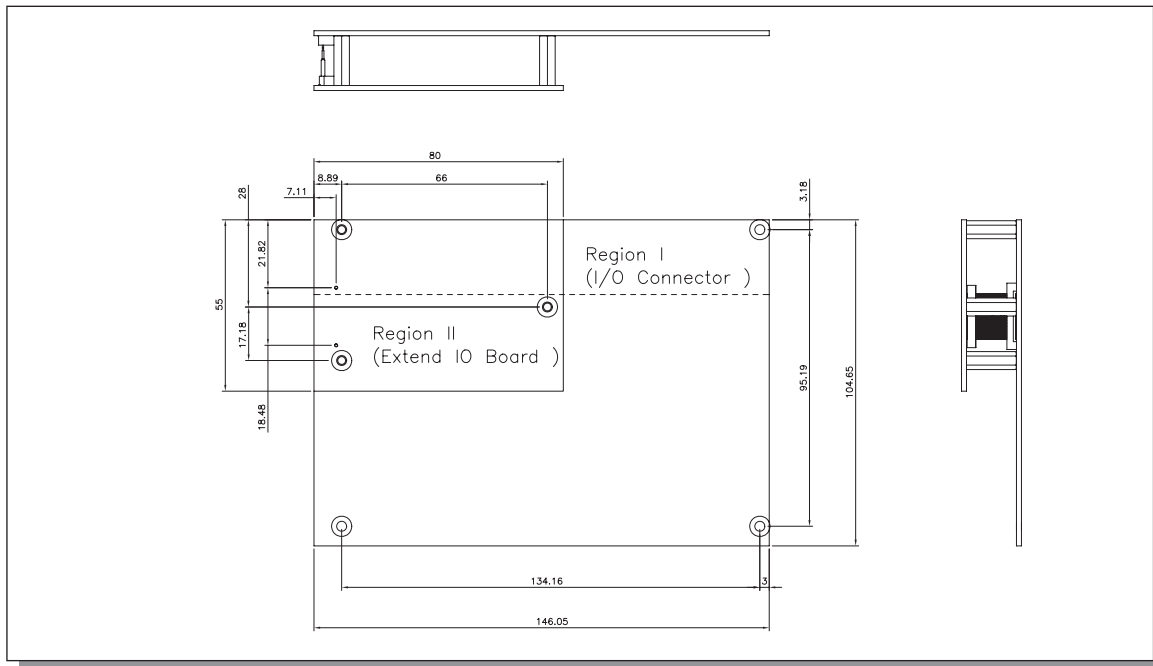


Figure 2: Board Dimensions and Mounting Holes

Axiomtek Nano-ITX Form Factor

Technical Notes

Overview of Nano-ITX Form Factor

The 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.

Dimensions of Nano-ITX Form Factor

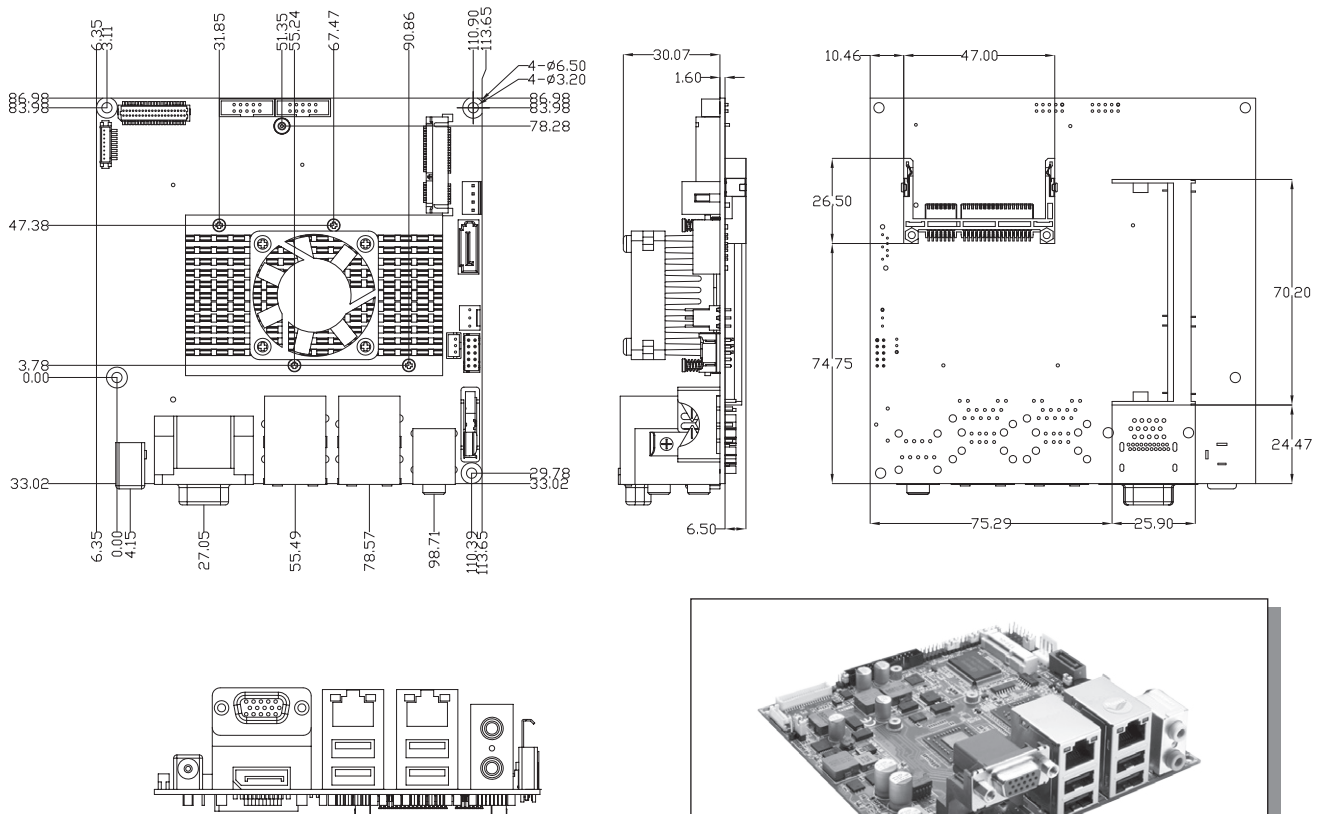


Figure 1: Axiomtek Nano-ITX Form Factor SBC - NANO100

Rich rear I/O for cableless solution

SBC
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Axiomtek Pico-ITX Form Factor

Technical Notes

Overview of Pico-ITX Form Factor

The 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 performance to a broad field of embedded designs, which underpin almost every aspect of daily life. Automation, digital signage, 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

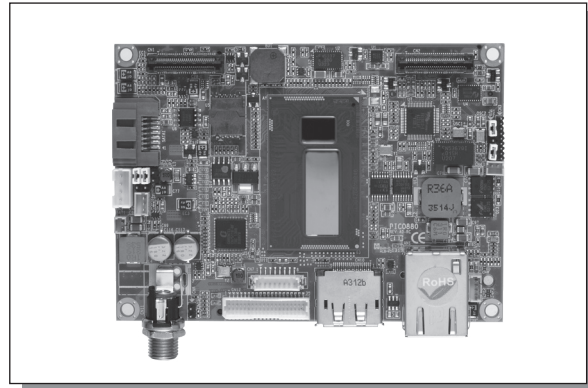
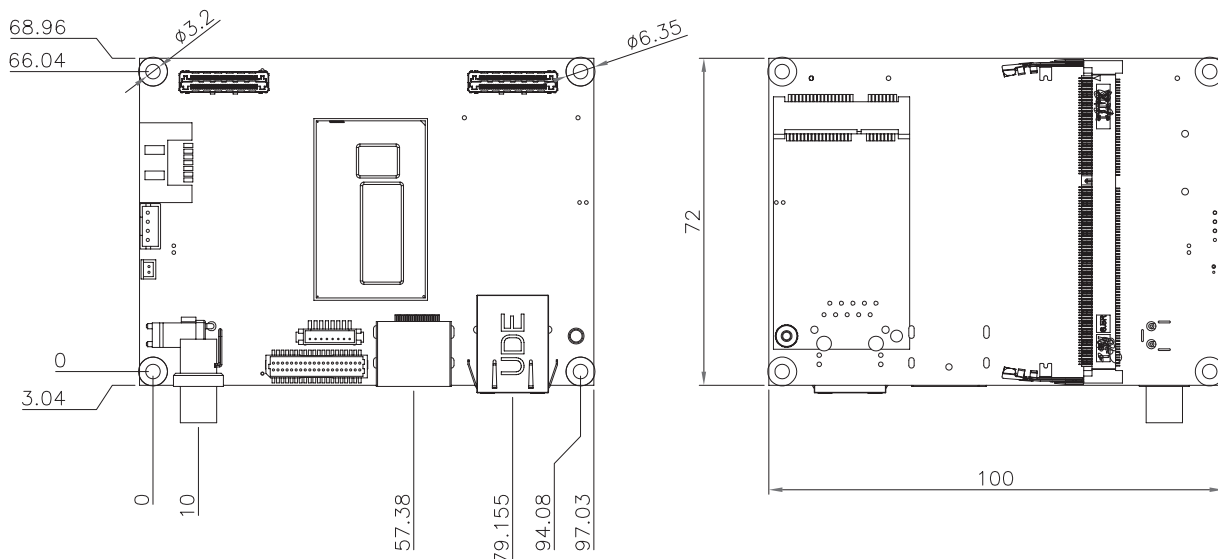


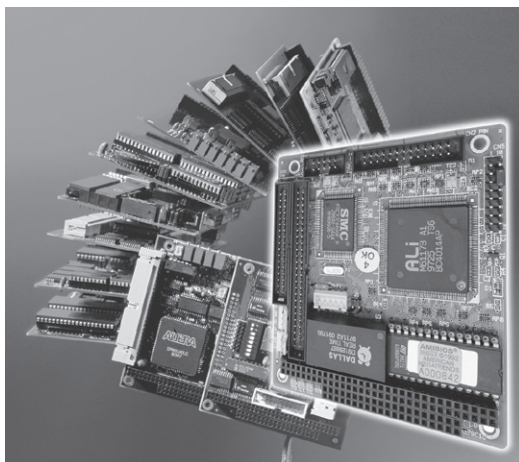
Figure 1: Axiomtek Pico-ITX Form Factor SBC - PIC0880



Figure 2: Axiomtek Ultra Compact Embedded System with Pico-ITX SBC - eBOX560-880-FL

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 seek 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-sourcing 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.

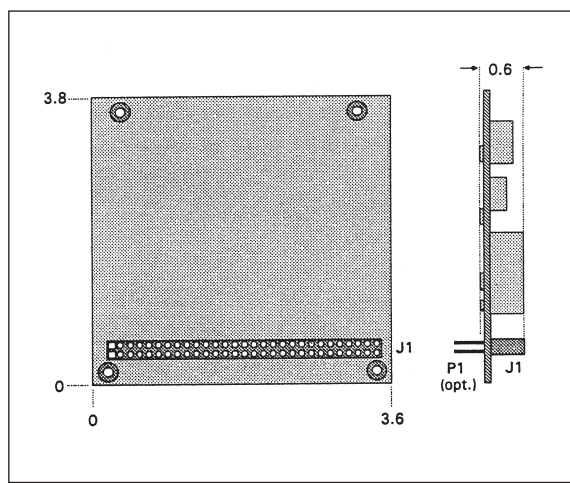


Figure 1. Basic Mechanical Dimensions (8-bit Version)

SBC
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>EPIC

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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 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.

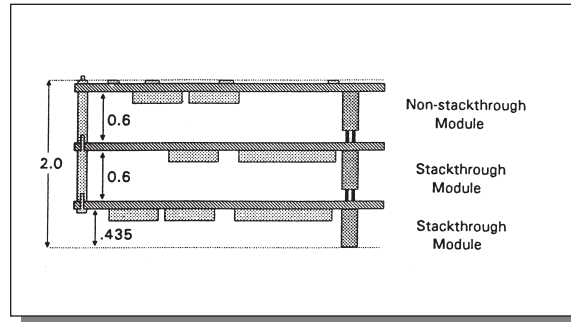


Figure 2. Standalone Module Stacks

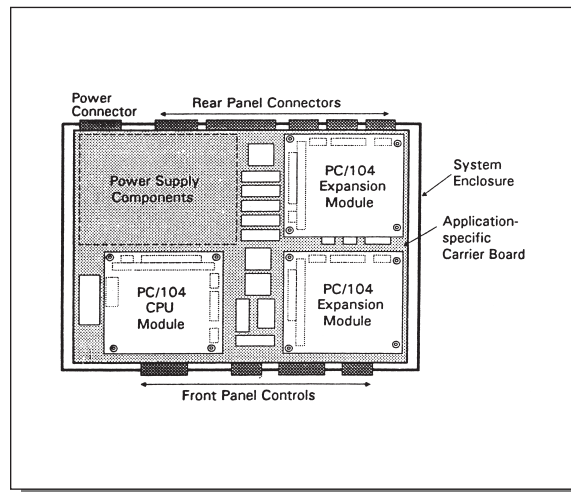
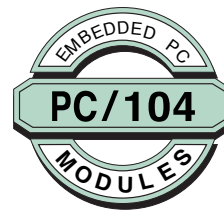
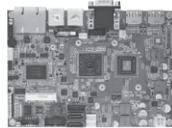


Figure 3. Component-like Application



EPIC Boards

Selection Guide



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Features/Models		EP100
Form Factor		EPIC
CPU Level		AMD G-Series APU T56N/ T40R
CPU Socket		Onboard
Core Logic Chipset		AMD A50M
Memory Type		DDR3-1066/1333
Max. DRAM Capacity		4 GB
Cache RAM Capacity		Integrated in APU
BIOS		AMI UEFI BIOS
Watchdog Timer		255 levels, 1~255 sec.
Onboard SSD		1 x CFast™
Onboard Digital I/O		8-IN/OUT
I/O	SATA	2 x SATA-600
	Serial	COM 1 RS-232/422/485
		COM 2 RS-232
		COM 3 RS-232
		COM 4 RS-232
	USB	6 x USB 2.0
SIM Card Slot		Yes
Display		1 x VGA, 2 x DisplayPort or 1 x VGA, 1 x DisplayPort, 1 x LVDS
Ethernet		2 x 10/100/1000Mbps Ethernet
Audio		HD Codec
Hardware Monitoring		Yes
SMBus		Yes
Expansion Interface		2 x PCI Express Mini Card
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

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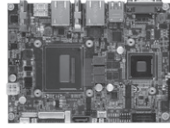


3.5" Capa Boards

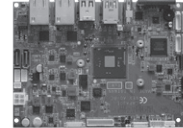
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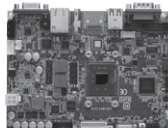


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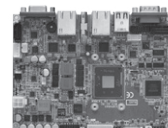
Features/Models		CAPA880	CAPA881	CAPA301
Form Factor		3.5" Capa	3.5" Capa	3.5" Capa
CPU Level		4th Generation Intel® Core™ i7/i5/i3	4th Generation Intel® Core™ i7/i5/i3	Intel® Pentium® N3210/Celeron® N3060
CPU Socket		LGA1150	Onboard	Onboard
Core Logic Chipset		Intel® H81	Intel® HM86/QM87	SoC integrated
Memory Type		DDR3-1600	DDR3L-1600	DDR3L-1066/1333
Max. DRAM Capacity		8 GB	8 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	1 x CFast™	1 x mSATA
Onboard Digital I/O		8-IN/OUT	8-IN/OUT	8-IN/OUT
I/O	SATA	1 x SATA-600	1 x SATA-600	1 x SATA-600 (2nd for optional)
	Serial	COM 1	RS-232/422/485	RS-232/422/485
		COM 2	N/A	RS-232
		COM 3	N/A	RS-232
		COM 4	N/A	RS-232
	USB	4 x USB 2.0, 2 x USB 3.0	4 x USB 2.0, 2 x USB 3.0	4 x USB 2.0, 2 x USB 3.0
SIM Card Slot		N/A	N/A	Yes
Display		1 x VGA 1 x HDMI 1 x LVDS	1 x VGA 2 x HDMI 1 x LVDS 1 x DisplayPort (Optional)	1 x VGA 1 x HDMI 1 x LVDS
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
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 USB, 1 x PCIe x1, 1 x LPC, 1 x SMBus (through ZIO connector)	1 x PCI Express Mini Card	1 x PCI Express Mini Card, 1 x PCI Express Mini Card (USB only)
Power Management		ACPI	ACPI	ACPI
Battery		Lithium	Lithium	Lithium
Operating Temperature		-20°C ~ +50°C (-4°F ~ +122°F)	-20°C ~ +70°C (-4°F ~ -158°F)	-20°C ~ +70°C (-4°F ~ -158°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



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Features/Models		CAPA843	CAPA848	CAPA842
Form Factor		3.5" Capa	3.5" Capa	3.5" Capa
CPU Level		Intel® Celeron® J1900	Intel® Celeron®/N2807	Intel® Celeron® J1900/N2807
CPU Socket		Onboard	Onboard	Onboard
Core Logic Chipset		SoC integrated	SoC integrated	SoC integrated
Memory Type		DDR3L-1066/1333	DDR3L-1333	DDR3L-1333
Max. DRAM Capacity		8 GB	8 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	1 x CFast™	1 x CFast™
Onboard Digital I/O		8-IN/OUT	8-IN/OUT	8-IN/OUT
I/O	SATA	1 x SATA-300	1 x SATA-300	1 x SATA-300
	Serial	COM 1	RS-232/422/485	RS-232/422/485
		COM 2	RS-232	RS-232/422/485
		COM 3	N/A	RS-232
		COM 4	N/A	RS-232
	USB	4 x USB 2.0, 1 x USB 3.0	4 x USB 2.0	4 x USB 2.0
SIM Card Slot		N/A	Yes	Yes
Display		1 x VGA 1 x HDMI 1 x LVDS	1 x VGA 1 x HDMI 1 x LVDS	1 x VGA 1 x HDMI 1 x LVDS
Ethernet		1 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
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 (USB only) 1 x USB, 1 x PCIe x1, 1 x LPC, 1 x SMBus (through ZIO connector)	2 x PCI Express Mini Card	2 x PCI Express Mini Card
Power Management		ACPI	ACPI	ACPI
Battery		Lithium	Lithium	Lithium
Operating Temperature		-20°C ~ +70°C (-4°F ~ +158°F)	-20°C ~ +70°C (-4°F ~ +158°F)	-20°C ~ +70°C (-4°F ~ +158°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

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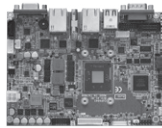
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3.5" Capa Boards

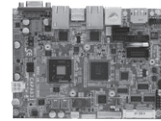
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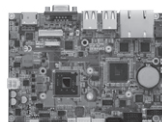


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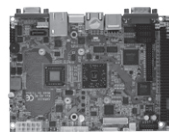


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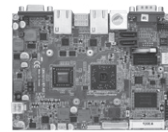
Features/Models			CAPA841	CAPA840	CAPA831
Form Factor			3.5" Capa	3.5" Capa	3.5" Capa
CPU Level			Intel® Atom™ E3845/E3827	Intel® Atom™ E3845/E3827	Intel® Atom™ D2550/N2600/N2800
CPU Socket			Onboard	Onboard	Onboard
Core Logic Chipset			SoC integrated	SoC integrated	Intel® NM10
Memory Type			DDR3L-1066/1333	DDR3L-1066/1333	DDR3-800/1066
Max. DRAM Capacity			8 GB	8 GB	4 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			1 x CFast™	1 x mSATA	1 x CFast™
Onboard Digital I/O			8-IN/OUT	8-IN/OUT	8-IN/OUT
I/O	SATA		1 x SATA-300	1 x SATA-300	1 x SATA-300
	Serial	COM 1	RS-232/422/485	RS-232/422/485	RS-232/422/485
		COM 2	RS-232/422/485	RS-232	RS-232/422/485
		COM 3	RS-232	N/A	RS-232
		COM 4	RS-232	N/A	RS-232
	USB		4 x USB 2.0	4 x USB 2.0, 1 x USB 3.0	6 x USB 2.0
SIM Card Slot			Yes	N/A	N/A
Display			1 x VGA 1 x HDMI 1 x LVDS	1 x VGA 1 x HDMI 1 x LVDS	1 x VGA 1 x DisplayPort 1 x LVDS
Ethernet			2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Audio			HD Codec	HD Codec	HD Codec
Hardware Monitoring			Yes	Yes	Yes
SMBus			Yes	Yes	Yes
Expansion Interface			2 x PCI Express Mini Card	1 x PCI Express Mini Card 1 x PCI Express Mini Card (USB only) 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			-40°C ~ +80°C (-40°F ~ +176°F)	-20°C ~ +70°C (-4°F ~ +158°F)	0°C ~ +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)



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Features/Models		CAPA830	CAPA112	CAPA111
Form Factor		3.5" Capa	3.5" Capa	3.5" Capa
CPU Level		Intel® Atom™ D2550/N2600/N2800	AMD G-Series APU T40E/T16R	AMD G-Series APU T40E/T40R
CPU Socket		Onboard	Onboard	Onboard
Core Logic Chipset		Intel® NM10	AMD A55E	AMD A50M
Memory Type		DDR3-800/1066	DDR3-1066	DDR3-1066
Max. DRAM Capacity		4 GB	4 GB	4 GB
Cache RAM Capacity		Integrated in CPU	Integrated in CPU	Integrated in APU
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		1 x CFast™	1 x CFast™	1 x CompactFlash™
Onboard Digital I/O		8-IN/OUT	8 IN/OUT	8-IN/OUT
I/O	SATA	1 x SATA-300	1 x SATA-600	2 x SATA-600
	Serial	COM 1	RS-232/422/485	RS-232/422/485
		COM 2	RS-232	RS-232
		COM 3	N/A	RS-232
		COM 4	N/A	RS-232
	USB	6 x USB 2.0	6 x USB 2.0	6 x USB 2.0
SIM Card Slot		N/A	Yes	N/A
Display		1 x VGA 1 x HDMI 1 x LVDS	1 x VGA 1 x LVDS	1 x VGA 1 x LVDS
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
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 USB, 1 x PCIe x1, 1 x LPC, 1 x SMBus (through ZIO connector)	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		-20°C ~ +70°C (-4°F ~ +158°F)	-40°C ~ +70°C (-40°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	N/A

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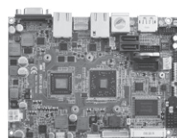
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3.5" Capa Boards

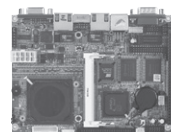
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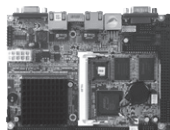


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Features/Models		CAPA110	SBC84622	SBC84621
Form Factor		3.5" Capa	3.5" Capa	3.5" Capa
CPU Level		AMD G-Series APU T56N	AMD LX800	AMD LX800
CPU Socket		Onboard	Onboard	Onboard
Core Logic Chipset		AMD A50M	AMD CS5536AD	AMD CS5536AD
Memory Type		DDR3-1333	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 & 8-OUT	8-IN & 8-OUT
I/O	SATA	2 x SATA-600	N/A	N/A
	Serial	COM 1	RS-232	RS-232/422/485
		COM 2	RS-232	RS-232
		COM 3	RS-232	RS-232
		COM 4	RS-232	RS-232
	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
Display		1 x VGA 1 x LVDS 1 x DisplayPort	1 x VGA 1 x LVDS/TTL	1 x VGA 1 x LVDS
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100Mbps Ethernet	2 x 10/100Mbps Ethernet
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°C ~ +70°C (-13°F~ 158°F)	-40°C ~ +85°C (-40°F~ 185°F) -25°C ~ +70°C (-13°F~ 158°F)



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Features\Models			SBC84620
Form Factor			3.5" Capa
CPU Level			AMD LX800
CPU Socket			Onboard
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	SATA		N/A
	Serial	COM 1	RS-232/422/485
		COM 2	RS-232
		COM 3	RS-232
		COM 4	RS-232
	USB		4 x USB 2.0
SIM Card Slot			N/A
Display			1 x VGA 1 x TTL
Ethernet			2 x 10/100Mbps Ethernet
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°C ~ +85°C (-40°F~ 185°F) -25°C ~ +70°C (-13°F~ 158°F)

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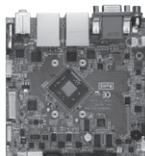
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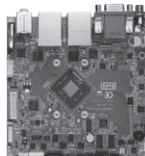


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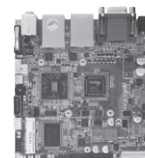
Features/Models			NANO842	NANO840	NANO831
Form Factor			Nano-ITX	Nano-ITX	Nano-ITX
CPU Level			Intel® Celeron® J1900/N2807	Intel® Atom™ E3845/E3827	Intel® Atom™ N2600
CPU Socket			Onboard	Onboard	Onboard
Core Logic Chipset			SoC integrated	SoC integrated	Intel® NM10
Memory Type			DDR3L-1333	DDR3L-1066/1333	DDR3-800
Max. DRAM Capacity			8 GB	8 GB	2 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	1 x CFast™
Onboard Digital I/O			8-IN/OUT	8-IN/OUT	8-IN/OUT
I/O	SATA		1 x SATA-300	1 x SATA-300	1 x SATA-300
	Serial	COM 1	RS-232/422/485	RS-232/422/485	RS-232/422/485
		COM 2	RS-232	RS-232	RS-232
	USB		5 x USB 2.0, 1 x USB 3.0	5 x USB 2.0, 1 x USB 3.0	6 x USB 2.0
SIM Card Slot			N/A	N/A	N/A
Display			1 x VGA 1 x HDMI 1 x LVDS	1 x VGA 1 x HDMI 1 x LVDS	1 x VGA 1 x LVDS
Ethernet			2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Audio			HD Codec	HD Codec	HD Codec
Hardware Monitoring			Yes	Yes	Yes
SMBus			Yes	Yes	Yes
Expansion Interface			2 x PCI Express Mini Card	2 x PCI Express Mini Card	1 x PCI Express Mini Card
Power Management			ACPI	ACPI	ACPI
Battery			Lithium	Lithium	Lithium
Operating Temperature			-20°C ~ +70°C (-4°F~ 158°F)	-40°C ~ +80°C (-40°F~ 176°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



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Features/Models		NANO830	NANO100	NANO101
Form Factor		Nano-ITX	Nano-ITX	Nano-ITX
CPU Level		Intel® Atom™ D2550	AMD G-Series APU T56N	AMD G-Series APU T40E/T40R
CPU Socket		Onboard	Onboard	Onboard
Core Logic Chipset		Intel® NM10	AMD A50M	AMD A50M
Memory Type		DDR3-1066	DDR3-1333	DDR3-1066
Max. DRAM Capacity		4 GB	4 GB	4 GB
Cache RAM Capacity		Integrated in CPU	Integrated in APU	Integrated in APU
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		1 x CFast™	1 x CFast™	1 x CFast™
Onboard Digital I/O		8-IN/OUT	8-IN/OUT	8-IN/OUT
I/O	SATA	1 x SATA-300	1 x SATA-600	1 x SATA-600
	Serial	COM 1	RS-232/422/485	RS-232/422/485
		COM 2	RS-232	RS-232
	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
Display		1 x VGA 1 x DisplayPort 1 x LVDS	1 x VGA 1 x DisplayPort 1 x LVDS	1 x VGA 1 x LVDS
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
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		-20°C ~ +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
EMI Compliance		CE	CE	CE
Wide Temperature		N/A	N/A	N/A

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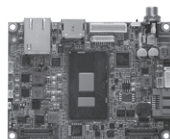
Accessories

Appendix

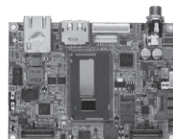


Pico-ITX SBC

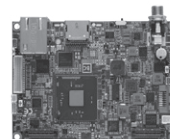
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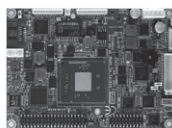


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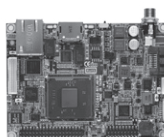


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Features/Models			PICO500	PICO880	PICO300
Form Factor			Pico-ITX	Pico-ITX	Pico-ITX
CPU Level			6th Generation Intel® Core™ i7/i5/i3 & Celeron®	5th/4th Generation Intel® Core™ i7/i5/i3 & Celeron®	Intel® Pentium® N3210/Celeron® N3060
CPU Socket			Onboard	Onboard	Onboard
Core Logic Chipset			SoC integrated	SoC integrated	SoC integrated
Memory Type			DDR4-1867	DDR3L-1066/1333	DDR3L-1333
Max. DRAM Capacity			8 GB	8 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	SATA		1 x SATA-600	1 x SATA-600	1 x SATA-600
	Serial	COM 1	N/A	N/A	N/A
		COM 2	N/A	N/A	N/A
	USB		1 x USB 2.0	1 x USB 2.0	1 x USB 2.0
SIM Card Slot			N/A	N/A	N/A
Display			1 x HDMI 1 x LVDS	1 x DisplayPort 1 x LVDS	1 x HDMI or 1 x VGA 1 x LVDS
Ethernet			1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet
Audio			HD Codec	HD Codec	HD Codec
Hardware Monitoring			Yes	Yes	Yes
SMBus			Yes	Yes	Yes
Expansion Interface			1 x Full-Size Mini PCI Express 1 x Mini Card with mSATA supported 1 x PCIe x1, 2 x UART, 1 x DP, 4 x USB 3.0, and 1 x HD audio (through expansion connector)	1 x Full-Size Mini PCI Express 1 x Mini Card with mSATA supported 1 x PCIe x1, 2 x UART, 1 x DP, 4 x USB 3.0, and 1 x HD audio (through expansion connector)	1 x Full-Size Mini PCI Express 1 x Mini Card with mSATA supported 1 x PCIe x1, 2 x UART, 1 x DP, 4 x USB 3.0, 4 x USB 2.0 and 1 x HD audio (through expansion connector)
Power Management			ACPI	ACPI	ACPI
Battery			Lithium	Lithium	Lithium
Operating Temperature			-20°C ~ +70°C (-4°F ~ 158°F)	-20°C ~ +70°C (-4°F ~ 158°F)	-20°C ~ +70°C (-4°F ~ 158°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



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Features/Models	PICO843	PICO842	PICO841
Form Factor	Pico-ITX	Pico-ITX	Pico-ITX
CPU Level	Intel® Celeron® J1900/N2800	Intel® Celeron® J1900/N2800	Intel® Atom™ E3845/E3827
CPU Socket	Onboard	Onboard	Onboard
Core Logic Chipset	SoC integrated	SoC integrated	SoC integrated
Memory Type	DDR3L-1066/1333	DDR3L-1066/1333	DDR3L-1066/1333
Max. DRAM Capacity	8 GB	8 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	SATA	1 x SATA-300	1 x SATA-300
	Serial	COM 1	RS-232/422/485
		COM 2	RS-232/422/485
	USB	4 x USB 2.0	4 x USB 2.0
SIM Card Slot	N/A	N/A	N/A
Display	1 x VGA 1 x LVDS	1 x VGA or 1 x HDMI 1 x LVDS	1 x VGA 1 x LVDS
Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet
Audio	HD Codec	HD Codec	HD Codec
Hardware Monitoring	Yes	Yes	Yes
SMBus	Yes	Yes	Yes
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA supported 1 x Half-size PCI Express Mini Card	1 x Full-size PCI Express Mini Card with mSATA supported	1 x Full-size PCI Express Mini Card with mSATA supported 1 x Half-size PCI Express Mini Card
Power Management	ACPI	ACPI	ACPI
Battery	Lithium	Lithium	Lithium
Operating Temperature	-20°C ~ +70°C (-4°F ~ +158°F)	-20°C ~ +70°C (-4°F ~ +158°F)	-20°C ~ +70°C (-4°F ~ +158°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

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>3.5" CapaEmbedded
SBCs
>Nano-ITX

3

Embedded
SBCs
>Pico-ITXEmbedded
SBCs
>PC/104Industrial
MotherboardsSlot CPU
CardsARM
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Boards

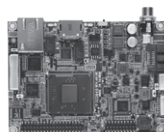
Accessories

Appendix

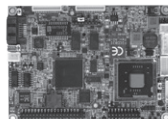


Pico-ITX SBC

Selection Guide



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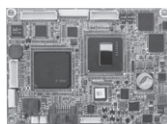


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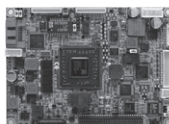


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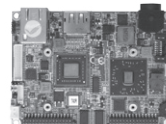
Features/Models			PICO840	PICO831	PICO830
Form Factor			Pico-ITX	Pico-ITX	Pico-ITX
CPU Level			Intel® Atom™ E3845/E3827	Intel® Atom™ N2600/N2800	Intel® Atom™ N2600/N2800
CPU Socket			Onboard	Onboard	Onboard
Core Logic Chipset			SoC integrated	Intel® NM10	Intel® NM10
Memory Type			DDR3L-1066/1333	DDR3-800/1066	DDR3-800/1066
Max. DRAM Capacity			8 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 UEFI BIOS
Watchdog Timer			255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD			N/A	SATA SSD (Optional)	1 x CFast™
Onboard Digital I/O			N/A	N/A	N/A
I/O	SATA		1 x SATA-300	1 x SATA-300	1 x SATA-300
	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
	USB		4 x USB 2.0	4 x USB 2.0	4 x USB 2.0
SIM Card Slot			N/A	Yes	N/A
Display			1 x VGA or 1 x HDMI 1 x LVDS	1 x VGA 1 x LVDS	1 x VGA or 1 x DisplayPort 1 x LVDS
Ethernet			1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet
Audio			HD Codec	HD Codec	HD Codec
Hardware Monitoring			Yes	Yes	Yes
SMBus			Yes	Yes	Yes
Expansion Interface			1 x full-size PCI Express Mini Card with mSATA supported	1 x Full-size PCI Express Mini Card 1 x Half-size PCI Express Mini Card	N/A
Power Management			ACPI	ACPI	ACPI
Battery			Lithium	Lithium	Lithium
Operating Temperature			-40°C ~ +70°C (-40°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
EMI Compliance			CE	CE	CE
Wide Temperature			N/A	N/A	N/A



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Features\Models			PICO822	PICO121	PICO100
Form Factor			Pico-ITX	Pico-ITX	Pico-ITX
CPU Level			Intel® Atom™ E620T/E680T series	AMD Embedded GX-2103A SoC	AMD G-Series APU T40E/T40R
CPU Socket			Onboard	Onboard	Onboard
Core Logic Chipset			Intel® EG20T	SoC integrated	AMD A50M
Memory Type			DDR2-667/800	DDR3/3L-1066/1333	DDR3-1066
Max. DRAM Capacity			1 GB	8 GB	4 GB
Cache RAM Capacity			Integrated in CPU	Integrated in APU	Integrated in APU
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			SATA NANDrive	N/A	1 x CompactFlash™
Onboard Digital I/O			8-IN/OUT	N/A	N/A
I/O	SATA		1 x SATA-300	1 x SATA-600	1 x SATA-600
	Serial	COM 1	RS-232	RS-232/422/485	RS-232
		COM 2	RS-232	RS-232	RS-232
		USB		5 x USB 2.0 (1 client port)	4 x USB 2.0
SIM Card Slot			N/A	N/A	N/A
Display			1 x LVDS	1 x VGA 1 x LVDS	1 x VGA or 1 x DisplayPort 1 x LVDS
Ethernet			1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet	1 x 10/100/1000Mbps Ethernet
Audio			HD Codec	HD Codec	HD Codec
Hardware Monitoring			Yes	Yes	Yes
SMBus			Yes	Yes	Yes
Expansion Interface			1 x SDVO, 1 x PCIe x1, 1 x UART, 1 x SMBus (through board to board connector)	1 x Full-size PCI Express Mini Card with mSATA supported 1 x Half-size PCI Express Mini Card 1 x PCIe x1, 1 x DP, and 2 x USB 3.0 (through expansion connector)	N/A
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	N/A

SBC
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Systems
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>Pico-ITX

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>PC/104

Industrial
Motherboards

Slot CPU
Cards

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Appendix





PC/104 CPU Modules

Selection Guide

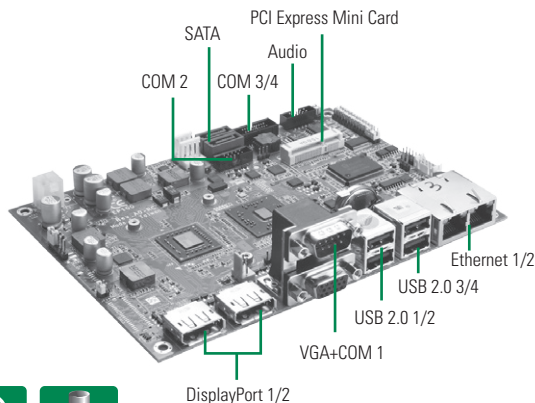


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Features\Models			AX12260
Form Factor			PC/104
CPU Level			AMD LX800
CPU Socket			Onboard
CPU FSB Frequency			N/A
Core Logic Chipset			AMD CS5536AD
Memory Type			DDR-333/400
Max. DRAM Capacity			1 GB
Cache RAM Capacity			Integrated in CPU
BIOS			Phoenix-Award
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		
Display			1 x VGA 1 x TTL
Ethernet			1 x 10/100Mbps Ethernet
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°C ~ +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



System

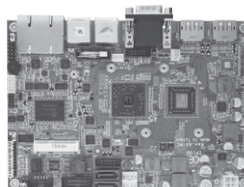
CPU	AMD G-Series APU T40R 1.0 GHz single core or T56N 1.65 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1066/1333 max. up to 4 GB
Chipset	AMD A50M FCH
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card 1 x PCI 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, 1 GB DDR3 Max. RMS: +12V @ 1.74A AMD G-Series APU T40R @ 1.0 GHz, 1 GB 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

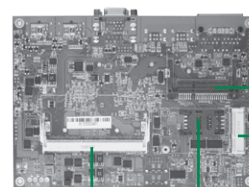
MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 3 x RS-232 (COM 2/3/4); with +5V/+12V powered
SATA	2 x SATA-600
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec 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)
- 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



▲ 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=300 mm	1
59384500100E	Audio cable w/ bracket P=2.0 mm, L=450 mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180 mm	1

Optional

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

Ordering Information

Standard

EP100VPGA-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 GbE LAN and audio
EP100VLGA-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 GbE LAN and audio

SBC Services and Solutions

Systems on Modules

3

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

ARM Embedded Boards

Accessories

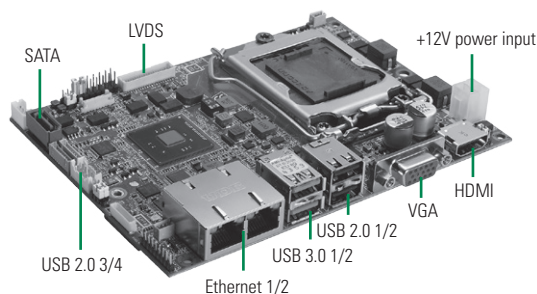
Appendix



CAPA880

LGA1150 4th Generation Intel® Core™ i7/i5/i3 Processor 3.5" Embedded SBC with LVDS/VGA/HDMI, 2 GE & Audio

NEW



System

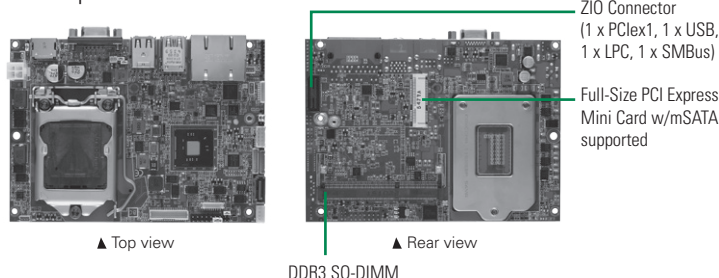
CPU	LGA1150 for 4th generation Intel® Core™ i7/i5/i3 processor
System Memory	1 x 204-pin DDR3-1600 SO-DIMM max. up to 8 GB
Chipset	Intel® H81
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA 1 x USB, 1 x PCIe x1, 1 x LPC, 1 x SMBus through a ZIO connector
Battery Lithium	Lithium 3V/220mAH
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power On function supported
Power Requirements	TBD
Size	146 x 104 mm
Board Thickness	1.6 mm
Temperature	-20 ~ +60°C (-4°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485; with +5V/+12V powered
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	1 port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i211AT 1 port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i218LM
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662
USB	2 x USB 3.0 4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmed

Features

- LGA1150 4th generation Intel® Core™ i7/i5/i3 processor
- Intel® H81 chipset
- 1 DDR3 SO-DIMM supports up to 8 GB memory capacity
- 2 USB 3.0 and 4 USB 2.0 ports
- 1 COM port



Display

Chipset	Intel® integrated Gfx graphic engine
Memory Size	Share System memory
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 2 x HDMI

Packing List

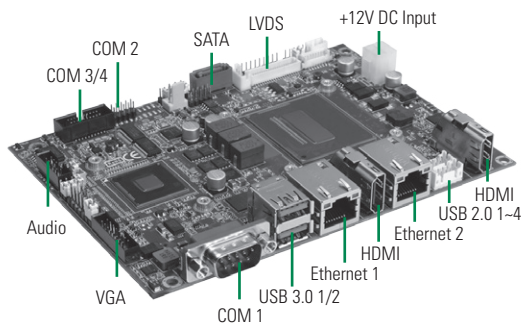
Standard
Quick installation guide, User's Manual/Utility CD and cable

Ordering Information

Standard	
CAPA880VHGA-H81	3.5" embedded SBC with LGA1150, 4th generation Intel® Core™ i7/i5/i3 processor Intel® H81 chipset, VGA/LVDS/HDMI, 2 GbE, audio and gift box

CAPA881

4th/5th Generation Intel® Core™ i7/i5/i3 & Celeron® processor 3.5" Embedded SBC with Intel® HM86 (Intel® QM87 optional) LVDS/VGA/Dual HDMI, Dual LANs & Audio



System

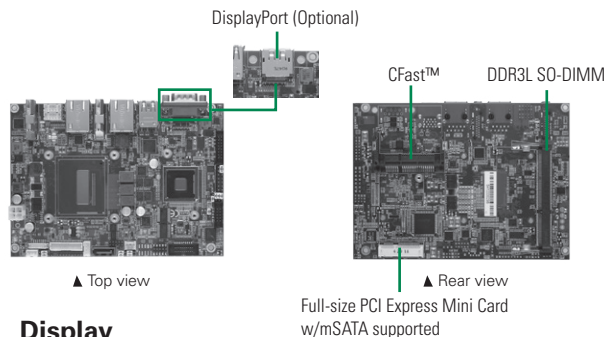
CPU	4th/5th generation Intel® Core™ i7/i5/i3 & Celeron® processor (Haswell/Haswell Refresh/Broadwell)
System Memory	1 x 204-pin DDR3L-1600 SO-DIMM max. up to 8 GB
Chipset	Intel® HM86 Intel® QM87 (optional)
BIOS	AMI
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size mini PCI Express Mini Card with mSATA
Battery Lithium	Lithium 3V/220mAh
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power On function supported
Power Requirements	4th Intel® Core™ i7-4700EQ @ 2.4 GHz+HM86 2GB DDR3L Max. RMS: +12V @ 3.9A 4th Intel® Core™ i5-4402E @ 1.6 GHz+HM86 2GB DDR3L Max. RMS: +12V @ 2.7A 4th Intel® Core™ i3-4100E @ 2.4 GHz+HM86 2GB DDR3L Max. RMS: +12V @ 2.9A
Size	146 x 104 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +70°C (-4°F ~ 158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	2 x RS-232/422/485 (COM1/2); with +5V/+12V powered 2 x RS-232 (COM3/4)
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	1 port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i210AT 1 port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i217LM
Audio	HD Codec audio as MIC-in/Line-in/Line-out/Speaker out with Realtek ALC662
USB	2 x USB 3.0 4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmed

Features

- 4th/5th generation Intel® Core™ i7/i5/i3 & Celeron® processor (Haswell/Haswell Refresh/Broadwell)
- Intel® HM86 chipset (Intel® QM87 optional)
- 1 DDR3L SO-DIMM supports up to 8 GB memory capacity
- 2 USB 3.0 and 4 USB 2.0 ports
- 4 COM ports
- Intel® AMT 9.0 supported (optional)
- Triple view supported (optional)



Display

Chipset	Intel® integrated Gfx graphic engine
Memory Size	Share System memory
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 2 x HDMI 1 x DisplayPort (Optional)

Packing List

Standard

Quick installation guide, User's Manual/Utility CD and cable

Cable

Part Number	Description	Qty
59401322100E	COM 2 cable 5x2P P=2.0 mm, L=190 mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket L=180 mm	1
59384500100E	Audio cable w/ bracket P=2.45 mm	1

Ordering Information

Standard

CAPA881VHGA-i7 4700EQ (P/N: E38E881100)	3.5" embedded SBC with 4th generation Intel® Core™ i7-4700EQ processor 2.4 GHz, Intel® HM86 chipset, VGA/LVDS/HDMI, 2 GbE LAN, audio and gift box
CAPA881VHGA-i5 4402E (P/N: E38E881102)	3.5" embedded SBC with 4th generation Intel® Core™ i5-4402E processor 1.6 GHz, Intel® HM86 chipset, VGA/LVDS/HDMI, 2 GbE LAN, audio and gift box
CAPA881VHGA-i3 4100E (P/N: E38E881104)	3.5" embedded SBC with 4th generation Intel® Core™ i3-4100E processor 2.4 GHz, Intel® HM86 chipset, VGA/LVDS/HDMI, 2 GbE LAN, audio and gift box

Optional

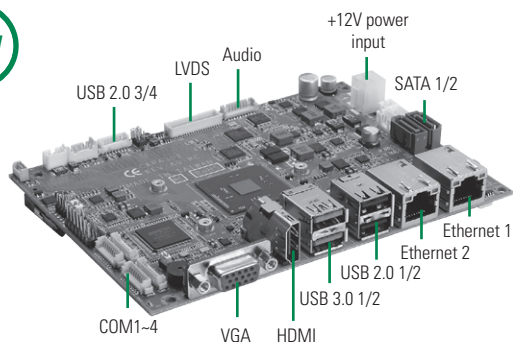
594P8800600E	SATA PWR CABLE 4P to 15P P=2.0 mm, L=200 mm
59403208000E	SATA2 Cable 180D to 180D with lock L=200 mm
594E8812000E	CAPA881 VGA cable D-15<->16P P=2.0 mm, L=120 mm



CAPA301

Intel® Pentium®/Celeron® Processor
N3000 Family 3.5" Embedded SBC with
LVDS/VGA/HDMI, Dual LANs, Audio

NEW



System

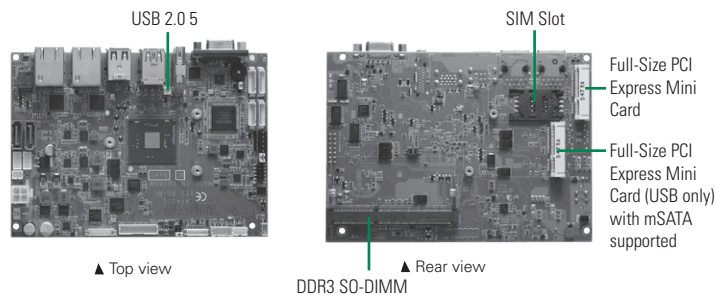
CPU	Intel® Pentium® N3700 and Celeron® N3150 processor
System Memory	1 x 204-pin DDR3L-1066/1333 SO-DIMM max. up to 8GB
Chipset	SoC Integrated
BIOS	AMI
SSD	1 x mSATA
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card 1 x Full-size PCI Express Mini Card (USB only)
Battery Lithium	Lithium 3V/220mAH
Power Input	2 x 2-pin connector +12V DC-in AT Auto Power On function supported
Power Requirements	TBD
Size	146 x 104 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +70°C (-4°F ~ 158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485 3 x RS-232
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 Intel® i211AT
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662
USB	5 x USB 2.0 2 x USB 3.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmed

Features

- Intel® Pentium®/Celeron® processor N3000 Family (Braswell SoC)
- 1 DDR3L SO-DIMM supports up to 8 GB memory capacity
- 5 USB 2.0 ports and 2 USB 3.0 ports
- 4 COM ports
- 2 PCI Express Mini Card



Display

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

Packing List

Standard

Quick installation guide, User's Manual/Utility CD and cable

Cable

Part Number	Description	Qty
	1 x COM w/bracket P=1.25 mm	1
	Audio cable w/bracket P=1,25 mm	1
	1 x USB 2.0 wafer cable	1

Ordering Information

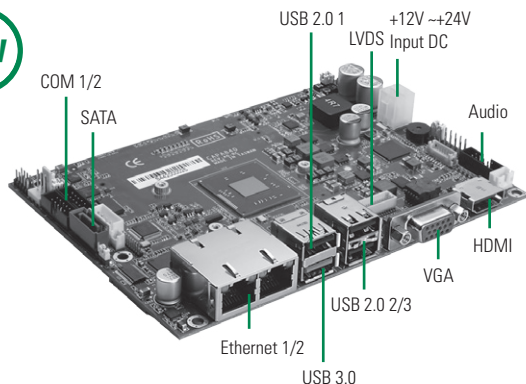
Standard

CAPA301VHGGA-N3700	3.5" embedded SBC with Intel® Pentium® processor N3700 1.6GHz and VGA/LVDS/HDMI, 2 GbE and audio
CAPA301VHGGA-N3150	3.5" embedded SBC with Intel® Celeron® processor N3150 1.6GHz and VGA/LVDS/HDMI, 2 GbE and audio

CAPA843

Intel® Celeron® J1900 3.5" Embedded SBC with LVDS/VGA/HDMI, Dual LANs, Audio and ZIO

NEW



System

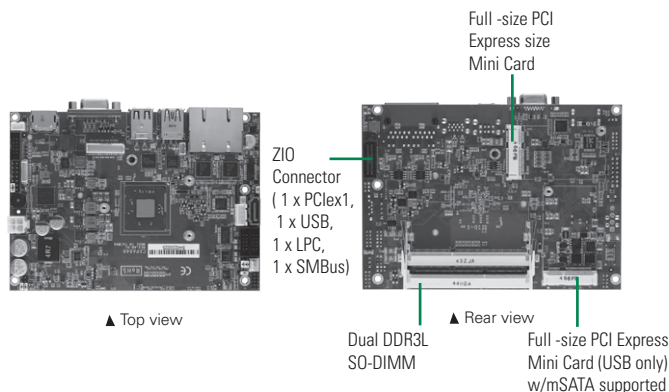
CPU	Intel® Celeron® processor J1900 quad core onboard
System Memory	2 x 204-pin DDR3L-1066/1333 SO-DIMM max. up to 8 GB
Chipset	SoC Integrated
BIOS	AMI
SSD	1 x mSATA
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card 1 x Full-size PCI Express Mini Card (USB only) 1 x USB, 1 x PCIe x1, 1 x LPC, 1 x SMBus through a ZIO connector
Battery Lithium	Lithium 3V/220mAh
Power Input	2 x 2-pin connector +10V~24V DC-in AT Auto Power On function supported
Power Requirements	Intel® Celeron® J1900 @2.0 GHz, 8 GB DDR3L Max. RMS: +24V @ 0.5A
Size	146 x 104 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +70°C (-4°F ~ 158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485; with +5V/+12V powered 1 x RS-232
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 ports 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i211AT
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662
USB	4 x USB 2.0 1 x USB 3.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmed

Features

- Intel® Celeron® processor J1900
- 2 DDR3L SO-DIMM support up to 8 GB memory capacity
- 4 USB 2.0 ports and 1 USB 3.0 port
- 2 COM ports



Display

Chipset	Intel® HD Graphics
Memory Size	Share System memory
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 1 x HDMI

Packing List

Standard		
Quick installation guide, User's Manual/Utility CD and cable		
Accessories		
Part Number	Description	Qty
59382620000E	1 x COM w/bracket P=2.0 mm, L=300 mm	1
59384500100E	Audio cable w/bracket P=2.45 mm	1
594P8802800E	1 x USB 2.0 wafer cable	1

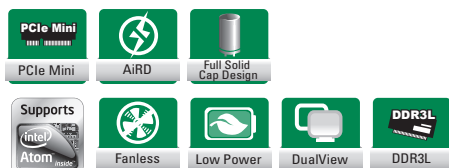
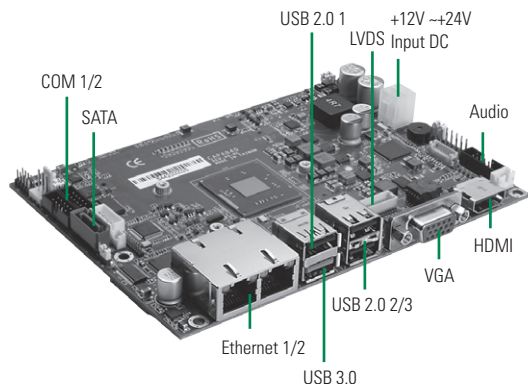
Ordering Information

Standard		
CAPA843VHGGGA-J1900 P/N: E38E843100)	3.5" embedded SBC with Intel® Celeron® processor J1900 (2~2.42 GHz, 2MB Cache, 10W), VGA/LVDS/HDMI, 2 GbE LAN and audio	
Optional		
CAPA843VHGGGA-J1900-ZIO (P/N:E38E843102)	3.5" Embedded SBC with Intel® Celeron® processor J1900 (2~2.42 GHz, 2MB Cache, 10W), VGA/LVDS/HDMI, 2 GbE LAN, audio and ZIO connector	
AX93262 (P/N:E393262100)	ZIO module w/ four COM ports and one PCI Express Mini Card	
AX93285 (P/N:E393285100)	ZIO module w/ two COM ports and 32 bit programmable DIO	
AX93291 (P/N:E393291100)	ZIO module w/two COM ports and two Gigabit Ethernet	



CAPA840

Intel® Atom™ Processor E3845/E3827
3.5" Embedded SBC with LVDS/VGA/
HDMI, Dual LANs, Audio and ZIO



System

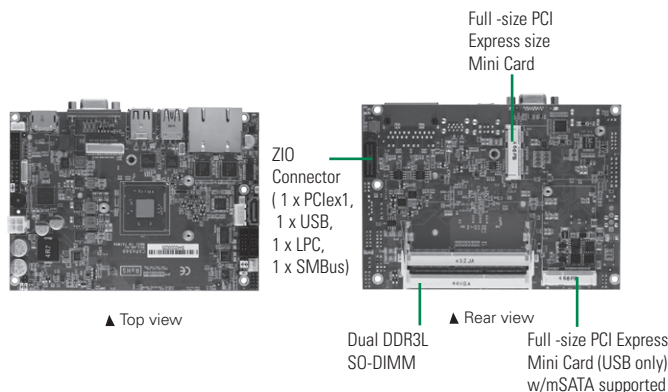
CPU	Intel® Atom™ processor E3845 quad core, E3827 dual core onboard (Bay Trail)
System Memory	2 x 204-pin DDR3L-1066/1333 SO-DIMM max. up to 8 GB
Chipset	SoC Integrated
BIOS	AMI
SSD	1 x mSATA
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card 1 x Full-size PCI Express Mini Card (USB only) 1 x USB, 1 x PCIe x1, 1 x LPC, 1 x SMBus through a ZIO connector
Battery Lithium	Lithium 3V/220mAh
Power Input	2 x 2-pin connector +10V~24V DC-in AT Auto Power On function supported
Power Requirements	Intel® Atom™ E3845 @ 1.91 GHz, 4 GB DDR3L Max. RMS: +24V @ 0.68A Intel® Atom™ E3827 @ 1.75 GHz, 4 GB DDR3L Max. RMS: +24V @ 0.6A
Size	146 x 104 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +70°C (-4°F ~ 158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485; with +5V/+12V powered 1 x RS-232
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 ports 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i211AT
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662
USB	4 x USB 2.0 1 x USB 3.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmed

Features

- Intel® Atom™ processor E3845/E3827
- 2 DDR3L SO-DIMM supports up to 8 GB memory capacity
- 4 USB 2.0 ports and 1 USB 3.0 port
- 2 COM ports



Display

Chipset	Intel® HD Graphics
Memory Size	Share System memory
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 1 x HDMI

Packing List

Standard

Quick installation guide, User's Manual/Utility CD and cable

Accessories

Part Number	Description	Qty
59382620000E	1 x COM w/bracket P=2.0 mm, L=300 mm	1
59384500100E	Audio cable w/bracket P=2.45 mm	1
594P8802800E	1 x USB 2.0 wafer cable	1

Ordering Information

Standard

CAPA840VHGA-E3845 (P/N:E38E840100)	3.5" embedded SBC with Intel® Atom™ processor E3845 (1.91 GHz, 2 MB Cache, 10W), VGA/LVDS/HDMI, 2 GbE LAN and audio
CAPA840VHGA-E3827 (P/N:E38E840101)	3.5" embedded SBC with Intel® Atom™ processor E3827 (1.75 GHz, 1 MB Cache, 8W), VGA/LVDS/HDMI, 2 GbE LAN and audio

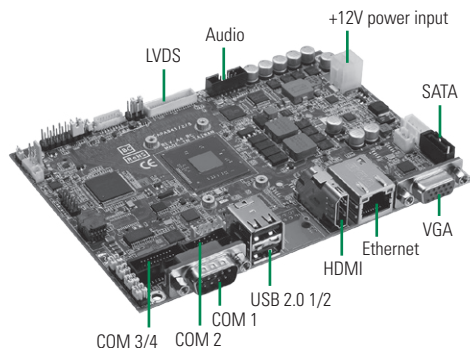
Optional

CAPA840VHGA-E3845-ZIO (P/N:E38E840103)	3.5" embedded SBC with Intel® Atom™ processor E3845 (1.91 GHz, 2 MB Cache, 10W), VGA/LVDS/HDMI, 2 GbE LAN, audio and ZIO connector
CAPA840VHGA-E3827-ZIO (P/N:E38E840104)	3.5" embedded SBC with Intel® Atom™ processor E3827 (1.75 GHz, 1 MB Cache, 8W), VGA/LVDS/HDMI, 2 GbE LAN, audio and ZIO connector
AX93262 (P/N:E393262100)	ZIO module w/ four COM ports and one PCI Express Mini Card
AX93285 (P/N:E393285100)	ZIO module w/ two COM ports and 32 bit programmable DIO
AX93291 (P/N:E393291100)	ZIO module w/two COM ports and two Gigabit Ethernet

CAPA848

Intel® Celeron® Processor N2807
3.5" Embedded SBC with LVDS/VGA/HDMI,
LAN and Audio

NEW



System

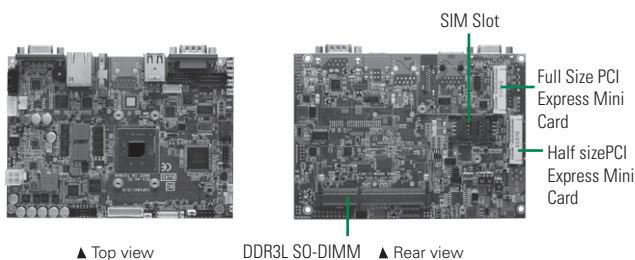
CPU	Intel® Celeron® processor N2807 1.58 GHz dual core onboard (Bay Trail)
System Memory	1 x 204-pin DDR3L-1333 SO-DIMM max. up to 8 GB
Chipset	SoC Integrated
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA 1 x Half-size PCI Express Mini Card 1 x SIM slot
Battery Lithium	Lithium 3V/220mAh
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power On function supported
Power Requirements	Intel® Celeron® N2807 @ 1.58 GHz, 8GB DDR3L Max. RMS. +12V @ 0.64A
Size	146 x 104 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +70°C (-4°F ~ +158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	2 x RS-232/422/485 2 x RS-232
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i211AT
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	8 channels IN/OUT programmed

Features

- Intel® Celeron® processor N2807 (1.58 GHz)
- 1 DDR3L SO-DIMM supports up to 8 GB memory capacity
- 4 USB 2.0 ports
- 4 COM ports
- 2 PCI Express Mini Card and 1 SIM slot
- Gigabit Ethernet port
- Display: LVDS/VGA/HDMI in dual-view



Display

Chipset	Intel® HD Graphics
Memory Size	Share System Memory
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 1 x HDMI

Packing List

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

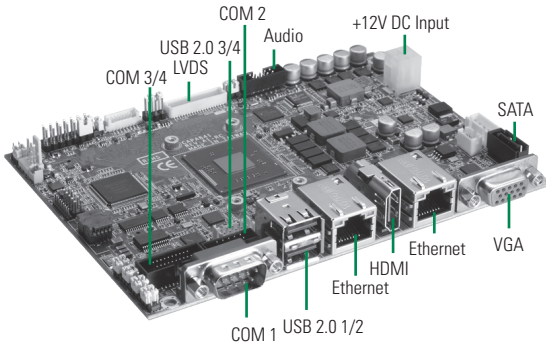
Ordering Information

Standard	
CAPA848VHGA-N2807	3.5" embedded SBC with Intel® Celeron® processor N2807 (P/N: E38E848100)
59382620000E	1 x COM w/ bracket P=2.0 mm, L=300 mm
59384500100E	Audio cable w/ bracket P=2.0 mm, L=450 mm
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180 mm
59380000300E	2 x COM w/bracket P=1.27 x 2.54 L=300 mm



CAPA842

Intel® Celeron® Processor J1900/N2807
3.5" Embedded SBC with LVDS/VGA/HDMI,
Dual LANs and Audio



System

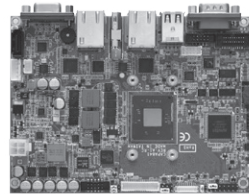
CPU	Intel® Celeron® processor J1900 quad core or N2807 dual core onboard (Bay Trail)
System Memory	1 x 204-pin DDR3L-1333 SO-DIMM max. up to 8 GB
Chipset	SoC Integrated
BIOS	AMI
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA 1 x Half-size PCI Express Mini Card 1 x SIM slot
Battery Lithium	Lithium 3V/220mAh
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power On function supported
Power Requirements	Intel® Celeron® J1900 @ 2 GHz, 8GB DDR3L Max. RMS. +12V @ 1.41A Intel® Celeron® N2807 @ 1.58 GHz, 8GB DDR3L Max. RMS. +12V @ 0.64A
Size	146 x 104 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +70°C (-4°F ~ +158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

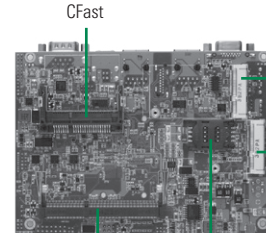
MIO	2 x RS-232/422/485; with +5V/+12V powered 2 x RS-232; with +5V/+12V powered
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 x 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i210AT
Audio	HD Codec audio as MIC-in/Line-in/Line-out/Speaker out with Realtek ALC662
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmed
TPM	ST ST33TPM12LPC with TPM 1.2 compliant

Features

- Intel® Celeron® processor J1900/N2807 (Bay Trail SoC)
- 1 DDR3L SO-DIMM supports up to 8 GB memory capacity
- 4 USB 2.0 ports
- 4 COM ports
- 2 PCI Express Mini Card and 1 SIM slot
- 2 Gigabit Ethernet ports
- Display: LVDS/VGA/HDMI in dual-view



▲ Top view



▲ Rear view

Full-size PCI Express Mini Card w/mSATA supported
Half-size PCI Express Mini Card

Display

Chipset	Intel® HD Graphics
Memory Size	Share System Memory
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 1 x HDMI

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=300 mm	1
59384500100E	Audio cable w/ bracket P=2.0 mm, L=450 mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180 mm	1

Optional

Part Number	Description
5078E841200E	Heatspreader

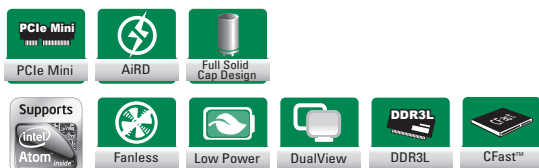
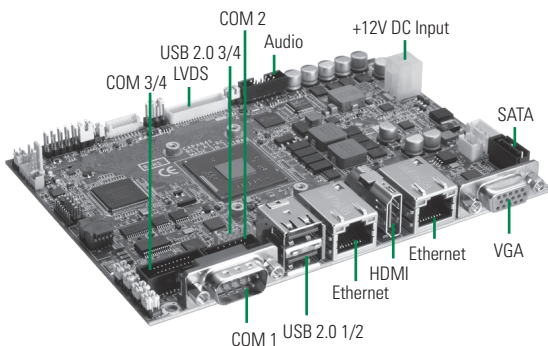
Ordering Information

Standard

CAPA842VHGGGA-J1900 (P/N: E38E842102)	3.5" embedded SBC with Intel® Celeron® processor J1900 (2~2.42 GHz, 2 MB Cache, 10W), VGA/LVDS/HDMI, 2 GbE Ethernet and audio
CAPA842VHGGGA-N2807 (P/N: E38E842100)	3.5" embedded SBC with Intel® Celeron® processor N2807 (1.58~2.16 GHz, 1 MB Cache, 4.3W), VGA/LVDS/HDMI, 2 GbE Ethernet and audio

CAPA841

Intel® Atom™ Processor E3845/E3827
3.5" Embedded SBC with LVDS/VGA/HDMI,
Dual LANs and Audio



System

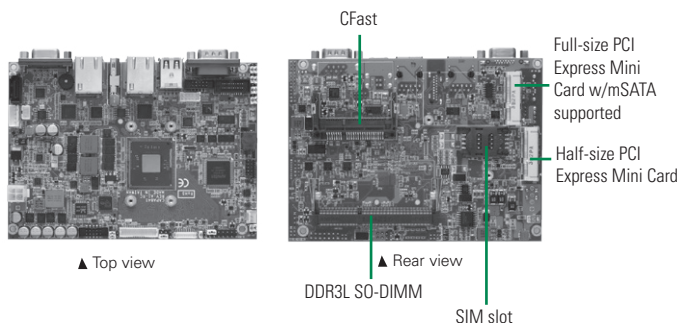
CPU	Intel® Atom™ processor E3845 quad core or E3827 dual core onboard (Bay Trail)
System Memory	1 x 204-pin DDR3L-1066/1333 SO-DIMM max. up to 8 GB
Chipset	SoC Integrated
BIOS	AMI
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA 1 x Half-size PCI Express Mini Card 1 x SIM slot
Battery Lithium	Lithium 3V/220mAH
Power Input	2 x 2-pin connector +12V DC-in only AT Auto Power On function supported
Power Requirements	Intel® Atom™ E3845 @ 1.91 GHz, 8 GB DDR3L Max. RMS: +12V @ 1.22A Intel® Atom™ E3827 @ 1.75 GHz, 8 GB DDR3L Max. RMS: +12V @ 0.96A
Size	146 x 104 mm
Board Thickness	1.6 mm
Temperature	-40°C ~ +80°C (-40°F ~ +176°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	2 x RS-232/422/485; with +5V/+12V powered 2 x RS-232; with +5V/+12V powered
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 x 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i210IT
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	8 channels IN/OUT programmed
TPM	ST ST33TPM12LPC with TPM 1.2 compliant

Features

- Intel® Atom™ processor E3845/E3827 (Bay Trail SoC)
- 1 DDR3L SO-DIMM supports up to 8 GB memory capacity
- 4 USB 2.0 ports
- 4 COM ports
- 2 PCI Express Mini Card and 1 SIM slot
- 2 Gigabit Ethernet ports
- Display: LVDS/VGA/HDMI in dual view



Display

Chipset	Intel® HD Graphics
Memory Size	Share System Memory
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 1 x HDMI

Packing List

Standard

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

Cable

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

Optional

Part Number	Description
5078E841200E	Heatspreader

Ordering Information

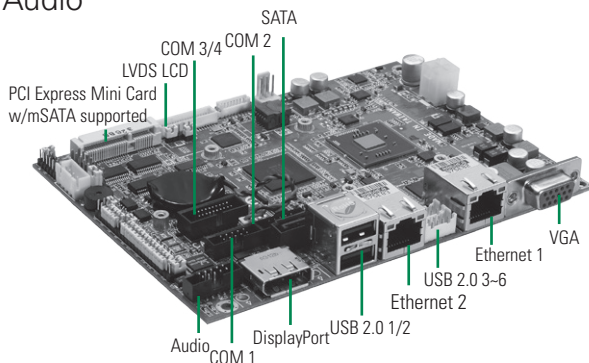
Standard

CAPA841VHGGG-E3845 w/ET (P/N: E38E841109)	3.5" embedded SBC with Intel® Atom™ E3845 (1.91 GHz, 2 MB Cache, 10W), VGA/LVDS/HDMI, 2 GbE LAN and audio
CAPA841VHGGG-E3827 w/ET (P/N: E38E841110)	3.5" embedded SBC with Intel® Atom™ E3827 (1.75 GHz, 1 MB Cache, 8W), VGA/LVDS/HDMI, 2 GbE LAN and audio



CAPA831

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



System

CPU	Intel® Atom™ processor D2550 1.86 GHz, N2800 1.86 GHz, quad core 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 with mSATA
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, 1 GB 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

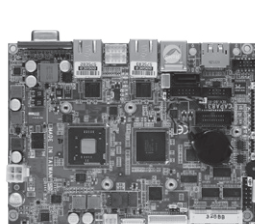
MIO	2 x RS-232/422/485 (COM 1~2); with +5V/+12V powered 2 x RS-232 (COM 3~4); with +5V/+12V powered
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000 Mbps support Wake-on-LAN, PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio 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	ST 33TPM12LPC with TPM 1.2 compliant

Display

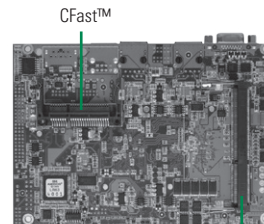
Chipset	Intel® GMA 3650 graphics core for D2550/ N2800 Intel® GMA 3600 graphics core for N2600
Memory Size	Share system memory
Display Interface	1 x VGA 1 x DisplayPort 1 x LVDS; 18/24-bit single/dual channel

Features

- Intel® Atom™ processor D2550 (1.86 GHz)/N2800 (1.86 GHz)/N2600 (1.6 GHz)
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 6 USB 2.0 ports
- 4 COM ports
- Display: LVDS/DisplayPort/VGA
- PCI Express Mini Card with mSATA supported

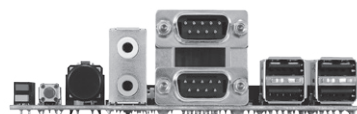


▲ Top view



▲ Rear view

DDR3 SO-DIMM



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=300 mm	1
59384500100E	Audio cable w/ bracket P=2,450 mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180 mm	1

Optional

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

Ordering Information

Standard

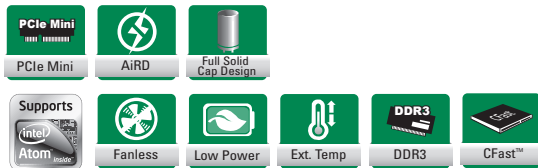
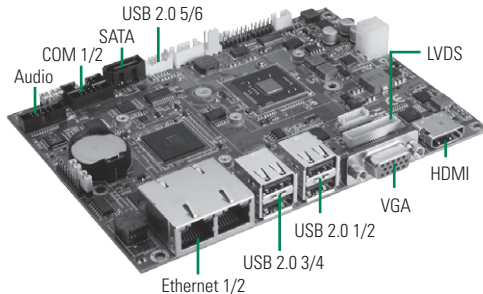
CAPA831VPGGA-N2800 (fanless) (P/N: E38E831103)	3.5" embedded SBC with Intel® Atom™ N2800 1.86 GHz, VGA/DisplayPort/ LVDS, 2 GbE LAN and audio
CAPA831VPGGA-N2600 (fanless) (P/N: E38E831105)	3.5" embedded SBC with Intel® Atom™ N2600 1.6 GHz, VGA/DisplayPort/ LVDS, 2 GbE LAN and audio
CAPA831VPGGA-D2550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

Optional

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

CAPA830

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



System

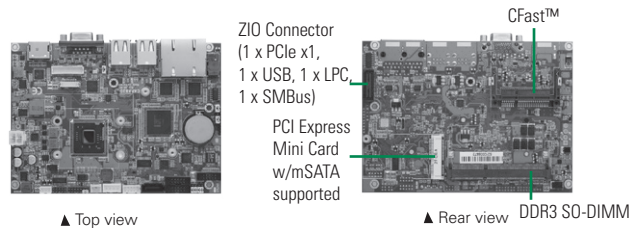
CPU	Intel® Atom™ processor D2550 1.86 GHz/N2800 1.86 GHz/ N2600 1.6 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-800/1066 max. up to 4 GB (N2600 supports DDR3-800 max. up to 2 GB)
Chipset	Intel® NM10
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2 with mSATA 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, 1 GB DDR3 Max. RMS: +12V @ 1.077A Intel® Atom™ N2800 @ 1.86 GHz, 1 GB DDR3 Max. RMS: +12V @ 1.156A Intel® Atom™ D2550 @ 1.86 GHz, 1 GB DDR3 Max. RMS: +12V @ 1.44A
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating Temperature	-20°C ~ +70°C (-4°F ~ +158°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485; with +5V/+12V powered 1 x RS-232; 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, 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
TPM	ST ST33TPM12LPC with TPM 1.2 compliant

Features

- Intel® Atom™ processor D2550 (1.86 GHz)/ N2800 (1.86 GHz)/ N2600 (1.6 GHz)
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 6 USB 2.0 ports
- 2 COM ports
- ZIO connector
- PCI Express Mini Card V1.2 with mSATA supported



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=300 mm	1
59384500100E	Audio cable w/ bracket P=2.0 mm, L=450 mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180 mm	1

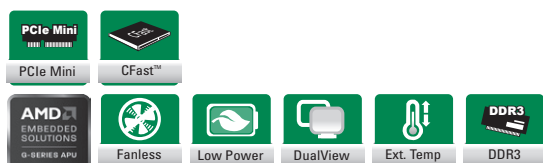
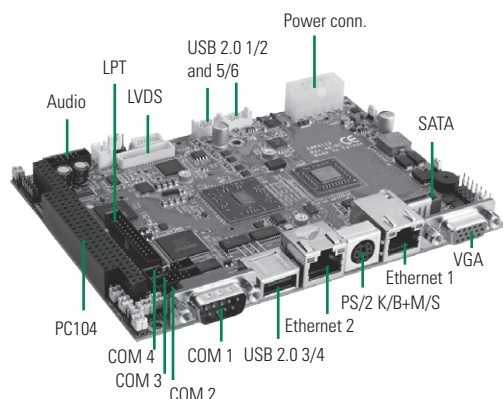
Ordering Information

Standard		
CAPA830VHGGGA-D2550 (P/N: E38E830103)	3.5" embedded SBC with Intel® Atom™ processor D2550 1.86 GHz, Intel® NM10 chipset, VGA/LVDS/HDMI, 2 GbE LAN, audio and heatsink fan	
CAPA830VHGGGA-N2800 (P/N: E38E830102)	3.5" embedded SBC with Intel® Atom™ processor N2800 1.86 GHz, Intel® NM10 chipset, VGA/LVDS/HDMI, 2 GbE LAN and audio	
CAPA830VHGGGA-N2600 (P/N: E38E830101)	3.5" embedded SBC with Intel® Atom™ processor N2600 1.6 GHz, Intel® NM10 chipset, VGA/LVDS/HDMI, 2 GbE LAN and audio	
Optional		
CAPA830VHGGGA-D2550-ZIO (P/N: E38E830106)	3.5" embedded SBC with Intel® Atom™ processor D2550 1.86 GHz, Intel® NM10 chipset, VGA/LVDS/HDMI, 2 GbE LAN, audio, heatsinkfan and ZIO connector	
CAPA830VHGGGA-N2800-ZIO (P/N: E38E830105)	3.5" embedded SBC with Intel® Atom™ processor N2800 1.86 GHz, Intel® NM10 chipset, VGA/LVDS/HDMI, 2 GbE LAN, audio and ZIO connector	
CAPA830VHGGGA-N2600-ZIO (P/N: E38E830104)	3.5" embedded SBC with Intel® Atom™ processor N2600 1.6 GHz, Intel® NM10 chipset, VGA/LVDS/HDMI, 2 GbE LAN, audio and ZIO connector	
CAPA830VHGGGA-N2600 w/ET	3.5" embedded SBC with Intel® Atom™ processor N2600 1.6 GHz, Intel® NM10 chipset, VGA/LVDS/HDMI, 2 GbE LAN, audio and -40°C ~ +85°C	
AX93262 (P/N: E393262100)	ZIO module w/ four COM ports and one PCI Express Mini Card	
AX93285 (P/N: E393285100)	ZIO module w/ two COM ports and 32 bit programmable DIO	
AX93291 (P/N: E393291100)	ZIO module w/ two COM ports and two Gigabit Ethernet	



CAPA112

AMD G-Series APU 3.5" Embedded SBC with AMD A55E, LVDS/VGA, Dual LANs and Audio, Dual LANs, Audio and PC/104



System

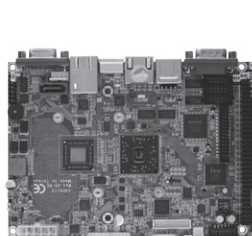
CPU	AMD G-Series APU T16R 615 MHz single core/ T40E 1.0 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1066 max. up to 4 GB
Chipset	AMD A55E
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card 1 x PC/104 for 16-bit 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	AMD G-Series APU T40E @ 1.0 GHz, 1 GB DDR3 Max. RMS: +5VSB @ 4mA, +5V @ 3.92A, +12V @ 40mA
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating Temperature	-40°C ~ +70°C (-40°F ~ 158°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

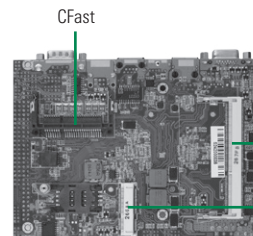
MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x PS/2 keyboard and mouse 1 x LPT; with SPP/EPP/ECP supported
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 port 10/100/1000 Mbps supports Wake-on-LAN, RPL/PXE 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

Features

- AMD G-Series APU T16R (615 MHz)/ 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
- 1 PC/104 for 16-bit ISA Bus



▲ Top view



▲ Rear view

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=2.0 mm, L=300 mm	1
59384500100E	Audio cable w/bracket P=2.0 mm, L=450 mm	1
59382631000E	2 x USB 2.0 wafer cable w/bracket	1
59402010000E	ATX power cable 10P, L=150 mm	1

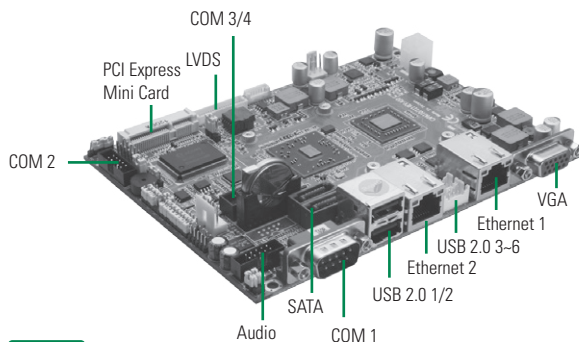
Ordering Information

Standard

CAPA112VGGA-T16R (P/N: E38E112101)	3.5" embedded SBC with AMD G-Series APU T16R 615 MHz and FCH A55E, VGA/LVDS, 2 GbE LAN and audio
CAPA112VGGA-T40E (P/N: E38E112100)	3.5" embedded SBC with AMD G-Series APU T40E 1.0 GHz and FCH A55E, VGA/LVDS, 2 GbE LAN and audio

CAPA111

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



System

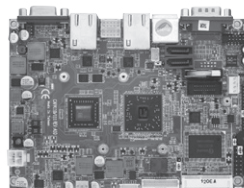
CPU	AMD G-Series APU T40R 1.0 GHz single core and T40E 1.0 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1066 max. up to 4 GB
Chipset	AMD A50M
BIOS	AMI UEFI BIOS
SSD	1 x CompactFlash™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery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

I/O

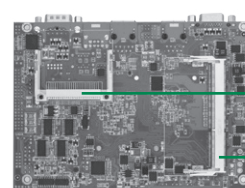
MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 3 x RS-232 (COM 2/3/4); with +5V/+12V powered
SATA	2 x SATA-600
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports 10/100/1000 Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio 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

Features

- AMD G-Series APU T40R (1.0 GHz)/ T40E (1.0 GHz)
- 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

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=2.0 mm, L=300 mm	1
59384500100E	Audio cable w/ bracket P=2.0 mm, L=450 mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180 mm	1

Optional

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

Standard

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

Slot CPU Cards

ARM Embedded Boards

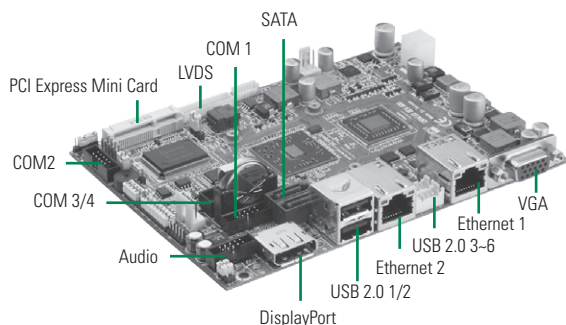
Accessories

Appendix



CAPA110

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



System

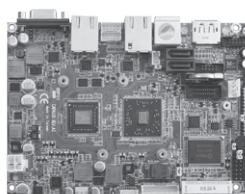
CPU	AMD G-Series APU T56N 1.65 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3 1333 max. up to 4 GB
Chipset	AMD A50M
BIOS	AMI UEFI BIOS
SSD	1 x CompactFlash™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220mAh
Power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

I/O

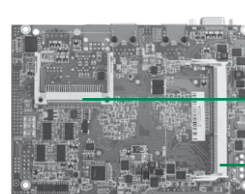
MIO	1 x RS-232/422/485 (COM1); with +5V/+12V powered 3 x RS-232 (COM2/3/4) ; with +5V/+12V powered
SATA	2 x SATA-600
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 port 10/100/1000 Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio 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

Features

- AMD G-Series APU dual core T56N (1.65 GHz)
- 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

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 w/ bracket P=2.0 mm, L=300 mm	1
59384500100E	Audio cable w/ bracket P=2.0 mm, L=450 mm	1
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180 mm	1

Optional

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

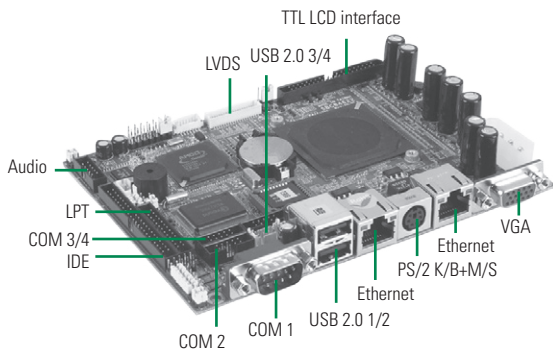
Ordering Information

Standard

CAPA110VPGA-T56N (P/N: E38E110105)	3.5" embedded SBC with AMD G-Series APU T56N 1.65 GHz, VGA/DisplayPort/LVDS, 2 GbE LAN, 2 SATA-600, 4 COM, 6 USB and audio
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SBC84622

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



System

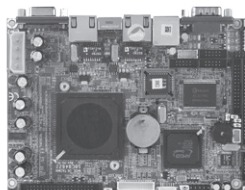
CPU	AMD LX800 processor onboard
System Memory	1 x 200-pin SO-DIMM supports DDR-333/400 max. up to 1 GB
Chipset	AMD CS5536AD
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	N/A
Battery	Lithium 3V/220 mAh
Power Input	1 x 4-pin connector +5V DC-in only (+12V is required for +12V powered COM and LVDS inverter) AT Auto Power On function supported
Power Requirements	AMD LX800 @ 500 MHz, 1 GB DDR Max. RMS: +5V @ 1.544A, +12V @ 33mA
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)
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

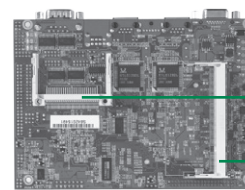
MIO	1 x IDE PATA-100 1 x PS/2 keyboard and mouse 4 x RS-232; with +5V/+12V powered 1 x LPT; with SPP/EPP/ECP supported
SATA	N/A
Hardware Monitoring	Detect CPU/system temperature and voltage
Digital I/O	3 channel IN and 5 channel OUT
Ethernet	2 ports as 10/100Mbps support Wake-on-LAN, RPL/PXE Boot ROM 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

Features

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



▲ Top view



▲ Rear view

Display

Chipset	AMD LX integrated
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=2.0 mm, L=250 mm	1

Ordering Information

Standard

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

* 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

ARM
Embedded
Boards

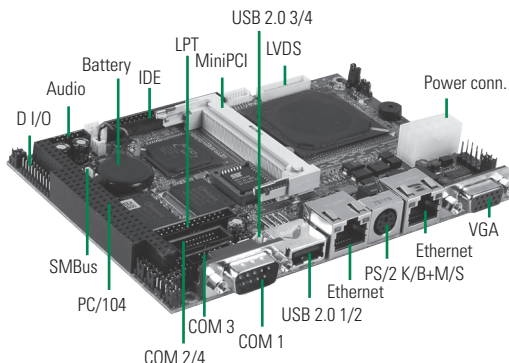
Accessories

Appendix



SBC84621

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



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, 512 MB 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 Temperature	Standard: 0°C ~ +60°C (32°F ~ 140°F) 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

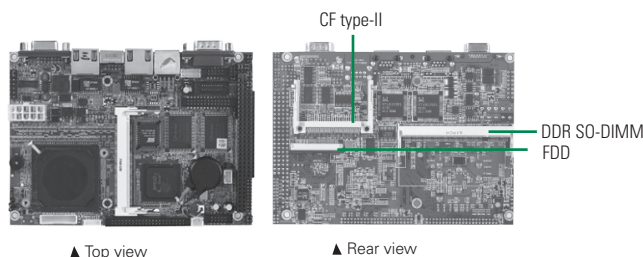
MIO	1 x IDE; PATA-100 1 x FDD (optional) 1 x PS/2 keyboard and mouse 1 x RS-232/422/485 (COM 1); with +5V/+12V powered 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x LPT; with SPP/EPP/ECP supported
SATA	N/A
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 ports as 10/100Mbps 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
- Dual 10/100Mbps Ethernet
- 4 COM ports and 4 USB 2.0 ports
- PC/104 and MiniPCI slots for expansion
- VGA and LVDS LCD



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

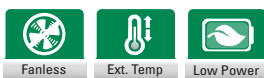
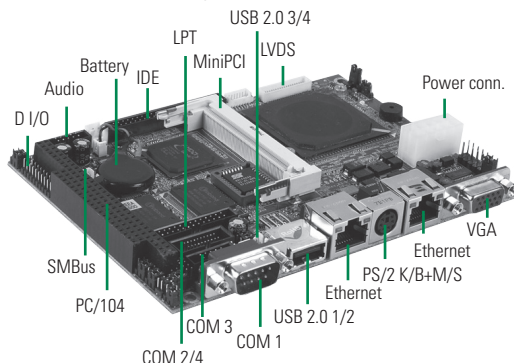
Models	CPU	LCD	LAN	Audio	COM	PC/104	D I/O
SBC84621 VEEA-500 (P/N: E384621100)	LX800 500 MHz	VGA/18-bit LVDS	2	Yes	4	Yes	8-In and 8-Out
SBC84621 VEA-500 (P/N: E384621101)	LX800 500 MHz	VGA/18-bit LVDS	1	Yes	4	Yes	8-In and 8-Out
SBC84621 VEE-500 (P/N: E384621102)	LX800 500 MHz	VGA/18-bit LVDS	2	N/A	2	N/A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

SBC84620

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



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, 1 GB DDR Max. RMS: +5VSB @ 98mA, +5V @ 1.295A, +12V @ 21mA, -12V @ 21mA
Size	146 x 104 mm
Board Thickness	1.6 mm
Operating Temperature	Standard: 0°C ~ +60°C (32°F ~ 140°F) 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

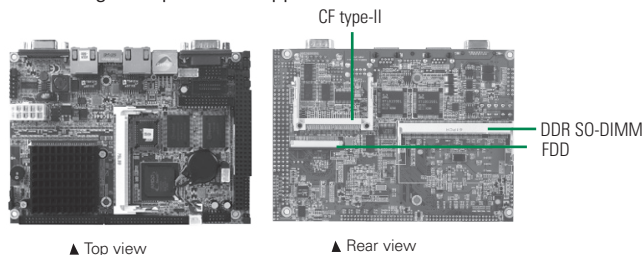
MIO	1 x IDE; PATA-100 1 x FDD 1 x PS/2 keyboard and mouse 1 x RS-232/422/485 (COM 1); with +5V/+12V powered 3 x RS-232 (COM 2/3/4); with +5V/+12V powered 1 x LPT; with SPP/EPP/ECP supported
SATA	N/A
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 ports as 10/100Mbps support Wake-on-LAN, 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 integrated
Memory Size	Max. up to 254 MB
Display Interface	1 x VGA 1 x TTL LCD; max. up to 24-bit

Features

- Low power fanless AMD LX800 processor
- 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
- Wide range temperature support



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	LAN	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	LAN	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

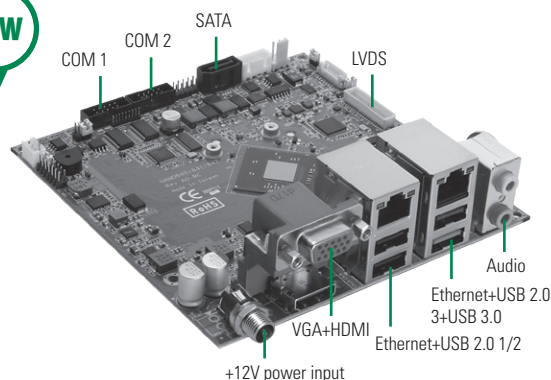
* W.T.: Wide Temperature



NANO842

Intel® Celeron® Processor J1900/N2807
Nano-TX SBC with LVDS/VGA/HDMI,
Dual LANs and Audio

NEW



System

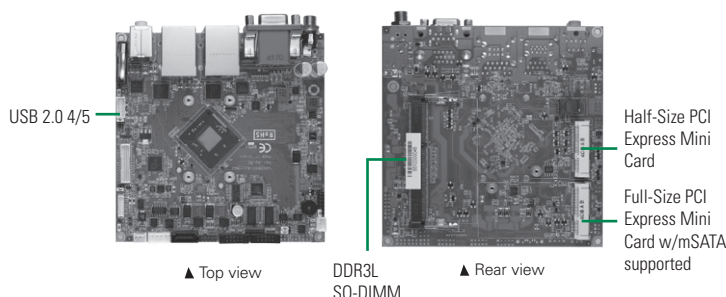
CPU	Intel® Celeron® Processor J1900, N2807
System Memory	1 x 204-pin DDR3L-1066/1333 SO-DIMM max. up to 8 GB
Chipset	SoC integrated
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA 1 x Half-size PCI Express Mini Card
Battery Lithium	Lithium 3V/220mAh
Power Input	DC power jackconnector +12V DC-in AT Auto Power On function supported
Power Requirements	Intel® Celeron® J1900 @ 2 GHz 8 GB DDR3L Max. RMS: +12V @0.9A Intel® Celeron® N2807 @ 1.58 GHz 8 GB DDR3L Max. RMS: +12V @0.7A
Size	120 x 120 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +70°C (-4°F ~ 158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485; with +5V/+12V powered 1 x RS-232
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 ports 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i211AT
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	5 x USB 2.0 1 x USB 3.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmed
TPM	ST ST33TPM12LPC with TPM 1.2 compliant

Features

- Intel® Celeron® Processor J1900/N2807 (Bay Trail SoC)
- 1 DDR3L SO-DIMM supports up to 8GB memory capacity
- 5 USB 2.0 ports and 1 USB 3.0 port
- 2 COM ports
- 2 PCI Express Mini Cards



Display

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

Packing List

Standard		
Quick installation guide, User's Manual/Utility CD and cable		
Cable		
Part Number	Description	Qty
59382620000E	1 x COM cable w/ bracket P=2.0mm L=300mm	1
Optional		
50966124030E	ADAPTER 12V60W FSP060-DIBAN2 W/SCREW	

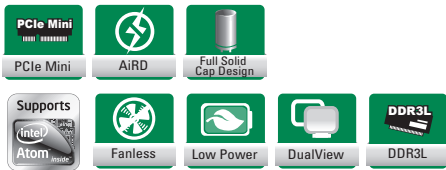
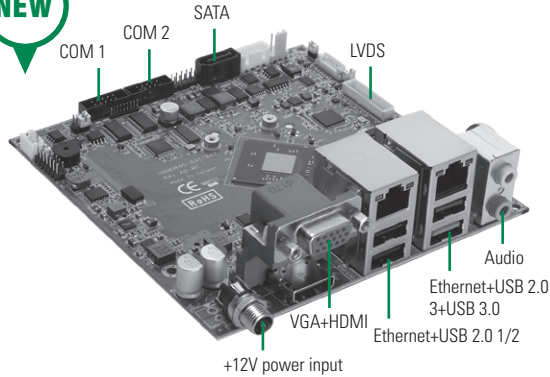
Ordering Information

Standard		
NANO842VHGA-J1900 (P/N: E38K842100)	Nano-ITX SBC with Intel® Celeron® processor J1900 (2 GHz-2.4 GHz, 2 MB Cache, 10W), VGA/LVDS/HDMI, 2 Gigabit LANs, and audio	
NANO842VHGA-N2807 (P/N: E38K842101)	Nano-ITX SBC with Intel® Celeron® processor N2807 (1.58 GHz-2.16 GHz, 1 MB Cache, 4.3W), VGA/LVDS/HDMI, 2 Gigabit LANs, and audio	

NANO840

Intel® Atom™ Processor E3845/E3827
Nano-ITX SBC with LVDS/VGA/HDMI,
Dual LANs and Audio

NEW



System

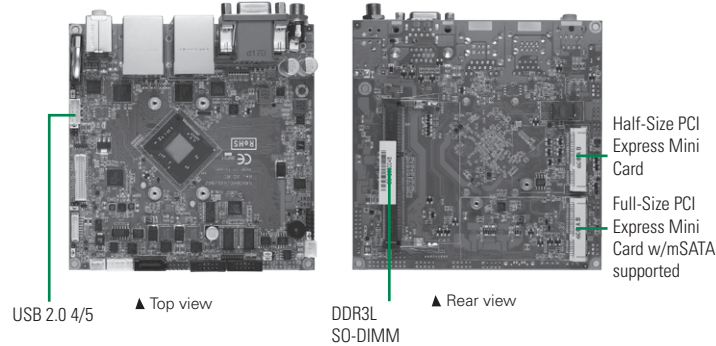
CPU	Intel® Atom™ processor E3845 quad core, E3827 dual core onboard
System Memory	1 x 204-pin DDR3L-1066/1333 SO-DIMM max. up to 8 GB
Chipset	SoC integrated
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA 1 x Half-size PCI Express Mini Card
Battery Lithium	Lithium 3V/220mAh
Power Input	DC power jack connector +12V DC-in AT Auto Power On function supported
Power Requirements	Intel® Atom™ E3845 @1.91 GHz 8 GB DDR3L Max. RMS: +12V @ 0.9A Intel® Atom™ E3827 @1.75 GHz 8 GB DDR3L Max. RMS: +12V @ 0.8A
Size	120 x 120 mm
Board Thickness	1.6 mm
Temperature	-40°C ~ +80°C (-40°F ~ 176°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x RS-232/422/485; with +5V/+12V powered 1 x RS-232
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 ports 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i210IT
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	5 x USB 2.0 1 x USB 3.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels IN/OUT programmed
TPM	ST ST33TPM12LPC with TPM 1.2 compliant

Features

- Intel® Atom™ processor E3845/E3827
- 1 DDR3L SO-DIMM supports up to 8 GB memory capacity
- 5 USB 2.0 ports and 1 USB 3.0 port
- 2 COM ports
- 2 PCI Express Mini Cards



Display

Chipset	Intel® HD Graphics
Memory Size	Share System memory
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel 1 x HDMI

Packing List

Standard		
Quick installation guide, User's Manual/Utility CD and cable		
Cable		
Part Number	Description	Qty
59382620000E	1 x COM cable w/ bracket P=2.0 mm L=300 mm	1
Optional		
50966124030E	ADAPTER 12V60W FSP060-DIBAN2 W/SCREW	

Ordering Information

Standard		
NANO840VHGA-E3845 (P/N: E38K840100)	Nano-ITX SBC with Intel® Atom™ processor E3845 (1.91 GHz, 2 MB Cache, 10W), VGA/LVDS/HDMI, 2 GbE LAN, audio and gift box	
NANO840VHGA-E3827 (P/N: E38K840101)	Nano-ITX SBC with Intel® Atom™ processor E3827 (1.75 GHz, 1 MB Cache, 8W), VGA/LVDS/HDMI, 2 GbE LAN, audio and gift box	

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

3

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Motherboards

Slot CPU
Cards

ARM
Embedded
Boards

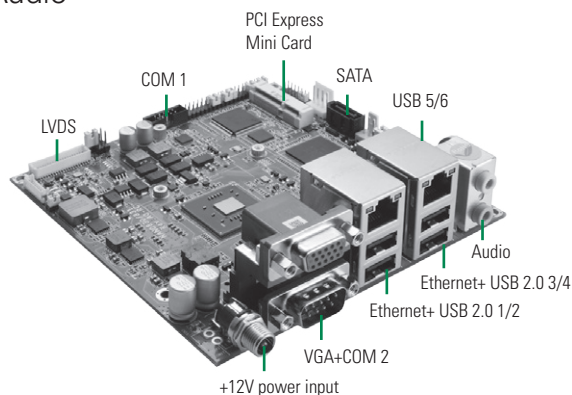
Accessories

Appendix



NANO831

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



System

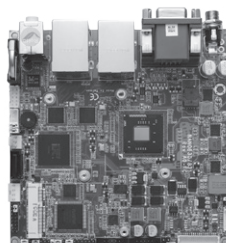
CPU	Intel® Atom™ processor N2600 1.6 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-800 max. up to 2 GB
Chipset	Intel® NM10
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220mAH
Power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

I/O

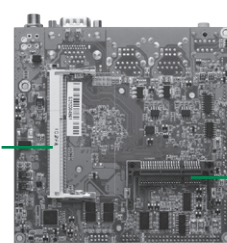
MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 1 x RS-232 (COM 2); with +5V/+12V powered
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000 Mbps support Wake-on-LAN, PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as 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

Features

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



▲ Top view



▲ Rear view



▲ Internal power connector (Optional)



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

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=300 mm	1

Optional

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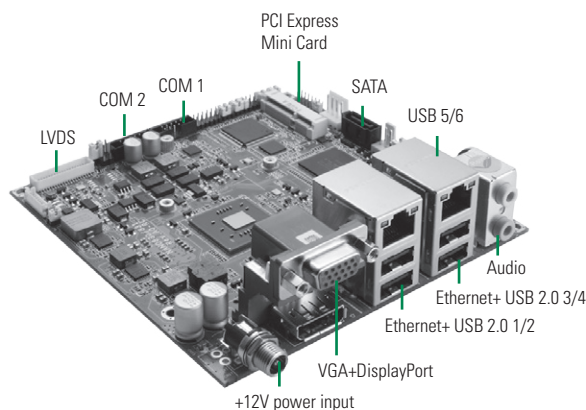
Ordering Information

Standard

NANO831VGGA-N2600 (P/N: E38K831100)	Nano-ITX SBC with Intel® Atom™ processor N2600, VGA/LVDS, 2 GbE LAN, 2 COM, 6 USB, CFast™ and audio
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NANO830

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



System

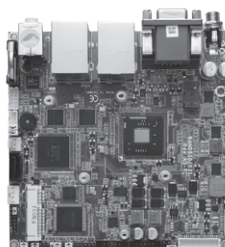
CPU	Intel® Atom™ processor D2550 1.86 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1066 max. up to 4 GB
Chipset	Intel® NM10
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220mAH
Power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

I/O

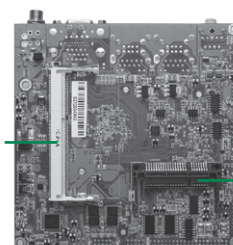
MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 1 x RS-232 (COM 2); with +5V/+12V powered
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000 Mbps support Wake-on-LAN, PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as 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

Features

- Intel® Atom™ processor D2550 (1.86 GHz)
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 6 USB 2.0 ports
- 2 COM ports
- Supports CFast™, PCI Express Mini Card
- Display: LVDS/DisplayPort/VGA



▲ Top view



▲ Rear view



▲ Internal power connector (Optional)



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

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=300 mm	1

Optional

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

Ordering Information

Standard

NANO830VPGA-D2550 (heatsink fan included) (P/N: E38K830100)	Nano-ITX SBC with Intel® Atom™ processor D2550 1.86 GHz, VGA/DisplayPort/LVDS, 2 GbE LAN, 2 COM, 6 USB, CFast™ and audio
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SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

3

Embedded SBCs >Nano-ITX

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

ARM Embedded Boards

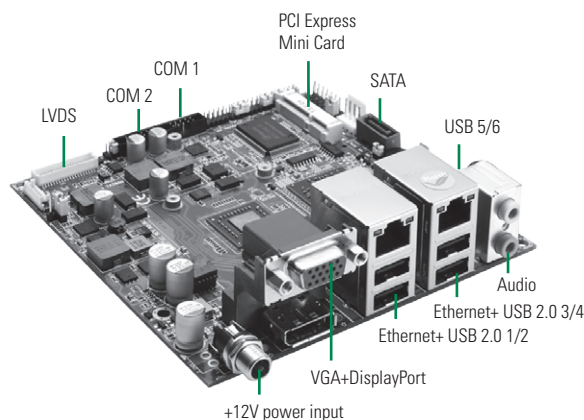
Accessories

Appendix



NANO100

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



System

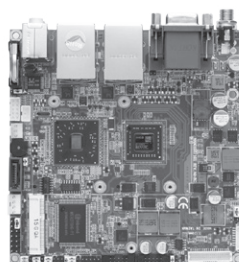
CPU	AMD G-Series APU T56N 1.65 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1333 max. up to 4 GB
Chipset	AMD A50M FCH
BIOS	AMI UEFI BIOS
SSD	1 x CFAST™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	Lithium 3V/220mAH
Power Input	DC power jack connector +12V DC-in only AT Auto Power ON function supported
Power Requirement	AMD G-Series APU T56N @1.65 GHz, 1 GB DDR3 Max. RMS: +12V @ 1.65A
Size	120 x 120mm
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

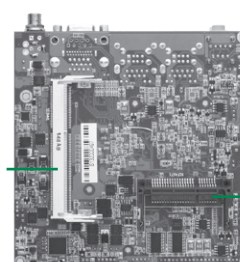
MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 1 x RS-232 (COM 2); with +5V/+12V powered
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio 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

Features

- AMD G-Series APU T56N (1.65 GHz)
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 6 USB 2.0 ports
- Supports CFAST™, PCI Express Mini Card
- DirectX 11 supported
- Display: LVDS/DisplayPort/VGA

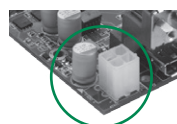


▲ Top view



▲ Rear view

DDR3 SO-DIMM CFAST™



▲ Internal power connector (Optional)

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=300 mm	1

Optional

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

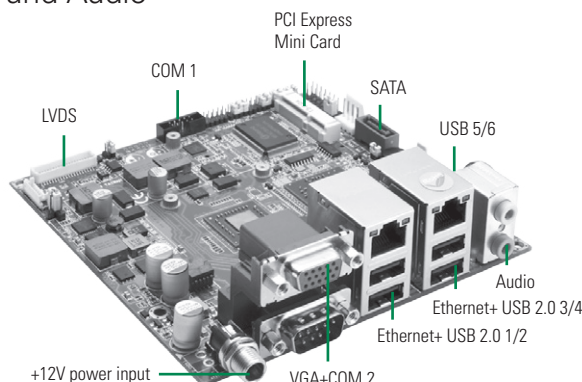
Ordering Information

Standard

NANO100VPGA-T56N (P/N: E38K100100)	Nano-ITX SBC with AMD G-Series APU T56N 1.65 GHz, A50M FCH, VGA/DisplayPort/ LVDS, 2 GbE LAN, 2 COM, 6 USB, CFAST™ and audio
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NANO101

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



System

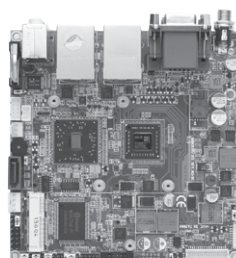
CPU	AMD G-Series APU T40R 1.0 GHz single core or T40E 1.0 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1066 max. up to 4 GB
Chipset	AMD A50M FCH
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI Express Mini Card V1.2
Battery	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, 1 GB DDR3 Max. RMS: +12V @ 1.11A AMD G-Series APU T40R @1.0 GHz, 1 GB DDR3 Max. RMS: +12V @ 1.06A
Size	120 x 120 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

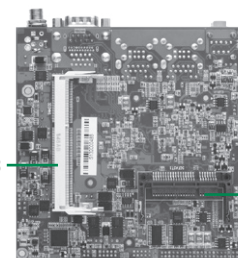
MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V powered 1 x RS-232 (COM 2); with +5V/+12V powered
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	2 ports as 10/100/1000 Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio as MIC-in/Line-out 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

Features

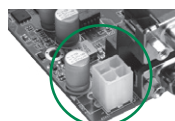
- AMD G-Series APU T40R (1.0 GHz)/ T40E (1.0 GHz)
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 6 USB 2.0 ports
- Supports CFast™, PCI Express Mini Card
- DirectX 11 supported



▲ Top view



▲ Rear view



▲ Internal power connector (Optional)

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 cable w/ bracket P=2.0 mm, L=300 mm	1
Optional		
59382631000E	2 x USB 2.0 wafer cable w/ bracket 180 mm	

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 GbE LAN, 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 GbE LAN, 2 COM, 6 USB, CFast™ and audio

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

3
Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-boards

Slot CPU
Cards

ARM
Embedded
Boards

Accessories

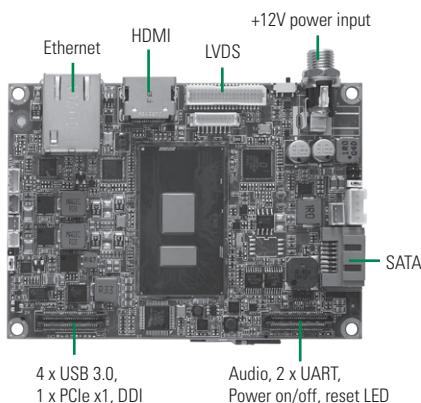
Appendix



PICO500

6th Generation Intel® Core™ i7/i5/i3 and Celeron® Processor Pico-ITX SBC with HDMI/LVDS, 1 GE & Audio

NEW



System

CPU	6th generation Intel® i7/i5/i3 & Celeron® processor onboard (Skylake)
System Memory	1 x 260-pin DDR4-2133 SO-DIMM max. up to 16 GB
Chipset	N/A
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA 1 x PCIe x1, 2 x UART, 1 x DDI, 4 x USB 3.0, and 1 x HD audio (through expansion connector)
Battery Lithium	Lithium 3V/220mAh
Power Input	DC power jack connector +12V DC-in only AT Auto Power On function supported
Power Requirements	TBD
Size	100 x 72 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +70°C (-4°F ~ 158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

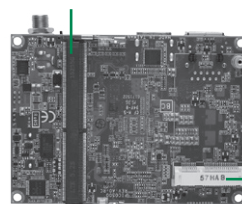
I/O

MIO	N/A
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i219LM
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	1 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	N/A

Features

- 6th generation Intel® Core™ i7/i5/i3 & Celeron® processor (Skylake)
- 1 DDR4 SO-DIMM supports up to 16 GB memory capacity
- 1 USB 2.0 and 1 Gigabit LAN ports
- Intel® AMT 11 supported

DDR4 SO-DIMM



▲ Rear view



Full-Size PCI Express Mini Card w/mSATA supported

Display

Chipset	Intel® HD Graphics
Memory Size	Share System memory
Display Interface	1 x LVDS; 18/24-bit single/dual channel 1 x HDMI

Packing List

Standard

Quick installation guide, User's Manual/Utility CD and accessories

Accessories

Part Number	Description	Qty
	SATA cable	1
	SATA power cable	1
	Heatspreader	1
	Cooler	1

Ordering Information

Standard

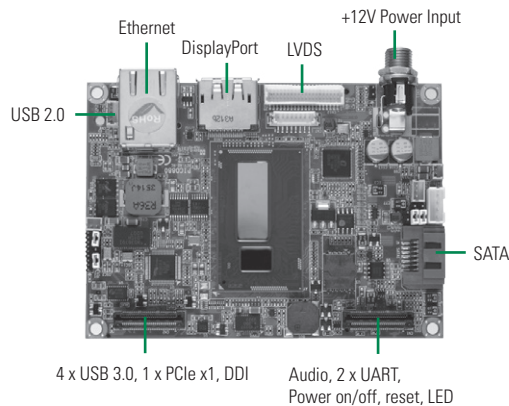
PICO500HGA-i7-6600U	6th generation Intel® Core™ i7-6600U (2.6-3.4 GHz, 4 MB cache, 15W) pico-ITX SBC with HDMI/LVDS, 1 GbE LAN and 1 USB 2.0
PICO500HGA-i3-6100U	6th generation Intel® Core™ i3-6100U (2.3 GHz, 3 MB cache, 15W) pico-ITX SBC with HDMI/LVDS, 1 GbE LAN and 1 USB 2.0

Optional

AX93275 (P/N:E393275100)	I/O board for 1 x RS-232/422/485, 1 x RS-232, 4 x USB 3.0, 1 x VGA, 1 x Audio
AX93276 (P/N:E393276100)	I/O board for 1 x RS-232/422/485, 1 x RS-232, 4 x USB 3.0, 1 x HDMI, 1 x Gigabit LAN

PICO880

4th/5th Generation Intel® Core™ i7/i5/i3 & Celeron® Processor Pico ITX SBC with DP/LVDS, 1 GbE LAN & Audio



System

CPU	4th/5th generation Intel® i7/i5/i3 & Celeron® processor
System Memory	1 x 204-pin DDR3L-1600 SO-DIMM max. up to 8 GB
Chipset	SoC integrated
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA 1 x PCIe x1, 2 x UART, 1 x DDI, 4 x USB 3.0, and 1 x HD audio (through expansion connector)
Battery Lithium	Lithium 3V/220mAh
Power Input	DC power jack connector +12V DC-in only AT Auto Power On function supported
Power Requirements	Intel® Core™ i7-4650U @ 1.7 GHz, 2 GB DDR3L Max. RMS. +12V @ 2.95A Intel® Core™ i5-4300U @ 1.9 GHz, 2 GB DDR3L Max. RMS. +12V @ 2.55A Intel® Core™ i3-4010U @ 1.7 GHz, 2 GB DDR3L Max. RMS. +12V @ 1.84A Intel® Celeron® 2980U @ 1.6 GHz, 2 GB DDR3L Max. RMS. +12V @ 1.75A Intel® Core™ i7-5650U @ 2.2 GHz 8 GB DDR3L Max. RMS. +12V @ 3A Intel® Core™ i5-5350U @ 1.8 GHz 8 GB DDR3L Max. RMS. +12V @ 2.8A Intel® Core™ i3-5010U @ 2.1 GHz 8 GB DDR3L Max. RMS. +12V @ 2A
Size	100 x 72 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +70°C (-4°F ~ 158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

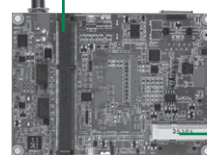
I/O

MIO	N/A
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i218LM
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	1 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	N/A

Features

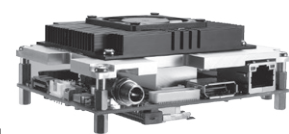
- 4th/5th generation Intel® Core™ i7/i5/i3 & Celeron® processor (Haswell/Broadwell)
- 1 DDR3L SO-DIMM supports up to 8 GB memory capacity
- Intel® AMT 9.5 supported
- 1 full-size PCI Express Mini card with mSATA
- +12V DC-IN
- Optional I/O boards: AX93275 and AX93276

DDR3L SO-DIMM



▲ Rear view

Full-size PCI Express Mini Card w/mSATA supported



▲ Assembly view

Display

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

Packing List

Standard

Quick installation guide, User's Manual/Utility CD and accessories

Accessories

Part Number	Description	Qty
59403208000E	SATA cable	1
594P8800600E	SATA power cable	1
594P8802800E	USB cable	1
59190400500E	Fan cable	1
5078H880010E	Heatspreader for 4th generation Intel® Core™ processor	1
5078H100100E	Heatsink with fan	1
5078H880000E	Heatspreader for 5th generation Intel® Core™ processor	1

Ordering Information

Standard

PICO880PGA-i7-4650U (P/N: E38H880102)	4th generation Intel® Core™ i7-4650U 1.7 GHz Pico-ITX SBC with DP/LVDS, GbE LAN, 1 USB 2.0
PICO880PGA-i5-4300U (P/N: E38H880103)	4th generation Intel® Core™ i5-4300U 1.9 GHz Pico-ITX SBC with DP/LVDS, GbE LAN, 1 USB 2.0
PICO880PGA-i3-4010U (P/N: E38H880100)	4th generation Intel® Core™ i3-4010U 1.7 GHz Pico-ITX SBC with DP/LVDS, GbE LAN, 1 USB 2.0
PICO880PGA-CELERON 2980U (P/N: E38H880104)	4th generation Intel® Celeron® 2980U 1.6 GHz Pico-ITX SBC with DP/LVDS, GbE LAN, 1 USB 2.0
PICO880PGA-i7-5650U (P/N: E38H880110)	5th generation Intel® Core™ i7-5650U 2.2 GHz Pico-ITX SBC with DP/LVDS, GbE LAN, 1 USB 2.0
PICO880PGA-i5-5350U (P/N: E38H880111)	5th generation Intel® Core™ i5-5350U 1.8 GHz Pico-ITX SBC with DP/LVDS, GbE LAN, 1 USB 2.0
PICO880PGA-i3-5010U (P/N: E38H880112)	5th generation Intel® Core™ i3-5010U 2.1 GHz Pico-ITX SBC with DP/LVDS, GbE LAN, 1 USB 2.0

Optional

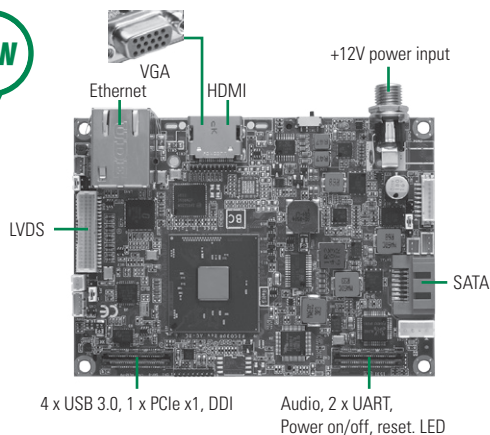
AX93275 (P/N: E393275100)	I/O board for 1 x RS-232/422/485, 1 x RS-232, 4 x USB 3.0, 1 x VGA, 1 x Audio
AX93276 (P/N: E393276100)	I/O board for 1 x RS-232/422/485, 1 x RS-232, 4 x USB 3.0, 1 x HDMI, 1 x GbE LAN

*For more Ordering Information, please visit Axiomtek's website.



PICO300

Intel® Pentium® N3710 & Celeron® N3060 processor Pico-ITX SBC with HDMI (VGA)/LVDS, 1 GE & Audio



System

CPU	Intel® Pentium® N3710 & Celeron® N3060 processor
System Memory	1 x 204-pin DDR3L-1600 SO-DIMM max. up to 8 GB
Chipset	N/A
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA 1 x PCIe x1, 2 x UART, 1 x DP, 4 x USB 3.0 and 1 x HD audio (through expansion connector)
Battery Lithium	Lithium 3V/220mAh
Power Input	DC power jack connector +12V DC-in only AT Auto Power On function supported
Power Requirements	TBD
Size	100 x 72 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +60°C (-4°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

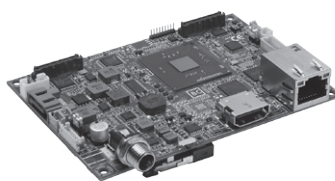
MIO	N/A
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i211AT
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	1 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	N/A

Display

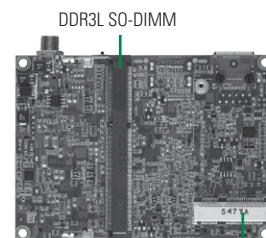
Chipset	Intel® integrated Gfx graphic engine
Memory Size	Share System memory
Display Interface	1 x LVDS; 18/24-bit single/dual channel 1 x HDMI or 1 x VGA

Features

- Intel® Pentium® N3710 & Celeron® N3060 processor (Braswell SoC)
- 1 DDR3L SO-DIMM supports up to 8 GB memory capacity
- 1 USB 2.0 ports
- PCI Express Mini card



▲ Side view



▲ Rear view

Full-Size PCI Express Mini Card w/mSATA supported

Packing List

Standard

Quick installation guide, User's Manual/Utility CD and accessories

Accessories

Part Number	Description	Qty
	SATA cable	1
	SATA power cable	1
	Heatspreader	1
	Heatsink	1

Ordering Information

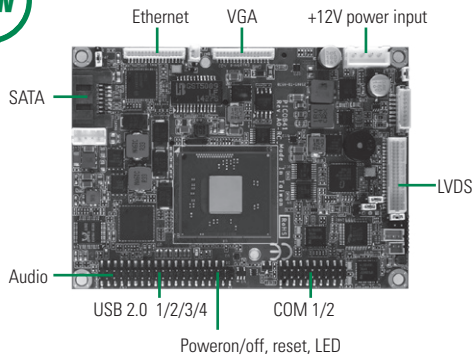
Standard

PICO300HGA-N3710	Intel® Pentium® N3710 (1.6-2.56 GHz, 2 MB Cache, 6W) Pico-ITX SBC with HDMI/LVDS, GbE LAN, 1 USB 2.0
PICO300VGA-N3710	Intel® Pentium® N3710 (1.6-2.56 GHz, 2 MB Cache, 6W) Pico-ITX SBC with VGA/LVDS, GbE LAN, 1 USB 2.0
PICO300HGA-N3060	Intel® Celeron® N3060 (1.6-2.48 GHz, 1 MB Cache, 6W) Pico-ITX SBC with HDMI/LVDS, GbE LAN, 1 USB 2.0
PICO300VGA-N3060	Intel® Celeron® N3060 (1.6-2.48 GHz, 1 MB Cache, 6W) Pico-ITX SBC with VGA/LVDS, GbE LAN, 1 USB 2.0

PICO843

Intel® Celeron® Processor J1900/N2807
Pico-ITX SBC with LVDS/VGA, LAN & Audio

NEW



Low Power



DualView



Supports Intel Atom



DDR3L



PCIe Mini



+12V



A/RD



Full Solid Cap Design

System

CPU	Intel® Celeron® processor J1900/N2807 onboard
System Memory	1 x 204-pin DDR3L-1066/1333 SO-DIMM max. up to 8 GB
Chipset	SoC integrated
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA 1 x Half-size PCI Express Mini Card
Battery Lithium	Lithium 3V/220mAh
Power Input	1 x 4-pin connector +12V DC-in only AT Auto Power On function supported
Power Requirements	Intel® Celeron® J1900 @ 2 GHz 4 GB DDR3L
Size	100 x 72 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +70°C (-4°F ~ 158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

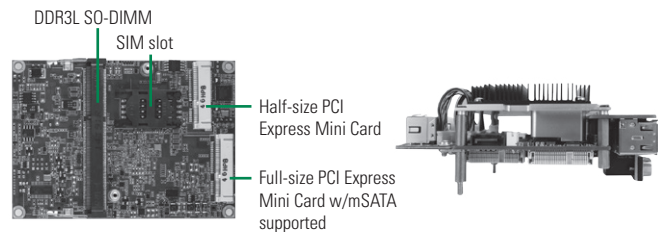
MIO	2 x RS-232/422/485
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i211AT
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	NA
TPM	ST ST33TPM12LPC with TPM 1.2 compliant

Display

Chipset	Intel® HD Graphics
Memory Size	Share System memory
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Features

- Intel® Celeron® processor J1900/N2807 Bay Trail SoC onboard
- 1 DDR3L SO-DIMM supports up to 8 GB memory capacity
- 4 USB 2.0 ports
- 2 COM ports
- 2 PCI Express Mini Cards



▲ Rear view



▲ Assembly view

Packing List

Standard

Quick installation guide, User's Manual/Utility CD and cable

Accessories

Part Number	Description	Qty
85932831000E	AX93283 I/O board	1
85932671000E	AX93267 I/O board	1
59406308010E	SATA cable	1
594P8800600E	SATA power cable	1
5078H843000E	Heatspreader	1
5078H100200E	Heatsink	1

Ordering Information

Standard

PICO843VGA-J1900 (P/N: E38H843100)	Pico-ITX SBC with Intel® Celeron® processor J1900 (2 GHz-2.42 GHz, 2 MB Cache, 10W), VGA/LVDS, GbE LAN and audio
PICO843VGA-N2807 (P/N: E38H843101)	Pico-ITX SBC with Intel® Celeron® processor N2807 (1.58 GHz-2.16 GHz, 1 MB Cache, 4.3W), VGA/LVDS, GbE LAN and audio

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

3

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-boards

Slot CPU
Cards

ARM
Embedded
Boards

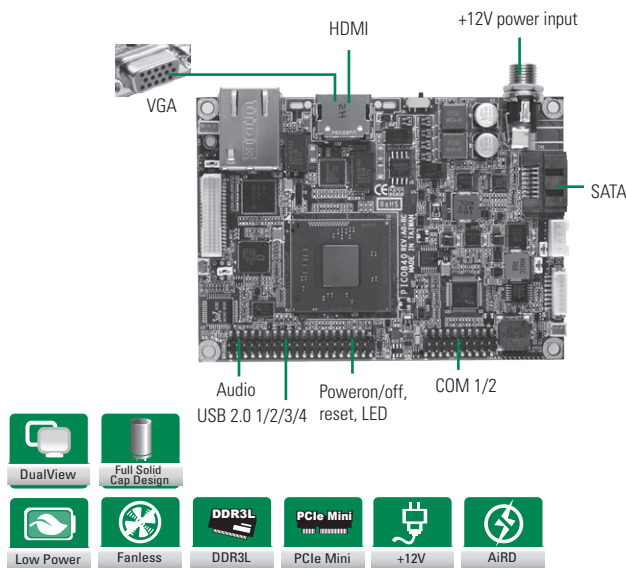
Accessories

Appendix



PICO842

Intel® Celeron® Processor J1900/N2807
Pico-ITX SBC with LVDS/VGA (HDMI),
LAN & Audio



System

CPU	Intel® Celeron® processor J1900/N2807
System Memory	1 x 204-pin DDR3L-1066/1333 SO-DIMM max. up to 8 GB
Chipset	SoC integrated
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA
Battery Lithium	Lithium 3V/220mAH
Power Input	DC power jack connector +12V DC-in only AT Auto Power On function supported
Power Requirements	Intel® Celeron® J1900 @ 8 GB DDR3L Max. RMS. +12V @ 0.9A Intel® Celeron® N2807 @ 8 GB DDR3L Max. RMS. +12V @ 0.7A
Size	100 x 72 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +70°C (-4°F ~ 158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

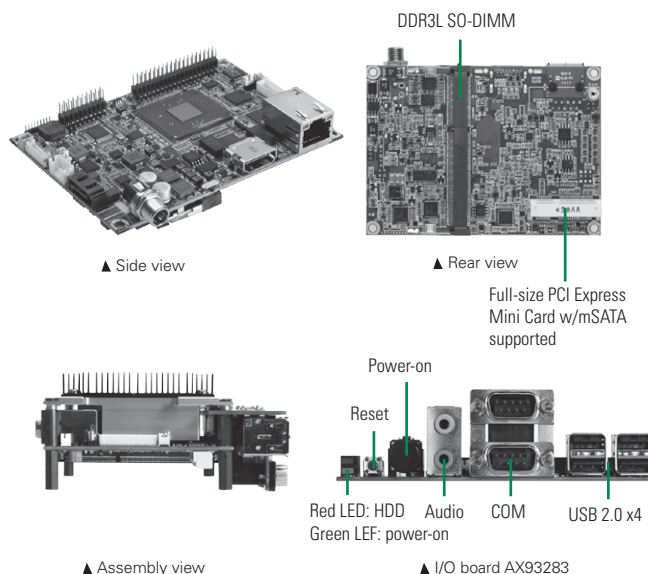
MIO	2 x RS-232/422/485
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i211AT
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	NA
TPM	ST ST33TPM12LPC with TPM 1.2 compliant

Display

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

Features

- Intel® Celeron® processor J1900/N2807 (Bay Trail SoC)
- 1 DDR3L SO-DIMM supports up to 8GB memory capacity
- 4 USB 2.0 ports
- 2 COM ports (RS-232/422/485 selectable)
- PCI Express Mini Card w/mSATA supported



Packing List

Standard

Quick installation guide, User's Manual/Utility CD and cable

Accessories

Part Number	Description	Qty
85932831000	AX93283 I/O board	1
59403208000E	SATA Cable w/lock L=200mm	1
594P8800600E	SATA power cable L=200mm	1
5078H842100E	Heatspreader	1
5078H100200E	Heatsink	1

Optional

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

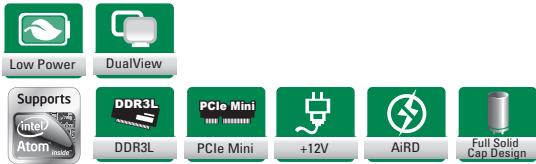
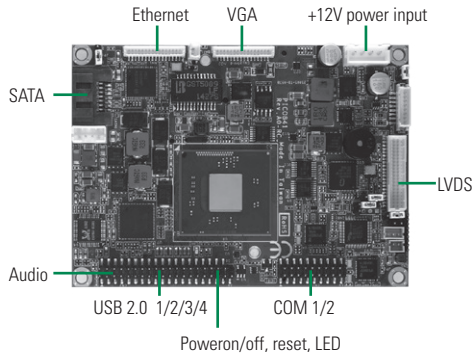
Ordering Information

Standard

PICO842VGA-J1900 (P/N: E38H842100)	Pico-ITX SBC with Intel® Celeron® processor J1900 (2-2.4 GHz, 2 MB Cache, 10W), VGA/LVDS, 1 GbE LAN, audio and gift box
PICO842VGA-N2807 (P/N: E38H842101)	Pico-ITX SBC with Intel® Celeron® processor N2807 (1.58-2.16 GHz, 1 MB Cache, 4.3W), VGA/LVDS, 1 GbE LAN, audio and gift box
PICO842HGA-J1900 (P/N: E38H842102)	Pico-ITX SBC with Intel® Celeron® processor J1900 (2-2.4 GHz, 2 MB Cache, 10W), HDMI/LVDS, 1 GbE LAN, audio and gift box
PICO842HGA-N2807 (P/N: E38H842103)	Pico-ITX SBC with Intel® Celeron® processor N2807 (1.58-2.16 GHz, 1 MB Cache, 4.3W), HDMI/LVDS, 1 GbE LAN, audio and gift box

PICO841

Intel® Atom™ Processor E3845/E3827
Pico-ITX SBC with LVDS/VGA, LAN & Audio



System

CPU	Intel® Atom™ processor E3845 quad core, E3827 dual core onboard (Bay Trail)
System Memory	1 x 204-pin DDR3L-1066/1333 SO-DIMM max. up to 8 GB
Chipset	SoC integrated
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA 1 x Half-size PCI Express Mini Card
Battery Lithium	Lithium 3V/220mAH
Power Input	1 x 4-pin connector +12V DC-in only AT Auto Power On function supported
Power Requirements	Intel® Atom™ E3845 @ 1.91 GHz, 8 GB DDR3L Max. RMS: +12V @ 1.49A Intel® Atom™ E3827 @ 1.75 GHz, 8 GB DDR3L Max. RMS: +12V @ 1.31A
Size	100 x 72 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +70°C (-4°F ~ 158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

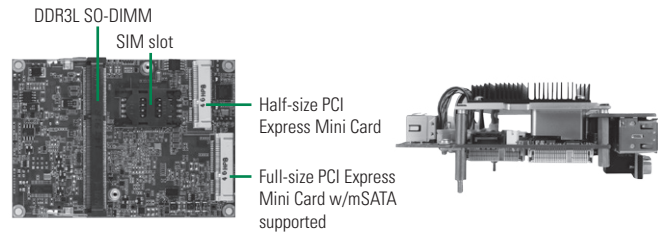
MIO	2 x RS-232/422/485
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i211AT
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	NA
TPM	ST ST33TPM12LPC with TPM 1.2 compliant

Display

Chipset	Intel® HD Graphics
Memory Size	Share System memory
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Features

- Intel® Atom™ processor E3845/E3827
- 1 DDR3L SO-DIMM supports up to 8GB memory capacity
- 4 USB 2.0 ports
- 2 COM ports
- 2 PCI Express Mini Cards



▲ Rear view



▲ Assembly view

Packing List

Standard

Quick installation guide, User's Manual/Utility CD and cable

Accessories

Part Number	Description	Qty
85932831000E	AX93283 I/O board	1
85932671000E	AX93267 I/O board	1
59406308010E	SATA cable	1
59405300610E	SATA power cable	1
5078H841000E	Heatspreader	1
5078H100200E	Heatsink	1

Ordering Information

Standard

PICO841VGA-E3845 (P/N: E38H841104)	Pico-ITX SBC with Intel® Atom™ processor E3845 (1.91 GHz, 2 MB Cache, 10W), VGA/LVDS, 1 GbE LAN, audio and gift box
PICO841VGA-E3827 (P/N: E38H841105)	Pico-ITX SBC with Intel® Atom™ processor E3827 (1.75 GHz, 1 MB Cache, 8W), VGA/LVDS, 1 GbE LAN, audio and gift box

SBC
Services
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Systems
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Modules

Embedded
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>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

3

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-boards

Slot CPU
Cards

ARM
Embedded
Boards

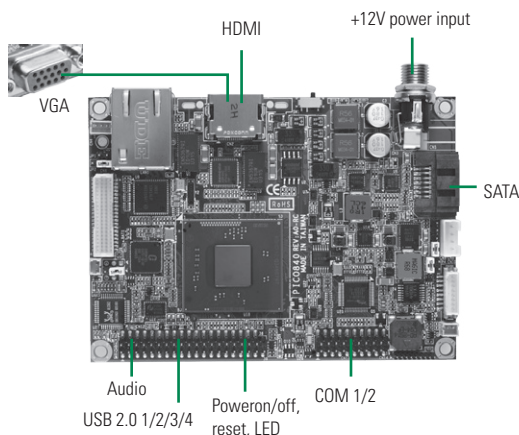
Accessories

Appendix



PICO840

Intel® Atom™ Processor E3845/E3827
Pico-ITX SBC with LVDS/VGA (HDMI),
LAN and Audio



System

CPU	Intel® Atom™ processor E3845 quad core, E3827 dual core onboard (Bay Trail)
System Memory	1 x 204-pin DDR3L-1066/1333 SO-DIMM max. up to 8 GB
Chipset	SoC integrated
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA
Battery Lithium	Lithium 3V/220mAh
Power Input	DC power jack connector +12V DC-in only AT Auto Power On function supported
Power Requirements	Intel® Atom™ E3845 @ 1.91 GHz, 8 GB DDR3L max. RMS: +12V @ 1.33A Intel® Atom™ E3827 @ 1.75 GHz, 8 GB DDR3L max. RMS: +12V @ 1.2A
Size	100 x 72 mm
Board Thickness	1.6 mm
Temperature	-40°C ~ +70°C (-40°F ~ 158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

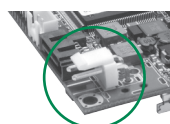
MIO	2 x RS-232/422/485
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel i210IT
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	NA
TPM	ST 323TPM12LPC with TPM 1.2 compliant

Display

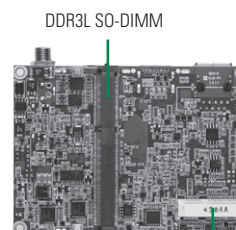
Chipset	Intel® HD Graphics
Memory Size	Share System memory
Display Interface	1 x VGA or 1 x HDMI 1 x LVDS; 18/24-bit single/dual channel

Features

- Intel® Atom™ processor E3845/E3827 (Bay Trail SoC)
- 1 DDR3L SO-DIMM supports up to 8 GB memory capacity
- 4 USB 2.0 ports
- 2 COM ports (RS-232/422/485 selectable)
- PCI Express Mini Card w/mSATA supported

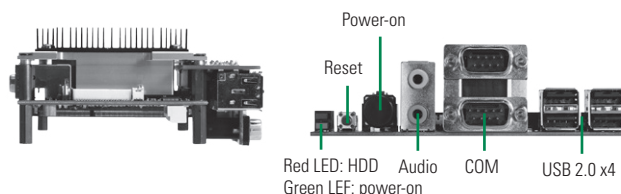


▲ Internal power connector (Optional)



▲ Rear view

Full-size PCI Express
Mini Card w/mSATA
supported



▲ Assembly view

▲ I/O board AX93283

Packing List

Standard

Quick installation guide, User's Manual/Utility CD and cable

Accessories

Part Number	Description	Qty
85932831000E	AX93283 I/O board	1
594P8800600E	SATA power Cable	1
59403208000E	SATA cable	1
5078H842100E	Heatspreader	1
5078H100200E	Heatsink	1

Optional

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

Ordering Information

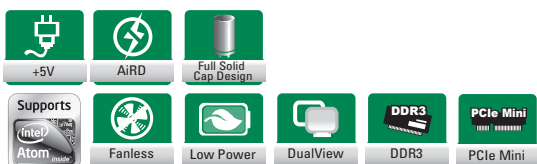
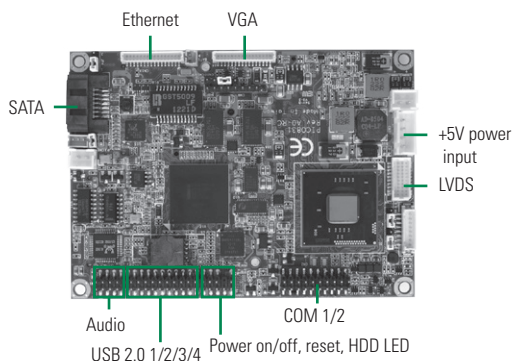
Standard

PICO840VGA-E3845 (P/N: E38H840100)	Pico-ITX SBC with Intel® Atom™ processor E3845 (1.91 GHz, 2MB Cache, 10W), and VGA/LVDS, 1 GbE LAN, audio and gift box
PICO840VGA-E3827 (P/N: E38H840104)	Pico-ITX SBC with Intel® Atom™ processor E3827 (1.75 GHz, 1MB Cache, 8W) and VGA/LVDS, 1 GbE LAN, audio and gift box
PICO840HGA-E3845 (P/N:E38H840101)	Pico-ITX SBC with Intel® Atom™ processor E3845 (1.91 GHz, 2MB Cache, 10W), and HDMI/LVDS, 1 GbE LAN, audio and gift box
PICO840HGA-E3827 (P/N: E38H840105)	Pico-ITX SBC with Intel® Atom™ processor E3827 (1.75 GHz, 1MB Cache, 8W)and HDMI/LVDS, 1 GbE LAN, audio and gift box

* 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



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 PCI Express Mini Card with mSATA 1 x Half-size 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, 1 GB DDR3 Max. RMS: +5V @ 2.9A Intel® Atom™ N2600 @ 1.6 GHz, 1 GB 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, 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

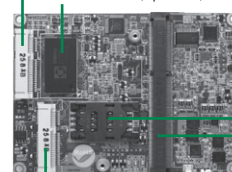
Chipset	Intel® GMA 3650 graphics core for N2800 Intel® GMA 3600 graphics core for N2600
Memory Size	Share System memory
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single channel

Features

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

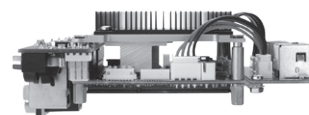
Full-size PCI Express Mini Card w/mSATA supported

SATA Nandrive (optional)



Half-size PCI Express Mini Card

SIM Slot
DDR3
SO-DIMM



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

Ordering Information

Standard

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

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>3.5" Capa

Embedded
SBCs
>Nano-ITX

3

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-boards

Slot CPU
Cards

ARM
Embedded
Boards

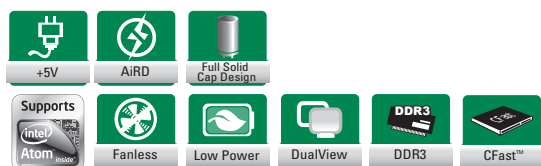
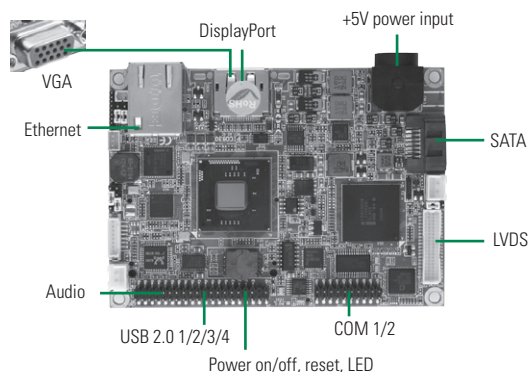
Accessories

Appendix



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, 1 GB DDR3 Max. RMS: +5V @ 3A Intel® Atom™ N2600 @ 1.6 GHz, 1 GB 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

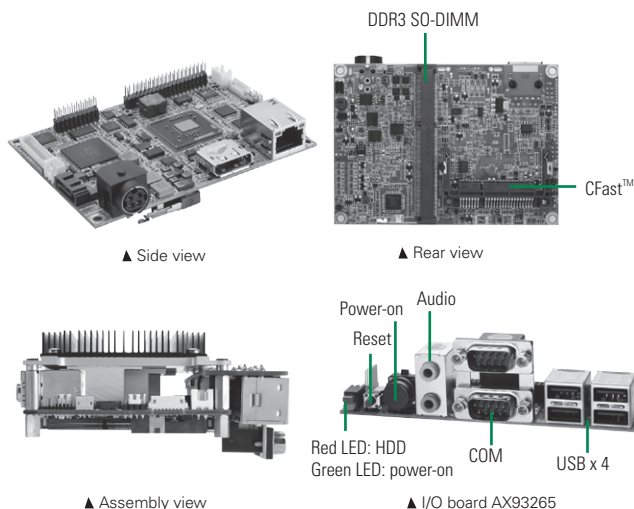
MIO	1 x RS-232/422/485 1 x RS-232
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® 82583V
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	4 x USB 2.0
SMBus	System Management 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)
- 1 DDR3 SO-DIMM supports up to 4 GB memory capacity
- 4 USB 2.0 ports
- 2 COM ports
- Display: LVDS, DisplayPort



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

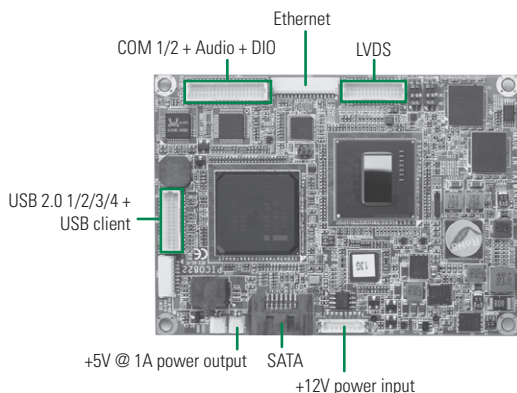
Ordering Information

Standard

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

PICO822

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



System

CPU	Intel® Atom™ processor E620T 600 MHz/ E680T 1.6 GHz single core onboard
System Memory	1 GB DDR2-800 onboard
Chipset	Intel® E620T
BIOS	AMI UEFI BIOS
SSD	SATA SSD 8 GB/16 GB/32 GB (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	Customized connector via power cable +12V DC-in only
Power Requirements	Intel® Atom™ E620T 600 MHz, 1 GB DDR2 Max. RMS: +12V @ 1.8A Intel® Atom™ E680T 1.6 GHz, 1 GB 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

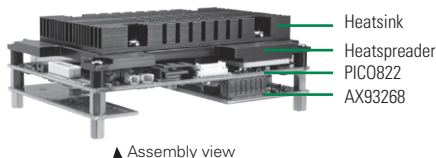
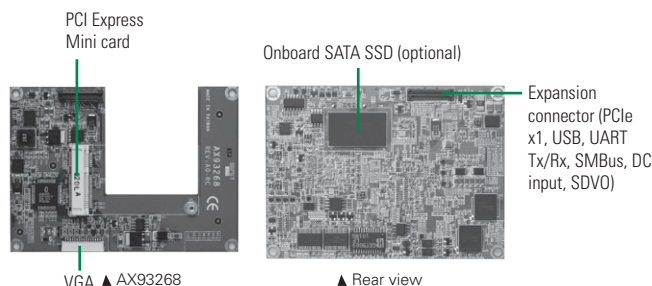
MIO	2 x RS-232
SATA	1 x SATA-300
Hardware Monitoring	Detect CPU/System temperature and voltage
Ethernet	1 port as 10/100/1000Mbps supports Wake-on-LAN RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio as Mic-in/Line-in/Line-out with Realtek ALC886
USB	4 x USB 2.0 1 x client USB 2.0
SMBus	System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

Display

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

Features

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



Packing List

Standard

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

Accessories

Part Number	Description	Qty
594H8222700E	Ethernet cable w/ RJ45 L=150 mm	1
594H8223000E	Cable for COM, audio L=300 mm	1
594H8222810E	USB cable w/o USB client L=180 mm	1
594H8220200E	DC-IN power cable L=190 mm	1
594H8220600E	SATA power cable L=150 mm	1
59406308010E	SATA cable	1
5078H822100E	Heatsink	1
5078H822010E	Heatspreader	1

Ordering Information

Standard

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

SBC Services and Solutions

Systems on Modules

Embedded SBCs >EPIC

Embedded SBCs >3.5" Capa

Embedded SBCs >Nano-ITX

3

Embedded SBCs >Pico-ITX

Embedded SBCs >PC/104

Industrial Motherboards

Slot CPU Cards

ARM Embedded Boards

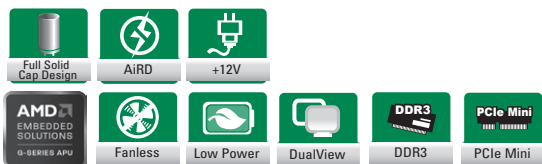
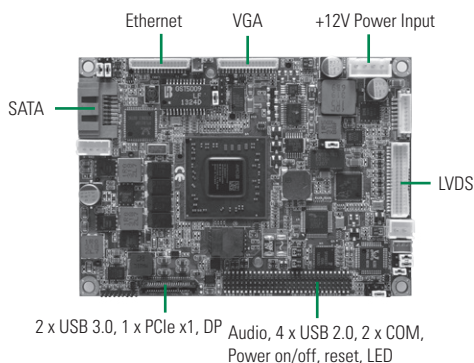
Accessories

Appendix



PICO121

AMD Embedded G-Series SoC Pico ITX SBC with VGA/LVDS, LAN & Audio



System

CPU	AMD Embedded GX-210JA SoC 1.0 GHz dual core onboard
System Memory	1 x 204-pin DDR3/3L 1066/1333 SO-DIMM max. up to 8 GB
Chipset	SoC integrated
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x Full-size PCI Express Mini Card with mSATA 1 x Half-size PCI Express Mini Card 1 x PCIe x1, 1 x DP, 2 x USB 3.0 (through expansion connector)
Battery Lithium	Lithium 3V/220mAH
Power Input	1 x 4-pin connector +12V DC-in only AT Auto Power On function supported
Power Requirements	AMD G-Series Embedded SoC GX-210JA @1.0 GHz 8 GB DDR3 Max. RMS: +12V @ 0.8A
Size	100 x 72 mm
Board Thickness	1.6 mm
Temperature	-20°C ~ +70°C (-4°F ~ 158°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

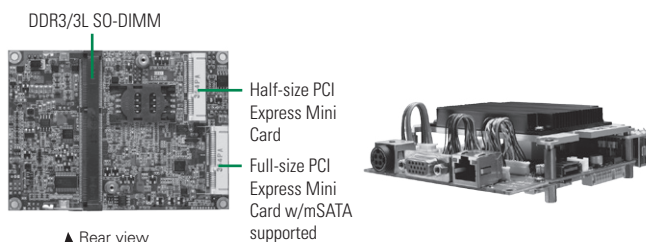
MIO	1 x RS-232/422/485 1 x RS-232
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Realtek RTL8111DP
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	4 x USB 2.0
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	N/A

Display

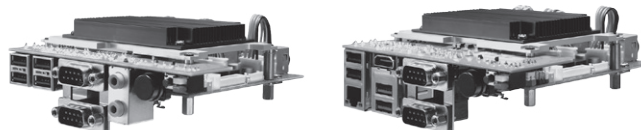
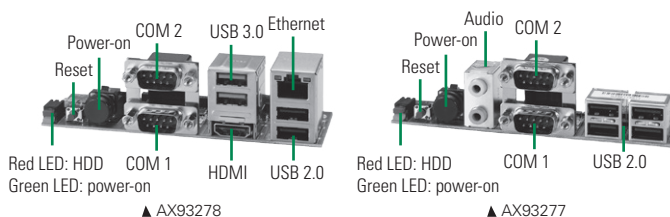
Chipset	AMD G-Series Embedded SoC integrated Gfx graphic engine GX-210JA - Radeon™ HD8180
Memory Size	AMD Radeon™ HD8180
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Features

- AMD Embedded GX-210JA SoC (1.0 GHz)
- 1 DDR3/3L SO-DIMM supports up to 8 GB memory capacity
- 4 USB 2.0 ports, 2 COM ports
- Supports half-size PCIe Mini Card and full-size PCIe Mini Card with mSATA
- DASH supported



▲ Rear view



▲ Assembly view

Packing List

Standard

Quick installation guide, User's Manual/Utility CD and accessories

Accessories

Part Number	Description
85932771000E	AX93277 I/O board
85932671000E	AX93267 I/O board
59403208000E	SATA cable
594P8800600E	SATA power cable
5078H121010E	Heatspreader
5078H100200E	Heatsink

Ordering Information

Standard

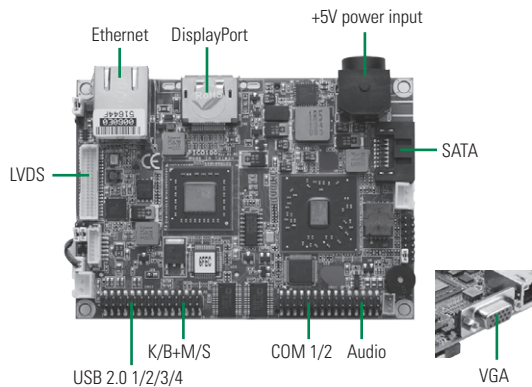
PICO121VGA-GX210JA (P/N: E38H121101)	AMD embedded GX-210JA SoC 1.0 GHz Pico-ITX SBC with VGA/LVDS, GbE LAN, audio and 4 USB 2.0
--------------------------------------	--

Optional

I/O board	RS-232/422/485	RS-232	USB 2.0	USB 3.0	DP	2nd LAN
AX93278 (P/N: E393278100)	1	1	2	2	HDMI	Yes

PICO100

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



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
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, 1 GB DDR3 Max. RMS: +5V @ 3.16A *AMD G-Series APU T40R @ 1.0 GHz, 1 GB DDR3 Max. RMS: +5V @ 2.93A
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

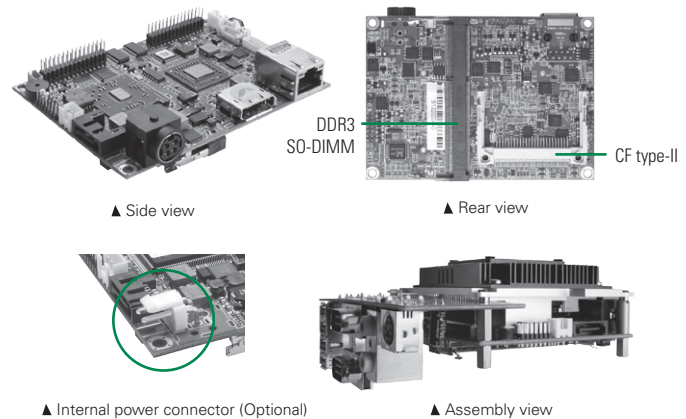
MI0	1 x PS/2 keyboard and mouse 2 x RS-232
SATA	1 x SATA-600
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100/1000 Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111E
Audio	HD Codec audio as MIC-in/Line-out with Realtek ALC662
USB	4 x USB 2.0
SMBus	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

Features

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



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 GbE LAN, 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 GbE LAN, 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 GbE LAN, 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 GbE LAN, 2 COM, SATA-600 and audio

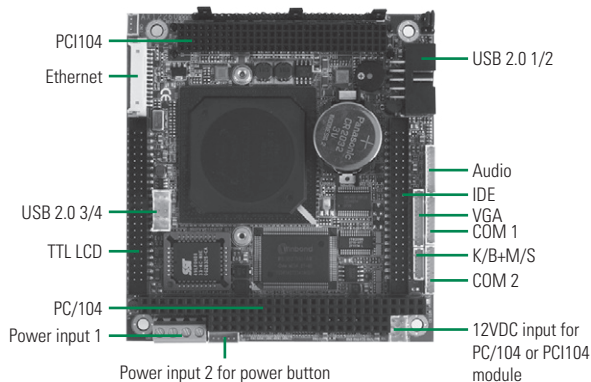
Optional

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=220 mm
59050203000E	DisplayPort to HDMI cable, L=185 mm
59091501000E	DisplayPort to DisplayPort cable, L=1500 mm



AX12260

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



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, 1 GB DDR 400 Max. RMS: 5V @ 1.846A
Size	96 x 90 mm
Board Thickness	1.6 mm
Operating Temperature	Standard: 0° ~ +60°C (32°F ~ 140°F) Optional: -40°C ~ +85°C (-40°F ~ +185°F)
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

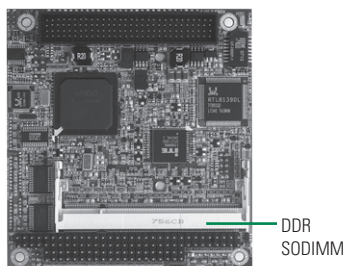
MIO	1 x IDE; PATA-100 1 x PS/2 keyboard & mouse 1 x PS/2 mouse 2 x RS-232
SATA	N/A
Hardware Monitoring	Detect CPU/system temperature and voltage
Ethernet	1 port as 10/100Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8139DL
Audio	AC'97 Codec audio as MIC-in/Line-in/Line-out/speaker-out with 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 integrated
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
- 4 USB 2.0 ports for high speed peripherals & DoM
- PC/104-Plus slot for 16-bit ISA, 1 x 32-bit PCI expansion



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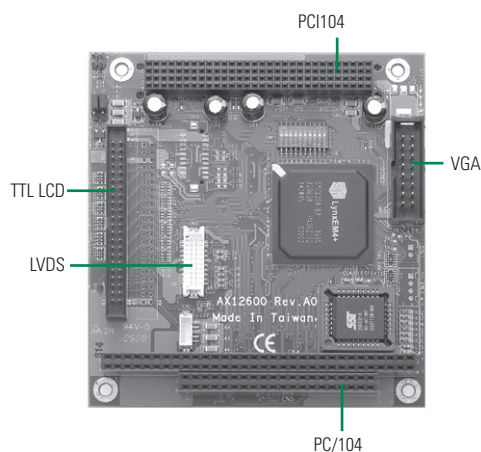
Optional

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

AX12600

VGA and LCD Display Module



System

Chipset	SMI712EM+ Graphics Controller
Display Memory	4 MB 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 1280 x 1024 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

Features

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

Packing List

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

Ordering Information

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

SBC
Services
and Solutions

Systems
on
Modules

Embedded
SBCs
>EPIC

Embedded
SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

3

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Mother-boards

Slot CPU
Cards

ARM
Embedded
Boards

Accessories

Appendix





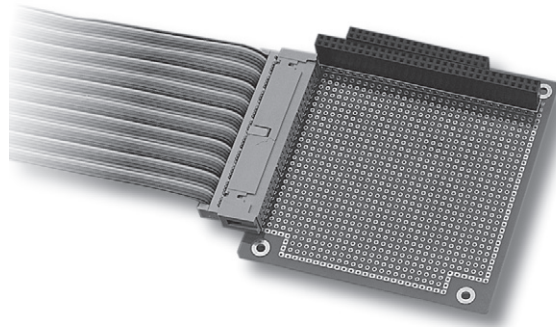
PC/104

Expansion Modules

AX10460

Universal Expansion Module

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

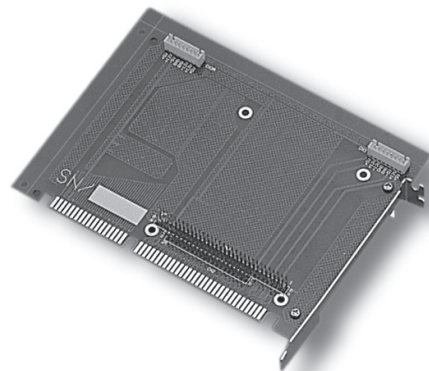


AX10461



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 132 mm



3

4

Industrial Motherboards

The Industrial Motherboards in Axiomtek are from Intel® Core™/Pentium®/Celeron® and AMD processors. The ATX form factor is aimed at multiple slot expansion demands with PCIe x16, PCIe x4, PCIe x1 and PCI interfaces. The Mini ITX form factor 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.

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Mini ITX Form Factor

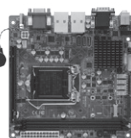
NEW	MANO500	LGA1151 6th Generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® Mini-ITX SBC with Intel® H110, HDMI/DP/VGA/LVDS/eDP, Dual LANs and USB 3.0	158
	MANO882	LGA1150 Intel® Xeon® E3-v3 and 4th Generation Intel® Core™ i7/i5/i3 & Celeron®, Pentium® Mini-ITX SBC with Intel® C226, HDMI/DisplayPort/VGA/LVDS, Dual LANs and USB 3.0	159
	MANO881	LGA1150 4th Generation Intel® Core™ i7/i5/i3 & Celeron® Mini-ITX SBC with Intel® H81, HDMI/VGA/LVDS, Dual LANs and USB 3.0	160
NEW	MANO300	Intel® Celeron® Processor N3160 (up to 2.24 GHz) SoC Mini-ITX SBC, VGA/HDMI/LVDS, USB 3.0, PCI Express Mini Card, mSATA, PCIe x1 and HD Audio	161
	MANO842	Intel® Celeron® Processor J1900 (up to 2.42 GHz) SoC Mini-ITX SBC, VGA/HDMI/LVDS, USB 3.0, PCI Express Mini Card, PCIe x1 and HD Audio	162
	MANO840	Intel® Celeron® Processor J1900 (up to 2.42 GHz) SoC Mini-ITX SBC, VGA/HDMI/LVDS, USB 3.0, PCI Express Mini Card, PCIe x1 and HD Audio	163
	MANO873	LGA1155 Intel® Core™ i7/i5/i3 & Celeron® Mini ITX SBC with Intel® Q77, VGA/DVI-D, Dual LANs and USB 3.0	164
	MANO872	LGA1155 3rd Generation Intel® Core™ i7/i5/i3 & Celeron® Mini-ITX SBC with Intel® Q77, DisplayPort/DVI-I/LVDS, Dual LANs and USB 3.0	165
	MANO871	LGA1155 Intel® Core™ i7/i5/i3 & Celeron® Mini-ITX SBC with Intel® Q77, HDMI/DVI-I/LVDS, Dual LANs and USB 3.0	166
	MANO870	Socket G2 3rd Generation Intel® Core™ i7/i5/i3 & Celeron® Mini-ITX SBC with Intel® QM77, HDMI/DVI-D/VGA/LVDS, PCI Express Gen 3, SATA-600, Dual LANs and HD Audio	167
	MANO861	LGA1155 3rd Generation Intel® Core™ i7/i5/i3 & Celeron® Mini-ITX SBC with Intel® H61, VGA/DVI-D/LVDS, Dual LANs and HD Audio	168

MANO860	Socket G2 Intel® Core™ i7/i5/i3 & Celeron® Mini-ITX SBC with Intel® QM67, DisplayPort/HDMI/VGA/LVDS, SATA-600, Dual LANs and RAID	169
MANO831	Intel® Atom™ Processor D2550 Mini-ITX SBC with Intel® NM10, VGA/DVI-D/LVDS1/LVDS2, Dual LANs and HD Audio	170
MANO830	Intel® Atom™ Processor D2550/N2600 Mini-ITX SBC with Intel® NM10, VGA/HDMI/LVDS, PCI Express Mini Card, PCIe x1 and HD Audio	171
MANO825	Intel® Atom™ Processor D525 Mini-ITX SBC with Intel® NM10, VGA/LVDS, Dual LANs and 6 COM	172
MANO800	LGA1156 Intel® Core™ i7/i5/i3 & Pentium® Mini-ITX SBC with Intel® Q57, DVI-D/VGA, PCI Express x4 and 4 SATA RAID	173
MANO120	AMD G-Series APU Mini-ITX SBC with AMD A55E, HDMI/VGA/LVDS, Dual LANs and SATA-600	174
MANO111	AMD Embedded R-Series APU Mini-ITX SBC with AMD A75, DDR3, USB 3.0, LVDS/DisplayPort/DVI-D and Dual LANs	175
SBC86620	AMD LX800 Mini-ITX SBC with Dual LANs, 4 COM and USB 2.0	176
ATX Form Factor		
 IMB501	LGA1151 6th Generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® Processor ATX Industrial Motherboard with Intel® H110, DDR4, USB 3.0, SATA 3.0, Dual LANs and VGA/DP/HDMI	177
 IMB500	LGA1151 6th Generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® Processor ATX Industrial Motherboard with Intel® Q170, DDR4, USB 3.0, SATA 3.0, Dual LANs, VGA/DP/HDMI and mSATA	178
IMB211	LGA1150 4th Generation Intel® Core™ i7/i5/i3 & Celeron® Processor ATX Industrial Motherboard with Intel® Q87, USB 3.0, SATA 3.0, Dual LANs, DP/VGA/HDMI and mSATA	179
IMB210	LGA1150 Intel® Xeon® E3-v3, Core™ i7/i5/i3, Pentium® & Celeron® ATX Industrial Motherboard with Intel® C226, ECC DDR3, USB 3.0, SATA 3.0, Dual LANs, DP/DVI-I/HDMI and CFast™	180
IMB208	LGA1155 Intel® Core™ i7/i5/i3 & Celeron® ATX Industrial Motherboard with Intel® C216, USB 3.0, DisplayPort/DVI-I (VGA), Dual LANs and CFast™	181
IMB207	LGA1155 Intel® Core™ i7/i5/i3 & Celeron® ATX Industrial Motherboard with Intel® Q77, USB 3.0, DisplayPort/DVI-I, Dual LANs and CFast™	182
IMB206	LGA1155 2nd Generation Intel® Core™ i7/i5/i3 & Celeron® ATX Industrial Motherboard with Intel® Q67 Chipset, DVI-I/DisplayPort, Dual LANs and CFast™	183
IMB205	LGA1156 Intel® Core™ i7/i5/i3 & Pentium® ATX Industrial Motherboard with Intel® Q57, VGA/DisplayPort and Dual LANs	184
IMB204	LGA1155 Intel® Core™ i7/i5/i3 & Celeron® ATX Industrial Motherboard with Intel® B75, SATA3.0, Dual LANs, DVI-D/VGA and LPT	185



Industrial Motherboards - Mini-ITX Form Factor

Selection Guide



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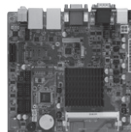


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Features/Models		MANO500	MANO882	MANO881
Form Factor		Mini-ITX	Mini-ITX	Mini-ITX
CPU Level		Intel® Core™ i7/i5/i3 & Celeron®	Intel® Xeon E3-V3/Core™ i7/i5/i3 & Celeron®	Intel® Core™ i7/i5/i3 & Celeron®
CPU Socket		LGA1151	LGA1150	LGA1150
CPU FSB Frequency		N/A	N/A	N/A
Core Logic Chipset		Intel® H110	Intel® C226	Intel® H81
Memory Type		DDR4-2133/1866	DDR3-1333/1600	DDR3-1333/1600
Max. DRAM Capacity		32 GB	16 GB	16 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		N/A	N/A	N/A
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	3 x SATA-600	4 x SATA-600	2 x SATA-300, 2 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-232/422/485
		COM 2	RS-232/422/485	RS-232/422/485
		COM 3	RS-232	RS-232/422/485
		COM 4	RS-232	RS-232
		COM 5	RS-232	RS-232
		COM 6	RS-232	RS-232
	USB	4 x USB 2.0, 4 x USB 3.0	6 x USB 2.0, 4 x USB 3.0	8 x USB 2.0, 2 x USB 3.0
	IrDA	N/A	N/A	N/A
SIM Card Slot		1 x SIM	1 x SIM	N/A
IEEE 1394a		N/A	N/A	N/A
Display		1 x VGA 1 x HDMI 1 x DP 1 x LVDS (1 x eDP)	1 x VGA 1 x HDMI 1 x DP 1 x LVDS	1 x VGA 1 x HDMI 1 x LVDS
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Audio		HD Codec	HD Codec	HD Codec
Hardware Monitoring		Yes	Yes	Yes
SMBus		N/A	N/A	N/A
Expansion Interface		1 x PCI Express Mini card 1 x PCIe x16 1 x mSATA	1 x PCI Express Mini card (support mSATA) 1 x PCIe x16	1 x PCI Express Mini card 1 x PCIe x16
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



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Features/Models		MANO300	MANO842	MANO840	
Form Factor		Mini-ITX	Mini-ITX	Mini-ITX	
CPU Level		Intel® Celeron® N3160	Intel® Celeron® J1900	Intel® Celeron® J1900	
CPU Socket		Onboard	Onboard	Onboard	
CPU FSB Frequency		N/A	N/A	N/A	
Core Logic Chipset		SoC integrated	SoC integrated	SoC integrated	
Memory Type		DDR3L-1333	DDR3L-1333	DDR3L-1333	
Max. DRAM Capacity		8 GB	8 GB	8 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		N/A	N/A	N/A	
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	1 x SATA-600	1 x SATA-300	2 x SATA-300	
	FDD	N/A	N/A	N/A	
	LPT	N/A	N/A	1 x LPT	
	Serial	COM 1	RS-232/422/485	RS-232/422/485	RS-232
		COM 2	RS-232/422/485	RS-232/422/485	RS-232
		COM 3	RS-232	RS-232	RS-232
		COM 4	RS-232	RS-232	RS-232
		COM 5	RS-232	RS-232	RS-232
		COM 6	RS-232	RS-232	RS-232
	USB	4 x USB 2.0, 2 x USB 3.0	5 x USB 2.0, 1 x USB 3.0	5 x USB 3.0, 1 x USB 2.0	
	IrDA	N/A	N/A	N/A	
SIM Card Slot		1 x SIM	1 x SIM	N/A	
IEEE 1394a		N/A	N/A	N/A	
Display		1 x VGA 1 x HDMI 1 x LVDS	1 x VGA 1 x HDMI 1 x LVDS	1 x VGA 1 x HDMI 1 x LVDS	
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	
Audio		HD Codec	HD Codec	HD Codec	
Hardware Monitoring		Yes	Yes	Yes	
SMBus		N/A	N/A	N/A	
Expansion Interface		1 x PCI Express Mini card 1 x mSATA 1 x PCIe x1 1 x SD	1 x PCI Express Mini card 1 x mSATA 1 x PCIe x1	1 x PCI Express Mini Card (support mSATA) 1 x PCIe x1	
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 SolutionsSystems
on
ModulesEmbedded
SBCs
>EPICEmbedded
SBCs
>3.5" CapaEmbedded
SBCs
>Nano-ITXEmbedded
SBCs
>Pico-ITXEmbedded
SBCs
>PC/1044
Industrial
MotherboardsSlot CPU
CardsARM
Embedded
Boards

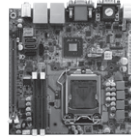
Accessories

Appendix



Industrial Motherboards - Mini-ITX Form Factor

Selection Guide



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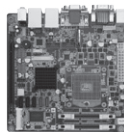


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Features/Models		MANO873	MANO872	MANO871
Form Factor		Mini-ITX	Mini-ITX	Mini-ITX
CPU Level		Intel® Core™ i7/i5/i3 & Celeron®	Intel® Core™ i7/i5/i3 & Celeron®	Intel® Core™ i7/i5/i3 & Celeron®
CPU Socket		LGA1155	LGA1155	LGA1155
CPU FSB Frequency		N/A	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, 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		4-IN & 4-OUT	4-IN & 4-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-600, 2 x SATA-300	2 x SATA-600, 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
		COM 2	RS-232	RS-232
		COM 3	N/A	RS-232
		COM 4	N/A	RS-232
		COM 5	N/A	N/A
		COM 6	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
	IEEE 1394a		N/A	N/A
	Display		1 x DVI-I 1 x DisplayPort 1 x LVDS	1 x DVI-I 1 x HDMI 1 x LVDS
	Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
	Audio		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 (support mSATA)	1 x PCIe x16 1 x PCI Express Mini Card	1 x PCIe x16 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	N/A



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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, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD		1 x CFast™	N/A	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	2 x SATA-600, 3 x SATA-300	3 x SATA-300	2 x SATA-600, 3 x SATA-300
	FDD	N/A	N/A	N/A
	LPT	N/A	N/A	N/A
	Serial	COM 1	RS-232	RS-232
		COM 2	RS-232	RS-232
		COM 3	RS-232	RS-232
		COM 4	N/A	RS-232
		COM 5	N/A	RS-232
		COM 6	N/A	RS-232
	USB	8 x USB 2.0, 4 x USB 3.0	6 x USB 2.0	12 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 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
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
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	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

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>PC/104

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Slot CPU
Cards

ARM
Embedded
Boards

Accessories

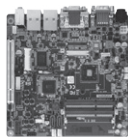
Appendix





Industrial Motherboards - Mini-ITX Form Factor

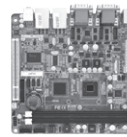
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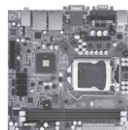


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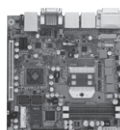


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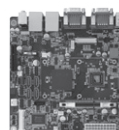
Features/Models		MANO831	MANO830	MANO825
Form Factor		Mini-ITX	Mini-ITX	Mini-ITX
CPU Level		Intel® Atom™ D2550	Intel® Atom™ D2550/N2600	Intel® Atom™ D525
CPU Socket		Onboard	Onboard	Onboard
CPU FSB Frequency		N/A	N/A	up to 800 MHz
Core Logic Chipset		Intel® NM10	Intel® NM10	Intel® NM10
Memory Type		DDR3-1066	DDR3-1066	DDR3-800
Max. DRAM Capacity		4 GB	4 GB/ 2 GB	4 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		4-IN & 4-OUT	4-IN & 4-OUT	4-IN & 4-OUT
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
		COM 2	RS-232	RS-232
		COM 3	RS-232/422/485	RS-232
		COM 4	RS-232/422/485	RS-232
		COM 5	N/A	RS-232
		COM 6	N/A	RS-232
	USB	7 x USB 2.0	7 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
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
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 (support mSATA)	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	N/A



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Features/Models		MANO800	MANO120	MANO111	SBC86620
Form Factor		Mini-ITX	Mini-ITX	Mini-ITX	Mini-ITX
CPU Level		Intel® Core™ i7/i5/i3 & Pentium®	AMD G-Series APU T56N	AMD Embedded R-Series APU	AMD LX800
CPU Socket		LGA1156	Onboard	FS1r2 Socket	Onboard
CPU FSB Frequency		N/A	N/A	N/A	N/A
Core Logic Chipset		Intel® Q57	AMD A55E	AMD A75 PCH	AMD LX800 + CS5536AD
Memory Type		DDR3-1066/1333	DDR3-1066/1333	DDR3-1333/1600	DDR-333/400
Max. DRAM Capacity		8 GB	4 GB	16 GB	1 GB
Cache RAM Capacity		Integrated in CPU	Integrated in CPU	Integrated in CPU	Integrated in CPU
BIOS		AMI UEFI BIOS	AMI	AMI UEFI BIOS with OA 3.0 built	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		1 x CompactFlash™ or 1 x CFast™ (optional)	1 x CFast™	1 x CFast™	1 x CompactFlash™
Onboard Digital I/O		4-IN & 4-OUT	4-IN & 4-OUT	4-IN & 4-OUT	4-IN & 4-OUT
I/O	IDE	N/A	N/A	N/A	2 x PATA-100
	SATA	4 x SATA-300	5 x SATA-600	4 x SATA-600	N/A
	FDD	N/A	N/A	N/A	1 x FDD
	LPT	N/A	N/A	N/A	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	N/A	RS-232	RS-232
		COM 4	N/A	RS-232	RS-232
		COM 5	N/A	RS-232	N/A
		COM 6	N/A	N/A	N/A
	USB	10 x USB 2.0	8 x USB 2.0	4 x USB 2.0	4 x USB 2.0
	IrDA	N/A	N/A	N/A	N/A
SIM Card Slot		N/A	N/A	Yes	N/A
IEEE 1394a		N/A	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	1 x VGA/TTL 1 x LVDS
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100Mbps Ethernet
Audio		HD Codec	HD Codec	HD Codec	AC'97 Codec
Hardware Monitoring		Yes	Yes	Yes	Yes
SMBus		Yes	Yes	N/A	Yes
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	1 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



Industrial Motherboards - ATX Form Factor

Selection Guide



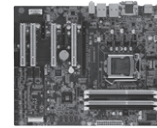
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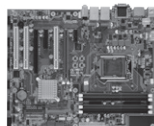
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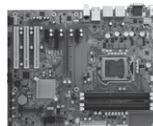


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Features/Models		IMB501	IMB500	IMB211
Form Factor		ATX	ATX	ATX
CPU Level		Intel® Core™ i7/i5/i3 & Celeron®	Intel® Core™ i7/i5/i3 & Celeron®	Intel® Core™ i7/i5/i3 & Celeron®
CPU Socket		LGA1151	LGA1151	LGA1150
CPU FSB Frequency		N/A	N/A	N/A
Core Logic Chipset		Intel® H110	Intel® Q170	Intel® Q87
Memory Type		DDR4-2133/1866	DDR4-2133/1866	DDR3-1333/1600
Max. DRAM Capacity		32 GB	64 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, 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		4-IN & 4-OUT	4-IN & 4-OUT	4-IN & 4-OUT
I/O	IDE	N/A	N/A	N/A
	SATA	3 x SATA-600	5 x SATA-600	5 x SATA-600
	FDD	N/A	N/A	N/A
	LPT	N/A	N/A	1 x LPT
	Serial	COM 1	RS-232/422/485	RS-232/422/485
		COM 2	RS-232/422/485	RS-232
		COM 3	RS-232	RS-232
		COM 4	RS-232	RS-232
		COM 5	RS-232	RS-232
		COM 6	RS-232	RS-232
	USB	4 x USB 2.0, 4 x USB 3.0	8 x USB 2.0, 4 x USB 3.0	10 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 DisplayPort 1 x HDMI	1 x VGA 1 X DisplayPort 1 x HDMI	1 x VGA 1 X DisplayPort 1 x HDMI
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Audio		HD Codec	HD Codec	HD Codec
Hardware Monitoring		Yes	Yes	Yes
SMBus		N/A	N/A	N/A
Expansion Interface		4 x PCI 2 x PCIe x1 1 x PCIe x16 1 x PCIe Mini Card 1 x mSATA	4 x PCI 2 x PCIe x4 1 x PCIe x16 1 x PCIe Mini Card 1 x mSATA	4 x PCI 1 x PCIe x1 1 x PCIe x4 1 x PCIe x16 1 x PCIe 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	N/A



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Features/Models		IMB210	IMB208	IMB207
Form Factor		ATX	ATX	ATX
CPU Level		Intel® Xeon® E3-V3, Core™ i7/i5/i3 & Celeron®	Intel® Xeon® E3-V3, Core™ i7/i5/i3 & Celeron®	Intel® Core™ i7/i5/i3 & Celeron®
CPU Socket		LGA1150	LGA1155	LGA1155
CPU FSB Frequency		N/A	N/A	N/A
Core Logic Chipset		Intel® C226	Intel® C216	Intel® Q77
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, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD		1 x CFast™	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	5 x SATA-600	2 x SATA-600, 3 x SATA-300	2 x SATA-600, 3 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
		COM 2	RS-232	RS-232
		COM 3	RS-232	RS-232
		COM 4	RS-232	RS-232
		COM 5	RS-232	N/A
		COM 6	RS-232	N/A
	USB	6 x USB 2.0, 4 x USB 3.0	8 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-I 1 x DisplayPort 1 x HDMI	1 x DVI-I 2 x DisplayPort	1 x DVI-I 2 x DisplayPort
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Audio		HD Codec	HD Codec	HD Codec
Hardware Monitoring		Yes	Yes	Yes
SMBus		Yes	N/A	N/A
Expansion Interface		3 x PCI 1 x PCIe x1 1 x PCIe x4 1 x PCIe x16 or 2 x PCIe x8	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
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		N/A	N/A	N/A

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SBCs
>PC/104

4
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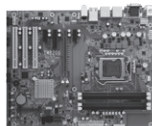
Accessories

Appendix

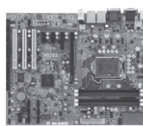


Industrial Motherboards - ATX Form Factor

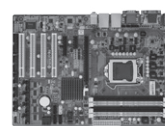
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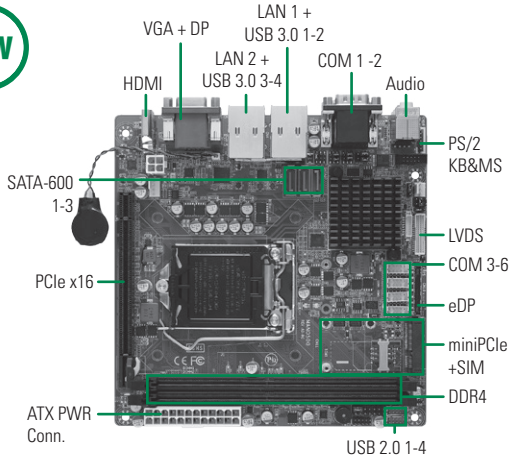


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Features/Models		IMB206	IMB205	IMB204
Form Factor		ATX	ATX	ATX
CPU Level		Intel® Core™ i7/i5/i3 & Celeron®	Intel® Core™ i7/i5/i3 & Pentium®	Intel® Core™ i7/i5/i3 & Celeron®
CPU Socket		LGA1155	LGA1156	LGA1155
CPU FSB Frequency		N/A	1066/1333 MHz	1333/1600 MHz
Core Logic Chipset		Intel® Q67	Intel® Q57	Intel® B75
Memory Type		DDR3-1066/1333	DDR3-1066/1333	DDR3-1333/1600
Max. DRAM Capacity		16 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	AMI
Watchdog Timer		255 levels, 1~255 sec.	255 levels, 1~255 sec.	255 levels, 1~255 sec.
Onboard SSD		1 x CFast™	USB DOM	N/A
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	2 x SATA-600, 3 x SATA-300	6 x SATA-300	1 x SATA-600, 5 x SATA-300
	FDD	N/A	1 x FDD	N/A
	LPT	N/A	1 x LPT	1 x LPT
	Serial	COM 1	RS-232/422/485	RS-232/422/485
		COM 2	RS-232	RS-232
		COM 3	RS-232	RS-232
		COM 4	RS-232	RS-232
		COM 5	N/A	RS-232
		COM 6	N/A	RS-232
	USB	12 x USB 2.0	12 x USB 2.0	12 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 DVI-I 2 x DisplayPort	1 x VGA 1 x DisplayPort	1 x VGA 1 x DVI-D
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Audio		HD Codec	HD Codec	HD Codec
Hardware Monitoring		Yes	Yes	Yes
SMBus		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 1 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

MANO500

LGA1151 Socket 6th Generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® Mini-ITX SBC with Intel® H110, HDMI/DP/VGA/LVDS/eDP, Dual LAN and USB 3.0



System

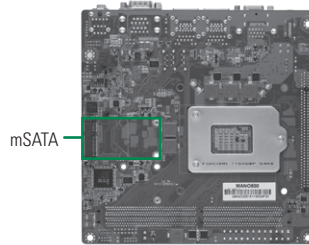
CPU	LGA1151 socket 6th generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® processor
System Memory	2 x 288-pin LONG-DIMM dual channel DDR4-2133, max. up to 32 GB
Chipset	Intel® H110
BIOS	AMI
SSD	N/A
Watchdog Timer	255 level, 1 ~ 255 sec
Expansion Interface	1 x PCIe x16 1 x mSATA 1 x miniPCle 1 x SIM card slot
Battery	Lithium 3V/220 mAh
Power Requirements	TBD
Size/Weight	170 x 170 mm
Temperature	0°C ~ +60°C (32°F ~ 140°F), Operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

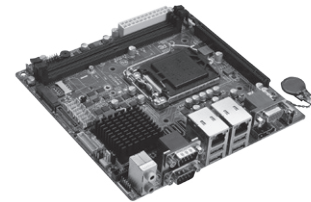
MIO	1 x PS/2 KB & MS 2 x RS-232/422/485(COM1-2) 4 x RS-232(COM3-6); COM1 with 5V/12V power select
SATA	3 x SATA-600 1 x mSATA
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	1st port as 10/100/1000 Mbps supports WOL, PXE with Intel® i219LM (LAN1) 2nd port as 10/100/1000 Mbps supports WOL, PXE with Intel® i211AT (LAN2)
Audio	HD Audio as Mic-in/Line-out with Realtek ALC662
USB	4 x USB 3.0 (rear I/O) 4 x USB 2.0
TPM	N/A
Digital I/O	8 Channels programmable
SM BUS	N/A

Features

- LGA1151 socket 6th generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® processor (Skylake)
- 2 DDR4-2133 MHz max. up to 32 GB
- 1 PCIe x16 slot
- 1 miniPCle and SIM card slots
- 3 SATA-600 & 1 mSATA
- 4 USB 3.0 and 4 USB 2.0



▲ Rear view



▲ Side view

Display

Chipset	Intel® HD Graphics 530/510
Memory Size	Shared Memory
Display Interface	1 x HDMI 1 x VGA 1 x DP 1 x LVDS 1 x eDP (co-lay with LVDS)

Packing List

Standard	
I/O Bracket	

Ordering Information

Standard	
MANO500	LGA1151 Socket 6th generation Intel® Core™ i7/i5/i3, Pentium®, Celeron® Mini-ITX SBC with Intel® H110, HDMI/DisplayPort/VGA/ LVDS/eDP, Dual LAN 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

4

Industrial Motherboards

Slot CPU Cards

ARM Embedded Boards

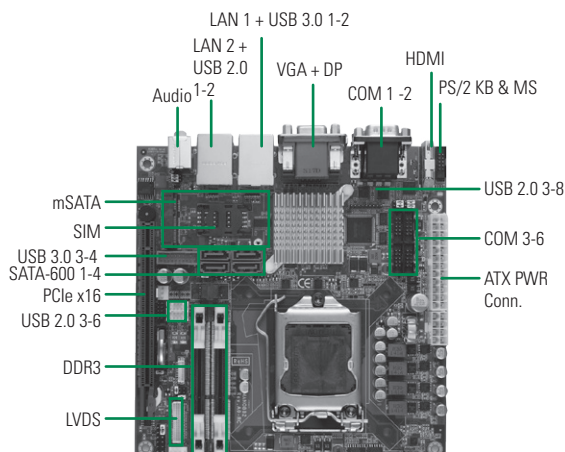
Accessories

Appendix



MANO882

LGA1150 Socket Intel® Xeon® E3-v3 and 4th Generation Intel® Core™ i7/i5/i3, Celeron® & Pentium® Mini-ITX SBC with Intel® C226, HDMI/DisplayPort/VGA/LVDS, Dual LAN and USB 3.0



System

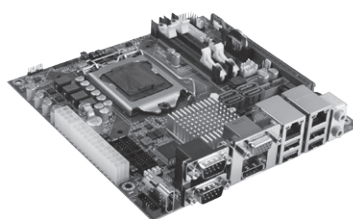
CPU	LGA1150 socket Intel® Xeon® E3-v3 and 4th generation Intel® Core™ i7/i5/i3, Celeron® & Pentium® processor (Haswell/ Haswell Refresh)
System Memory	2 x 204-pin SO-DIMM dual channel DDR3-1333/1600, max. up to 16 GB
Chipset	Intel® C226 (optional: Intel® H81)
BIOS	AMI
SSD	N/A
Watchdog Timer	255 level, 1 ~ 255 sec
Expansion Interface	1 x PCIe x16 1 x PCI Express mini card (Full size and shared mSATA) 1 x SIM card slot (Intel® C226)
Battery	Lithium 3V/220 mAH
Power Requirements	Intel® i7-4770S +5V@2.62A, +12V@4.97A, +5VSB@0.04A, +3.3V@0.76A
Size/Weight	170 x 170 mm
Temperature	0°C ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 KB & MS 2 x RS-232/422/485 (COM 1-2, on rear IO) 4 x RS-232 (COM3-6; by pin header); COM1, 2 with 5V/12V power
SATA	4 x SATA-600 support RAID 0/1/5/10 (Optional: Intel® H81: 2 x SATA 600)
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed, smart fan supported.
Ethernet	1st port as 10/100/1000 Mbps supports WOL, PXE with Intel® i217LM (LAN1) 2nd port as 10/100/1000 Mbps supports WOL, PXE with Intel® i210AT (LAN2)
Audio	HD Audio as Mic-in/Line-out with Realtek ALC662
USB	Intel® C226: 4 x USB 3.0 (2 on rear IO, 2 on internal) 6 x USB 2.0 (2 on rear IO, 4 on internal) Intel® H81: 2 x USB 3.0 (2 on rear IO) 6 x USB 2.0 (2 on rear IO, 4 on internal)
TPM	Infineon TPM 1.2 SLB9635 (Intel® C226)
Digital I/O	8 Channels Programmable (4-IN & 4-OUT default)
SM BUS	N/A

Features

- LGA1150 socket Intel® Xeon E3-v3 and 4th generation Intel® Core™ i7/i5/i3, Celeron® & Pentium® processor (Haswell/ Haswell Refresh)
- 2 DDR3-1333/1600 MHz, max. up to 16 GB
- PCIe x16 Gen3 supported
- 4 SATA-600 with RAID 0,1, 5 and 10
- mSATA and SIM slots supported
- Intel® AMT 9.0 supported (Intel® C226)
- TPM 1.2 supported
- Triple view display (DP is a must to support triple view)



▲ Side view

Display

Chipset	Intel® HD 4000/ 5000 Graphics
Memory Size	Shared Memory
Display Interface	1 x HDMI (Intel® C226) 1 x DP 1 x VGA 1 x LVDS 24 bit dual channel

Packing List

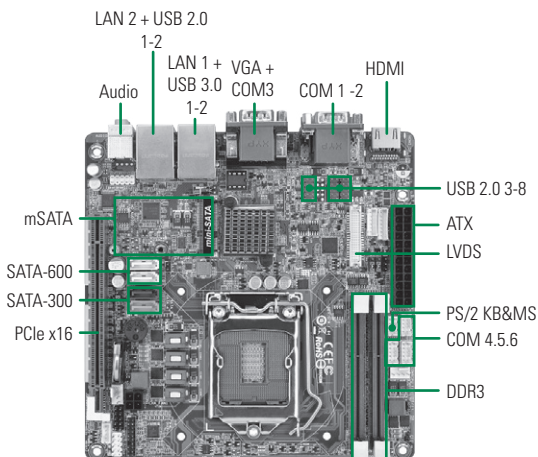
Standard	
I/O Bracket, Driver CD, COM & SATA Cable	

Ordering Information

Standard	
MANO882	LGA1150 socket Intel® Xeon® E3-v3 and 4th generation Core™ i7/i5/i3, Celeron® & Pentium® (Haswell/Haswell Refresh) Mini-ITX SBC with Intel® C226, HDMI/DisplayPort/VGA/LVDS, Dual GbE LAN and USB 3.0
Optional	
MANO882-H81	LGA1150 socket Intel® 4th generation Core™ i7/i5/i3, Celeron® & Pentium® (Haswell/Haswell Refresh) Mini-ITX SBC with Intel® H81, DisplayPort/VGA/LVDS, Dual GbE LAN and USB 3.0

MANO881

LGA1150 Socket 4th Generation Intel® Core™ i7/i5/i3 & Celeron® Mini-ITX SBC with Intel® H81, HDMI/VGA/LVDS, Dual LAN and USB 3.0



System

CPU	LGA1150 socket 4th generation Intel® Core™ i7/i5/i3 & Celeron® processor (Haswell/Haswell Refresh)
System Memory	2 x 204-pin SO-DIMM dual channel DDR3-1333/1600, max. up to 16 GB
Chipset	Intel® H81
BIOS	AMI
SSD	N/A
Watchdog Timer	255 level, 1 ~ 255 sec
Expansion Interface	1 x PCIe x16 Gen2 1 x mSATA
Battery	Lithium 3V/220 mAh
Power Requirements	i7-4770S 3.1GHz 4 GB x 1 DDR3-1333, +12V @ 5.2A, -12V @ 0.1A, +5V @ 2.2A, +5VSB @ 0.2A, +3.3V @ 0.9A
Size/Weight	170 x 170 mm
Temperature	0° ~ +60°C (+32°F ~ +140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 PS/2 header supports KB & MS 3 x RS-232/422/485 (COM 1 ~ 3) 3 x RS-232 (COM 4 ~ 6) COM 1 ~ 6 with 5V/12V power select
SATA	2 x SATA-300 2 x SATA-600
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	1st port as 10/100/1000 Mbps supports WOL, PXE with Intel® i217LM (LAN1) 2nd port as 10/100/1000 Mbps supports WOL, PXE with Intel® i210 (LAN2)
Audio	HD Audio as Mic-in/Line-out with Realtek ALC662
USB	2 x USB 3.0 8 x USB 2.0
TPM	N/A
Digital I/O	8 Channels programmable
SM BUS	N/A

Features

- LGA1150 socket 4th generation Intel® Core™ i7/i5/i3 & Celeron® processors (Haswell/Haswell Refresh)
- 2 DDR3-1333/1600MHz max. up to 16 GB
- PCIe x16 Gen2 supported
- 1 mSATA supported
- 2 SATA-600, 2 SATA-300 supported
- 2 USB 3.0 and 8 USB 2.0 ports
- Dual view display
- Display: HDMI/VGA/LVDS

Display

Chipset	Intel® HD 4000/5000 series Graphics
Memory Size	Shared Memory
Display Interface	1 x HDMI 1 x VGA 1 x LVDS

Packing List

Standard

I/O Bracket, Driver CD

Ordering Information

Standard

MANO881	LGA1150 socket mini ITX SBC with 4th generation Intel® Core™ i7/i5/i3 & Celeron®, USB 3.0, SATA 3.0 dual LAN, HDMI/VGA/ LVDS and mSATA
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Optional

593826A0000E	SATA signal Cable, L=500 mm
593M8810300E	COM PORT CABLE, P=2.0 L=300 mm
593M8810400E	USB cable with bracket, p=2.54 mm, L=200 mm
593M8400400E	Audio cable with bracket, p=2.54 mm, L=300 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 Motherboards

Slot CPU Cards

ARM Embedded Boards

Accessories

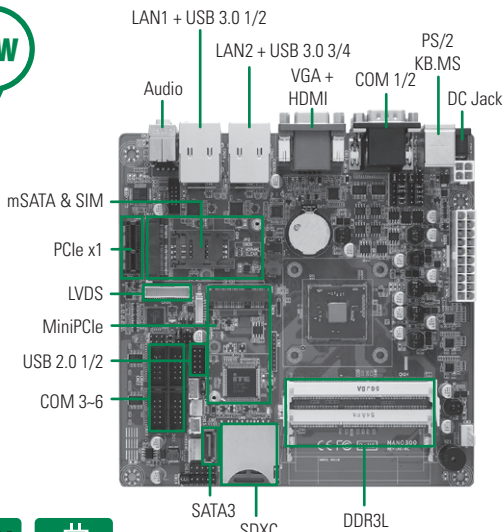
Appendix



MANO300

Intel® Celeron® Processor N3160 (up to 2.24 GHz) SoC Mini-ITX SBC, VGA/HDMI/LVDS, USB 3.0, PCI Express Mini Card, mSATA, PCIe x1, and HD Audio

NEW



System

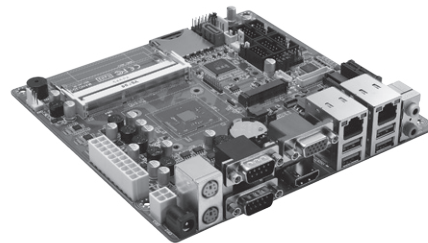
CPU	Intel® Celeron® processor N3160 (up to 2.24 GHz) quad core SoC (Braswell)
System Memory	2 x 204-pin SO-DIMM dual channel DDR3L-1333, max. up to 8 GB
Chipset	SoC integrated
BIOS	AMI
SSD	SDXC Slot
Watchdog Timer	Reset: 1 ~ 255 sec
Expansion Interface	1 x PCIe x1 1 x PCI Express mini card
Battery	Lithium 3V/220 mAh
Power Requirements	12VDC or STD ATX
Size/Weight	170 x 170 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 KB & MS 2 x RS-232/422/485 (Rear I/O) 4 x RS-232; (COM3 with +5/+12V)
SATA	1 x SATA-600 1 x mSATA
Ethernet	2 x Realtek RTL8111F for Gigabit LAN support WoL & PXE
Audio	HD Audio as Mic-in/Line-out with Realtek ALC662
USB	2 x USB 2.0; (internal) 4 x USB 3.0; (rear I/O)
TPM	N/A
Digital I/O	8 Channels programmable
SM BUS	N/A

Features

- Intel® Celeron® N3160 2.24 GHz Braswell SoC processor
- 2 DDR3L-1333 MHz max. up to 8 GB
- PCIe x1 supported
- 4 USB 3.0 and 2 USB 2.0 supported
- 1 SATA-600 and 1 mSATA supported
- 1 SDXC supported
- 6 COM ports supported
- 12VDC and STD ATX supported
- Triple view display (VGA/HDMI/LVDS)



▲ Side view

Display

Chipset	Intel® HD graphics
Memory Size	Shared memory
Display Interface	1 x VGA 1 x HDMI 1 x LVDS 18/24bit dual channel

Packing List

Standard

I/O Bracket

Ordering Information

Standard

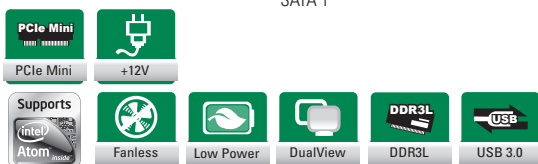
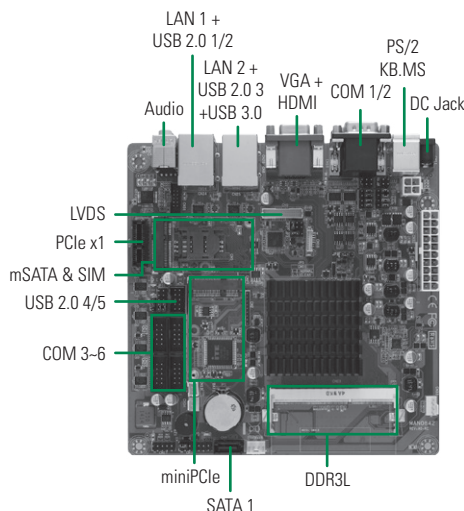
MANO300	Intel® Celeron® N3160 Braswell mini-ITX SBC with VGA/HDMI/LVDS, dual GbE, 6 COM, USB 3.0, PCIe x1, mSATA, PCI express mini card and HD audio
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Optional

59411500600E	SATA POWER CABLE 4P 18CM (RC)
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MANO842

Intel® Celeron® Processor J1900 (up to 2.42 GHz) SoC Mini-ITX, VGA/HDMI/LVDS, USB 3.0, PCI Express Mini Card, PCIe x1, and HD Audio



System

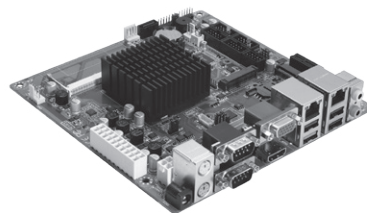
CPU	Intel® Celeron® processor J1900 (up to 2.42 GHz) quad core SoC (Bay Trail)
System Memory	1 x 204-pin SO-DIMM dual channel DDR3L-1333, max. up to 8 GB
Chipset	SoC integrated
BIOS	AMI
SSD	N/A
Watchdog Timer	Reset: 1 ~ 255 sec
Expansion Interface	1 x PCIe x1 1 x PCI Express mini card 1 x mSATA
Battery	Lithium 3V/220 mAh
Power Requirements	12VDC or STD ATX
Size/Weight	170 x 170 mm
Temperature	0°C ~ +60°C (32°F ~ 140°F), Operation.
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x PS/2 KB & MS 2 x RS-232/422/485 (rear I/O) 4 x RS-232
SATA	1 x SATA-300 1 x mSATA
Ethernet	2 x Realtek RTL8111E for Gigabit LAN support WoL & PXE
Audio	HD Audio as Mic-in/Line-out with Realtek ALC662
USB	5 x USB 2.0 1 x USB 3.0; (rear I/O: 1 x USB 3.0+3 x USB 2.0)
TPM	N/A
Digital I/O	8 Channels programmable
SM BUS	N/A

Features

- Intel® Celeron® J1900 Bay Trail-D 2.0GHz SoC
- 1 DDR3L-1333 MHz max. up to 8 GB
- PCIe x1 supported
- 1 USB 3.0 and 5 USB 2.0 ports
- 1 SATA-300 interface
- mSATA supported
- 6 COM ports
- ATX or 12VDC supported
- Dual view display



▲ Side view

Display

Chipset	Intel® HD graphics
Memory Size	Shared Memory
Display Interface	1 x VGA 1 x HDMI 1 x LVDS 18/24bit Dual channel

Packing List

Standard

I/O Bracket, Driver CD

Ordering Information

Standard

MANO842 Intel® Celeron® J1900 Bay Trail-D mini ITX SBC, VGA/HDMI/LVDS, Dual GbE LAN, USB 3.0, PCIe x1, PCI express mini card and HD Audio

Optional

59411500600E SATA POWER CABLE 4P 18CM (RC)

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

4
Industrial
Mother-boards

Slot CPU
Cards

ARM
Embedded
Boards

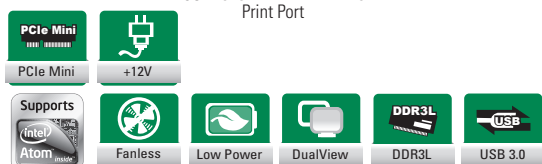
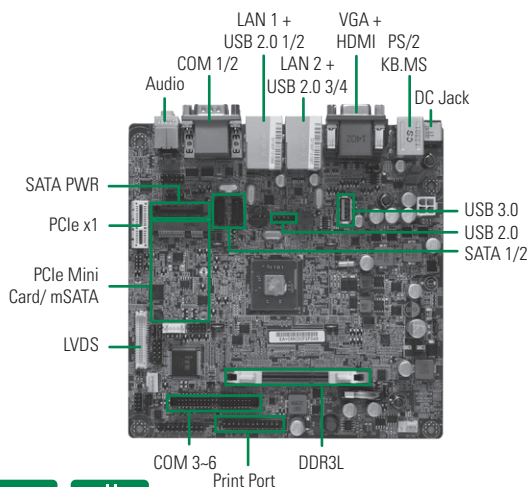
Accessories

Appendix



MANO840

Intel® Celeron® Processor J1900 (up to 2.42 GHz) SoC Mini-ITX, VGA/HDMI/LVDS, USB 3.0, PCI Express Mini Card, PCIe x1, and HD Audio



System

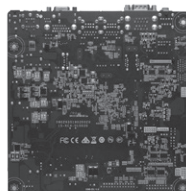
CPU	Intel® Celeron® processor J1900 (up to 2.42 GHz) quad core SoC (Bay Trail)
System Memory	1 x 204-pin SO-DIMM dual channel DDR3L-1333, max. up to 8 GB
Chipset	SoC integrated
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1 ~ 255 sec.
Expansion Interface	1 x PCIe x1 1 x PCI Express Mini Card
Battery	Lithium 3V/220 mAh
Power Requirements	12V ATX or 12V DC-Jack
Size/Weight	170 x 170 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, non-condensing

I/O

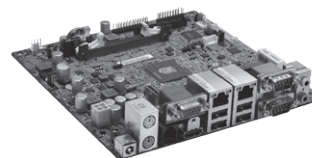
MIO	1 x PS/2 KB & MS 1 x LPT 6 x RS-232 (1 RS-232 supports +5V/+12V by jumper)
SATA	2 x SATA-300 1 x mSATA (by PCI Express Mini Card Slot, shared with SATA2 Conn)
Ethernet	2 Ports as 10/100/1000 Mbps with Realtek RTL8111G
Audio	HD Audio as Mic-in/Line-out with Realtek ALC269
USB	5 x USB 2.0 1 x USB 3.0
TPM	N/A
Digital I/O	8 Channels programmable
SM BUS	N/A

Features

- Intel® Celeron® J1900 Bay Trail-D 2.0GHz quad core SoC
- 1 DDR3L-1333 MHz max up to 8 GB
- PCIe x1 supported
- 1 USB 3.0 and 5 USB 2.0 ports
- 2 SATA-300 interface
- mSATA supported
- 6 COM ports
- 12V DC Jack
- Dual view display



▲ Rear view



▲ Side view

Display

Chipset	Intel® HD Graphics
Memory Size	Shared Memory
Display Interface	1 x VGA 1 x HDMI 1 x LVDS 18/24bit Dual channel

Packing List

Standard

I/O Bracket, Driver CD

Ordering Information

Standard

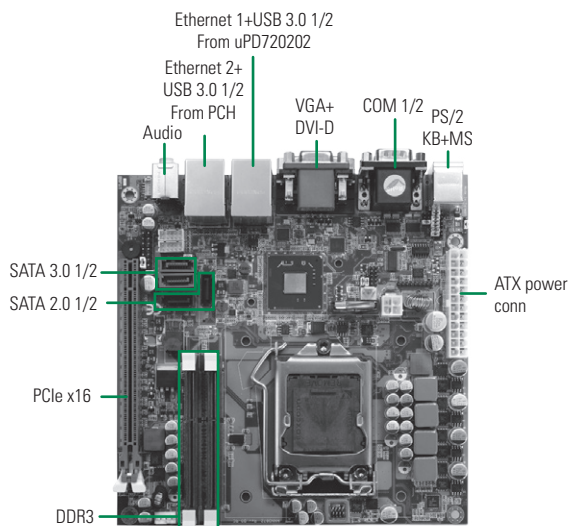
MANO840	Intel® Celeron® J1900 Bay Trail-D mini ITX SBC with VGA/HDMI/LVDS, dual GbE LAN, USB 3.0, PCIe x1, PCI express mini card and HD Audio.
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Optional

593M8400300E	COM port cable for MANO840 P=2.0 L=300 mm
59460412800E	USB Cable A TYPE Dupont 1 x 5 L=200 mm (RC)
593M8400400E	Audio cable with bracket, P=2.54 mm L=300 mm
593F2040300E	LPT cable with bracket, P=2.54 mm L=300 mm

MANO873

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



System

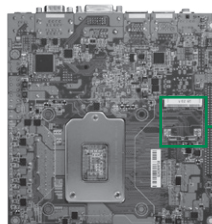
CPU	LGA1155 socket 3rd generation Intel® Core™ i7/i5/i3 & Celeron® processor
System Memory	2 x 204-pin SO-DIMM dual channel DDR3-1333/1600 max. up to 16 GB
Chipset	Intel® Q77
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	N/A
Watchdog Timer	255 level, 1 ~ 255 sec
Expansion Interface	1 x PCIe x16 Gen3 1 x PCI Express Mini Card (Shared mSATA)
Battery	Lithium 3V/220 mAh
Power Requirements	i7-2700K: +5V @ 1.8A, +12V @ 6.1A, +5Vsb @ 0.3A, +3.3V @ 0.9A
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

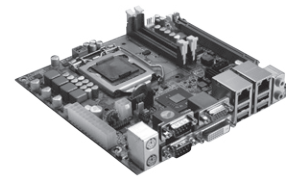
MIO	1 x RS-232/422/485 (COM 1); with 5V/12V power 1 x RS-232 (COM 2) 1 x PS/2 keyboard and mouse
SATA	2 x SATA-300; 1 SATA-300 supports SATA DOM 2 x SATA-600 support RAID 0/1/5/10
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	1st port as 10/100/1000 Mbps support WOL, 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 (2 USB 3.0 from Intel® 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
- 2 DDR3-1333/1600 MHz max. up to 16 GB memory capacity
- PCIe x16 Gen3 supported
- 2 SATA-600 and 2 SATA-300, support RAID 0/1/5/10
- 4 USB 3.0 ports
- Intel® iAMT 8.0 supported
- TPM 1.2 supported
- mSATA supported



▲ 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, I/O Bracket

Ordering Information

Standard

MANO873	LGA1155 socket mini ITX SBC with 3rd generation Intel® Core™ i7/i5/i3 and Celeron®, VGA/DVI-D, 2 GbE LAN & USB 3.0
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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

4
Industrial
Motherboards

Slot CPU
Cards

ARM
Embedded
Boards

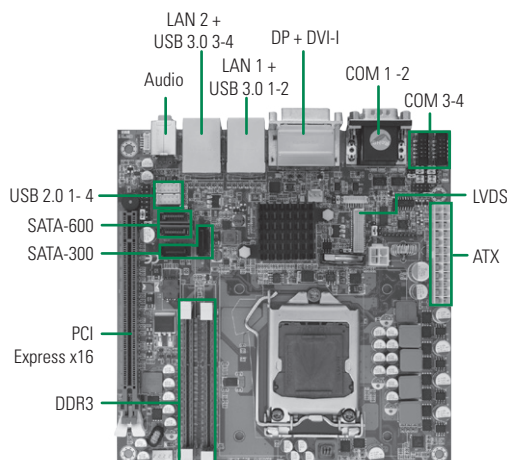
Accessories

Appendix



MANO872

LGA1155 Socket 3rd Generation Intel® Core™ i7/i5/i3 & Celeron® Mini-ITX SBC with Intel® Q77, DisplayPort/DVI-I/LVDS, Dual LANs and USB 3.0



System

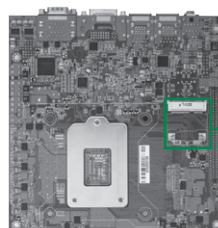
CPU	LGA1155 socket 3rd generation Intel® Core™ i7/i5/i3 & Celeron® processor
System Memory	2 x 204-pin SO-DIMM dual channel DDR3-1333/1600 max. up to 16 GB
Chipset	Intel® Q77
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	N/A
Watchdog Timer	255 level, 1 ~ 255 sec.
Expansion Interface	1 x PCIe x16 Gen3 1 x PCI Express Mini Card
Battery	Lithium 3V/220 mAh
Power Requirements	i7-2700K: +5V @ 1.5A, +12V @ 6.8A, +5Vsb @ 0.5A, +3.3V @ 1A
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

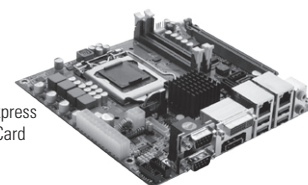
MIO	1 x RS-232/422/485 (COM 1) 3 x RS-232 (COM 2-4); COM 1 and COM 3 with 5V/12V power
SATA	2 x SATA-300, 2 x SATA-600, support RAID 0/1/5/10
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	1st port as 10/100/1000 Mbps support WOL, PXE with Intel® 82579LM/V (LAN 1) 2nd 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 TPM 1.2 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® processor
- 2 DDR3-1333/1600 MHz max. up to 16 GB memory capacity
- PCIe x16 Gen3 supported
- 2 SATA-600 and 2 SATA-300, support RAID 0/1/5/101
- 4 USB 3.0 ports
- Intel® iAMT 8.0 supported
- TPM 1.2 supported
- Triple view display



▲ 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

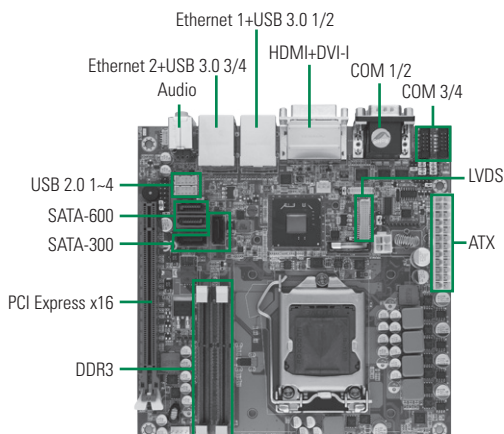
Standard
User's manual/utility CD, cable, I/O bracket

Ordering Information

Standard	
MANO872	LGA1155 socket mini ITX SBC with 3rd generation Intel® Core™ i7/i5/i3 & Celeron®, DisplayPort/DVI-I/LVDS, 2 GbE LAN and 4 USB 3.0

MANO871

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



System

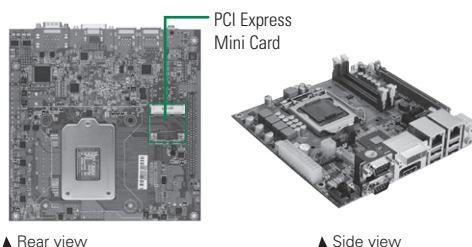
CPU	LGA1155 socket 3rd generation Intel® Core™ i7/i5/i3 & Celeron® processor
System Memory	2 x 204-pin SO-DIMM dual channel DDR3-1333/1600 max. up to 16 GB
Chipset	Intel® Q77
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	N/A
Watchdog Timer	255 level, 1 ~ 255 sec.
Expansion Interface	1 x PCIe x16 Gen3 1 x 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 (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
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 TPM 1.2 SLB9635
SMBUS	N/A
Digital IO	8 channels (4-IN & 4-OUT)

Features

- LGA1155 socket 3rd generation Intel® Core™ i7/i5/i3 & Celeron® processor
- 2 DDR3-1333/1600 MHz max. up to 16 GB memory capacity
- PCIe x16 Gen 3 supported
- 2 SATA-600 and 2 SATA-300, support RAID 0/1/5/10
- 4 USB 3.0 ports
- Intel® iAMT 8.0 supported
- TPM 1.2 supported
- Dual view display



▲ 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

User's manual/utility CD, cable

Ordering Information

Standard	
MANO871	LGA1155 socket mini ITX SBC with 3rd generation Intel® Core™ i7/i5/i3 & Celeron®, HDMI/DVI-I/LVDS, 2 GbE LAN 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

4
Industrial
Motherboards

Slot CPU
Cards

ARM
Embedded
Boards

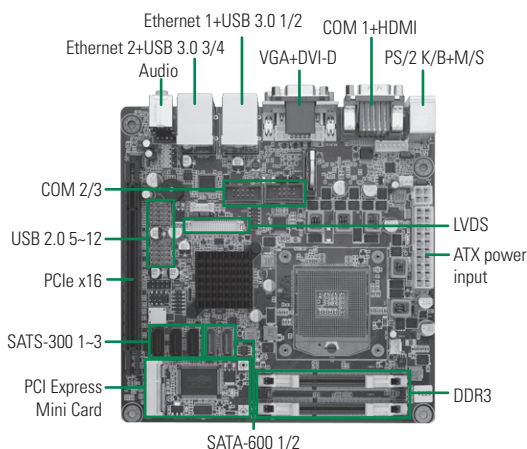
Accessories

Appendix



MANO870

Socket G2 3rd Generation Intel® Core™ i7/i5/i3 & Celeron® Mini-ITX SBC with Intel® QM77, HDMI/DVI-D/VGA/LVDS, PCI Express Gen 3, SATA-600, Dual LANs and HD Audio



System

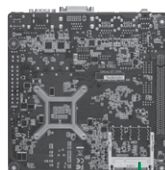
CPU	Socket G2 (rPGA 988B) for 3rd generation Intel® Core™ i7/i5/i3 & Celeron® processor
System Memory	2 x 204-pin SO-DIMM dual channel DDR3-1333/1600 max. up to 16 GB
Chipset	Intel® QM77
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	1 x CFast™
Watchdog Timer	255 level, 1 ~ 255 sec
Expansion Interface	1 x PCIe x16 Gen 3 1 x PCI Express mini card
Battery	Lithium 3V/220 mAh
Power Requirements	Intel® Core™ i5-3610ME 2.7 GHz, 4 GB 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

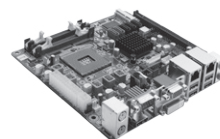
Features

- Socket G2 (rPGA 988B) for 3rd generation Intel® Core™ i7/i5/i3 & Celeron® processor
- 2 DDR3-1333/1600 MHz max. up to 16 GB
- PCIe x16 Gen 3 supported
- 4 USB 3.0 ports
- 2 SATA-600 and 3 SATA-300, support RAID 0/1/5/10
- Intel® iAMT 8.0 supported
- TPM 1.2 supported
- Dual view display
- Display: HDMI/DVI-D/VGA/LVDS



▲ 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

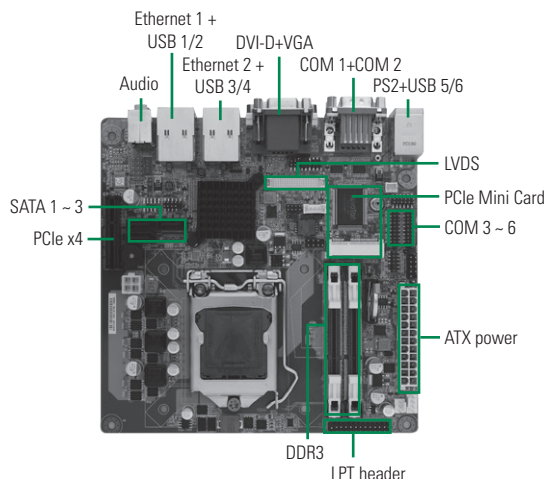
User's manual/utility CD, cable

Ordering Information

Standard	
MANO870	Socket G2 mini ITX SBC with 3rd generation Intel® Core™ i7/i5/i3 & Celeron®, HDMI/DVI-D/VGA/LVDS, PCI Express Gen 3, SATA-600, 2 GbE LAN and audio
Optional	
59460642100E	COM Port Cable, 5x2P, P=2.54 mm, L=300 mm
594F2112100E	COM Port DB9 to 5x2P, P=2.54 mm, L=300 mm w/BK
594F2112110E	COM Port x 2 DB9 to 5x2P, P=2.54 mm, L=300 mm w/BK

MANO861

LGA1155 Socket 3rd Generation Intel® Core™ i7/i5/i3 & Celeron® Mini-ITX SBC with Intel® H61, VGA/DVI-D/LVDS, Dual LANs and HD Audio



System

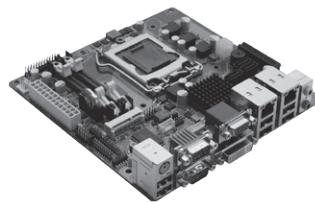
CPU	LGA1155 socket 3rd generation Intel® Core™ i7/i5/i3 and Celeron® processors
System Memory	2 x 204-pin SO-DIMM dual channel DDR3-1333/1600 max. up to 16 GB
Chipset	Intel® H61
BIOS	AMI UEFI BIOS
SSD	N/A
Watchdog Timer	255 levels, 1 ~ 255 sec.
Expansion Interface	1 x PCIe x4 1 x PCI Express Mini Card (Shared USB & mSATA)
Battery	Lithium 3V/ 220 mAH
Power Requirements	+5V @ 1.7A, +12V @ 5.9A, +5Vsb @ 0.1A, +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) 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)

Features

- LGA1155 socket 3rd generation Intel® Core™ i7/i5/i3 & Celeron® processor
- Intel® H61 chipset
- 2 DDR3-1066/1333 MHz max. up to 16 GB
- 1 PCIe x4 supported
- 3 SATA-300 interfaces
- 6 USB 2.0 ports
- 6 COM ports
- Dual view display
- Display: VGA/DVI-D/LVDS



▲ Side view

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

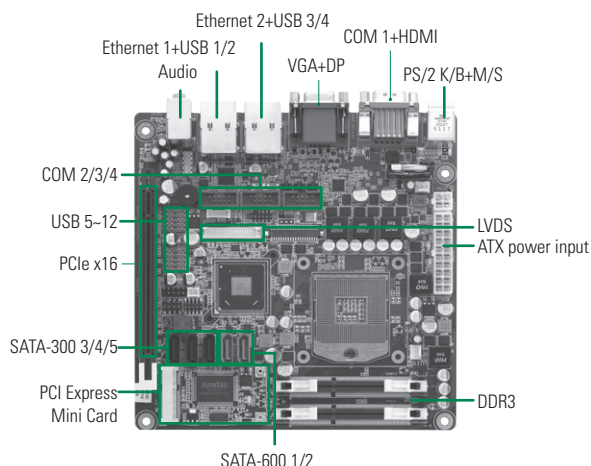
Ordering Information

Standard	
MANO861	LGA1155 socket mini ITX SBC with 3rd generation Intel® Core™ i7/i5/i3 & Celeron®, VGA/DVI-D/LVDS, 2 GbE LAN, 6 COM and audio
Optional	
5938M861010E	COM Port Cable, 10x2P, P=2.0 mm, L=300 mm



MANO860

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



System

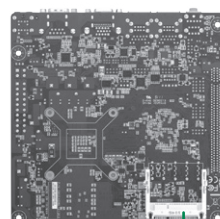
CPU	Socket G2 (rPGA 988B) for 2nd generation Intel® Core™ i7/i5/i3 and Celeron® processor
System Memory	2 x 204-pin SO-DIMM support DDR3-1066/1333 max. up to 16 GB
Chipset	Intel® QM67
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 Gen. 2 1 x PCI 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, support 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
TPM	Infineon SLB9625 for trusted platform
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels (4-IN & 4-OUT)

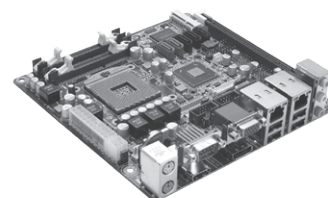
Features

- Socket G2 (rPGA 988B) 2nd generation Intel® Quad/ Dual Core™ i7/i5/i3 & Celeron® processor
- 2 DDR3-1066/1333 MHz, max. up to 16 GB
- PCIe x16 Gen. 2 supported
- 2 x SATA-600, 3 x SATA-300, support RAID 0/1/5/10
- Intel® iAMT supported
- TPM supported
- Display: DisplayPort/HDMI/VGA/LVDS



▲ Rear view

CFast



▲ Side view

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

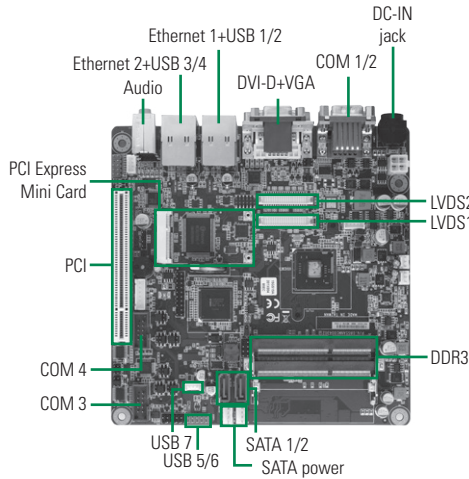
User's manual/utility CD, SATA cable, I/O bracket

Ordering Information

Standard	
MANO860PHGGA (P/N: E38M860100)	Socket G2 mini ITX SBC with Intel® Core™ i7/i5/i3, VGA/ DisplayPort/HDMI/LVDS, 2 GbE LAN, HD audio, 4 COM, 5 SATA and CFast™
Optional	
59460642100E	COM Port Cable, 5 X 2P, P=2.54 mm, L=300 mm
594F2112100E	COM Port DB9 to 5x2P, P=2.54 mm, L=300 mm w/BK
594F2112110E	COM Portx2 DB9 to 5x2P, P=2.54 mm, L=300 mm w/BK

MANO831

Intel® Atom™ Processor D2550 Mini-ITX SBC with Intel® NM10 Chipset, VGA/DVI-D/LVDS1/LVDS2, Dual LAN and HD Audio



System

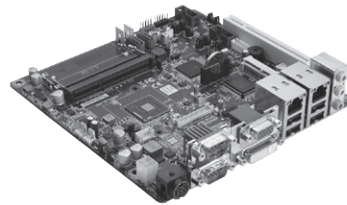
CPU	Intel® Atom™ processor D2550 (1.86 GHz)
System Memory	2 x 204-pin SO-DIMM, support DDR3-1066 max. up to 4 GB
Chipset	Intel® NM10
BIOS	AMI 16Mb flash ROM
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI 1 x mini PCIe
Battery	Lithium 3V/220 mAh
Power Requirements	+12V @ 1.6A
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 TPM 1.2 SLB9635

Features

- Intel® Atom™ processor D2550 (1.86 GHz) onboard
- 2 DDR3-1066 MHz max. up to 4 GB
- Dual view display via DVI-D/VGA/LVDS1/LVDS2
- PCI/Mini PCIe expansion slot
- 2 SATA-300 interfaces
- 7 USB 2.0 ports
- TPM 1.2 supported



▲ Side view

Display

Chipset	Intel® Graphics Media Accelerator (GMA) 3650
Memory Size	Share memory
Display interface	1 x VGA 1 x DVI-D 1 x LVDS1 (single channel) 1 x LVDS2 (dual channel)

Packing List

User's manual/utility CD, cable

Ordering Information

Standard	
MANO831	Mini ITX SBC with Intel® Atom™ D2550, VGA/DVI-D/LVDS, 2 GbE LAN, 4 COM, 7 USB and HD audio
Optional	
59460642100E	COM port Cable, 5 x 2P, P=2.54 mm, L=300 mm
594F2112100E	COM port DB9 to 5x2P P=2.54 L30cm w/BK
594F2112110E	COM portx2 DB9 to 5x2P P=2.54 L30cm w/BK

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

4

Industrial Motherboards

Slot CPU Cards

ARM Embedded Boards

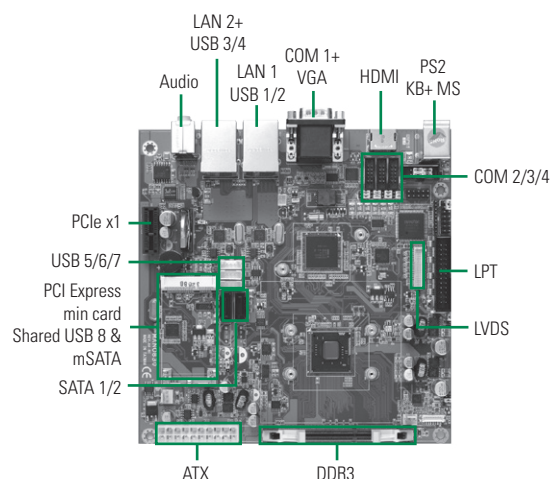
Accessories

Appendix



MANO830

Intel® Atom™ D2550/N2600 Mini-ITX SBC with Intel® NM10, VGA/HDMI/LVDS, PCI Express Mini Card, PCIe x1 and HD Audio



System

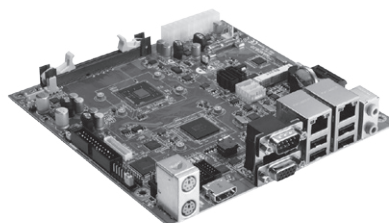
CPU	Intel® Atom™ Cedarview processor D2550 1.86 GHz/ N2600 1.6 GHz onboard
System Memory	1 x 204-pin SO-DIMM DDR3-1066 max. up to 4 GB (N2600 supports DDR3-800 max. up to 2 GB)
Chipset	Intel® NM10
BIOS	AMI UEFI BIOS
SSD	N/A
Watchdog Timer	Reset: 1 ~ 255 sec.
Expansion Interface	1 x PCIe x1 1 x PCI Express Mini Card (By jumper selection for mSATA or PCIe Mini Card)
Battery	Lithium 3V/220 mAH
Power Requirements	D2550: +5V @ 1.7A, +12V @ 1.5A, +5Vsb @ 0A, +3.3V @ 1.0A N2600: +5V @ 1.4A, +12V @ 1.4A, +5Vsb @ 0A, +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 PS/2 keyboard and mouse 4 x RS-232 (COM 1 ~ COM 4) with 5V/12V jumper selection 1 x LPT
SATA	2 x SATA-300
Ethernet	2 x Realtek RTL8111E for Gigabit LAN
Audio	HD Audio as Mic-in/Line-out with Realtek ALC892
USB	7 x USB 2.0
TPM	N/A
Digital I/O	8 Channels (4-IN & 4-OUT)
SM BUS	N/A

Features

- Intel® Atom™ Cedarview processor D2550 (1.86 GHz)/ N2600 (1.6 GHz) onboard
- 1 DDR3-1066 MHz max. up to 4 GB
- PCIe x1 supported
- 8 USB 2.0 ports
- 2 SATA-300 supported
- PCI Express Mini Card supported
- ATX power supported
- Dual view display
- Display: VGA/HDMI/LVDS



▲ Side view

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

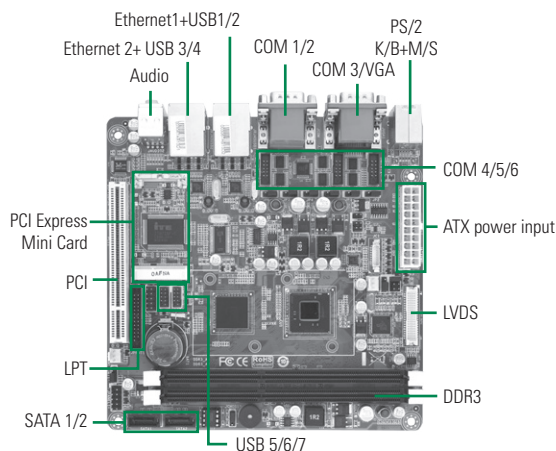
User's manual/utility CD, cable, I/O bracket

Ordering Information

Standard	
MANO830-D2550	Intel® Atom™ Cedar-view D2550 mini-ITX SBC with Intel® NM10, VGA/HDMI/LVDS, 2 GbE, HD Audio
E38M830101	
MANO830-N2600	Intel® Atom™ Cedar-view N2600 mini-ITX SBC with Intel® NM10, VGA/HDMI/LVDS, 2 GbE, HD Audio
E38M830102	

MANO825

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



System

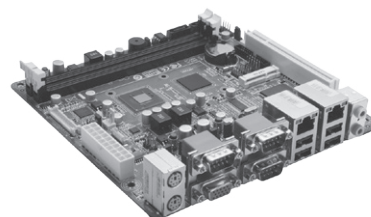
CPU	Intel® Atom™ processor D525 1.8 GHz onboard
System Memory	2 x 240-pin DIMM support DDR3-800 max. up to 4 GB
Chipset	Intel® NM10
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI 1 x PCI Express Mini card
Battery	Lithium 3 V/ 220 mAh
Power Requirements	Intel® Atom™ D525 Dual Core Pineview-D, 2 GB 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
SMBus	System Management Bus for advanced monitoring/control
Digital IO	8 channels (4-IN & 4-OUT)

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

Display

Chipset	Intel® GMA3150 graphics core
Memory Size	Intel® DVM 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	
MANO825VGA-D525	Mini ITX SBC with Intel® Atom™ processor D525, VGA/LVDS, 2 GbE LAN, 6 COM, HD audio and PCI expansion
Optional	
594M8252110E	COM Port Cable, 5x2P, P=2.0 mm, L=200 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

4 Industrial Motherboards

Slot CPU Cards

ARM Embedded Boards

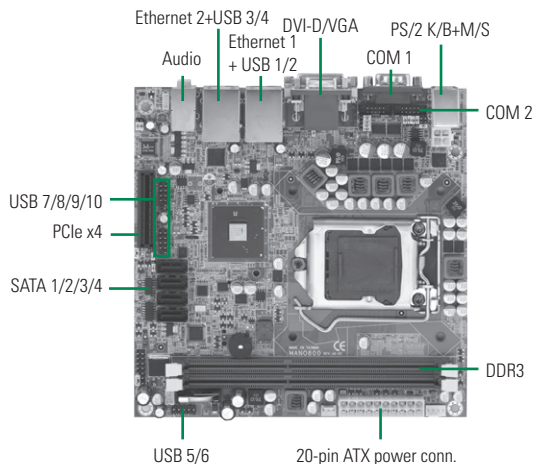
Accessories

Appendix



MANO800

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



System

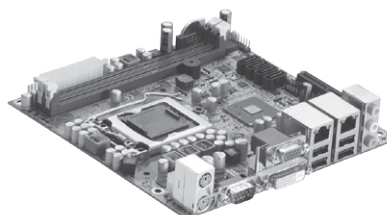
CPU	LGA1156 socket for Intel® Core™ i7/i5/i3 & Pentium® processor with FSB 1066/1333 MHz
System Memory	2 x 240-pin DIMM support DDR3-1066/1333 max. up to 8 GB
Chipset	Intel® Q57
BIOS	AMI UEFI BIOS
SSD	1 x CompactFlash™ type-II or 1 x CFast™ (optional)
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x4
Battery	Lithium 3 V/ 220 mAh
Power Requirements	Intel® Core™ i5-660 @ 3.33 GHz, 2 GB 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 (4-IN & 4-OUT)

Features

- LGA1156 socket for Intel® Core™ i7/i5/i3 & Pentium® processor with FSB 1066/1333 MHz
- 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)
- Display: DVI-D/VGA



▲ Side view

Display

Chipset	Intel® HD Graphics
Memory Size	Intel® DVM T 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 500 mm	1

Ordering Information

Standard

MANO800DGGA CF w/ CF (P/N: E38M800100)	LGA1156 mini ITX SBC with DVI-D/VGA, 2 GbE LAN, HD audio, 2 COM ports, 4 SATA and CompactFlash™
MANO800DGGA (P/N: E38M800102)	LGA1156 mini ITX SBC with DVI-D/VGA, 2 GbE LAN, HD audio, 2 COM ports, 4 SATA

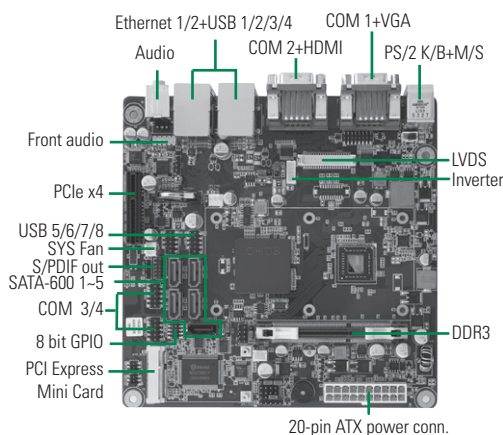
Optional

MANO800DGGA w/ CFast (P/N: E38M800101)	LGA1156 mini ITX SBC with DVI-D/VGA, 2 GbE LAN, HD audio, 2 COM ports, 4 SATA and CFast™
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* Discrete graphic card is necessary for display if the chosen CPU doesn't have integrated graphics support.

MANO120

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



System

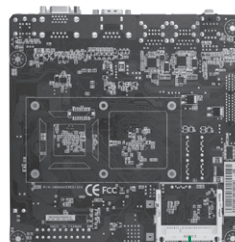
CPU	AMD G-Series APU T56N 1.65 GHz dual core onboard
System Memory	1 x 204-pin SO-DIMM supports DDR3-1066/1333 max. up to 4 GB
Chipset	AMD A55E
BIOS	AMI EFI 16Mb SPI
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x4 slot 1 x PCIe Mini Card 1 x CFast™
Battery	Lithium 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 Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

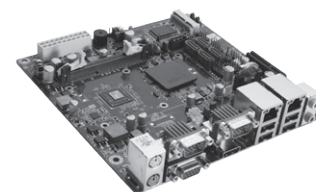
MIO	1 x PS/2 keyboard 1 x PS/2 mouse 4 x RS-232 (with 2 powered COM)
SATA	5 x SATA-600
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart fan control
Ethernet	2 ports as 10/100/1000 Mbps support Wake-on-LAN, PXE Boot ROM with Realtek RTL8111DL
Audio	HD Codec audio as MIC-in/Line-out 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	8 channels (4-IN & 4-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
- AT/ATX mode supported



▲ Rear view



▲ 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	
MANO120VGA-T56N	AMD G-Series APU T56N mini ITX SBC with A55E FCH, LVDS/HDMI/VGA, 2 GbE LAN, 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

4
Industrial
Motherboards

Slot CPU
Cards

ARM
Embedded
Boards

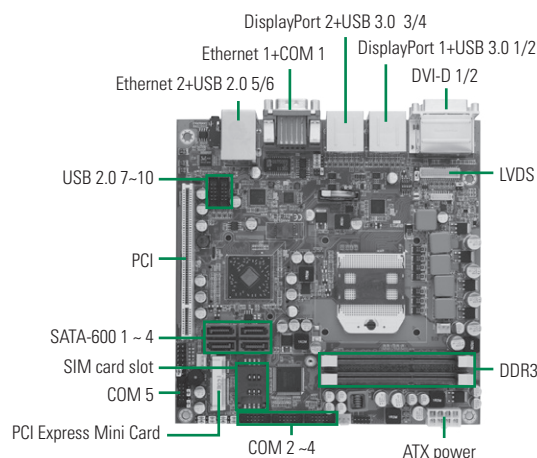
Accessories

Appendix



MANO111

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



System

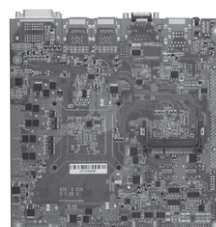
CPU	FS1r2 socket AMD Embedded R-Series APU
System Memory	2 x 204-pin SO-DIMM DDR3-1333/1600 max. up to 16 GB
Chipset	AMD A75
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	CFast™
Watchdog Timer	255 level, 1 ~ 255 sec
Expansion Interface	PCI, PCIe Mini Card, SIM card
Battery	Lithium 3V/220 mAH
Power Requirements	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

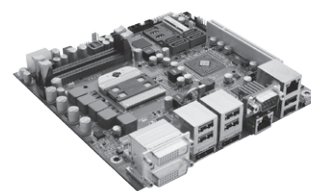
MIO	1 x RS-232/422/485 (COM 1); with +5V/+12V. 4 x RS-232 (COM 2~5); with +5V/+12V.
SATA	4 SATA-600 with RAID 0, 1, 5 and 10
Hardware Monitoring	Detect CPU/system temperature, voltage and support Smart fan control
Ethernet	1st port as 10/100/1000Mbps supports wake-on-LAN PXE with Realtek RTL8111E 2nd 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 6 x USB 2.0
TPM	1.2
SMBus	N/A
Digital IO	8 channels (4-IN & 4-OUT)

Features

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

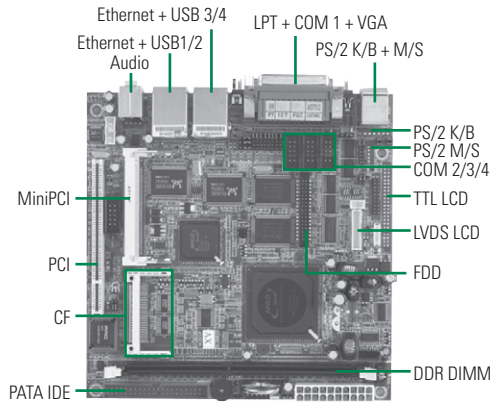
User's manual/utility CD, cable

Ordering Information

Standard	
MANO111	Mini ITX SBC with AMD R-Series APU, DDR3, LVDS/ DisplayPort/DVI-D, 5 COM, 4 USB 3.0 and 2 GbE LAN

SBC86620

AMD LX800 Mini-ITX SBC with Dual LANs,
4 COM and USB 2.0



System

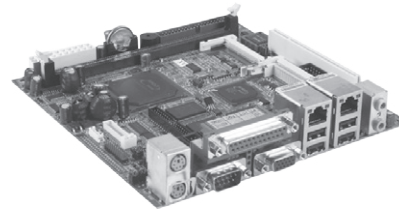
CPU	AMD LX800 processor onboard
System Memory	1 x 184-pin DIMM supports DDR-333/400 max. up to 1 GB
Chipset	AMD LX800 + CS5536AD
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCI for 32-bit PCI supports 2 bus masters 1 x MiniPCI
Battery	Lithium 3V/220 mAh
Power Requirements	AMD LX800, 1 GB 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 10/100 Mbps 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 (4-IN & 4-OUT)

Features

- Low Power Fanless AMD LX800
- Dual 10/100 Mbps Ethernet supported
- 4 COM and 4 USB 2.0 ports
- 1 PCI slot and MiniPCI socket for expansion



▲ Side view

Display

Chipset	AMD LX integrated
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+155 mm	1

Ordering Information

Standard		
SBC86620VEEA -500	Mini ITX SBC with AMD LX800 500 MHz CPU, VGA/LCD,	
(P/N: E386620101)	2 LAN, AC 97 audio and 4 COM ports	

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

4
Industrial
Motherboards

Slot CPU
Cards

ARM
Embedded
Boards

Accessories

Appendix



IMB501

LGA1151 Socket 6th Generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® Processor ATX Industrial Motherboard with Intel® H110, DDR4, USB 3.0, SATA 3.0, Dual LANs, VGA/DP/HDMI

NEW

Coming soon



System

CPU	LGA1151 socket 6th generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® processor
System Memory	2 x 288-pin DIMM support supports DDR4-2133/1866 max. up to 32 GB
Chipset	Intel® H110
BIOS	AMI
SSD	1 x mSATA
Watchdog Timer	255 levels
Expansion Interface	1 x PCIe x16 slot 2 x PCIe x1 slots 4 x PCI slots 1 x PCI Express Mini Card
Battery	Lithium 3 V/ 220 mAh
Size/Weight	305 x 244 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 & mouse 4 x RS-232 (Internal box header) 2 x RS-232/422/485; (rear I/O)
SATA	3 x SATA-600, 1 x mSATA
Hardware Monitoring	Detect CPU/system temperature, voltage and supports Smart fan control
Ethernet	1st port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM, iAMT with Intel® i219LM 2nd port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i210
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662
USB	4 x USB 3.0 4 x USB 2.0
TPM	N/A
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels programmable

Features

- LGA1151 socket 6th generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® processor (Skylake)
- 2 DDR4 2133/1866 MHz
- 4 SATA-600
- 4 USB 3.0 & 4 USB 2.0
- Supports mASTA and PCI Express Mini Card

Display

Display Chipset	Intel® HD Graphics 530/510
Memory Size	TBD
Display Interface	1 x DP 1 x HDMI 1 x VGA (Internal box header)

Ordering Information

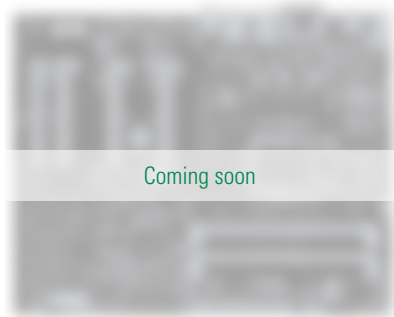
Standard

IMB501	LGA1151 socket 6th generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® processor ATX industrial motherboard with Intel® H110, DDR4, USB 3.0, SATA 3.0, dual GbE LAN, VGA/DP/HDMI and mSATA
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IMB500

LGA1151 Socket 6th Generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® Processor ATX Industrial Motherboard with Intel® Q170, DDR4, USB 3.0, SATA 3.0, Dual LANs, VGA/DP/HDMI and mSATA

NEW



System

CPU	LGA1151 socket 6th generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® processor
System Memory	4 x 288-pin DIMM supported DDR4-2133/1866 max. up to 64 GB
Chipset	Intel® Q170
BIOS	AMI
SSD	1 x mSATA
Watchdog Timer	255 levels
Expansion Interface	1 x PCIe x16 slot 2 x PCIe x4 slots 4 x PCI slots 1 x PCI Express Mini Card
Battery	Lithium 3 V/ 220 mAH
Size/Weight	305 x 244 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 & mouse 4 x RS-232 (Internal box header) 2 x RS-232/422/485; (Rear IO)
SATA	5 x SATA-600 with RAID 0/1/5/10 1 x mSATA
Hardware Monitoring	Detect CPU/system temperature, voltage and supports Smart fan control
Ethernet	1st port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM, iAMT with Intel® i219LM 2nd port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i210
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662
USB	4 x USB 3.0 8 x USB 2.0
TPM	N/A
SMBus	System Management Bus for advanced monitoring/control
Digital I/O	8 channels programmable

Features

- LGA1151 socket 6th generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® processor (Skylake)
- 4 DDR4- 2133/1866 MHz
- Triple View display
- 5 SATA-600 with RAID 0, 1, 5 and 10
- 4 USB 3.0 & 8 USB 2.0 ports
- mSATA supported
- PCI Express Mini Card

Display

Chipset	Intel® HD Graphics 530/510
Memory Size	TBD
Display Interface	1 x DP 1 x HDMI 1 x VGA (Internal box header)

Ordering Information

Standard	
IMB500	LGA1151 socket 6th generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® processor ATX industrial motherboard with Intel® Q170, DDR4, USB 3.0, SATA 3.0, dual GbE LAN, VGA/DP/HDMI and mSATA

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

4
Industrial
Motherboards

Slot CPU
Cards

ARM
Embedded
Boards

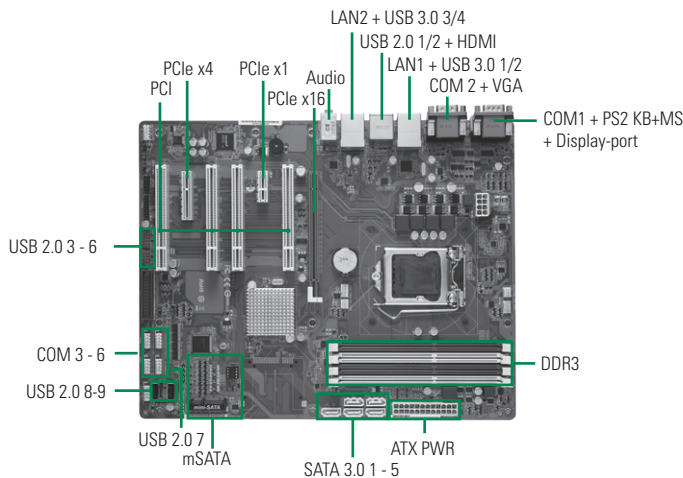
Accessories

Appendix



IMB211

LGA1150 Socket 4th Generation Intel® Core™ i7/i5/i3 & Celeron® Processor ATX Industrial Motherboard with Intel® Q87, USB 3.0, SATA 3.0, Dual LAN, DP/VGA/HDMI and mSATA



System

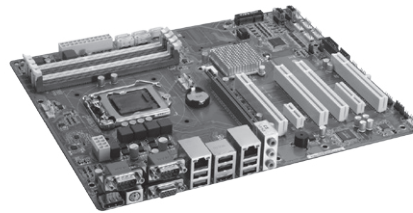
CPU	LGA1150 socket 4th generation Intel® Core™ i7/i5/i3 & Celeron® processor (Haswell)
System Memory	4 x 240-pin DIMM support DDR3-1333/1600 max. up to 32 GB
Chipset	Intel® Q87
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 Gen. 3 slots 1 x PCIe x4 Gen. 2 1 x PCIe x1 Gen. 2 4 x PCI 1 x mSATA
Battery	Lithium 3 V/220 mAh
Power Requirements	i7-4770S 3.1GHz 8 GB x 4 DDR3-1600, +12V @ 5.3A, -12V @ 0.1A, +5V @ 2.7A, +5VSB @ 0.2A, +3.3V @ 0.8A
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	1x PS/2 Keyboard & Mouse 4 x RS-232 (Internal box header) 2 x RS-232/422/485 (Rear IO)
SATA	5 x SATA-600 support 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® i210 2nd port as 10/100/1000 Mbps supports Wake-on-LAN, PXE Boot ROM with Intel® i217LM
Audio	HD Codec audio as MIC-in/Line-in/Line-out
USB	4 x USB 3.0 10 x USB 2.0 (2 in rear IO, 6 with pin header and 2 vertical type conn)

Features

- LGA1150 socket 4th generation Intel® Core™ i7/i5/i3 and Celeron® processor (Haswell)
- 4 DDR3-1333/1600 MHz max. up to 32 GB memory
- Triple View display: DP/VGA/HDMI
- PCIe x16 Gen. 3 supported
- 5 SATA-600 with RAID 0, 1, 5 and 10
- 4 USB 3.0 ports
- Intel® iAMT 9.0 supported



▲ Side view

I/O

TPM	N/A
SMBus	N/A
Digital I/O	8 channels programmable

Display

Display Chipset	Intel® HD Integrated Graphics
Memory Size	TBD
Display Interface	1 x DisplayPort 1 x HDMI 1 x VGA

Packing List

I/O Bracket

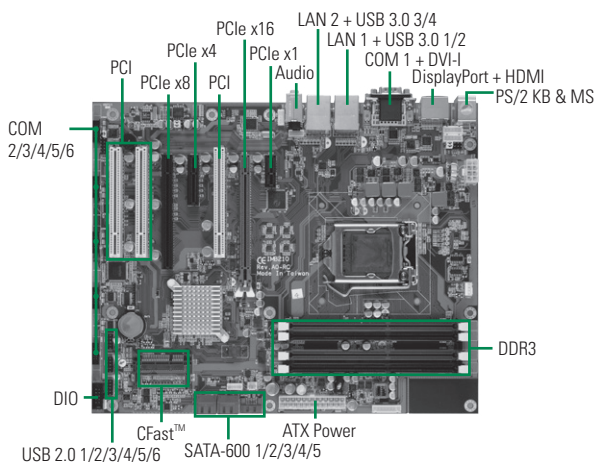
Ordering Information

Standard	
IMB211	LGA1150 socket Intel® Core™ i7/i5/i3 & Celeron® ATX industrial motherboard with USB 3.0, SATA 3.0, Dual GbE LAN, DisplayPort/VGA/HDMI and mSATA

Optional	
59460642100E	COM Port Cable, 5X2P, P=2.54 mm, L=300 mm
593826A000E	SATA signal Cable, L=500 mm
594F2112100E	COM Port DB9 to 5x2P P=2.54 L30cm w/BK
594F2112110E	COM Portx2 DB9 to 5x2P P=2.54 L30cm w/BK
593F2040300E	LPT Cable w/bracket, P=2.54 mm, L=300 mm

IMB210

LGA1150 Socket Intel® Xeon® E3-v3, Core™ i7/i5/i3, Pentium® & Celeron® ATX Industrial Motherboard with Intel® C226, ECC DDR3, USB 3.0, SATA 3.0, Dual LAN, DP/DVI-I/HDMI and CFast™



System

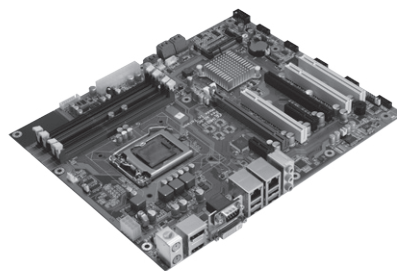
CPU	LGA1150 socket 4th generation Intel® Xeon® E3-v3, Core™ i7/i5/i3, Pentium® and Celeron® processors (Haswell/ Haswell Refresh)
System Memory	4 x 240-pin DIMM support IMB210 supports ECC DDR3-1333/1600 max. up to 32 GB
Chipset	Intel® C226
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	1 x CFast™
Watchdog 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	E3-1275V3 3.5GHz DDR3, 2GB 1333 +5V @ 1.7A, +12V @ 0.55A, +5V SBY @ 0.12A, +3.3V @ 0.73A
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-600 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

Features

- LGA1150 socket Intel® Xeon® E3-v3, Core™ i7/i5/i3, Pentium® & Celeron® (Haswell/ Haswell Refresh)
- Intel® C226
- 4 DDR3-1333/1600 MHz max. up to 32 GB memory capacity
- Triple view display: DP/DVI-I/HDMI
- PCIe x16 Gen. 3 supported
- 5 SATA-600 with RAID 0, 1, 5 and 10
- 4 USB 3.0 ports
- TPM 1.2 supported
- Intel® iAMT 9.0 supported



▲ Side view

I/O

USB	4 x USB 3.0 6 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)

Display

Display Chipset	Intel® HD Integrated Graphics
Memory Size	Max. up to 1.7 GB
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 Intel® Xeon® E3-v3, Core™ i7/i5/i3, Pentium® & Celeron® (Haswell/ Haswell Refresh) ATX industrial motherboard with ECC DDR3, USB 3.0, SATA3.0, dual GbE LAN, DP/DVI-I/HDMI and CFast™

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

4
Industrial
Motherboards

Slot CPU
Cards

ARM
Embedded
Boards

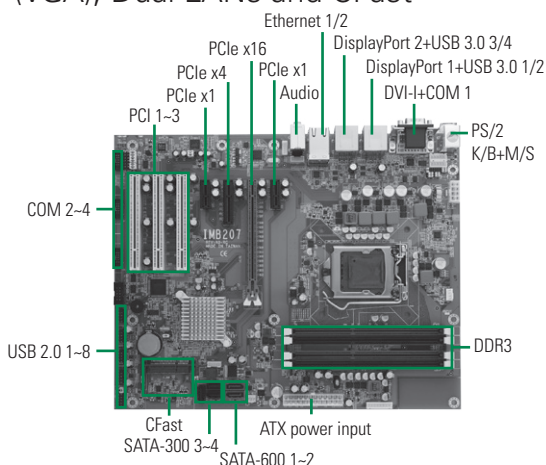
Accessories

Appendix



IMB208

LGA1155 Socket Intel® Core™ i7/i5/i3 & Celeron® ATX Industrial Motherboard with Intel® C216, USB 3.0, DisplayPort/DVI-I (VGA), Dual LANs and CFast™



System

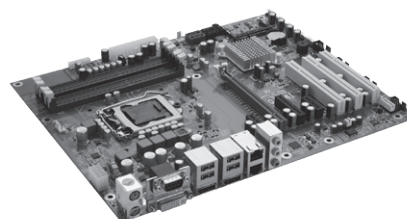
CPU	LGA1155 socket 3rd generation Intel® Core™ i7/i5/i3 & Celeron® processor (Ivy Bridge)
System Memory	4 x 240-pin DIMM support ECC DDR3-1333/1600 max. up to 32 GB
Chipset	Intel® C216
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe 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, 8 GB 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, support 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® 82574L
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® processor (Ivy Bridge)
- 4 DDR3-1333/1600 MHz up to 32 GB
- Triple view display: DisplayPort /DVI-I (VGA)
- PCIe Gen. 3 supported
- 2 SATA-600, 3 SATA-300, support RAID 0/1/5/10
- 4 USB 3.0 ports
- TPM 1.2 supported
- Intel® iAMT 8.0 supported



▲ Side view

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

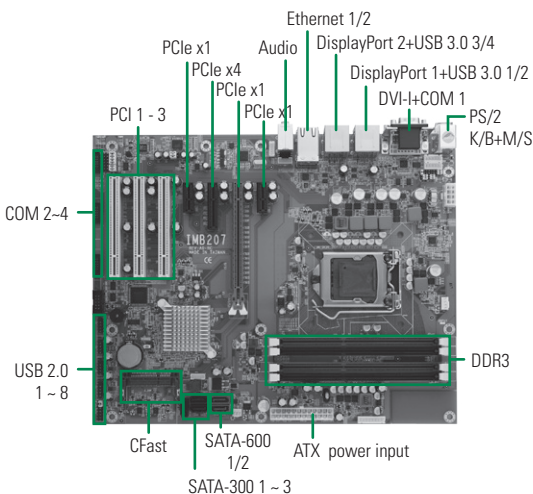
User's manual/utility CD, cable

Ordering Information

Standard	
IMB208	LGA1155 socket 3rd generation Intel® Core™ i7/i5/i3 & Celeron® ATX industrial motherboard with USB 3.0, dual GbE LAN, DisplayPort/DVI-I (VGA) and CFast™

IMB207

LGA1155 Socket Intel® Core™ i7/i5/i3 & Celeron® ATX Industrial Motherboard with Intel® Q77, USB 3.0, DisplayPort/DVI-I, Dual LANs and CFast™



System

CPU	LGA1155 socket 3rd generation Intel® Core™ i7/i5/i3 & Celeron® processor (Ivy Bridge)
System Memory	4 x 240-pin DIMM support DDR3-1333/1600 max. up to 32 GB
Chipset	Intel® Q77
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

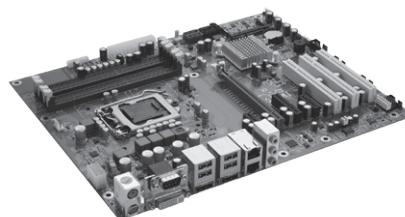
I/O

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, support 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 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)

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

Features

- LGA1155 socket 3rd generation Intel® Core™ i7/i5/i3 & Celeron® processor (Ivy Bridge)
- 4 DDR3-1333/1600 MHz up to 32 GB
- Triple view display: DisplayPort/DVI-I
- PCIe Gen. 3 supported
- 2 SATA-600, 3 SATA-300, support RAID 0/1/5/10
- 4 USB 3.0 ports
- TPM 1.2 supported
- Intel® iAMT 8.0 supported



▲ Side view

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 3rd generation Intel® Core™ i7/i5/i3 & Celeron® ATX industrial motherboard with USB 3.0, dual GbE LAN, DisplayPort/ DVI-I, 4 COM and CFast™

SBC
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Systems
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>EPIC

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SBCs
>3.5" Capa

Embedded
SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

4
Industrial
Motherboards

Slot CPU
Cards

ARM
Embedded
Boards

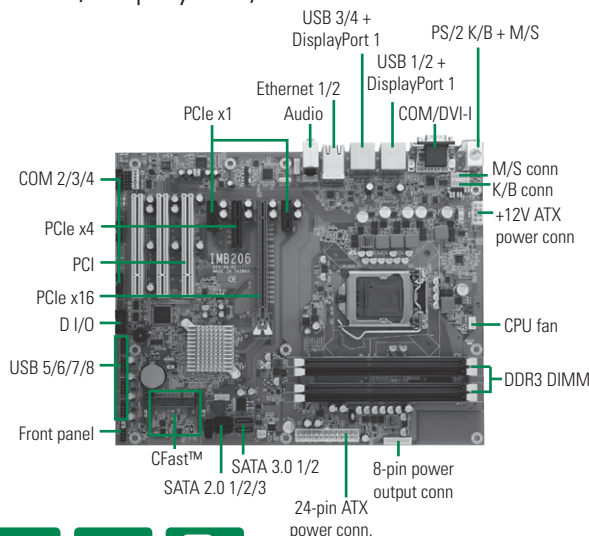
Accessories

Appendix



IMB206

LGA1155 Socket 2nd Generation Intel® Core™ i7/i5/i3 & Celeron® ATX Industrial Motherboard with Intel® Q67 Chipset, DVI-I/DisplayPort, Dual LANs and CFast™



System

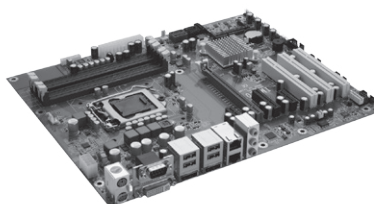
CPU	LGA1155 socket for 2nd generation Intel® Core™ i7/i5/i3 & Celeron® processors (Sandy Bridge)
System Memory	4 x 240-pin DIMM support DDR3-1066/1333 max. up to 16 GB
Chipset	Intel® Q67 PCH
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	1 x CFast™
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	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, support 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
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 2nd generation Intel® Core™ i7/i5/i3 & Celeron® processor (Sandy Bridge)
- 4 DDR3-1066/1333 DIMM support up to 16 GB
- Dual View (2 x DisplayPort + 1 x DVI-D or VGA)
- PCIe Gen. 2
- 2 x SATA-600, 3 x SATA-300, support RAID 0/1/5/10
- 12 USB 2.0 ports supported
- TPM supported
- Intel® iAMT 7.0 supported



▲ Side view

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/ bracket	1

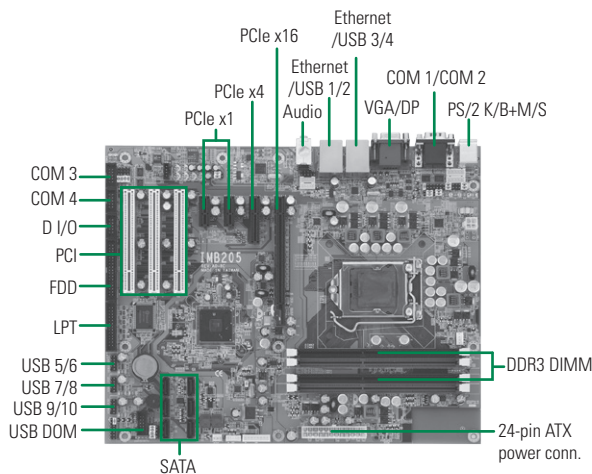
Ordering Information

Standard	
IMB206DGGGA	LGA1155 socket Intel® Core™ i7/i5/i3 & Celeron® ATX industrial motherboard with Intel® Q67, DisplayPort/DVI-I, dual GbE LAN, 4 COM, RAID and HD audio

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

IMB205

LGA1156 Socket Intel® Core™ i7/i5/i3 & Pentium® ATX Industrial Motherboard with Intel® Q57, VGA/DisplayPort and Dual LANs



System

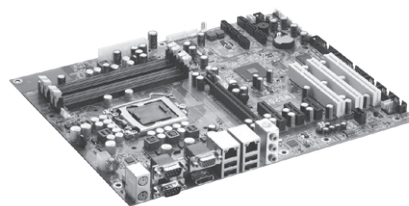
CPU	LGA1156 socket for Intel® Core™ i7/i5/i3 & Pentium® processor
System Memory	4 x 240-pin DIMM supports DDR3-1066/1333 max. up to 16 GB
Chipset	Intel® Q57
BIOS	AMI UEFI BIOS
SSD	USB DOM
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 1 x PCIe x4 (refer to user's manual for setting) 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, 2 GB 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 (4-IN & 4-OUT)

Features

- LGA1156 socket Intel® Core™ i7/i5/i3 & Pentium® processor
- 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
- Display: VGA/DisplayPort



▲ Side view

Display

Chipset	Intel® HD Graphics
Memory Size	Intel® DVM 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 500 mm	1
59380502000E	COM + printer cable w/ bracket	1

Ordering Information

Standard

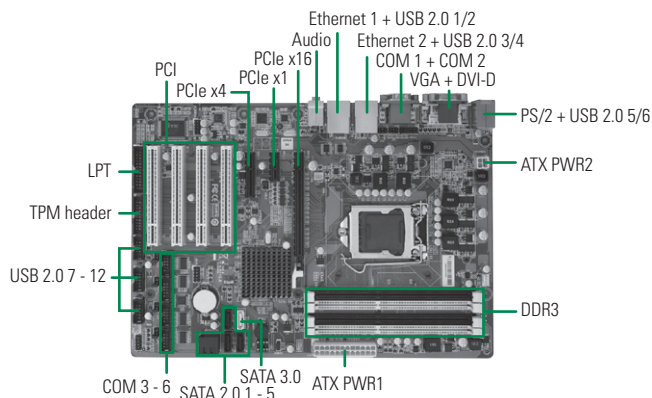
IMB205VGGA (P/N: E38F205100)	LGA1156 socket Intel® Core™ i7/i5/i3 & Pentium® ATX industrial motherboard with VGA/DisplayPort, dual GbE LAN, 4 COM, audio, iAMT and RAID
IMB205VGGA TPM (P/N: E38F205101)	LGA1156 socket Intel® Core™ i7/i5/i3 & Pentium® ATX industrial motherboard with VGA/DisplayPort, 2 GbE LAN, 4 COM, Audio, iAMT, TPM and RAID

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



IMB204

LGA1155 Socket Intel® Core™ i7/i5/i3 & Celeron® ATX Industrial Motherboard with Intel® B75, SATA3.0, Dual LANs, DVI-D/ VGA and LPT



System

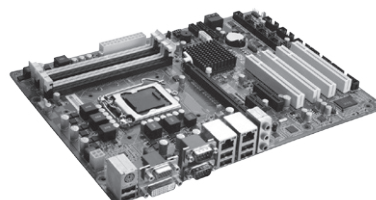
CPU	LGA1155 socket Intel® Core™ i7/i5/i3 & Celeron® processor
System Memory	4 x 240-pin DIMM support non-ECC DDR3-1333/1600 max. up to 32 GB
Chipset	Intel® B75
BIOS	AMI
SSD	N/A
Watchdog Timer	255 levels
Expansion Interface	1 x PCIe x16 Gen. 3 1 x PCIe x4 Gen. 2 1 x PCIe x1 Gen. 2 4 x PCI
Battery	Lithium 3 V/ 220 mAh
Power Requirements	i5-2320 3.0GHz 2 GB x 4 DDR3-1333, +12V @ 7.06A, +5V @ 10.21A, +5VSB @ 0.02A, +3.3V @ 1.25A
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 1 x 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)

Features

- LGA1155 socket 3rd Generation Intel® Core™ i7/i5/i3 & Celeron® processor
- 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 ports
- TPM 1.0 header support



▲ Side view

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 Intel® Core™ i7/i5/i3 & Celeron® ATX industrial motherboard with dual GbE LAN, DVI-D/VGA, 6 COM and LPT
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Optional

59460642100E	COM Port Cable, 5 x 2P, P=2.54 mm, L=300 mm
593F2040300E	LPT Cable, w/ bracket, P=2.54 mm, L=300 mm
594F2112100E	COM Port DB9 to 5x2P, P=2.54 mm, L=300 mm w/BK
594F2112110E	COM Port x2 DB9 to 5x2P, P=2.54 mm, L=300 mm w/BK

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 concerned applications. And the PICMG 1.3 half-size CPU card is specially designed for space concerned but performance applications.

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PICMG 1.3 System Host Boards

Full-size

NEW	SHB140	LGA1151 6th Generation Intel® Core™ Processor PICMG 1.3 Full-size CPU Card with Intel® Q170, SATA3, USB3.0, LAN and DVI-I	192
NEW	SHB131	4th Generation Intel® Core™ i7/i5/i3 & Celeron® U-series Processor PICMG 1.3 Full-size CPU Card, SATA3, USB 3.0, LAN and Dual DVI-D	193
	SHB130	LGA1150 Intel® Core™ i7/i5/i3 PICMG 1.3 Full-size CPU Card with Intel® Q87, SATA3, USB 3.0, DVI-D/VGA or DisplayPort for Dual Display and Dual LANs	194
	SHB120	LGA1155 Intel® Core™ i7/i5/i3 PICMG 1.3 Full-size CPU Card with Intel® Q77, SATA3, USB 3.0, VGA/DVI and Dual LANs	195
	SHB108	LGA1155 Intel® Core™ i7/i5/i3/Xeon® PICMG 1.3 Full-size CPU Card with Intel® C206, VGA, Dual LANs, Audio and ECC Memory	196
	SHB106	LGA1155 Intel® Core™ i7/i5/i3 PICMG 1.3 Full-size CPU Card with Intel® Q67, VGA, Dual LANs and Audio	197
	SHB103	LGA1156 Intel® Core™ i7/i5/i3/Pentium® PICMG 1.3 Full-size CPU Card with Intel® Q57 Chipset, VGA, Dual LANs and Audio	198
	SHB111	Socket G Intel® Core™ i7/i5/i3 PICMG 1.3 Full-size CPU Card with Intel® QM57, VGA, LVDS, Dual LANs and Audio	199
	SHB102	LGA775 Intel® Core™2 Quad PICMG 1.3 Full-size CPU Card with Intel® Q45 + ICH10DO Chipset, Dual LANs, iAMT and TPM	200

Half-size

	SHB230	LGA1150 4th Generation Intel® Core™ i7/i5/i3 processors PICMG 1.3 Half-size CPU Card with SATA3, USB3.0, DVI-I/LVDS and Dual LANs	201
	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	202

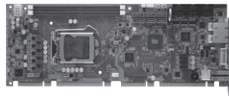
PICMG 1.0 CPU Cards

Full-size

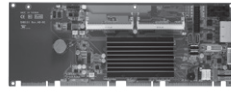
	SBC81210	LGA1155 Intel® Core™ i7/i5/i3 PICMG 1.0 Full-size CPU Card with Intel® B65/Q67, VGA and Dual LANs	203
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PICMG 1.3 Full-size System Host Boards

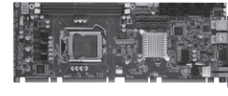
Selection Guide



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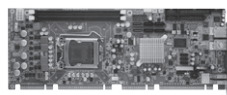


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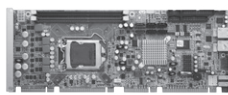


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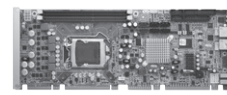
Features/Models		SHB140	SHB131	SHB130
Form Factor		PICMG 1.3	PICMG 1.3	PICMG 1.3
CPU Level		Intel® Core™ i7/i5/i3	Intel® Core™ i7/i5/i3 & Celeron®	Intel® Core™ i7/i5/i3
CPU Socket		LGA1151	BGA1168	LGA1150
CPU FSB Frequency		N/A	N/A	N/A
Core Logic Chipset		Intel® Q170	SoC	Intel® Q87
Memory Type		DDR4-2133	DDR3L-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	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.
Onboard SSD		N/A	N/A	N/A
Onboard Digital I/O		N/A	N/A	N/A
I/O	IDE	N/A	N/A	N/A
	SATA	6 x SATA-600	2 x SATA-600	6 x SATA-600
	FDD	N/A	N/A	N/A
	LPT	N/A	1 x LPT	1 x LPT
	Serial	COM 1	RS-232	RS-232/422/485
		COM 2	RS-232	RS-232
		COM 3	N/A	RS-232
		COM 4	N/A	RS-232
		COM 5	N/A	RS-232
	USB	10 x USB 2.0, 4 x USB 3.0	6 x USB 2.0, 2 x USB 3.0	10 x USB 2.0, 4 x USB 3.0
	IrDA	N/A	N/A	N/A
	IEEE 1394a	N/A	N/A	N/A
	Display	1 x DVI-I	2 x DVI-D	1 x VGA or DisplayPort 1 x DVI-D
	Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Audio		HD Codec	HD Codec	HD Codec
Hardware Monitoring		Yes	Yes	Yes
SMBus		Yes	N/A	Yes
Expansion Interface		1 x PCIe x16 1 x PCIe x4 or 4 x PCIe x1 4 x PCI	1 x PCIe x4 or 4 x PCIe x1	1 x PCIe x16 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	UL, CE, FCC	CE
Wide Temperature		N/A	N/A	N/A



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Features/Models		SHB120	SHB108	SHB106
Form Factor		PICMG 1.3	PICMG 1.3	PICMG 1.3
CPU Level		Intel® Core™ i7/i5/i3	Intel® Xeon® & Core™ i7/i5/i3	Intel® Core™ i7/i5/i3
CPU Socket		LGA1155	LGA1155	LGA1155
CPU FSB Frequency		N/A	N/A	N/A
Core Logic Chipset		Intel® Q77	Intel® C206	Intel® Q67
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, 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	IDE	N/A	N/A	N/A
	SATA	4 x SATA-300, 2 x SATA-600	4 x SATA-300, 2 x SATA-600	4 x SATA-300, 2 x SATA-600
	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
		COM 2	RS-232	RS-232
		COM 3	N/A	N/A
		COM 4	N/A	N/A
		COM 5	N/A	N/A
	USB	10 x USB 2.0, 4 x USB 3.0	14 x USB 2.0	14 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
	Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
	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 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

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

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Slot CPU
Cards

ARM
Embedded
Boards

Accessories

Appendix



PICMG 1.3 Full-size System Host Boards

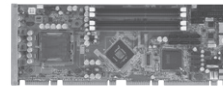
Selection Guide



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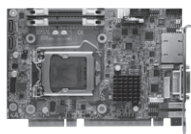
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Features/Models		SHB103	SHB111	SHB102
Form Factor		PICMG 1.3	PICMG 1.3	PICMG 1.3
CPU Level		Intel® Core™ i7/i5/i3 & Pentium®	Intel® Core™ i7/i5/i3	Intel® Core™2 Quad/ Core™2 Duo/Celeron®
CPU Socket		LGA1156	Socket G	LGA775
CPU FSB Frequency		N/A	N/A	800/1066/1333 MHz
Core Logic Chipset		Intel® Q57	Intel® QM57	Intel® Q45 + ICH10DO
Memory Type		DDR3-1066/1333	DDR3-800/1066	DDR3-800/1066
Max. DRAM Capacity		8 GB	8 GB	8 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		N/A	1 x CompactFlash™	N/A
Onboard Digital I/O		N/A	N/A	N/A
I/O	IDE	N/A	N/A	N/A
	SATA	6 x SATA-300	6 x SATA-300	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	RS-232
	COM 2	RS-232	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		12 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 1 x LVDS	1 x VGA
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
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 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

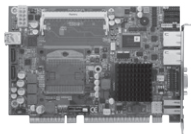


PICMG 1.3 Half-size System Host Boards

Selection Guide



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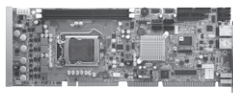
Features/Models		SHB230	SHB213
Form Factor		PICMG1.3	PICMG 1.3
CPU Level		Intel® Core™ i7/i5/i3	Intel® Core™ i7/i5/i3 & Celeron®
CPU Socket		LGA1150	Socket G2
CPU FSB Frequency		N/A	N/A
Core Logic Chipset		Intel® Q87	Intel® HM65
Memory Type		DDR3-1333/1600	DDR3-1066/1333
Max. DRAM Capacity		16 GB	8 GB
Cache RAM Capacity		Integrated in CPU	Integrated in CPU
BIOS		AMI UEFI BIOS with OA 3.0 built	AMI UEFI BIOS
Watchdog Timer		255 levels, 1-255 sec.	255 levels, 1~255 sec.
Onboard SSD		1 x CFast™	1 x CFast™
Onboard Digital I/O		Yes	N/A
I/O	IDE	N/A	N/A
	SATA	2 x SATA-600	2 x SATA-600
	FDD	N/A	N/A
	LPT	N/A	N/A
	COM 1	RS-232-422-485	RS-232/422/485
	COM 2	RS-232-422-485	RS-232
	Serial COM 3	N/A	N/A
	COM 4	N/A	N/A
	COM 5	N/A	N/A
	USB	4 x USB 2.0 2 x USB 3.0	2 x USB 3.0 6 x USB 2.0
	IrDA	N/A	N/A
IEEE 1394a		N/A	N/A
Display		1 x DVI-I 1 x LVDS	1 x VGA
Ethernet		2 x 10/100/1000Mbps Ethernet	2 x 10/100/1000Mbps Ethernet
Audio		HD Codec	N/A
Hardware Monitoring		N/A	Yes
SMBus		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
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





PICMG 1.0 Full-size CPU Cards

Selection Guide



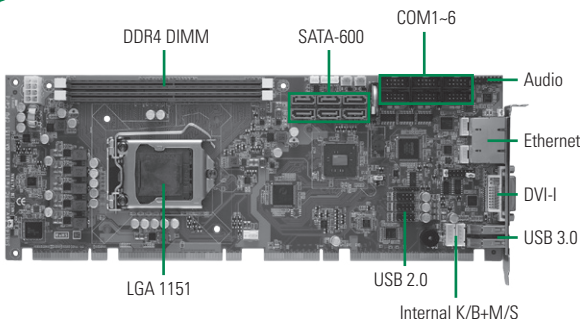
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Features/Models		SBC81210
Form Factor		PICMG 1.0
CPU Level		Intel® Core™ i7/i5/i3 & Celeron®
CPU Socket		LGA1155
CPU FSB Frequency		N/A
Core Logic Chipset		Intel® B65
Memory Type		DDR3-1066/1333
Max. DRAM Capacity		8 GB
Cache RAM Capacity		Integrated in CPU
BIOS		AMI UEFI BIOS
Watchdog Timer		255 levels, 0~255 sec.
Onboard SSD		N/A
Onboard Digital I/O		N/A
I/O	IDE	N/A
	SATA	1 x SATA-600 & 3 SATA-300
	FDD	1 x FDD
	LPT	1 x LPT
	COM 1	RS-232
	COM 2	RS-232/422/485
	Serial COM 3	N/A
	Serial COM 4	N/A
	Serial COM 5	N/A
	USB	6 x USB 2.0
IEEE 1394a		N/A
Display		1 x VGA
Ethernet		2 x 10/100/1000Mbps Ethernet
Audio		By audio converter
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		N/A

SHB140

LGA1151 6th Generation Intel® Core™ Processors PICMG 1.3 Full-size CPU Card with Intel® Q170, SATA3, USB 3.0, LAN and DVI-I

NEW



System

CPU	LGA1151 for 6th Generation Intel® Core™ Processors, TDP up to 65W vPro Supported
System Memory	2 x 240-pin DDR4/-2133 un-buffered DIMM max. up to 16 GB
Chipset	Intel® Q170
BIOS	AMI
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 126 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 (COM2/3/4/5) 1 x RS-232/422/425 (COM1), mode selection by SW 10 x USB 2.0 ports 2 x USB 3.0 ports 2 x Smart fan for system Fan1/Fan2
RIO	2 x RJ-45, 1 x DVI-I, 2 x USB 3.0
SATA	6 x SATA-600 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® i219LM with AMT 9.0 support 2nd port as 10/100/1000Mbps support WOL/RPL/PXE Boot ROM with Intel® i211AT
Audio	1 x HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with audio kit AX93242 (optional)
USB	10 x USB 2.0, 4 x USB 3.0
SMBus	N/A
TPM	Infineon SLB9635 for trusted platform(optional)

Features

- LGA1151 6th Generation Intel® Core™ Processors
- Intel® Q170
- 2 x DDR4 un-buffered DIMM supports up to 16 GB memory
- Intel® iAMT 11& TPM (optional) supported
- PCIe Gen. 3 at 8GT/s supported
- USB 3.0, SATA3 supported

Display

Chipset	Intel® HD Graphics
Memory Size	TBD
Display Interface	1 x DVI-I

Packing List

Standard

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

Cable

Part Number	Description	Qty
593826A0000E	SATA signal cable 500 mm	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

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Slot CPU Cards

ARM Embedded Boards

Accessories

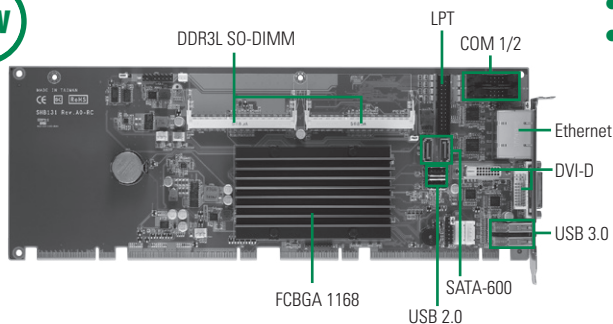
Appendix



SHB131

4th Generation Intel® Core™ i7/i5/i3 & Celeron® U-series Processors PICMG 1.3 Full-size CPU Card, SATA3, USB 3.0, LAN and Dual DVI-D

NEW



System

CPU	4th Generation Intel® U-series Processors, TDP up to 15W
System Memory	2 x 204P DDR3L-1600 SO-DIMM up to 16 GB
Chipset	SoC integrated
BIOS	AMI UEFI BIOS with OA 3.0 built
SSD	N/A
Watchdog Timer	225 levels, 1~255 sec.
Expansion Interface	Edge Connector B: 1 x PCIe x4 or 4 x PCIe x1, Gen. 2 Edge Connector C: support 4 x USB 2.0
Battery	Lithium 3V/220 mAh
Power Requirements	TBD
Size	338 x 126 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; with SPP/EPP/ECP supported 2 x RS-232 (COM1/COM2) 2 x USB 2.0 ports 2 x fan for system Fan1/Fan2 1x DVI-D
RIO	2 x RJ-45, 1 x DVI-D, 2 x USB 3.0
SATA	SATA 2 x SATA 6Gbps with RAID 0/1 (Core i) 2 x SATA 6Gbps with (Celeron)
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® i211AT 2nd port as 10/100/1000Mbps support WOL/RPL/PXE Boot ROM with Intel® i211AT
Audio	1 x HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with audio kit AX93242 (optional)
USB	6 x USB 2.0 and 2 x USB 3.0
SMBus	N/A
TPM	N/A

Features

- 4th generation Intel® U-series Processors
- 2 DDR3L SO-DIMM max. up to 16 GB memory capacity
- 2 DVI-D for dual displays
- 2 SATA-600 with RAID 0/1
- USB 3.0 supported

Display

Chipset	Intel® HD Graphics
Memory Size	TBD
Display Interface	2 x DVI-D

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 500 mm	1

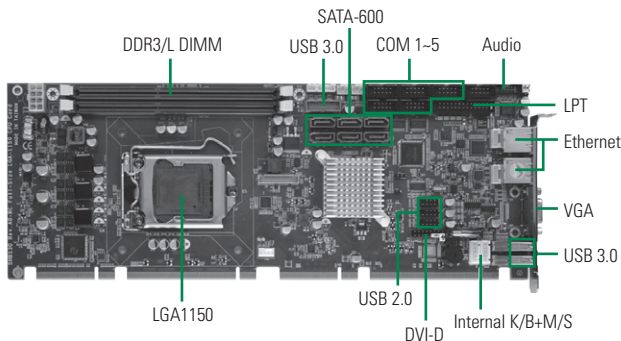
Ordering Information

Standard

SHB131DGGA	U series processor PICMG1.3 full-size CPU card with DVI-D, (P/N: TBD)
	2 GbE LAN Ethernet and audio

SHB130

LGA1150 4th Generation Intel® Core™ i7/i5/i3 Processor PICMG 1.3 Full-size CPU Card with Intel® Q87, SATA3, USB 3.0, DVI-D/VGA or DisplayPort for Dual Display and Dual LANs



System

CPU	LGA1150 socket for 4th Generation Intel® Core™ i7/i5/i3 processor (Codename Haswell/Haswell Refresh), TDP up to 65W
System Memory	2 x 240-pin DDR3-1333/1600 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	Intel® Core™ i7-4770S +5V @ 2.26A, +12V @ 4.68A, +5VSB @ 0.2A, +3.3V @ 2.3A
Size	338 x 126 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; 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, 1 x VGA or DisplayPort, 2 x USB 3.0
SATA	6 x SATA-600 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® i217LM with AMT 9.0 supported 2nd port as 10/100/1000Mbps supports 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)

Features

- LGA1150 socket 4th generation Intel® Core™ i7/i5/i3 processor (Haswell/Haswell Refresh)
- Intel® Q87 Chipset
- 2 DDR3 DIMM max. up to 16 GB memory capacity
- Intel® AMT 9.0 & TPM supported (optional)
- PCIe Gen. 3 at 8GT/s supported
- DVI-D and VGA or DisplayPort for dual displays
- 6 SATA-600 with RAID 0/1/5/10
- USB 3.0 supported

Display

Chipset	Intel® HD Graphics
Memory Size	Intel® DVM 5.0
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 500 mm	1

Ordering Information

Standard

SHB130VGGA	LGA1150 socket PICMG1.3 full-size CPU card with VGA, (P/N: E38C130101)
SHB130PGGA	LGA1150 socket PICMG1.3 full-size CPU card with DisplayPort, 2 GbE LAN and audio (P/N: E38C130100)

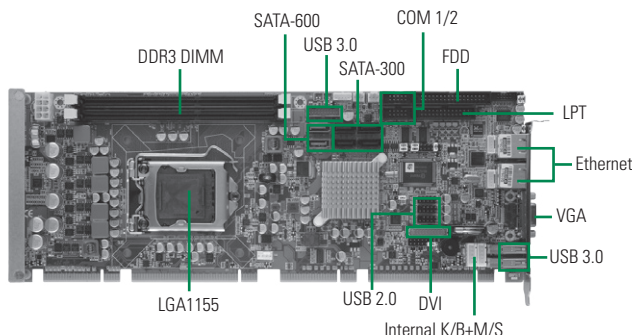
Optional

E9B900C000	LGA1156 cooler 4-pin H: 61.4 mm
50761222000E	LGA1156 2U cooler 3-pin H: 68.8 mm
5938A808010E	2 x USB 2.0 cable w/bracket, P=2.54mm, L=190 mm
59380000290E	PS/2 keyboard & mouse cable with bracket
593836A0030E	4 pin power cable to SATA x 2, L=150 mm
59384500100E	Audio cable w/ bracket P=2.0 mm, L=450 mm
594C1093500E	DVI cable 24-pin header to DVI-D, L=30 mm
71193221200E	DVI bracket
5948C122800E	2 x USB 3.0 cable w/Bracket 20P, L=400mm



SHB120

LGA1155 3rd Generation Intel® Core™ i7/i5/i3 Processor 1. 3 Full-size CPU Card with Intel® Q77, SATA3, USB 3.0, VGA/DVI and Dual LANs



System

CPU	LGA1155 for 3rd Generation Intel® Core™ i7/i5/i3 processor (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, 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 RJ-45, 1 x VGA or Displayport, 2 x USB 3.0
SATA	2 x SATA-600 & 4 x SATA-300, 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 supports 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)

Features

- LGA1155 for 3rd Generation Intel® Core™ i7/i5/i3 processor (Ivy Bridge)
- Intel® Q77 Chipset
- 2 DDR3 DIMM support up to 16 GB memory
- Intel® AMT 8.0 & TPM (optional) supported
- PCIe Gen. 3 at 8GT/s supported
- USB 3.0 supported
- DVI and VGA for dual displays

Display

Chipset	Intel® HD Graphics
Memory Size	Max. up to 352 MB 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 500 mm	1

Ordering Information

Standard

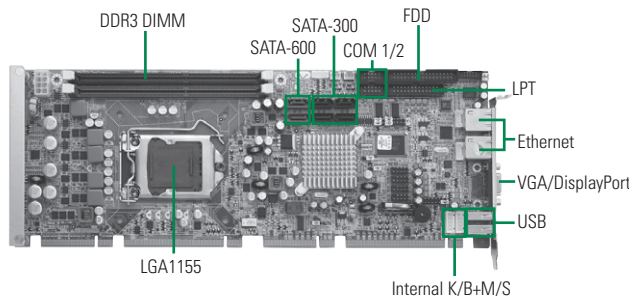
SHB120VGGA	LGA1155 socket PICMG1.3 full-size CPU card with VGA, (P/N: E38C120100) 2 GbE LAN and audio
SHB120PGGA	LGA1155 socket PICMG1.3 full-size CPU card with DisplayPort, 2 GbE LAN and audio (P/N: E38C120101)

Optional

E9B900C000	LGA1156 cooler 4-pin H: 61.4 mm
50761222000E	LGA1156 2U cooler 3-pin H: 68.8 mm
5938A808010E	2 x USB 2.0 cable w/bracket, P=2.54mm, L=190 mm
59380000290E	PS/2 keyboard & mouse cable with bracket
593826A0000E	SATA signal cable 500 mm
593836A0030E	4 pin power cable to SATA x 2, L=150 mm
594C1093500E	DVI cable 24-pin header to DVI-D, L=30 cm
71193221200E	DVI bracket
59384500100E	Audio cable w/ bracket, P=2.0 mm, L=450 mm
5948C122800E	2 x USB 3.0 cable w/Bracket 20P, L=400mm

SHB108

LGA1155 Intel® Core™ i7/i5/i3 & Xeon® Processor PICMG 1.3 Full-size CPU Card with Intel® C206, VGA, Dual LANs, Audio and ECC Memory



System

CPU	LGA1155 socket for Intel® Core™ i7/i5/i3 and Xeon® processor
System Memory	2 x 240-pin DIMM support DDR3-1066/1333 max. up to 16 GB
Chipset	Intel® C206 Chipset
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	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

Features

- LGA1155 socket for Intel® Core™ i7/i5/i3 and Xeon® processor
- Intel® C206 Chipset
- 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

Display

Chipset	Intel® HD graphics
Memory Size	Max. up to 352 MB 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 500 mm	1

Ordering Information

Standard	
SHB108VGGA (P/N: E38C108100)	LGA1155 socket PICMG 1.3 full-size CPU card with VGA, 2 GbE LAN and audio, BIOS x4
SHB108PGGA (P/N: E38C108101)	LGA1155 socket PICMG 1.3 Full-size CPU card with DisplayPort, 2 GbE LAN and audio, BIOS x4

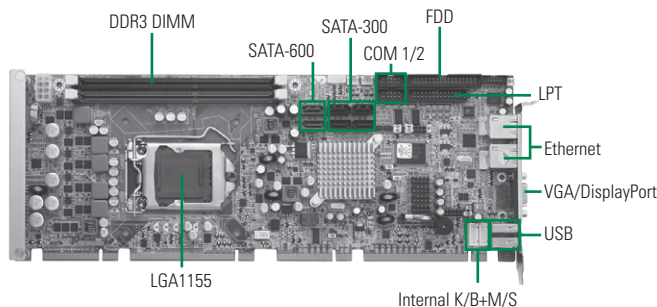
Optional	
59384500100E	Audio cable w/ bracket, P=2.0 mm, L=450 mm
5938A808010E	2 x USB cable with bracket, P=2.54 mm, L=190 mm
593836A0030E	4-pin power cable to SATA x 2, L=150 mm
59380000290E	PS/2 keyboard and mouse cable with bracket
E9B900C000	LGA1156 cooler 4-pin H=61.4 mm
50761222000E	LGA1156 2U cooler 3pin H=68.8 mm

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



SHB106

LGA1155 Intel® Core™ i7/i5/i3 Processor
PICMG 1.3 Full-size CPU Card with Intel®
Q67, VGA, Dual LANs and Audio



System

CPU	LGA1155 socket for Intel® Core™ i7/i5/i3 processor
System Memory	2 x 240-pin DIMM support DDR3-1066/1333 max. up to 16 GB
Chipset	Intel® Q67 Chipset
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, 4 GB DDR3 +5V SBY @ 6.2mA, +3.3 @ 0.8A, +5V @ 1.34A, +12V @ 2.94A, -12V @ 0.08A
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/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

Features

- LGA1155 socket for Intel® Core™ i7/i5/i3 processor
- 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

Display

Chipset	Intel® HD graphics
Memory Size	Max. up to 352 MB 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 500 mm	1

Ordering Information

Standard

SHB106VGGA	LGA1155 socket PICMG 1.3 full-size CPU card with VGA, (P/N: E38C106100)	2 GbE LAN, audio and BIOS x4
SHB106PGGA	LGA1155 socket PICMG 1.3 Full-size CPU card with DisplayPort, 2 GbE LAN, audio and BIOS x4 (P/N: E38C106101)	
SHB106VGGA	LGA1155 socket PICMG 1.3 Full-size CPU card with VGA, (P/N: E38C106102)	2 GbE LAN, audio and BIOS x1
SHB106PGGA	LGA1155 socket PICMG 1.3 Full-size CPU card with DisplayPort, 2 GbE LAN, audio and BIOS x1 (P/N: E38C106103)	

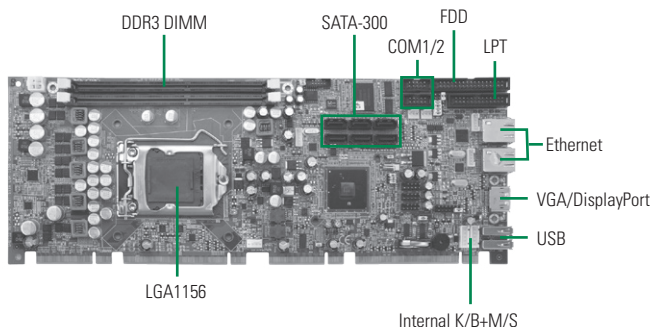
Optional

59384500100E	Audio cable w/ bracket, P=2.0 mm, L=450 mm
5938A808010E	2 x USB cable with bracket, P=2.54 mm, L=190 mm
593836A0030E	4-pin power cable to SATA x 2, L=150 mm
59380000290E	PS/2 keyboard and mouse cable with bracket
E9B900C000	LGA1156 cooler 4-pin H=61.4 mm
50761222000E	LGA1156 2U cooler 3-pin H=68.8 mm

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

SHB103

LGA1156 Socket Intel® Core™ i7/i5/i3 & Pentium® Processor PICMG 1.3 Full-size CPU Card with Intel® Q57, VGA, Dual LANs and Audio



System

CPU	LGA1156 socket for Intel® Core™ i7/i5/i3 and Pentium® processor
System Memory	2 x 240-pin DIMM support 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, 1 GB 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

Features

- LGA1156 socket for Intel® Core™ i7/i5/i3 and Pentium® (G6950) processor
- 2 DDR3-1066/1333 DIMM support up to 8 GB memory capacity
- 6 SATA-300 with RAID 0, 1, 10 and 5
- Intel® AMT & TPM supported
- DisplayPort supported (optional)

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 socket Intel® Core™ i7/i5/i3 and Pentium® PICMG 1.3 full-size CPU card with VGA, 2 GbE LAN and audio
SHB103PGGA (P/N: E38C103100)	LGA1156 socket Intel® i7/i5/i3 and Pentium® PICMG 1.3 full-size CPU card with DisplayPort and 2 GbE LAN

Optional	
59384500100E	Audio cable w/ bracket, P=2.0 mm, L=450 mm
5938A808010E	2 x USB cable with bracket, P=2.54 mm, L=190 mm
593836A0030E	4-pin power cable to SATA x 2, L=150 mm
59380000290E	PS/2 keyboard and mouse cable with bracket
E9B900C000	LGA1156 cooler 4-pin H=61.4 mm
50761222000E	LGA1156 2U cooler 3-pin H=68.8 mm

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

SBC Services and Solutions

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Industrial Motherboards

5

Slot CPU Cards

ARM Embedded Boards

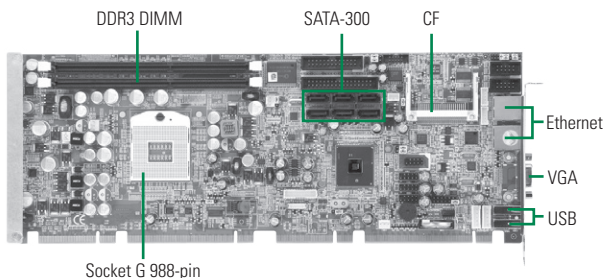
Accessories

Appendix



SHB111

Socket G Intel® Core™ i7/i5/i3 & Celeron® Processor PICMG 1.3 Full-size CPU Card with Intel® QM57, VGA, LVDS, Dual LANs and Audio



System

CPU	Socket G for Intel® Core™ i7/i5/i3 and Celeron® processor
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, 1 GB 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

Features

- Socket G for Intel® Core™ i7/i5/i3 and Celeron® processor
- 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)

Display

Chipset	Intel® HD Graphics
Memory Size	Intel® DVM 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 500 mm	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 GbE LAN, 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 GbE LAN, audio and BIOS x4

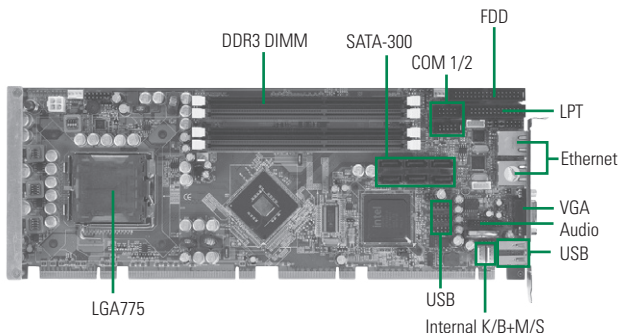
Optional

59384500100E	Audio cable w/ bracket, P=2.0 mm, L=450 mm
5938A808010E	2 x USB cable with bracket, P=2.54 mm, L=190 mm
593836A0030E	4-pin power cable to SATA x 2, L=150 mm
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.

SHB102

LGA775 Intel® Core™2 Quad/Core™2 Duo & Celeron® Processor PICMG 1.3
Full-size CPU Card with Intel® Q45 + ICH10DO, Dual LANs, iAMT and iTPM



System

CPU	LGA775 socket for Intel® Core™2 Quad/ Core™2 Duo and Celeron® processor 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, 2 GB 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

Features

- LGA775 for Intel® Core™2 Quad/ Core™2 Duo and Celeron® processor with 800/1066/1333 MHz
- 4 DDR3-800/1066 DIMM support up to 8 GB
- 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

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 500 mm	1

Ordering Information

Standard

SHB102VGGA (P/N: E38C102100)	LGA775 socket PICMG 1.3 full-size CPU card with VGA, 2 GbE LAN, iAMT, iTPM, RAID and Audio
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Optional

593836A0030E	4-pin power cable to SATA x 2, L=150 mm
5938A808010E	2 x USB cable with bracket, P=2.54 mm, L=190 mm
59384500100E	Audio cable P=2.0 mm, L=450 mm
59380000290E	PS/2 keyboard & mouse cable with bracket
E9C900B008	LGA775 slim cooler 3P H=25 mm (for 1U Chassis)
E9C900B009	LGA775 cooler 3p H=66.8 mm (for 2U/4U/Shoebox)
E9C900B010	LGA775 cooler 4p H=61.4 mm (for 2U/4U/Shoebox)

* This product must use a proprietary CPU cooler.
we strongly recommend purchasing from Axiomtek.

SBC
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Systems
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Embedded
SBCs
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>3.5" Capa

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>Nano-ITX

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SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Motherboards

5

Slot CPU
Cards

ARM
Embedded
Boards

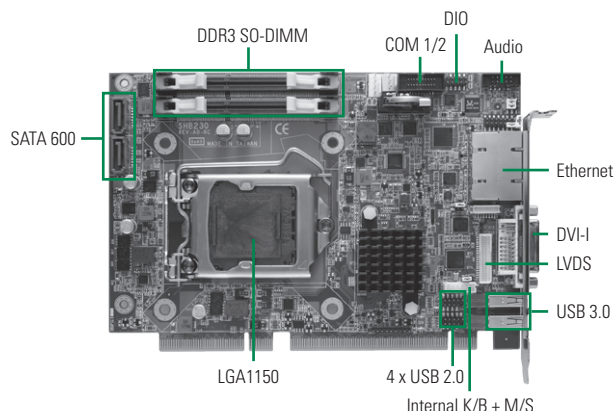
Accessories

Appendix



SHB230

LGA1150 4th Generation Intel® Core™ i7/i5/i3 & Celeron® Processor PICMG 1.3
Half-size CPU Card with Intel® Q87 SATA3, USB 3.0, DVI-I/LVDS and Dual LANs



System

CPU	LGA1150 Socket for 4th Generation Intel® Core™ i7/i5/i3 & Celeron® Low Power DT processors (Haswell/Haswell Refresh), TDP up to 45W
System Memory	2 x 204-pin DDR3-1333/1600 SO-DIMM, max. up to 16 GB
Chipset	Intel® Q87
BIOS	AMI
SSD	1 x CFast™
Watchdog Timer	225 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 1 x PCIe x4 or 4 PCIe x1
Battery	Lithium 3v/220 mAh
Power Requirement	Intel® Core™ i7-4770TE@2.3 GHz, 8 GB DDR3 +5V@1.85A, +12V@2.3A, +5VSB@0.2A, +3.3V@1.5A
Size	185 x 126 mm
Board Thickness	1.6mm
Temperature	0°C ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, on-condensing

I/O

MIO	2 x RS-232/422/485 (COM1/2) 1 x PS2 Keyboard 1 x PS2 Mouse
RIO	2 x RJ-45, 2 x USB 3.0, 1 x DVI-I
SATA	2 x SATA-600, support RAID 0/1
Hardware Monitoring	Detect CPU/System temperature, voltage and support Smart Fan control
Ethernet	1st ports as 10/100/1000Mbps supports WOL, RPL/PXE Boot ROM with Intel® i217LM with AMT 9.0 support 2nd port as 10/100/1000Mbps supports WOL, RPL/PXE Boot ROM with Intel® i210AT
Audio	HD Codec audio as MIC-in/Line-in/ Line-out/Speaker-out with Realtek ALC662
USB	4 x USB 2.0
DIO	Default 4 x IN & 4 x OUT, programmable
SMBus	N/A

Features

- LGA1150 4th generation Intel® Core™ i7/i5/i3 and Celeron® processor (Haswell/Haswell Refresh)
- Intel® Q87 Chipset
- 2 DDR3-1333/1600 SO-DIMM support max. up to 16 GB
- Supports Dual Display (DVI-I and LVDS)
- Supports iAMT 9.0
- 2 SATA 6Gbs with RAID 0,1

Display

Chipset	Intel® HD Graphics
Memory Size	Intel® DVM T
Display Interface	1 x DVI-I connector 1 x LVDS 24-bit dual channel

Packing List

Standard

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

Cable

Part Number	Description	Qty
59380000300E	COM x 2 w/bracket, P=1.27 x 2.54, L=300mm	1
593826A0000E	SATA signal cable 500 mm	1

Ordering Information

Standard

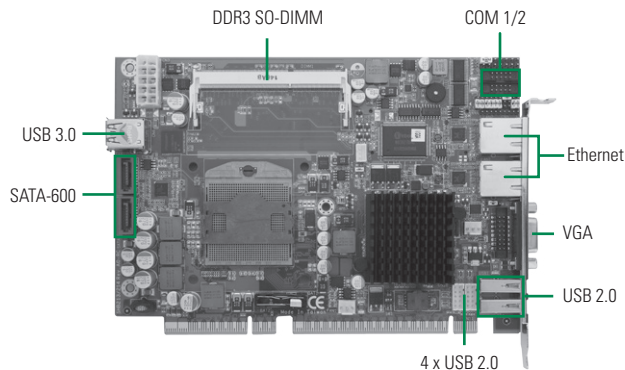
SHB230DGGA (P/N: E38C230100)	LGA1150 socket Intel® Core™ i7/i5/i3 PICMG 1.3 half-size CPU card with Intel® Q87, SATA3, USB 3.0, DVI-I, Dual GbE LANs and CFast™
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Optional

59384500100E	SBC84500 Audio Cable w/bracket, P=2.0 mm, L=450mm
594C2302500E	PS2 KEYBOARD_MOUSE CABLE, L=290mm
594C2303500E	DIO CABLE, L=150mm
594C2302800E	USB CABLE, L=190mm

SHB213

Socket G2 2nd Generation Intel® Core™ i7/i5/i3 & Celeron® Processor PICMG 1.3 Half-size CPU Card with Intel® HM65, VGA, SATA3, USB 3.0 and Dual LANs



System

CPU	Socket G2 (rPGA 988B) 2nd Generation Intel® Core™ i7/i5/i3 and Celeron® processor (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, 8 GB 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 352 MB frame buffer dedicated memory
Display Interface	1 x VGA

Features

- Socket G2 (rPGA 988B) 2nd Generation Intel® Core™ i7/i5/i3 and Celeron® processor (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

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 mm, L=250 mm	1
593826A0000E	SATA signal cable 500 mm	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 GbE LAN
-------------------------------------	--

Optional

59382631000E	2 x USB 2.0 wafer cable with bracket, L=180 mm
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 GbE LAN

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

5 Slot CPU Cards

ARM Embedded Boards

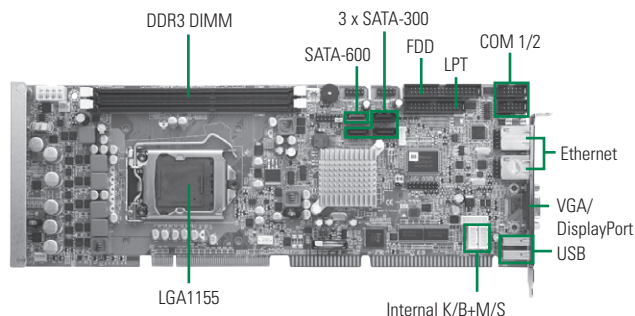
Accessories

Appendix



SBC81210

LGA1155 Intel® Core™ i7/i5/i3 Processor
PICMG 1.0 Full-size CPU Card with Intel®
B65/Q67, VGA and Dual LANs



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 (Intel® 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 supported
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 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 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 supports Wake-on-LAN, RPL/PXE Boot ROM with Intel® 82579LM 2 ports 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 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 352 MB frame buffer dedicated memory
Display Interface	1 x VGA 1 x DisplayPort (optional)

Features

- LGA1155 socket for Intel® Core™ i7/i5/i3 processor
- Intel® B65 chipset (Intel® Q67 as option)
- 2 DDR3-1066/1333 DIMM support up to 8 GB memory capacity
- DisplayPort supported (optional)
- Supports Intel® HD Graphics

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 500 mm	1
59381400000E	FDD cable	1

Ordering Information

Standard

SBC81210VGG-B65 (P/N: E381210100)	LGA1155 socket PICMG 1.0 full-size CPU card with Intel® B65, VGA, 2 GbE LAN and 6 USB
SBC81210PGG-B65 (P/N: E381210101)	LGA1155 socket PICMG 1.0 full-size CPU card with Intel® B65, DisplayPort, 2 GbE LAN and 6 USB

Optional

SBC81210VGG-Q67 (P/N: E381210102)	LGA1155 socket PICMG 1.0 full-size CPU card with Intel® Q67, VGA, 2 GbE LAN and 6 USB
5938A808010E	2 x USB cable with bracket, P=2.54 mm, L=190 mm
59380000290E	PS/2 keyboard & mouse cable with bracket
E93242100	AX93242 HD audio converter kit
593826A0000E	SATA signal cable 500 mm
593836A0030E	4 pin power cable to SATA x 2, L=150 mm
E9B900C000	LGA1156 cooler 4-pin H=61.4 mm
50761222000E	LGA1156 2U cooler 3-pin H=68.8 mm

6

ARM Embedded Boards

Axiomtek provides ARM DIN-rail fan less systems - rBOX, it is suitable for communications control keep protocol convert applications which need to work with wider temperature range of -40°C ~ +70°C, like factory, outdoor facilities and transportation systems. The rBOX series features front accessible I/O cabling for easy wiring and maintenance. Its DIN-rail mounting way allows easy maintenance and installation into the control cabinet.

We provide both Qseven and SMARC SoM (System on module) product line. Our RISC SoM is to enable the design service according to the needs of customers, so that the service is quick and competitive. With 26 years' industrial design experience, we have established the backbone to collaborate with our customers in to implement the industrial grade system with high reliability.

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QSeven® Carrier Board		205
Qseven® Mechanical Definitions		205
SMARC Technical Notes		206
SMARC Carrier Board		206
SMARC Mechanical Definitions		206
Selection Guide		207
Q7M100	Q7M100 with i.MX287 454 MHz (Industrial) SoC, 128 MB Memory, 4 GB eMMC, 10/100Mbps Ethernet, Audio, CAN	208
Q7M110	Q7M110 with i.MX535 1 GHz (Consumer) SoC, 1 GB Memory, 4 GB eMMC, 10/100Mbps Ethernet, Audio, CAN	209
Q7M120	Q7M120 with Quad/DualLite 800 MHz (Industrial) SoC, 1 GB Memory, 4 GB eMMC, Gigabit Ethernet, Audio, CAN	210
SCM120	SCM120 with Quad/DualLite 800 MHz (Industrial) SoC, 1 GB Memory, 4 GB eMMC, Gigabit Ethernet, Audio, CAN	211
Q7M100-100-EVK	Q7M100-100-EVK with i.MX287 454 MHz (Industrial) SoC, 128 MB Memory, 4 GB eMMC, 10/100Mbps Ethernet, Audio, CAN with 4.3 inch panel, BSP	212
Q7M110-110-EVK	Q7M110-110-EVK with i.MX535 1 GHz (Consumer) SoC, 1 GB Memory, 4 GB eMMC, 10/100 Ethernet, Audio, CAN, BSP	213
Q7M120-120-EVK	Q7M120-120-EVK with Quad/DualLite 800 MHz (Industrial) SoC, 1 GB Memory, 4 GB eMMC, Gigabit Ethernet, Audio, CAN, BSP	214
SCM120-120-EVK	SCM120-120-EVK with Quad/DualLite 800 MHz (Industrial) SoC, 1 GB Memory, 4 GB eMMC, Gigabit Ethernet, Audio, CAN, BSP	215

Qseven® Technical Notes

The Qseven® standard is for off-the-shelf Single-Board-Computer that integrates all the core components of a common PC and is mounted onto an application specific carrier board. Qseven® modules have a standardized form factor of 70mm x 70mm and have specified pinouts based on the high speed MXM system connector that has a standardized pinout regardless of the vendor. The Qseven® module provides the functional requirements for an embedded application. These functions include, but are not limited to, graphics, sound, mass storage, network and multiple USB ports. A single ruggedized MXM connector provides the carrier board interface to carry all the I/O signals to and from the Qseven® module. This MXM connector is a well-known and proven high speed signal interface connector that is commonly used for high speed PCI Express graphics cards in notebooks.

Qseven® Technical Notes

Qseven® offers the newest I/O technologies on this minimum size form factor. This includes serial high speed buses such as:

- PCI Express™
- USB 2.0
- USB 3.0
- High Definition Digital Audio (HDA)
- Serial ATA
- Gigabit Ethernet
- DisplayPort™, TMDS
- LVDS Display Interface
- Plus additional control and power management signals

QSeven® Carrier Board

Carrier board can utilize as little or as many of the I/O interfaces as deemed necessary. The carrier board can therefore provide all the interface connectors required to attach the system to the application specific peripherals. This versatility allows the designer to create a dense and optimized package, which results in a more reliable product while simplifying system integration. Most importantly, Qseven® applications are scalable, which means once a product has been created there is the ability to diversify the product range through the use of different performance class Qseven® modules. Simply unplug one module and replace it with another, no redesign is necessary.

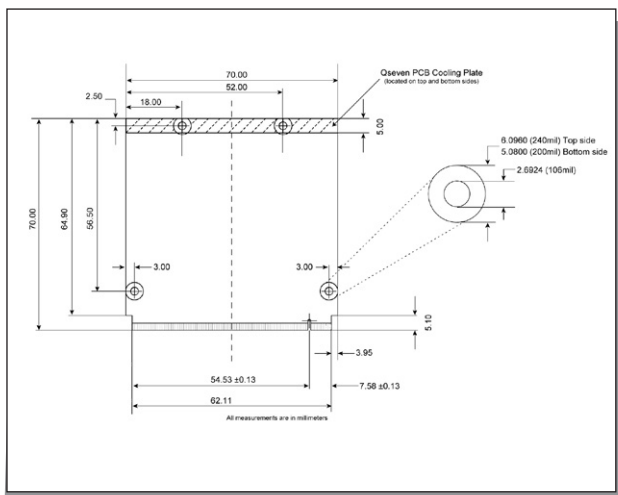


Figure 1: Qseven® module top view

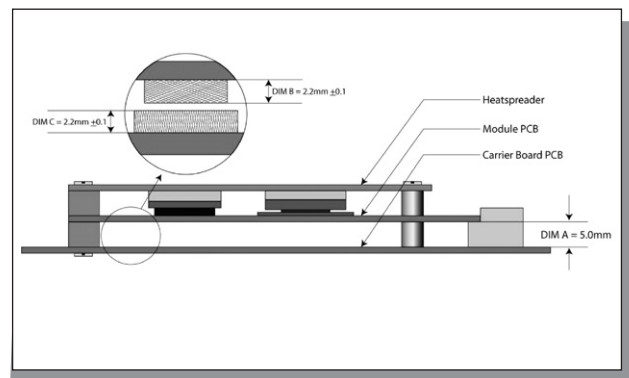


Figure 2: Bottom side Qseven® module and carrier board component heights

Qseven® Mechanical Definitions

The Qseven® module utilizes a 230-pin card-edge connector that is also used for PCI Express capable notebook graphics cards following the MXM specification. Therefore, this connector type is also known as a MXM connector.

The MXM edge connector is the result of an extensive collaborative design effort with the industry's leading notebook manufacturers. This collaboration has produced a robust, low-cost edge connector that is capable of handling high-speed serialized signals. The MXM connector accommodates various connector heights for different carrier board applications needs. This specification suggests two connector heights, 7.8mm and 7.5mm.

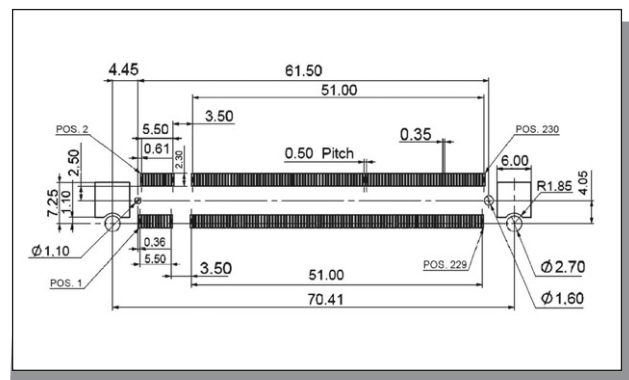


Figure 3: Qseven® carrier board PCB footprint

SMARC Technical Notes

SMARC Technical Notes

SMARC (Smart Mobility Architecture) is an open source computer module standard maintained by the SGeT (Standardization Group for Embedded Technologies). SMARC module is with small form factor (82mm x 50mm), low power (typically <6W) computer modules that are used on a carrier board that utilizes a 314 pin 0.5mm pitch right-angle memory socket style connector to host the Module.

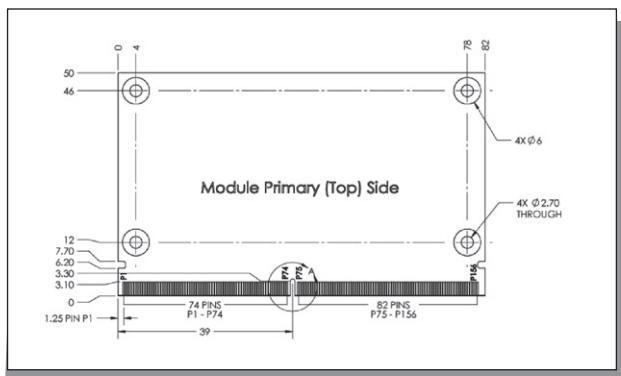


Figure 4: SMARC module top view

SMARC Carrier Board

The SMARC carrier board is with a low profile, right angle 314 pin memory – socket style connector. The same connector is commonly used for MXM3 graphics cards. Various height profiles are available for the SMARC module connector. The lowest profile available has a Carrier Board PCB top-side to module PCB bottom-side separation of 1.5mm, and a connector body height of 4.6mm.

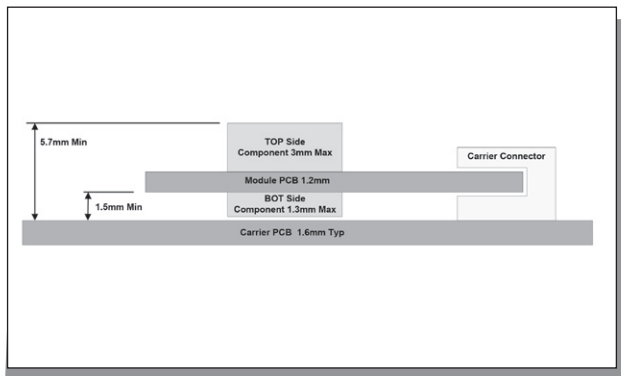


Figure 5: Bottom side Qseven® module and carrier board component heights

SMARC Mechanical Definitions

SMARC Computer-on-Modules have 314 card edge contacts on the printed circuit board (PCB) of the module which is plugged via a low-profile connector on the carrierboard. In most cases, the connector has a construction height of 4.3 mm. It is also used for MXM 3.0 graphic cards, which naturally have completely differently pin assignments. Signal transmission is carried out via a total of 314 pins. 33 of these are reserved signal lines for power supply and grounding, so that with SMARC a total of 281 signal lines are effectively available. ARM- and SoC-typical energy-saving interfaces, like, for instance, parallel LCD for display connection, mobile industry processor interfaces for cameras, Serial Peripheral Interface (SPI) for general peripheral connection, I²S for audio and I²C are included. Besides these, classical computer interfaces such as USB, SATA and PCI Express are also defined.

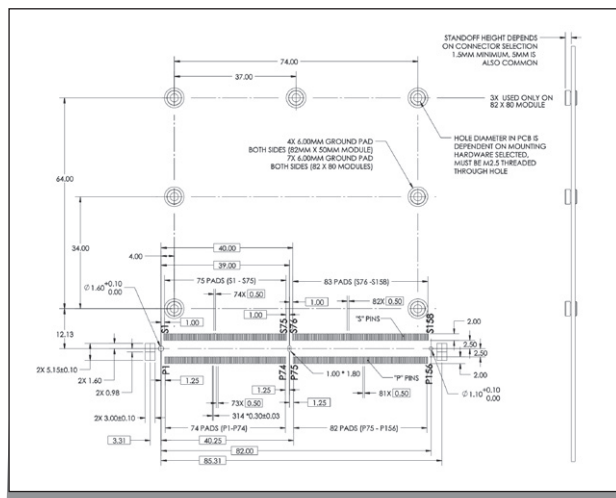


Figure 6: SMARC Carrier board PCB footprint

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Systems
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SBCs
>Nano-ITX

Embedded
SBCs
>Pico-ITX

Embedded
SBCs
>PC/104

Industrial
Motherboards

Slot CPU
Cards

6
ARM
Embedded
Boards

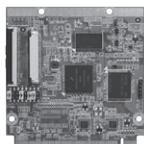
Accessories

Appendix

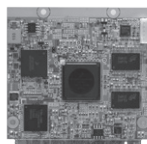


RISC Embedded Boards

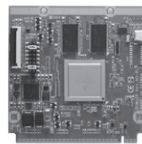
Selection Guide



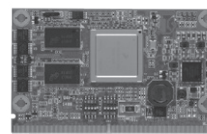
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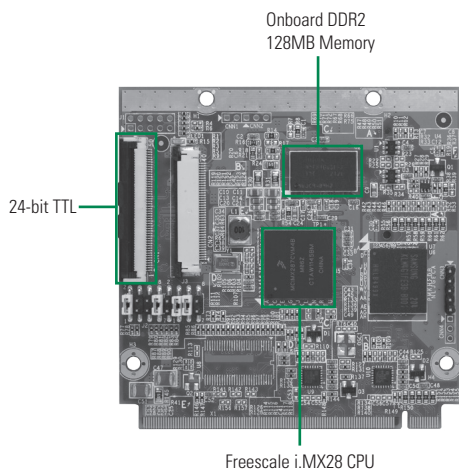


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Features/Models		Q7M100	Q7M110	Q7M120	SCM120
Form Factor		Qseven	Qseven	Qseven	SMARC
CPU Level		Freescale iMX28 ARM926EJ-S	Freescale i.MX53 ARM Cortex™-A8	Freescale i.MX6 ARM Cortex™-A9 (Quad/DualLite)	Freescale i.MX6 ARM Cortex™-A9 (Quad/DualLite)
CPU FSB Frequency		454 MHz	1 GHz	800 MHz / 1 GHz (Solo)	800 MHz, 1 GHz
System Memory		128 MB	1 GB	1 GB	1 GB
eMMC		4 GB	4 GB	4 GB	4 GB
I/O	PCIe	N/A	2	1	1
	SATA	N/A	1	1 (Quad support)	1 (Quad support)
	USB	2 (OTG/Host)	4 (1 OTG/ 3 Host)	2 (OTG/Host)	2 (OTG/Host)
	Audio	MIC IN, Headphone	MIC IN, Headphone	MIC IN, Headphone	MIC IN, Headphone
	CAN	2	1	2	2
	LAN	1	1	1	1
	I2C	2	2	3	4
	SPI	Yes	Yes	Yes	Yes
	UART	5 (4 COM, 1 Console)	3 (2 COM, 1 Console)	5 (4 COM, 1 Console)	4 (3 COM, 1 Console)
	SD/MMC(8 bit)	1	1	1	1
	MIPI-CSI	N/A	N/A	N/A	1
	PCAM	N/A	N/A	N/A	1
	GPIO	8	8	8	8
Graphic	HDMI	N/A	1	1	1
	VGA	N/A	1	N/A	N/A
	24 bit TTL	1	1	1	1
	LVDS	N/A	Dual Channel	Dual Channel	Dual Channel
OS	Linux	2.6.35	2.6.35	3.0.35	3.0.35
	Android	N/A	2.3	4.3	4.3
Evaluation Kit Board		Q7M100-100-EVK	Q7M110-110-EVK	Q7M120-120-EVK	SCM120-120-EVK
Operating Temperature		-40°C ~ +85°C (-40°F ~ +185°F)	0°C ~ +60°C (32°F ~ +140°F)	-40°C ~ +85°C (-40°F ~ +185°F) 0°C ~ +60°C (32°F ~ +140°F) (1 GHz)	-40°C ~ +85°C (-40°F ~ +185°F) 0°C ~ +60°C (32°F ~ +140°F) (1 GHz)

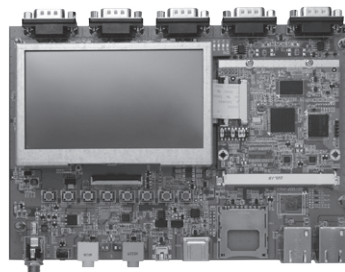
Q7M100

Q7M100 with i.MX287 454 MHz (Industrial) SoC, 128 MB Memory, 4 GB eMMC, 10/100Mbps Ethernet, Audio, CAN



Features

- Ultra low power consumption ARM9
- High flexibility Qseven v1.2 compliant design
- 2 CANBus 2.0B compliant ports
- 24-bit TTL LCD
- Dual 10/100 Base-T Ethernet
- Audio



▲ Q7M100-100-EVK

System

CPU	Freescale iMX-28 Series SoC with 287 ARM926EJ-S CPU running @ 454MHz
System Memory	Maximum up to 128MB DDR2-667
OS	Linux kernel 2.6.35 compliant
SSD	eMMC flash 4 GB SDHC interface
RTC	Battery on the Carrier is required
Power Requirement	+5V ± 5% @ 800mA
Size	70 x 70 mm
Board Thickness	1.2 mm ± 0.1mm
Operating Temperature	-40°C ~ 85°C
Operation Humidity	10% ~ 95%, non-condensing

I/O

Graphics	LCD supported, up to 24-bit TTL RGB modes and 24-bit system mode
Ethernet	Dual ports 10/100 Mbps Ethernet
Audio	Mic-in/Line-out on carrier board
COM	4 x COM ports 3 x TX/RX/RTS/CTS (2 RS232 and 1 RS-422/485), 1 x TX/RX 3.3V TTL
USB	1 OTG client, and 1 host
I ² C	2
GPIO	8 interface, up to 400 kbps
SPI	Yes
CAN	2 ports

Ordering Information

Standard	
Q7M100-287	Q7M100 with Freescale iMX-287 SoC, 128MB memory, 4 GB eMMC and 10/100Mbps Ethernet, audio and CAN
Optional	
Q7M100-100-EVK	Evaluation Kit Board

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

6 ARM Embedded Boards

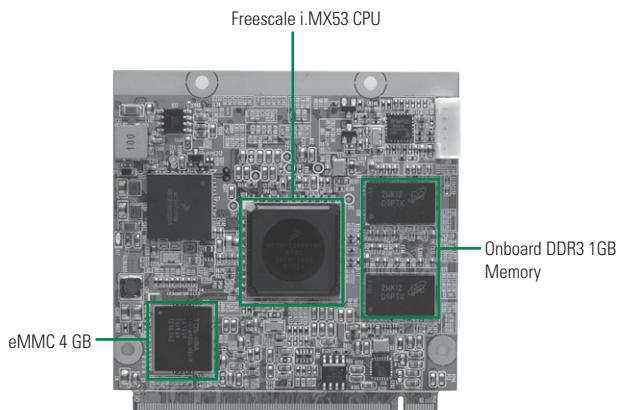
Accessories

Appendix



Q7M110

Q7M110 with i.MX535 1 GHz (Consumer) SoC, 1 GB Memory, 4 GB eMMC, 10/100Mbps Ethernet, Audio, CAN



System

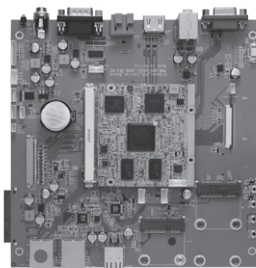
Processor	Freescale i.MX53 Series SoC with ARM Cortex™-A8 CPU 1GHz
System Memory	On-board DDR3 1GB
OS	Linux kernel 2.6.35, Android 2.3.3
Storage	eMMC flash 4 GB SDIO interface SATA interface
RTC	Battery on the Baseboard is required
Power Requirement	+5V, 1A
Size	70 x 70 mm
Board Thickness	1.2 mm ± 0.1mm
Operating Temperature	0°C ~ 60°C
Operation Humidity	10% ~ 95%, non-condensing

I/O

Graphics	1 x VGA, 1 x Dual channel 24-bit LVDS 1 x HDMI 1080p, 1 x 24-bit TTL signal
Ethernet	1 x 10/100 Mbps
Audio	MIC-in/headphone
USB	1 x OTG client and 1 x USB 2.0
I ² C	2 x I ² C Interface
SPI	Yes
CAN	1 x 2.0B protocol-compatible Controller Area Network (CAN) via Qseven MXM interface
GPIO	8
UART	1 x TX/RX/RTS/CTS, 1 x TX/RX, 1 x Full function (9 PIN)

Features

- Ultra low power consumption Cortex™-A8 (0°C ~ 60°C)
- High flexibility Qseven v1.2 compliant design
- 1 CAN
- 24-bit TTL LCD
- LVDS/HDMI 1080p
- Linux2.6.35/Android2.3.3
- 10/100 Mbps Ethernet
- Audio



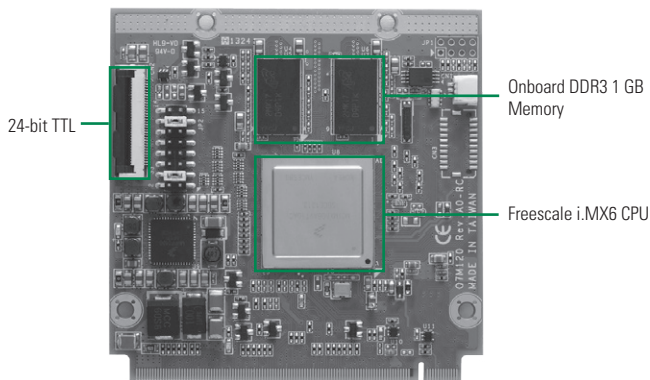
▲ Q7M110-110-EVK

Ordering Information

Standard	
Q7M110-535-C (P/N:S38Q11020E)	Q7M110 with Freescale iMX535 1GHz (Consumer) SoC, 1GB Memory, 4 GB eMMC, 10/100 Mbps Ethernet, audio and CAN
Optional	
Q7B110-110-EVK	Evaluation Kit Board
Q7M110-536-A	Q7M110 with Freescale iMX536 800MHz (Automotive) SoC, 1GB Memory, 4 GB eMMC, 10/100 Mbps Ethernet, audio and CAN

Q7M120

Q7M120 with Quad/DualLite 800 MHz (Industrial) SoC, 1 GB Memory, 4 GB eMMC, Gigabit Ethernet, Audio, CAN



Features

- Ultra low power consumption Cortex™-A9
- High flexibility Qseven v2.0 compliant design
- 2 CAN
- 24-bit TTL signal
- LVDS/HDMI 1080P
- 10/100/1000 Mbps Ethernet
- Linux 3.0.35/Android 4.3
- Audio

System

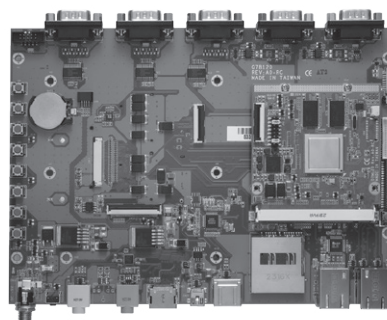
Processor	Freescale i.MX6 Series SoC with Quad/DualLite/Solo ARM Cortex™-A9 CPU 800 MHz/ 1 GHz (only Solo)
System Memory	On-board DDR3 1 GB
OS	Linux kernel 3.0.35, Android 4.3
Storage	eMMC flash 4 GB, SDIO interface SATA interface (Quad cores CPU)
RTC	Battery on the Baseboard is required
Power Requirement	+5V, 1A
Size	70 x 70 mm
Board Thickness	1.2 mm ± 0.1mm
Operating Temperature	-40°C ~ +85°C (Industrial)
Operation Humidity	10% ~ 95%, non-condensing

I/O

Graphics	1 x 24-bit TTL signal 2 x Signal channel 24-bit LVDS 1 x HDMI 1080P
Ethernet	1 x 10/100/1000 Mbps
Audio	Mic-in/Headphone
COM	4 x COM with TX/RX/RTS/CTS (one with 3.3V TTL level) 1 x Console port
USB	1 x OTG client and 1 x USB 2.0
I ² C	3 x I ² C Interface
SPI	Yes
CAN	2 ports as 2.0B protocol-compatible Controller Area Network (CAN) interfaces
GPIO	8 button-detect
PCIe	1 x PCIe x1

Ordering Information

Standard	
Q7M120- DualLite-I (P/N:E38Q120100)	Q7M120 with Freescale iMX6 DualLite 800 MHz (Industrial) SoC, 1 GB Memory, 4 GB eMMC, 10/100/1000 Mbps Ethernet, audio, and CAN
Q7M120- Quad-I (P/N:E38Q120102)	Q7M120 with Freescale iMX6 Quad 800 MHz (Industrial) SoC, 1 GB Memory, 4 GB eMMC, 10/100/1000 Mbps Ethernet, audio, and CAN
Optional	
Q7M120-120-EVK DualLite-I	Evaluation Kit Board
Q7M120-120-EVK Quad-I	Evaluation Kit Board
Q7M120-Quad-T	Q7M120 with Freescale iMX6 Quad 1 GHz (Automotive) SoC, 1 GB Memory, 4 GB eMMC, 10/100/1000 Mbps Ethernet, audio, and CAN
P/N: 5078Q120100E	Q7M120 Heatspread (-40 °C ~70 °C)
P/N: 5078Q120200E	Heatsink (-40 °C ~75 °C)



▲ Q7M120-120-EVK

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Systems
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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

6
ARM
Embedded
Boards

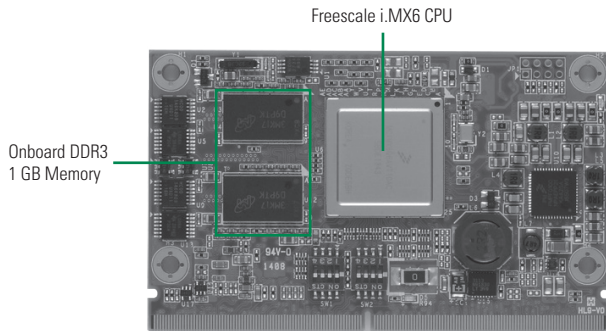
Accessories

Appendix



SCM120

SCM120 with Quad/DualLite 800 MHz (Industrial) SoC, 1 GB Memory, 4 GB eMMC, Gigabit Ethernet, Audio, CAN



System

Processor	Freescale i.MX6 Series SoC with Quad/DualLite ARM Cortex™-A9 CPU 800 MHz
System Memory	On-board DDR3 1GB
OS	Linux kernel 3.0.35, Android 4.3
Storage	eMMC flash 4 GB, SDIO interface, SATA interface (Only Quad Support)
RTC	Battery on the Baseboard is required
Power Requirement	+3V~+5.25V
Size	82 x 50 mm
Board Thickness	1.2 mm ± 0.1mm
Operating Temperature	-40°C ~ +85°C (Industrial)
Operation Humidity	10% ~ 95%, non-condensing

I/O

Graphics	1 x 24-bit TTL signal 1 x Dual channel 24-bit LVDS 1 x HDMI 1080P
Ethernet	1 x 10/100/1000 Mbps Ethernet
Audio	Mic-in/Headphone
COM	3 x COM with TX/RX/RTS/CTS 1 x Console port
USB	1 x OTG client and 1 USB 2.0
I ² C	4 x I ² C Interface
SPI	2
CAN	2 ports
GPIO	8
PCIe	1 x PCIe
Camera	1 x MIPI v1.0, 2 x Lane 1 x PCAM 8-bit

Features

- Ultra low power consumption Cortex™-A9
- High flexibility SMARC v1.0 compliant design
- 2 CAN 2.0B
- 24-bit TTL signal
- LVDS/HDMI 1080P
- 10/100/1000 Mbps Ethernet
- Linux3.0.35/Android4.3
- Audio

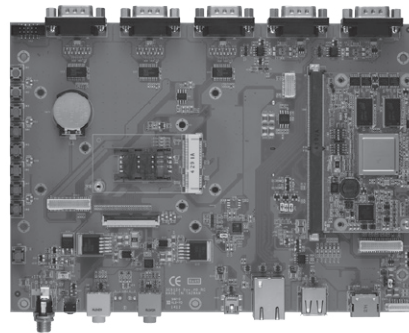
Ordering Information

Standard

SCM120-DualLite-I	SCM120 with Freescale iMX6 DualLite 800 MHz (Industrial) SoC, 1 GB Memory, 4 GB eMMC, 10/100/1000 Mbps Ethernet, audio, and CAN
SCM120-Quad-I	SCM120 with Freescale iMX6 Quad 800MHz (Industrial) SoC, 1 GB Memory, 4 GB eMMC, 10/100/1000 Mbps Ethernet, audio, CAN and SATA

Optional

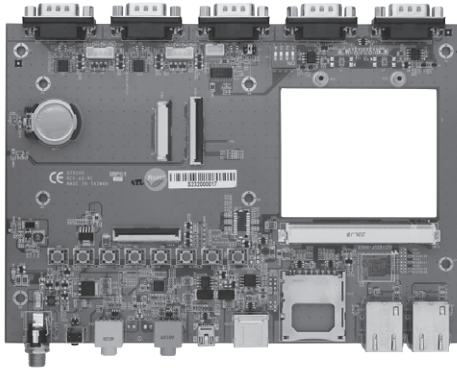
SCM120-120-EVK DualLite-I	Evaluation Kit Board
SCM120-120-EVK Quad-I	Evaluation Kit Board
P/N: 5078S120100E	SCM120 Heatspread (-40 °C ~70 °C)
P/N: 5078Q120200E	Heatsink (-40 °C ~75 °C)



▲ SCM120-120-EVK

Q7M100-100-EVK

Q7M100-100-EVK with i.MX287 454 MHz (Industrial) SoC, 128 MB Memory, 4 GB eMMC, 10/100Mbps Ethernet, Audio, CAN with 4.3 inch panel, BSP



▲ Q7B100

System

Processor	On Q7M100 SoM
System Memory	On Q7M100 SoM
OS	Linux kernel 2.6.35
RTC	Battery on the Baseboard is required
Power Requirement	+5V ± 5%, 5A
Size	200 x 140 mm
Board Thickness	1.6 mm ± 0.15mm
Operation Humidity	10% ~ 95%, non-condensing

I/O

Graphics	1 x 24-bit TTL LCD
Ethernet	2 x RJ-45 for 10/100 Mbps
Audio	2 x Audio connector on the rear I/O with MIC-in and Headphone
COM	4 x COM with TX/RX/RTS/CTS (one with 3.3V TTL level) 1 x Console Port
USB	1 x OTG client and 1 x USB 2.0
I ² C	2 x I ² C Interface
CAN	2 x D-Sub 9-pin male connectors
Keypad	8
Storage	1 x SD/MMC socket, 1 x SATA connector
Touch	4-wire touch screen controller

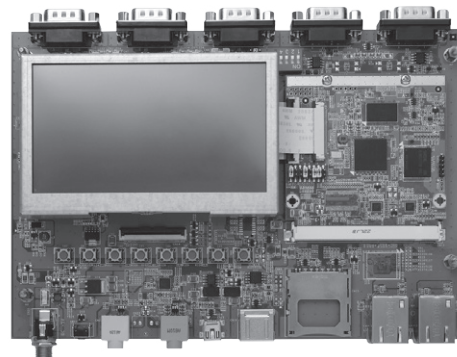
Features

- Ultra low power consumption ARM9
- High flexibility Qseven v1.2 compliant design
- 5 UART
- 2 CAN
- 24-bit TTL LCD
- 10/100 Mbps Ethernet
- Linux 2.6.35

Ordering Information

Standard

Q7M100-100-EVK	Evaluation Kit Board
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▲ Q7M100-100-EVK

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Cards

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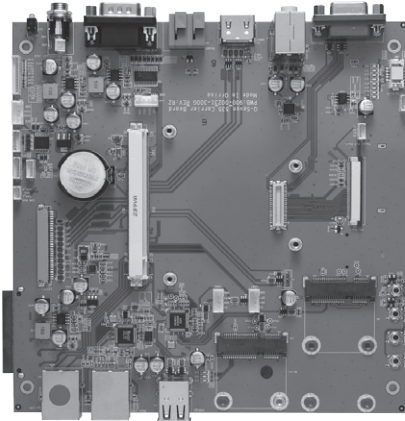
Accessories

Appendix



Q7M110-110-EVK

Q7M110-110-EVK with i.MX535 1GHz (Consumer) SoC, 1 GB Memory, 4 GB eMMC, 10/100 Ethernet, Audio, CAN, BSP



▲ Q7B110

Features

- Ultra low power consumption Cortex™-A8
- High flexibility Qseven v1.2 compliant design
- 1 CAN 2.0B
- 24-bit TTL LCD
- LVDS/HDMI 1080p
- Linux2.6.35/Android2.3.3
- 10/100 Mbps Ethernet
- Audio

System

Processor	On Q7M110 SoM
System Memory	On Q7M110 SoM
OS	Linux kernel 2.6.35 , Android 2.3.3
RTC	Battery on the Baseboard is required
Power Requirement	+12V $\pm$ 5% 2A
Size	170mm x 170mm
Board Thickness	1.6 mm $\pm$ 0.15mm
Operation Humidity	10% ~ 95%, non-condensing

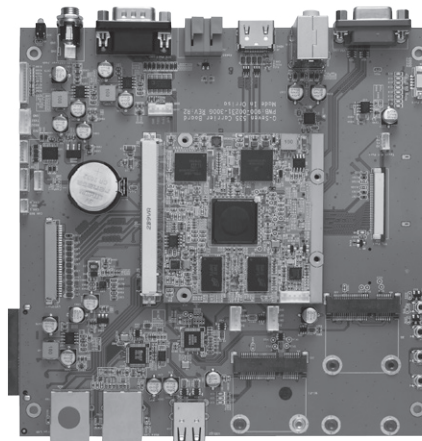
I/O

Graphics	1 x VGA, 1 x Dual channel 24-bit LVDS 1 x HDMI 1080p, 1 x 24-bit TTL LCD
Ethernet	2 x RJ-45 for 10/100 Mbps
Audio	MIC-in/headphone
USB	4 x USB 2.0 ports and 1x OTG
I ² C	1
CAN	1
Button	Reset/Power/Sleep/Wake
Storage	1 x SD/MMC socket, 1 x SATA connector
Touch	4-wire R-type touch screen controller
COM	1 x RS-232 (Full Function), 1 x RS-485 (TX/RX), 1 x Console port
Mini Card	1 x Full size (with SIM), 1 x half size
SPI	Yes

Ordering Information

Standard

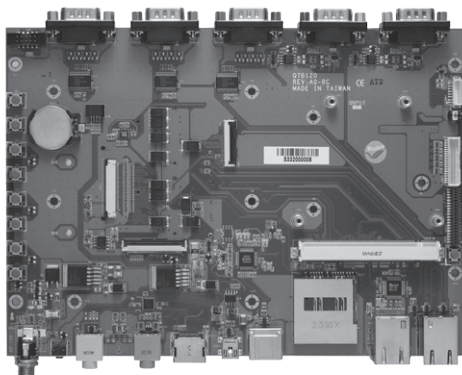
Q7M110-110-EVK	Evaluation Kit Board
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▲ Q7M110-110-EVK

Q7M120-120-EVK

Q7M120-120-EVK with Quad/DualLite 800 MHz (Industrial) SoC, 1 GB Memory, 4 GB eMMC, Gigabit Ethernet, Audio, CAN, BSP



▲ Q7B120

System

Processor	On Q7M120 SoM
System Memory	On Q7M120 SoM
OS	Linux kernel 3.0.35, Android 4.3
RTC	Battery on the Baseboard is required
Power Requirement	+5V ± 5%, 5A
Size	210 x 150 mm
Board Thickness	1.6 mm ± 0.15mm
Operation Humidity	10% ~ 95%, non-condensing

I/O

Graphics	1 x 18/24-bit TTL LCD 1 x HDMI 1080P 1 x Dual channel 24-bit LVDS
Ethernet	1 x RJ-45 for 10/100 Mbps 1 x RJ-45 for 10/100/1000 Mbps
Audio	MIC-in and Headphone
COM	4 x COM with TX/RX/RTS/CTS (one with 3.3V TTL level) 1 x Console port
USB	1 x OTG client and 1 x USB 2.0
I ² C	3 x I ² C Interface
CAN	2
Keypad	8
Storage	1 SD/MMC socket, 1 SATA connector
Touch	4-wire touch screen controller
Mini Card	2 Full size (with SIM)

Features

- Ultra low power consumption Cortex™-A9
- High flexibility Qseven v2.0 compliant design
- 2 CAN 2.0B
- 18/24-bit TTL LCD
- LVDS/HDMI 1080P
- 10/100/1000 Mbps Ethernet
- Linux3.0.35/Android4.3
- Audio

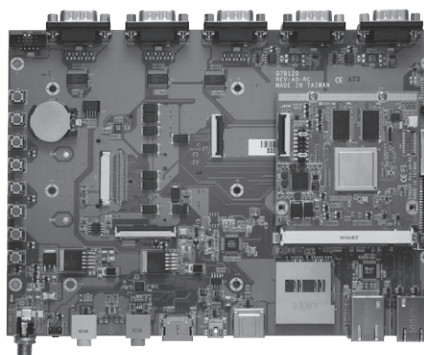
Ordering Information

Standard

Q7M120-120-EVK	Evaluation Kit Board
DualLite-I	
Q7M120-120-EVK Quad-I	Evaluation Kit Board

Optional

P/N: 5078Q120100E	Q7M120 Heatspread (-40 °C ~70 °C)
P/N: 5078Q120200E	Heatsink (-40 °C ~75 °C)



▲ Q7M120-120-EVK

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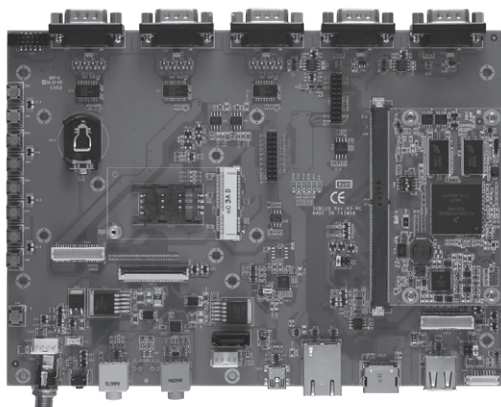
Accessories

Appendix



SCM120-120-EVK

SCM120-120-EVK with Quad/DualLite
800 MHz (Industrial) SoC, 1 GB Memory,
4 GB eMMC, Gigabit Ethernet, Audio, CAN,
BSP



Features

- Ultra low power consumption Cortex™-A9
- High flexibility SMARC v1.0 compliant design
- 2 CAN 2.0B
- 24-bit TTL LCD
- LVDS/HDMI 1080P
- 10/100/1000 Mbps Ethernet
- Open GL ES2.0
- Linux3.0.35/Android4.3
- Audio

System

Processor	On SCM120 SoM
System Memory	On SCM120 SoM
OS	Linux kernel 3.0.35, Android 4.3
RTC	Battery on the Baseboard is required
Power Requirement	+5V ± 5%, 5A
Size	200 x140 mm
Board Thickness	1.6 mm ± 0.15mm
Operation Humidity	10% ~ 95%, non-condensing

Ordering Information

Standard

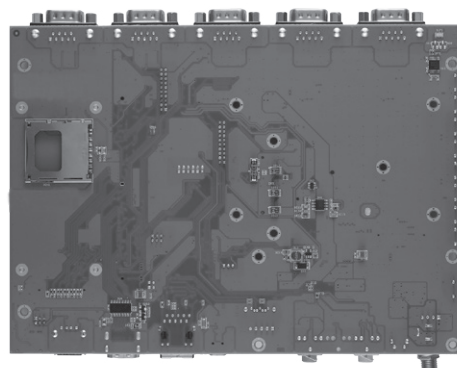
Q7M120-120-EVK-Quad-I	Evaluation Kit Board
Q7M120-120-EVK-DualLite-I	Evaluation Kit Board

Optional

P/N: 5078S120100E	SCM120 Heatspread (-40 °C ~70 °C)
P/N: 5078Q120200E	Heatsink (-40 °C ~75 °C)

I/O

Graphics	1 x 24-bit TTL LCD 1 x HDMI 1080P 1 x Dual channel 24-bit LVDS
Ethernet	1 x RJ-45 for 10/100/1000 Mbps
Audio	MIC-in
COM	1 x COM with TX/RX/RTS/CTS 1 x Console port
USB	2 x USB 2.0 ports: 1 x OTG client and 1 x Host
I ² C	4 x I ² C Interface
CAN	2 x D-Sub 9-pin male connectors for 2.0B protocol-compatible Controller Area Network (CAN) interfaces
Keypad	8 button-detect circuit
Storage	1 x SD/MMC socket, 1 x SATA connector SPI nor Flash
Touch	4-wire touch screen controller
Mini Card	1 x Full size (with SIM)
Extension Slot and Socket	1 x connector with I2C/SPI/UART
MIPI	1 x Serial Cammera
PCAM	1 x PCAM 8-bit



▲ Rear view

7

Accessories

Riser Card

AX96144	PCIe x4 Riser Card with 4-slot PCIe x1 Add-on Card	217
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I/O board for Pico-ITX board

218

I/O Cable Kit

AX93242	HD Audio Converter Board with Bracket	219
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MiniPCI Modules

AX92200	MiniPCI Fast/Gigabit Ethernet Module	220
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AX92203	MiniPCI Wireless LAN Module	220
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Full-Size PCI Express Mini Module

221

LVDS Convert Modules

AX95601	LVDS Converter	222
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AX93221	LVDS to DVI-D Converter	222
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PoE I/O board

 AX93274	A PoE-PD I/O board complies with IEEE802.3at standard via an internal cable to power on SBC	223
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 AX93280	A PoE-PSE I/O board complies with IEEE802.3af standard via an internal cable connected to LAN port on a SBC to power an external PoE device	223
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ZIO Module

AX93262	ZIO module with four COM ports and one PCI Express Mini Card	224
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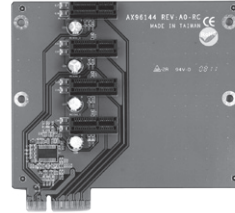
 AX93285	ZIO module with two COM ports and 32 bit programmable DIO	224
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Riser Card

AX96144

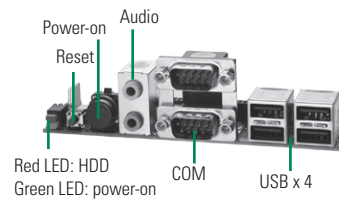
PCIe x4 riser card with 4-slot PCIe x1 add-on card which is aside the SBCs.
(Applied for SBC86860, SBC86850, SBC86834)



I/O board for Pico-ITX board

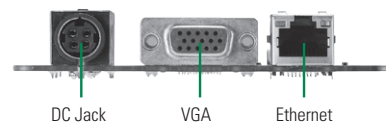
AX93265

Specification: 1 x RS-232/422/485, 1 x RS-232, 4 x USB2.0, 1 x Audio (MIC-IN/Line-out),
1 x power-on, 1 x Reset, 2 x LED
Dimension: 118 x 29 mm
Compliant Product: PICO830, PICO831



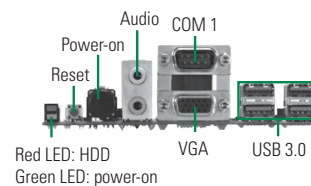
AX93267

Specification: 1 x DC Jack, 1 x VGA, 1 x Gigabit LAN
Dimension: 100 x 26 mm
Compliant Product: PICO831, PICO841, PICO843



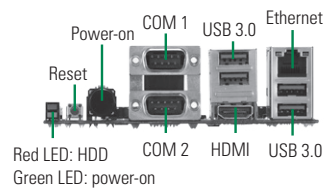
AX93275

Specification: 1 x RS-232/422/485, 1 x RS-232, 4 x USB3.0, 1 x VGA,
1 x Audio (MIC-IN/Line-out), 1 x power-on, 1 x Reset, 2 x LED
Dimension: 118 x 40 mm
Compliant Product: PICO880, PICO500, PICO300



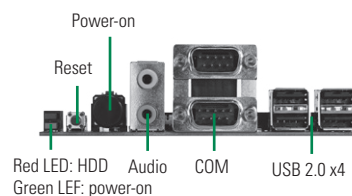
AX93276

Specification: 1 x RS-232/422/485, 1 x RS-232, 4 x USB3.0, 1 x HDMI, 1 x Gigabit LAN,
1 x power-on, 1 x Reset, 2 x LED
Dimension: 118 x 40 mm
Compliant Product: PICO880, PICO500, PICO300



AX93283

Specification: 1 x RS-232/422/485, 1 x RS-232, 4 x USB2.0, 1 x Audio (MIC-IN/Line-out),
1 x power-on, 1 x Reset, 2 x LED
Dimension: 118 x 29 mm
Compliant Product: PICO840, PICO841, PICO843



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Slot CPU
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Accessories

Appendix





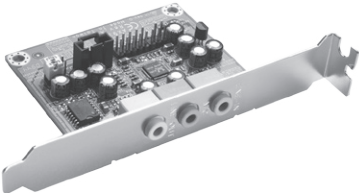
I/O Cable Kit

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



MiniPCI Modules

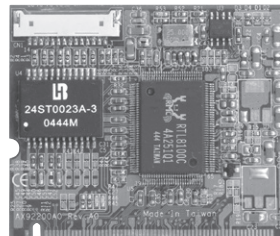
AX92200

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



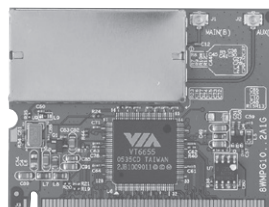
AX92203

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
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Accessories

Appendix



Full-Size PCI Express Mini Module

AX92902

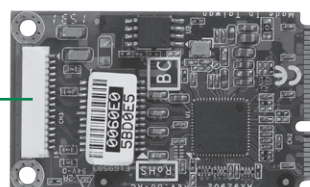
Full-Size Mini PCI Express module for Gigabit LAN

- Form factor: Full-size Mini PCI Express
- Controller: Intel® i210IT
- Specification: 1 Gigabit Ethernet

Ordering Information

AX92902+AX93287	Full-size Mini PCI Express module for Gigabit LAN
(P/N: E392902101)	

Gigabit LAN



▲ AX92902



▲ AX92902+AX93287



▲ AX93287

AX92903

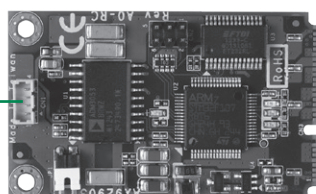
Full-Size Mini PCI Express module for CAN Bus

- Form factor: Full-size Mini PCI Express
- Specification: CAN 2.0A and CAN 2.0B

Ordering Information

AX92903	Full-size Mini PCI Express module for CAN Bus
(P/N: E392903100)	

CAN Bus



AX92904

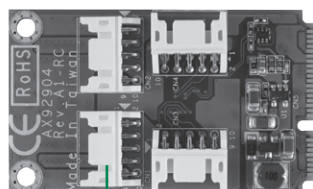
Full-Size Mini PCI Express module for 32 bit DIO

- Form factor: Full-size Mini PCI Express
- Specification: 32 bit programmable DIO

Ordering Information

AX92904	Full-size Mini PCI Express module for 32 bit DIO
(P/N: E392904100)	

8 bit Digital I/O x 4



AX92905

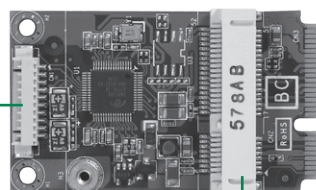
Full-Size Mini PCI Express Module for Audio

- Form factor: Full-size Mini PCI Express
- Specification: Audio (Mic-In/Line-In/Line Out) and half-size mini PCI Express (PCIe only)

Ordering Information

AX92905	Full-size Mini PCI Express Module for Audio and Half-size Mini PCI Express (PCIe only)
(P/N: E392905100)	

Audio



Half-Size Mini PCI Express (PCIe only)



▲ AX92905 with Cable

AX92906

Full-Size Mini PCI Express Module for COM

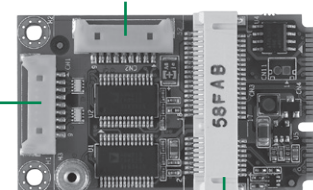
- Form factor: Full-size Mini PCI Express
- Specification: 2 COM ports (2 x RS-232) and half-size mini PCI Express (PCIe only)

Ordering Information

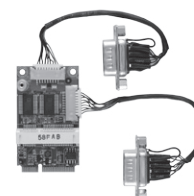
AX92906	Full-size Mini PCI Express Module for COM and Half-size Mini PCI Express (PCIe only)
(P/N: E392906100)	

COM 1

COM 2



Half-Size Mini PCI Express (PCIe only)



▲ AX92906 with Cable

LVDS Convert Modules

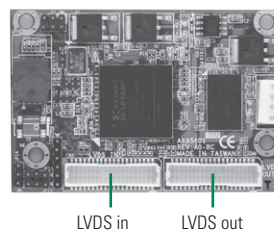
AX95601

LVDS Converter

- From Factor: ECX stacking module
- Controller: Xilinx XC3S200AN
- Connector: 2 x 40-pins LVDS connectors
- Dimension: 65 x 43 mm
- Applied for CAPA800 and CAPA801

Ordering Information

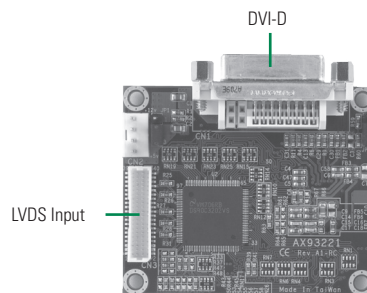
AX95601	LVDS converter for pixel compensated to 1280 x 1024 48 bit
(P/N: E395601101)	
AX95601	LVDS converter for scale up to 1920 x 1080 48 bit
(P/N: E395601100)	



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 50 mm
- Applied for PICO821 and PICO822



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Appendix



PoE I/O board

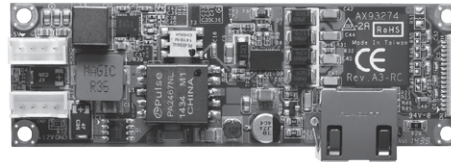


AX93274

- Specifications: A PoE-PD I/O board complies with IEEE802.3at standard via an internal cable to power on SBC
- Dimension: 100 x 32 mm
- Accessories: 1 x LAN cable, 1 x power cable, 1 x thermal module
- Compliant Product: PICO831, PICO121, PICO841, PICO843

Ordering Information

AX93274	PoE-PD I/O board
(P/N: E393274100)	

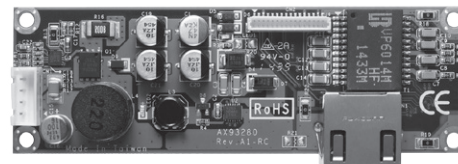


AX93280

- Specifications: A PoE-PSE I/O board complies with IEEE802.3af standard via an internal cable connected to LAN port on a SBC to power an external PoE device
- Dimension: 100 x 32 mm
- Accessories: 1 x LAN cable, 1 x power cable
- Compliant Product: PICO831, PICO121, PICO841, PICO843

Ordering Information

AX93280	PoE-PSE I/O board
(P/N: E393280100)	



ZIO Module

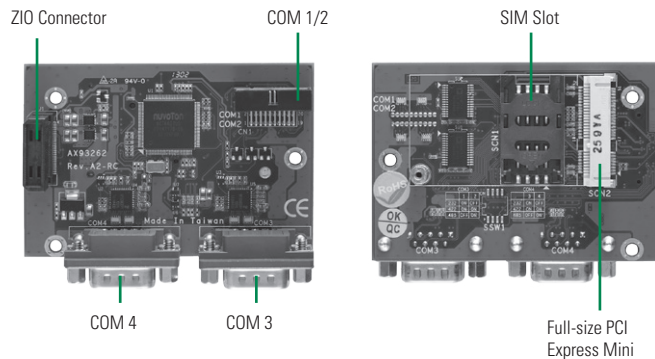
AX93262

ZIO module with four COM ports and one PCI Express Mini Card

- Specification: 2 x RS-232/422/485, 2 x RS-232, 1 x PCI Express Mini Card
- Dimension: 80 x 55 mm
- Compliant Product: CAPA830, CAPA840, CAPA843

Ordering Information

AX93262 ZIO module with 4 COM ports and 1 PCI Express Mini Card
(P/N: E393262100)



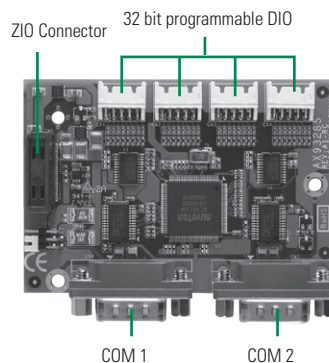
AX93285

ZIO module with two COM ports and 32 bit programmable DIO

- Specification: 2 x RS-232, 32-bit programmable DIO
- Dimension: 80 x 55 mm
- Compliant Product: CAPA830, CAPA840, CAPA843

Ordering Information

AX93285 ZIO module with 2 COM ports and 32 bit programmable DIO
(P/N: E393285100)



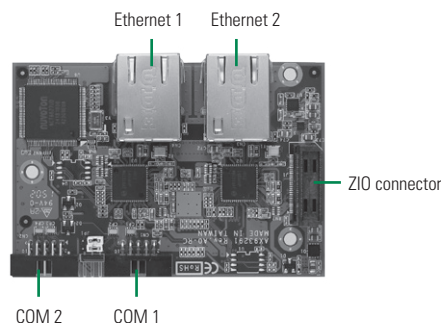
AX93291

ZIO module with two Gigabit Ethernet and two COM ports

- Specification: 2 x Gigabit Ethernet, 2 x RS-232
- Dimension: 80 x 55 mm
- Controller: Intel® i211AT
- Compliant Product: CAPA830, CAPA840, CAPA843

Ordering Information

AX93291 ZIO module with two Gigabit Ethernet and two COM ports
(P/N: E393291100)



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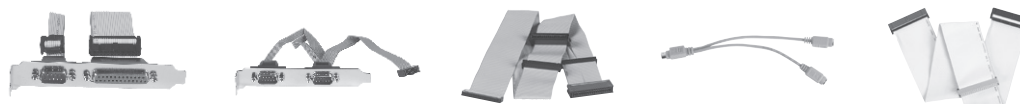
Cable List



Part Number	59093201000E	59308300000E	59312260000E	59312260010E	59312260020E
Cable Description	AX93201 to AX93202 LAN cable, L=20 mm	IEE1394 cable w/ bracket, P= 2.0 mm, L=330 mm	VGA cable, DB15P, P=1.25, 12P, L=200 mm	COM port x 2 w/ bracket, P=1.25, L=250 mm	Audio cable w/ bracket, P=1.25, L=450 mm



Part Number	59327200000E	59380000300E	59380010300E	59380402010E	59380402020E
Cable Description	VGA+PS/2 cable, P=1.27 x 2.54, L=300 mm	COM port x 2 w/ bracket, P=1.27 x 2.54, L=300 mm	COM port x 1 w/ bracket, P=1.27 x 2.54, L=300 mm	COM port cable w/ bracket P=2.54, L=300 mm	COM port cable x1, P=2.0, L=300 mm



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=300 mm	Mini DIN Y-Cable for PS/2 K/B+M/S	ULTRA DMA66 IDE cable 40P 455 mm



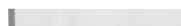
Part Number	59382620000E	59382631000E	593826A0000E	59383600000E	593836A0000E
Cable Description	COM port x 1w/ bracket, P=2.0, L=300 mm	2 x USB 2.0 wafer cable w/ bracket 180 mm	SATA singal cable 500 mm	Audio cable w/ bracket	USB cable, 5 x 2P, P=2.0, L=180 mm



Part Number	593836A0010E	593836A0030E	59384500000E	59384500100E	59384500200E
Cable Description	40-40-40 IDE cable L=310+155 mm	SATA power cable 150 mm	COM + printer cable w/ bracket P=2.0, L=250 mm	Audio cable w/ bracket, P=2.0 L=450 mm	COM x 2 w/ bracket, P=2.0, L=250 mm



Part Number	59384500300E	59386831000E	59386832000E	59397300000E	59397300110E
Cable Description	FDD flat cable "2.54 to 2.0 pitch" 320 mm	USB cable w/ bracket, USB x 2, 2 x 5P, P=2.54, L=175 mm	Wafer 2.00mm 6P to PS/2 cable, L=200 mm	VGA cable, L=180 mm	USB cable w/ bracket, L=215 mm



Part Number	59397300200E	59402010000E	59408000010E	59408000090E	59408660010E
Cable Description	K/B & M/S cable, 2 x 5, P=2.0, L=300 mm	ATX power cable 10P L=150 mm	FFC 26P cable, L=210 mm	FFC 26P cable, L=290 mm	FFC 41P cable, L=60 mm



Part Number	59408660020E	59408660100E	59408660110E	59412260000E	59412260010E
Cable Description	FFC 41P cable, L=60 mm reverse	RCA cable+wafer 2P 2.0 mm, L=300 mm RC	S Video cable + wafer 4P 2.0 mm, L=300 mm	ATX power cable, 4P+5P+6P, L=150 mm	PS/2 cable, P=1.25, 6P to PS/2, L=150 mm



Part Number	59420040000E	59482630000E	59484500010E	594F2012900E	59908355000E
Cable Description	ATX power cable, 6P+4P, L=150 mm	Printer port cable, P=2.0, L=270 mm	44-44-40 pin IDE cable L=200 mm + 200 mm	2 ports of IEEE1394a cables w/ bracket 2.54-pitch	Power cable 8-pin P=130 mm



Part Number	59070213000E	59040131000E	59050203000E	59091501000E
Cable Description	DP to VGA cable L=85 mm	DP to DVI cable L=210 mm	DP to HDMI cable L=185 mm	DP to DP cable L=1500 mm



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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.

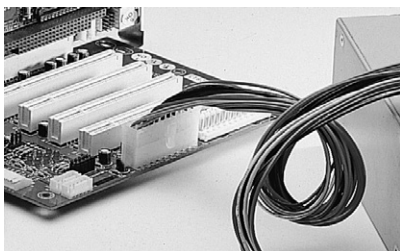


Photo 2 - Plug the 6-pin ACPI cable into the ACPI connector of the Axiomtek backplane.

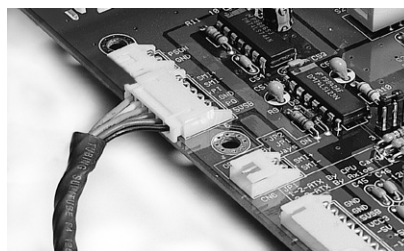


Photo 3 - Plug the ACPI cable into the ACPI connector of the Axiomtek SBC.

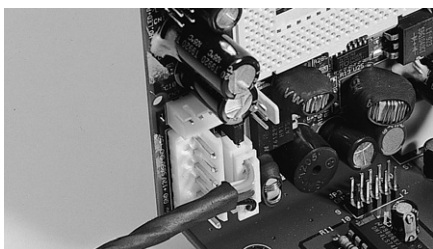


Photo 4 - Plug the soft switch bottom cable into the power connector of the Axiomtek backplane.



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.

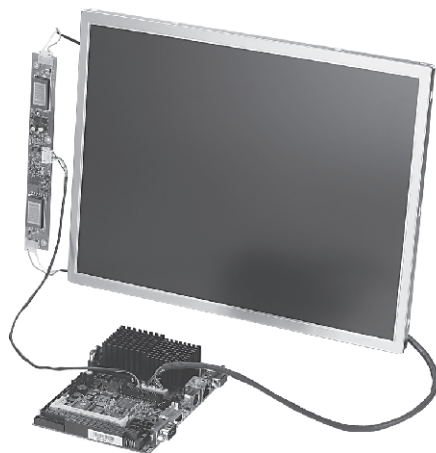


Photo 1 - - Install the SBC side adapter to the proper LCD interface on the Axiomtek SBC

Photo 2 - Plug the LCD side adapter to the applied LCD Panel

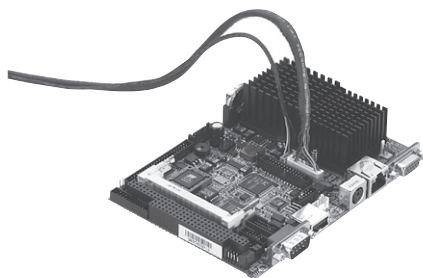
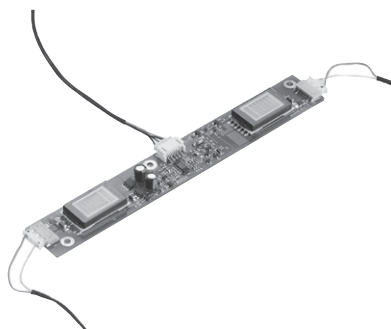


Photo 3 - - Connect the inverter cable from SBC side adapter to the inverter



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