

EMX-A55E

AMD G-Series™ APU with A55E Controller Hub(FCH)
Mini-ITX Motherboard

Quick Installation Guide

1st Ed –29 June , 2011

FCC Statement



THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

- (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.
- (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

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A Message to the Customer

Avalue Customer Services

Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

Your satisfaction is our primary concern. Here is a guide to Avalue's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

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We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can 2 EMX-A55E Quick Installation Guide

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easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult the user's manual first.

To receive the latest version of the user's manual; please visit our Web site at:

<http://www.avalu.com.tw/>

If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your Avalue's products. In fact, most problems reported are minor and are able to be easily solved over the phone.

In addition, free technical support is available from Avalue's engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

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1. Getting Started

1.1 Safety Precautions

Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surge. Only experienced electronics personnel should open the PC chassis.

Caution!



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Always note that improper disassembling could damage to the motherboard. We suggest not to, in any circumstance remove the heatsink without the correct instructions. If you really have to do it, please contact us for further support.

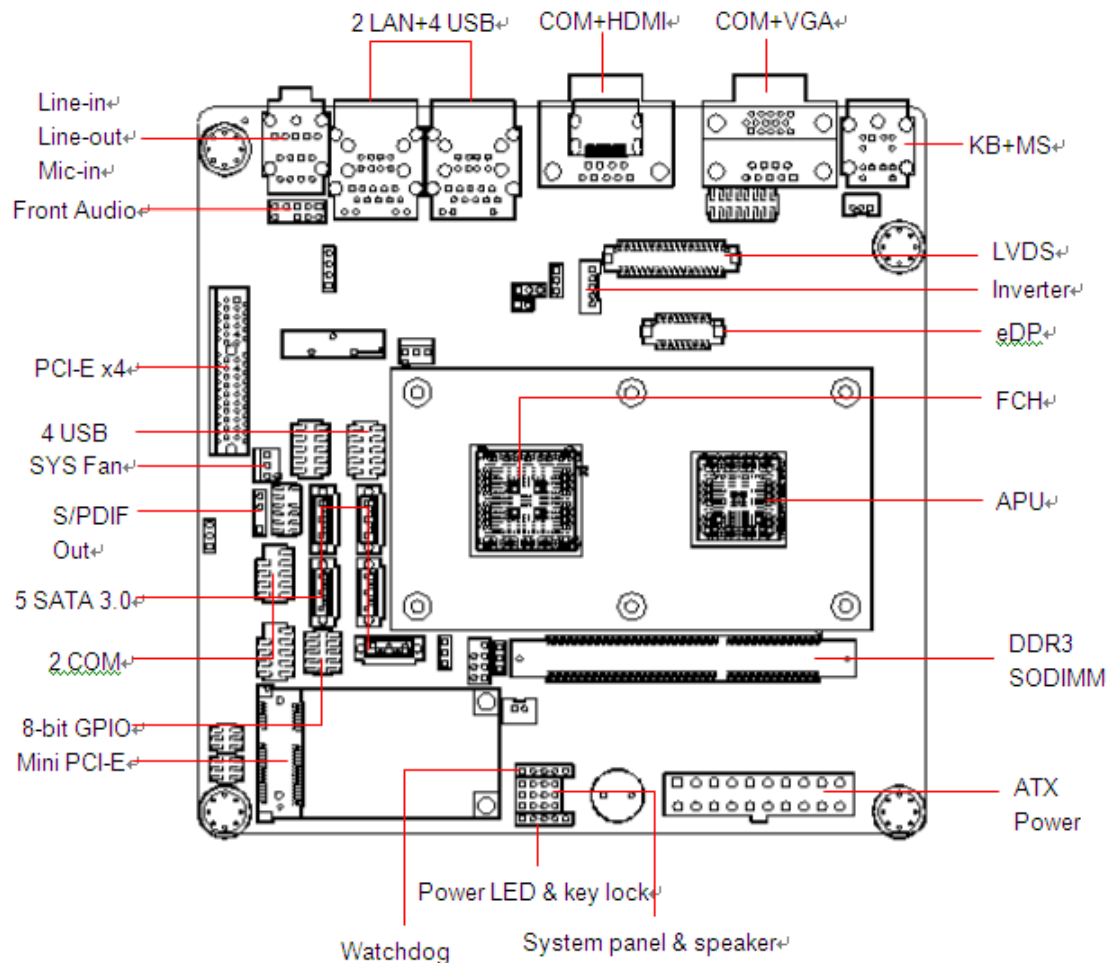
1.2 Packing List

Before you begin installing your single board, please make sure that the following items have been shipped:

- 1 x EMX-A55E Mini ITX Main board
- 1 x CD-ROM contains OS drivers
- 1 x CPU Cooler
- 1 x SATA cable
- 1 x I/O Shield
- 1 x Startup Manual

2. Hardware Configuration

2.1 Product Overview



2.1 Specifications

APU	G-Series
APU Type	AMD G-Series T56N 1.6GHz DC /T40N 1.0GHz DC
Processor Family	AMD G-Series
Long Life Processor List	TDP 5~18W, T shutdown 125℃
Package	FT1 (BGA) 413 balls p=0.8mm, 19x19 mm
L2 Cache	L1: 32KB+32KB per core, L2: 512KB cache per core
UMI	4-Lane(x4) PCIe gen2
Power Management	C6 supported
PCIe	4-Lane(x4) PCIe gen2
CPU Process	40 nm
System Memory	
Memory Type	One DDR3 1066 SODIMM
DIMM #	1x SODIMM 204Pin/ Single Channel
Max. Capacity	4 GB
Chipset	
FCH	
Fusion Controller Hub	AMD A55E Controller Hub (Hudson-E1)
PCIe	x4 Gen 2
USB	8 USB 2.0 (4 Rear, 4 Internal)
SMBus	Yes
LPC	Yes
SATA	5 SATA 3.0 (One support SATADOM)
PCI	N/A
HD Audio	support 4 channel, Power Saving, 4 codec
Clock Gen.	Integrated
Package	FCBGA 23x23mm, 605 balls
Environment	TDP 2.7~5.7W, T case 105℃
Display	
Integrated Graphic Controller	ATI Radeon™ HD 6320 (T56N)/ HD 6290 (T40N) Graphics Engine supports
HW decoder	H.264, VC-1, MPEG-2 and DivX decode
3D feature	DirectX 11, OpenGL 4.0, dedicated hardware (UVD 3.0)
LVDS	1, 18bpp (Single link LVDS up to 1400 x 1050)
VGA	T56N (18W) supports up to 2560 x 1600 T40N (9W) supports up to 1920 x 1200

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HDMI	1 support HDMI 1.3a & 1080p up to 1920 x 1080
Dual Display	VGA+LVDS, VGA+HDMI, HDMI+LVDS
Gigabit Ethernet	
Chipset	LAN1 RTL 8111DL Gigabit LAN LAN2 RTL 8111DL Gigabit LAN
LAN LED	Left: Link (Off)/ Active (Flash Yellow)
	Right: 1Gbps(Green) / 100Mbps (Orange) / 10Mbps (Off)
Disable LAN through BIOS	Yes
WOL	Yes
Boot from LAN	Yes
ASF	N/A
Audio	
Codec	7.1 Channel HD Audio
Chipset	Realtek ALC892
Audio output header	Yes, Front Audio Pin Header
Front IO Connector	Stack Phone Jack (Mic In, Line-out, Line-in)
SPDI/F	Yes
Amplifier	TI TPA3005
RS232 COM	
LPC to COM	2 COM for Rear I/O D-Sub 2 COM with headers
Super I/O	
Chipset	Winbond W83627DHG-P
Fan speed monitor & control	FAN Speed Control by Thermal Sensor
Temperature	Yes
Voltage	3.3V, +5V, 5Vsb, +12V, -12V
Buzzer	
Onboard buzzer	Yes
WDT	
Watchdog Timer	Programmable 1~255 sec/min
TPM	
TPM	Onboard TPM1.1/1.2 By Infineon SLB9635 (Optional)
BIOS	
BIOS Core	AMI EFI
BIOS Flash	
BIOS Flash	16Mb SPI

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SW RAID	
SW RAID	None
Bootup Device	
Serial ATA	Yes (CFast)
IDE device	N/A
USB device	Yes
Boot from LAN	Yes
Power Management	
ACPI	ACPI 3.0
APM	NA
Sleep State	S3, S4, S5
Other Feature	
PC Health	YES
CMOS backup	BIOS CMOS automatic backup and restore setup data
SmartFAN	CPU, SYS FAN, Smart Fan III+
Graphics memory mode	Shared Memory up to 2GB
Power Play	380, 200MHz, configure Power to 2.7~5.7W
SATA	Support SATA III(6Gbps)
Internal Connector	
Debug Port	
CPU	HDT header
SPI	1
Display	
LVDS	1
eDP	1, (optional)
Inverter	
LVDS INV	3.3 V
Audio	
Front Panel	1
Amplifier	1
SPDI/F	1
USB	
USB	4
Serial	
COM	2
IDE	
IDE	NA

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SATA	
SATA	5 (SATA III 6 Gb/s)
SATA power	NA
Fan connector	
System fan connector	1 system fan(3pin for system with smart fan control)
CPU fan connector	1 CPU fan(3pin for system with smart fan control)
GPIO	
General	8bit
Front I/O	
Display	
HDMI	1
VGA	1, co-layout with header
DVI	NA
Ethernet	
RJ-45	2, stack with USB
USB	
USB	4 (USB 2.0 port)
COM	
Serial port	2* RS-232
PS/2	
KB/MS	2, co-lay single DIN
Audio	
Phone Jack	1 Line-in 1 Line-out 1 MIC co-lay 1 jack connector
Power Connector	
Power Type	AT/ATX
Power Requirement	+3.3V, +5V, +12V, -12V, 5Vsb
LED Indicator	
LED	
HDD Status	4; alive, green; dead, red 4; access, flash yellow
Power on rear IO	1; Blue
Expansion Slot	
Mini-PCI Express	1
PClex 4	1

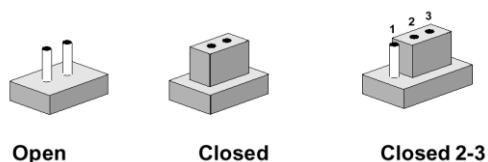
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PCB Physical Feature	
Dimension	170x 170mm
Layer	6 Layer
Power Consumption	< 45W
Operating Temperature	0°C -60°C
Heat Sink	Cooler FAN (T56N) Heatsink (T40N)
Storage Temperature	-20°C ~ 80°C
Vibration (non OP)	3.5 Grms, heat sink backplane TBD
PCB Printing	
Model name in silkscreen	None
Revision in silkscreen	No
PCB Color	Blue
CE mark on PCB	Yes
WEEE	Yes
Advansus PCB part number	Yes
Version	No
FCC mark on PCB	Yes
Cert. Compliance	
CE	Pre-scan for Class B, EN-55022/24
FCC	Pre-scan for FCC PART 15, Class B
IEC-60601	compliance
Accessory	
Accessory List	
FP_USB cable	None
SATA cable Kit	1 data and 1 power
Serial Port	2
I/O Shield	1
Driver CD	1
Startup Manual	None
FP_Power button, power LED, HDD LED kit	None
AVL	
OS Support List	Windows XP SP3, Windows 7 Pro, Linux Fedora 14

2.2 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:



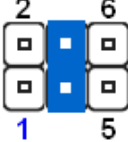
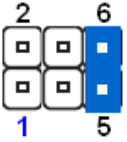
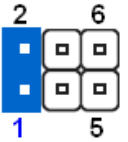
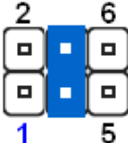
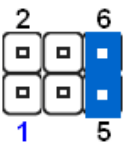
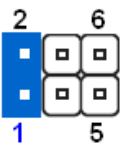





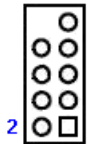
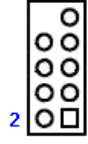

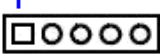
A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

2.1 Setting Jumpers & Connectors

Jumpers				
Label	Function	Note		
CMOS1	Clear CMOS	Normal *	Clear CMOS	
				
JSETCOM3,	COM3, COM4 RI/+5V/+12V Select	RI	+5V	+12V
	COM3			
JSETCOM4	COM4			
PSON1	AT/ATX Mode Select	AT MODE	ATX MODE	
	 <ul style="list-style-type: none"> 1. ATSEL IN 2. PWRBT 3. ATXSEL IN 			

Connectors				
Label	Function	Note		
COM3, COM4	Serial Port Connector	COM3	COM4	
				
JFP1+JFP2	System Panel & Speaker			
		PIN7-10 PIN1-10	SPK3 SPK4	PIN3-6 POWER BT PIN9-12 SYS_RESET
JFP3	Power LED & Keylock		1. POWER LED 2. NC 3. GND 4. KEYLOCK 5. GND	

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LVDS1	18-bit LVDS Connector	
JBL3	LCD POWER (VDDSAFE) 3.3V/5V SELECTION	
JBL1	Inverter PWR	
JBL1	LCD Inverter Connector	
AAFP	Audio Mic.-In & Line-Out Connector	
SPDIF_OUT1	SPDIF OUT	

