ETX-700 Rev.B
AMD Geode
LX Processors
ETX CPU Module
With LCD, Ethernet,
Audio, PCI

ETX-700 Manual Rev. B 2nd Ed.
Sept. 2010

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Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- 1   ETX-700 Rev.B CPU Module

- 1   CD-ROM for manual (in PDF format) and drivers

If any of these items should be missing or damaged, please contact your distributor or sales representative immediately.

Application Notes

1. ISA IRQ resource:

If you use the ISA card, you have to disable the COM3 and COM4 in the BIOS due to the IRQ resource limitation. It will release the IRQ to the ISA card.

2. VGA through PCI graphic add-on card:

If you use a PCI graphic add-on card, you have to use the onboard VGA first.   Then, adjust the PCI graphic add-on card to be the primary in the OS.   After re-booting, you can use the VGA through PCI graphic add-on card normally.

For more details, please contact with AAEON AE Department for help.

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Chapter

1

General Information

1.1 Introduction

AAEON announced the new **E**mbedded **T**echnology e**X**tended (**ETX**) product – **ETX-700 Rev.B**, which is based on the AMD LX processor combined with AMD CS5536 chipset.

ETX-700 Rev.B can provide common PC peripheral functions such as graphics, USB, serial, parallel ports, keyboard/mouse, Ethernet, and IDE. The baseboard designer can optimize exactly which and how these functions are implemented physically.

All of AAEON's ETX modules have a standard form factor and a standard connector layout that carry a specified set of signals. By adopting this standardization, the designers can create a single system of carrier board that can accept present and future ETX modules in terms of their needs. In another word, AAEON will have different ETX solutions so that customers can upgrade the module without having to change their carrier board.

The ETX-700 Rev.B was designed specially to improve the quality and speed of your product development. AAEON ETX series represent features of scalability, reliability and qualified services. It provides more compact size and more flexibility for your various applications as well.

1.2 Features

- ETX Form Factor
- AMD Geode LX Series Processors
- AMD CS5536 (Southbridge)
- Non-ECC DDR 333/400 Memory
- CRT/ LVDS LCD/ TTL LCD
- 10/100 Base-TX Ethernet
- AC97 Audio CODEC
- One IDE Channel
- One CompactFlash Type I Slot
- +5V Operating Voltage

1.3 Specifications

System

- CPU   Onboard AMD Geode LX Series Processor
- Memory   One DDR SODIMM, supports non-ECC DDR 333/400 up to 1GB
- Chipset   AMD CS5536
- Ethernet   Realtek RTL8139DL, 10/100Base-TX
- BIOS   PLCC type, 1MB ROM
- Watchdog Timer Generates a Time-out System Reset
- H/W Status Monitoring Supports Power Supply Voltages, Fan Speed and Temperatures Monitoring
- Wake on LAN   Yes
- OS Support   Windows 32-bit XP Pro

  WinCE5.0/6.0

  Linux Red Hat
- Expansion Interface 8-bit/16-bit ISA (ITE IT8888G-L, PCI to ISA bridge chip)

  32-bit PCI x 4

  CompactFlash Type I Slot x 1

  SMBus x 1

  I2C x 1
- Power Supply Voltage +5V DC
- Board Size   4.5"(L) x 3.75"(W) (114mm x 95mm)

- Gross Weight   0.66lb (0.3kg)
- Operating Temperature 32°F~140°F (0°C~60°C)

Display

- Chipset   AMD LX processor integrated
- Memory   Shared system memory up to 254MB
- Resolution   Up to 1920x1440@32bpp at 85Hz
                        (CRT); Up to 1600x1200@32bpp at
                        100Hz (CRT); Up to 1600x 1200
                        @32bpp at 60Hz (LCD)
- LCD Interface   TF-ETX-700-B10: 18/24-bit TTL
                        TF-ETX-700-B10-01: 18-bit LVDS
                        TF-ETX-700-B10-02: 24-bit LVDS

I/O

- Chipset   Winbond W83627HG
- IDE   IDE Channel x 1
- Parallel Port/FDD   1 (Configured by BIOS)
- Serial Port   COM1/2 (TTL output)
- IrDA   1
- Audio   Realtek ALC203
- USB   USB2.0 x 4

Chapter

2

Quick
Installation
Guide

OZONE SAFE

RECYCLABLE

2.1 Safety Precautions

Warning! *Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.*

Caution! *Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis*

2.2 Location of Connectors and Jumpers

Component Side
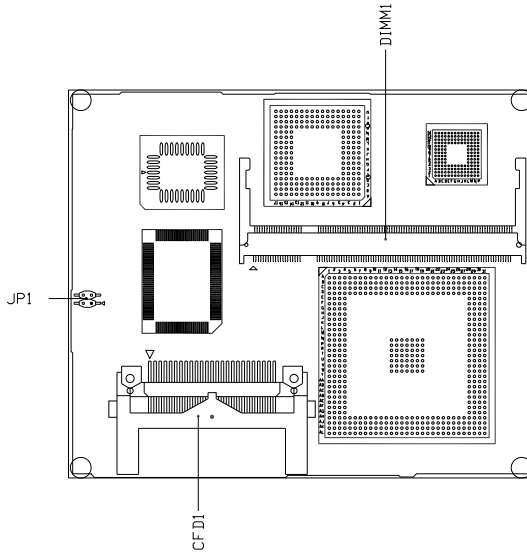
Solder Side
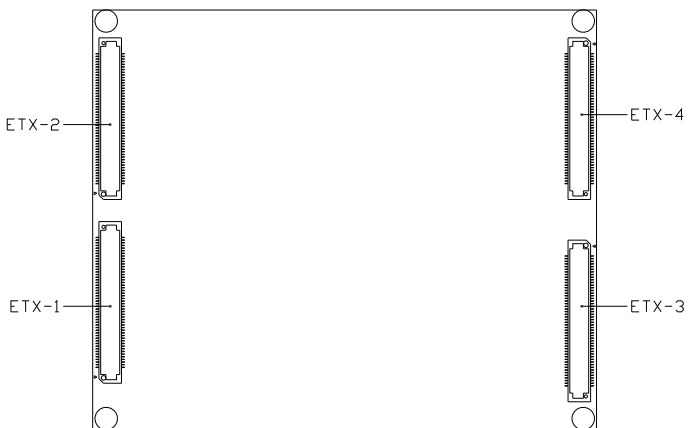
2.3 Mechanical Drawing

Component Side
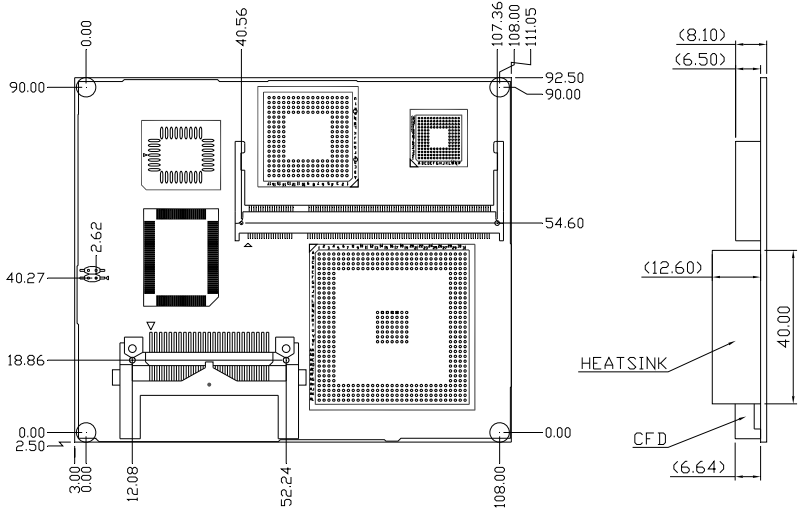
Solder Side
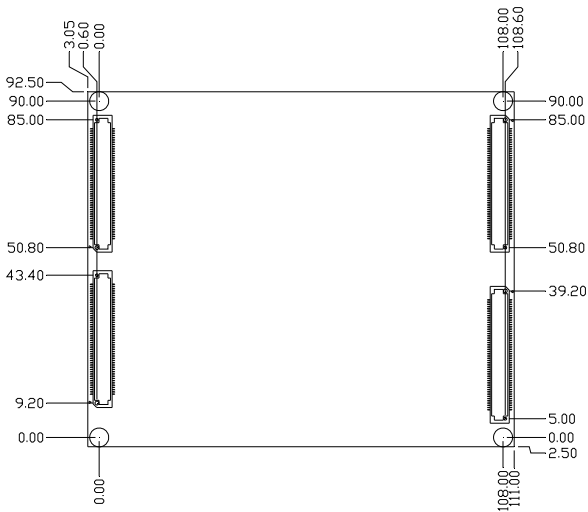
2.4 List of Jumpers

Jumpers allow users to manually customize system configurations to their suitable application needs. The following chart consist the list of each jumper function:

Label	Function
JP1	LCD Clock Selection

2.5 List of Connectors

The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

Label	Function
CFD1	Compact Flash Disk
J2	PCI / USB / Audio
J3	ISA
J4	VGA / LCD / Video out / COMs / LPT / FDD / IrDA / Mouse / Keyboard
J5	IDE 1 / IDE 2 / Miscellaneous

Caution:

In order to properly clear the CMOS when using this ETX module with ECB-901A, please ensure to turn off the main switch on the power supply before taking actions. That should include both AT and ATX power supply. Fail to turn off the main switch of power supply might result in unsuccessful CLEAR CMOS action.

2.6 LCD Clock Selection (JP1)

JP1	Function
1-2	Normal (Default)
3-4	Shift Clock

2.7 CompactFlash Disk Slot (CFD1)

Pin	Signal	Pin	Signal
1	Ground	26	Ground
2	D3	27	D11
3	D4	28	D12
4	D5	29	D13
5	D6	30	D14
6	D7	31	D15
7	CS#0	32	CS#1
8	Ground	33	Ground
9	Ground	34	IOR#
10	Ground	35	IOW#
11	Ground	36	+5 Volt.
12	Ground	37	IRQ14
13	+5 Volt.	38	+5 Volt.
14	Ground	39	CSEL#
15	Ground	40	N/C
16	Ground	41	RESET#
17	Ground	42	IORDY

18	DA2	43	DREQ
19	DA1	44	DACK#
20	DA0	45	DASP#
21	D0	46	PDIAG#
22	D1	47	D8
23	D2	48	D9
24	IO16#	49	D10
25	Ground	50	Ground

2.8 ETX-1 Connector (J2)

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	PERR#	56	NC
7	PCICLK1	8	PCICLK2	57	PCI_PME	58	USB2N
9	REQ3#	10	GNT3#	59	PLOCK#	60	DEVSEL#
11	GNT2#	12	3V	61	TRDY#	62	USB3N
13	REQ2#	14	GNT1#	63	IRDY#	64	STOP#
15	REQ1#	16	3V	65	FRAME#	66	USB2P
17	GNT0#	18	NC	67	GND	68	GND
19	VCC	20	VCC	69	AD16	70	CBE2#
21	SERIRQ	22	REQ0#	71	AD17	72	USB3P
23	AD0	24	3V	73	AD19	74	AD18
25	AD1	26	AD2	75	AD20	76	USB0N
27	AD4	28	AD3	77	AD22	78	AD21
29	AD6	30	AD5	79	AD23	80	USB1N
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	LIN_L	87	AD28	88	USB0P
39	AD11	40	MIC_IN	89	AD27	90	AD29
41	AD12	42	LIN_R	91	AD30	92	USB1P
43	AD13	44	VCCAUD	93	PCIRST#	94	AD31
45	AD14	46	LOUT_L	95	INTC#	96	INTD#
47	AD15	48	GNDAUD	97	INTA#	98	INTB#
49	CBE1#	50	LOUT_R	99	GND	100	GND

2.9 ETX-2 Connector (J3)

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	DACK#5	67	GND	68	GND
19	MEMR#	20	DREQ0	69	SA13	70	DREQ3
21	NC	22	DACK0#	71	SA14	72	DACK3#
23	NC	24	IRQ14	73	SA15	74	IOR#
25	NC	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	IOCHRD	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

2.10 ETX-3 Connector (J4)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	LPT/FLP#	52	NC
3	RED	4	BLUE	53	VCC	54	GND
5	HSYNC	6	GREEN	55	STB#	56	AFD#
7	VSYNC	8	CRT_CLK	57	NC	58	PD7
9	NC	10	CRT_DAT	59	IRRX	60	ERR#
11	B6	12	SHFCLK	61	IRTX	62	PD6
13	B7	14	LCD _EN	63	RXD2	64	INIT#
15	GND	16	GND	65	GND	66	GND
17	B3	18	B5	67	RTS2#	68	PD5
19	B2	20	B4	69	DTR2#	70	SLIN#
21	GND	22	GND	71	DCD2#	72	PD4
23	LVDS_TX#3/G4	24	G7	73	DSR2#	74	PD3
25	LVDS_TX3/G5	26	G6	75	CTS2#	76	PD2
27	GND	28	GND	77	TXD2#	78	PD1
29	LVDS_TX#2/R6	30	LVDS_CLK/G3	79	RI2#	80	PD0
31	LVDS_TX2/R7	32	LVDS_CLK#/G2	81	VCC	82	VCC
33	GND	34	GND	83	RXD1	84	ACK#
35	LVDS_TX0/R3	36	LVDS_TX1/R5	85	RTS1#	86	BUSY#
37	LVDS_TX#0/R2	38	LVDS_TX#1/R4	87	DTR1#	88	PE
39	VCC	40	VCC	89	DCD1#	90	SLCT#
41	R1	42	LCD_YSYNC	91	DSR1#	92	MSCLK
43	R0	44	LVDS_BKLEN	93	CTS1#	94	MSDAT
45	LCD_HSYNC	46	LVDS_VDDEN	95	TXD1#	96	KBCLK
47	B1	48	G1	97	RI1#	98	KBDAT
49	B0	50	G0	99	GND	100	GND

2.11 ETX-4 Connector (J5)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	NC	52	PIDE_IOR#
3	5V_SB	4	RSTIN#	53	NC	54	PIDE_IOW#
5	PS_ON	6	SPEAKER	55	NC	56	PIDE_DRQ
7	PWRBTN#	8	VBAT	57	NC	58	PIDE_D15
9	FAN_TAC	10	LILED	59	NC	60	PIDE_D0
11	NC	12	ACTLED	61	NC	62	PIDE_D14
13	NC	14	SPEEDLED	63	NC	64	PIDE_D1
15	NC	16	SMBCLK	65	GND	66	GND
17	VCC	18	VCC	67	NC	68	PIDE_D13
19	OVCR#	20	GPIO	69	NC	70	PIDE_D2
21	NC	22	SMBDATA	71	NC	72	PIDE_D12
23	SMBCLK	24	SMBDATA	73	NC	74	PIDE_D3
25	NC	26	FAN_TAC	75	NC	76	PIDE_D11
27	NC	28	DASP	77	NC	78	PIDE_D4
29	NC	30	PIDE_CS1#	79	NC	80	PIDE_D10
31	NC	32	PIDE_CS0#	81	VCC	82	VCC
33	GND	34	GND	83	NC	84	PIDE_D5
35	NC	36	PIDE_A2	85	NC	86	PIDE_D9
37	NC	38	PIDE_A0	87	NC	88	PIDE_D6
39	NC	40	PIDE_A1	89	RING#	90	P66DET
41	NC	42	NC	91	RXD#	92	PIDE_D8
43	NC	44	PIDE_INTR	93	RXD	94	NC
45	NC	46	PIDE_ACK#	95	TXD#	96	PIDE_D7
47	NC	48	PIDE_RDY	97	TXD	98	PIDE_RST#
49	VCC	50	VCC	99	GND	100	GND

Below Table for China RoHS Requirements
产品中有毒有害物质或元素名称及含量

AAEON Main Board/ Daughter Board/ Backplane

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○

O：表示该有毒有害物质在该部件所有均质材料中的含量均在
　　SJ/T 11363-2006 标准规定的限量要求以下。

X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出
　　SJ/T 11363-2006 标准规定的限量要求。

备注：此产品所标示之环保使用期限，系指在一般正常使用状况下。

Chapter

3

Award BIOS Setup

3.1 System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

> Press <F1> to RESUME
>
> Write down the message and press the F1 key to continue the boot up sequence.

System configuration verification

These routines check the current system configuration against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

1. You are starting your system for the first time

2. You have changed the hardware attached to your system

3. The CMOS memory has lost power and the configuration information has been erased.

The ETX-700 Rev.B memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2 Award BIOS Setup

Awards BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

Entering setup

Power on the computer and press <Del> immediately. This will allow you to enter Setup.

Standard CMOS Features

Use this menu for basic system configuration. (Date, time, IDE, etc.)

Advanced BIOS Features

Use this menu to set the advanced features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals. (Primary slave, secondary slave, keyboard, mouse etc.)

Power Management Setup

Use this menu to specify your settings for power management. (HDD power down, power on by ring etc.)

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

This menu shows you the status of PC.

Frequency/Voltage Control

This menu shows you the display of frequency/Voltage Control.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/ stable performance for your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While AWARD has designated the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Set Supervisor/User Password

Use this menu to set Supervisor/User Passwords.

Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

For more detailed information, you can refer to the "AAEON BIOS Item Description.pdf" file in the CD for the meaning of each setting in this chapter.

Chapter

4

Driver
Installation

4.1 Software Drivers

This chapter describes the operation and installation of the display drivers supplied on the Supporting CD-ROM that are shipped with your product. The onboard VGA adapter is based on the AMD LX VGA Flat Panel/CRT controller. This controller offers a large set of extended functions and higher resolutions. The purpose of the enclosed software drivers is to take advantage of the extended features of the AMD LX VGA Flat Panel/CRT controller.

Hardware Configuration

Some of the high-resolution drivers provided in this package will work only in certain system configurations. If a driver does not display correctly, try the following:

1. Change the display controller to CRT-only mode, rather than flat panel or simultaneous display mode. Some high-resolution drivers will display correctly only in CRT mode.

2. If a high-resolution mode does not support your system, try to use a lower-resolution mode. For example, 1024 x 768 mode will not work on some systems, but 800 x 600 mode supports the most.

4.2 Necessary to Know

The instructions in this manual assume that you understand elementary concepts of MS-DOS and the IBM Personal Computer. Before you attempt to install any driver from the *Supporting CD-RO*M, you should:

● Know how to copy files from a CD-ROM to a directory on the hard disk

● Understand the MS-DOS directory structure
    If you are uncertain about any of these concepts, please refer to the DOS or OS/2 user reference guides for more information before you proceed with the installation.

Before you begin

The Supporting CD-ROM contains different drivers for corresponding Windows OS, please choose the specific driver for your Windows OS.

4.3 Installing VGA Driver

Win XP / Win XPe VGA

Place the Driver CD-ROM into your CD-ROM drive and follow the steps below to install.

1. Click on **Start** button
2. Click on **Settings** button
3. Click on **Control Panel** button
4. Click on **System** button
5. Select **Hardware** and click on **Device Manager…**
6. Double click on **Video Controller (VGA Compatible)**
7. Click on **Update Driver…**
8. Click on **Next**
9. Select **Search for a suitable driver…**, then click on **Next**
10. Select **Specify a location**, then click on **Next**
11. Click on **Browse**
12. Select "l**x_win"** file from CD-ROM **(Drivers/Step 1 – LX_Graphics)** then click on **Open**
13. Click on **OK**
14. Click on **Next**
15. Click on **Yes**
16. Click on **Finish**

Note: The user must install this system driver before install other device drivers.

4.4 Installing AES Driver

Win XP / Win XPe AES

Place the Driver CD-ROM into your CD-ROM drive and follow the

steps below to install.

1. Click on **Start** button

2. Click on **Settings** button

3. Click on **Control Panel** button

4. Click on **System** button

5. Select **Hardware** and click on **Device Manager…**

6. Double click on **Entertainment Encryption/Decryption**

   Controller

7. Click on **Update Driver…**

8. Click on **Next**

9. Select **Search for a suitable driver…**, then click on **Next**

10. Select **Specify a location**, then click on **Next**

11. Click on **Browse**

12. Select **"LXAES"** file from CD-ROM **(Driver/Step 2 – AES)** then

    click on **Open**

13. Click on **OK**

14. Click on **Next**

15. Click on **Finish**

4.5 Installing PCI to ISA Bridge Driver

Win XP / Win XPe System

Place the Driver CD-ROM into your CD-ROM drive and follow the

following steps to install.

1. Click on **Start** button
2. Click on **Settings** button
3. Click on **Control Panel** button
4. Click on **System** button
5. Select **Hardware** and click on **Device Manager…**
6. Double click on **Other PCI Bridge Device**
7. Click on **Update Driver…**
8. Click on **Next**
9. Select **Search for a suitable driver…**, then click on **Next**
10. Select **Specify a location**, then click on **Next**
11. Click on **Browse**
12. Select "**Ite**" file from CD-ROM **(Driver/Step 3- PCI to ISA Bridge)** then click on **Open**
13. Click on **OK**
14. Click on **Next**
15. Click on **Finish**

4.6 Installing Ethernet Driver

1. Click on the *Step 4 –LAN* folder
2. Double click on the *Setup.exe* file located in the folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

4.7 Ethernet Software Configuration

The onboard Ethernet interface supports all major network operating systems. I/O addresses and interrupts are easily configured via the Insyde BIOS Setup. To configure the medium type, to view the current configuration, or to run diagnostics, please refer to the following instruction:

1. Power the main board on. Ensure that the RSET8139.EXE file is located in the working drive.
2. At the prompt, type RSET8139.EXE and press <ENTER>. The Ethernet configuration program will then be displayed.
3. This simple screen shows all the available options for the Ethernet interface. Just highlight the option you wish to change by using the Up and DOWN keys. To change a selected item, press <ENTER>, and a screen will appear with the available options. Highlight your option and press <ENTER>. Each highlighted option has a helpful message guide displayed at the bottom of the screen for additional

information.

4.　After you have made your selections and the configuration is
　　what you want, press <ESC>. A prompt will appear asking if
　　you want to save the configuration. Press "Y" if you want to
　　save.

There are three very useful diagnostic functions offered in the
Ethernet Setup Menu as follows:

　　　　1. Run EEPROM test
　　　　2. Run Diagnostics on Board
　　　　3. Run Diagnostics on Network

Each option has its own display screen, which shows the format and
result of any diagnostic tests undertaken.

4.8 Installing Audio Driver

Win XP / Win XPe Audio

Place the Driver CD-ROM into your CD-ROM drive and follow the
steps below to install.

1.　Click on **Start** button
2.　Click on **Settings** button
3.　Click on **Control Panel** button
4.　Click on **System** button
5.　Select **Hardware** and click on **Device Manager…**
6.　Double click on **Multimedia Audio Controller**
7.　Click on **Update Driver…**

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8. Click on **Next**

9. Select **Search for a suitable driver…**, then click on **Next**

10. Select **Specify a location**, then click on **Next**

11. Click on **Browse**

12. Select **"LXWDMAu"** file from CD-ROM **(Drivers/Step 5 – Audio)** then click on **Open**

13. Click on **OK**

14. Click on **Next**

15. Click on **Yes**

16. Click on **Finish**

Appendix

A

Programming the Watchdog Timer

A.1 Programming

ETX-700 Rev.B utilizes W83627EHG chipset as its watchdog timer controller.

Below are the procedures to complete its configuration and the AAEON intial watchdog timer program is also attached based on which you can develop customized program to fit your application.

Configuring Sequence Description

```
┌─────────────────────────┐
│   Unlock W83627EHG      │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│   Select register of    │
│     watchdog timer      │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│   Enable the function of │
│    the watchdog timer    │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│   Use the function of the │
│      watchdog timer       │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│     Lock W83627EHG      │
└─────────────────────────┘
```
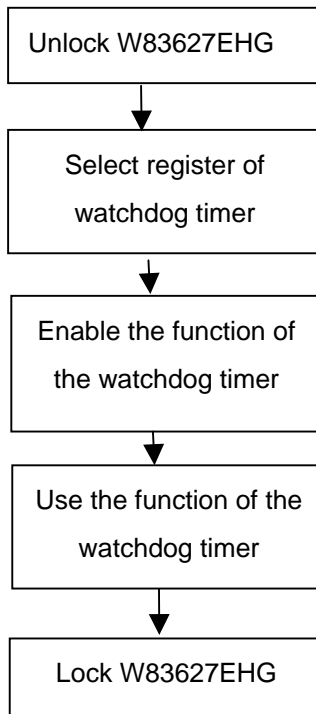
There are three steps to complete the configuration setup:

(1) Enter the W83627EHG config Mode

(2) Modify the data of configuration registers

(3) Exit the W83627EHG config Mode. Undesired result may occur if the config Mode is not exited normally.

(1) Enter the W83627EHG config Mode

To enter the W83627EHG config Mode, two special I/O write operations are to be performed during Wait for Key state. To ensure the initial state of the key-check logic, it is necessary to perform two write operations to the Special Address port (2EH). The different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
87h,87h:	2Eh	2Fh

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the config Mode. Before accessing a selected register, the content of Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

(3) Exit the W83627EHG config Mode

The exit key is provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
0aah:	2Eh	2Fh

WatchDog Timer Register I (Index=F5h, Default=00h)

CRF5 (PLED mode register. Default 0 x 00)

Bit 7-6   : select PLED mode

= 00   Power LED pin is tri-stated.

= 01   Power LED pin is drived low.

= 10   Power LED pin is a 1Hz toggle pulse with 50 duty cycle.

= 11   Power LED pin is a 1/4Hz toggle pulse with 50 duty cycle.

Bit 5-4   : Reserved

Bit 3   : select WDTO count mode.

= 0   second

= 1   minute

Bit 2   : Enable the rising edge of keyboard Reset (P20) to force Time-out event.

= 0 Disable

= 1 Enable

Bit 1-0   : Reserved

WatchDog Timer Register II (Index=F6h, Default=00h)

Bit 7-0   = 0 x 00 Time-out Disable

= 0 x 01 Time-out occurs after 1

second/minute

= 0 x 02 Time-out occurs after 2

second/minutes

= 0 x 03 Time-out occurs after 3

second/minutes

………………………………..

= 0 x FF Time-out occurs after 255

second/minutes

WatchDog Timer Register III (Index=F7h, Default=00h)

Bit 7   : Mouse interrupt reset Enable or Disable

= 1   Watchdog Timer is reset upon a Mouse interrupt

= 0   Watchdog Timer is not affected by Mouse interrupt

Bit 6   : Keyboard interrupt reset Enable or Disable

= 1   Watchdog Timer is reset upon a

Keyboard interrupt

= 0   Watchdog Timer is not affected by

Keyboard interrupt

Bit 5   : Force Watchdog Timer Time-out. Write

Only

= 1   Force Watchdog Timer time-out

event: this bit is self-clearing

Bit 4   : Watchdog Timer Status. R/W

= 1   Watchdog Timer time-out occurred

= 0   Watchdog Timer counting

Bit 3-0   : These bits select IRQ resource for

Watchdog. Setting of 2 selects SMI.

A.2 W83627EHG Watchdog Timer Initial Program

Example: Setting 10 sec. as Watchdog timeout interval

;//

Mov dx,2eh　　　　　　　;Enter W83627EHG config mode

Mov al,87h　　　　　　　(out 87h to 2eh twice)

Out dx,al

Out dx,al

;//

Mov al,07h

Out dx,al

Inc dx

Mov al,08h　　　　　　　;Select Logical Device 8 (GPIO Port 2)

Out dx,al

;//

Dec dx

Mov al,30h　　　　　　　;CR30 (GP20~GP27)

Out dx,al

Inc dx

Mov al,01h　　　　　　　;Activate GPIO2

Out dx,al

```
;/////////////////////////////////////////////////////////////////////////////////

Dec dx

Mov al,0f5h              ;CRF5 (PLED mode register)

Out dx,al

Inc dx

In al,dx

And al,not 08h          ;Set second as counting unit

Out dx,al

;/////////////////////////////////////////////////////////////////////////////////

Dec dx

Mov al,0f6h             ; CRF6

Out dx,al

Inc dx

Mov al,10               ;Set timeout interval as 10 sec.

Out dx,al

;/////////////////////////////////////////////////////////////////////////////////

Dec dx                  ;Exit W83627EHG config mode

Mov al,0aah                 (out 0aah to 2eh once)

Out dx,al

;/////////////////////////////////////////////////////////////////////////////////
```
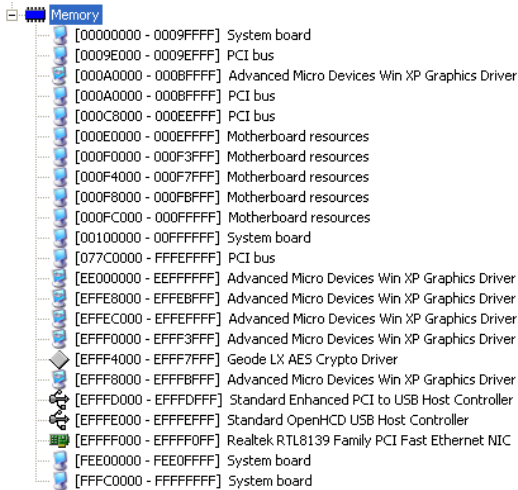
Appendix

B

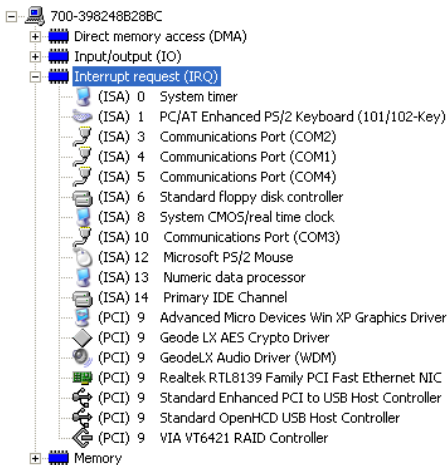# I/O Information

B.1 I/O Address Map

```
□ 💻 700-398248B28BC
   ⊞ ▓▓▓ Direct memory access (DMA)
   □ ▓▓▓ Input/output (IO)
        💡 [00000000 - 0000000F]  Direct memory access controller
        💡 [00000020 - 00000021]  Programmable interrupt controller
        💡 [00000022 - 0000003F]  PCI bus
        💡 [00000040 - 00000043]  System timer
        💡 [00000044 - 00000047]  PCI bus
        💡 [0000004C - 0000006F]  PCI bus
        ⌨ [00000060 - 00000060]  PC/AT Enhanced PS/2 Keyboard (101/102-Key)
        💡 [00000061 - 00000061]  System speaker
        ⌨ [00000064 - 00000064]  PC/AT Enhanced PS/2 Keyboard (101/102-Key)
        💡 [00000070 - 00000071]  System CMOS/real time clock
        💡 [00000072 - 0000007F]  PCI bus
        💡 [00000081 - 00000083]  Direct memory access controller
        💡 [00000087 - 00000087]  Direct memory access controller
        💡 [00000089 - 0000008B]  Direct memory access controller
        💡 [0000008F - 00000091]  Direct memory access controller
        💡 [00000090 - 00000091]  PCI bus
        💡 [00000093 - 0000009F]  PCI bus
        💡 [000000A0 - 000000A1]  Programmable interrupt controller
        💡 [000000A2 - 000000BF]  PCI bus
        💡 [000000C0 - 000000DF]  Direct memory access controller
        💡 [000000E0 - 000000EF]  PCI bus
        💡 [000000F0 - 000000FF]  Numeric data processor
        💡 [00000100 - 00000CF7]  PCI bus
        🖴 [00000170 - 00000177]  Secondary IDE Channel
        🖴 [000001F0 - 000001F7]  Primary IDE Channel
        💡 [00000274 - 00000277]  ISAPNP Read Data Port
        💡 [00000279 - 00000279]  ISAPNP Read Data Port
        🖫 [000002E8 - 000002EF]  Communications Port (COM4)
        🖫 [000002F8 - 000002FF]  Communications Port (COM2)
        🖴 [00000376 - 00000376]  Secondary IDE Channel
        🖫 [00000378 - 0000037F]  Printer Port (LPT1)
        💡 [000003B0 - 000003BA]  Advanced Micro Devices Win XP Graphics Driver
        💡 [000003C0 - 000003DF]  Advanced Micro Devices Win XP Graphics Driver
        🖫 [000003E8 - 000003EF]  Communications Port (COM3)
        🖴 [000003F0 - 000003F5]  Standard floppy disk controller
        🖴 [000003F6 - 000003F6]  Primary IDE Channel
        🖴 [000003F7 - 000003F7]  Standard floppy disk controller
        🖫 [000003F8 - 000003FF]  Communications Port (COM1)
        🖫 [00000778 - 0000077F]  Printer Port (LPT1)
        💡 [00000A79 - 00000A79]  ISAPNP Read Data Port
        💡 [00000D00 - 0000FFFF]  PCI bus
        🔗 [0000F400 - 0000F4FF]  VIA VT6421 RAID Controller
        🖧 [0000F600 - 0000F6FF]  Realtek RTL8139 Family PCI Fast Ethernet NIC
        🔊 [0000F900 - 0000F97F]  GeodeLX Audio Driver (WDM)
        🖴 [0000FA00 - 0000FA0F]  Standard Dual Channel PCI IDE Controller
        🔗 [0000FB00 - 0000FB1F]  VIA VT6421 RAID Controller
        🔗 [0000FC00 - 0000FC0F]  VIA VT6421 RAID Controller
        🔗 [0000FD00 - 0000FD0F]  VIA VT6421 RAID Controller
        🔗 [0000FE00 - 0000FE0F]  VIA VT6421 RAID Controller
        🔗 [0000FF00 - 0000FF0F]  VIA VT6421 RAID Controller
   ⊞ ▓▓▓ Interrupt request (IRQ)
```

B.2 1st MB Memory Address Map

```
Memory
    [00000000 - 0009FFFF]  System board
    [0009E000 - 0009EFFF]  PCI bus
    [000A0000 - 000BFFFF]  Advanced Micro Devices Win XP Graphics Driver
    [000A0000 - 000BFFFF]  PCI bus
    [000C8000 - 000EEFFF]  PCI bus
    [000E0000 - 000EFFFF]  Motherboard resources
    [000F0000 - 000F3FFF]  Motherboard resources
    [000F4000 - 000F7FFF]  Motherboard resources
    [000F8000 - 000FBFFF]  Motherboard resources
    [000FC000 - 000FFFFF]  Motherboard resources
    [00100000 - 00FFFFFF]  System board
    [077C0000 - FFFEFFFF]  PCI bus
    [EE000000 - EEFFFFFF]  Advanced Micro Devices Win XP Graphics Driver
    [EFFE8000 - EFFEBFFF]  Advanced Micro Devices Win XP Graphics Driver
    [EFFEC000 - EFFEFFFF]  Advanced Micro Devices Win XP Graphics Driver
    [EFFF0000 - EFFF3FFF]  Advanced Micro Devices Win XP Graphics Driver
    [EFFF4000 - EFFF7FFF]  Geode LX AES Crypto Driver
    [EFFF8000 - EFFFBFFF]  Advanced Micro Devices Win XP Graphics Driver
    [EFFFD000 - EFFFDFFF]  Standard Enhanced PCI to USB Host Controller
    [EFFFE000 - EFFFEFFF]  Standard OpenHCD USB Host Controller
    [EFFFF000 - EFFFF0FF]  Realtek RTL8139 Family PCI Fast Ethernet NIC
    [FEE00000 - FEE0FFFF]  System board
    [FFFC0000 - FFFFFFFF]  System board
```

B.3 IRQ Mapping Chart

```
700-398248B28BC
    Direct memory access (DMA)
    Input/output (IO)
    Interrupt request (IRQ)
        (ISA)  0    System timer
        (ISA)  1    PC/AT Enhanced PS/2 Keyboard (101/102-Key)
        (ISA)  3    Communications Port (COM2)
        (ISA)  4    Communications Port (COM1)
        (ISA)  5    Communications Port (COM4)
        (ISA)  6    Standard floppy disk controller
        (ISA)  8    System CMOS/real time clock
        (ISA)  10   Communications Port (COM3)
        (ISA)  12   Microsoft PS/2 Mouse
        (ISA)  13   Numeric data processor
        (ISA)  14   Primary IDE Channel
        (PCI)  9    Advanced Micro Devices Win XP Graphics Driver
        (PCI)  9    Geode LX AES Crypto Driver
        (PCI)  9    GeodeLX Audio Driver (WDM)
        (PCI)  9    Realtek RTL8139 Family PCI Fast Ethernet NIC
        (PCI)  9    Standard Enhanced PCI to USB Host Controller
        (PCI)  9    Standard OpenHCD USB Host Controller
        (PCI)  9    VIA VT6421 RAID Controller
    Memory
```

B.4 DMA Channel Assignments

```
700-398248B28BC
  Direct memory access (DMA)
        2    Standard floppy disk controller
        4    Direct memory access controller
  Input/output (IO)
  Interrupt request (IRQ)
  Memory
```