EPIC-5537

AMD Geode LX800 Processors

Onboard DDR333 Memory

Up to 24-bit Single Channel LVDS

4 USB 2.0 / 2 COMs / 1 IDE/

1 SATAII/ 1 CompactFlash/ 8-bit Digital I/O

EPIC-5537 Manual Rev.A 3rd Ed.
January 2010

Copyright Notice

Acknowledgments

Packing List

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

- 1 9657666600 Jumper Cap
- 1 9681945700 Cable Kit
  - 1709070500 SATA Cable, 7 Pitch, 1.27mm, 50cm
  - 1700060152 Keyboard/Mouse Cable, Length 15cm
- 1 EPIC-5537 CPU Card
- 1 Quick Installation Guide
- 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.

Contents

Chapter

1

General Information

1.1 Introduction

AAEON announces a brand new EPIC Board-EPIC-5537, designed to fit in diverse applications that demand for fitting in different space limitations and high performance.

EPIC-5537 accommodates onboard AMD Geode LX 800 processor and the Front Side Bus is 500MHz. This model features DDR 333 and system memory is to 256MB (optional 512MB). Moreover, EPIC-5537 adopts AMD LX series + CS5536 as its chipset.

In addition, EPIC-5537 deploys Intel 82551ER 10/100Base-TX chip and features two RJ-45 ports onboard to display the transcendent performance of network connections. This new EPIC Express Board configures an AMD LX series + TI SN75LVDS83 display chipset to support CRT/LCD simultaneous/ dual view displays.

In addition to the PC/104+ expansion, EPIC-5537 also features one EIDE, one SATA, one Type II CompactFlash for the storage and four USB 2.0 ports, two COM ports, 8-bit Digital I/O for flexible I/O expansion. EPIC-5537 is an excellent choice for your vital applications.

1.2 Features

- Onboard AMD Geode LX 800 Processor
- AMD LX 800 + CS5536 Chipset
- Onboard DDR333 Memory 256MB (Optional 512MB)
- 10/100Base-TX Ethernet x 2
- CRT & Up to 24-bit Single Channel LVDS
- AC97 2.0 Code 2CH Audio
- SATA x 1, EIDE x 1, CompactFlash x 1
- USB2.0 x 4, COM x 2, 8-bit Digital I/O
- PC/104+ Expansion
- +5V Only Operation, AT Power Type

1.3 Specifications

System

● CPU	Onboard AMD Geode LX 800 (500MHz) processor
● System Memory	Onboard DDR333-256MB (Optional 512MB)
● Chipset	AMD LX 800 + CS5536
● I/O Chipset	SMSC SCH3112
● Ethernet	Intel 82551ER (Intel 82551IT for WiTAS series products), 10/100Base-TX, RJ-45 x 2
● BIOS	Award Plug & Play BIOS – 1 MB ROM
● Watchdog Timer	Generates a time-out system reset
● H/W status monitoring	Supports power supply voltage and temperature monitoring
● Expansion Interface	PC/104+ (PCI-104 + PC/104)
● Battery	Lithium battery
● Power Requirement	+5V only, AT
● Operating Temperature	32°F~140°F (0°C~60°C), Optional: -4°F~158°F (-20 °C~70°C) (for WiTAS series products)
● Storage Temperature	-40°F~176°F (-40°C~80°C)
● Operating Humidity	0%~90% relative humidity,

	non-condensing
● Board Size	4.53”(L) x 6.5” (W) (115mm x 165mm)
● Gross Weight	1.2 lb (0.5kg)

Display: Support: CRT/LCD simultaneous/ dual view displays

● Chipset	AMD LX series + TI SN75LVDS83
● Memory	Shared system memory up to 254MB
● Resolutions	Up to 1920 x 1440 @ 24bpp colors for CRT; Up to 1600 x 1200 @ 24bpp colors for LCD
● LCD Interface	Up to 24-bit single channel LVDS/ TTL LCD (configured by manufacturer)

I/O

● Storage	EIDE x 1 (UDMA100 for two devices), SATA x 1, Type II CompactFlash x 1
● Serial Port	RS-232 x 2
● USB	USB 2.0 x 4
● PS/2 Port	Keyboard + Mouse x 1
● Digital I/O	Supports 8-bit (Programmable)
● Audio	Line-in, Line-out, Mic-in & CD-in

Chapter

2

Quick Installation Guide

Notice:

The Quick Installation Guide is derived from Chapter 2 of user manual. For other chapters and further installation instructions, please refer to the user manual CD-ROM that came with the product.

Part No. 2007553712 Printed in Taiwan January 2010

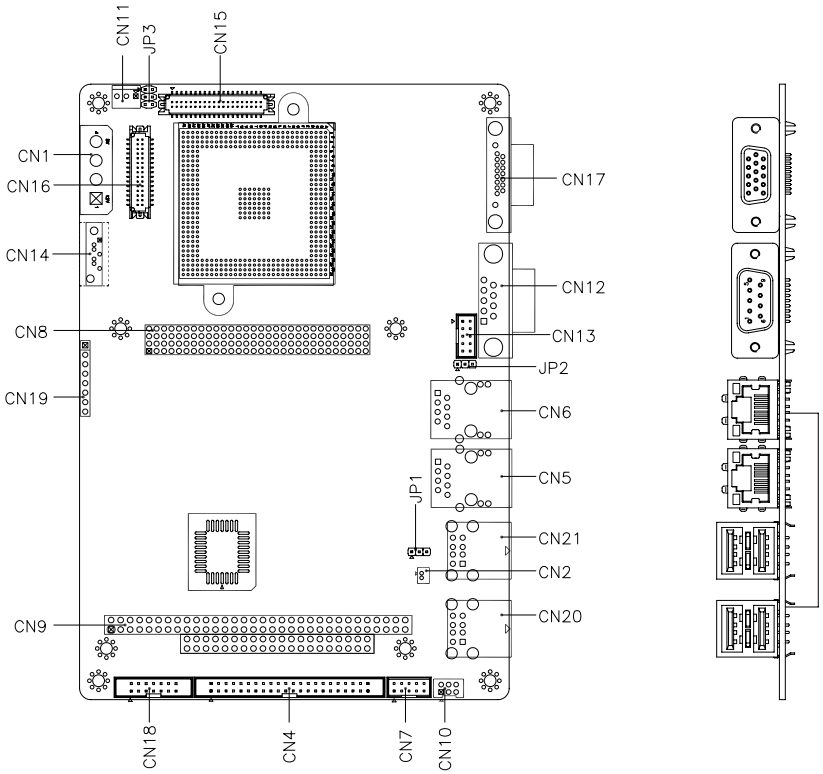
2.1 Safety Precautions

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.

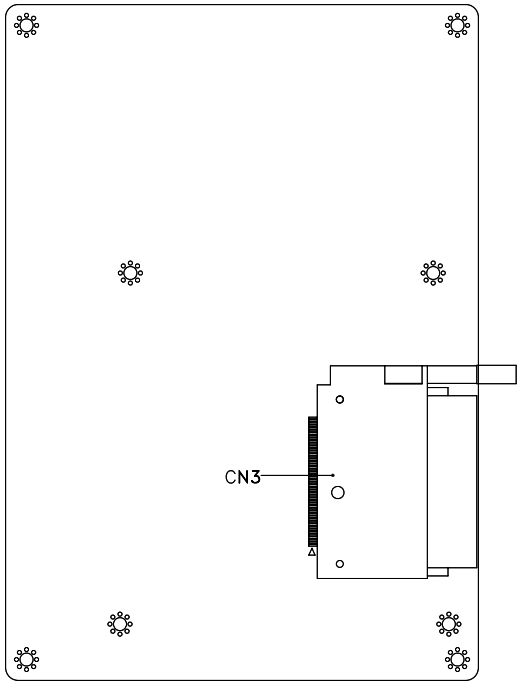
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

2.2 Location of Connectors and Jumpers

Component Side

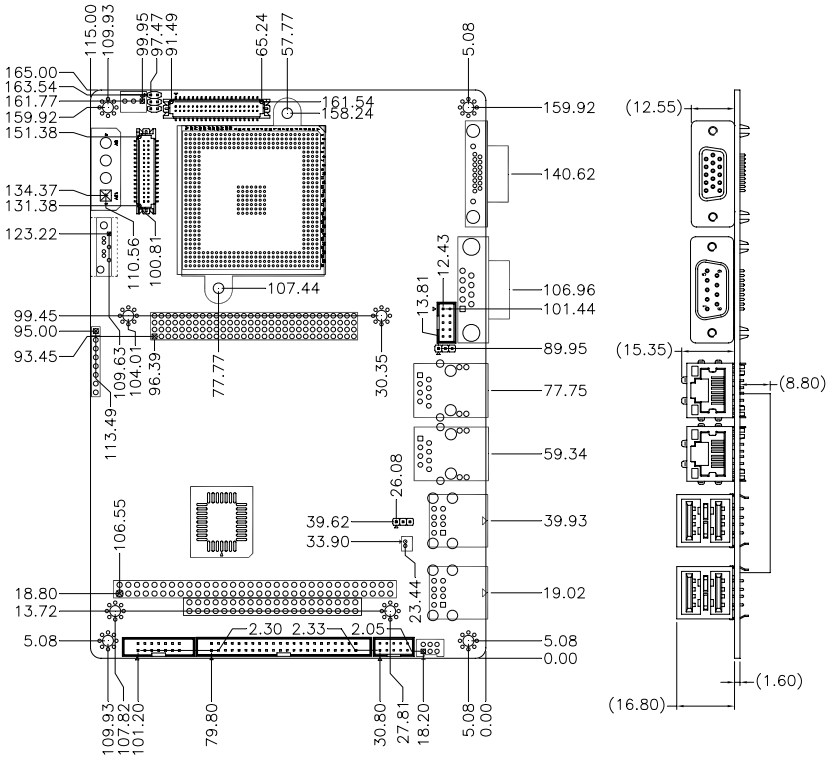


Solder Side

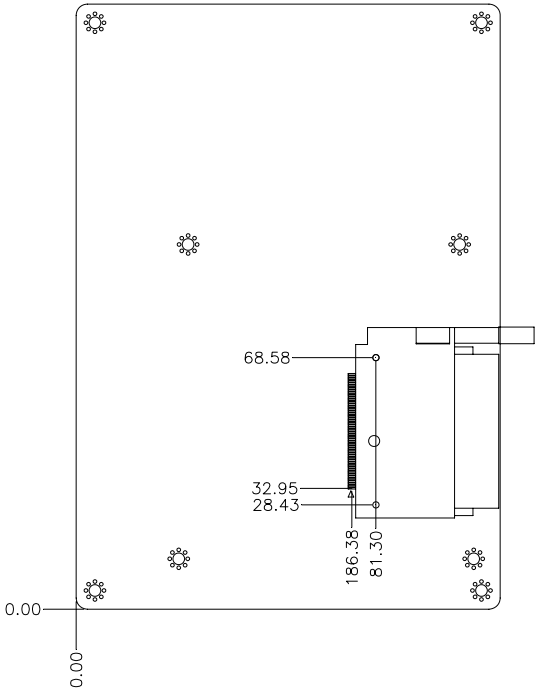


2.3 Mechanical Drawing

Component Side



Solder Side



2.4 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

Jumpers

Label	Function
JP1	Clear CMOS
JP2	COM2 RING /+5V 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:

Connectors

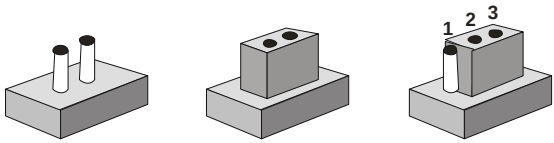
Label	Function
CN1	Power Connector
CN2	Battery wafer
CN3	Compact Flash Connector
CN4	Primary EIDE Connector
CN5	Ethernet Connector1
CN6	Ethernet Connector2
CN7	Digital I/O Connector

CN8	PCI-104 Connector
CN9	PC-104 Connector
CN10	Keyboard/Mouse Connector
CN11	System FAN Connector
CN12	COM1 Connector
CN13	COM2 Connector
CN14	SATA Connector
CN15	TFT LCD Connector
CN16	LVDS Connector
CN17	VGA Connector
CN18	Audio Connector
CN19	CPLD Download header
CN20	USB Connector1
CN21	USB Connector2

2.6 Setting Jumpers

You configure your card 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 pins 1 and 2 or 2 and 3.



Open **Closed** **Closed 2-3**

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

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

Generally, you simply need a standard cable to make most connections.

2.7 CMOS Clear Selection (JP1)

JP1	Function
1-2	Normal (Default)
2-3	Clear CMOS

2.8 COM2 +5V/Ring Selection (JP2)

JP2	Function
1-2	+5V
2-3	Ring (Default)

2.9 TTL/LVDS Clock, LCD Power Shift Selection (JP3)

JP3	Function
1-3	Normal Clock (Default)
3-5	Inverse Clock
2-4	+5V For CN15
4-6	+3.3V For CN15 (Default)

2.10 Power Selection (CN1)

Pin	Signal
1	NC
2	GND
3	GND
4	+5V

2.11 Power Wafer (Line-in) (CN2)

Pin	Signal
1	Battery Power (+3V)
2	GND

2.12 CompactFlash Connector (CN3)

Standard Compact Flash Connector

2.13 IDE Connector (CN4)

Pin	Signal	Pin	Signal
1	IDERST	2	GND
3	PID7	4	PID8
5	PID6	6	PID9
7	PID5	8	PID10
9	PID4	10	PID11
11	PID3	12	PID12
13	PID2	14	PID13
15	PID1	16	PID14
17	PID0	18	PID15
19	GND	20	NC
21	PDREQ	22	GND
23	PIOW#	24	GND
25	PIOR#	26	GND
27	PRDY	28	Pull 330R to GND
29	PACK#	30	GND
31	PIRQ14	32	NC
33	PPDA1	34	ATA66_DET
35	PPDA0	36	PPDA2
37	PPCS1#	38	PPCS3#
39	HDLED#	40	GND
41	+5V	42	+5V
43	GND	44	NC

2.14 LAN Connector (CN5, CN6)

Standard RJ-45 LAN connector

2.15 Digital I/O Connector (CN7)

Address: 800H

Pin	Signal	Bit	SMSC 3112 Pin
1	DIO_1	0	85
2	DIO_2	1	86
3	DIO_3	2	96
4	DIO_4	3	95
5	DIO_5	4	87
6	DIO_6	5	92
7	DIO_7	6	89
8	DIO_8	7	88
9	+5V		
10	GND		

2.16 PCI-104 Connector (CN8)

Standard PCI-104 Connector

2.17 PC/104 Connector (CN9)

Standard PC/104 Connector

2.18 Keyboard, Mouse Connector (CN10)

Pin	Name	Pin	Name
1	KDAT	2	KCLK
3	GND	4	+5V with fuse

5	MDAT	6	MCLK

2.19 Fan Connector (CN11)

Pin	Signal
1	GND
2	FAN Power (+5V)
3	FAN_TAC

2.20 COM1 Connector (Up) (CN12)

Pin	Signal	Pin	Signal
1	DCD1	2	RXD1
3	TXD1	4	DTR1
5	GND	6	DSR1
7	RTS1	8	CTS1
9	RI1		

2.21 COM2 Connector (Down) (CN13)

Pin	Signal	Pin	Signal
1	DCD2	2	RXD2
3	TXD2	4	DTR2
5	GND	6	DSR2
7	RTS2	8	CTS2
9	+5V/ RI2	10	NC

2.22 SATA Connector (CN14)

Standard SATA Connector

2.23 TFT LCD Connector (CN15)

For 18-bit TFT LCD

Pin	Signal	Pin	Signal
1	+5V	2	+5V
3	GND	4	GND
5	+3.3V	6	+3.3V
7	Backlight enable	8	GND
9	NC	10	NC
11	B0	12	B1
13	B2	14	B3
15	B4	16	B5
17	NC	18	NC
19	G0	20	G1
21	G2	22	G3
23	G4	24	G5
25	NC	26	NC
27	R0	28	R1
29	R2	30	R3
31	R4	32	R5
33	GND	34	GND
35	LCD CLOCK	36	LCD VSYNC
37	LCD DE	38	LCD HSYNC
39	NC	40	NC

For 24-bit TFT LCD

Pin	Signal	Pin	Signal
1	+5V	2	+5V
3	GND	4	GND

5	+3.3V	6	+3.3V
7	Backlight enable	8	GND
9	B0	10	B1
11	B2	12	B3
13	B4	14	B5
15	B6	16	B7
17	G0	18	G1
19	G2	20	G3
21	G4	22	G5
23	G6	24	G7
25	R0	26	R1
27	R2	28	R3
29	R4	30	R5
31	R6	32	R7
33	GND	34	GND
35	LCD CLOCK	36	LCD VSYNC
37	LCD DE	38	LCD HSYNC
39	NC	40	NC

2.24 LVDS Connector (CN16)

For 18-bit LVDS

Pin	Signal	Pin	Signal
1	Backlight enable	2	NC
3	LVDS Power	4	GND
5	TX1CLK#	6	TX1CLK
7	LVDS Power	8	GND
9	TX1OUT#0	10	TX1OUT0
11	TX1OUT#1	12	TX1OUT1

13	TX1OUT#2	14	TX1OUT2
15	NC	16	NC
17	NC	18	NC
19	NC	20	NC
21	NC	22	NC
23	NC	24	NC
25	NC	26	NC
27	LVDS Power	28	GND
29	NC	30	NC

For 24-bit LVDS

Pin	Signal	Pin	Signal
1	Backlight enable	2	NC
3	LVDS Power	4	GND
5	TX1CLK#	6	TX1CLK
7	LVDS Power	8	GND
9	TX1OUT#0	10	TX1OUT0
11	TX1OUT#1	12	TX1OUT1
13	TX1OUT#2	14	TX1OUT2
15	TX1OUT#3	16	TX1OUT3
17	NC	18	NC
19	NC	20	NC
21	NC	22	NC
23	NC	24	NC
25	NC	26	NC
27	LVDS Power	28	GND
29	NC	30	NC

2.25 VGA Connector (CN17)

Pin	Signal	Pin	Signal
1	R	2	G
3	B	4	NC
5	GND	6	GND
7	GND	8	GND
9	+5V with Fuse	10	GND
11	NC	12	DDC_DAT
13	HSYNC	14	VSYNC
15	DDC_CLK		

2.26 Audio Connector (CN18)

Pin	Signal
1	MIC1
2	VREFOUT
3	Audio GND
4	CD-ROM GND
5	LINE_IN_L
6	CD-ROM_L
7	LINE_IN_R
8	CD-ROM GND
9	Audio GND
10	CD-ROM_R
11	LINE_OUT_L
12	LINE_OUT_R
13	Audio GND
14	Audio GND

2.27 USB Connector (CN20)

Pin	Signal	Pin	Signal
1	USB Power	5	USB Power
2	USBD1-	6	USBD0-
3	USBD1+	7	USBD0+
4	GND	8	GND

2.28 USB Connector (CN21)

Pin	Signal	Pin	Signal
1	USB Power	5	USB Power
2	USBD3-	6	USBD2-
3	USBD3+	7	USBD2+
4	GND	8	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 EPIC-5537 CMOS 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. (keyboard, mouse etc.)

Power Management Setup

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

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

Use this menu to set PC Health Status.

Frequency/Voltage Control

Use this menu to specify your settings for auto detect DIMM/PCI clock and spread spectrum.

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 Password

Use this menu to set Supervisor Password.

Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

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 **(Driver/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 – Intel 82551 Lan Driver** folder.
2. Double click on the **PROWinXPE.exe** file located in the folder.
3. Follow the instructions that the window shows.
4. Click on **Start** Button
5. Click on **Settings** Button
6. Click on **Control Panel** Button
7. Click on **System** Button
8. Select **Hardware** and click on **Device Manager…**
9. Double click on **Ethernet Controller**
10. Click on **Update Driver…**
11. Click on **Next**.
12. Select **Search for a suitable driver…**, then click on **Next**.
13. Select **Specify a location**, then click on **Next**
14. Click on **Browse**
15. Select "**WinXP Embeded**" file from C:\ (IntelEmbedded6.0 \ PRO100) then click on Open.
16. Click on **OK**
17. Click on **Next**
15. Click on **Finish**

4.7 Installing AMD 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…**
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 **(Driver/Step 5 – AMD Audio Driver)** then click on **Open**
13. Double click on the **"bin"** folder
14. Click on **OK**
15. Click on **Next**
16. Click on **Yes**
17. Click on **Finish**

4.8 Installing Realtek Audio Driver

1. Click on the ***Step 6 –Realtek audio driver*** folder.
2. Double click on the ***WDM_A400.exe*** file located in the folder.
3. Follow the instructions that the window shows.
4. The system will help you install the driver automatically.

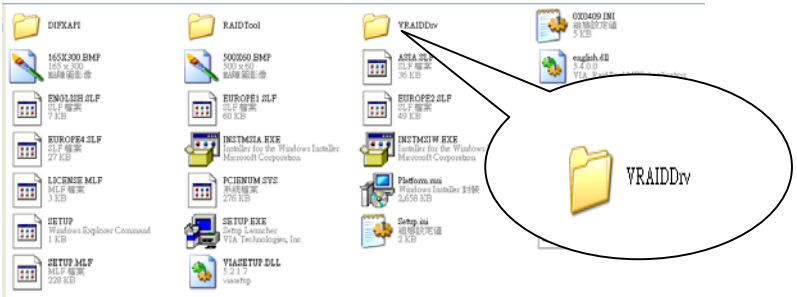
4.9 Installing VRAID Driver

Please follow the application note to install the ***Step 7-VRAID_Driver_V550B***

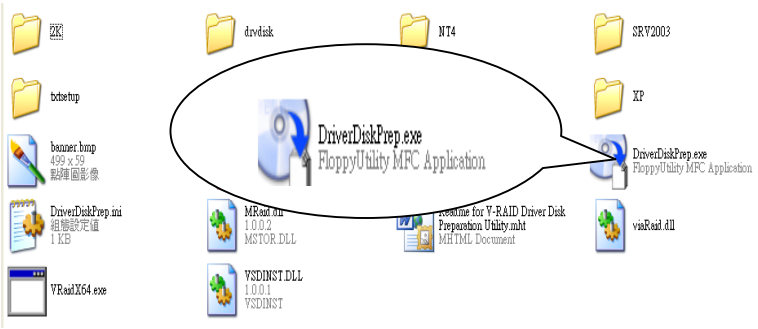
Application Note:

Window Operating System cannot recognize the driver of chip VT6421 and treat it as a third-part driver. Please follow below steps to install the driver with Operating System.

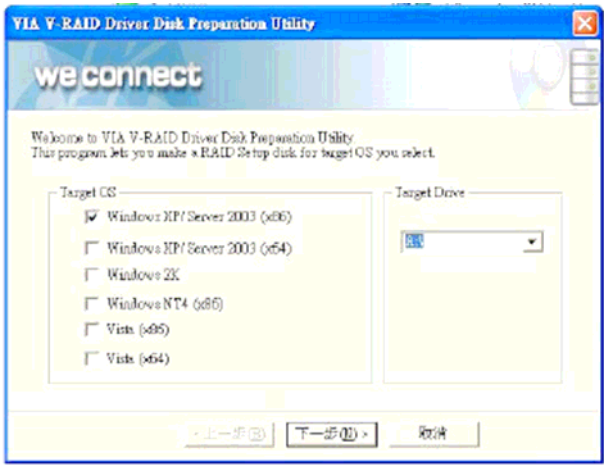
1. Creating a Drive Disk: copy the SATA driver from AAEON CD to floppy disk before install OS.
   - Click on ***Step 7-VRAID_Driver_V550B***
   - Click on ***VRAIDDrv*** (see below picture)



- Click on ***DriverDiskPrep.exe*** (see below picture)

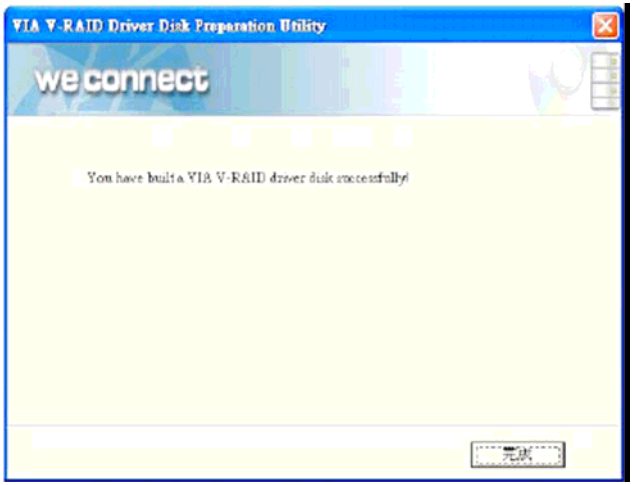


- Click on the OS what you are going to install.



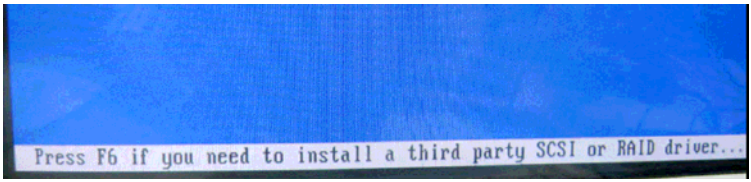
- Install Floppy or USB Floppy

- Finish: driver disk ready.



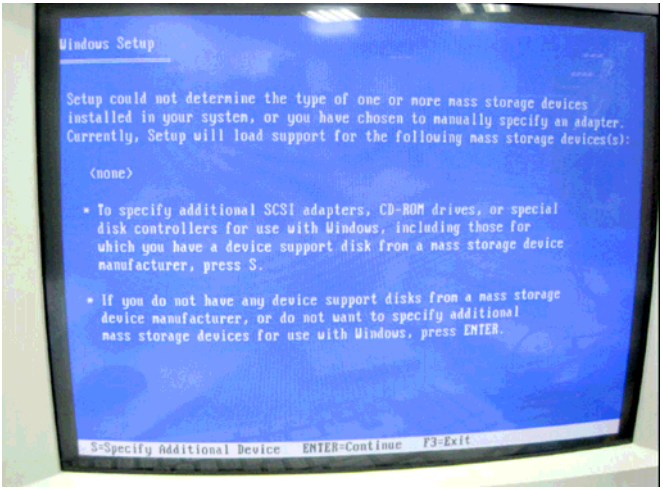
2. Insert your Windows CD, and then restart the computer
3. Follow the on-screen instructions to begin the Windows installation.
4. When prompted to install a third-party driver, press **F6**.

   Note: When F6 is active, a prompt appears at the bottom of the screen for only 5 seconds. If you miss your chance to press F6, restart your computer.

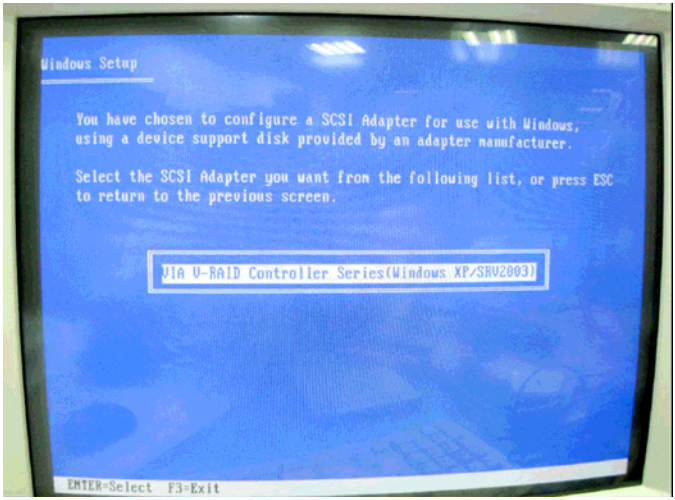


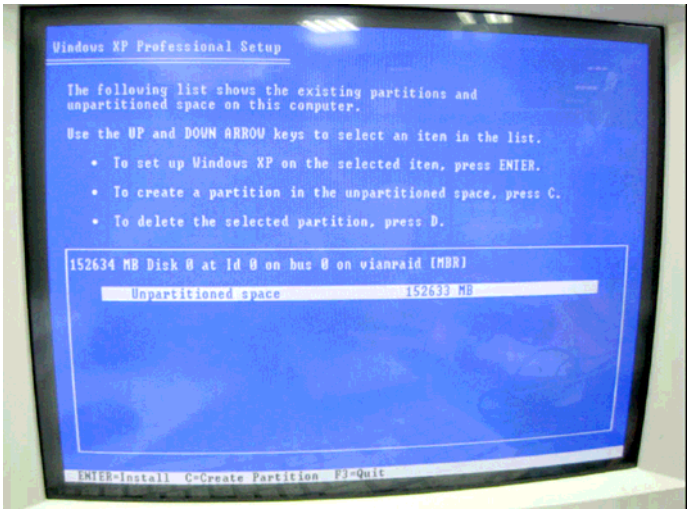
5. Insert the driver disk, and then wait until you are prompted to install a driver.

6. Press **S** to specify the driver is on a floppy disk, and then press **Enter**.



7. The computer reads the disk
8. When the SATA driver is found, press **Enter**.





9. Follow the on-screen instructions to complete the installation.

Appendix

A

Programming the Watchdog Timer

A.1 Programming

EPIC-5537 utilizes SCH3112-NU chipset as its watchdog timer controller.

The SCH311X WDT (Watch Dog Timer) has a programmable time-out ranging from 1 to 255 minutes with one minute resolution, or 1 to 255 second resolution. The unit of the WDT timeout value are selected via bit[7] of the WDT_TIMEOUT register. The WDT time-out value is set through the WDT_VAL Runtime register. Setting The WDT_VAL register to 0x00 disables the WDT function (this is its power on default).
Setting the WDT_VAL to any other non-zero value will cause the WDT to reload and begin counting down from the value loaded. When the WDT count value reaches zero the counter stops and sets the Watchdog time-out status bit in the WDT_CTRL Runtime register. Note: Regardless of the current state of the WDT, the WDT time-out status bit can be directly set or cleared by the Host CPU.

The related register for configuring WDT is list as follows:

NAME	REG OFFSET (HEX)	DESCRIPTION
GP60 Default = 0x01 on VTR POR	47 (R/W)	General Purpose I/O bit 6.0 Bit[0] In/Out : =1 Input, =0 Output Bit[1] Polarity : =1 Invert, =0 No Invert Bit[3:2] Alternate Function Select 11=WDT 10=Either Edge Triggered Interrupt Input 4 (Note 26.20) 01=LED1 00=GPIO Bits[6:4] Reserved Bit[7] Output Type Select 1=Open Drain 0=Push Pull

WDT_TIME_OUT Default = 0x00 on VCC POR, VTR POR, and PCI Reset	65 (R/W)	Watch-dog Timeout Bit[0] Reserved Bit[1] Reserved Bits[6:2] Reserved, = 00000 Bit[7] WDT Time-out Value Units Select = 0 Minutes (default) = 1 Seconds
WDT_VAL Default = 0x00 on VCC POR, VTR POR, and PCI Reset	66 (R/W)	Watch-dog Timer Time-out Value Binary coded, units = minutes (default) or seconds, selectable via Bit[7] of WDT_TIME_OUT register (0x52). 0x00 Time out disabled 0x01 Time-out = 1 minute (second) ..... 0xFF Time-out = 255 minutes (seconds)

NAME	REG OFFSET (HEX)	DESCRIPTION
WDT_CFG Default = 0x00 on VCC POR, VTR POR, and PCI Reset	67 (R/W)	Watch-dog timer Configuration Bit[0] Reserved Bit[1] Keyboard Enable =1 WDT is reset upon a Keyboard interrupt. =0 WDT is not affected by Keyboard interrupts. Bit[2] Mouse Enable =1 WDT is reset upon a Mouse interrupt. =0 WDT is not affected by Mouse interrupts. Bit[3] Reserved Bits[7:4] WDT Interrupt Mapping 1111 = IRQ15 ..... 0011 = IRQ3 0010 = IRQ2 (Note) 0001 = IRQ1 0000 = Disable Note: IRQ2 is used for generating SMI events via the serial IRQ's stream. The WDT should not be configured for IRQ2 if the IRQ2 slot is enabled for generating an SMI event.
WDT_CTRL Default = 0x00 on VCC POR and VTR POR Default = 0000000xb on PCI Reset Note: Bit[0] is not cleared by PCI Reset	68 (R/W) Bit[2] is Write-Only	Watch-dog timer Control Bit[0] Watch-dog Status Bit, R/W =1 WD timeout occurred =0 WD timer counting Bit[1] Reserved Bit[2] Force Timeout, W =1 Forces WD timeout event; this bit is self-clearing Bit[3] P20 Force Timeout Enable, R/W = 1 Allows rising edge of P20, from the Keyboard Controller, to force the WD timeout event. A WD timeout event may still be forced by setting the Force Timeout Bit, bit 2. **Note**: If the P20 signal is high when the enable bit is set a WD timeout event will be generated. = 0 P20 activity does not generate the WD timeout event. Note: The P20 signal will remain high for a minimum of 1us and can remain high indefinitely. Therefore, when P20 forced timeouts are enabled, a self-clearing edge-detect circuit is used to generate a signal which is OR'ed with the signal generated by the Force Timeout Bit. Bit[7:4] Reserved. Set to 0

The following is a sample code to set WDT for 3 seconds.

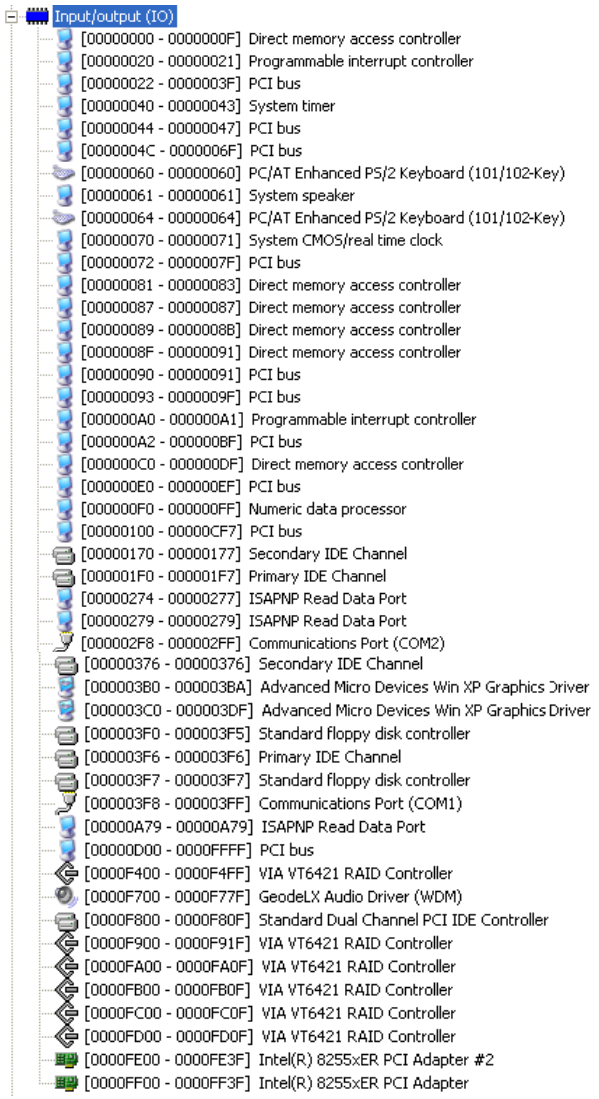
```
;Runtime register I/O base address
SUPERIO_GPIO_PORT        EQU    800h
.MODEL      SMALL
.CODE

begin:
      ;enable WDT
         mov  dx, SUPERIO_GPIO_PORT + 47h
        mov   al, 0Ch
        out     dx, al
      ;WDT_TIME_OUT register
         mov  dx, SUPERIO_GPIO_PORT + 65h
        mov   al, 80h                          ;unit is second
        out     dx, al
      ;WDT_VAL register
        mov   dx, SUPERIO_GPIO_PORT + 66h
        mov    al, 03h                         ;3 seconds
        out     dx, al
       ;exit
        mov   ah,4ch
        int      21h

        END  begin
```

Appendix

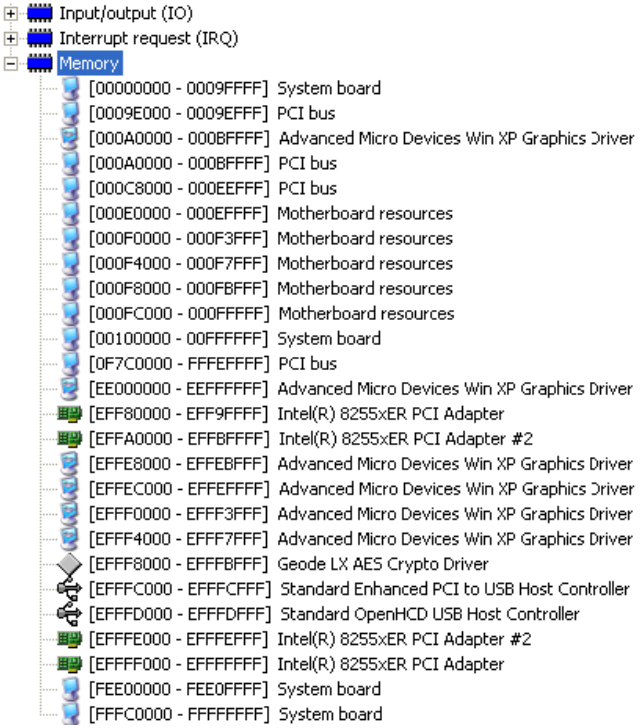
B

I/O Information

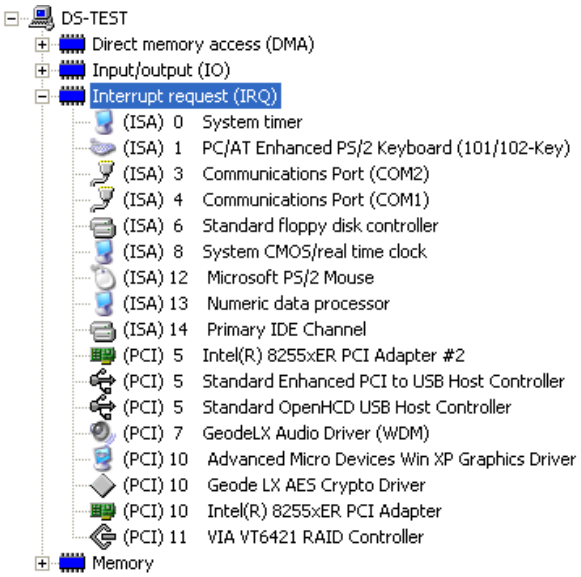
B.1 I/O Address Map



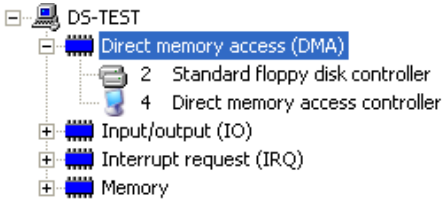
B.2 1st MB Memory Address Map



B.3 IRQ Mapping Chart



B.4 DMA Channel Assignments



Appendix

C

Mating Connecotor

C.1 List of Mating Connectors and Cables

The table notes mating connectors and available cables.

Connector Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model no		
CN1	Power connector	Ho-base	5.08mm Pitch 4 pins (5082A-WS-4)	Power in connector (+12V)	N/A
CN4	Primary EIDE Connector	Catch	2.0mm Pitch 44 pins (1147-000-44S or compatible)	IDE cable	1701440500
CN7	Digital I/O Connector	Ho-base	2.0mm Pitch 10 pins	Digital I/O cable	N/A
CN10	Keyboard/Mouse Connector	Ho-base	2.0mm Pitch 6 pins (2005-2WS-6 or compatible)	Keyboard /Mouse cable	1700060152
CN11	FAN Connector	Catch	2.54mm Pitch 3 pins (1190-700-03S or compatible)	FAN cable	N/A
CN13	COM2 Connector	Catch	2.0mm Pitch 10 pins (1147-000-10S or compatible)	COM cable	1701100206
CN15	TFT LCD Connector	E-call	1.25mm Pitch 40 pins (0110-01-553-400 or compatible)	TFT LCD cable	N/A
CN16	LVDS Connector	E-call	1.25mm Pitch 30 pins (0110-01-553-300 or compatible)	LVDS cable	N/A
CN18	Audio Connector	Astron	2.0mm Pitch 14 pins (26-4101-207-1G-R)	Audio cable	1700140510