

AEC-6410

Compact Embedded Controller

AMD[®] Geode LX800 500MHz Processor

Dual LAN, 4 USB, 2 COM, 1 PRT, 1 VGA

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Packing List

Before you begin operating your PC, please make sure that the following materials are enclosed:

- 1 AEC-6410 Embedded Controller
- 2 Wallmount Brackets
- 1 Screw Package
- 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.

Safety & Warranty

1. Read these safety instructions carefully.
2. Keep this user's manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a firm surface during installation. Dropping it or letting it fall could cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
12. Never pour any liquid into an opening. This could cause fire or electrical shock.
13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
14. If any of the following situations arises, get the equipment checked by service personnel:
 - a. The power cord or plug is damaged.
 - b. Liquid has penetrated into the equipment.
 - c. The equipment has been exposed to moisture.

- d. The equipment does not work well, or you cannot get it to work according to the user's manual.
 - e. The equipment has been dropped and damaged.
 - f. The equipment has obvious signs of breakage.
15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20°C (-4°F) OR ABOVE 65°C (149°F). IT MAY DAMAGE THE EQUIPMENT.

FCC

Warning!



This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Below Table for China RoHS Requirements

产品中有毒有害物质或元素名称及含量

AAEON Boxer/ Industrial System

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	×	○	○	○	○	○
外壳	×	○	○	○	○	○
中央处理器 与内存	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
电源	×	○	○	○	○	○

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:

一、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。

二、上述部件物质中央处理器、内存、硬盘、电源为选购品。

Contents

Chapter 1 General Information

1.1 Introduction.....	1-2
1.2 Features	1-3
1.3 Specifications	1-4

Chapter 2 Hardware Installation

2.1 Dimension and I/O of AEC-6410.....	2-2
2.2 Location of Connectors and Jumpers of the Main Board	2-4
2.3 List of Jumpers	2-6
2.4 List of Connectors	2-7
2.5 Setting Jumpers	2-9
2.6 CFD1 Selection (JP1).....	2-10
2.7 ATX Simulates AT Power (JP2)	2-10
2.8 CMOS Clear Selection (JP3)	2-10
2.9 COM2 +12V/+5V/Ring Selection (JP4).....	2-10
2.10 LCD Inverter Power Selection (JP5)	2-10
2.11 TTL Clock and LVDS Operating Selection (JP6)	2-10
2.12 FAN Power Selection (JP7)	2-11
2.13 AT/ATX Power Type Selection (JP8).....	2-11
2.14 LCD Backlight Control (JP9)	2-11
2.15 DDR SODIMM Connector (CN1)	2-11
2.16 LPT Connector (CN2).....	2-11

2.17 PC/104 Connector (CN3)	2-12
2.18 PCI-104 Connector (CN4)	2-12
2.19 COM1/2 Connector (CN5).....	2-12
2.20 Power Connector (CN6).....	2-13
2.21 LVDS Connector (CN9).....	2-13
2.22 Keyboard/Mouse Connector (CN10).....	2-14
2.23 IrDA Connector (CN11)	2-14
2.24 COM3 Connector (CN12).....	2-14
2.25 COM4 Connector (CN13).....	2-15
2.26 System Fan Connector (CN14).....	2-15
2.27 Front Panel Connector (CN15)	2-15
2.28 Digital I/O Connector (CN16)	2-15
2.29 TTL LCD Connector (CN17)	2-16
2.30 LCD Inverter Power Connector (CN18)	2-17
2.31 Floppy Connector (CN19)	2-17
2.32 COM5/ GPS Connector (CN20).....	2-18
2.33 Power Output Connector (CN21)	2-19
2.34 Audio Line-in Connector (CN23).....	2-19
2.35 Battery Wafer (CN24).....	2-19
2.36 CompactFlash Connector (CN25).....	2-19
2.37 IDE Connector (CN26)	2-19
2.38 SATA Connector (CN27, CN28)	2-20
2.39 VGA Connector (CN29)	2-20
2.40 Standby Power Connector (CN30).....	2-21
2.41 Installing CompactFlash.....	2-22

2.42 Installing Hard Disk Drive	2-25
2.43 Wallmount Kit Installation	2-31

Chapter 3 Award BIOS Setup

3.1 System Test and Initialization.	3-2
3.2 Award BIOS Setup	3-3

Chapter 4 Driver Installation

4.1 Installation	4-3
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Appendix A Programming The Watchdog Timer

A.1 Programming	A-2
A.2 ITE8712 Watchdog Timer Initial Program	A-6

Chapter

1

**General
Information**

1.1 Introduction

Due to the growing popularity from the IPC market, the newest Boxer series AEC-6410 has been introduced by AAEON. AEC-6410 utilizes an AMD Geode processor.

New Innovation for Entertainment Multimedia Domain

In this era of information explosion, the advertising of consumer products will not be confined to the family television, but will also spread to high-traffic public areas, like department stores, the bus, transportation station, the supermarket etc. The advertising marketing industry will resort to every conceivable means to transmit product information to consumers. System integrators will need a multifunction device to satisfy commercial needs for such public advertising.

Stable Design for Rugged Environment

The AEC-6410 is designed for rugged environments due to the following reasons; first, it can withstand tough vibration testing up to 5g rms. With the anti-vibration hard drive device option, the AEC-6410 can be used in high vibration environments. In addition, the AEC-6410 offers low power consumption system that while operating in ambient temperatures ranging from 0° to 45°C. The MTBF(Mean Time Before Failure) rating states that the AEC-6410 can operate up to 70,000 hours at 35°C ambient temperature,

which indicates its careful and long-life design.

The AEC-6410 is a standalone high performance controller designed for long-life operation and with high reliability. It can replace traditional methods and become the mainstream controller for the multimedia entertainment market.

1.2 Features

- AMD Geode LX800 500MHz Processor
- Easy to Install with Ready to Use Connector
- DC 12V Input with Lockable Connector and Optional External AC Input Power Adapter
- Wallmount Design for Industrial Application
- Windows XP Pro, Windows XP Embedded and Linux Fedora Support

1.3 Specifications

System

- CPU AMD Geode LX800 500MHz Processor
- Memory DDR333/400 SODIMM x 1, Max. 512MB
- VGA D-sub 15 VGA Connector
- Ethernet 10/100Base-TX Ethernet RJ-45 connector x 2
- Solid Storage Disk Internal Type II CompactFlash slot x 1
- Serial port RS-232 x 1 (COM1), RS-232/422/485 x 1 (COM2)
- USB USB 2.0 x 4
- Watchdog Timer Generates a time-out system reset
- Power Supply DC Input: DC 12 V
AC Input: External power adapter (Optional)

Mechanical and Environmental

- Construction Aluminum Alloy Chassis
- Color Dark blue
- Mounting Wallmount
- Dimension 7.08"(W) x 2.6"(H) x 4.69"(D)
(180 mm x 66 mm x 119 mm)
- Net weight 2.51 lb (1.14 kg)

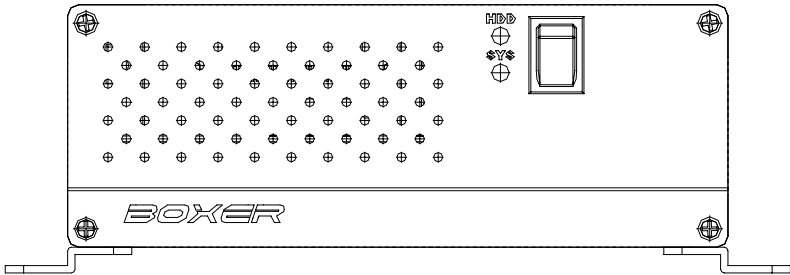
- Gross weight 6.12 lb (2.78 kg)
- Operating 32°F ~ 113°F (0°C ~ 45°C)
Temperature
- Operating 5 ~ 90% @ 40°C, non-condensing
Humidity
- Vibration 5 g rms/ 5~500Hz/ random operation
-CFD
- Shock 50g peak acceleration (11msec.
duration) -CFD
- EMC CE/FCC Class A

Chapter

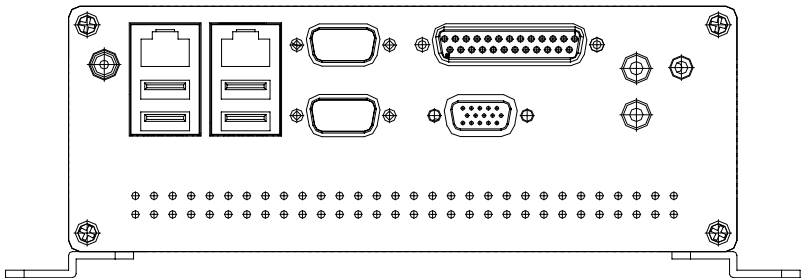
2

**Hardware
Installation**

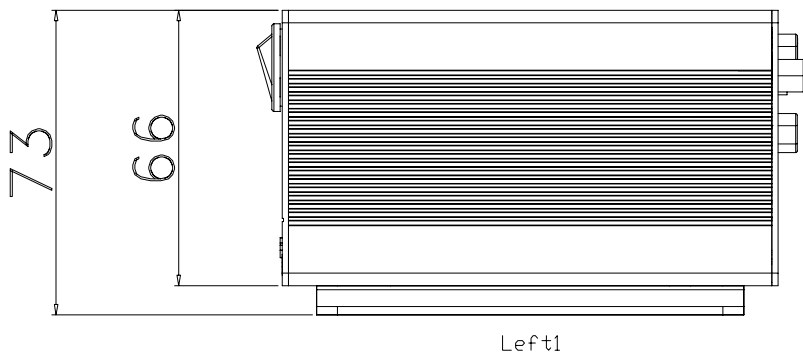
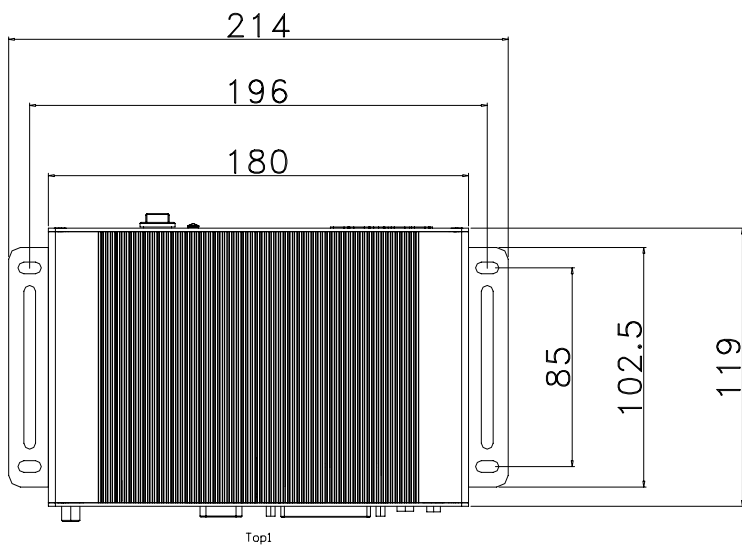
2.1 Dimension and I/O of AEC-6410



Back1

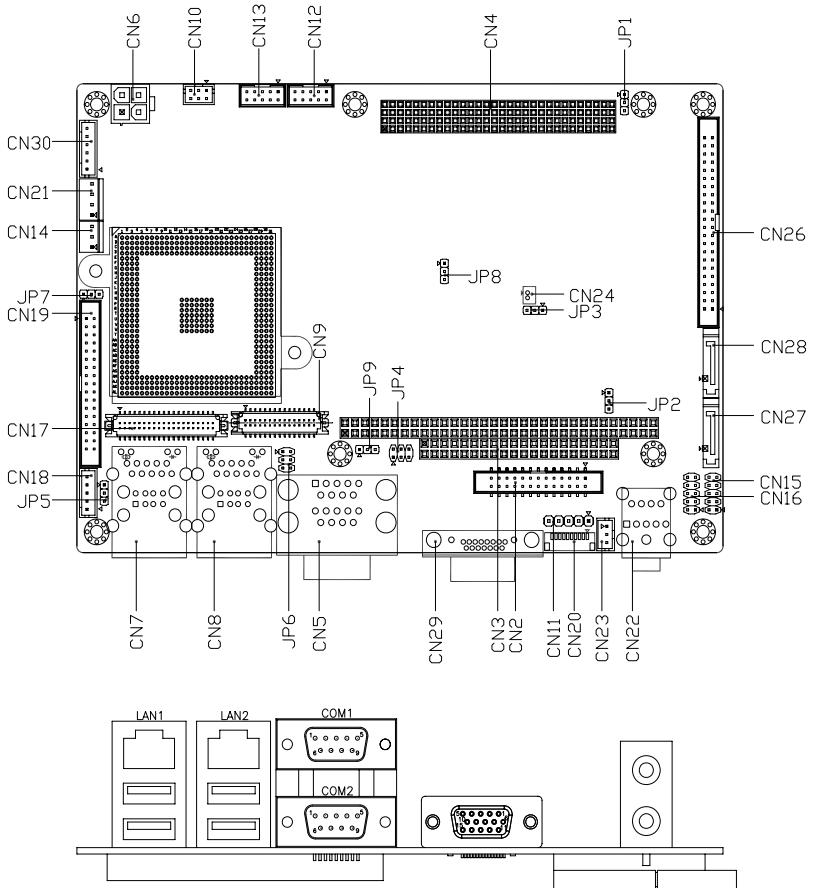


Front1

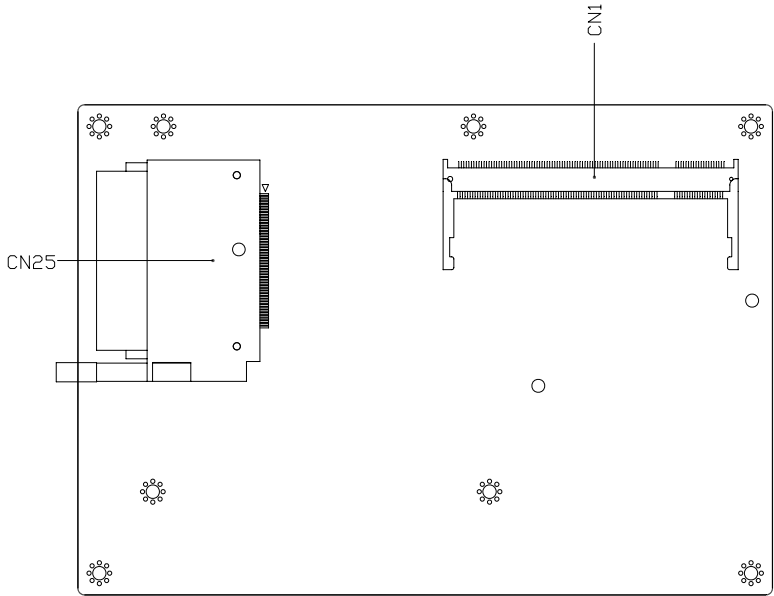


2.2 Connectors and Jumpers of The Main Board

Component Side



Solder Side



2.3 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	CFD Mode Selection
JP2	ATX Simulates AT Power
JP3	CMOS Clear Selection
JP4	COM2 +12V/+5V/RING Selection
JP5	LCD Inverter Power Selection
JP6	TTL Clock and LVDS Operating Selection
JP7	Fan Power Selection
JP8	AT/ATX Power Type Selection
JP9	LCD Backlight Control

2.4 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

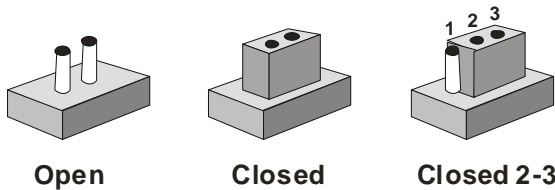
Label	Function
CN1	DDR SODIMM
CN2	LPT Connector
CN3	PC/104 (ISA) Connector
CN4	PCI-104 (PCI) Connector
CN5	COM1/2 Connector
CN6	Power Connector
CN7	USB, LAN Connector
CN8	USB, LAN Connector
CN9	LVDS Connector
CN10	Keyboard/Mouse Connector
CN11	IrDA Connector
CN12	COM3 Connector
CN13	COM4 Connector
CN14	System FAN Connector
CN15	Front Panel Connector
CN16	Digital I/O Connector
CN17	TTL LCD Connector
CN18	LCD Inverter Power Connector

CN19	Floppy Connector
CN20	COM5/GPS Connector
CN21	Power Output Connector
CN23	Audio Connector (Line-in)
CN24	Battery Wafer
CN25	Compact Flash Connector
CN26	IDE Connector
CN27, CN28	SATA Connectors
CN29	VGA Connector
CN30	Standby Power Connector

2.5 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.



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.

2.6 CFD1 Selection (JP1)

JP1	Function
2-3	Master mode
1-2	Slave mode (Default)

2.7 ATX Simulates AT Power (JP2)

JP2	Function
2-3	ATX Power
1-2	ATX Power Simulates AT Power (Default)

2.8 CMOS Clear Selection (JP3)

JP3	Function
2-3	Clear CMOS
1-2	Normal (Default)

2.9 COM2 +12V/+5V/Ring Selection (JP4)

JP4	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

2.10 LCD Inverter Power Selection (JP5)

JP5	Function
2-3	+5V (Default)
1-2	+12V

2.11 TTL Clock and LVDS Operating Selection (JP6)

JP6	Function
3-5	Inverse Clock
1-3	Normal Clock (Default)

4-6	+3.3V for CN9 (Default)
2-4	+5V for CN9

2.12 Fan Power Selection (JP7)

JP7	Function
2-3	+5V
1-2	+12V (Default)

2.13 AT/ATX Power Type Selection (JP8)

JP8	Function
2-3	AT (Default)
1-2	ATX

2.14 LCD Backlight Control (JP9)

JP9	Function
2-3	+3.3V Level (Default)
1-2	+5V Level

2.15 DDR SODIMM Connector (CN1)

Standard DDR SODIMM Connector

2.16 LPT Connector (CN2)

Pin	Signal	Pin	Signal
1	STB-	2	AFDX
3	PTD0	4	ERRX
5	PTD1	6	PAR_INTX
7	PTD2	8	SLINX
9	PTD3	10	GND
11	PTD4	12	GND

13	PTD5	14	GND
15	PTD6	16	GND
17	PTD7	18	GND
19	ACKX	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

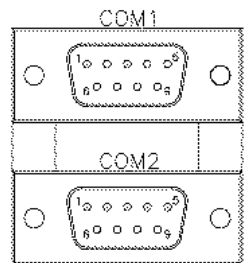
2.17 PC/104 Connector (CN3)

Standard PC104 ISA Connector

2.18 PCI-104 Connector (CN4)

Standard PCI-104 Connector

2.19 COM1/2 Connector (CN5)



COM1 (Up)

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

COM2 (Down)

Pin	Signal	Pin	Signal
1	DCD2 (422TXD-/485DATA-)	2	RXD2 (422RXD-)
3	TXD2 (422TXD+/485DATA+)	4	DTR2 (422RXD+)
5	GND	6	DSR2
7	RTS2	8	CTS2
9	+12V/+5V/RI2		

2.20 Power Connector (CN6)

Pin	Signal
1	GND
2	GND
3	+12V
4	+12V

2.21 LVDS Connector (CN9)

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

2.22 Keyboard/Mouse Connector (CN10)

Pin	Signal	Pin	Signal
1	KDAT	2	KCLK
3	GND	4	+5V with fuse
5	MDAT	6	MCLK

2.23 IrDA Connector (CN11)

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

2.24 COM3 Connector (CN12)

Pin	Signal	Pin	Signal
1	DCD3	2	RXD3
3	TXD3	4	DTR3
5	GND	6	DSR3
7	RTS3	8	CTS3

9	RING3	10	NC
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2.25 COM4 Connector (CN13)

Pin	Signal	Pin	Signal
1	DCD4	2	RXD4
3	TXD4	4	DTR4
5	GND	6	DSR4
7	RTS4	8	CTS4
9	RING4	10	NC

2.26 System Fan Connector (CN14)

Pin	Signal
1	GND
2	FAN Power
3	FAN_TAC

2.27 Front Panel Connector (CN15)

Pin	Signal	Pin	Signal
1	GND	2	Power Button
3	HD_LED	4	+3.3V
5	BEEP	6	+5V
7	GND	8	Power LED
9	GND	10	Reset

2.28 Digital I/O Connector (CN16)

Pin	Signal	Pin	Signal
1	DIO_1	2	DIO_2

3	DIO_3	4	DIO_4
5	DIO_5	6	DIO_6
7	DIO_7	8	DIO_8
9	+5V with fuse	10	GND

Address: 801H

BIOS Setting	Connector Definition	Address	IT8712F/KX GPIO Setting
DIO_1	CN16 PIN1	Bit 7	U47 PIN20 (GPIO27)
DIO_2	CN16 PIN2	Bit 6	U47 PIN21 (GPIO26)
DIO_3	CN16 PIN3	Bit 5	U47 PIN22 (GPIO25)
DIO_4	CN16 PIN4	Bit 4	U47 PIN23 (GPIO24)
DIO_5	CN16 PIN5	Bit 3	U47 PIN24 (GPIO23)
DIO_6	CN16 PIN6	Bit 2	U47 PIN25 (GPIO22)
DIO_7	CN16 PIN7	Bit 1	U47 PIN26 (GPIO21)
DIO_8	CN16 PIN8	Bit 0	U47 PIN27 (GPIO20)

2.29 TTL LCD Connector (CN17)

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

2.30 LCD Inverter Power Connector (CN18)

Pin	Signal
1	LCD Inverter Power
2	Backlight Control
3	GND
4	GND
5	Backlight enable

2.31 Floppy Connector (CN19)

Pin	Signal	Pin	Signal
1	GND	2	DELSEL#
3	GND	4	NC

5	GND	6	NC
7	GND	8	INDEX#
9	GND	10	MOTEA#
11	GND	12	DRVB#
13	GND	14	DRVA#
15	GND	16	MOTEB#
17	GND	18	DIR#
19	GND	20	STEP#
21	GND	22	WD#
23	GND	24	WE#
25	GND	26	TRAK0#
27	GND	28	WPT#
29	NC	30	RDATA#
31	GND	32	HDSEL#
33	NC	34	DSKCHG#

2.32 COM5/ GPS Connector (CN20)

Pin	Signal
1	NC
2	NC
3	GND
4	GPS LED
5	RXD
6	TXD
7	VCC3.3-BAT.
8	+3.3V

9	NC
10	GND

2.33 Power Output Connector (CN21)

Pin	Signal
1	+12V
2	GND
3	GND
4	+5V

2.34 Audio Line-in Connector (CN23)

Pin	Signal
1	LINE_IN_R
2	Audio GND
3	LINE_IN_L

2.35 Battery Wafer (CN24)

Pin	Signal
1	Battery Power
2	GND

2.36 CompactFlash Connector (CN25)

Standard Compact Flash Connector (Type I & II)

2.37 IDE Connector (CN26)

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

2.38 SATA Connector (CN27, 28)

Standard SATA Connector

2.39 VGA Connector (CN29)

Pin	Signal	Pin	Signal
1	R	2	G
3	B	4	NC

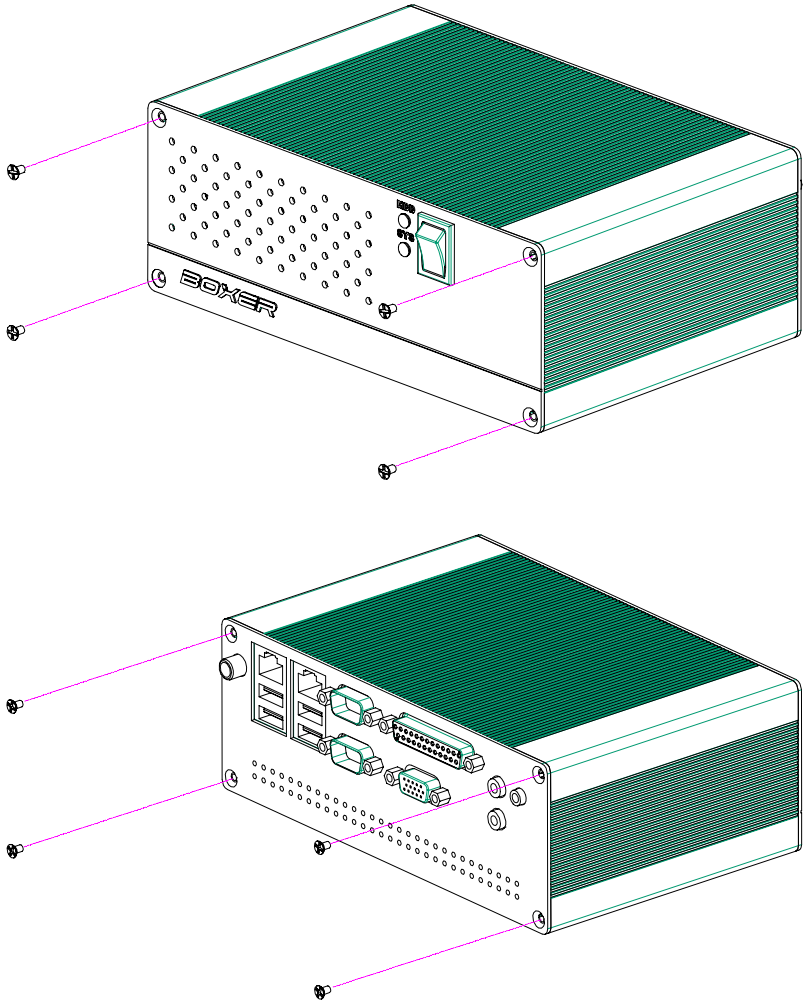
5	GND	6	GND
7	GND	8	GND
9	+5V with Fuse	10	GND
11	NC	12	DDC_DAT
13	HSYNC	14	VSYNC
15	DDC_CLK		

2.40 Standby Power Connector (CN30)

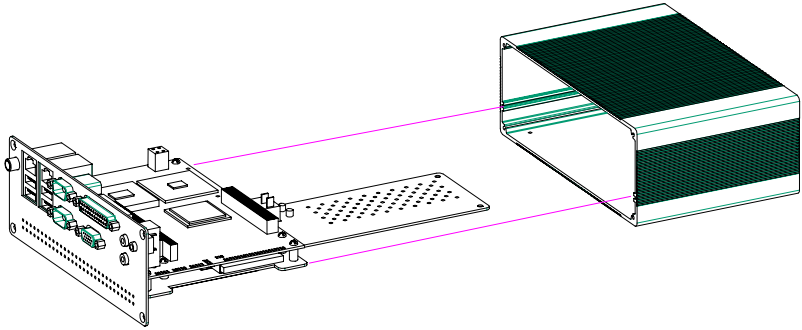
Pin	Signal
1	NC
2	GND
3	NC
4	GND
5	PS_ON#
6	+5V Standby

2.41 Installing CompactFlash

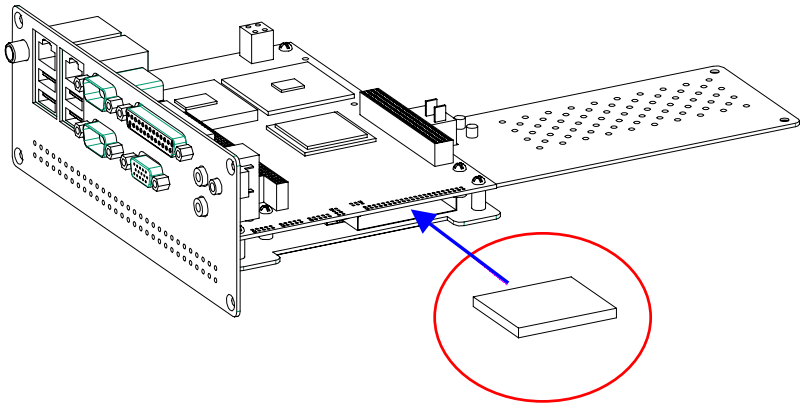
Step 1: Unfasten the eight screws on the front and rear panels



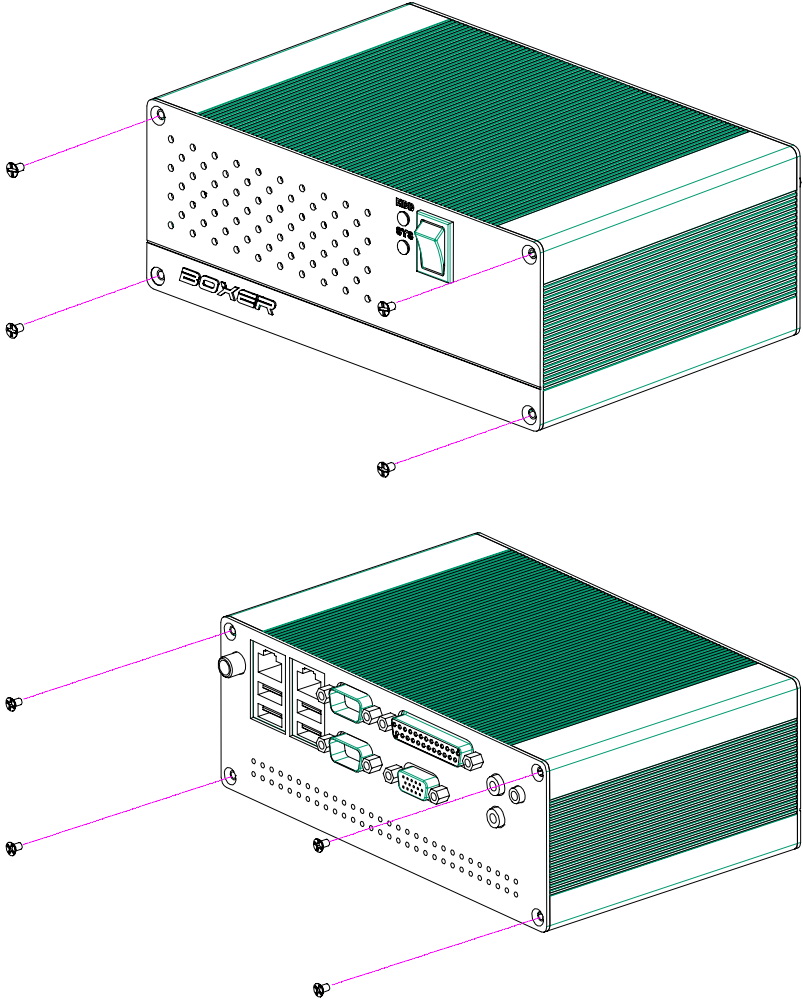
Step 2: Pull out the rear panel from the chassis



Step 3: Insert the CompactFlash

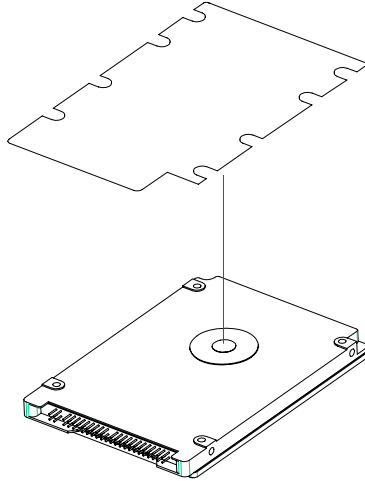


Step 4: Fasten the eight screws of the front and rear panels, and you have finished the CompactFlash installation.

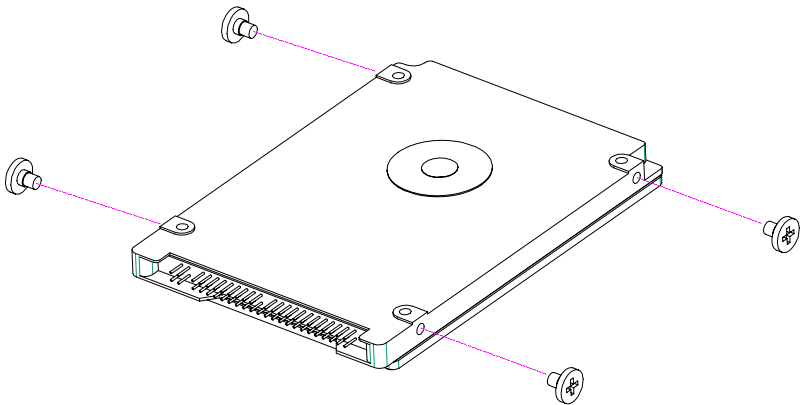


2.42 Installing Hard Disk Drive

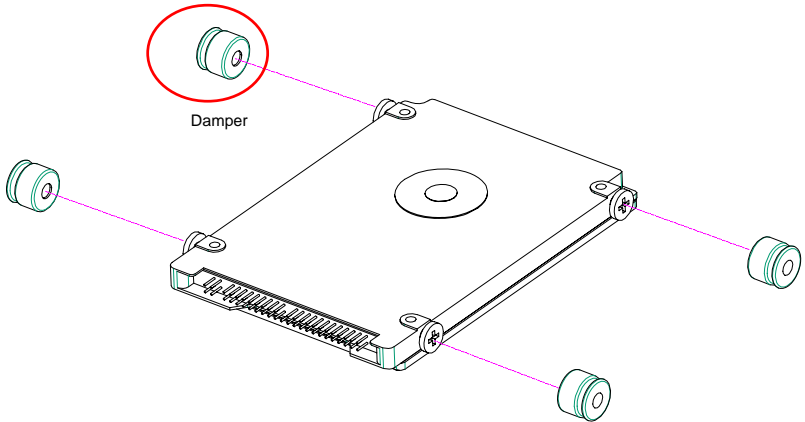
Step 1: Stick the mylar on the Hard Disk Drive



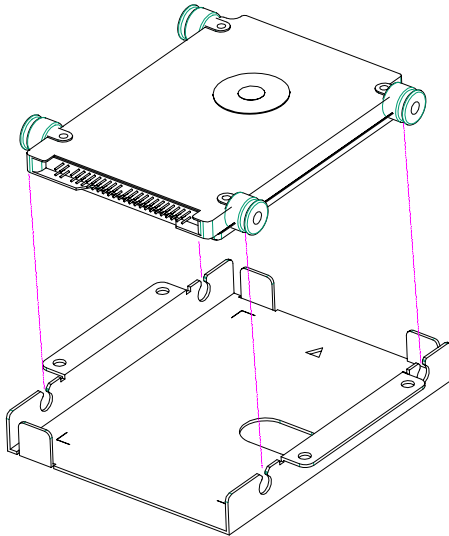
Step 2: Fasten the four screws to the bracket of Hard Disk Drive



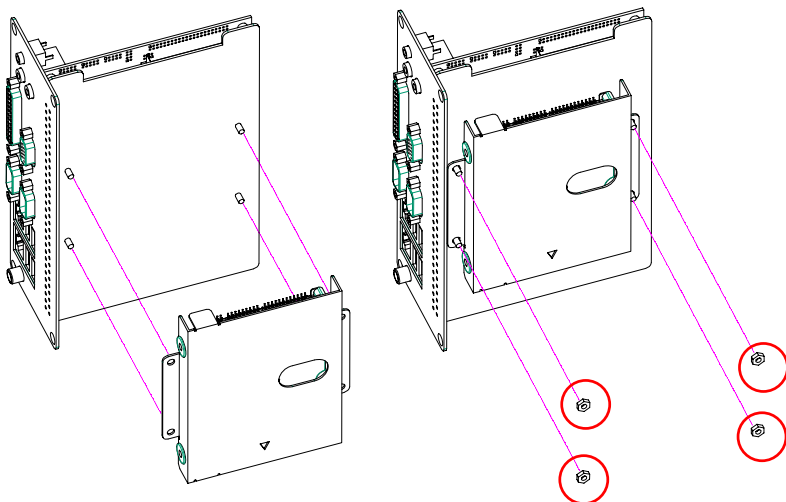
Step 3: Put the Dampers around the the four screws



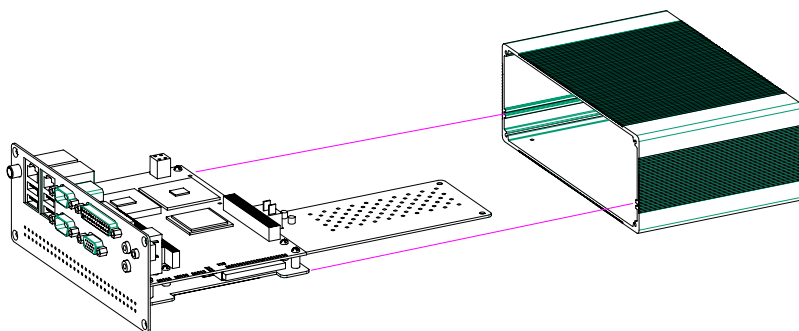
Step 4: Put the dampers to the fillisters on the bracket



Step 5: Use the four screws to fasten the bracket and the main board

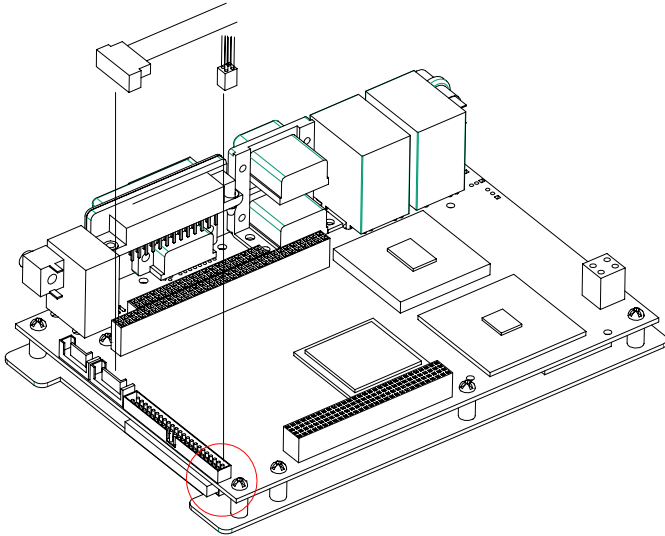


Step 6: Insert the main board to the chassis

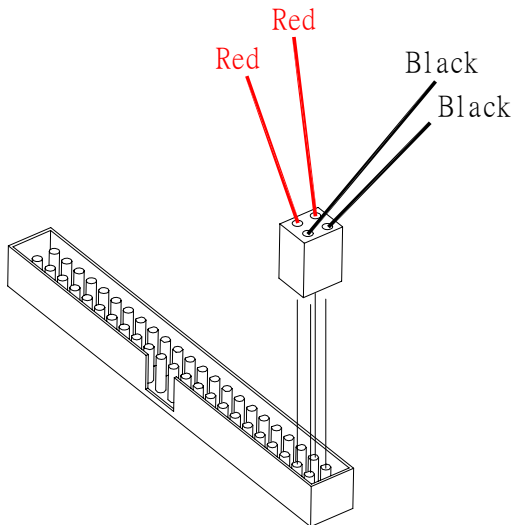


Notice: When you install the main board kit to the chassis, please watch out the IDE cable and prevent the IDE cable from damage.

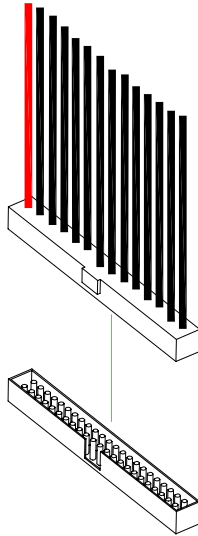
Step 7.1: Install the SATA Hard Disk Drive



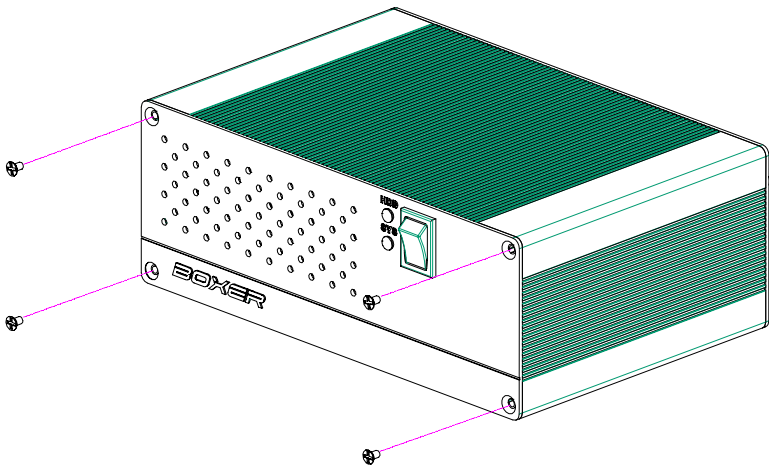
The location of the SATA power cable

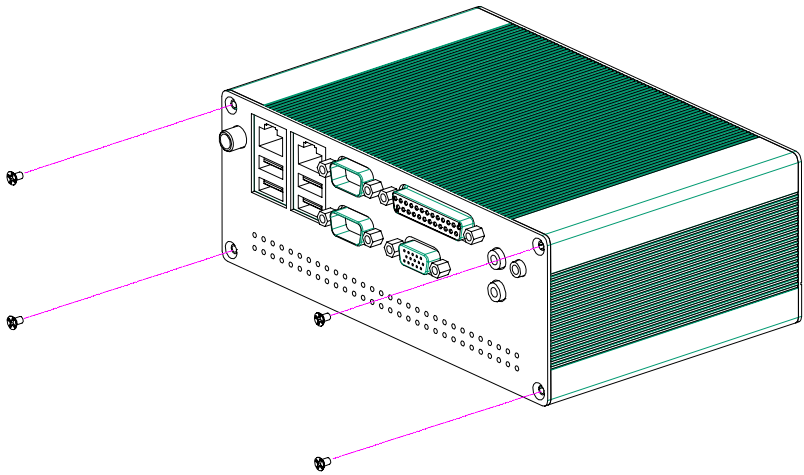


Step 7.2: Install the IDE Hard Disk Drive



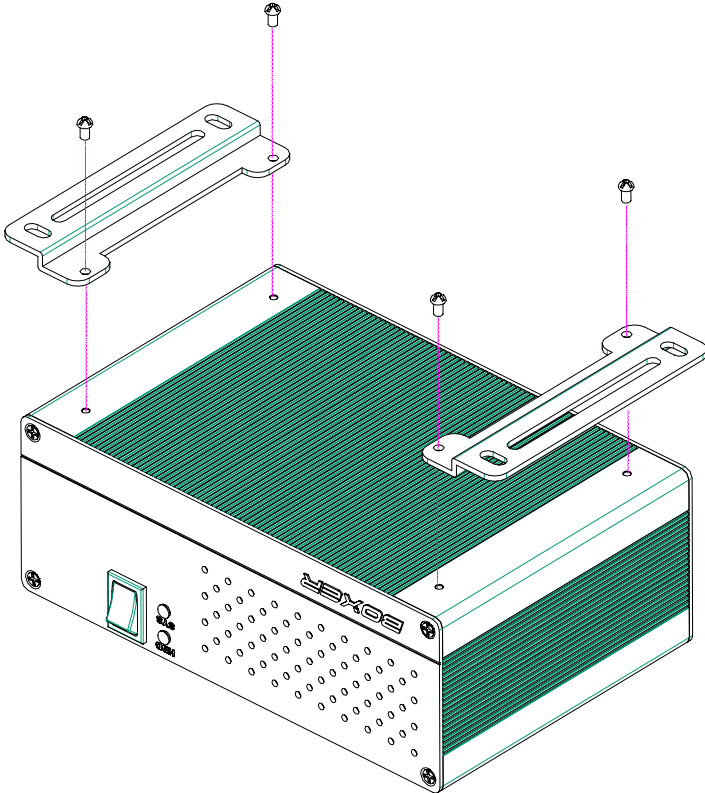
Step 8: Fasten the eight screws on the front and rear panels to the chassis

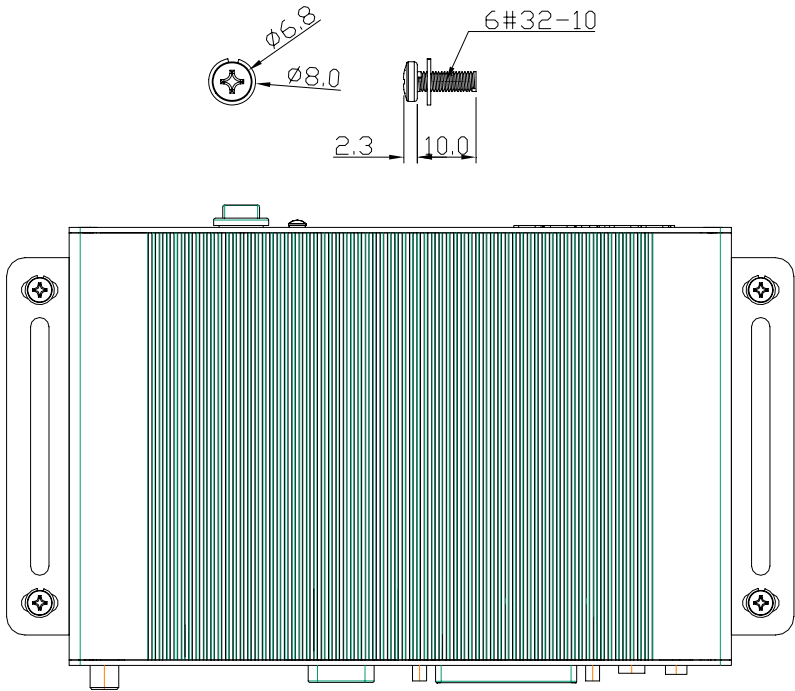




2.43 Wallmount kit installation

Get the brackets ready and fasten appropriate four screws on each bracket. After fastening the two brackets on the bottom lid of AEC-6410, the wallmount kit installation has been finished.





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 AEC-6410 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 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, KB wake up, etc.)

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

This menu allows you to set the shutdown temperature for your system.

Frequency/Voltage Control

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

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.

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**

The AEC-6410 comes with a CD-ROM that contains all drivers and utilities that meet your needs.

Follow the sequence below to install the drivers:

- Step 1 – Install LX-Graphics Driver
- Step 2 – Install AES Driver
- Step 3 – Install PCI to ISA Bridge Driver
- Step 4 – Install LAN Driver
- Step 5 – Install AMD Audio Driver
- Step 6 – Install Realtek Audio Driver
- Step 7 – Install VRAID Driver

USB 2.0 Drivers are available for download using Windows Update for both Windows XP and Windows 2000. For additional information regarding USB 2.0 support in Windows XP and Windows 2000, please visit www.microsoft.com/hwdev/usb/.

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the AEC-6410 CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 7 in order.

Step 1 –Install LX-Graphic Driver

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 “**lx_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**

Step 2 –Install AES Driver

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 **Yes**
16. Click on **Finish**

Step 3 –Install PCI to ISA Bridge Driver

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 "**lte**" 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 **Yes**
16. Click on **Finish**

Step 4 – Install LAN Driver

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

Step 5– Install AMD Audio Driver

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 (**Drivers/Step 5 – AMD Audio Driver**) then click on **Open**
13. Click on **OK**
14. Click on **Next**
15. Click on **Yes**
16. Click on **Finish**

Step 6 – Install Realtek Audio Driver

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

Step 7 – Install VRAID Driver

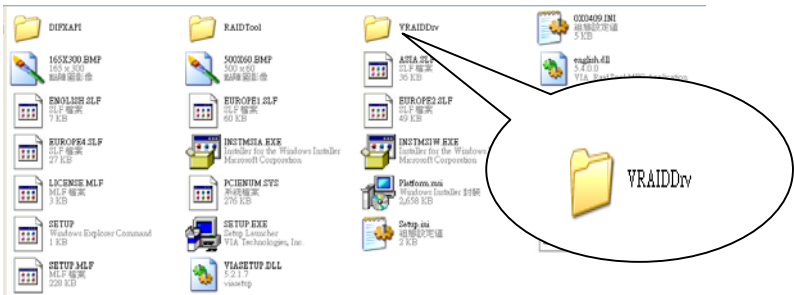
Please follow the application note to install the **Step 7-VRAID_Driver_V5508**

Application Note:

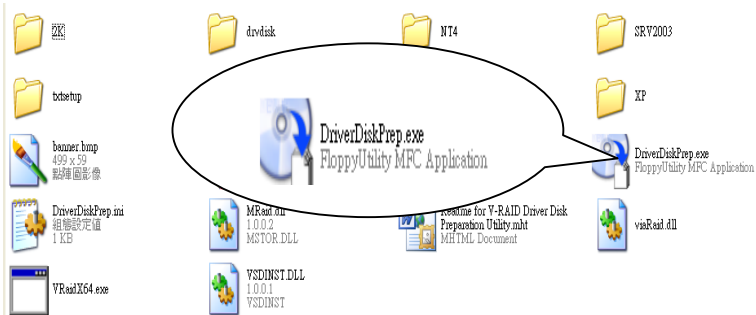
Window Operating System cannot recognize the driver of chip VT6421 and treat it as a third-part driver. Please follow below steps to install the driver with Operating System.

1. Creating a Drive Disk: copy the SATA driver from AAEON CD to floppy disk before install OS.

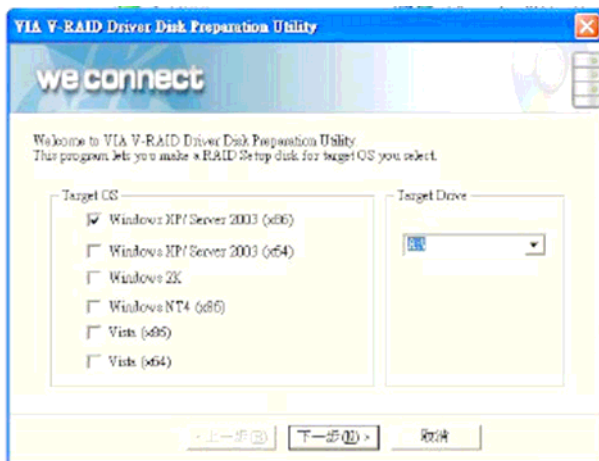
- Click on **Step 7-VRAID_Driver_V550B**
- Click on **VRAIDrv** (see below picture)



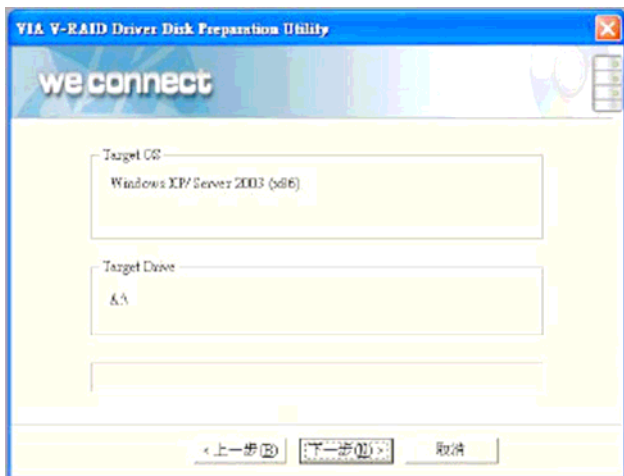
- Click on **DriverDiskPrep.exe** (see below picture)



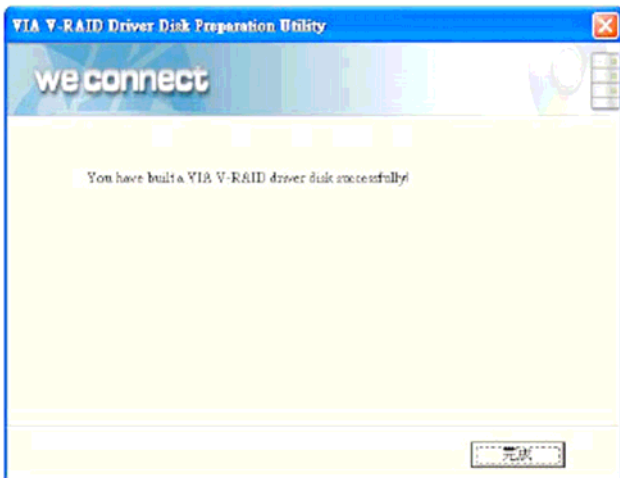
- Click on the OS what you are going to install.



- Install Floppy or USB Floppy

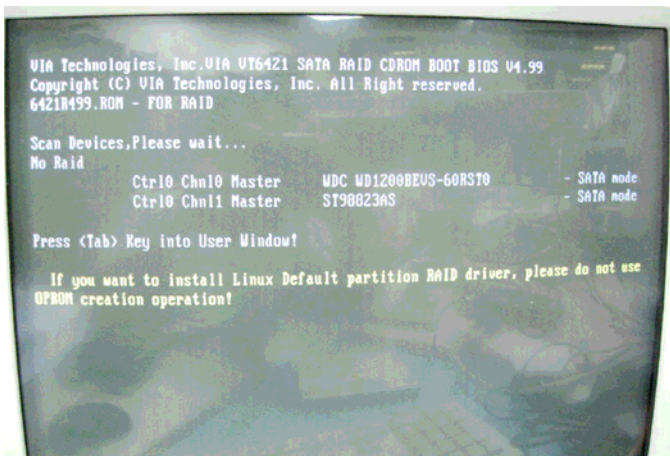


- Finish: driver disk ready.

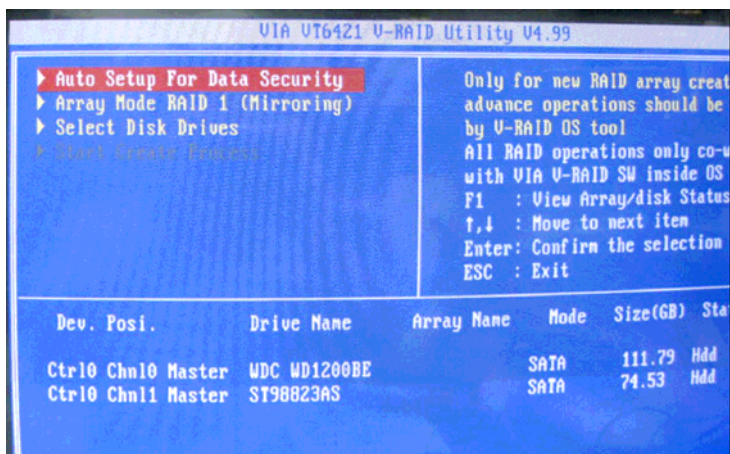
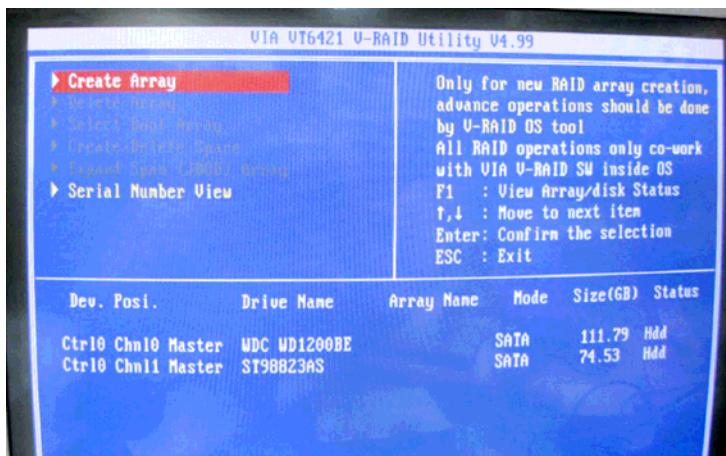


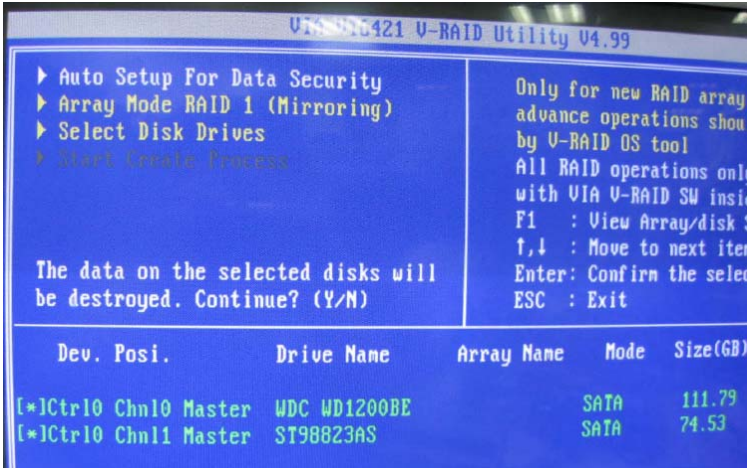
2. Following are the raid configuration steps.

- A. Press <Tab> key to enter Raid BIOS setup
(Raid BIOS only enable when SATA HDD connected)

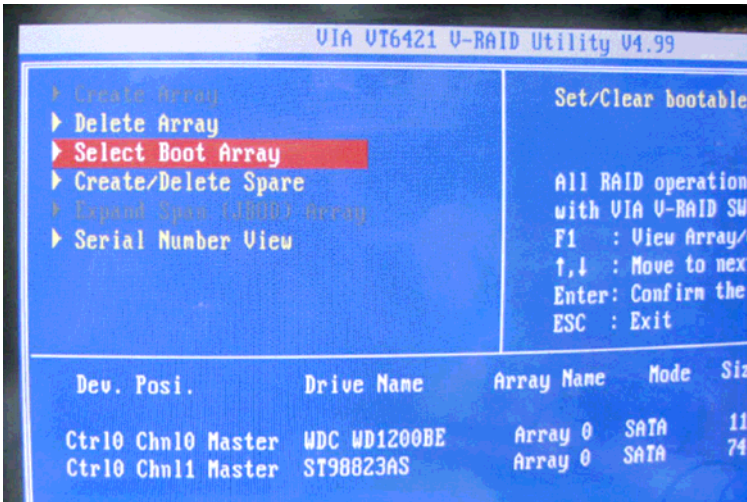


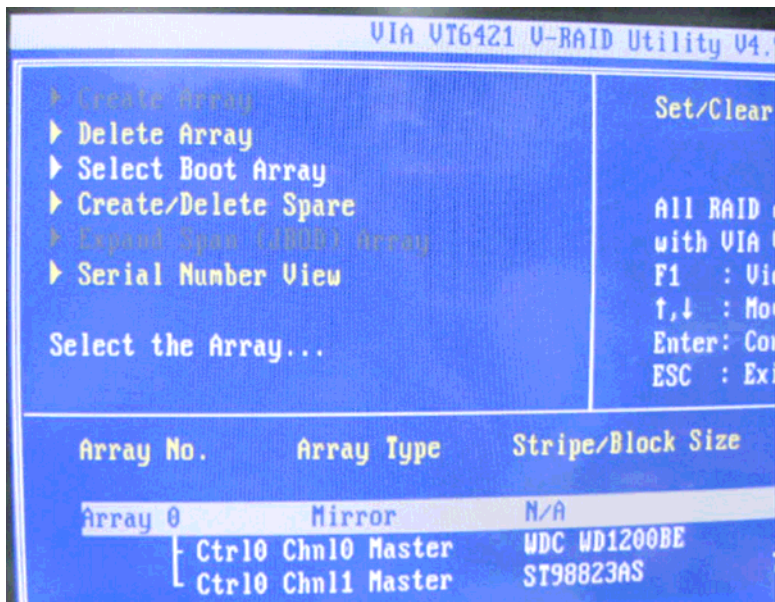
B. Create Array

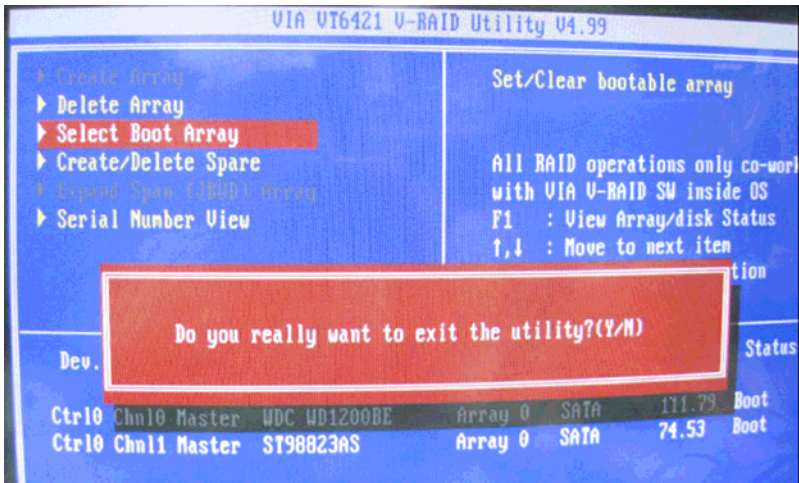




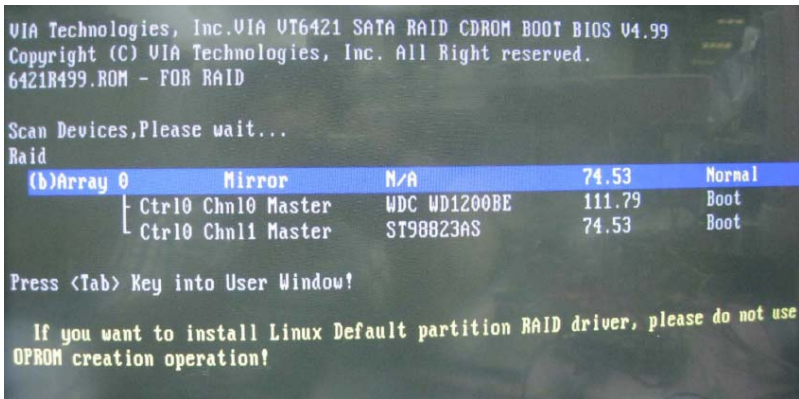
C. After Raid has been created, set this array bootable.





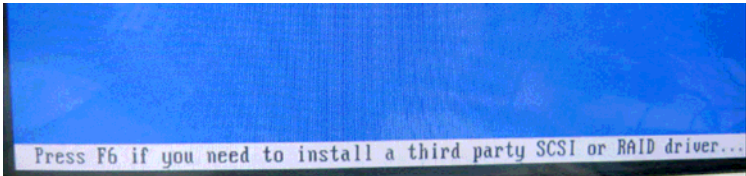


D. Now the Raid Array is ready for OS installation

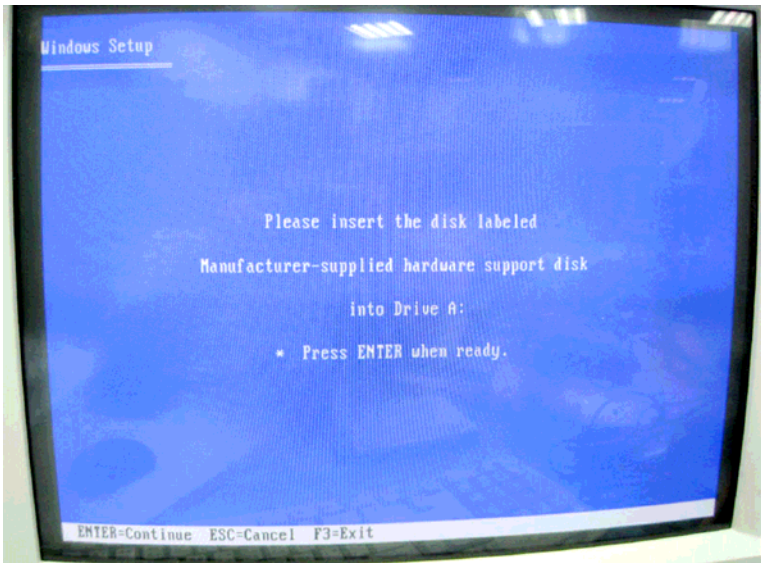


3. Insert your Windows CD, and then restart the computer
4. Follow the on-screen instructions to begin the Windows installation.
5. When prompted to install a third-party driver, press **F6**.

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.



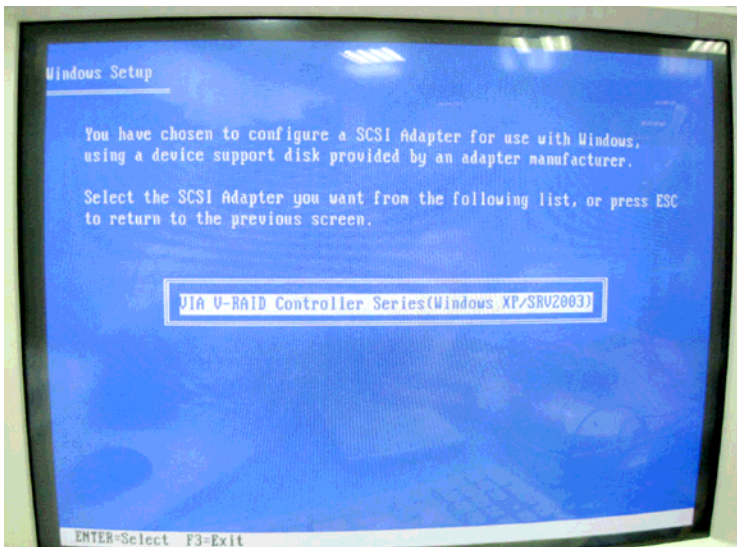
6. Insert the driver disk, and then wait until you are prompted to install a driver.

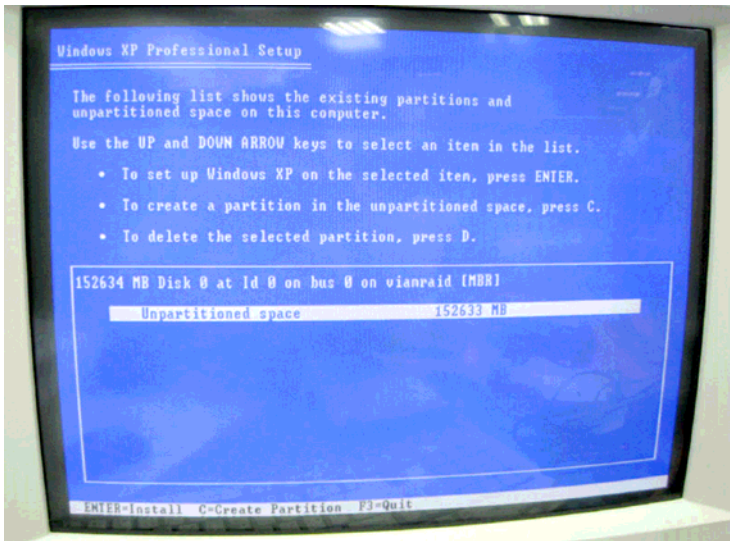


7. Press **S** to specify the driver is on a floppy disk, and then press **Enter**.



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





10. Follow the on-screen instructions to complete the installation. After finish installing OS, you have to install VIA Raid management Utility.

Setup RAID Management

- A. Click on **Step 7-VRAID_Driver_V550B**
- B. Click on **SETUP.exe** (see below picture)
- C. Follow the instructions that the window shows
- D. The system will help you install the driver automatically

Appendix

A

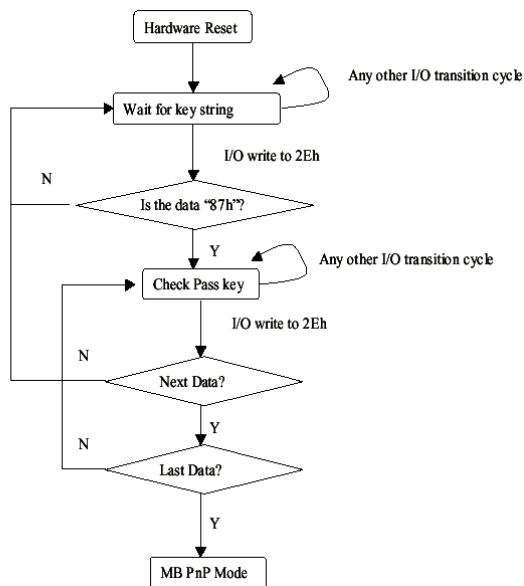
Programming the Watchdog Timer

A.1 Programming

AEC-6410 utilizes ITE 8712 chipset as its watchdog timer controller.

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

After the hardware reset or power-on reset, the ITE 8712 enters the normal mode with all logical devices disabled except KBC.



There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(1) Enter the MB PnP Mode

To enter the MB PnP Mode, four 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 four write operations to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
87h, 01h, 55h, 55h:	2Eh	2Fh

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the MB PnP 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 MB PnP Mode

Set bit 1 of the configure control register (Index=02h) to 1 to exit the MB PnP Mode.

WatchDog Timer Configuration Registers

LDN	Index	R/W	Reset	Configuration Register or Action
All	02H	W	N/A	Configuration Control
07H	71H	R/W	00H	WatchDog Timer Control Register
07H	72H	R/W	00H	WatchDog Timer Configuration Register
07H	73H	R/W	00H	WatchDog Timer Time-out Value (LSB) Register
07H	74H	R/W	00H	WatchDog Timer Time-out Value (MSB) Register

Configure Control (Index=02h)

This register is write only. Its values are not sticky; that is to say, a hardware reset will automatically clear the bits, and does not require the software to clear them.

Bit	Description
7-2	Reserved
1	Returns to the Wait for Key state. This bit is used when the configuration sequence is completed.
0	Resets all logical devices and restores configuration registers to their power-on states.

WatchDog Timer Control Register (Index=71h, Default=00h)

Bit	Description
7	WDT is reset upon a CIR interrupt
6	WDT is reset upon a KBC (Mouse) interrupt
5	WDT is reset upon a KBC (Keyboard) interrupt
4	WDT is reset upon a read or a write to the Game port base address
3-2	Reserved
1	Force Time-out. This bit is self-clearing
0	WDT status 1: WDT value reaches 0 0: WDT value is not 0

WatchDog Timer Configuration Register (Index=72h, Default=00h)

Bit	Description
7	WDT Time-out value select 1: Second 0: Minute
6	WDT output through KRST (pulse) enable
5	WDT Time-out value Extra select 1: 4s. 0: Determine by WDT Time-out value select (bit7 of this register)
4	WDT output through PWROK1/PWROK2 (pulse) enable
3	Select the interrupt level ^{note} for WDT

WatchDog Timer Time-out Value (LSB) Register (Index=73h,**Default=00h)****Bit Description**

7-0	WDT Time-out value 7-0
-----	------------------------

WatchDog Timer Time-out Value (MSB) Register (Index=74h,**Default=00h)****Bit Description**

7-0	WDT Time-out value 15-8
-----	-------------------------

A.2 ITE8712 Watchdog Timer Initial Program

```
.MODEL SMALL
```

```
.CODE
```

Main:

```
CALL Enter_Configuration_mode
```

```
CALL Check_Chip
```

```
mov cl, 7
```

```
call Set_Logic_Device
```

```
;time setting
```

```
mov cl, 10 ; 10 Sec
```

```
dec al
```

Watch_Dog_Setting:

```
;Timer setting
```

```
mov al, cl
```

```
mov cl, 73h
```

```
call Superio_Set_Reg
```

```
;Clear by keyboard or mouse interrupt
```

```
mov al, 0f0h
```

```
mov cl, 71h
```

```
call Superio_Set_Reg
```

```
;unit is second.
```

```
mov al, 0C0H
```

```
mov cl, 72h
```

```
call Superio_Set_Reg
```

```
; game port enable  
mov cl, 9  
call Set_Logic_Device
```

```
Initial_OK:  
CALL Exit_Configuration_mode  
MOV AH,4Ch  
INT 21h
```

```
Enter_Configuration_Mode PROC NEAR  
MOV SI,WORD PTR CS:[Offset Cfg_Port]
```

```
MOV DX,02Eh  
MOV CX,04h  
Init_1:  
MOV AL,BYTE PTR CS:[SI]  
OUT DX,AL  
INC SI  
LOOP Init_1  
RET  
Enter_Configuration_Mode ENDP
```

```
Exit_Configuration_Mode PROC NEAR  
MOV AX,0202h  
CALL Write_Configuration_Data
```

RET

Exit_Configuration_Mode ENDP

Check_Chip PROC NEAR

MOV AL,20h

CALL Read_Configuration_Data

CMP AL,87h

JNE Not_Initial

MOV AL,21h

CALL Read_Configuration_Data

CMP AL,12h

JNE Not_Initial

Need_Initial:

STC

RET

Not_Initial:

CLC

RET

Check_Chip ENDP

Read_Configuration_Data PROC NEAR

MOV DX,WORD PTR CS:[Cfg_Port+04h]

OUT DX,AL

```
MOV DX,WORD PTR CS:[Cfg_Port+06h]
IN AL,DX
RET
Read_Configuration_Data ENDP
```

```
Write_Configuration_Data PROC NEAR
MOV DX,WORD PTR CS:[Cfg_Port+04h]
OUT DX,AL
XCHG AL,AH
MOV DX,WORD PTR CS:[Cfg_Port+06h]
OUT DX,AL
RET
Write_Configuration_Data ENDP
```

```
Superio_Set_Reg proc near
push ax
MOV DX,WORD PTR CS:[Cfg_Port+04h]
mov al,cl
out dx,al
pop ax
inc dx
out dx,al
ret
Superio_Set_Reg endp.Set_Logic_Device proc near
```

```
Set_Logic_Device proc near
push ax
push cx
xchg al,cl
mov cl,07h
call Superio_Set_Reg
pop cx
pop ax
ret
Set_Logic_Device endp
```

```
;Select 02Eh->Index Port, 02Fh->Data Port
Cfg_Port DB 087h,001h,055h,055h
```

```
DW 02Eh,02Fh
```

END Main

Note: Interrupt level mapping

0Fh-Dh: not valid

0Ch: IRQ12

.

.

03h: IRQ3

02h: not valid

01h: IRQ1

00h: no interrupt selected