AEC-6800

Fanless Embedded Control PC

AMD GX2 333MHz CPU

With 8 DIO/ 2 COM/ 2 LAN

Audio, CompactFlash

.

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Packing List

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

- 1 AEC-6800 Embedded Control PC

- 1 Keyboard & Mouse Cable

- 1 Phoenix Power Connector

- 2 Wallmount Bracket

- 1 Audio Cable

- 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 reliable 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:

- The power cord or plug is damaged.
- Liquid has penetrated into the equipment.
- The equipment has been exposed to moisture.
- The equipment does not work well, or you cannot get it to work according to the users manual.
- The equipment has been dropped and damaged.
- 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 60° C (140° F). IT MAY DAMAGE THE EQUIPMENT.

FCC Safety

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:

It may cause danger of explosion if 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.

Contents

Chapter

1

General Information

1.1 Introduction

AAEON Launched a cost effective version Embedded Controller-AEC-6800. This model possesses an excellent balance of cost and performance. The new boxer –AEC-6800 adopted AMD GX466 333MHz processor operates in a fanless environment and requires minimal voltage.

For customers using old AMD GX1 CPU, they are now facing the end of product life and need an easy and economic substitute. AEC-6800 is the best choice. No need to change a lot in software and hardware. No need to pay extra money in upgrading.

AEC-6800 also has alternative model with 2 CANbus interface ports. It suits for many transportation telemetric applications for data acquisition and monitoring. Users don't need to spend efforts to do integration from IPC system.

The system memory of AEC-6800 is a 200-pin DDR SDRAM SODIMM up to 512MB. Easily front accessible USB ports for system controlling and data transferring make a more friendly usage. The power supply is particularly design for industrial applications. It equips DC 9~30V input with Phoenix connector and optional external power adapter. Moreover, the optional

12V/3A power adapter operating less than 36 Watts.   All these considerate designs are for safety product operations. Sometime "Fanless" would bring out some anxieties on the issue of overheat, however, AEC-6800 has patents on heat spreading. The aluminum alloy chassis design helps conduct heat from CPU to chassis effectively and efficiently. AAEON obtained patents from five countries—Germany, America, Japan, Mainland China and Taiwan in terms of this excellent heat spreading design. Furthermore, the light weight and pocket size of AEC-6800 provide flexibilities in placement and movement for users.

The target markets of AEC-6800 are I/O transmission control, transportation, environment and equipment monitoring applications.   Moreover, AEC-6800 is RoHS compliant and meets the probable future directions for advancing European market and other market around the world.   Try this fantastic Embedded Control PC to make an easy life.

1.2 Features

- Fanless system
- Quick-stack PC 104 expansion kit for self integration
- Optional CAN bus protocol support for vehicle & medical applications
- Wide temperature operating design
- Onboard AMD GX2 333MHz
- DC 9~30V input with Phoenix connector and optional external AC input power adapter
- Optional Anti-vibration HDD bay for normal Windows AP
- 2 Ethernet/ 2 serial ports/ 2 USB communication with diverse devices
- Supports Audio for multimedia application
- Supports CompactFlash Memory and lockable mechanism
- Wallmount and DIN rail mounting design suit for industrial application

1.3 Specifications

System

- CPU   AMD GX2, 333MHz CPU
- Memory   DDR-SODIMM x 1, Max. 512MB
- VGA   D-sub 15 VGA Connector
- Keyboard/Mouse   PS/2 Keyboard & Mouse
- Ethernet   10/100Base-TX Ethernet RJ-45 connector x 2
- Solid Storage Disk   Type II CompactFlash slot
- Serial port   RS-232 x 1(COM1), RS-232/422/485 x 1 (COM2)
- Audio   MIC-in/ Line-in/ Line-out, but extension cable
- USB   USB 1.1 port x 2
- Watchdog Timer   Generates a time-out system reset
- Power supply   DC Input: 9V DC~30V DC AC Input: External power adapter (Optional)
- System control   Power on/off switch x 1, reset button x 1
- Indicator   Power LEDx1, HDD active LEDx 1

Mechanical and Environmental

- Construction   Aluminum Alloy Chassis

- Color   Dark Blue
- Mounting   Wallmount (Default), DIN-rail
- Dimension   8.35"(W) x 2.53"(H) x 4.21"(D)

  (212.15mm x 64.2mm x 107mm)
- Net weight   4.75 lb (2.16 kg)
- Gross weight   8.36 lb (3.8 kg)
- Operating Temperature   32℉~149℉ (0℃~65℃)
- Operating Humidity   5~95%@40℃, non-condensing
- Vibration   5g rms/ 5~500Hz/ random

  operation (without HDD Module);

  1 g/ 5~500Hz/ random operation

  (with HDD Module)
- Shock   100g peak acceleration (11

  msec. duration)
- EMC   CE/FCC Class A

1.4 I/O

AEC-6800-A1

Reset · HDD LED · System LED · 2 USB Ports · Power Switch · CFD Slot
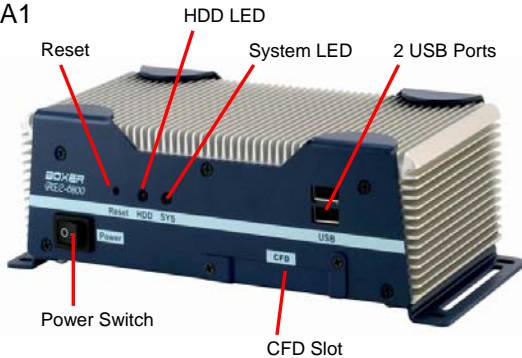
AEC-6800-B1 (Front) (AEC-6800-A1 + 1 CAN Bus)

CAN Bus

AEC-6800-B1 (Rear)

Digital I/O Ports · 2 COM Ports · Keyboard & Mouse · Audio · VGA · Power Input · 2 LAN Ports · 2 Channel CAN Bus 2.0A/ 2.0 (Optional); Opening for Interface of PC 104 card
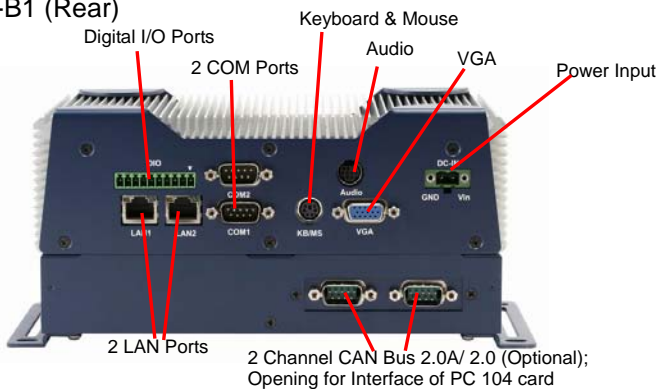
Chapter

2

Quick Installation Guide

2.1 Dimension

AEC-6800-A1
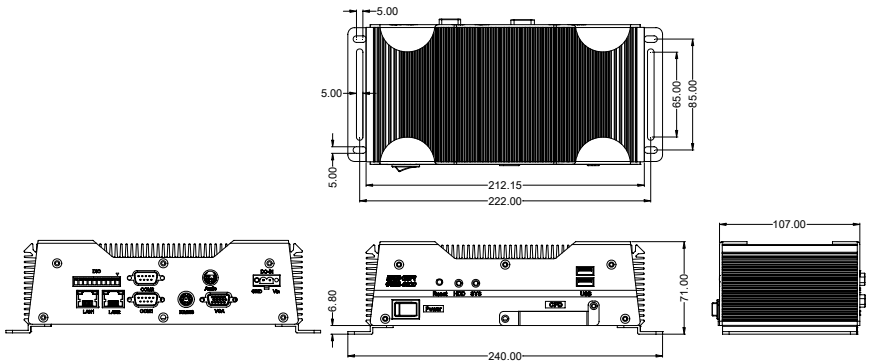
AEC-6800-B1
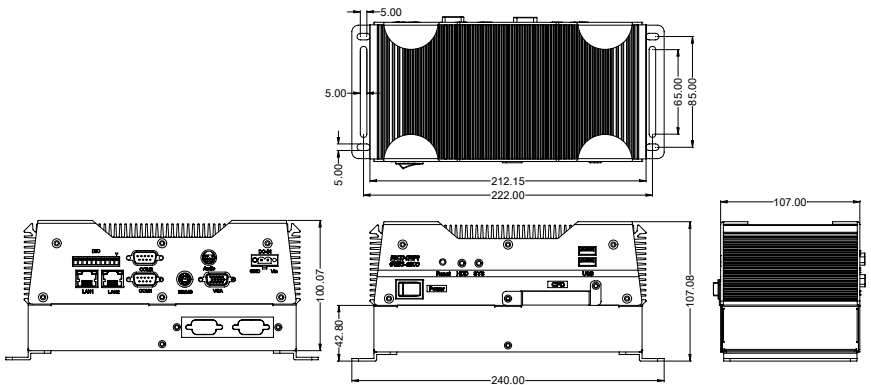
2.2 Hard Disk Drive Module Installation

Note: AEC-6800 cannot support UDMA mode.

Step 1: Open the HDD cover by loosening the screws on the bottom of the chassis
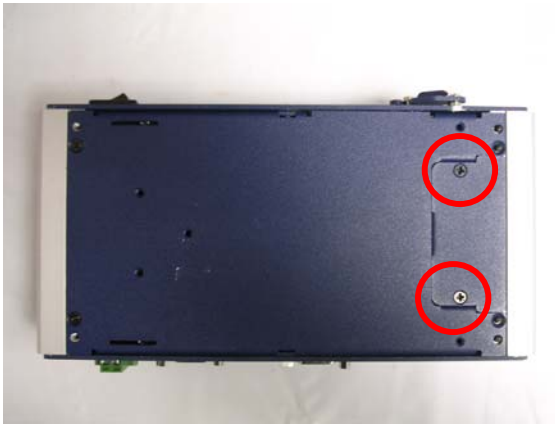
Step 2: Insert the Cable to the bottom of the chassis as the illustration below.

PIN 1
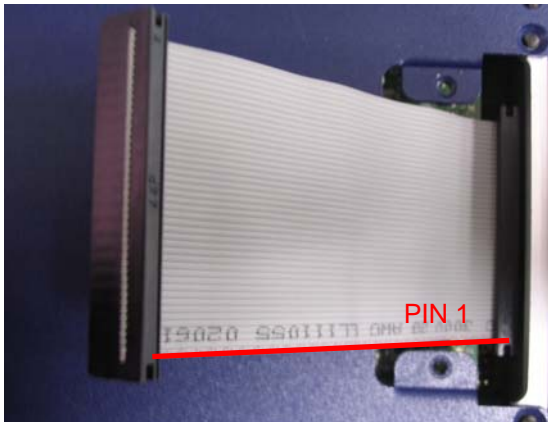
2.3 Hard Disk Drive Kit Combination

Get the HDD and bracket ready.

HDD
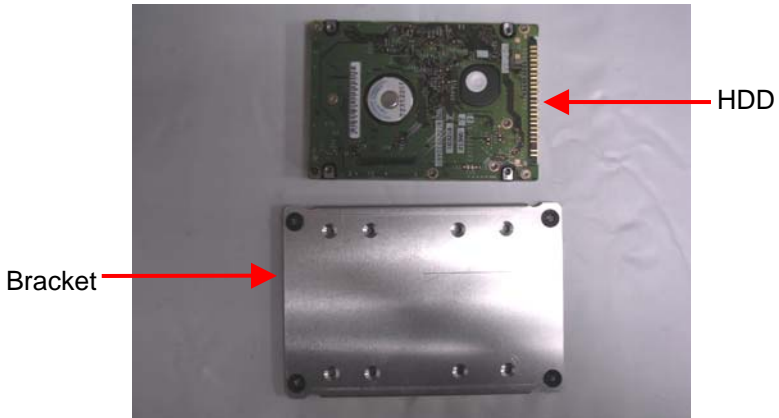
Bracket

Step 1: Stack the HDD and bracket. Fasten HDD and bracket

with the screws.
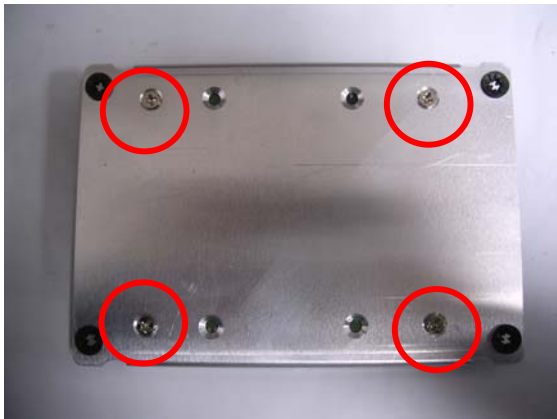
Step 2: Fasten the HDD module into the HDD kit house.

Step 3: Insert the other side of the cable to the HDD module.

Step 4: Combine the HDD kit house with the chassis and push as the illustration shown below.

Push
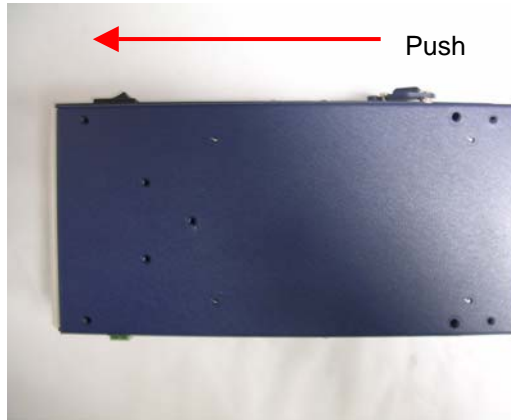
Step 5: Lock with the screws.
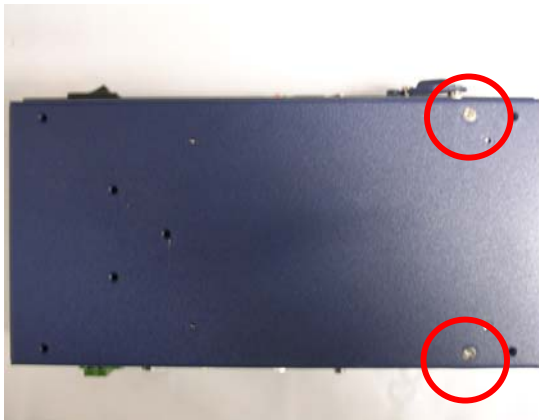
2.4 DDR-SDRAM Installation

Step 1: Screw the lid off the chassis.

Step 2:   Remove the lid after you screw the lid off the chassis.

Step 3: Insert the SDRAM SODIMM module into the slot.

**SDRAM
SODIMM
module**
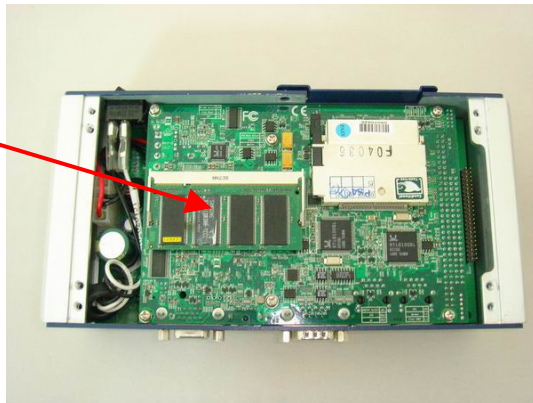
2.5 Power Linkage Installation

Step 1: Get the cable and connector ready

Step 2: Fix the connector to the cable with the screws.

Step 3: Insert the power cable to the power inlet.

Step 4: Screw the power cable into the chassis.

Note: Please make sure that pin assignment of **Power** and **Ground** on the accurate location.

2.6 Wallmount Installation

Fasten the brackets with the screws.

Bracket →   ← Bracket
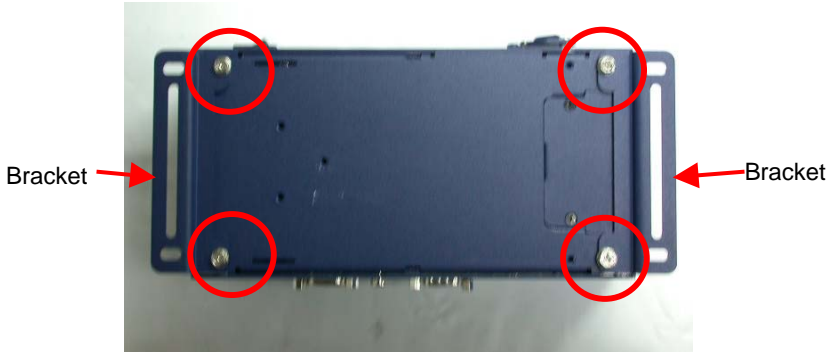
2.7 DIN Rail Installation

Step 1: Fix the Din Rail kit with the screws on the chassis as the illustration shown.

Din Rail Kit

Step 2: Press the Din Rail on the Din Rail kit to fix it.

Din Rail
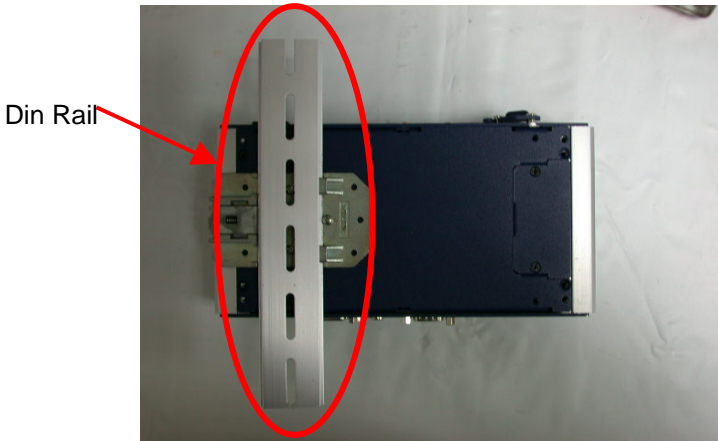
2.8 COM2 RS-232/422/485 Serial Port Connector

Different devices implement the RS-232/422/485 standard in different ways. If you are having problems with a serial device, be sure to check the pin assignments below for the connector.
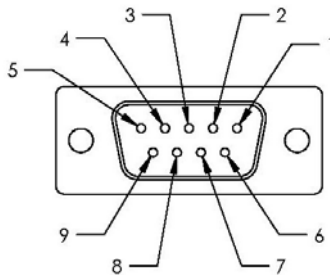
COM2/RS-232 Mode

Pin	Signal	Pin	Signal
1	DCDB	2	RXB
3	TXB	4	DTRB
5	Ground	6	DSRB
7	RTSB	8	CTSB
9	RIB / +5V / +12V	10	N/C

COM2/RS-422 Mode

Pin	Signal	Pin	Signal
1	TXD-	2	RXD+
3	TXD+	4	RXD-
5	Ground	6	N/C
7	N/C	8	N/C
9	N/C / +5V / +12V	10	N/C

COM2/RS-485 Mode

Pin	Signal	Pin	Signal
1	TXD-	2	N/C
3	TXD+	4	N/C
5	Ground	6	N/C
7	N/C	8	N/C
9	N/C / +5V / +12V	10	N/C

Note: There are four I/O addresses - *3F8-3FFh, 2F8-2FFh, 3E8-3EFh & v*

2e8-2EFh, for serial ports. Two of the I/O addresses-*3E8-3EFh &*

2e8-2EFh, are shared with the ISA port.

An ISA I/O address must be disabled in BIOS Setup in order to use a Serial Port on that address.   If you go into Integrated Peripherals and set the Onboard Serial Port 1 or Port 2 to 2E8 or 3E8, please also go into ISA Setup in PnP/PCI Configurations and Disable ISA I/O 2E8-2EFh or ISA I/O 3E8-3EFh.   Otherwise, there will be a conflict.

2.9 COM1 RS-232 Serial Port Connector

Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	N.C.

2.10 Digital I/O Connector

Pin	Signal	Pin	Signal
1	IN0	2	IN1
3	IN2	4	IN3
5	OUT0	6	OUT1
7	OUT2	8	OUT3
9	+5Volt.	10	Ground

BIOS Setting	Connector Definition	Address	IT8712 GPIO Setting
DIO-1	CN6 Pin 1	Bit 7	U1 Pin 20 (GPIO 27)
DIO-2	CN6 Pin 2	Bit 6	U1 Pin 21 (GPIO 26)
DIO-3	CN6 Pin 3	Bit 5	U1 Pin 22 (GPIO 25)
DIO-4	CN6 Pin 4	Bit 4	U1 Pin 23 (GPIO 24)
DIO-5	CN6 Pin 5	Bit 3	U1 Pin 24 (GPIO 23)
DIO-6	CN6 Pin 6	Bit 2	U1 Pin 25 (GPIO 22)
DIO-7	CN6 Pin 7	Bit 1	U1 Pin 26 (GPIO 21)
DIO-8	CN6 Pin 8	Bit 0	U1 Pin 27 (GPIO 20)

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-6800 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.


```
        Phoenix - AwardBIOS CMOS Setup Utility

 ▶ Standard CMOS Features           ▶ Frequency/Voltage Control
 ▶ Advanced BIOS Features             Load Fail-Safe Defaults
 ▶ Advanced Chipset Features          Load Optimized Defaults
 ▶ Integrated Peripherals             Set Supervisor Password
 ▶ Power Management Setup             Set User Password
 ▶ PnP/PCI Configurations             Save & Exit Setup
 ▶ PC Health Status                   Exit Without Saving

 Esc : Quit                      ↑ ↓ → ←   : Select Item
 F10 : Save & Exit Setup

                 Time, Date, Hard Disk Type...
```

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

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 GX 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 GX 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 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.

Note: AEC-6800 can support and provide Windows XP driver only.

4.3 Installing VGA Driver

Win XP / Win XPe VGA

Place the Driver CD-ROM into your CD-ROM drive and pull up the

CD-ROM file on your screen.

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 "**gx_winxp"** file from CD-ROM **(Drivers/Step 1 -**

   Graphics/WinXP_XPe) 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 PCI to ISA Bridge Driver

Win XP / Win XPe System

Place the Driver CD-ROM into your CD-ROM drive and pull up the

CD-ROM file on your screen.

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 **(Drivers/Step 2 – PCI to ISA
    Bridge)** then click on **open**.

13. Click on **OK**.

14. Click on **Next**.

15. Click on **Finish**.

4.5 Installing Audio Driver

Win XP / Win XPe Audio

Place the Driver CD-ROM into your CD-ROM drive and pull up the
CD-ROM file on your screen.

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 **"Gx2WDMAu"** file from CD-ROM **(Driver/Step 3 -
    Audio/Windows)** then click on **Open**.

13. Click on **OK**.

14. Click on **Next**.

15. Click on **Yes**.

16. Click on **Finish**.

4.6 Installing Ethernet Driver

Win XP / Win XPe Ethernet

Place the Driver CD-ROM into your CD-ROM drive and pull up the

CD-ROM file on your screen.

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 **Ethernet 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 "**NetrtOEM"** file from CD-ROM **(Driver/Step 4 -**

   Ethernet/WinXP) then click on **Open**.

13. Click on **OK**.

14. Click on **Next**.

15. Click on **Finish**.

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.

Appendix

A

Programming the Watchdog Timer

A.1 Programming

AEC-6800 utilizes ITE 8712 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

After the hardware reset or power-on reset, the ITE 8712 enters the normal mode with all logical devices disabled except KBC. The initial state (enable bit) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.
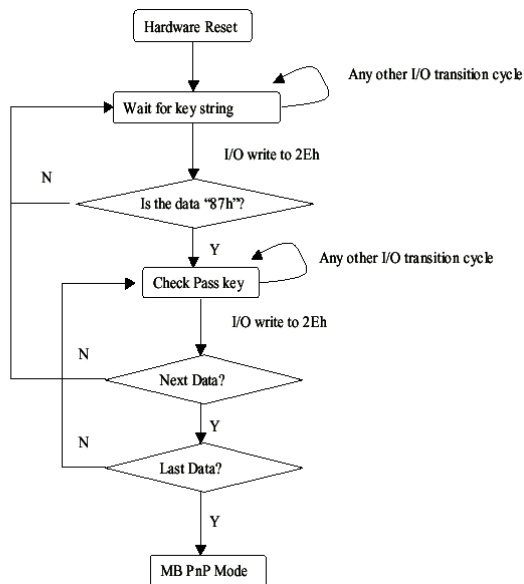
There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(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 opera-tions 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	Configure 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 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
5-4	Reserved
3-0	Select the interrupt level[Note] for WDT

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

Bit	Description
7-0	WDT Time-out value 7-0

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

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　　.

03h: IRQ3

02h: not valid

01h: IRQ1

00h: no interrupt selected