

EPIC-8526

Intel[®] Embedded Pentium[®] M
and Celeron[®] M Processors

DDR 266 SODIMM up to 1GB

Up to 24-bit Dual-Channel

LVDS TFT LCD

6 USB 2.0 / 5 COMs

Copyright Notice

This document is copyrighted, 2008. All rights are reserved. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, or for any infringements upon the rights of third parties that may result from its use.

The material in this document is for product information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, AAEON assumes no liabilities resulting from errors or omissions in this document, or from the use of the information contained herein.

AAEON reserves the right to make changes in the product design without notice to its users.

Acknowledgments

All other products' name or trademarks are properties of their respective owners.

- Award is a trademark of Award Software International, Inc.
- CompactFlash™ is a trademark of the Compact Flash Association.
- Intel®, Pentium® M and Celeron® M are trademarks of Intel® Corporation.
- Microsoft Windows® is a registered trademark of Microsoft Corp.
- ITE is a trademark of Integrated Technology Express, Inc.
- IBM, PC/AT, PS/2, and VGA are trademarks of International Business Machines Corporation.

All other product names or trademarks are properties of their respective owners.

Packing List

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

- 1 9657666600 Jumper Cap
- 1 9681945600 Cable Kit for EPIC-8526
- 1 Cooler (for EPIC-8526-A10-02)
- 1 EPIC-8526 CPU Board
- 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.....	1-2
1.2 Features	1-3
1.3 Specifications	1-4

Chapter 2 Quick Installation Guide

2.1 Safety Precautions	2-2
2.2 Location of Connectors and Jumpers	2-3
2.3 Mechanical Drawing	2-5
2.4 List of Jumpers	2-7
2.5 List of Connectors	2-8
2.6 Setting Jumpers	2-10
2.7 LVDS Operating Voltage Selection (JP1)	2-11
2.8 Clear CMOS (JP4)	2-11
2.9 COM2 Ring/ +5V/ +12V Selection (JP14).....	2-11
2.10 AT Simulates ATX (JP17)	2-11
2.11 LCD Inverter Power Selection (JP19)	2-11
2.12 COM1/2 Connectors (CN5).....	2-12
2.13 AT Power Connector (CN6)	2-12
2.14 LVDS Connector (CN9).....	2-12
2.15 Keyboard/ Mouse Connector (CN10).....	2-13
2.16 IrDA Connector (CN11).....	2-13
2.17 COM3 and COM4 Connectors (CN12, CN13)	2-14

2.18 Fan Connector (CN14)	2-14
2.19 TV-out Connector (CN15)	2-14
2.20 LCD Inverter Power Connector (CN16)	2-14
2.21 COM5/ GPS Connector (CN17)	2-15
2.22 Audio Connector (Line-in) (CN18).....	2-15
2.23 Front Panel Connector (CN19)	2-15
2.24 Power Output Connector (CN20)	2-16
2.25 USB5 & USB6 Connectors (USB1).....	2-16
2.26 Primary EIDE Connector (IDE1)	2-16
2.27 LPT Port Connector (LPT1)	2-17

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
------------------------	-----

Appendix A Programming The Watchdog Timer

A.1 Programming	A-2
A.2 IT8712 Watchdog Timer Initial Program.....	A-6

Appendix B I/O Information

B.1 I/O Address Map	B-2
B.2 1 st Memory Address Map.....	B-3
B.3 IRQ Mapping Chart.....	B-4
B.4 DMA Channel Assignments.....	B-4

Appendix C Mating Connector

C.1 List of Mating Connectors and Cables..... C-2

Chapter

1

**General
Information**

1.1 Introduction

AAEON announces a brand new EPIC Express Board-EPIC-8526, designed to fit in diverse applications that demand for fitting in different space limitations and high performance.

EPIC-8526 supports socket 478-based Intel Pentium M processor and onboard Pentium M/ Celeron M processor up to 2.0GHz with the Front Side Bus 400MHz. The system memory of EPIC-8526 is 200-pin DDR SODIMM and is up to 1GB. Moreover, the chipset of EPIC-8526 is Intel 852GM + ICH4.

For the network connection, EPIC-8526 deploys Realtek 8100C 10/100Base-TX chip and features two RJ-45 ports to display the transcendent performance or you may choose optional RTL 8110S chip features Gigabit LAN for a faster network connection. The display chipset of EPIC-8526 is Intel 852GM integrated Graphics to support CRT/LCD, and CRT/DVI simultaneous/ dual view displays.

In addition, EPIC-8526 accommodates a PC/104+ socket for further expansion and also features one EIDE, one Type II CompactFlash for storage. The rich I/O makes EPIC-8526 a great solution for flexible I/O expansion: six USB 2.0 ports, five COM ports, and optional IrDA header to be integrated to your systems.

1.2 Features

- Intel Embedded Pentium M/ Celeron M Processors Up to 2.0GHz
- SODIMM DDR 266 Max. 1GB
- Up to 24-bit Dual-channel LVDS TFT Panel
Multi-Display: CRT, TV-out, LVDS and DVI
- Dual 10/100Base-TX Ethernet (Optional Gigabit LAN)
- AC97 2.0 Codec 2 CH Audio
- PC/104+ Socket Expansion

1.3 Specifications

System

- CPU Socket 478 based Intel Pentium M Processor and onboard Pentium M/ Celeron M up to 2.0GHz with FSB 400MHz
- System Memory 200-pin DDR SODIMM x 1, max. 1GB (DDR266)
- Chipset Intel 852GM + ICH4
- I/O Chipset ITE8712F-A/IX+Fintek F81216DG
- Ethernet Realtek 8100C 10/100Mb chip, RJ-45 x 2 (Optional RTL 8110S Gigabit LAN)
- BIOS Award Plug & Play BIOS – 1 MB ROM
- Wake on LAN Yes
- Watchdog Timer Generates a time-out system reset
- H/W status monitoring Supports power supply voltages, fan speed and temperature monitoring functions
- Expansion Interface PC/104+ (PC/104 and PCI-104)
- Battery Lithium battery
- Power Requirement +12V, AT/ATX
- Power Consumption Pentium M 2.0GHz, DDR333 1GB

(Typical)	3.31A @ 12V
● Operating Temperature	32°F~140°F (0°C~60°C)
● Storage Temperature	-40°F~176°F (-40°C~80°C)
● Operating Humidity	0%~90% relative humidity, non-condensing
● MTBF (Hours)	60,000
● Board Size	4.53"(L) x 6.5" (W) (115mm x 165mm)
● Gross Weight	1.2 lb (0.5kg)

Display: Support: CRT/LCD, and CRT/DVI, simultaneous/ dual view display

● Chipset	Intel 852GM integrated Graphics
● Memory	Shared system memory up to 64MB w/ DVMT
● Resolutions	Up to 1600 x 1200 @32bpp for CRT; Up to 1600 x 1200@ 18-bit & 1280 x 1024 @ 24-bit for LCD; Up to 1600 x 1200 for DVI
● LCD Interface	Up to 24-bit dual channel LVDS TFT LCD (Emulated 24-bit dual-channel)
● TV-Out	Supports NTSC/PAL, S-terminal and Composite Video
● DVI	DVI-I

I/O

- Storage EIDE x 1 (UDMA100), Type II CompactFlash x 1
- Serial Port RS-232 x 3, COM TTL only/GPS x 1, RS-232/422/485 x 1
- Parallel Port SPP/ EPP/ ECP mode
- USB USB2.0 x 6
- PS/2 Port Keyboard + Mouse x 1
- IrDA One IrDA Tx/Rx header
- Audio Line-in, Line-out, MIC-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.



2.1 Safety Precautions

Warning!

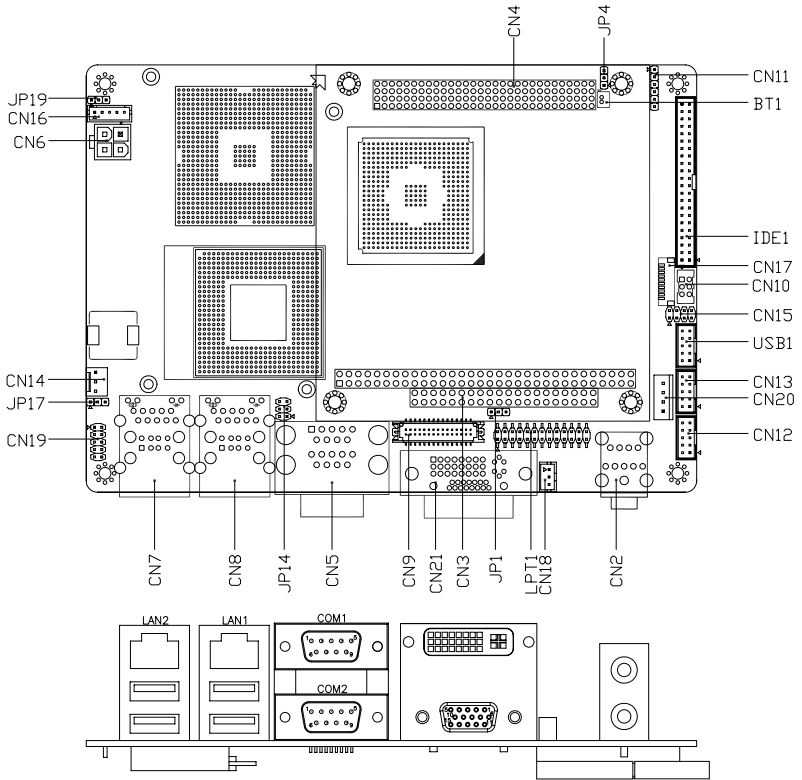
Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

Caution!

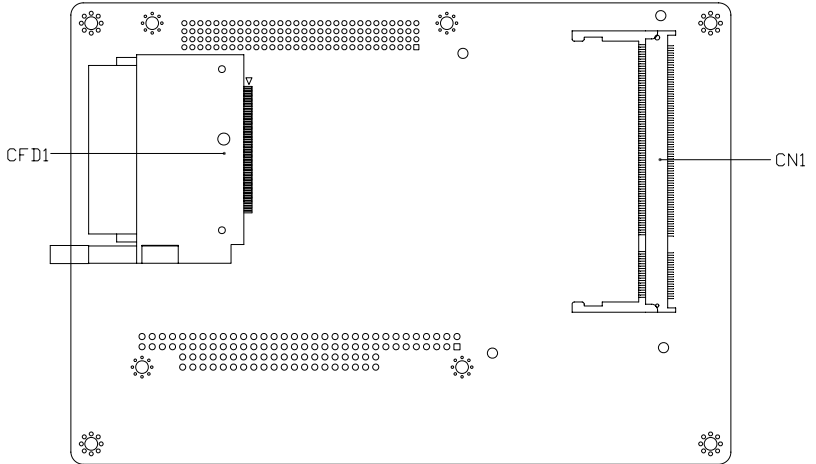
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

2.2 Location of Connectors and Jumpers

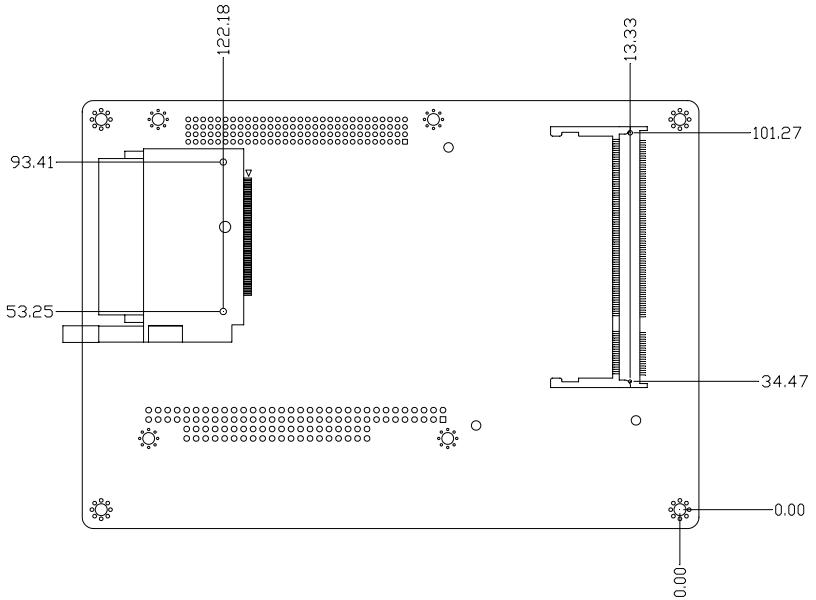
Component Side



Solder Side



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	LVDS Operating Voltage Selection
JP4	Clear CMOS
JP14	COM2 Ring/+5V/+12V Selection
JP17	AT Simulates ATX
JP19	LCD Inverter Power 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

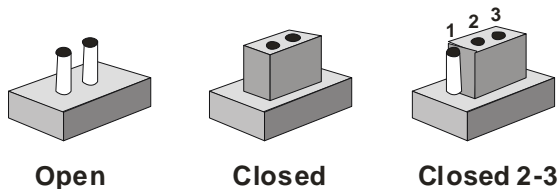
Label	Function
CN1	DDR SODIMM Connector
CN2	Audio Connector (Line-out, Microphone)
CN3	PC/104 Connector
CN4	PCI-104 Connector
CN5	COM1/2 Connectors
CN6	AT Power Connector
CN7	Ethernet and USB Connectors
CN8	Ethernet and USB Connectors
CN9	LVDS Connector
CN10	Keyboard/Mouse Connector
CN11	IrDA Connector
CN12	COM3 Connector
CN13	COM4 Connector
CN14	CPU Fan Connector
CN15	TV_out Connector
CN16	LCD Inverter power Connector
CN17	COM5/GPS connector
CN18	Audio Connector (Line-in)
CN19	Front Panel Connector

CN20	Power Output Connector
CN21	VGA + DVI-I Display Connectors
USB1	USB5 & USB6 Connectors
IDE1	Primary EIDE Connector
LPT1	LPT port Connector

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.



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 LVDS Operating Voltage Selection (JP1)

JP1	Function
1-2	+5V
2-3	+3.3V (Default)

2.8 Clear CMOS (JP4)

JP4	Function
1-2	Protected (Default)
2-3	Clear

2.9 COM2 Ring/+5V/+12V Selection (JP14)

JP14	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

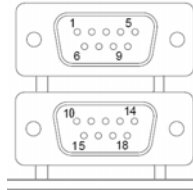
2.10 AT Simulates ATX (JP17)

JP17	Function
1-2	ATX
2-3	AT (Default)

2.11 LCD Inverter Power Selection (JP19)

JP19	Function
1-2	+12V
2-3	+5V (Default)

2.12 COM1/2 Connectors (CN5)



Pin	Name	Pin	Name
1	DCD1	2	RXD1
3	TXD1	4	DTR1
5	GND	6	DSR1
7	RTS1	8	CTS1
9	RI1	10	DCD2 (422TXD-/485DATA-)
11	RXD2 (422RXD-)	12	TXD2 (422TXD+/485DATA+)
13	DTR2 (422RXD+)	14	GND
15	DSR2	16	RTS2
17	CTS2	18	RI2/+5V/+12V

2.13 AT Power Connector (CN6)

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

2.14 LVDS Connector (CN9)

Pin	Signal	Pin	Signal
1	ENBKL	2	N.C.
3	PPVCC	4	GND
5	LVDS1_TXCLK-	6	LVDS1_TXCLK+

EPIC Board		EPIC-8526	
7	PPVCC	8	GND
9	LVDS1_TX0-	10	LVDS1_TX0+
11	LVDS1_TX1-	12	LVDS1_TX1+
13	LVDS1_TX2-	14	LVDS1_TX2+
15	LVDS1_TX3-	16	LVDS1_TX3+
17	N.C.	18	N.C.
19	LVDS2_TX0-	20	LVDS2_TX0+
21	LVDS2_TX1-	22	LVDS2_TX1+
23	LVDS2_TX2-	24	LVDS2_TX2+
25	LVDS2_TX3-	26	LVDS2_TX3+
27	PPVCC	28	GND
29	LVDS2_TXCLK-	30	LVDS2_TXCLK+

2.15 Keyboard/Mouse Connector (CN10)

Pin	Signal	Pin	Signal
1	KB_DATA	2	KB_CLK
3	GND	4	+5V
5	MS_DATA	6	MS_CLK

2.16 IrDA Connector (CN11)

Pin	Signal
1	+5V
2	N.C.
3	IRRX
4	GND
5	IRTX

2.17 COM3 and COM4 Connector (CN12, CN13)

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

2.18 Fan Connector (CN14)

Pin	Signal
1	GND
2	+12V
3	Speed Sense

2.19 TV-out Connector (CN15)

Pin	Signal	Pin	Signal
1	Y	2	CVBS
3	GND	4	GND
5	C	6	N.C.
7	GND	8	N.C.

2.20 LCD Inverter Power Connector (CN16)

Pin	Signal	Pin	Signal
1	LCD Inverter Power	2	Backlight Control
3	GND	4	GND
5	Backlight Enable	6	N.C.

2.21 COM5/ GPS Connector (CN17)

GPS Connector

Pin	Signal	Pin	Signal
1	TP	2	TP
3	GPSGND	4	GPS_LED
5	GPS_RXD	6	GPS_TXD
7	VCC3.3_BAT	8	VCC3.3
9	GPS_RST#	10	GPSGND

COM5 Connector

Pin	Signal	Pin	Signal
1	N.C.	2	N.C.
3	GND	4	N.C.
5	RXD	6	TXD
7	N.C.	8	N.C.
9	N.C.	10	GND

2.22 Audio Connector (Line-in) (CN18)

Pin	Signal
1	Line_R
2	GND
3	Line_L

2.23 Front Panel Connector (CN19)

Pin	Signal	Pin	Signal
1	Power On Button(-)	2	Power On Button(+)
3	IDE LED(-)	4	IDE LED(+)
5	External Buzzer(-)	6	External Buzzer(+)

EPIC Board**EPIC-8526**

7	Power LED(-)	8	Power LED(+)
9	Reset Switch(-)	10	Reset Switch(+)

2.24 Power Output Connector (CN20)

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

2.25 USB5 & USB6 Connectors (USB1)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD0-	4	GND
5	USBD0+	6	USBD1+
7	GND	8	USBD1-
9	GND	10	+5V

2.26 Primary EIDE Connector (IDE1)

Pin	Signal	Pin	Signal
1	IDE RESET	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	GND	20	N.C.

EPIC Board**EPIC-8526**

21	REQ	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO READY	28	GND
29	DACK	30	GND
31	IRQ15	32	N.C.
33	ADDR1	34	UDMA DETECT
35	ADDR0	36	ADDR2
37	CS#1	38	CS#3
39	LED	40	GND
41	+5V	42	+5V
43	GND	44	N.C.

2.27 LPT Port Connector (LPT1)

Pin	Signal	Pin	Signal
1	#STROBE	2	#AFD
3	DATA0	4	#ERROR
5	DATA1	6	#INIT
7	DATA2	8	#SLIN
9	DATA3	10	GND
11	DATA4	12	GND
13	DATA5	14	GND
15	DATA6	16	GND
17	DATA7	18	GND
19	#ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SELECT	26	N.C.

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	×	○	○	○	○	○
<p>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。</p> <p>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。</p> <p>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。</p>						

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-8526 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. (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**

The EPIC-8526 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 INF Driver
- Step 2 – Install VGA Driver
- Step 3 – Install LAN Driver
- Step 4 – Install Audio 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 EPIC-8526 CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 4 in order.

Step 1 – Install INF Driver

1. Click on the **Step 1 - inf Driver** folder and then double click on the **infnst_autol.exe**
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 2 – Install VGA Driver

1. Click on the **Step 2 - VGA Driver** folder and double click on the **Setup.exe**
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 3 – Install LAN Driver

1. Click on the **Step 3 - LAN Driver** folder double click on the **setup.exe**
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 4 – Install Audio Driver

1. Click on the **Step 4 –Audio Driver** folder and double click on the **WDM_A392.exe**
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Appendix

A

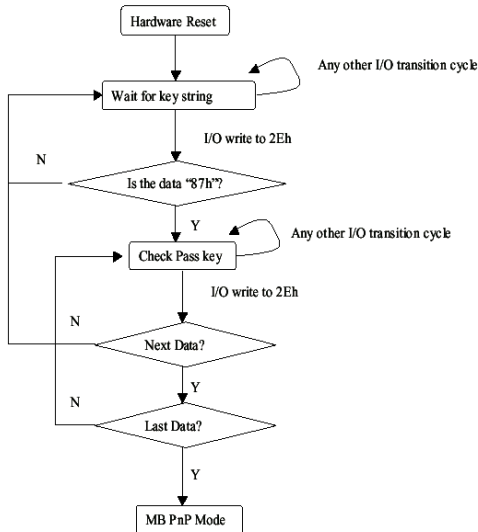
Programming the Watchdog Timer

A.1 Programming

EPIC-8526 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.

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 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	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 IT8712 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

Appendix

B

I/O Information

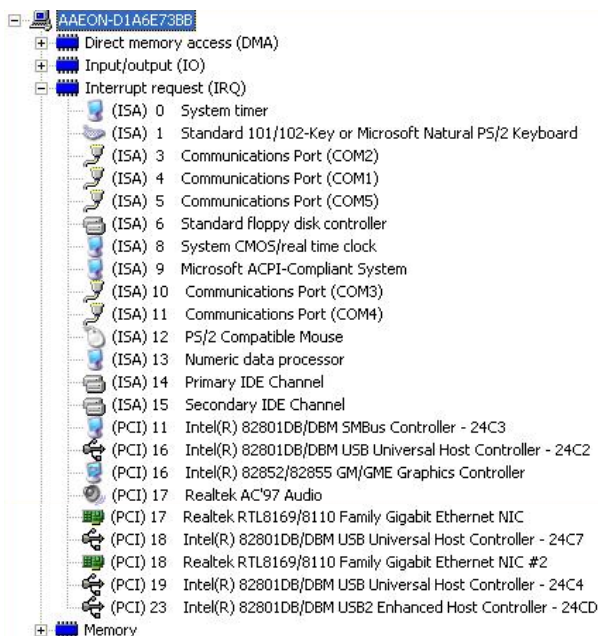
B.1 I/O Address Map

Address Range	Device Name
[00000000 - 0000000F]	Direct memory access controller
[00000000 - 00000CF7]	PCI bus
[00000010 - 0000001F]	Motherboard resources
[00000020 - 00000021]	Programmable interrupt controller
[00000022 - 0000003F]	Motherboard resources
[00000040 - 00000043]	System timer
[00000044 - 0000005F]	Motherboard resources
[00000060 - 00000060]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000061 - 00000061]	System speaker
[00000062 - 00000063]	Motherboard resources
[00000064 - 00000064]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000065 - 0000006F]	Motherboard resources
[00000070 - 00000073]	System CMOS/real time clock
[00000074 - 0000007F]	Motherboard resources
[00000080 - 00000090]	Direct memory access controller
[00000091 - 00000093]	Motherboard resources
[00000094 - 0000009F]	Direct memory access controller
[000000A0 - 000000A1]	Programmable interrupt controller
[000000A2 - 000000BF]	Motherboard resources
[000000C0 - 000000DF]	Direct memory access controller
[000000E0 - 000000EF]	Motherboard resources
[000000F0 - 000000FF]	Numeric data processor
[00000170 - 00000177]	Secondary IDE Channel
[000001F0 - 000001F7]	Primary IDE Channel
[00000274 - 00000277]	ISAPNP Read Data Port
[00000279 - 00000279]	ISAPNP Read Data Port
[00000290 - 00000297]	Motherboard resources
[00000290 - 0000029F]	Motherboard resources
[000002E8 - 000002EF]	Communications Port (COM4)
[000002F8 - 000002FF]	Communications Port (COM2)
[00000376 - 00000376]	Secondary IDE Channel
[00000378 - 0000037F]	Printer Port (LPT1)
[00000380 - 0000038B]	Intel(R) 82852/82855 GM/GME Graphics Controller
[000003C0 - 000003DF]	Intel(R) 82852/82855 GM/GME Graphics Controller
[000003E8 - 000003EF]	Communications Port (COM3)
[000003F0 - 000003F5]	Standard floppy disk controller
[000003F6 - 000003F6]	Primary IDE Channel
[000003F7 - 000003F7]	Standard floppy disk controller
[000003F8 - 000003FF]	Communications Port (COM1)
[00000400 - 000004BF]	Motherboard resources
[000004D0 - 000004D1]	Motherboard resources
[00000500 - 0000051F]	Intel(R) 82801DB/D8M SMBus Controller - 24C3
[00000800 - 0000087F]	Motherboard resources
[00000810 - 00000817]	Communications Port (COM5)
[00000880 - 0000088F]	Motherboard resources
[00000A79 - 00000A79]	ISAPNP Read Data Port
[00000D00 - 0000FFFF]	PCI bus
[0000D000 - 0000D0FF]	Realtek RTL8169/8110 Family Gigabit Ethernet NIC
[0000D400 - 0000D4FF]	Realtek RTL8169/8110 Family Gigabit Ethernet NIC #2
[0000E000 - 0000E0FF]	Realtek AC'97 Audio
[0000E800 - 0000E81F]	Intel(R) 82801DB/D8M USB Universal Host Controller - 24C7
[0000E900 - 0000E907]	Intel(R) 82852/82855 GM/GME Graphics Controller
[0000EB00 - 0000EB1F]	Intel(R) 82801DB/D8M USB Universal Host Controller - 24C2
[0000EC00 - 0000EC3F]	Realtek AC'97 Audio
[0000ED00 - 0000ED1F]	Intel(R) 82801DB/D8M USB Universal Host Controller - 24C4
[0000F000 - 0000F00F]	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB

B.2 1st MB Memory Address Map

AEON-D1A6E73BB	
+	Direct memory access (DMA)
+	Input/output (IO)
+	Interrupt request (IRQ)
-	Memory
	[00000000 - 0009FFFF] System board
	[000A0000 - 000BFFFF] Intel(R) 82852/82855 GM/GME Graphics Controller
	[000A0000 - 000BFFFF] PCI bus
	[000C0000 - 000DFFFF] PCI bus
	[000CD400 - 000CFFFF] System board
	[000E0000 - 000EFFFF] System board
	[000F0000 - 000F7FFF] System board
	[000F8000 - 000FBFFF] System board
	[000FC000 - 000FFFFF] System board
	[00100000 - 1DEDFFFF] System board
	[1DEE0000 - 1DEFFFFF] System board
	[1DF00000 - FEBFFFFF] PCI bus
	[E0000000 - E7FFFFFF] Intel(R) 82852/82855 GM/GME Graphics Controller
	[E8020000 - E80200FF] Realtek RTL8169/8110 Family Gigabit Ethernet NIC #2
	[E8021000 - E80210FF] Realtek RTL8169/8110 Family Gigabit Ethernet NIC
	[E8100000 - E817FFFF] Intel(R) 82852/82855 GM/GME Graphics Controller
	[E8180000 - E81803FF] Intel(R) 82801DB/DBM USB2 Enhanced Host Controller - 24CD
	[000F0000 - 000F7FFF] System board
	[000F8000 - 000FBFFF] System board
	[000FC000 - 000FFFFF] System board
	[00100000 - 1DEDFFFF] System board
	[1DEE0000 - 1DEFFFFF] System board
	[1DF00000 - FEBFFFFF] PCI bus
	[E0000000 - E7FFFFFF] Intel(R) 82852/82855 GM/GME Graphics Controller
	[E8020000 - E80200FF] Realtek RTL8169/8110 Family Gigabit Ethernet NIC #2
	[E8021000 - E80210FF] Realtek RTL8169/8110 Family Gigabit Ethernet NIC
	[E8100000 - E817FFFF] Intel(R) 82852/82855 GM/GME Graphics Controller
	[E8180000 - E81803FF] Intel(R) 82801DB/DBM USB2 Enhanced Host Controller - 24CD
	[E8181000 - E81811FF] Realtek AC'97 Audio
	[E8182000 - E81820FF] Realtek AC'97 Audio
	[F0000000 - F7FFFFFF] Intel(R) 82852/82855 GM/GME Graphics Controller
	[FEB00000 - FEB7FFFF] Intel(R) 82852/82855 GM/GME Graphics Controller
	[FEBFFC00 - FEBFFFFF] Intel(R) 82801DB Ultra ATA Storage Controller - 24CB
	[FEC00000 - FECFFFFFFF] System board
	[FEE00000 - FEEFFFFFFF] System board
	[FFB00000 - FFB7FFFF] System board
	[FFB80000 - FFBFFFFFFF] Intel(R) 82802 Firmware Hub Device
	[FFF00000 - FFFFFFFF] System board

B.3 IRQ Mapping Chart



B.4 DMA Channel Assignments



Appendix

C

Mating Connector

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		
CN6	AT Power Connector	LIAN TAY	(LIAN TAY H756-04 or compatible)	Power cable	1702040151
CN9	LVDS Connector	Hirose	1.25mm Pitch 30 pins (CATCH H716 or compatible)	LVDS cable	N/A
CN10	PS2 Keyboard/ Mouse Connector	CATCH	(CATCH MD-6PS or compatible)	Keyboard / Mouse Cable	1700060152
CN11	IrDA Connector	CATCH	2.00mm Pitch 5 pins (CATCH H754-1x5 or compatible)	IrDA cable	N/A
CN12	COM3 Connector	CATCH	2.00mm Pitch 10 pins (CATCH H754-2x5 or compatible)	Serial Port Cable	1701100206
CN13	COM4 Connector	CATCH	2.00mm Pitch 10 pins (CATCH H754-2x5 or compatible)	Serial Port Cable	1701100206
CN14	CPU Fan Connector	Ho-base	(Ho-base 2543-WS-3 or compatible)	CPU fan cable	N/A
CN15	TV_out Connector	CATCH	2.00mm Pitch 8 pins (CATCH H754-2x4 or compatible)	TV-Out Cable	1700080180
CN16	LCD Inverter Connector	CATCH	2.0mm pitch 5 pin (CATCH HS-5P-2.0 or	LCD Inverter cable	N/A

			compatible)		
CN17	COM5/GPS connector	CATCH	1.0mm pitch 10 pin (CATCH HS-10P-1.0 or compatible)	COM5/GPS cable	N/A
CN18	Audio Connector (Line-in)	CATCH	2.0mm pitch 3 pin (CATCH HS-3P-2.0 or compatible)	Line-in cable	1703030102
CN19	Front Panel Connector	CATCH	2.00mm Pitch 10 pins (CATCH H754-2x5 or compatible)	Front panel cable	N/A
CN20	Power Output Connector	Ho-base	(Ho-base 2543-H-4 or compatible)	Power output cable	1702040109
USB1	USB5 & USB6 Connector	CATCH	2.00mm Pitch 10 pins (CATCH H754-2x5 or compatible)	USB Cable	1709100208
IDE1	Primary EIDE Connector	CATCH	2.00mm Pitch 44 pins (CATCH H820-2 or compatible)	EIDE Cable	1701440500
LPT1	LPT port Connector	CATCH	2.00mm Pitch 26 pins (CATCH H754-2x13 or compatible)	LPT cable	1701260308