

**IMBM-935**

Intel® Core 2 Duo/ Wolfdale Processor

2 DDR2 667/800

2 10/100/1000Base-TX Ethernet

1 PCI-E[x16]/ 1 PCI-E[x4]/ 2 PCI Slots

8 USB 2.0 / 4 COM

## Copyright Notice

This document is copyrighted, 2013. 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.
- Intel<sup>®</sup>, Core 2 Duo are trademarks of Intel<sup>®</sup> Corporation.
- Microsoft Windows<sup>®</sup> is a registered trademark of Microsoft Corp.
- 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 Floppy Cable
- 1 ATA-100 Cable
- 1 Serial Port Cable with one DB-9 connector
- 1 Serial Port Cable with two DB-9 connectors
- 2 USB Cable w/ Bracket
- 4 SATA Cables
- 1 CPU Cooler Fan for LGA 775 Pentium® 4 3.6G
- 1 IMBM-935 Industrial Motherboard
- 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 .....	2-4
2.4 List of Jumpers .....	2-5
2.5 List of Connectors .....	2-5
2.6 Setting Jumpers .....	2-7
2.7 CD-in (JP1).....	2-8
2.8 Line-in (JP2).....	2-8
2.9 MFG Selection (JP3).....	2-8
2.10 Intruder (JP4) .....	2-8
2.11 BIOS Boot Device (JP5).....	2-8
2.12 Clear CMOS (JP6) .....	2-9
2.13 Front Panel Connector (FP1) .....	2-9
2.14 Front Panel Connector (FP2) .....	2-9
2.15 RS-232/422/485 Serial Port Connector (COM2).....	2-9
2.16 RS-232 Serial Port Connector (COM3~4).....	2-10
2.17 IrDA Connector (IR1).....	2-10

2.18 USB Connector (USB1~2) .....	2-10
-----------------------------------	------

## **Chapter 3 CPU, Heatsink and Fan Installation**

3.1 CPU Installation and motherboard handling. ....	3-2
---	-----

## **Chapter 4 Award BIOS Setup**

4.1 System Test and Initialization. ....	4-2
4.2 Award BIOS Setup .....	4-3

## **Chapter 5 Driver Installation**

5.1 Installation .....	5-3
------------------------	-----

## **Appendix A Programming The Watchdog Timer**

A.1 Programming .....	A-2
A.2 W83627EHG Watchdog Timer Initial Program .....	A-6

## **Appendix B I/O Information**

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

## **Appendix C Mating Connector**

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

Chapter

1

**General  
Information**

## 1.1 Introduction

---

The IMBM-935 is AAEON's Industrial Motherboard which adopts Intel® Core 2 Duo/ Wolfdale Processor up to 2.13GHz, and supports Front Side Bus 800/1066/1333MHz. The high-speed system chipset is one of Intel® leader accounts. The IMBM-935 is designed for Industrial Motherboard with  $\mu$  ATX form factor.

IMBM-935 supports CRT simultaneous display and adopts a Intel enhanced integrated graphics that makes the IMBM-935 with a great performance on VGA display. Moreover, the shared memory is up to 256M and the resolutions is up to 1280x 1024 x 32bpp at 60MHz for CRT.

IMBM-935 promises you off-the-shelf expansion possibilities with versatile expansion interfaces- PCI and PCI-Express connectors to extend your onboard features.

The IMBM-935 is designed to focus on the Industrial Motherboard market with long-term support services. The IMBM-935 no doubt is your best choice.



## 1.2 Features

---

- Intel® Core 2 Duo / Wolfdale LGA775 CPU up to 2.13GHz, FSB 800/1066/1333 MHz
- DDRII 800/667 Memory Support up to 4GB
- Integrated Intel® Enhanced Graphics Core, VGA Support
- 10/100/1000Base-TX Ethernet x 2
- PCI-E [x16] x 1/ PCI-E [x4] x 1/ PCI Slot x 2
- USB 2.0 x 8/ RS-232/422/485 x 1/ RS-232 x 3/ Parallel x 1/ IrDA Port x 1/ SATA-II Port x 5
- Watchdog Function 1~255 Sec.
- Intel® AMT with Circuit Breaker (Optional)

### 1.3 Specifications

---

#### System

- CPU Intel® Core 2 Duo/ Wolfdale  
LGA775 CPU up to 2.13GHz,  
FSB800/1066/1333MHz
- System Memory 2 x 240-pin 1.8V DDR II DIMM  
Socket, support Dual Channel DDRII  
memory up to 4GB (DDRII 667/800)
- Chipset Intel® Q35 + ICH9R (ICH9DO optional)
- Ethernet PCI-Express x 1 10/100/1000Mb LAN  
optional, RJ-45 x 2  
LAN1: Dual Footprint support option  
Intel® 82566 Nineveh 10/100/1000Mb  
Intel® 82562 Ekron-N 10/100Mb  
LAN2: Intel® PCI-E controller 82573
- BIOS Award Plug & Play SPI Flash BIOS –  
16Mb ROM
- IDE Interface SATA II (RAID optional) x 5, IDE slot  
with JMicon JM20330 x 1

**Note:** Supports one IDE device only (Master)

- PCI Interface 32-bit/33MHz PCI x 2, PCI-Express{ x4 }  
x 1, PCI-Express { x16 } x 1
- Watchdog Timer 1~255 steps, can be set with software  
on super I/O

- Expansion Interface PCI,PCI-Express
- RTC Internal RTC
- Battery Lithium battery
- Power Requirement ATX 12V
- Operating Temp. 0°C~60°C (32°F~140°F)
- Board Size 9.6"(L) x9.6" (W) (244mm x 244mm)
- Gross Weight 0.71lb (0.32kg)

#### **Display: Supports CRT simultaneous display**

- VGA Controller Enhanced Integrated Graphics
- Memory Shared memory up to 256M
- Resolutions Up to 1280 x 1024 x 32bpp @60MHz for CRT

#### **I/O: ITE8712**

- Serial Port COM port x 4 (Internal pin header x 3, external D-sub x 1)  
COM1,3,4: RS-232  
COM2: RS-232/422/485
- Parallel Port Supports SPP/EPP/ECP mode
- USB USB 2.0 port onboard x 8  
5x2 pin header for internal x 2, Type-A connector onboard x 4
- IrDA Supports one IrDA header
- Floppy Drive Interface Standard FDD port x 1, supports

- Keyboard and Mouse up to one floppy device  
Mini-DIN PS/2 K/B and mouse connector x1; internal keyboard pin header x 1
- Audio Realtek ALC 662, Audio Codec, MIC-in/ Line-in/ Line-out/ CD-in

## Chapter

# 2

## Quick Installation Guide

**Notice:**

*The Quick Installation Guide is derived from Chapter 2 of the 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

---

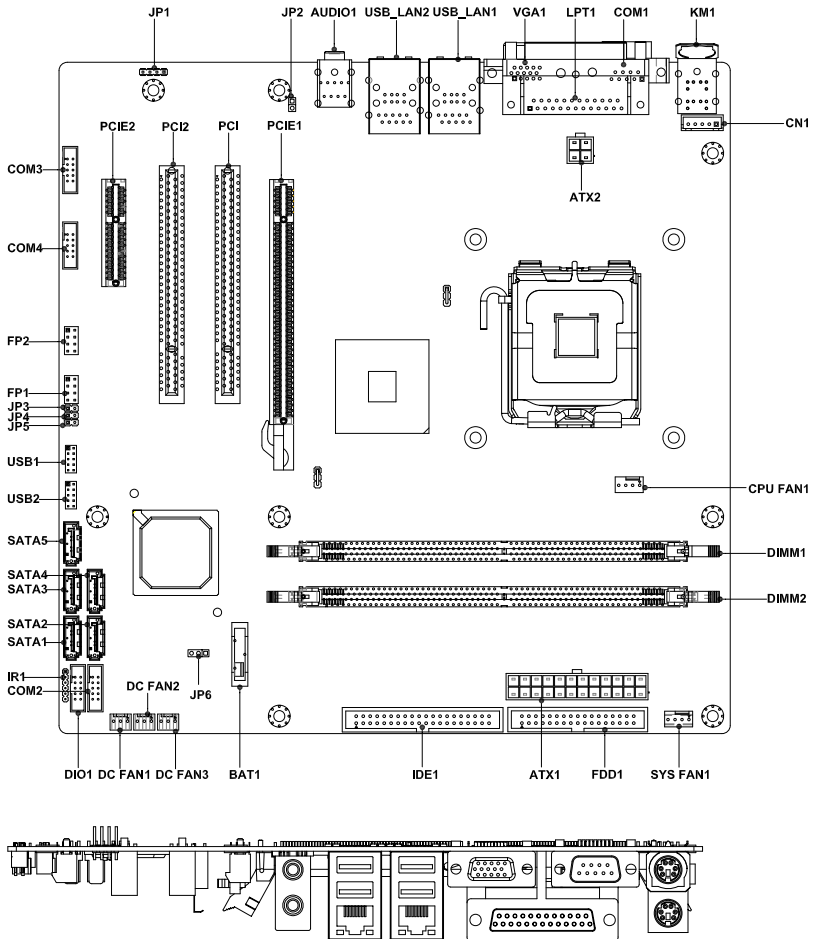
**Warning!**

*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.*

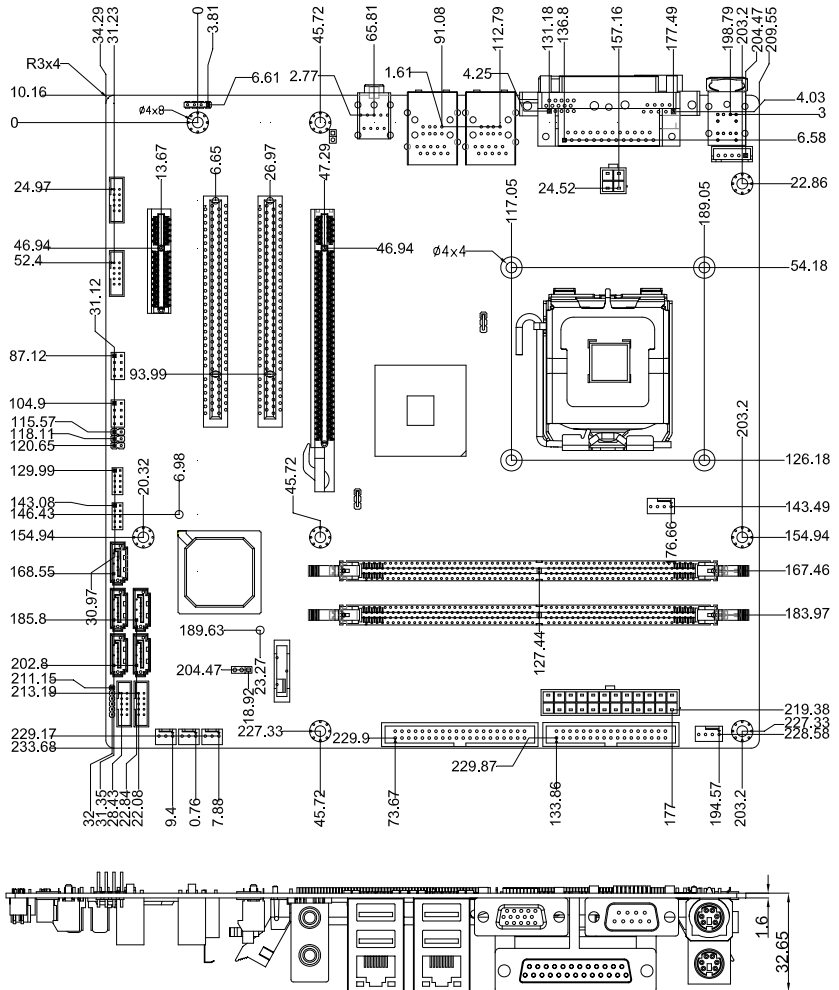
**Caution!**

*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



### 2.3 Mechanical Drawing





## 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:

<b>Label</b>	<b>Function</b>
JP3	MFG
JP5	BIOS Boot Device
JP6	Clear CMOS

## 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:

<b>Label</b>	<b>Function</b>
FP1	Front Panel Connector 1
FP2	Front Panel Connector 2
ATX1	24-pin ATX Power
ATX2	4 pin ATX Power +12V Connector
AUDIO1	Audio Connector
VGA1	VGA Display Connector
FDD1	Floppy Connector
IDE1	EIDE Connector
PCIE_1	PCI-Express [ x16 ] Slot
PCIE_2	PCI-Express [ x4 ] Slot

---

PCI1~2	PCI 5V Slot
SATA1~5	Serial ATA Connector
COM1	RS-232 Serial Port Connector
COM2	RS-232/422/485 Serial Port Connector
COM3~4	RS-232 Serial Port Connector
IR1	IrDA Connector
LPT1	LPT Port Connector
USB1~2	USB Connector
USB_LAN1	10/100 Base-TX Ethernet Connector & USB Connector or 10/100/1000 Base-TX Ethernet Connector & USB Connector
USB_LAN2	10/100/1000 Base-TX Ethernet Connector & USB Connector or USB Connector
DIMM1~2	DDR2 DIMM Slot
SYSFAN1	4-pin Fan Connector
CPUFAN1	4-pin Fan Connector
DC_FAN1~3	3-pin Fan connector
KM1	PS/2 Keyboard/Mouse Connector
DIO1	Digital Input Output
CN1	Internal Keyboard Connector
JP1	CD-IN
JP2	LINE-IN
JP4	Intruder

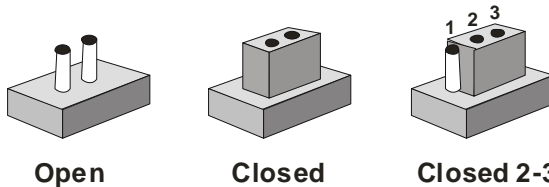
---

## 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 CD-in (JP1)

---

JP1	Function
1	CD-R
2	CD-GND
3	CD-GND
4	CD-L

## 2.8 Line-in (JP2)

---

JP2	Function
1	LINEIN-R
2	LINEIN-L

## 2.9 MFG Selection (JP3)

---

JP3	Function
Open	Normal (Default)
Close	Un-update BIOS/MAC

## 2.10 Intruder (JP4)

---

JP4	Signal
1	INTRUDER#
2	GND

## 2.11 BIOS Boot Device (JP5)

---

MFG(1-2)	Function
Open	FWH

---

Close                      Normal (SPI) (Default)

---

## 2.12 Clear CMOS (JP6)

---

JP6	Function
1-2	Clear CMOS
2-3	Normal (Default)

---

## 2.13 Front Panel Connector (FP1)

---

Pin	Signal	Pin	Signal
1	Power On Button (+)	2	Reset Switch (+)
3	Power On Button (-)	4	Reset Switch (-)
5	IDE LED (+)	6	Power LED (+)
7	IDE LED (-)	8	Power LED (-)

---

## 2.14 Front Panel Connector (FP2)

---

Pin	Signal	Pin	Signal
1	External Speaker (+)	2	Keyboard Lock (+)
3	N.C	4	GND
5	Internal Buzzer (-)	6	I2C Bus SMB Clock
7	External Speaker (-)	8	I2C Bus SMB Data

---

**Note:** Internal Buzzer enable: Close Pin 5,7

## 2.15 RS-232/422/485 Serial Port Connector (COM2)

---

Pin	Signal	Pin	Signal
1	DCD(422TXD-/485DATA-)	2	RXD (422RXD+)
3	TXD(422TXD+/485DATA+)	4	DTR (422RXD-)
5	GND	6	DSR
7	RTS	8	CTS

---

---

9	RI	10	N.C
---	----	----	-----

---

### 2.16 RS-232 Serial Port Connector (COM3~4)

---

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

---

### 2.17 IrDA Connector (IR1)

---

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

---

### 2.18 USB Connector (USB1~2)

---

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD1-	4	GND
5	USBD1+	6	USBD2+
7	GND	8	USBD2-
9	GND	10	+5V

---

## 2.19 Digital Input Output (DIO1) (Address: 801h)

---

Pin	Signal	Pin	Signal
1	GPIO 0	2	GPIO 1
3	GPIO 2	4	GPIO 3
5	GPIO 4	6	GPIO 5
7	GPIO 6	8	GPIO 7
9	+5V	10	GND

---

## 2.20 Internal Keyboard Connector (CN1)

---

Pin	Signal
1	KB_CLK
2	KB_DATA
3	N.C
4	GND
5	+5V

---

## Below Table for China RoHS Requirements

产品中有毒有害物质或元素名称及含量

## AAEON Main Board/ Daughter Board/ Backplane

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

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

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

备注：此产品所标示之环保使用期限，系指在一般正常使用状况下。



Chapter

3

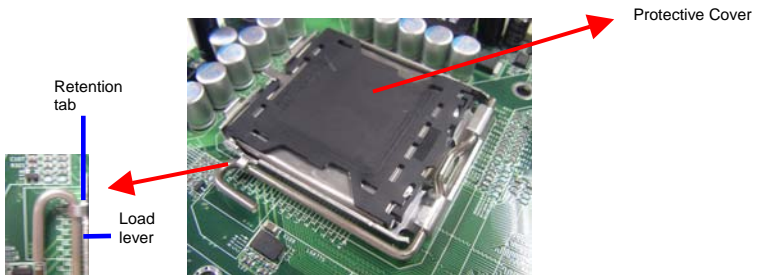
# CPU, Heatsink and Fan Installation

### 3.1 CPU installation and motherboard handling

---

**Note:** When integrating a Pentium 4 processor-based system, be sure to take the proper electrostatic discharge (ESD) precautions.

**Caution:** Please follow the steps below to ensure proper installation of your processor. Failure to follow these instructions may result in damage to your CPU and/or your motherboard.



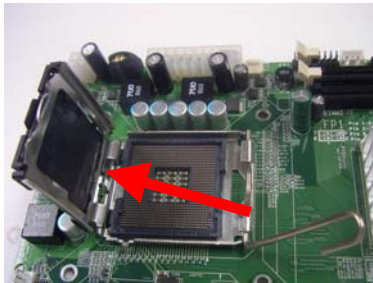
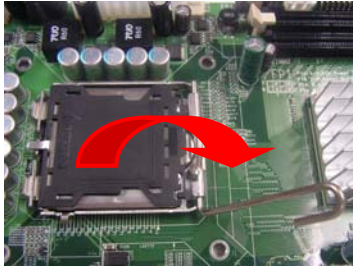
#### Step 1: (Socket Preparation)

**Note:** Visually inspect to ensure that the socket protective cover is present and securely fastened.

##### 1. Opening the Socket:

**Note:** Hold corner of the load plate while opening and closing the load lever. This will prevent the bounce back of the load plate which can cause bent contacts.

- a. Disengage the Load Lever by pressing down and out on the hook allowing the lever to clear the Retention Tab and rotate to the fully open position.



- b. Rotate Load Plate to fully open position.
- c. Remove the Protective Cover

**Caution:** Do not touch the Socket Contacts. This may result in damage to the contacts.

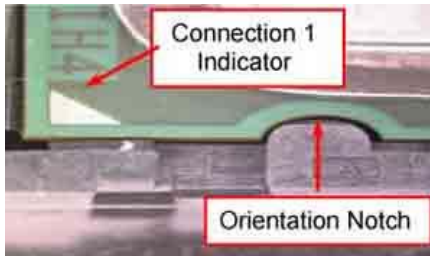
**Note:** Visually inspect the contact area for bent contacts and foreign material.

**Step 2: (Processor Handling)**

**Note:** Handle Processor by substrate edges only.

**Caution:** Do not touch processor contacts at any time

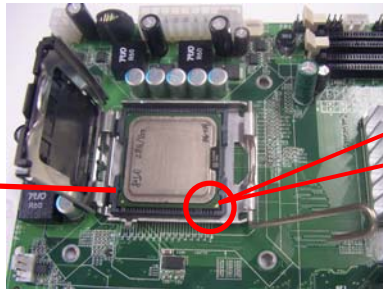
- a. Remove processor from shipping media by grasping substrate edges only
- b. Visually inspect the processor gold pad array for presence of foreign material. If foreign material is present the pads may be wiped clean with a lint-free cloth and isopropyl alcohol.
- c. Locate the connector 1 indicator and the two orientation notches. (See photo)



**Step 3:** (Positioning the CPU into socket)

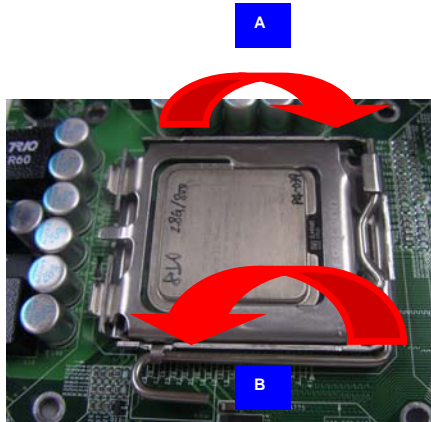
- a. Grasp the processor with your thumb and forefinger on the edges with the orientation notches. The socket has cut-outs for your fingers when handled in this orientation.
- b. Carefully place the CPU into the socket with a purely vertical motion.
- c. Verify that the CPU is in the socket body and properly mated to the orientation keys.

The **Alignment Key** is for you to check if the CPU is aligned with the CPU notch properly.



**Yellow Triangle Mark**

- d. Close the upper plate (A), place the load lever back to the original position and tightly wedge the lever into the fastening tab. (B)



**Step 4:** (Heatsink/ Fan Installation).

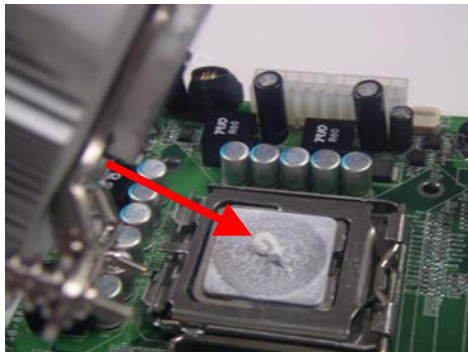
- a. Place bottom bracket underneath the socket making sure that threaded socket is aligned with the holes in the motherboard.



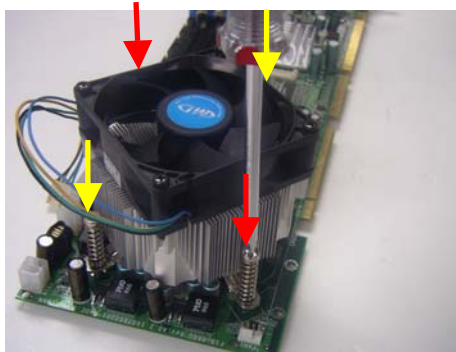
- b. Viewing the board again from the topside make sure the bracket on the solder side has not shifted from its position. Daub thermal compound on the CPU.



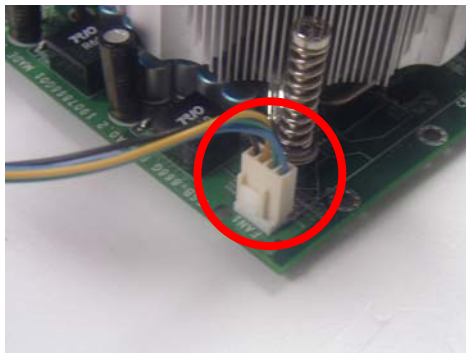
- c. Place the Heatsink on the top of CPU. Please make sure that the four screws are aligned with the holes on the board.



- d. Fasten the four screws. First fasten the two screws (yellow) and then fasten the two screws (red) in sequence to secure the heatsink in place.



- e. Connect the CPU fan cable to the power connector labeled FAN1 on the board.





Chapter

4

**Award  
BIOS Setup**

## 4.1 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 IBM-935 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.

## 4.2 Award BIOS Setup

---

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

### **Entering Setup**

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

### **Standard CMOS Features**

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

### **Advanced BIOS Features**

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

### **Advanced Chipset Features**

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

### **Integrated Peripherals**

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

### **Power Management Setup**

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

## **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

5

# Driver Installation

The IMBM-935 comes with an AutoRun CD-ROM that contains all drivers and utilities that can help you to install the driver automatically.

Insert the driver CD, the driver CD-title will auto start and show the installation guide. If not, please follow the sequence below to install the drivers.

***Follow the sequence below to install the drivers:***

- Step 1 – Install Chipset Driver
- Step 2 – Install VGA Driver
- Step 3 – Install LAN Driver
- Step 4 – Install Audio Driver
- Step 5 – Install RAID 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/](http://www.microsoft.com/hwdev/usb/)

Please read instructions below for further detailed installations.

## 5.1 Installation

---

Insert the IBM-935 CD-ROM into the CD-ROM drive. And install the drivers from Step 1 to Step 5 in order.

### Step 1 – Install Chipset Driver

1. Click on the **Step 1 - Chipset** folder and double click on the ***infinst\_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** folder and choose the OS folder your system is
2. Double click on the **Setup.exe** located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

### Step 3 –Install LAN Driver

1. Click on the **Step 3 - LAN** folder and choose the OS folder your system is
2. Double click on the **.exe** located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

#### Step 4 – Install Audio Driver

1. Click on the **Step 4 - Audio** folder and choose the OS folder your system is
2. Double click on the **Setup.exe** located in each OS folder
3. Follow the instructions that the windows shows
4. The system will help you install the driver automatically

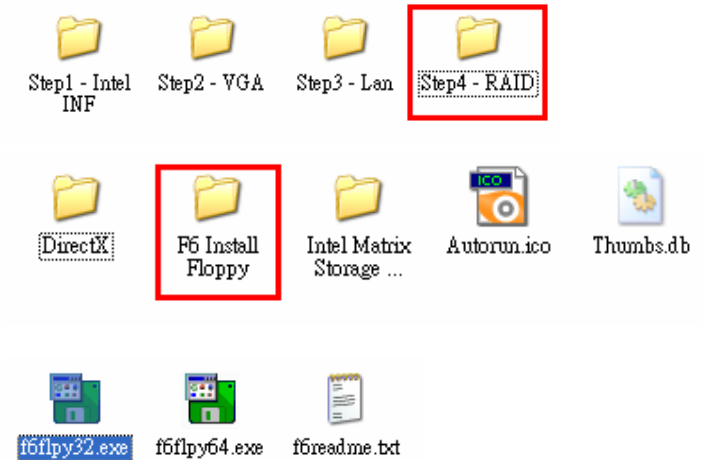
#### Step 5 – Install RAID Driver

1. Use Utility CD to create Raid controller driver disk.

Path: Driver\Step4 - RAID\F6 Install Floppy

f6flpy32.exe→for 32bit OS

f6flpy64.exe→for 64bit OS



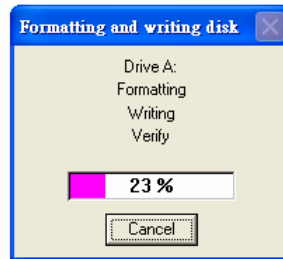
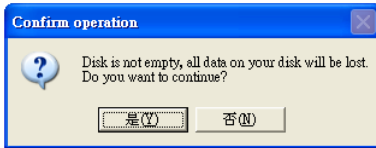
Here we use WinXP Pro 32bit as an example, using f6flpy32.exe to create driver disk.



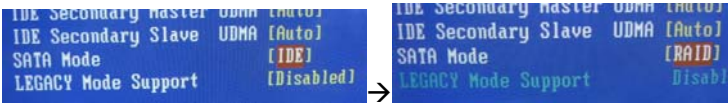
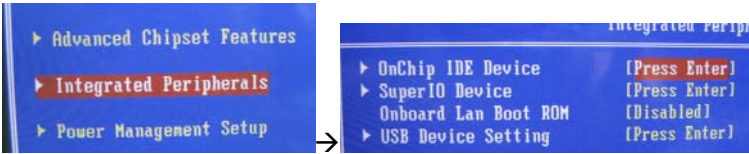
Run f6flpy32.exe, it will pop up a dialog box



If the disk is not empty, it will have an error message, just click yes.



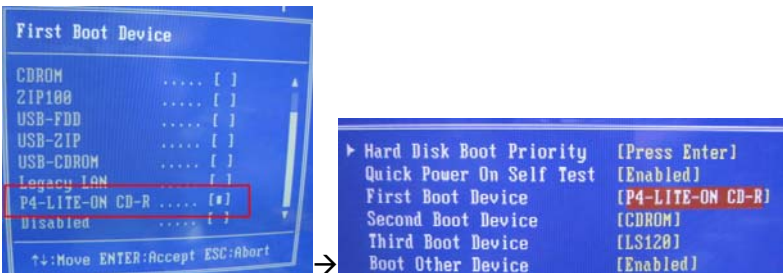
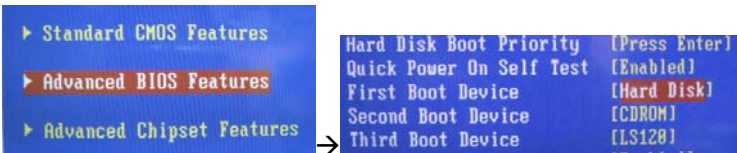
2. Connect SATA HDD to IMBM-935, if want to create Raid volume, you have to connect 2 SATA HDD at least.
3. Connect Floppy drive to IMBM-935, if no regular floppy drive, using USB Floppy disk drive instead.
4. Boot up IMBM-935, press "del" key to enter BIOS setup  
Enter Integrated Peripherals→OnChip IDE Device→SATA Mode  
Change SATA mode from IDE to RAID.



Save and exit BIOS setup to let change take effect.

Board will reboot.

- 5. Press “del” key to enter BIOS setup, enter Advanced BIOS Features to change boot priority, set optical drive to First boot Device then save and exit BIOS setup



Above is using IDE CDROM, cause ICH9 don't support IDE interface, FSB-960G using JMICROM chip as a SATA to IDE bridge, this is why when SATA mode set to

Raid, you must choose P4-XXXX. If using USB CDROM you just need choose USB-CDROM.

- When CPU Board boot up and screen shown following message, press "CTRL+I" to enter Raid configuration utility.

Follow the on screen message to create Raid Volume

```
Intel(R) Matrix Storage Manager option ROM v7.6.0.1011 ICH9 RAID5
Copyright(C) 2003-07 Intel Corporation. All Rights Reserved.

RAID Volumes:
None defined.

Physical Disks:
Port Drive Model      Serial #      Size  Type/Status(Vol ID)
0   ST3160811AS        6PTZB6SS    149.1GB Non-RAID Disk
1   ST3160811AS        6PTZC2BE    149.1GB Non-RAID Disk
2   ST308015AS         6RAB251B    74.5GB  Non-RAID Disk

Press CTRL+I to enter Configuration Utility.
```

```
Intel(R) Matrix Storage Manager option ROM v7.6.0.1011 ICH9 RAID5
Copyright(C) 2003-07 Intel Corporation. All Rights Reserved.

1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit

RAID Volumes:
None defined.

Physical Disks:
Port Drive Model      Serial #      Size  Type/Status(Vol ID)
0   ST3160811AS        6PTZB6SS    149.1GB Non-RAID Disk
1   ST3160811AS        6PTZC2BE    149.1GB Non-RAID Disk
2   ST308015AS         6RAB251B    74.5GB  Non-RAID Disk
```

```
(C) 2003-07 Intel Corporation. All Rights Reserved.
[ CREATE VOLUME MENU ]

Name: Volume0
RAID Level: RAID5(Parity)
Disks: Select Disks
Strip Size: 64KB
Capacity: 149.1 GB

Create Volume
```

```
Disks: Select Disks
Strip Size: 64KB
Capacity: 149.1 GB

WARNING: ALL DATA ON SELECTED DISKS WILL BE LOST.
Are you sure you want to create this volume? (Y/N):
```

```
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID

RAID Volumes:
Name Level Strip Size Status Health
Volume0 RAID5(Parity) 64KB 149.1GB Normal OK

Physical Disks:
Port Drive Model      Serial #      Size  Type/Status(Vol ID)
0   ST3160811AS        6PTZB6SS    149.1GB Member Disk(0)
1   ST3160811AS        6PTZC2BE    149.1GB Member Disk(0)
2   ST308015AS         6RAB251B    74.5GB  Member Disk(0)
```

```
[ DISK-VOLUME INFORMATION ]

Volumes:
[ CONFIRM EXIT ]

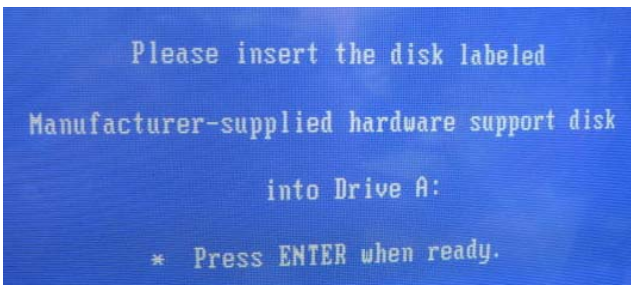
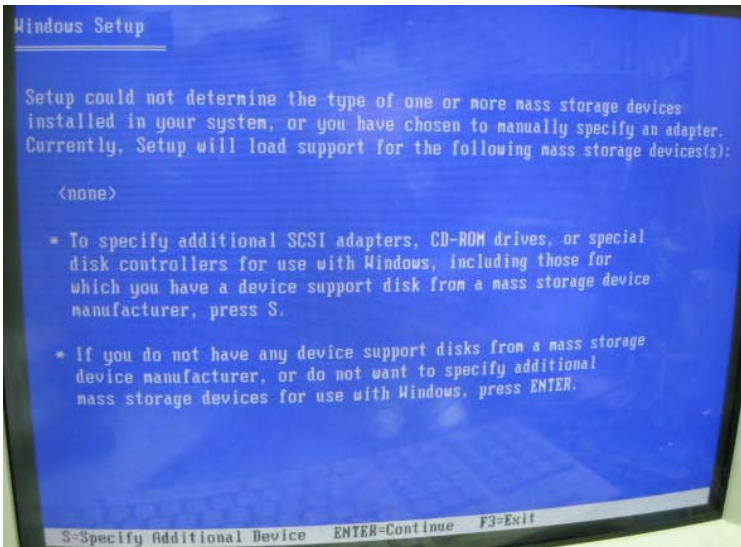
Are you sure you want to exit? (Y/N):

0   ST3160811AS        6PTZB6SS    149.1GB Member Disk(0)
1   ST3160811AS        6PTZC2BE    149.1GB Member Disk(0)
2   ST308015AS         6RAB251B    74.5GB  Member Disk(0)
```

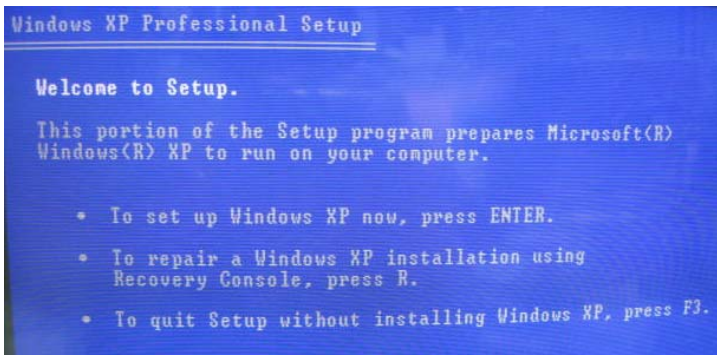
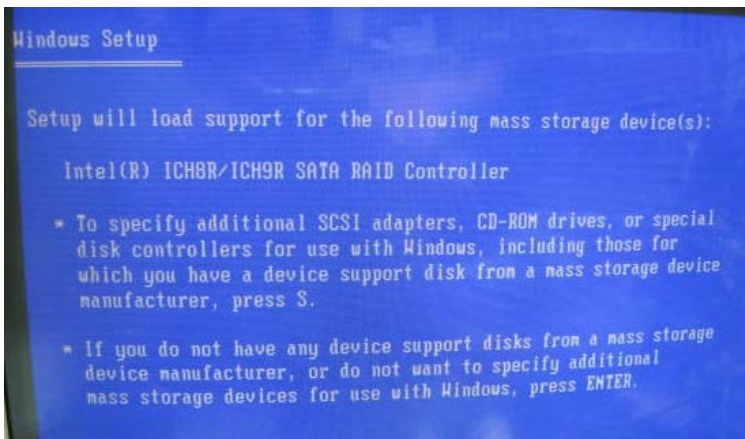
7. Begin install XP Pro, when screen show “ press F6 to install....“ just press “F6” to load thirty party Raid driver.

Press F6 if you need to install a third party

Follow the on screen message and insert the driver disk  
(created at step 1) into floppy disk drive



Choose Intel ICH9R SATA RAID Controller



Now follow on screen message and begin to install.

Appendix

**A**

# **Programming the Watchdog Timer**

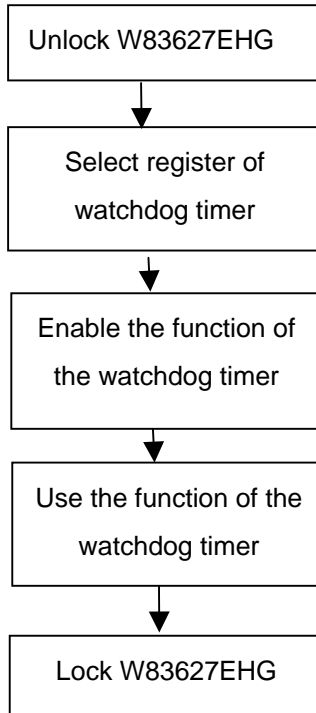
## A.1 Programming

---

IMBM-935 utilizes W83627EHG 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



There are three steps to complete the configuration setup:

- (1) Enter the W83627EHG config Mode
- (2) Modify the data of configuration registers

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

### (1) Enter the W83627EHG config Mode

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

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

### (2) Modify the Data of the Registers

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

### (3) Exit the W83627EHG config Mode

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

	Address Port	Data Port
0aah:	2Eh	2Fh

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

**CRF5 (PLED mode register. Default 0 x 00)**

**Bit 7-6** : select PLED mode

= 00 Power LED pin is tri-stated.

= 01 Power LED pin is driven low.



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

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

**Bit 5-4** : Reserved

**Bit 3** : select WDTO count mode.

= 0 second

= 1 minute

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

= 0 Disable

= 1 Enable

**Bit 1-0** : Reserved

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

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

= 0 x 01 Time-out occurs after 1  
second/minute

= 0 x 02 Time-out occurs after 2  
second/minutes

= 0 x 03 Time-out occurs after 3  
second/minutes

.....

= 0 x FF Time-out occurs after 255  
second/minutes

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

- Bit 7** : Mouse interrupt reset Enable or Disable
- = 1 Watchdog Timer is reset upon a Mouse interrupt
  - = 0 Watchdog Timer is not affected by Mouse interrupt
- Bit 6** : Keyboard interrupt reset Enable or Disable
- = 1 Watchdog Timer is reset upon a Keyboard interrupt
  - = 0 Watchdog Timer is not affected by Keyboard interrupt
- Bit 5** : Force Watchdog Timer Time-out. Write Only
- = 1 Force Watchdog Timer time-out event: this bit is self-clearing
- Bit 4** : Watchdog Timer Status. R/W
- = 1 Watchdog Timer time-out occurred
  - = 0 Watchdog Timer counting
- Bit 3-0** : These bits select IRQ resource for Watchdog. Setting of 2 selects SMI.

## A.2 W83627EHG Watchdog Timer Initial Program

---

Example: Setting 10 sec. as Watchdog timeout interval

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

```
Mov dx,2eh           ;Enter W83627EHG config mode
```

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

```
Out dx,al
```

```
Out dx,al
```

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

```
Mov al,07h
```

```
Out dx,al
```

```
Inc dx
```

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

```
Out dx,al
```

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

```
Dec dx
```

```
Mov al,30h          ;CR30 (GP20~GP27)
```

```
Out dx,al
```

```
Inc dx
```

```
Mov al,01h          ;Activate GPIO2
```

```
Out dx,al
```

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

```
Dec dx
```

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

```
Out dx,al
```

```
Inc dx
```

```
In al,dx
```

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

```
Out dx,al
```

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

```
Dec dx
```

```
Mov al,0f6h ; CRF6
```

```
Out dx,al
```

```
Inc dx
```

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

```
Out dx,al
```

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

```
Dec dx ;Exit W83627EHG config mode
```

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

```
Out dx,al
```

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

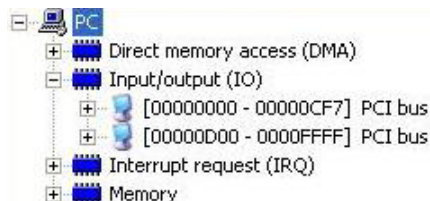
Appendix

**B**

# I/O Information

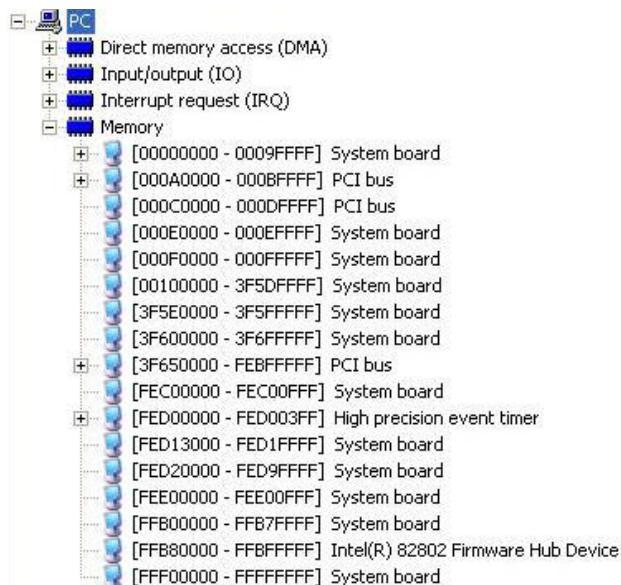
## B.1 I/O Address Map

---
































## B.2 1<sup>st</sup> MB Memory Address Map


---



### B.3 IRQ Mapping Chart

+		Direct memory access (DMA)
+		Input/output (IO)
-		Interrupt request (IRQ)
		(ISA) 0 High precision event timer
		(ISA) 1 Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
		(ISA) 3 Communications Port (COM2)
		(ISA) 4 Communications Port (COM1)
		(ISA) 5 Communications Port (COM3)
		(ISA) 6 Standard Floppy disk controller
		(ISA) 7 Communications Port (COM4)
		(ISA) 8 High precision event timer
		(ISA) 9 Microsoft ACPI-Compliant System
		(ISA) 12 PS/2 Compatible Mouse
		(ISA) 13 Numeric data processor
		(PCI) 11 Intel(R) ICH9 Family SMBus Controller - 2930
		(PCI) 16 Intel(R) ICH9 Family USB Universal Host Controller - 2937
		(PCI) 16 Intel(R) Q35 Express Chipset Family
		(PCI) 18 Intel(R) ICH9 Family USB Universal Host Controller - 2936
		(PCI) 18 Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293C
		(PCI) 19 Intel(R) ICH9 2 port Serial ATA Storage Controller 2 - 2926
		(PCI) 19 Intel(R) ICH9 4 port Serial ATA Storage Controller 1 - 2920
		(PCI) 19 Intel(R) ICH9 Family USB Universal Host Controller - 2939
		(PCI) 19 Intel(R) ICH9 Family USB Universal Host Controller - 2935
		(PCI) 20 Intel(R) 82562V-2 10/100 Network Connection
		(PCI) 21 Intel(R) ICH9 Family USB Universal Host Controller - 2938
		(PCI) 22 Microsoft UAA Bus Driver for High Definition Audio
		(PCI) 23 Intel(R) ICH9 Family USB Universal Host Controller - 2934
		(PCI) 23 Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293A
+		Memory

### B.4 DMA Channel Assignments

-		PC	
	-		Direct memory access (DMA)
			2 Standard floppy disk controller
			4 Direct memory access controller
	+		Input/output (IO)
	+		Interrupt request (IRQ)
	+		Memory

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		
IDE1	IDE Connector	Catch Electronics	1137-020-40 SA	IDE Cable	1701400453
SATA1	SATA Connector	TECHBEST	161S01-025 A	SATA Cable	1709070780
SATA2	SATA Connector	TECHBEST	161S01-025 A	SATA Cable	1709070780
SATA3	SATA Connector	TECHBEST	161S01-025 A	SATA Cable	1709070780
SATA4	SATA Connector	TECHBEST	161S01-025 A	SATA Cable	1709070780
SATA5	SATA Connector	TECHBEST	161S01-025 A	SATA Cable	1709070780
FDD1	Floppy Connector	Catch Electronics	1137-000-34 SA	Floppy Disk Drive Cable	1701340704
LPT1	Parallel Port Connector	FOXCONN	DM11351-H 5W3-4F		N/A
FP1	Front Panel Connector	JIH VEI Electronics	21B22564-X XS10B-01G -6/3-VXX		N/A
FP2	Front Panel Connector	JIH VEI Electronics	21B22564-X XS10B-01G -6/3-VXX		N/A
USB1	USB Connector	JIH VEI Electronics	21B22050-X XS10B-01G -4/2.8	USB Cable	1709100201
USB2	USB Connector	JIH VEI Electronics	21B22050-X XS10B-01G -4/2.8	USB Cable	1709100201
DIO1	Digital I/O Connector	JIH VEI Electronics	21B22050-X XS10B-01G -4/2.8		N/A

AUDIO1	Audio Connector	Catch Electronics	052-D200-14P		N/A
ATX1	ATX External 5VSB Connector	Catch Electronics	1121-700-24S		N/A
ATX2	4P Power Connector	Catch Electronics	1121-700-04S		N/A
SYSFAN1	System FAN Connector	Catch Electronics	1190-700-042		N/A
CPUFAN1	CPU FAN Connector	Catch Electronics	1190-700-042		N/A
DC_FAN1	AUX. FAN	Catch Electronics	1190-700-03S		N/A
DC_FAN2	AUX. FAN	Catch Electronics	1190-700-03S		N/A
DC_FAN3	AUX. FAN	Catch Electronics	1190-700-03S		N/A
USB_LAN1	Ethernet & USB Connector	FOXCONN	JFM24U1B-21U6-4F		N/A
USB_LAN2 (-G2)	Ethernet & USB Connector	FOXCONN	JFM24U1B-21U6-4F		N/A
USB_LAN2 (-VE)	USB Connector	FOXCONN	UFL2443-F1-01		N/A
IR1	IrDA Connector	JIH VEI Electronics			N/A
KM1	Mini-Din PS/2 Connector	FOXCONN	MH11061-P36-4F		N/A
CN1	Keyboard Connector	HO-BASE	2503-WS-5		N/A
COM1	Serial Port 1 Connector	Astron	DB6A-09-A MGN1-R		N/A
COM2	Serial Port 2 Connector	Catch Electronics	1147-000-10S	Serial Port Cable	1701100305
VGA1	CRT Display Connector	Catch Electronics	3125-000-15SB		N/A
JP1	LINE_IN Connector	JIH VEI Electronics	21B12564-XS10B-01G-6/3		N/A

JP2	CD_IN Connector	JIH VEI Electronics	21B12564-X XS10B-01G -6/3		N/A
COM3	Serial Port 3 Connector	Catch Electronics	1147-000-10 S	Serial Port Cable	1701200301
COM4	Serial Port 4 Connector	Catch Electronics	1147-000-10 S	Serial Port Cable	1701200301