

Full-size SBC

FSB-945G

FSB-945G

Intel® Core™ 2 Duo/ P4 /Celeron D
LGA 775 Processor
Full-size CPU Card
With DDRII, Ethernet,
IDE

FSB-945G Manual Rev. A 1st Ed.
June 2009

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Packing List

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

- **1709070800** SATA Cable
- **1701340704** Flat Cable
- **1701400453** ATA-100 Cable
- **1700060192** Keyboard and Mouse Cable
- **1701260307** Flat Cable
- **1701100305** Flat Cable with bracket
- **1709100201** USB Cable w/ Bracket
- **Quick Installation Guide**
- **CD-ROM for manual (in PDF format) and drivers**
- **FSB-945G CPU Card**

If any of these items should be missing or damaged, please contact your distributor or sales representative immediately.

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Chapter

1

**General
Information**

1.1 Introduction

AAEON announces a new full-size form factor Single Board Computer (SBC) with PICMG 1.0 - **FSB-945G**, which is based on the use of Intel® Core™ 2 Duo / P4 /Celeron D processors. FSB-945G utilizes Intel® LGA 775 Core™ 2 Duo/Pentium® 4 CPU with high CPU core frequencies with the Front Side Bus (FSB) running at 533 to 800MHz.

FSB-945G supports DDRII 400/533/667 system memory up to 4GB. The VGA Controller of FSB-945G integrates Intel 945GC chipset with core frequency up to 400MHz and integrates GMA950 2D/3D graphics Accelerator to provide higher performance of graphic processing. AAEON's got Intel's long-term supply commitment and will guarantee product's long-life cycle to our precious customers.

In addition to the powerful computing engine, FSB-945G equips with seven USB2.0 ports, one standard Mini-DIN PS/2 keyboard & mouse connector, one floppy device. Moreover, it also supports four SATA II and one IDE. These versatile expansion interfaces bring FSB-945G a great flexibility to serve different application demands. Furthermore, its huge capacity and excellent compatibility are also ideal for system integrators for system

planning and devices combination.

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1.2 Features

- Compliance with PICMG 1.0
- Supports Intel®Core™ 2 Duo / P4 /Celeron D LGA775 CPUs , FSB 533/800 MHz (E4000, E2000, 600, 500, 300 series)
- Supports DDR2 400/533 Memory up to 4GB
- Integrated Intel Enhance Graphics Core, VGA Support
- Supports two 10/100/1000Base-T Ethernet
- Supports 4*SATA-300 ports
- 7 USB 2.0 / 1 RS232/422/485 /1 RS232 / 1 Parallel / 1 IrDA Port

1.3 Specification

System

- CPU: Supports Intel®Core™ 2 Duo / P4 /Celeron D LGA775 CPUs with 115W, FSB 533/800 MHz (E4000,E2000, 600, 500, 300 series)
- Chipset: Intel 945GC + Intel ICH7
- System Memory: 2 x DDR2 DIMM Socket, total up to 4GB Support Dual Channel DDR2 with 400/533/667 MHz)
- VGA Controller: Intel®945GC with GMA950
- Ethernet: PCI Express x1 10/100Mb & 10/100/1000Mb LAN optional, RJ-45 X2 LAN1: Intel 82562GZ / 82573L LAN2: Intel 82574L
- BIOS: Award Plug & Play SPI Flash – 8Mb ROM
- Audio (Daughter board): Audio Codec, MIC-in/

- IDE Interface: IDE connector x 1
- Universal Serial Bus: USB 2.0 Port on CPU card x 7/ 5x2 pin header for internal x 3/ TYPE-A Connector onboard x 1
- Watchdog Timer: 1~255 Step, can be set with software on Super I/O
- RTC: Internal RTC
- Power Supply Voltage: ATX12V connector for CPU, Other from Backplane
- Board Size: 13.3" (L) x 4.98" (W) (338.58x126.39 mm)
- Operation Temp.: 32 F~140 F (0 C ~60 C)

Display

- VGA Controller: Intel 945GC
- Memory: Shared memory up to 256M
- Resolutions: Up to 2048 x 1536

I/O

- FDD Interface: Standard FDD port x 1 (supports up to 1 floppy device)
- Serial Port: Two COM ports: (Internal

- Parallel Port: pin header x 2)
COM 1: RS -232
COM 2: RS -232/422/485
Supports SPP/EPP/ECP mode
- Keyboard & Mouse connector: Mini-DIN for PS/2 Keyboard and mouse connector x 1;
Internal keyboard pin header x 1

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

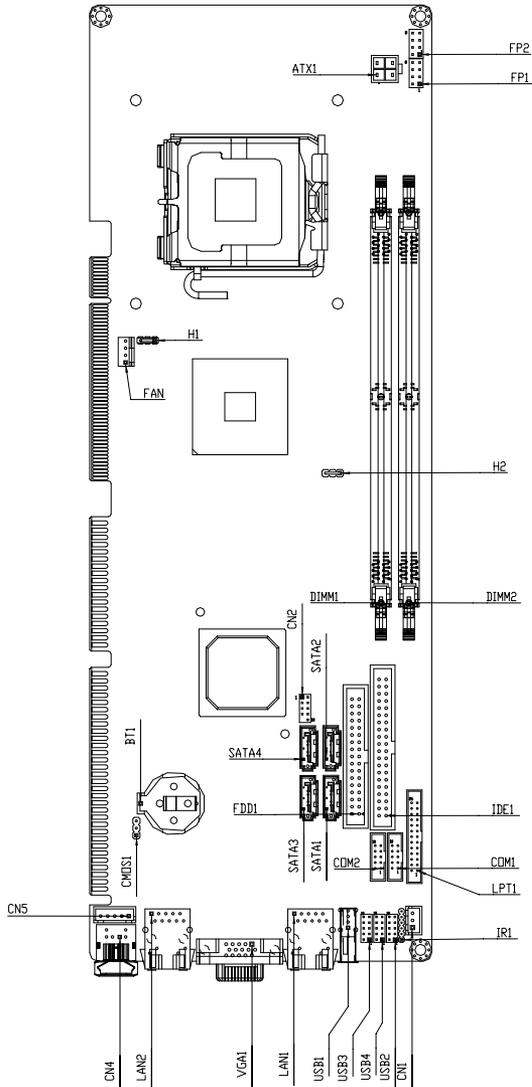
Warning!

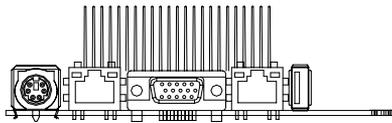
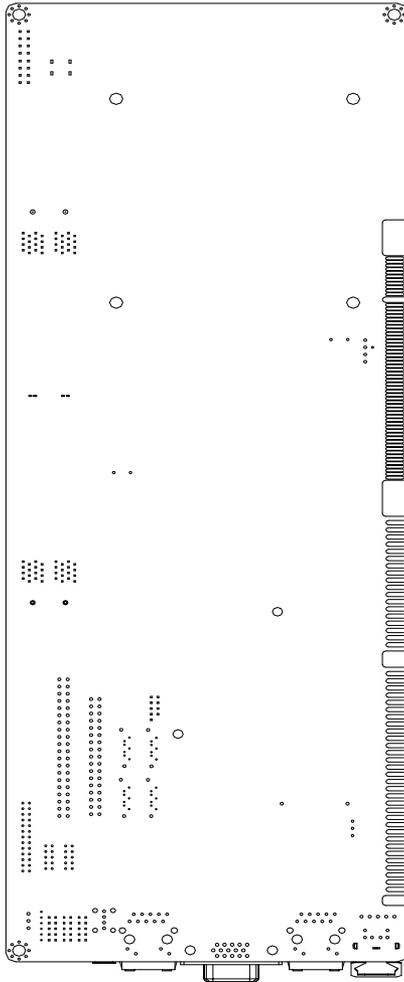
Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

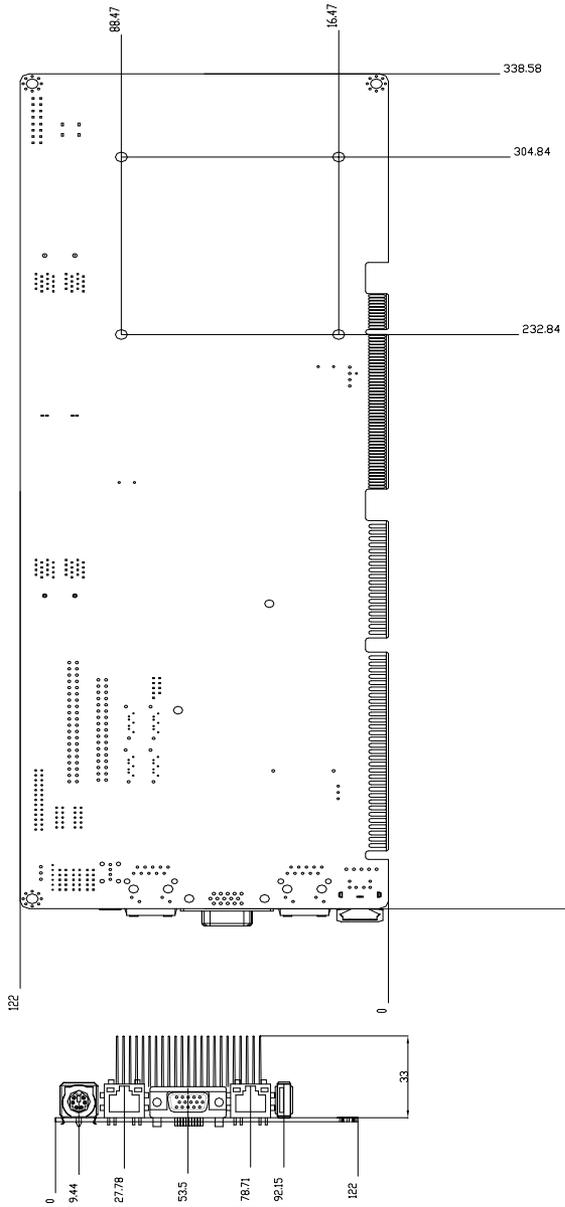
Caution!

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







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
CMOS1	Clear CMOS

2.5 List of Connectors

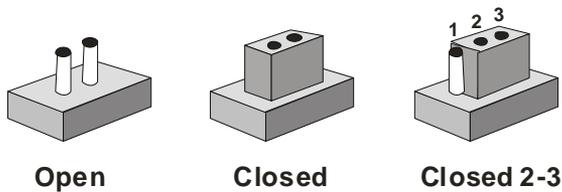
The table below shows the function of each board's connectors:

Label	Function
FP1	Front Panel Connector 1
FP2	Front Panel Connector 2
ATX1	4-pin ATX Power +12V Connector
VGA1	VGA Display Connector
FDD1	Floppy Connector
IDE1	EIDE Connector
SATA1~4	Serial ATA Connector
COM1	RS-232 Serial Port Connector
COM2	RS-232/422/485 Serial Port Connector
IR1	IrDA Connector
LPT1	LPT Port Connector
USB2~4	USB x 2 PIN HEADER
USB1	USB Connector
LAN1	10/100 or 100/1000 Base-TX Ethernet Connector
LAN2	1000 Base-TX Ethernet Connector
DIMM1、2	DDRII Memory Slot
FAN1	4 pin Fan Connector
CN2	AC97 Connector
CN1	ATX Power Control Connector
CN5	Internal Keyboard Connector
CN4	PS2 Keyboard/Mouse 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 Clear CMOS (CMOS1)

CMOS1	Function
1-2	Clear
2-3	Normal (default)

2.8 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 (-)

2.9 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

2.10 RS-232 Serial Port Connector (COM1)

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.

2.11 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.

2.12 IrDA Connector (IR1)

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

2.13 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

Full-size SBC**FSB-945G**

19	#ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SELECT	26	N.C.

2.14 USB Connector (USB2~4)

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

2.15 Fan Connector (FAN1)

Pin	Signal
1	GND
2	+12V or +5V
3	Speed Sense
4	FAN Out Control

2.16 ATX Power Control Connector (CN1)

Pin	Signal
1	PS-ON
2	+5V
3	5VSB

Note: AT Power Use, Close Pin 2,3

2.17 AC97 Connector (CN2)

Pin	Signal	Pin	Signal
1	AC_RST-	2	AC_SYNC
3	AC_DAIN2	4	AC_DAOUT
5	GND	6	AC_BCLK
7	GND	8	+5V
9	Lock	10	+3.3V

2.18 PS2 Keyboard/Mouse Connector (CN4)

Pin	Signal
1	KB_DATA
2	MS-DATA
3	GND
4	+5V
5	KB_CLK
6	MS_CLK

2.19 Internal Keyboard Connector (CN5)

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	×	○	○	○	○	○
<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 FSB-945G CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2 Award BIOS Setup

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

Entering Setup

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



Standard CMOS Features

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

Advanced BIOS Features

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

Advanced Chipset Features

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

Integrated Peripherals

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

Power Management Setup

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

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

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

Frequency/Voltage Control

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

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While AWARD has designated the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Set Supervisor/User Password

Use this menu to set Supervisor/User Passwords.

Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

You can refer to the “AAEON BIOS Item Description.pdf” file in the CD for the meaning of each setting in this chapter.

Chapter

4

**Driver
Installation**

The FSB-945G comes with a CD-ROM that contains all drivers your need.

In addition, you can activate the installation items through Autorun program which will install each driver directly. If your system do not support Autorun program or you cannot install drivers successfully, please read instructions below for further detailed installations.

Follow the sequence below to install the drivers:

Step 1 – Install Intel INF Driver

Step 2 – Install VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install AUDIO Driver

Please read following instructions for detailed installations.

4.1 Installation:

Insert the FSB-945G CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 4 in order.

Step 1 – Install Intel[®] INF Driver

1. Click on the **Step 1 –Intel[®] INF** folder
2. Double click on the **Setup** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 2 – Install VGA Driver

1. Click on the **Step 2 –VGA** folder
2. Choose the OS your system is
3. Double click on the **Setup** file located in each OS folder
4. Follow the instructions that the window shows
5. The system will help you install the driver automatically

Step 3 – Install LAN Driver

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

Step 4 – Install Audio Driver

1. Click on the **Step 4 –Audio** folder
2. Choose the OS your system is
3. Double click on the **Setup** file located in each OS folder
4. Follow the instructions that the window shows
5. The system will help you install the driver automatically

Appendix

A

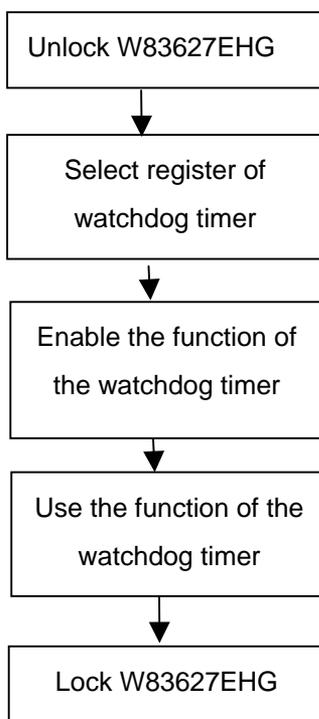
Programming the Watchdog Timer

A.1 Programming

FSB-945G utilizes W83627EHG chipset as its watchdog timer controller.

Below are the procedures to complete its configuration and the AAEMON 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

Input/output (IO)	
[00000000 - 0000000F]	Direct memory access controller
[00000010 - 0000001F]	PCI bus
[00000020 - 00000021]	Programmable interrupt controller
[00000022 - 0000003F]	PCI bus
[00000040 - 00000043]	System timer
[00000044 - 00000047]	PCI bus
[0000004C - 0000006F]	PCI bus
[00000060 - 00000060]	PC/AT PS/2 Keyboard (84-Key)
[00000061 - 00000061]	System speaker
[00000064 - 00000064]	PC/AT PS/2 Keyboard (84-Key)
[00000070 - 00000071]	System CMOS/real time clock
[00000072 - 0000007F]	PCI bus
[00000081 - 00000083]	Direct memory access controller
[00000087 - 00000087]	Direct memory access controller
[00000089 - 0000008B]	Direct memory access controller
[0000008F - 00000091]	Direct memory access controller
[00000090 - 00000091]	PCI bus
[00000093 - 0000009F]	PCI bus
[000000A0 - 000000A1]	Programmable interrupt controller
[000000A2 - 000000BF]	PCI bus
[000000C0 - 000000DF]	Direct memory access controller
[000000D0 - 000000EF]	PCI bus
[000000F0 - 000000FF]	Numeric data processor
[00000100 - 00000CF7]	PCI bus
[000001F0 - 000001F7]	Primary IDE Channel
[00000274 - 00000277]	ISAPNP Read Data Port
[00000279 - 00000279]	ISAPNP Read Data Port
[000002F8 - 000002FF]	Communications Port (COM2)
[00000378 - 0000037F]	Printer Port (LPT1)
[000003B0 - 000003BB]	Intel(R) 82945G Express Chipset Family
[000003C0 - 000003DF]	Intel(R) 82945G Express Chipset Family
[000003F0 - 000003F5]	Standard floppy disk controller
[000003F6 - 000003F6]	Primary IDE Channel
[000003F7 - 000003F7]	Standard Floppy disk controller
[000003F8 - 000003FF]	Communications Port (COM1)
[00000500 - 0000051F]	Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
[00000778 - 0000077B]	Printer Port (LPT1)
[00000A79 - 00000A79]	ISAPNP Read Data Port
[00000D00 - 0000FFFF]	PCI bus
[0000C000 - 0000CFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
[0000E000 - 0000EFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
[0000EF00 - 0000EF1F]	Intel(R) 82574L Gigabit Network Connection
[0000F500 - 0000F50F]	Intel(R) 82801GB/GR/GH (ICH7 Family) Serial ATA Storage Controller - 27C0
[0000F600 - 0000F603]	Intel(R) 82801GB/GR/GH (ICH7 Family) Serial ATA Storage Controller - 27C0
[0000F700 - 0000F707]	Intel(R) 82801GB/GR/GH (ICH7 Family) Serial ATA Storage Controller - 27C0
[0000F800 - 0000F803]	Intel(R) 82801GB/GR/GH (ICH7 Family) Serial ATA Storage Controller - 27C0
[0000F900 - 0000F907]	Intel(R) 82801GB/GR/GH (ICH7 Family) Serial ATA Storage Controller - 27C0
[0000FA00 - 0000FA0F]	Intel(R) 82801G (ICH7 Family) Ultra ATA Storage Controllers - 27DF
[0000FB00 - 0000FB1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
[0000FC00 - 0000FC1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
[0000FD00 - 0000FD1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
[0000FE00 - 0000FE1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
[0000FF00 - 0000FF07]	Intel(R) 82945G Express Chipset Family

B.2 1st MB Memory Address Map



The image shows a screenshot of the Windows System Information tool, specifically the 'Memory' section. It displays a list of memory addresses and their corresponding hardware components. The list is as follows:

[00000000 - 0009FFFF]	System board
[0009F000 - 000BFFFF]	PCI bus
[000A0000 - 000BFFFF]	Intel(R) 82945G Express Chipset Family
[000CAC00 - 000CBFFF]	Motherboard resources
[000CAC00 - 000EEFFF]	PCI bus
[000E0000 - 000EFFFF]	Motherboard resources
[000F0000 - 000F3FFF]	Motherboard resources
[000F4000 - 000F7FFF]	Motherboard resources
[000F8000 - 000FFFFF]	Motherboard resources
[00100000 - 00FFFFFF]	System board
[3F700000 - DFFFFFFF]	PCI bus
[D0000000 - DFFFFFFF]	Intel(R) 82945G Express Chipset Family
[F0000000 - FEBFFFFF]	PCI bus
[FDB00000 - FDB8FFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
[FDC00000 - FDCFFFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
[FDD00000 - FDDFFFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
[FDDC0000 - FDDFFFFF]	Intel(R) 82574L Gigabit Network Connection
[FDDFC000 - FDDFFFFF]	Intel(R) 82574L Gigabit Network Connection
[FDE00000 - FDEFFFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
[FDF00000 - FDF7FFFF]	Intel(R) 82945G Express Chipset Family
[FDF80000 - FDFBFFFF]	Intel(R) 82945G Express Chipset Family
[FDFFF000 - FDFFF3FF]	Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
[FEC00000 - FEC0FFFF]	System board
[FEE00000 - FEE0FFFF]	System board
[FFB00000 - FFB7FFFF]	System board
[FFB80000 - FFBFFFFF]	Intel(R) 82802 Firmware Hub Device
[FFF00000 - FFFFFFFF]	System board

B.3 IRQ Mapping Chart

Interrupt request (IRQ)	
(ISA) 0	System timer
(ISA) 1	PC/AT PS/2 Keyboard (84-Key)
(ISA) 3	Communications Port (COM2)
(ISA) 4	Communications Port (COM1)
(ISA) 6	Standard floppy disk controller
(ISA) 8	System CMOS/real time clock
(ISA) 12	Microsoft PS/2 Mouse
(ISA) 13	Numeric data processor
(ISA) 14	Primary IDE Channel
(PCI) 8	Intel(R) 82945G Express Chipset Family
(PCI) 112	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
(PCI) 113	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
(PCI) 116	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
(PCI) 116	Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
(PCI) 117	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
(PCI) 118	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
(PCI) 119	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
(PCI) 125	Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
(PCI) 125	Intel(R) 82801GB/GR/GH (ICH7 Family) Serial ATA Storage Controller - 27C0
(PCI) 128	Intel(R) 82574L Gigabit Network Connection

B.4 DMA Channel Assignments

Direct memory access (DMA)	
2	Standard floppy disk controller
4	Direct memory access controller

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	1137-020-40SA	IDE Cable	1701400453
SATA1	SATA Connector	TECHBEST	161S01-025A	SATA Cable	1709070800
SATA2	SATA Connector	TECHBEST	161S01-025A	SATA Cable	1709070800
SATA3	SATA Connector	TECHBEST	161S01-025A	SATA Cable	1709070800
SATA4	SATA Connector	TECHBEST	161S01-025A	SATA Cable	1709070800
FDD1	Floppy Connector	Catch Electronics	1137-000-34SA	Floppy Disk Drive Cable	1701340704
LPT1	Parallel Port Connector	Catch Electronics	1147-000-26S	LPT Cable	1701260307
FP1	Front Panel Connector	JIH VEI Electronics	21B22564-XXS 10B-01G-6/3-V XX		N/A
FP2	Front Panel Connector	JIH VEI Electronics	21B22564-XXS 10B-01G-6/3-V XX		N/A
USB2	USB Pin Header	JIH VEI Electronics	21B22050-XXS 10B-01G-4/2.8	USB Cable	1709100201
USB3	USB Pin Header	JIH VEI Electronics	21B22050-XXS 10B-01G-4/2.8	USB Cable	1709100201
USB4	USB Pin Header	JIH VEI Electronics	21B22050-XXS 10B-01G-4/2.8	USB Cable	1709100201
CN2	Audio Pin Header	JIH VEI Electronics	21N22050-10S1 0B-01G-4/2.8-V 1-G		N/A

Half-size SBC
FSB-945G

ATX1	4P Power Connector	Catch Electronics	1121-700-04S		N/A
FAN1	FAN Connector	Catch Electronics	1190-700-042		N/A
USB1	USB Connector	HO-BASE	KS-001V-ANW		N/A
LAN1(-VE)	Ethernet Connector	BOTHHAND	LU1T516-43 LF		N/A
LAN1(-G2)	Ethernet Connector	BOTHHAND	LA1T109D-D43 LF		N/A
LAN2(-G2)	Ethernet Connector	BOTHHAND	LA1T109D-D43 LF		N/A
IR1	IrDA Connector	JIH VEI Electronics	21B12050-XXS 10B-01G-4/2.8		N/A
CN4	Mini-Din PS/2 Connector	CONTEK	MAN3061F1G4 01	KB/MS Cable	1700060192
CN5	KB Pin Header	HO-BASE	2503-WS-5		N/A
COM1	Serial Port Box Header	Catch Electronics	1147-000-10S	Serial Port Cable	1701260307
COM2	Serial Port Box Header	Catch Electronics	1147-000-10S	Serial Port Cable	1701100305
VGA1	CRT Display Connector	Catch Electronics	3125-000-15SB		N/A
CN1	ATX Power Connector with BP	Catch Electronics	1191-700-03S		1703030501