

**GES-3300F**

Green Embedded System  
2.5" SATA Hard Disk Drive Bay  
2 Gigabit Ethernet Ports/  
4 COM / 6 USB2.0  
CompactFlash™

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## Packing List

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

- 1 GES-3300F Bare Bone
- 1 CD-ROM for manual (in PDF format) and drivers
- 1 130W AC-DC Power Adapter

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

## Safety & Warranty

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

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

## FCC

### **Warning!**



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

### **Caution:**

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

## Below Table for China RoHS Requirements

产品中有毒有害物质或元素名称及含量

## AAEON Boxer/ Industrial System

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

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

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

备注:

一、此产品所标示之环保使用期限，系指在一般正常使用状况下。

二、上述部件物质中央处理器、内存、硬盘、电源为选购品。

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Chapter

1

# General Information

## 1.1 Introduction

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GES-3300F adopts the Intel® Core™ 2 Duo/ Core™ Duo/ Celeron® M Processor. The chipset is equipped with Intel® 945GME & ICH7M. Moreover, the system memory features DDRII 400/533/667 DIMM socket up to 4 GB. It deploys two LAN ports that consist of 10/100/1000Base-TX Ethernet LAN RJ-45 ports. GES-3300F condensed appearance features desktop and wallmount form factor that fits nicely into a space-limited environment.

This compact GES-3300F equipped with one internal 2.5" Hard Disk Drive with SATA II interface. In addition, it features four COM ports and six USB2.0. Furthermore, the GES-3300F deploys AC97 Audio Stereo Amplifier to support the audio function.

With the increasing demands of high performance in audio and video, AAEON released the specific Digital Signage platform to fulfill the needs of multimedia and digital signage applications.

## 1.2 Features

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- Compact Size & Fanless
- Intel® Core™ 2 Duo/ Core™ Duo/ Celeron® M Processor, Fanless Design CPU TDP < 27W
- Intel® 945GME + ICH7M Chipset
- DDRII 400/533/667 DIMM Memory x 2, Up To 4 GB
- 10/100/1000Base-TX Ethernet x 2
- VGA Single View & DVI-D Single View
- USB 2.0 x 6, COM x 4, 8-bit Digital I/O
- Internal 2.5" Disk Drive Bay x 1
- Power With 12V DV-In By DC Jack

### 1.3 Specifications

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#### *System*

<b>Form Factor</b>	Compact size for Desktop/Wallmount
<b>Processor</b>	Intel® Core™ 2 Duo/ Core™ Duo/ Celeron® M
<b>System Memory</b>	240-pin DDR2 400/533/667 DIMM Socket x 2, Max. 4 GB
<b>Chipset</b>	Intel® 945GME & ICH7M
<b>Ethernet</b>	10/100/1000Base-TX Ethernet x 2
<b>Audio</b>	AC97 Audio Stereo Amplifier
<b>BIOS</b>	Award Plug & Play SPI BIOS – 1Mb ROM
<b>I/O Chip</b>	ITE 8712F+Fintek F81216D
<b>Hard Disk Drive</b>	2.5" Hard Disk Drive Bay x 1 with SATA II interface
<b>Solid Storage Disk</b>	CompactFlash™ x 1
<b>LED</b>	Two indicators for Power and HDD
<b>Watchdog Timer</b>	Reset: 1 sec.~255 min. and 1 sec. or 1 min./step
<b>H/W Status Monitor</b>	Monitoring system temperature, voltage, and cooling fan status
<b>Power Supply</b>	Single DC 12V input
<b>Dimension (WxHxD)</b>	10.63" x 1.97" x 9.84" (270mm x 50mm x 250mm)

### *External I/O*

<b>Serial Port</b>	RS-232 x 3, RS-232/422/485 x 1
<b>KB &amp; Mouse</b>	Keyboard /Mouse x 1
<b>Universal Serial Bus</b>	USB2.0 x 6 (4 on the front panel and 2 on the rear panel)
<b>Audio</b>	Audio jack x 2 (Mac-in, Line-out)
<b>Ethernet</b>	RJ-45 x 2
<b>Display</b>	VGA x 1, DVI-D x 1

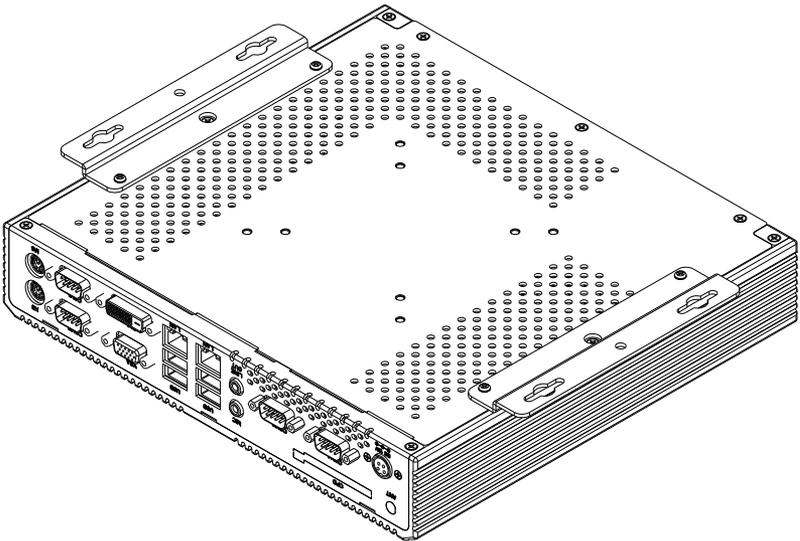
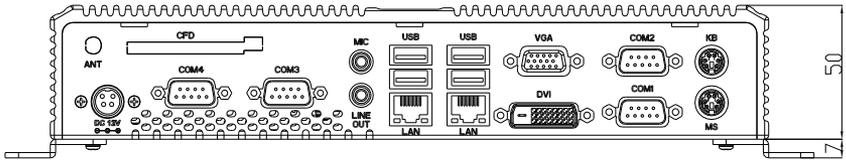
### *Environment*

<b>Operating Temp.</b>	32°F~113°F (0°C ~45°C) (Industrial grade SSD only)
<b>Storage Temp.</b>	-4°F~140°F (-20°C ~60°C)
<b>Operating Humidity</b>	10~80%
<b>Storage Humidity</b>	10~80%, non-condensing
<b>Vibration</b>	0.5 gms/ 5~500Hz/ Random Operation (2.5" HDD)
<b>Shock</b>	15G peak acceleration (11 m sec. duration), operation

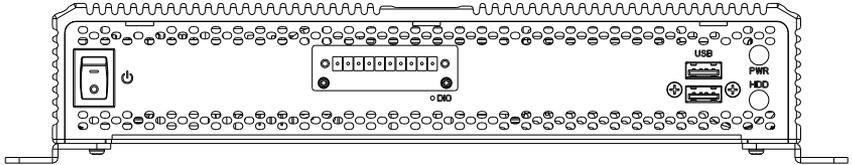
## 1.4 General System Information

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### Front Panel

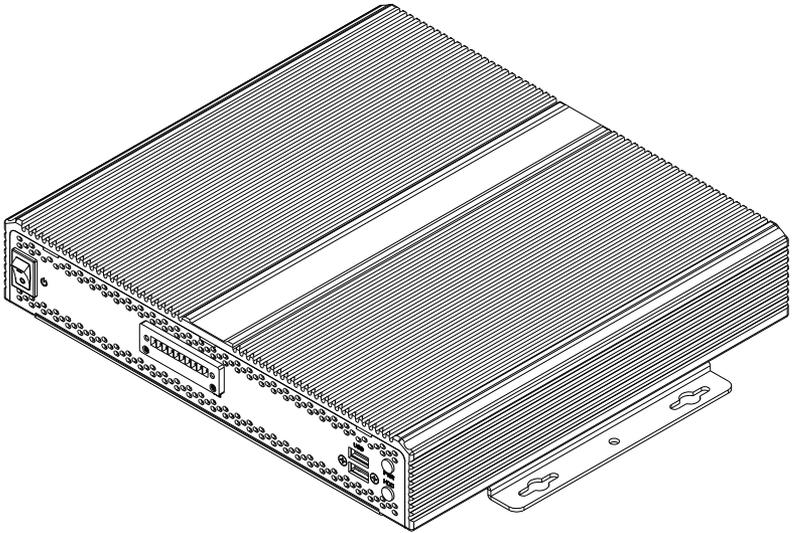


## Rear Panel



10	9	8	7	6	5	4	3	2	1	PIN
GND	+5V	D108	D107	D106	D105	D104	D103	D102	D101	Signal

DIO Pin Definition



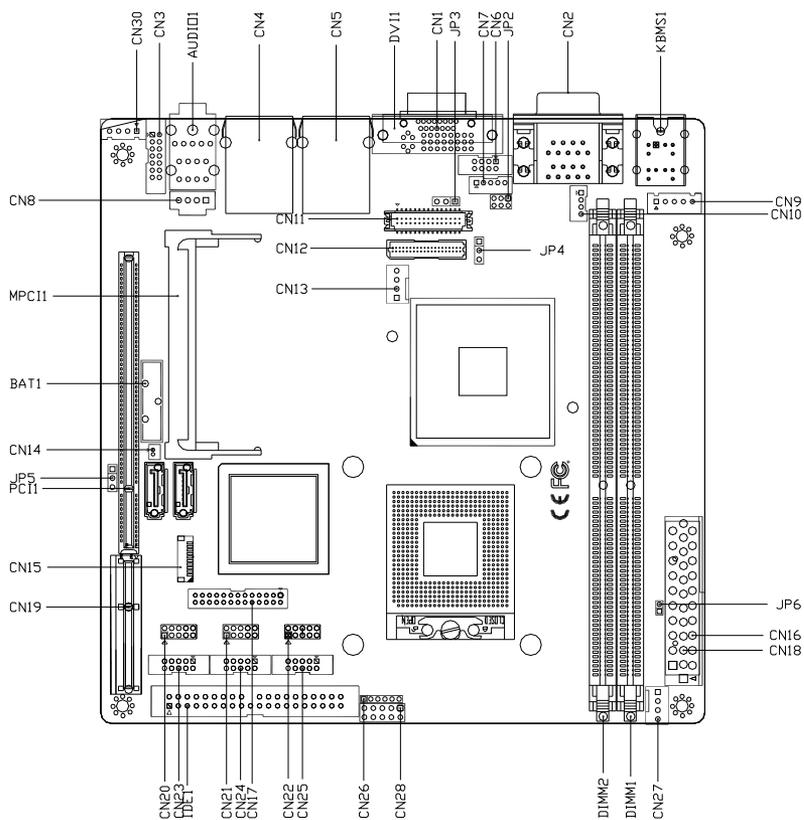
Chapter

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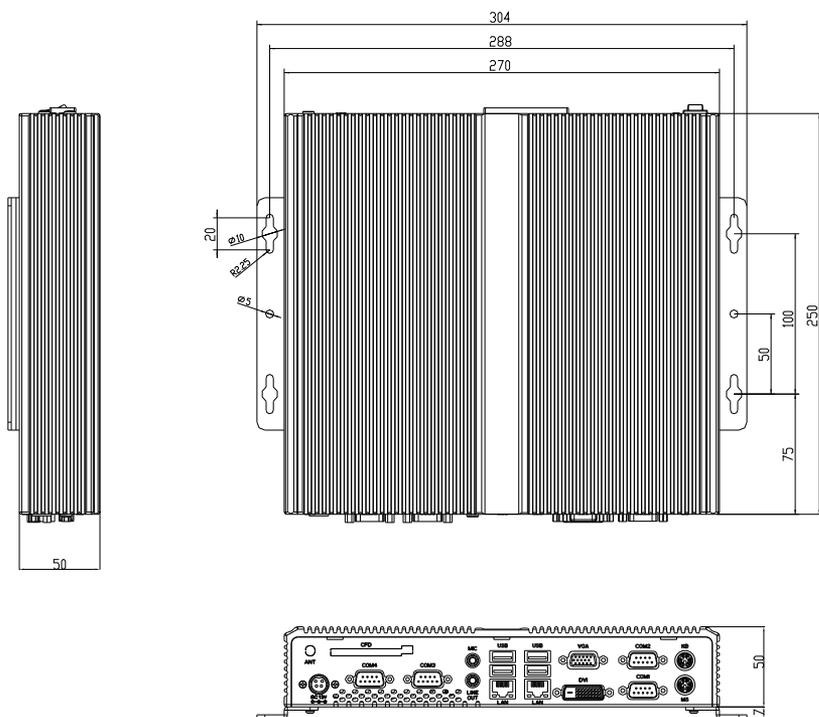
# Hardware Installation

## 2.1 Location of Jumpers and Connectors

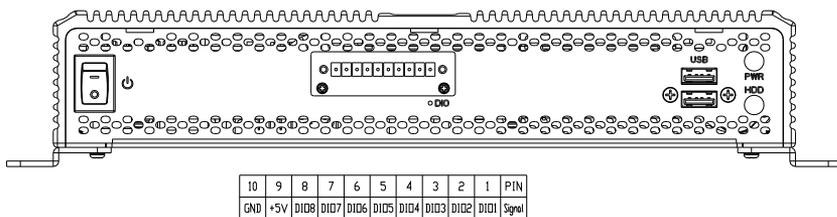
### Main board



## 2.2 Mechanical Drawing



## DIO Pin Definition



## 2.3 List of Jumpers

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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>
JP2	COM2 Ring/+5V/+12V Selection
JP3	LCD INVERTER Voltage Selection
JP4	LVDS Voltage Selection
JP5	Clear CMOS
JP6	ATX Power simulate AT Power

## 2.4 List of Connectors

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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>
CN1	VGA Display Connector
CN2	COM1 RS-232 & COM2 RS-232/422/485
CN3	Audio 5.1 Channel / SPDIF Connector
CN4	USB Connector / 10/100/1000 Base-TX Ethernet Connector
CN5	USB Connector / 10/100/1000 Base-TX Ethernet Connector
CN6	TV Out Connector
CN7	LCD Inverter Connector
CN8	CD-IN Connector
CN9	Internal Keyboard Connector
CN10	Internal Mouse Connector
CN11	LVDS LCD Connector
CN12	SDVO Connector
CN13	System Fan Connector
CN14	RTC Battery Connector
CN15	RS-232 TTL only/ GPS Connector
CN16	ATX Power Connector
CN17	LPT Port Connector
CN18	AT Power Connector
CN19	PCI Express Slot
CN20	USB Connector

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CN21	USB Connector
CN22	Digital I/O Connector
CN23	COM4 RS-232 Serial Port Connector
CN24	COM3 RS-232 Serial Port Connector
CN25	COM6 RS-232 Serial Port Connector
CN26	IrDA Connector
CN27	CPU FAN Connector
CN28	Front Panel Connector
CN29	CompactFlash Slot
CN30	Audio Speaker Output
KBMS1	PS/2 Keyboard / Mouse Connector
DVI1	DVI Connector
AUDIO1	Audio Connector
MPC11	Mini-PCI Slot
PCI1	PCI Slot
SATA1	Primary Serial ATA Connector
SATA2	Secondary Serial ATA Connector
DIMM1	DDR2 DIMM Slot
DIMM2	DDR2 DIMM Slot
IDE1	EIDE Connector

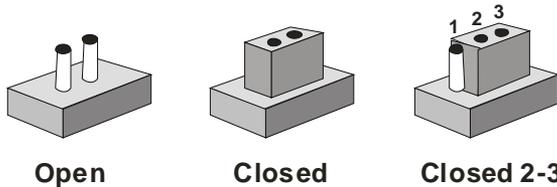
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## 2.5 Setting Jumpers

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You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip.

To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any change.

Generally, you simply need a standard cable to make most connections.

## 2.6 COM2 Ring/+5V/+12V Selection (JP2)

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JP2	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

---

## 2.7 LCD INVERTER Voltage Selection (JP3)

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JP3	Function
1-2	+5V(Default)
2-3	+12V

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## 2.8 LCD Voltage Selection (JP4)

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JP4	Function
1-2	+5V
2-3	+3.3V (Default)

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## 2.9 Clear CMOS (JP5)

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JP5	Function
1-2	Protected (Default)
2-3	Clear

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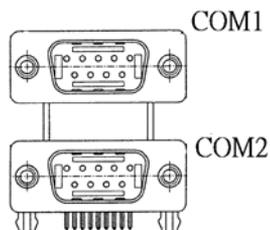
## 2.10 ATX Power Simulate AT Power (JP6)

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JP6	Function
NC	ATX or AT standard (Default)
1-2	ATX Power Simulate AT Power

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## 2.11 COM2 RS-232/422/485 Connector (CN2)



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 Audio 5.1 Channel/SPDIF Connector (CN3)

Pin	Signal	Pin	Signal
1	Front-OUT-R	2	GND
3	Front-OUT-L	4	GND
5	Surr-OUT-R	6	GND
7	Surr-OUT-L	8	GND
9	LFE-OUT	10	GND
11	CNE-OUT	12	GND
13	SPDIF-OUT	14	SPDIF-IN

### 2.13 TV-out Connector (CN6)

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

### 2.14 LCD Inverter Connector (CN7)

Pin	Signal
1	VCC of LCD inverter (+5V/+12V)
2	Adjust backlight
3	GND
4	GND
5	ENBKL

### 2.15 CD-IN Connector (CN8)

Pin	Signal
1	CD_IN_L
2	CD_GND
3	CD_GND
4	CD_IN_R

### 2.16 Internal Keyboard Connector (CN9)

Pin	Signal
1	KB_CLK
2	KB_DATA
3	N.C.

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4	GND
5	+5V

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### 2.17 Internal Mouse Connector (CN10)

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

---

### 2.18 LVDS-LCD Connector (CN11)

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Pin	Signal	Pin	Signal
1	ENBKL	2	N.C.
3	PPVCC	4	GND
5	LVDS1_TXCLK-	6	LVDS1_TXCLK+
7	PPVCC	8	GND
9	LVDS1_TX0-	10	LVDS1_TX0+
11	LVDS1_TX1-	12	LVDS1_TX1+
13	LVDS1_TX2-	14	LVDS1_TX2+
15	N.C.	16	N.C.
17	I2C_DATA	18	I2C_CLK
19	LVDS2_TX0-	20	LVDS2_TX0+
21	LVDS2_TX1-	22	LVDS2_TX1+
23	LVDS2_TX2-	24	LVDS2_TX2+
25	N.C.	26	N.C.
27	PPVCC	28	GND

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29	LVDS2_TXCLK-	30	LVDS2_TXCLK+
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## 2.19 SDVO Connector (CN12)

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Pin	Signal	Pin	Signal
1	SDVO_SPC	2	SDVO_RST#
3	SDVO_SPD	4	SMBCLK
5	N.C.	6	SMBDATA
7	GND	8	GND
9	SDVO_RED#	10	SDVO_FLDSTALL#
11	SDVOV_RED	12	SDVO_FLDSTALL
13	GND	14	GND
15	SDVO_BLUE#	16	SDVO_INT#
17	SDVO_BLUE	18	SDVO_INT
19	GND	20	GND
21	SDVO_GREEN#	22	SDVO_CLK#
23	SDVO_GREEN	24	SDVO_CLK
25	GND	26	GND
27	+2.5V	28	+5V
29	+2.5V	30	+5V
31	+2.5V	32	GND
33	GND	34	+12V
35	+3.3V	36	+12V
37	+3.3V	38	GND
39	GND	40	GND

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## 2.20 System Fan Connector (CN13)

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Pin	Signal
1	GND
2	VCC of FAN
3	Speed Sense
4	Speed Control

## 2.21 RTC Battery Connector (CN14)

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Pin	Signal
1	Battery Power input
2	GND

## 2.22 RS-232 TTL/ GPS Connector (CN15)

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Pin	Signal
1	N.C.
2	N.C.
3	GND
4	GPS_LED
5	GPS_TXD
6	GPS_RXD
7	VCC3.3_BAT
8	+3.3V
9	GPS_RST#
10	GND

### 2.23 ATX Power Connector (CN16)

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Pin	Signal	Pin	Signal
1	N.C.	11	N.C.
2	N.C.	12	-12V
3	GND	13	GND
4	+5V	14	PS_ON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	POWER OK	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V

### 2.24 LPT Port Connector (CN17)

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Pin	Signal	Pin	Signal
1	STROBE	2	AFD
3	PTD0	4	ERROR
5	PTD1	6	INIT
7	PTD2	8	SLIN
9	PTD3	10	GND
11	PTD4	12	GND
13	PTD5	14	GND
15	PTD6	16	GND
17	PTD7	18	GND
19	ACK	20	GND

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21	BUSY	22	GND
23	PE	24	GND
25	SELECT	26	N.C.

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## 2.25 AT Power Connector (CN18)

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Pin	Signal
1	N.C.
2	+5V
3	+12V
4	-12V
5	GND
6	GND
7	GND
8	GND
9	-5V
10	+5V
11	+5V
12	+5V

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## 2.26 PCI-Express Slot (CN19)

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Pin	Signal	Pin	Signal
A1	N.C.	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	+12V
A4	GND	B4	GND
A5	N.C.	B5	SMBCLK
A6	N.C.	B6	SMBDAT

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A7	N.C.	B7	GND
A8	N.C.	B8	+3.3V
A9	+3.3V	B9	N.C.
A10	+3.3V	B10	+3.3VSB
A11	PCIE_RESET#	B11	PCIE_WAKE#
A12	GND	B12	N.C.
A13	PCIE1_CLKP	B13	GND
A14	PCIE1_CLKN	B14	PCIE1_TXP
A15	GND	B15	PCIE1_TXN
A16	PCIE1_RXP	B16	GND
A17	PCIE1_RXN	B17	N.C.
A18	GND	B18	GND
A19	N.C.	B19	PCIE2_TXP
A20	GND	B20	PCIE2_TXN
A21	PCIE2_RXP	B21	GND
A22	PCIE2_RXN	B22	GND
A23	GND	B23	PCIE3_TXP
A24	GND	B24	PCIE3_TXN
A25	PCIE3_RXP	B25	GND
A26	PCIE3_RXN	B26	GND
A27	GND	B27	PCIE4_TXP
A28	GND	B28	PCIE4_TXN
A29	PCIE4_RXP	B29	GND
A30	PCIE4_RXN	B30	PCIE2_CLKN
A31	GND	B31	N.C.

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A32	PCIE2_CLKP	B32	GND
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## 2.27 USB Connector (CN20 & CN21)

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

## 2.28 Digital I/O Connector (CN22)

---

This connector offers 4-pair of digital I/O functions and address is 2A1H. The pin definitions are illustrated below:

Pin	Signal	Pin	Signal
1	Digital-IN/ OUT	2	Digital-IN/OUT
3	Digital-IN/ OUT	4	Digital-IN/ OUT
5	Digital-IN/ OUT	6	Digital-IN/ OUT
7	Digital-IN/ OUT	8	Digital-IN/ OUT
9	+5V	10	GND

The pin definitions and registers mapping are illustrated below:

Address: 2A1H

### 4 in / 4 out

Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8
GPI 27	GPI 26	GPI 25	GPI 24	GPO 23	GPO 22	GPO 21	GPO 20
MSB							LSB

**8 in**

Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8
GPI 27	GPI 26	GPI 25	GPI 24	GPI 23	GPI 22	GPI 21	GPI 20
MSB							LSB

**8 out**

Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8
GPO 27	GPO 26	GPO 25	GPO 24	GPO 23	GPO 22	GPO 21	GPO 20
MSB							LSB

**2.29 COM4 RS-232 Serial Port Connector (CN23)**

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.

**2.30 COM3 RS-232 Serial Port Connector (CN24)**

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.

### 2.31 COM6 RS-232 Serial Port Connector (CN25)

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.

### 2.32 IrDA Connector (CN26)

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

### 2.33 CPU FAN Connector (CN27)

Pin	Signal
1	GND
2	VCC of FAN
3	Speed Sense
4	Speed Control

### 3.34 Front Panel Connector (CN28)

Pin	Signal	Pin	Signal
1	Power On Button (-)	2	Power On Button (+)

---

3	IDE LED (-)	4	IDE LED (+)
5	External Buzzer (-)	6	External Buzzer (+)
7	Power LED (-)	8	Power LED (+)
9	Reset Switch (-)	10	Reset Switch (+)

---

### 2.35 Audio Speaker Output (CN30)

---

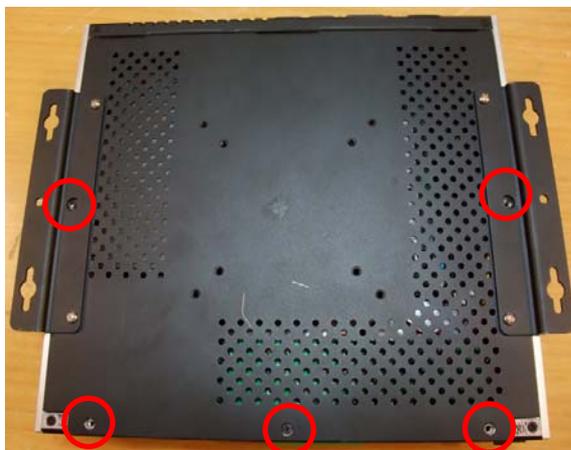
Pin	Signal
1	SPK-R+
2	SPK-R-
3	SPK-L+
4	SPK-L-

---

### 2.36 Installing the Hard Disk Drive

---

Step 1: Unfasten the five screws on the bottom case of the GES-3300F



Step 2: Take the three screws out of the case, and take the HDD case out of the GES-3300F



Step 3: Disconnect the SATA and Power cables (The CompactFlash card is optional. If you did not buy the CF card, you may skip the step 3 and step 4.)



Step 4: Unfasten the four screws to release the CompactFlash Card



Step 5: Get the HDD case from the GES-3300F



Step 6: Get the HDD ready and fasten the four screws covered by damper on HDD and put the HDD back to the case



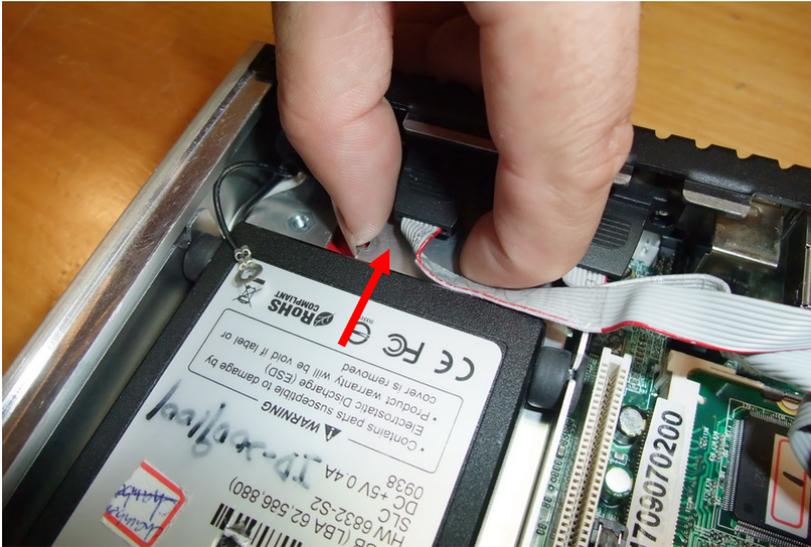
**Note:** Please be careful of the direction of the HDD when you put the HDD back to the case

Step 7: Plug the SATA cable and power cable



Step 8: Place the HDD case to the GES-3300F and press the case to insert the HDD to the GES-3300F





Step 9: Done installing the HDD. Close and screw the bottom case of the GES-3300F



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 GES-3300F CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

## 3.2 Award BIOS Setup

---

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

### Entering Setup

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

### 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 GSE-3300F 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 Chip Driver

Step 2 – Install VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install Audio Driver

Please read instructions below for further detailed installations.

## 4.1 Installation:

---

Insert the GES-3300F CD-ROM into the CD-ROM drive and install the drivers from Step 1 to Step 4 in order.

### Step 1 – Install Chip Driver

1. Click on the **Step 1-chip** 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 2 – Install VGA Driver

1. Click on the **Step 2 –VGA** folder and select the OS your system is
2. Double click on **.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 driver** folder and double click on the **Autorun.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 –AC97** folder and select the OS

your system is

2. Double click on **.exe** located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Appendix

**A**

# **Programming the Watchdog Timer**

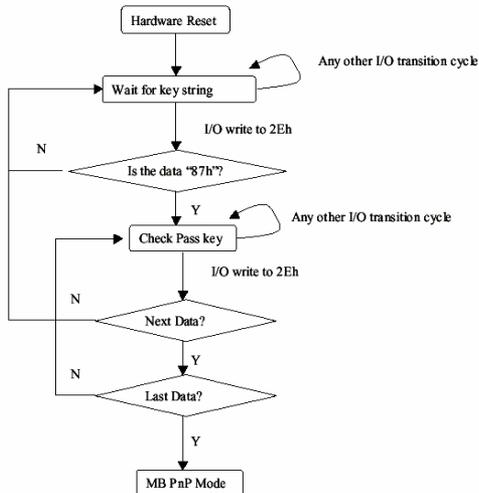
## A.1 Programming

GES-3300F 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.

	<b>Address Port</b>	<b>Data Port</b>
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)**

<b>Bit</b>	<b>Description</b>
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 <sup>Note</sup> for WDT

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

<b>Bit</b>	<b>Description</b>
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

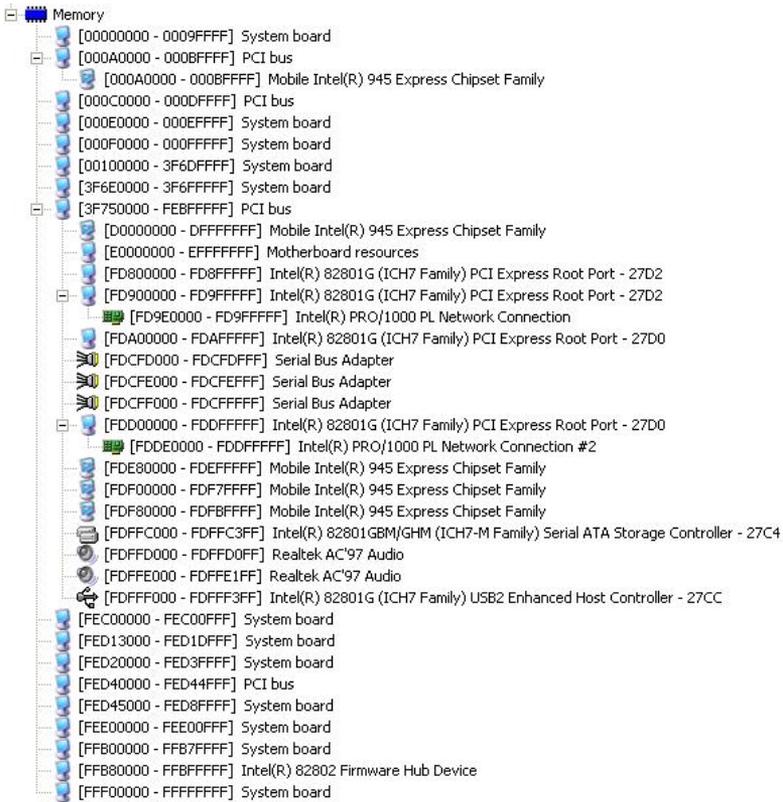
**B**

# I/O Information

## B.1 I/O Address Map

Input/output (IO)	
[00000000 - 00000CF7]	PCI bus
[00000000 - 0000000F]	Direct memory access controller
[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 - 0000006D]	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
[000001F0 - 000001F7]	Primary IDE Channel
[00000274 - 00000277]	ISAPNP Read Data Port
[00000279 - 00000279]	ISAPNP Read Data Port
[00000290 - 0000029F]	Motherboard resources
[000002F8 - 000002FF]	Communications Port (COM2)
[000003B0 - 000003B8]	Mobile Intel(R) 945 Express Chipset Family
[000003C0 - 000003DF]	Mobile Intel(R) 945 Express Chipset Family
[000003F6 - 000003F6]	Primary IDE Channel
[000003F8 - 000003FF]	Communications Port (COM1)
[00000400 - 000004BF]	Motherboard resources
[000004D0 - 000004D1]	Motherboard resources
[00000500 - 0000051F]	Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
[00000880 - 0000088F]	Motherboard resources
[00000A79 - 00000A79]	ISAPNP Read Data Port
[00000000 - 0000FFFF]	PCI bus
[0000B000 - 0000BFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
[0000C000 - 0000CFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
[0000D900 - 0000D91F]	Serial Bus Adaptor
[0000DA00 - 0000DA1F]	Serial Bus Adaptor
[0000DB00 - 0000DB1F]	Serial Bus Adaptor
[0000DC00 - 0000DC07]	Serial Bus Adaptor
[0000DD00 - 0000DD07]	Serial Bus Adaptor
[0000DE00 - 0000DE07]	Serial Bus Adaptor
[0000DF00 - 0000DF07]	Serial Bus Adaptor
[0000F000 - 0000F0FF]	Realtek AC'97 Audio
[0000F300 - 0000F30F]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F400 - 0000F403]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F500 - 0000F507]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F600 - 0000F603]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F700 - 0000F707]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F800 - 0000F80F]	Intel(R) 82801G (ICH7 Family) Ultra ATA Storage Controllers - 27DF
[0000FA00 - 0000FA3F]	Realtek AC'97 Audio
[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]	Mobile Intel(R) 945 Express Chipset Family

## B.2 Memory Address Map



## B.3 IRQ Mapping Chart

---

Interrupt request (IRQ)	Device
(ISA) 0	System timer
(ISA) 1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
(ISA) 3	Communications Port (COM2)
(ISA) 4	Communications Port (COM1)
(ISA) 8	System CMOS/real time clock
(ISA) 9	Microsoft ACPI-Compliant System
(ISA) 12	PS/2 Compatible Mouse
(ISA) 13	Numeric data processor
(ISA) 14	Primary IDE Channel
(PCI) 15	Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
(PCI) 16	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
(PCI) 16	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
(PCI) 16	Intel(R) PRO/1000 PL Network Connection #2
(PCI) 16	Mobile Intel(R) 945 Express Chipset Family
(PCI) 17	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
(PCI) 17	Intel(R) PRO/1000 PL Network Connection
(PCI) 17	Realtek AC'97 Audio
(PCI) 18	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
(PCI) 18	Serial Bus Adapter
(PCI) 18	Serial Bus Adapter
(PCI) 19	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
(PCI) 19	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
(PCI) 23	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
(PCI) 23	Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC

## B.4 DMA Channel Assignments

---

Direct memory access (DMA)	Device
4	Direct memory access controller