

IMBM-B75A

Manual 2nd Ed.

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Packing List

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

- 1 Serial Port Cable with one DB-9 connector
- 2 SATA Cables
- 1 Industrial Motherboard
- 1 I/O Shield
- 1 DVD-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.

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Chapter

1

**General
Information**

1.1 Features

- LGA1155 socket for Intel® 3rd /2nd Generation Core™ i7/ i5/ i3/ Pentium® / Celeron® Processors
- 4 x 240-pin Dual Channel DDR3 1066/1333/1600 MHz (1600 MHz for 3rd Generation Core™ Processors) DIMM Up To 32GB
- Three Independent Display (with 3rd Generation Core™ Processor): VGA x 1 , HDMI x 3
- 10/100/1000Base-T x 2
- SATA 6.0 Gb/s x 1, SATA 3.0 Gb/s x 4, USB3.0 x 4, USB2.0 x 6, COM x 5
- PCI-Express[x16] x 1, PCI-Express[x4] x 1, PCI x 2
- Onboard TPM Function
- EuP/ErP Compliance

1.2 Specifications

System

- Form Factor Micro ATX
- CPU Intel® Socket 1155 for 3rd /2nd generation Core™ i7/i5/i3 /Pentium® / Celeron® Processors; Intel® 22nm CPU to 77W, 32nm CPU up to 95W; Supports Intel® Turbo Boost Technology 2.0

Note: Intel® Turbo Boost Technology 2.0 function will depend on the CPU types

- System Memory 4 x 240-pin DIMM up to 32GB, DDR3 1066/1333/1600 MHz memory (1600MHz for 3rd generation processor); Supports Dual Channel memory
- Chipset Intel® B75
- Ethernet Realtek RTL8111F-VB-CG, 10/100/1000Base-T x 2
- BIOS AMI Plug & Play SPI BIOS – 2 x 64Mb ROM
- TPM Onboard Infineon SLB9635 TT 1.2
- Storage SATA 6.0Gb/s x 1, SATA 3.0 Gb/s x 4
- Watchdog Timer 1~255 steps by software program
- H/W Status Monitor Supports CPU/System temperature and overheat alarm, Voltage and Failure

alarm, CPU/System Fan Speed

Monitoring

- Expansion Interface PCI-Express[x16] x 1, PCI-Express[x4] x 1, PCI x 2
- RTC Internal RTC
- Power Requirement 24-pin ATX connector x 1, 8-pin ATX 12V connector x 1, CPU fan x 1, System fan x 2 with 4-pin wafer for Smart FAN support
- Operating Temp. 32°F~140°F (0°C~60°C)
- Storage Temp. -4°F~158°F (-20°C~70°C)
- Board Size 9.6”(L) x9.6” (W) (244mm x 244mm)
- Power Compliance Compliant with Eup/ErP
- EMI CE/FCC Class A

Display

- Chipset Intel 3rd Generation Core i series + B75
- Memory Shared system memory up to 1024MB
- Resolutions Up to 1920x1200 @ 75Hz for VGA;
1080 @ 60Hz for HDMI

I/O: ITE IT 8783F

- Serial Port RS-232/422/485 with box header x 1,
RS-232 with box header x 4
- LPT LPT x 1 by pin header

- USB USB3.0 x 2 (Type A port), USB3.0 x 2 (box header); USB2.0 x 2 (Type A port), USB2.0 x 4 (Pin header)
- IrDA Supports one IrDA header
- KB/Mouse Mini DIN PS/2 KB and PS/2 MS connector
- DIO 8-bit Digital I/O interface (4-in/4-out)
- Audio Realtek ALC887-VD2-CG , MIC-in/ Line-in/ Line-out

Chapter

2

**Quick
Installation
Guide**

2.1 Safety Precautions

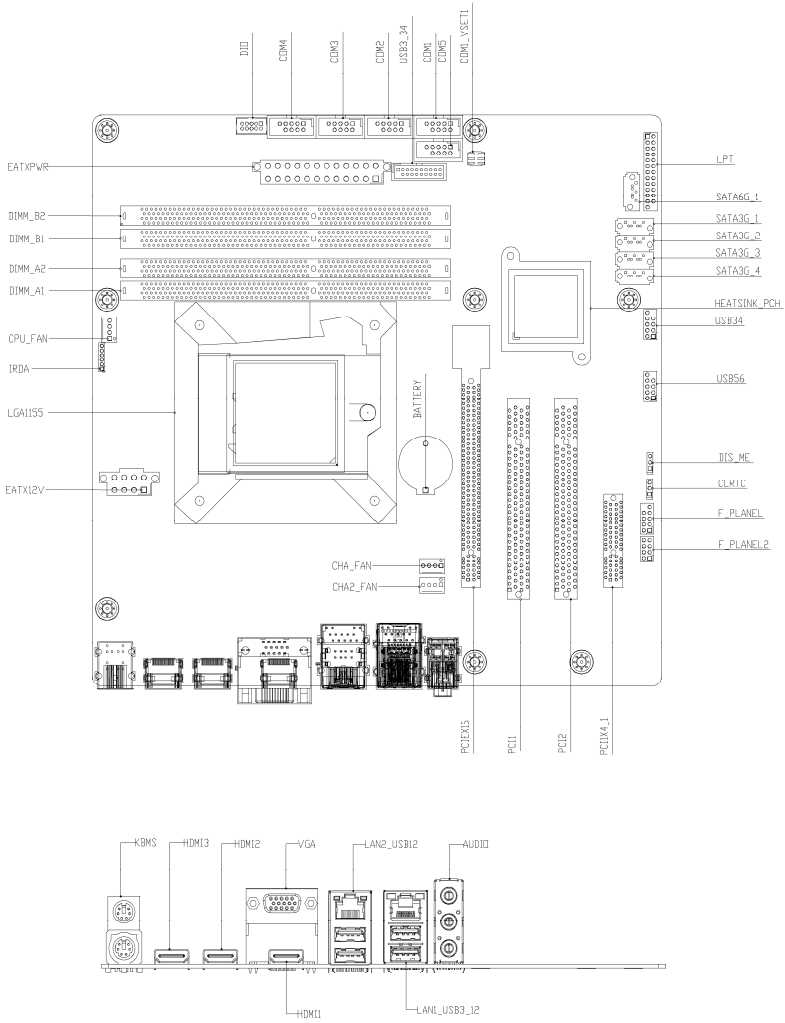
Warning!

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.

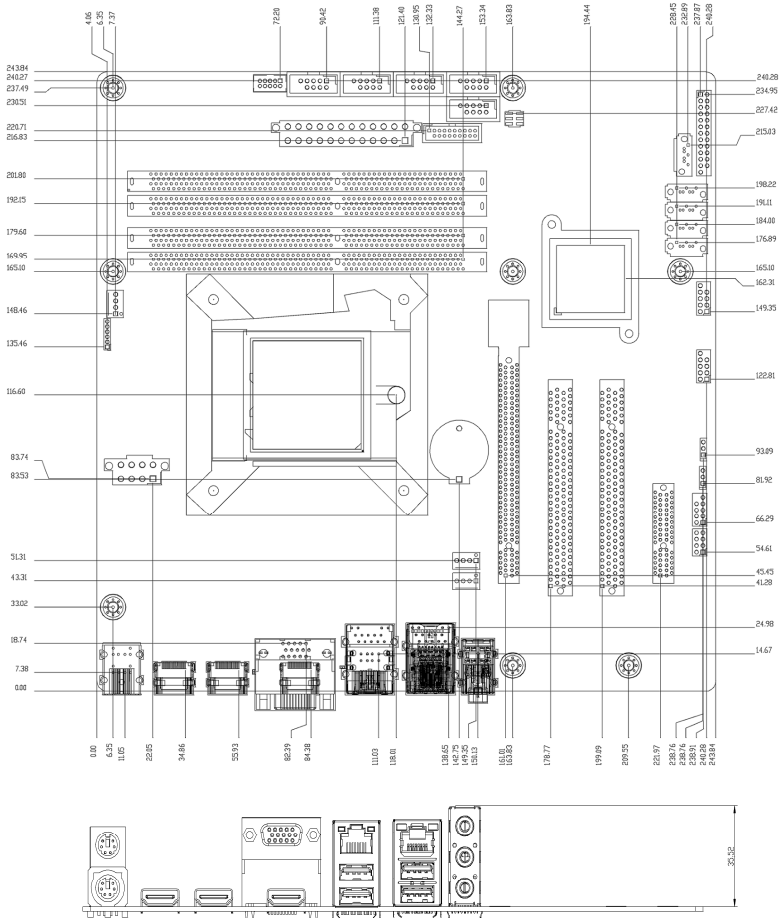
Caution!

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:

Label	Function
CLRTC	Clear CMOS
COM1_VSET1	COM1 Ring/+5V/+12V Selection
DIS_ME	Management Engine update function selection
F_PANEL2	Buzzer function Selection

2.5 List of Connectors

The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

Label	Function
AUDIO	Audio jack Connector
BATTERY	RTC - Coin Battery Holder
COM1	Internal COM1 RS-232/422/485 Serial Port Connector
COM2	Internal COM2 RS-232 Serial Port Connector
COM3	Internal COM3 RS-232 Serial Port Connector
COM4	Internal COM4 RS-232 Serial Port Connector
COM5	Internal COM5 RS-232 Serial Port Connector
CPU_FAN	CPU FAN Connector

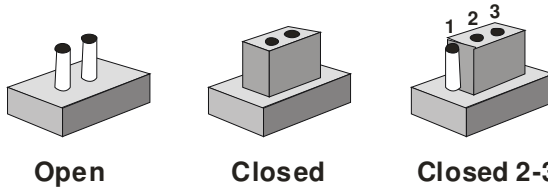
CHA_FAN	System FAN Connector
CHA_FAN2	System FAN Connector
DIMM_A1	DIMM1 Slot
DIMM_A2	DIMM2 Slot
DIMM_B1	DIMM3 Slot
DIMM_B2	DIMM4 Slot
DIO	Digital I/O Connector
EATX12V	ATX 8P POWER Connector
EATXPWR	ATX 24P Power Connector
F_PANEL	Front Panel Connector
F_PANEL2	Front Panel 2 Connector
HDMI1	HDMI Connector
HDMI2	HDMI Connector
HDMI3	HDMI Connector
IRDA	IrDA Connector
KBMS	PS/2 Keyboard/Mouse Connector
LAN1_USB3_12	1000Base-T Ethernet Connector with Dock USB 3.0 Connector
LAN2_USB12	1000Base-T Ethernet Connector with Dock USB 2.0 Connector
LGA1155	CPU Socket - LGA-1155P
LPT	Internal Parallel Port Connector
PCI1	PCI Slot
PCI2	PCI Slot
PCIEX16	PCI-Express[x16] Slot

PCIEX4_1	PCI-Express[x4] Slot
SATA3G_1	SATA II Connector
SATA3G_2	SATA II Connector
SATA3G_3	SATA II Connector
SATA3G_4	SATA II Connector
SATA6G_1	SATA III Connector
USB3_34	Internal USB 3.0 Connector
USB34	Internal USB 2.0 Connector
USB56	Internal USB 2.0 Connector
VGA	CRT Display 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 (CLRTC)

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

2.8 COM1 Ring/+5V/+12V Selection (COM1_VSET1)

COM1_VSET1	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

2.9 Management Engine Update Function Selection (DIS_ME)

DIS_ME	Function
1-2	Enable ME Update (Default)
2-3	Disable ME Update

2.10 Buzzer function Selection (F_PANEL2)

F_PANEL2	Function
5-7	Enable Buzzer (Default)

2.11 Internal COM Serial Port Connector (COM1 ~ COM5)

Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR

7	RTS	8	CTS
9	RI	10	(kill pin)

2.12 FAN Connector (CPU_FAN/CHA_FAN/CHA_FAN2)

Pin	Signal
1	PWM
2	SENSE
3	VCC
4	GND

2.13 Digital I/O Connector (DIO1)

Pin	Signal	Pin	Signal
1	DIO_I#1 (GP50)	2	DIO_I#2 (GP51)
3	DIO_I#3 (GP52)	4	DIO_I#4 (GP53)
5	DIO_O#1 (GP54)	6	DIO_O#2 (GP55)
7	DIO_O#3 (GP56)	8	DIO_O#4 (GP57)
9	+5V	10	GND

2.14 Front Panel Connector (F_PANEL)

Pin	Signal	Pin	Signal
1	HDLED+	2	PLED+
3	HDLED-	4	PLED-
5	GND	6	PWRBTN#_PANEL
7	O_RSTCON#_PR	8	GND
9	(NC)	10	(kill pin)

2.15 Front Panel Connector (F_PANEL2)

Pin	Signal	Pin	Signal
1	SPKO+	2	KEYLOCK#
3	(NC)	4	GND
5	S_Buzzer	6	S_SMBCLK_MAIN
7	SPKO	8	S_SMBDATA_MAIN

2.16 IrDA Connector (IRDA)

Pin	Signal
1	+5V
2	(NC)
3	IR_RX
4	GND
5	IR_TX
6	(NC)

2.17 PS/2 Keyboard/Mouse Connector (KBMS)

Pin	Signal	Pin	Signal
1	KB_DATA	2	(NC)
3	GND	4	+5V
5	KB_CLK	6	(NC)
7	MS_DATA	8	(NC)
9	GND	10	+5V
11	MS_CLK	12	(NC)
13	GND	14	GND

15	GND	16	GND
17	GND		

2.18 1000Base-T Ethernet Connector with Dock USB 3.0 Connector (LAN1_USB3_12)

Pin	Signal	Pin	Signal
1	+5V	2	USB2_DN2
3	USB2_DP2	4	GND
5	USB3_RX_DN2	6	USB3_RX_DP2
7	GND	8	USB3_TX_DN2
9	USB3_TX_DP2	10	+5V
11	USB2_DN1	12	USB2_DP1
13	GND	14	USB3_RX_DN1
15	USB3_RX_DP1	16	GND
17	USB3_TX_DN1	18	USB3_TX_DP1
19	LAN_CTR	20	LAN_MDI_DP0
21	LAN_MDI_DN0	22	LAN_MDI_DP1
23	LAN_MDI_DN1	24	LAN_MDI_DP2
25	LAN_MDI_DN2	26	LAN_MDI_DP3
27	LAN_MDI_DN3	28	GND
29	LAN_LED_ACT	30	LAN_LED_ACT#
31	LAN_LED_LINK1000#	32	LAN_LED_LINK100#
33	GND	34	GND
35	GND	36	GND
37	GND	38	GND

39	GND	40	GND
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2.19 1000Base-T Ethernet Connector with Dock USB 2.0 Connector (LAN2_USB12)

Pin	Signal	Pin	Signal
1	GND	2	GND
3	USB2_DP1	4	USB2_DP2
5	USB2_DN1	6	USB2_DN2
7	+5V	8	+5V
9	LAN_CTR	10	LAN_MDI_DP0
11	LAN_MDI_DN0	12	LAN_MDI_DP1
13	LAN_MDI_DN1	14	LAN_MDI_DP2
15	LAN_MDI_DN2	16	LAN_MDI_DP3
17	LAN_MDI_DN3	18	GND
19	LAN_LED_LINK100#	20	LAN_LED_LINK1000#
21	LAN_LED_ACT#	22	LAN_LED_ACT
23	GND	24	GND
25	GND	26	GND
27	GND	28	GND
29	GND	30	GND

2.20 Internal Parallel Port Connector (LPT)

Pin	Signal	Pin	Signal
1	LPT_XSTB#	2	LPT_XAFD#
3	LPT_XPD0	4	LPT_ERROR#

5	LPT_XPD1	6	LPT_XINIT#
7	LPT_XPD2	8	LPT_XSLIN#
9	LPT_XPD3	10	GND
11	LPT_XPD4	12	GND
13	LPT_XPD5	14	GND
15	LPT_XPD6	16	GND
17	LPT_XPD7	18	GND
19	LPT_ACK#	20	GND
21	LPT_BUSY	22	GND
23	LPT_PE	24	GND
25	LPT_SLCT	26	(kill pin)

2.21 Internal USB 3.0 Connector (USB3_34)

Pin	Signal	Pin	Signal
1	+5V		(kill pin)
2	USB3_RX_DN1	19	+5V
3	USB3_RX_DP1	18	USB3_RX_DN2
4	GND	17	USB3_RX_DP2
5	USB3_TX_DN1	16	GND
6	USB3_TX_DP1	15	USB3_TX_DN2
7	GND	14	USB3_TX_DP2
8	USB2_DN1	13	GND
9	USB2_DP1	12	USB2_DN2
10	GND	11	USB2_DP2

2.22 Internal USB 2.0 Connector (USB34/USB56)

Pin	Signal	Pin	Signal
1	+5V	2	+5V
3	USB2_DN1	4	USB2_DN2
5	USB2_DP1	6	USB2_DP2
7	GND	8	GND
(kill pin)		10	(NC)

Chapter

3

**AMI
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.

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 IMBM-B75A 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 AMI BIOS Setup

AMI 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 or <F2> immediately. This will allow you to enter Setup.

Main

Set the date, use tab to switch between date elements.



Advanced

Advanced BIOS Features Setup including TPM, ACPI, etc.



Monitor

Display system temperature/power status, and change fan settings



Boot

Enables/disable quiet boot option.



Exit

Exit system setup after saving the changes.



Chapter

4

**Driver
Installation**

The IMBM-B75A comes with a DVD-ROM that contains all drivers and utilities that meet your needs.

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 USB3.0 Driver

Step 6 – Install AHCI Driver

Step 7 – Install ME Driver

Step x – Install TPM Driver

Note: To enable IrDA function of Window 7 32/64-bit, please obtain driver via Microsoft Windows[®] update.

4.1 Installation:

Insert the IMBM-B75A DVD-ROM into the DVD-ROM Drive. And install the drivers from Step 1 to Step x in order.

Step 1 – Install Chipset Driver

1. Click on the **Step 1-Chipset** folder and select the folder of **Driver**
2. Double click on the **Setup.exe** 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 and select the OS folder your system is
2. Double click on the **Setup.exe** file 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 select the OS folder your system is
2. Double click on the **setup.exe** file 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 double click on the **Setup.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 5 – Install USB3.0 Driver

1. Click on the **Step 5-USB3.0** folder and double click on the **Setup.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 6 – Install AHCI Driver

1. Click on the **Step 6-AHCI** folder and select the folder of **Driver**
2. Double click on the **setup.exe** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 7– Install ME Driver

1. Click on the **Step 7-ME** folder and double click on the **setup.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step x – Install TPM Driver

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

Appendix

A

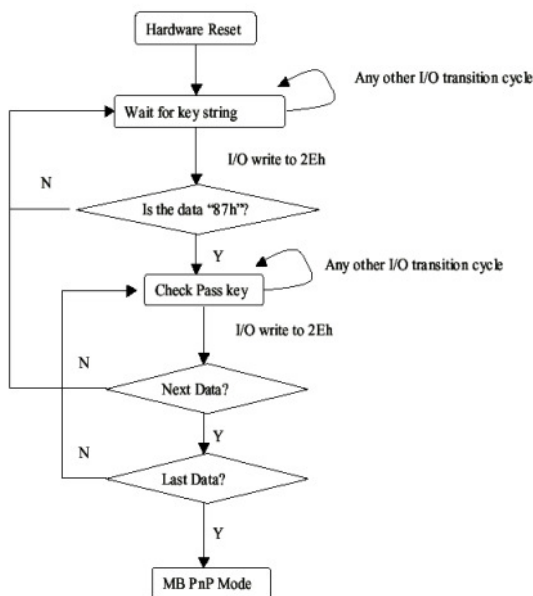
Programming the Watchdog Timer

A.1 Programming

IMBM-B75A utilizes ITE 8783 chipset as its watchdog timer controller. Below are the procedures to complete its configuration and this 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 8783 enters the normal mode with all logical devices disabled except KBC. The initial state (enable bit) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.



There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(1) Enter the MB PnP Mode

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

	Address Port	Data Port
87h, 01h, 55h, 55h:	2Eh	2Fh

(2) Modify the Data of the Registers

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

(3) Exit the MB PnP Mode

Set bit 1 of the configure control register (Index=02h) to 1 to exit the MB PnP Mode.

WatchDog Timer Configuration Registers

LDN	Index	R/W	Reset	Configuration Register or Action
All	02h	W	NA	Configure Control

07h	71h	R/W	00h	Watch Dog Timer Control Register
07h	72h	R/W	001s0000b	Watch Dog Timer Configuration Register
07h	73h	R/W	38h	Watch Dog Timer Time-out Value (LSB) Register
07h	74h	R/W	00h	Watch Dog Timer Time-out Value (MSB) 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.

Watch Dog Timer 1, 2, 3 Control Register (Index=71h,81h,91h Default=00h)

Bit	Description
7	WDT Timeout Enable(WTE) 1: Disable. 0: Enable.
6	WDT Reset upon Mouse Interrupt(WRKMI) 0: Disable. 1: Enable.
5	WDT Reset upon Keyboard Interrupt(WRKBI) 0: Disable. 1: Enable.
4	Reserved
3-2	Reserved
1	Force Time-out(FTO) This bit is self-clearing.
0	WDT Status(WS) 1: WDT value reaches 0. 0: WDT value is not 0.

Watch Dog Timer 1, 2, 3 Configuration Register (Index=72h, 82h, 92h Default=001s0000b)

Bit	Description
7	WDT Time-out Value Select 1 (WTVS) 1: Second 0: Minute
6	WDT Output through KRST (Pulse) Enable(WOKE) 1: Enable 0: Disable
5	WDT Time-out value Extra select(WTVES) 1: 64ms x WDT Timer-out value (default = 4s) 0: Determined by WDT Time-out value select 1 (bit 7 of this register)
4	WDT Output through PWROK (Pulse) Enable(WOPE) 1: Enable 0: Disable During LRESET#, this bit is selected by JP7 power-on strapping option
3-0	Select interrupt level^{Note1} for WDT(SIL)

Watch Dog Timer 1,2,3 Time-Out Value (LSB) Register (Index=73h,83h,93h, Default=38h)

Bit	Description
7-0	WDT Time-out Value 7-0(WTV)

Watch Dog Timer 1,2,3 Time-Out Value (MSB) Register (Index=74h,84h,94h Default=00h)

Bit	Description
7-0	WDT Time-out Value 15-8(WTV)

A.2 ITE8783 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,81h

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 - 0000001F]	Direct memory access controller
[00000000 - 00000CF7]	PCI bus
[00000010 - 0000001F]	Motherboard resources
[00000020 - 00000021]	Programmable interrupt controller
[00000022 - 0000003F]	Motherboard resources
[00000024 - 00000025]	Programmable interrupt controller
[00000028 - 00000029]	Programmable interrupt controller
[0000002C - 0000002D]	Programmable interrupt controller
[0000002E - 0000002F]	Motherboard resources
[00000030 - 00000031]	Programmable interrupt controller
[00000034 - 00000035]	Programmable interrupt controller
[00000038 - 00000039]	Programmable interrupt controller
[0000003C - 0000003D]	Programmable interrupt controller
[00000040 - 00000043]	System timer
[00000044 - 0000005F]	Motherboard resources
[0000004E - 0000004F]	Motherboard resources
[00000050 - 00000053]	System timer
[00000060 - 00000060]	Standard PS/2 Keyboard
[00000061 - 00000061]	Motherboard resources
[00000062 - 00000063]	Motherboard resources
[00000063 - 00000063]	Motherboard resources
[00000064 - 00000064]	Standard PS/2 Keyboard
[00000065 - 00000065]	Motherboard resources
[00000065 - 00000066]	Motherboard resources
[00000067 - 00000067]	Motherboard resources
[00000070 - 00000070]	Motherboard resources
[00000070 - 00000077]	System CMOS/real time clock
[00000072 - 0000007F]	Motherboard resources
[00000080 - 00000080]	Motherboard resources
[00000080 - 00000080]	Motherboard resources
[00000081 - 00000091]	Direct memory access controller
[00000084 - 00000086]	Motherboard resources
[00000088 - 00000088]	Motherboard resources
[0000008C - 0000008E]	Motherboard resources
[00000090 - 0000009F]	Motherboard resources
[00000092 - 00000092]	Motherboard resources
[00000093 - 0000009F]	Direct memory access controller
[000000A0 - 000000A1]	Programmable interrupt controller
[000000A2 - 000000BF]	Motherboard resources
[000000A4 - 000000A5]	Programmable interrupt controller
[000000A8 - 000000A9]	Programmable interrupt controller

	[000000AC - 000000AD]	Programmable interrupt controller
	[000000B0 - 000000B1]	Programmable interrupt controller
	[000000B2 - 000000B3]	Motherboard resources
	[000000B4 - 000000B5]	Programmable interrupt controller
	[000000B8 - 000000B9]	Programmable interrupt controller
	[000000BC - 000000BD]	Programmable interrupt controller
	[000000C0 - 000000DF]	Direct memory access controller
	[000000E0 - 000000EF]	Motherboard resources
	[000000F0 - 000000FF]	Numeric data processor
	[00000200 - 0000020F]	Motherboard resources
	[00000290 - 0000029F]	Motherboard resources
	[000002E8 - 000002EF]	Communications Port (COM4)
	[000002F0 - 000002F7]	Communications Port (COM1)
	[000002F8 - 000002FF]	Communications Port (COM2)
	[00000378 - 0000037F]	Printer Port (LPT1)
	[000003B0 - 000003BB]	Intel(R) HD Graphics Family
	[000003C0 - 000003DF]	Intel(R) HD Graphics Family
	[000003E8 - 000003EF]	Communications Port (COM3)
	[000003F8 - 000003FF]	Communications Port (COM1)
	[00000400 - 00000453]	Motherboard resources
	[00000454 - 00000457]	Motherboard resources
	[00000458 - 0000047F]	Motherboard resources
	[000004D0 - 000004D1]	Motherboard resources
	[000004D0 - 000004D1]	Programmable interrupt controller
	[00000500 - 0000057F]	Motherboard resources
	[00000680 - 0000069F]	Motherboard resources
	[00000A00 - 00000A1F]	Motherboard resources
	[00000A20 - 00000A2F]	Motherboard resources
	[00000D00 - 0000FFFF]	PCI bus
	[0000164E - 0000164F]	Motherboard resources
	[0000D000 - 0000D0FF]	Realtek PCIe GBE Family Controller #2
	[0000D000 - 0000DFFF]	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 7 - 1E1C
	[0000E000 - 0000E0FF]	Realtek PCIe GBE Family Controller
	[0000E000 - 0000EFFF]	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 6 - 1E1A
	[0000F000 - 0000F03F]	Intel(R) HD Graphics Family
	[0000F040 - 0000F05F]	Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22
	[0000F060 - 0000F06F]	Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
	[0000F070 - 0000F07F]	Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
	[0000F080 - 0000F083]	Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
	[0000F090 - 0000F097]	Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
	[00000290 - 0000029F]	Motherboard resources
	[000002E8 - 000002EF]	Communications Port (COM4)
	[000002F0 - 000002F7]	Communications Port (COM1)
	[000002F8 - 000002FF]	Communications Port (COM2)
	[00000378 - 0000037F]	Printer Port (LPT1)
	[000003B0 - 000003BB]	Intel(R) HD Graphics Family
	[000003C0 - 000003DF]	Intel(R) HD Graphics Family
	[000003E8 - 000003EF]	Communications Port (COM3)
	[000003F8 - 000003FF]	Communications Port (COM1)














































	[00000400 - 00000453] Motherboard resources
	[00000454 - 00000457] Motherboard resources
	[00000458 - 0000047F] Motherboard resources
	[000004D0 - 000004D1] Motherboard resources
	[000004D0 - 000004D1] Programmable interrupt controller
	[00000500 - 0000057F] Motherboard resources
	[00000680 - 0000069F] Motherboard resources
	[00000A00 - 00000A1F] Motherboard resources
	[00000A20 - 00000A2F] Motherboard resources
	[00000D00 - 0000FFFF] PCI bus
	[0000164E - 0000164F] Motherboard resources
	[0000D000 - 0000D0FF] Realtek PCIe GBE Family Controller #2
	[0000D000 - 0000DFFF] Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 7 - 1E1C
	[0000E000 - 0000E0FF] Realtek PCIe GBE Family Controller
	[0000E000 - 0000EFFF] Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 6 - 1E1A
	[0000F000 - 0000F03F] Intel(R) HD Graphics Family
	[0000F040 - 0000F05F] Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22
	[0000F060 - 0000F06F] Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
	[0000F070 - 0000F07F] Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
	[0000F080 - 0000F083] Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
	[0000F090 - 0000F097] Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
	[0000FA00 - 0000FA03] Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
	[0000FB00 - 0000FB07] Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
	[0000FC00 - 0000FC0F] Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
	[0000FD00 - 0000F0DF] Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
	[0000F0E0 - 0000F0E3] Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
	[0000F0F0 - 0000F0F7] Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
	[0000F100 - 0000F103] Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
	[0000F110 - 0000F117] Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
	[0000FFFF - 0000FFFF] Motherboard resources
	[0000FFFF - 0000FFFF] Motherboard resources














































B.2 1st MB Memory Address Map

Address Range	Device Name
[000A0000 - 000BFFFF]	Intel(R) HD Graphics Family
[000A0000 - 000BFFFF]	PCI bus
[000D0000 - 000D3FFF]	PCI bus
[000D4000 - 000D7FFF]	PCI bus
[000D8000 - 000DBFFF]	PCI bus
[000DC000 - 000DFFFF]	PCI bus
[000E0000 - 000E3FFF]	PCI bus
[000E4000 - 000E7FFF]	PCI bus
[20000000 - 201FFFFFF]	System board
[40000000 - 401FFFFFF]	System board
[DF200000 - DF200FFF]	Motherboard resources
[DF200000 - FEFFFFFF]	PCI bus
[E0000000 - EFFFFFFF]	Intel(R) HD Graphics Family
[F0000000 - F0003FFF]	Realtek PCIe GBE Family Controller #2
[F0000000 - F00FFFFFF]	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 7 - 1E1C
[F0004000 - F0004FFF]	Realtek PCIe GBE Family Controller #2
[F0100000 - F0103FFF]	Realtek PCIe GBE Family Controller
[F0100000 - F01FFFFFF]	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 6 - 1E1A
[F0104000 - F0104FFF]	Realtek PCIe GBE Family Controller
[F7800000 - F7BFFFFFF]	Intel(R) HD Graphics Family
[F7C00000 - F7C0FFFF]	Intel(R) USB 3.0 eXtensible Host Controller
[F7C10000 - F7C13FFF]	High Definition Audio Controller
[F7C15000 - F7C150FF]	Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22
[F7C16000 - F7C163FF]	Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E26
[F7C17000 - F7C173FF]	Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E2D
[F7C1A000 - F7C1A00F]	Intel(R) Management Engine Interface
[F8000000 - FBFFFFFF]	Motherboard resources
[FED00000 - FED003FF]	High precision event timer
[FED10000 - FED17FFF]	Motherboard resources
[FED18000 - FED18FFF]	Motherboard resources
[FED19000 - FED19FFF]	Motherboard resources
[FED1C000 - FED1FFFF]	Motherboard resources
[FED20000 - FED3FFFF]	Motherboard resources
[FED40000 - FED44FFF]	Trusted Platform Module 1.2
[FED45000 - FED8FFFF]	Motherboard resources
[FED90000 - FED93FFF]	Motherboard resources
[FEE00000 - FEEFFFFFF]	Motherboard resources
[FF000000 - FFFFFFFF]	Intel(R) 82802 Firmware Hub Device
[FF000000 - FFFFFFFF]	Motherboard resources



B.3 IRQ Mapping Chart

Interrupt request (IRQ)	Device
(ISA) 0x00000000 (00)	System timer
(ISA) 0x00000001 (01)	Standard PS/2 Keyboard
(ISA) 0x00000003 (03)	Communications Port (COM2)
(ISA) 0x00000004 (04)	Communications Port (COM1)
(ISA) 0x00000007 (07)	Communications Port (COM3)
(ISA) 0x00000007 (07)	Communications Port (COM4)
(ISA) 0x00000008 (08)	System CMOS/real time clock
(ISA) 0x0000000A (10)	Communications Port (COM1)
(ISA) 0x0000000D (13)	Numeric data processor
(ISA) 0x00000051 (81)	Microsoft ACPI-Compliant System
(ISA) 0x00000052 (82)	Microsoft ACPI-Compliant System
(ISA) 0x00000053 (83)	Microsoft ACPI-Compliant System
(ISA) 0x00000054 (84)	Microsoft ACPI-Compliant System
(ISA) 0x00000055 (85)	Microsoft ACPI-Compliant System
(ISA) 0x00000056 (86)	Microsoft ACPI-Compliant System
(ISA) 0x00000057 (87)	Microsoft ACPI-Compliant System
(ISA) 0x00000058 (88)	Microsoft ACPI-Compliant System
(ISA) 0x00000059 (89)	Microsoft ACPI-Compliant System
(ISA) 0x0000005A (90)	Microsoft ACPI-Compliant System
(ISA) 0x0000005B (91)	Microsoft ACPI-Compliant System
(ISA) 0x0000005C (92)	Microsoft ACPI-Compliant System
(ISA) 0x0000005D (93)	Microsoft ACPI-Compliant System
(ISA) 0x0000005E (94)	Microsoft ACPI-Compliant System
(ISA) 0x0000005F (95)	Microsoft ACPI-Compliant System
(ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
(ISA) 0x00000061 (97)	Microsoft ACPI-Compliant System
(ISA) 0x00000062 (98)	Microsoft ACPI-Compliant System
(ISA) 0x00000063 (99)	Microsoft ACPI-Compliant System
(ISA) 0x00000064 (100)	Microsoft ACPI-Compliant System
(ISA) 0x00000065 (101)	Microsoft ACPI-Compliant System
(ISA) 0x00000066 (102)	Microsoft ACPI-Compliant System
(ISA) 0x00000067 (103)	Microsoft ACPI-Compliant System
(ISA) 0x00000068 (104)	Microsoft ACPI-Compliant System
(ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System
(ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
(ISA) 0x0000006B (107)	Microsoft ACPI-Compliant System
(ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
(ISA) 0x0000006D (109)	Microsoft ACPI-Compliant System
(ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System
(ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
(ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
(ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System
(ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
(ISA) 0x00000073 (115)	Microsoft ACPI-Compliant System

 (ISA) 0x0000074 (116)	Microsoft ACPI-Compliant System
 (ISA) 0x0000075 (117)	Microsoft ACPI-Compliant System
 (ISA) 0x0000076 (118)	Microsoft ACPI-Compliant System
 (ISA) 0x0000077 (119)	Microsoft ACPI-Compliant System
 (ISA) 0x0000078 (120)	Microsoft ACPI-Compliant System
 (ISA) 0x0000079 (121)	Microsoft ACPI-Compliant System
 (ISA) 0x000007A (122)	Microsoft ACPI-Compliant System
 (ISA) 0x000007B (123)	Microsoft ACPI-Compliant System
 (ISA) 0x000007C (124)	Microsoft ACPI-Compliant System
 (ISA) 0x000007D (125)	Microsoft ACPI-Compliant System
 (ISA) 0x000007E (126)	Microsoft ACPI-Compliant System
 (ISA) 0x000007F (127)	Microsoft ACPI-Compliant System
 (ISA) 0x0000080 (128)	Microsoft ACPI-Compliant System
 (ISA) 0x0000081 (129)	Microsoft ACPI-Compliant System
 (ISA) 0x0000082 (130)	Microsoft ACPI-Compliant System
 (ISA) 0x0000083 (131)	Microsoft ACPI-Compliant System
 (ISA) 0x0000084 (132)	Microsoft ACPI-Compliant System
 (ISA) 0x0000085 (133)	Microsoft ACPI-Compliant System
 (ISA) 0x0000086 (134)	Microsoft ACPI-Compliant System
 (ISA) 0x0000087 (135)	Microsoft ACPI-Compliant System
 (ISA) 0x0000088 (136)	Microsoft ACPI-Compliant System
 (ISA) 0x0000089 (137)	Microsoft ACPI-Compliant System
 (ISA) 0x000008A (138)	Microsoft ACPI-Compliant System
 (ISA) 0x000008B (139)	Microsoft ACPI-Compliant System
 (ISA) 0x000008C (140)	Microsoft ACPI-Compliant System
 (ISA) 0x000008D (141)	Microsoft ACPI-Compliant System
 (ISA) 0x000008E (142)	Microsoft ACPI-Compliant System
 (ISA) 0x000008F (143)	Microsoft ACPI-Compliant System
 (ISA) 0x0000090 (144)	Microsoft ACPI-Compliant System
 (ISA) 0x0000091 (145)	Microsoft ACPI-Compliant System
 (ISA) 0x0000092 (146)	Microsoft ACPI-Compliant System
 (ISA) 0x0000093 (147)	Microsoft ACPI-Compliant System
 (ISA) 0x0000094 (148)	Microsoft ACPI-Compliant System
 (ISA) 0x0000095 (149)	Microsoft ACPI-Compliant System
 (ISA) 0x0000096 (150)	Microsoft ACPI-Compliant System
 (ISA) 0x0000097 (151)	Microsoft ACPI-Compliant System
 (ISA) 0x0000098 (152)	Microsoft ACPI-Compliant System
 (ISA) 0x0000099 (153)	Microsoft ACPI-Compliant System
 (ISA) 0x000009A (154)	Microsoft ACPI-Compliant System
 (ISA) 0x000009B (155)	Microsoft ACPI-Compliant System
 (ISA) 0x000009C (156)	Microsoft ACPI-Compliant System
 (ISA) 0x000009D (157)	Microsoft ACPI-Compliant System
 (ISA) 0x000009E (158)	Microsoft ACPI-Compliant System
 (ISA) 0x000009F (159)	Microsoft ACPI-Compliant System
 (ISA) 0x00000A0 (160)	Microsoft ACPI-Compliant System

	(ISA) 0x000000A1 (161)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A2 (162)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A3 (163)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A4 (164)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A5 (165)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A6 (166)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A9 (169)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AA (170)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AB (171)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
	(PCI) 0x0000000A (10)	Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22
	(PCI) 0x00000010 (16)	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 1 - 1E10
	(PCI) 0x00000010 (16)	Xeon E3-1200/2nd Generation Intel(R) Core(TM) Processor Family PCI Express Root Port - 0101
	(PCI) 0x00000011 (17)	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 6 - 1E1A
	(PCI) 0x00000012 (18)	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 7 - 1E1C
	(PCI) 0x00000013 (19)	Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
	(PCI) 0x00000013 (19)	Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
	(PCI) 0x00000015 (21)	Intel(R) Management Engine Interface
	(PCI) 0x00000016 (22)	High Definition Audio Controller
	(PCI) 0x00000017 (23)	Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E2D
	(PCI) 0x00000017 (23)	Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E26
	(PCI) 0xFFFFFFFF (-5)	Realtek PCIe GBE Family Controller #2
	(PCI) 0xFFFFFFFF (-4)	Realtek PCIe GBE Family Controller
	(PCI) 0xFFFFFFFF (-3)	Intel(R) USB 3.0 eXtensible Host Controller
	(PCI) 0xFFFFFFFF (-2)	Intel(R) HD Graphics Family

B.4 DMA Channel Assignments

-  Direct memory access (DMA)
-  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	
		Vendor	Model no
AUDIO	Audio jack Connector	FOXCONN	JA33331-2119-4F
BATTERY	RTC - Coin Battery Holder	LOTES	AAA-BAT-029-K01
COM1	Internal COM1 RS-232/422/485 Serial Port Connector	PINREX	510-80-10GG33
COM2	Internal COM2 RS-232 Serial Port Connector	PINREX	510-80-10GG33
COM3	Internal COM3 RS-232 Serial Port Connector	PINREX	510-80-10GG33
COM4	Internal COM4 RS-232 Serial Port Connector	PINREX	510-80-10GG33
COM5	Internal COM5 RS-232 Serial Port Connector	PINREX	510-80-10GG33
CPU_FAN	CPU FAN Connector	PINREX	744-81-04TG20
CHA_FAN	System FAN Connector	PINREX	744-81-04TG20
CHA_FAN2	System FAN Connector	PINREX	744-81-04TG20
DIMM_A1	DIMM1 Slot	LOTES	AAA-DDR-151-K09
DIMM_A2	DIMM2 Slot	LOTES	AAA-DDR-151-K08
DIMM_B1	DIMM3 Slot	LOTES	AAA-DDR-151-K09
DIMM_B2	DIMM4 Slot	LOTES	AAA-DDR-151-K08
DIO	Digital I/O Connector	PINREX	52S-90-10GB00

EATX12V	ATX 8P POWER Connector	PINREX	740-81-08TVY8
EATXPWR	ATX 24P Power Connector	PINREX	740-81-24TVS3
F_PANEL	Front Panel Connector	PINREX	210-92-05GB02
F_PANEL2	Front Panel Connector	PINREX	210-82-04GB01
HDMI1	HDMI Connector	SINBON	1165-92104-24D
HDMI2	HDMI Connector	SINBON	1165-92104-24D
HDMI3	HDMI Connector	SINBON	1165-92104-24D
IRDA	IrDA Connector	PINREX	220-96-06GB01
KBMS	PS/2 Keyboard/Mouse Connector	FOXCONN	MH11061-S8DA-4F
LAN1_USB3_12	1000Base-T Ethernet Connector with Dock USB 3.0 Connector	FOXCONN	JFM38U1M-B308-4F
LAN2_USB1_2	1000Base-T Ethernet Connector with Dock USB 2.0 Connector	FOXCONN	JFM38U1M-21GS-4F
LGA1155	CPU Socket - LGA-1155P	FOXCONN	3H993321-4041-01F
LPT	Internal Parallel Port Connector	PINREX	210-92-13GB11
PCI1	PCI Slot	E-MOVE	ED1200-1K0Z-00H
PCI2	PCI Slot	E-MOVE	ED1200-1K0Z-00H
PCIEX16	PCI-Express[x16] Slot	LOTES	AAA-PCI-095-K16
PCIEX4_1	PCI-Express[x4] Slot	LOTES	AAA-PCI-022-K15
SATA3G_1	SATA II Connector	PINREX	770-83-07SV29
SATA3G_2	SATA II Connector	PINREX	770-83-07SV29

SATA3G_3	SATA II Connector	PINREX	770-83-07SV29
SATA3G_4	SATA II Connector	PINREX	770-83-07SV29
SATA6G_1	SATA III Connector	PINREX	770-83-07SG29
USB3_34	Internal USB 3.0 Connector	PINREX	52X-40-20GV52
USB34	Internal USB 2.0 Connector	PINREX	210-82-05GU13
USB56	Internal USB 2.0 Connector	PINREX	210-82-05GU13
VGA	CRT Display Connector	HIGH TOP	DB229S15AA5