IMBI-Q57

Intel® Core™ i3/i5/i7 DT Processor

Dual View With VGA & DVI

Two 240-pin DDR3 1066/1333 SDRAM

4 SATA2/ RAID 0, 1, 5, 10

8 USB 2.0/ 1 RS-232/ 1 RS-232/422/485

IMBI-Q57 Manual Rev.A 1st Ed.
October 2010

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Acknowledgments

Packing List

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

- 1 IMBI-Q57 Mini-ITX Main Board
- 1 SATA Signal Cable
- 1 COM Port Cable with DB-9
- 1 USB Cable
- 1 I/O Shield
- 1 CD-ROM for Manual (in PDF Format) and Drivers

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

Contents

Chapter

1

General Information

1.1 Introduction

The IMBI-Q57 supports Intel® Core™ i3/i5/i7 DT processor. Moreover it supports two DDR3 1066/1333 SDRAM memory up to 8GB. This model accommodates two Intel® PCI-Express Gigabit Ethernet controllers that those are controlled by Intel® 82578DM (supports Intel® AMT6.0) and Intel® 82574L/82583V. This configuration provides outstanding computing ability, fast network connections and multi-task data transmission.

The graphic controller is integrated on Intel® Gen 6.0 that support dual view with VGA and DVI to meet the demand of the media and high definition. In addition, IMBI-Q57 deploys 8 USB 2.0, 2 COMs, Keyboard & Mouse, and multiple extended bus for a flexible expansion selection. The storage of IMBI-Q57 supports 4 SATA2 ports to support RAID 0, 1, 5, 10 function.

The IMBI-Q57 provides an ideal combination of high performance, widely expandable interfaces and compact size that is easy to apply for multiple applications. The IMBI-Q57 will be an ideal product for your requirements.

1.2 Features

- Intel® 32/45nm Core™ i7/i5/i3 LGA1156 CPU Integrated Graphics & Memory Controller
- Intel® Q57
- Dual-Channel DDR3 1066/1333 Memory up to 8 GB
- Intel® Gigabit Ethernet x 2 Support Intel® AMT 6.0
- Intel® Gen 6.0 Integrated Graphics Engine Supports Dual View With VGA & DVI
- SATA2 x 4, RAID 0, 1, 5, 10
- USB 2.0 x 8, COM x 2
- Multiple Extended Bus With Golden Finger

1.3 Specifications

System

Form Factor	Mini-ITX
Processor	Intel® 32/45nm Core™ i7/i5/i3 LGA1156 CPU, TDP: 95W Max.
System Memory	Supports Dual Channel with 240-pin DDR3 1066/1333 SDRAM x 2, up to 8GB
Chipset	Intel® Q57
Ethernet	Intel® PCI-Express 10/100/ 1000Base-TX, RJ-45 x 2 LAN1: Intel® 82578DM (supports Intel® AMT 6.0); LAN2: Intel® 82574L/82583V
Audio	HD Audio Codec with Realtek ALC888
BIOS	AMI BIOS 64Mb SPI ROM
I/O Chip	ITE IT8718F I/O controller
Storage	SATA2 connector x 4, support RAID 0,1,5,10
DIO	Programmable 8-bit digital I/O interface (4 input/4 output)
Watchdog Timer	Reset: 1 sec.~255 min. and 1 sec. or 1 min./step

● H/W Status Monitor	Monitoring system temperature, voltage, and cooling fan status
● Expansion Interface	Multiple Extended Bus with Golden Finger
● Power Requirement	Standard ATX 24-pin connector, one 4-pin ATX 12V, three 4-pin fan wafer for CPU x 1, System x 2
● Board Size (L x W)	6.7" x 6.7" (170 x 170 mm)
● Gross Weight	0.88 lb (0.4 Kg)
● Operating Temperature	32°F ~140°F (0°C ~60°C)
● Storage Temperature	-4°F ~158°F (-20°C ~70°C)
● Storage Humidity	10~80%, non-condensing

Display

● Chipset	Intel® Core™ i3/i5 + Q57
● Graphic Engine	Intel® Gen 6.0 integrated Graphics Engine
● Resolution	Analog up to 2048x1536 @ 75 Hz; Flat panels up to 1920x1080 @ 60 Hz
● Output Interface	VGA x 1, DVI-D x 1

I/O

● Serial Port	RS-232 x 1; RS-232/422/485 box header x 1

● Keyboard & Mouse	Keyboard x 1 & Mouse x 1
● Universal Serial Bus	USB 2.0 x 8 (four on the I/O side, four with header)
● Audio	Audio Jack x 3 with BTX Type (Mic-in, Line-in, Line-out)
● Ethernet	RJ-45 x 2
● Display	VGA x 1, DVI-D x 1

Chapter

2

Quick Installation Guide

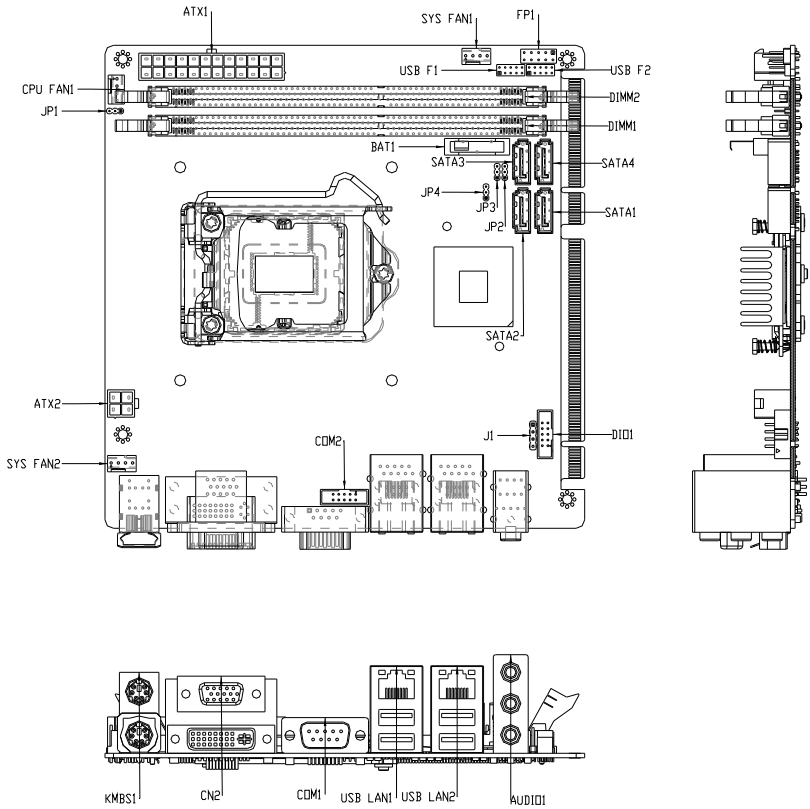
2.1 Safety Precautions

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.

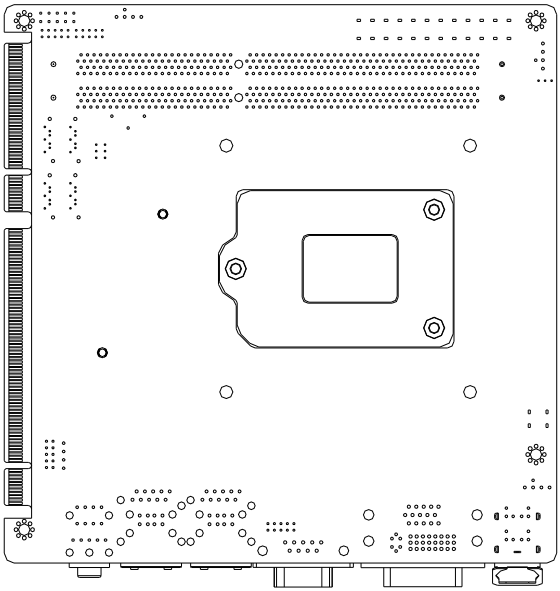
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

2.2 Location of Connectors and Jumpers

Component Side

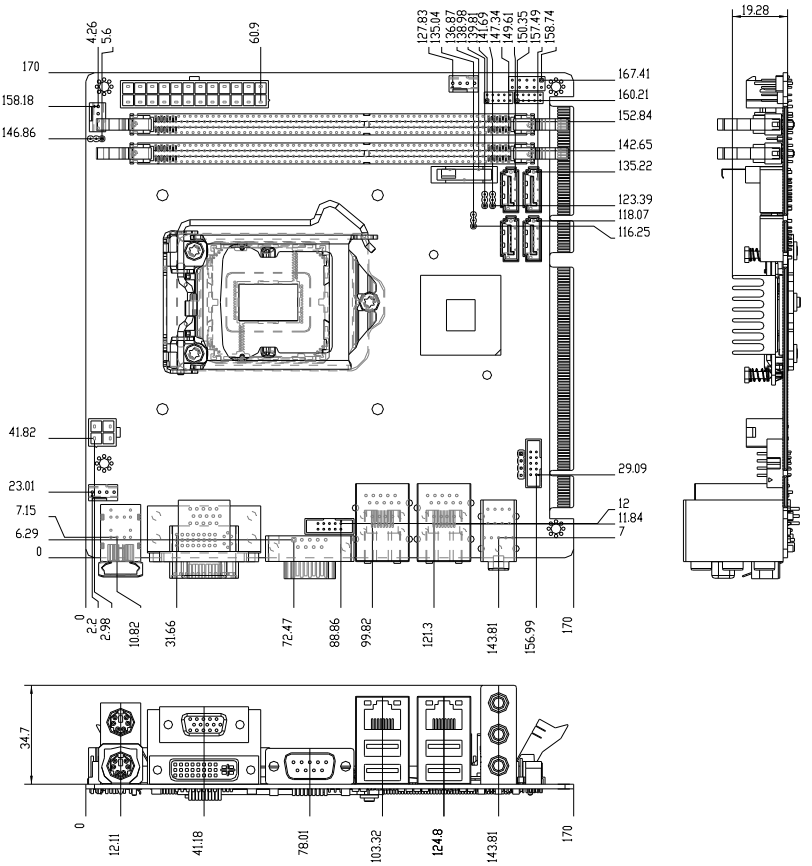


Solder Side

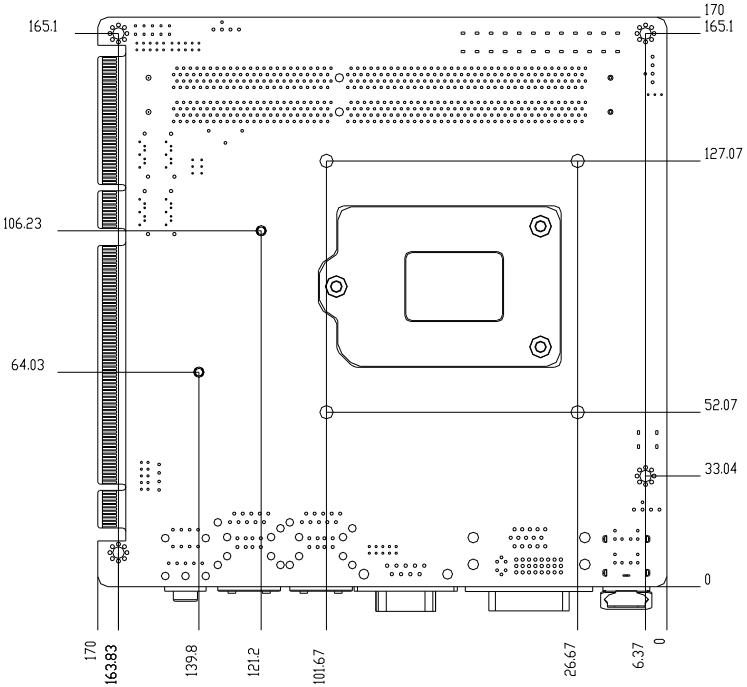


2.3 Mechanical Drawing

Component Side



Solder Side


165.1
170
165.1
127.07
106.23
64.03
52.07
33.04
0
170
163.83
139.8
121.2
101.67
26.67
6.37
0

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
JP1	Auto PWRBTN Selection
JP2	CMOS Setting Selection
JP3	TPM Setting Selection
JP4	BIOS load optimized defaults Setting Selection

2.5 List of Connectors

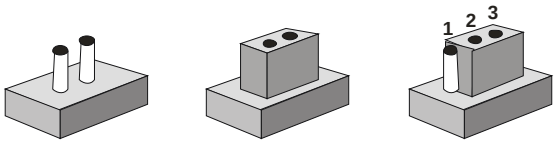
The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

Label	Function
FP1	Front Panel Connector
CN2	DVI-I & CRT Port Connector
COM1	RS-232
COM2	RS-232/422/485 Pin Header
KBMS1	PS/2 Keyboard/Mouse Connector
USB_LAN1	100/1000Base-TX Ethernet & Dual USB Connector
USB_LAN2	100/1000Base-TX Ethernet & Dual USB Connector
AUDIO1	Audio Line-in/ Line-out/ MIC
DIMM1,DIMM2	DDR3 DIMM Slot
USB_F1,USB_F2	USB Pin Header
CPU_FAN1,SYS_FAN1 SYS_FAN2	4-Pin System Fan Connector
ATX2	4 -Pin ATX Power +12V Connector
ATX1	24 pin ATX Power
SATA1~SATA4	SATA Connector
DIO1	Digital I/O
PICMGA1, PICMGB1	Expansion Interface

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.



Open **Closed** **Closed 2-3**

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 Auto PWRBTN Selection (JP1)

JP1	Function
1-2	Use Auto PWRBTN
2-3	Don't use Auto PWRBTN (Default)

2.8 CMOS Setting (JP2)

JP2	Function
1-2	Normal (Default)
2-3	Clear CMOS

2.9 TPM Setting (JP3)

JP3	Function
1-2	Save ME RTC Register (Default)
2-3	Clear ME RTC Register

2.10 BIOS Load Optimized Defaults Selection (JP4)

JP4	Function
1-2	Enable (Default)
2-3	Disable

2.11 Front Panel Connector (FP1)

Pin	Signal	Pin	Signal
1	Power On Button (-)	2	Power On Button (+)
3	HDD LED(-)	4	HDD LED(+)
5	External Speaker (-)	6	External Speaker (+)
7	Power LED (-)	8	Power LED (+)
9	Reset Switch (-)	10	Reset Switch (+)

2.12 Pin Header (USB_F1, USB_F2)

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

2.13 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		

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

Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

2.15 Digital I/O Pin Header (DIO1)

The Base Address is A41H

Pin	Signal	Pin	Signal
1	IN0 (U15 Pin20)	2	IN1 (U15 Pin21)
3	IN2 (U15 Pin22)	4	IN3 (U15 Pin23)

5	OUT0 (U15 Pin24)	6	OUT1 (U15 Pin25)
7	OUT2 (U15 Pin26)	8	OUT3 (U15 Pin27)
9	+5V	10	GND

BIOS Setting	Connector Definition	Address	IT8718F GPIO Setting
DIO_P#1	DIO1Pin 1	Bit 1(A41H)	U15 Pin 20 (GPIO27)
DIO_P#2	DIO1Pin 2	Bit 2(A41H)	U15 Pin 21 (GPIO26)
DIO_P#3	DIO1Pin 3	Bit 3(A41H)	U15 Pin 22 (GPIO25)
DIO_P#4	DIO1Pin 4	Bit 4(A41H)	U15 Pin 23 (GPIO24)
DIO_P#5	DIO1Pin 5	Bit 5(A41H)	U15 Pin 24 (GPIO23)
DIO_P#6	DIO1Pin 6	Bit 6(A41H)	U15 Pin 25 (GPIO22)
DIO_P#7	DIO1Pin 7	Bit 7(A41H)	U15 Pin 26 (GPIO21)
DIO_P#8	DIO1Pin 8	Bit 8(A41H)	U15 Pin 27 (GPIO20)

2.16 SATA Connector (SATA1~4)

Pin	Signal	Pin	Signal
1	GND	2	TXP
3	TXN	4	GND
5	RXN	6	RXP
7	GND		

2.17 FAN Connector (CPU_FAN,SYS_FAN1~2)

Pin	Signal	Pin	Signal
1	GND	2	+12V
3	FAN_TAC	4	FAN_CTL

2.18 24-Pin ATX Power Connector (ATX1)

Pin	Signal	Pin	Signal
1	+3.3V	2	+3.3V

3	GND	4	+5V
5	GND	6	+5V
7	GND	8	PWROK
9	+5VSB	10	+12V
11	+12V	12	+3.3V
13	+3.3V	14	-12V
15	GND	16	PS_ON
17	GND	18	GND
19	GND	20	NC
21	+5V	22	+5V
23	+5V	24	GND

2.19 4-Pin ATX Power Connector (ATX2)

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

2.20 Expansion Interface (PICMGA1)

Pin	Signal	Pin	Signal
B1	+12V	A1	+3_3V_AUX
B2	+12V	A2	+3_3V
B3	+12V	A3	+3_3V
B4	SMBCLK	A4	+3_3V
B5	SMBDATA	A5	+12V
B6	NC	A6	+12V
B7	NC	A7	NC
B8	NC	A8	SIO_PCIE_RST#_X16
B9	NC	A9	NC
B10	PCI_EXP_WAKE#	A10	NC
B11	NC	A11	NC

B12	EXP_A_TXP_13	A12	GND
B13	EXP_A_TXN_13	A13	EXP_A_TXN_12
B14	GND	A14	EXP_A_TXP_12
B15	EXP_A_TXN_14	A15	GND
B16	EXP_A_TXP_14	A16	EXP_A_TXN_9
B17	GND	A17	EXP_A_TXP_9
B18	EXP_A_TXP_2	A18	GND
B19	EXP_A_TXN_2	A19	EXP_A_RXP_2
B20	GND	A20	EXP_A_RXN_2
B21	EXP_A_RXN_0	A21	GND
B22	EXP_A_RXP_0	A22	EXP_A_RXP_3
B23	GND	A23	EXP_A_RXN_3
B24	EXP_A_TXN_0	A24	GND
B25	EXP_A_TXP_0	A25	EXP_A_RXP_4
B26	GND	A26	EXP_A_RXN_4
B27	EXP_A_RXN_1	A27	GND
B28	EXP_A_RXP_1	A28	EXP_A_RXP_5
B29	GND	A29	EXP_A_RXN_5
B30	EXP_A_TXP_1	A30	GND
B31	EXP_A_TXN_1	A31	EXP_A_RXP_6
B32	GND	A32	EXP_A_RXN_6
B33	EXP_A_RXP_8	A33	GND
B34	EXP_A_RXN_8	A34	EXP_A_RXP_7
B35	GND	A35	EXP_A_RXN_7
B36	EXP_A_RXP_9	A36	GND
B37	EXP_A_RXN_9	A37	EXP_A_TXP_7
B38	GND	A38	EXP_A_TXN_7
B39	EXP_A_TXP_6	A39	GND
B40	EXP_A_TXN_6	A40	EXP_A_RXP_10
B41	GND	A41	EXP_A_RXN_10

B42	EXP_A_TXN_3	A42	GND
B43	EXP_A_TXP_3	A43	EXP_A_RXP_11
B44	GND	A44	EXP_A_RXN_11
B45	EXP_A_TXN_4	A45	GND
B46	EXP_A_TXP_4	A46	EXP_A_RXP_12
B47	GND	A47	EXP_A_RXN_12
B48	EXP_A_TXP_5	A48	GND
B49	EXP_A_TXN_5	A49	EXP_A_TXP_8
B50	GND	A50	EXP_A_TXN_8
B51	EXP_A_TXN_10	A51	GND
B52	EXP_A_TXP_10	A52	EXP_A_RXP_13
B53	GND	A53	EXP_A_RXN_13
B54	EXP_A_TXN_11	A54	GND
B55	EXP_A_TXP_11	A55	EXP_A_RXP_14
B56	GND	A56	EXP_A_RXN_14
B57	EXP_A_TXP_15	A57	GND
B58	EXP_A_TXN_15	A58	EXP_A_RXP_15
B59	GND	A59	EXP_A_RXN_15
B60	PCH_HSOP2	A60	GND
B61	PCH_HSON2	A61	PCH_HSIP1
B62	GND	A62	PCH_HSIN1
B63	PCH_HSOP1	A63	GND
B64	PCH_HSON1	A64	PCH_HSIP2
B65	GND	A65	PCH_HSIN2
B66	PCH_HSOP3	A66	GND
B67	PCH_HSON3	A67	PCH_HSIP3
B68	GND	A68	PCH_HSIN3
B69	PCH_HSOP4	A69	GND
B70	PCH_HSON4	A70	PCH_HSIP4
B71	GND	A71	PCH_HSIN4

B72	CFG_1	A72	GND
B73	CFG_0	A73	CK_PE_100M_P_1PORT_B1
B74	CK_PE_100M_P_1PORT_B2	A74	CK_PE_100M_N_1PORT_B1
B75	CK_PE_100M_N_1PORT_B2	A75	GND
B76	GND	A76	CK_PE_100M_P_1PORT_B3
B77	CK_PE_100M_P_X8	A77	CK_PE_100M_N_1PORT_B3
B78	CK_PE_100M_N_X8	A78	GND
B79	GND	A79	CK_PE_100M_N_1PORT_B0
B80	CK_PE_100M_X16PORT	A80	CK_PE_100M_P_1PORT_B0
B81	CK_PE_100M_X16PORT#	A81	NC
B82	NC	A82	NC

2.21 Expansion Interface (PICMGB1)

Pin	Signal	Pin	Signal
B1	SATA_RXP4	A1	SATA_TXP4
B2	SATA_RXN4	A2	SATA_TXN4
B3	GND	A3	GND
B4	PCH_C_HSOP5	A4	PCH_HSIP5
B5	PCH_C_HSON5	A5	PCH_HSIN5
B6	GND	A6	GND
B7	PCH_C_HSOP6	A7	PCH_HSIP6
B8	PCH_C_HSON6	A8	PCH_HSIN6
B9	GND	A9	GND
B10	DPC_LANE_DP1_B	A10	DPC_LANE_DP0_B
B11	DPC_LANE_DN1_B	A11	DPC_LANE_DN0_B
B12	CK_P_33M_FIN	A12	GND
B13	DPB_HPD_R	A13	DPC_LANE_DP2_B
B14	GND	A14	DPC_LANE_DN2_B
B15	DPC_LANE_DP3_B	A15	GND
B16	DPC_LANE_DN3_B	A16	DDPB_AUXP

B17	GND	A17	DDPB_AUXN
B18	DPC_STALLP	A18	GND
B19	DPC_STALLN	A19	SDVO_CTRL_CLK
B20	GND	A20	SDVO_CTRL_DATA
B21	DPC_TVCLKP	A21	GND
B22	DPC_TVCLKN	A22	DPC_INTP
B23	GND	A23	DPC_INTN
B24	CK_PE_100M_P_1PORT_B4	A24	GND
B25	CK_PE_100M_N_1PORT_B4	A25	CK_PE_100M_P_1PORT_B5
B26	GND	A26	CK_PE_100M_N_1PORT_B5
B27	LPC_AD0	A27	GND
B28	LPC_AD1	A28	LPC_FRAME#
B29	LPC_AD2	A29	L_DRQ_1#
B30	LPC_AD3	A30	SER_IRQ
B31	NC	A31	USB_OC_4
B32	USB_OC_5	A32	GND
B33	GND	A33	USB_N9
B34	USB_N11	A34	USB_P9
B35	USB_P11	A35	GND
B36	GND	A36	USB_N10
B37	USB_P8	A37	USB_P10
B38	USB_N8	A38	GND
B39	GND	A39	NC
B40	NC	A40	NC
B41	NC	A41	GND
B42	GND	A42	+12V
B43	-12V	A43	+3_3V
B44	+3_3V_AUX	A44	+3_3V
B45	+3_3V	A45	+3_3V
B46	+3_3V	A46	+3_3V

B47 +3_3V	A47 +5V
B48 +5V	A48 +5V
B49 +5V	A49 +5V

Below Table for China RoHS Requirements
产品中有毒有害物质或元素名称及含量

AAEON Main Board/ Daughter Board/ Backplane

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

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

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

备注：此产品所标示之环保使用期限，系指在一般正常使用状况下。

Chapter

3

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 IMBI-Q57 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 <Del> or <F2> immediately. This will allow you to enter Setup.

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

Advanced
Enable disable boot option for legacy network devices.

Chipset
Host bridge parameters.

Boot
Enables/disable quiet boot option.

Security
Set setup administrator password.

Save&Exit
Exit system setup after saving the changes.

Chapter

4

Driver Installation

The IMBI-Q57 comes with a CD-ROM that contains all drivers your need.

Follow the sequence below to install the drivers:

Step 1 – Install INF Driver

Step 2 – Install VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install AUDIO Driver

Step 5 – Install ME Driver

Step 6 – Install RAID Driver

Please read following instructions for detailed installations.

4.1 Installation:

Insert the IMBI-Q57 CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 6 in order.

Step 1 – Install INF Driver

1. Click on the ***Step1 - INF*** folder and then double click on the ***Setup.exe***
2. Follow the instructions that the window shows
3. The system will help you to install the driver automatically

Step 2 – Install VGA Driver

1. Click on the ***Step2 - VGA*** folder and select the OS your system is
2. Double click on ***Setup.exe*** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you to install the driver automatically

Step 3 – Install LAN Driver

1. Click on the ***Step3 - LAN*** folder and double click on ***Autorun.exe*** file
2. Follow the instructions that the window shows
3. The system will help you to install the driver automatically

Step 4 – Install AUDIO Driver

1. Click on the ***Step4 - AUDIO*** folder and select the OS your system is
2. Double click on ***.exe*** file located in each OS folder

3. Follow the instructions that the window shows
4. The system will help you to install the driver automatically

Step 5 – Install ME Driver

1. Click on the ***Step5 - ME*** folder and double click on ***Setup.exe*** file
2. Follow the instructions that the window shows
3. The system will help you to install the driver automatically

Step 6 – Install RAID Driver

Please refer to Appendix D RAID & AHCI Settings

Appendix

A

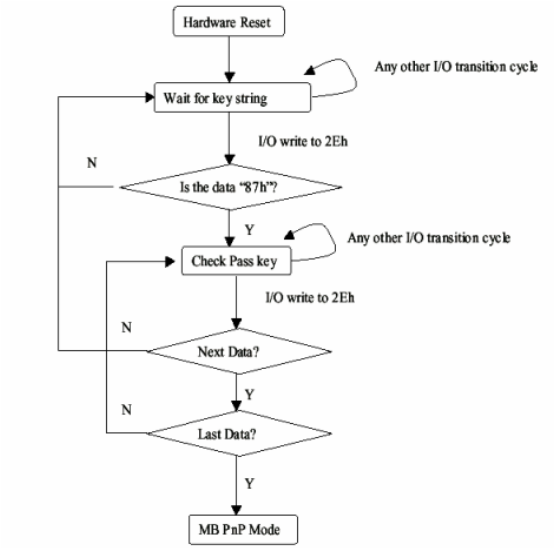
Programming the Watchdog Timer

A.1 Programming

IMBI-Q57 utilizes ITE 8718 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 8718 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 opera-tions 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 Control Register (Index=71h 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 Configuration Register (Index=72h 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 Time-Out Value (LSB) Register (Index=73h Default=38h)

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

Watch Dog Timer Time-Out Value (MSB) Register (Index=74h Default=00h)

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

A.2 ITE8718 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

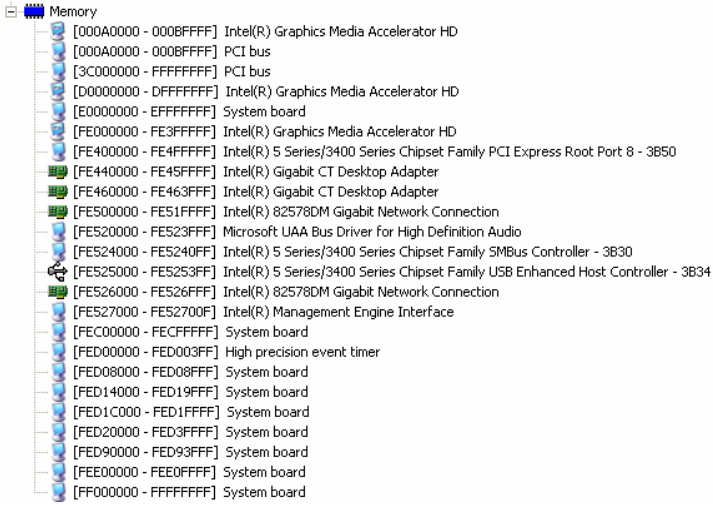
B

I/O Information

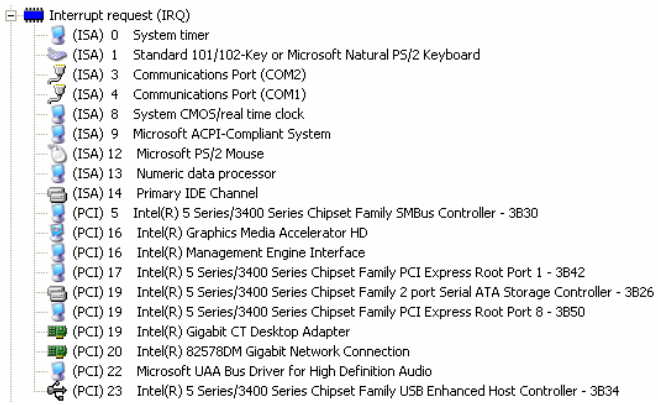
B.1 I/O Address Map

- Input/output (IO)
  - [00000000 - 0000000F] Direct memory access controller
  - [00000000 - 00000CF7] PCI bus
  - [00000010 - 0000001F] Motherboard resources
  - [00000020 - 00000021] Programmable interrupt controller
  - [00000022 - 0000003F] Motherboard resources
  - [00000040 - 00000043] System timer
  - [00000044 - 0000005F] Motherboard resources
  - [00000060 - 00000060] Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
  - [00000061 - 00000061] System speaker
  - [00000062 - 00000063] Motherboard resources
  - [00000064 - 00000064] Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
  - [00000065 - 0000006F] Motherboard resources
  - [00000070 - 00000071] System CMOS/real time clock
  - [00000072 - 0000007F] Motherboard resources
  - [00000080 - 00000080] Motherboard resources
  - [00000081 - 00000083] Direct memory access controller
  - [00000084 - 00000086] Motherboard resources
  - [00000087 - 00000087] Direct memory access controller
  - [00000088 - 00000088] Motherboard resources
  - [00000089 - 0000008B] Direct memory access controller
  - [0000008C - 0000008E] Motherboard resources
  - [0000008F - 0000008F] Direct memory access controller
  - [00000090 - 0000009F] Motherboard resources
  - [000000A0 - 000000A1] Programmable interrupt controller
  - [000000A2 - 000000BF] Motherboard resources
  - [000000C0 - 000000DF] Direct memory access controller
  - [000000E0 - 000000EF] Motherboard resources
  - [000000F0 - 000000FF] Numeric data processor
  - [00000170 - 00000177] Secondary IDE Channel
  - [000001F0 - 000001F7] Primary IDE Channel
  - [00000274 - 00000277] ISAPNP Read Data Port
  - [00000279 - 00000279] ISAPNP Read Data Port
  - [000002F8 - 000002FF] Communications Port (COM2)
  - [00000376 - 00000376] Secondary IDE Channel
  - [000003B0 - 000003BB] Intel(R) Graphics Media Accelerator HD
  - [000003C0 - 000003DF] Intel(R) Graphics Media Accelerator HD
  - [000003F6 - 000003F6] Primary IDE Channel
  - [000003F8 - 000003FF] Communications Port (COM1)
  - [00000400 - 0000047F] System board
  - [000004D0 - 000004D1] Motherboard resources
  - [00000500 - 0000057F] System board
  - [00000A00 - 00000A1E] Motherboard resources
  - [00000A79 - 00000A79] ISAPNP Read Data Port
  - [00000D00 - 0000FFFF] PCI bus
  - [00001180 - 0000119F] System board
  - [0000E000 - 0000E01F] Intel(R) Gigabit CT Desktop Adapter
  - [0000E000 - 0000EFFF] Intel(R) 5 Series/3400 Series Chipset Family PCI Express Root Port 8 - 3B50
  - [0000F000 - 0000F01F] Intel(R) 5 Series/3400 Series Chipset Family SMBus Controller - 3B30
  - [0000F020 - 0000F03F] Intel(R) 82578DM Gigabit Network Connection
  - [0000F040 - 0000F04F] Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B26
  - [0000F050 - 0000F05F] Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B26
  - [0000F060 - 0000F063] Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B26
  - [0000F070 - 0000F077] Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B26
  - [0000F080 - 0000F083] Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B26
  - [0000F090 - 0000F097] Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B26
  - [0000F0A0 - 0000F0AF] Intel(R) 5 Series/3400 Series Chipset Family 4 port Serial ATA Storage Controller - 3B20
  - [0000F0B0 - 0000F0BF] Intel(R) 5 Series/3400 Series Chipset Family 4 port Serial ATA Storage Controller - 3B20
  - [0000F100 - 0000F107] Intel(R) Graphics Media Accelerator HD

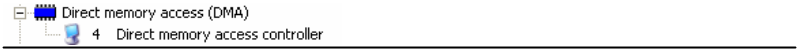
B.2 1st MB Memory Address Map



B.3 IRQ Mapping Chart



B.4 DMA Channel Assignments



Appendix

C

Mating Connector

C.1 List of Mating Connectors and Cables

The table notes mating connectors and available cables.

Connector Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model no		
SATA1	SATA Connector	WING-SPAN	1137-020-40SA	SATA Cable	1709070800
SATA2	SATA Connector	WING-SPAN	1137-020-40SA	SATA Cable	1709070800
SATA3	SATA Connector	WING-SPAN	1137-020-40SA	SATA Cable	1709070800
SATA4	SATA Connector	WING-SPAN	1137-020-40SA	SATA Cable	1709070800
COM2	Serial Port Box Header	Catch Electronics	1147-000-10S	Serial Port Cable	1701100305
USB_F1	USB Pin Header	JIH VEI Electronics	21B22050-XXS10B-01G-4/2.8	USB Cable	1709100201
USB_F2	USB Pin Header	JIH VEI Electronics	21B22050-XXS10B-01G-4/2.8	USB Cable	1709100201
DIO1	Serial Port Box Header	Catch Electronics	1147-000-10S		N/A
CPU_FAN1	FAN Connector	Catch Electronics	1190-700-042		N/A
SYS_FAN1	FAN Connector	Catch Electronics	1190-700-042		N/A
SYS_FAN2	FAN Connector	Catch Electronics	1190-700-042		N/A
ATX2	4P Power Connnector	Catch Electronics	1121-700-04S		N/A
ATX1	24P Power Connector	Catch Electronics	1121-700-24S		N/A
LAN1	Ethernet Connector	FOXCONN	JFM38U1B-21U5-4F		N/A

LAN2	Ethernet Connector	FOXCONN	JFM38U1B-21U5-4F		N/A
CN2	CRT+DVI Connector	TechBast Electronics	D205D2B01022PN		N/A
KM1	Mini-Din PS/2 KB/MS Pin Header	Foxconn	MH11061-P36-4F		N/A
COM1	COM1 Connector	Astron Electronics	DB6A-09-AMGN1-R		N/A
FP1	Front Panel Connector	JIH VEI Electronics	21B22564-XXS10B-01G-6/3-VXX		N/A

Appendix

D

RAID & AHCI Settings

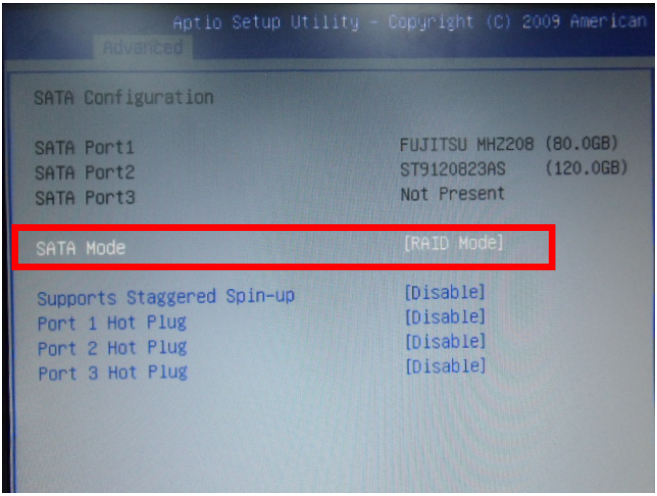
D.1 Setting RAID

OS installation to setup RAID Mode

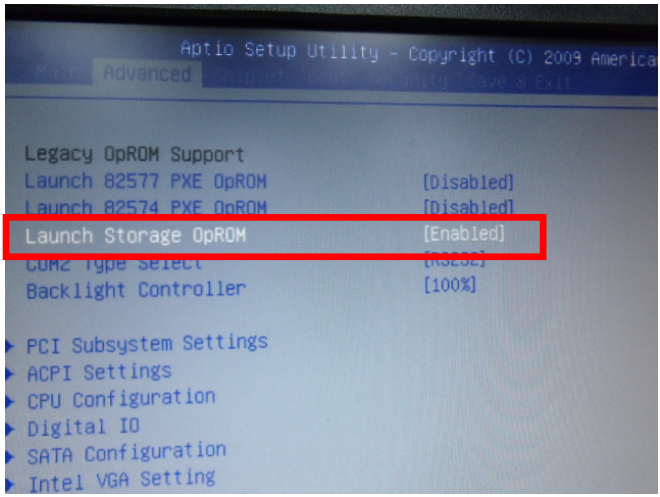
Step 1: Copy the files below from "***Driver CD -> Raid Driver -> F6 Floppy - x86***" to Disk

Step 2: Connect the USB Floppy (disk with RAID files) to the board

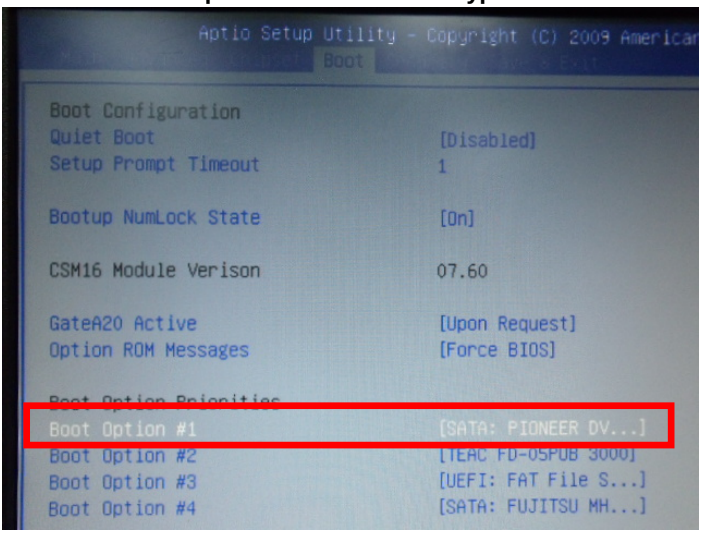
Step 3: The setting procedures " **In BIOS Setup Menu**"
A: Advanced -> SATA Configuration -> SATA Mode -> RAID Mode



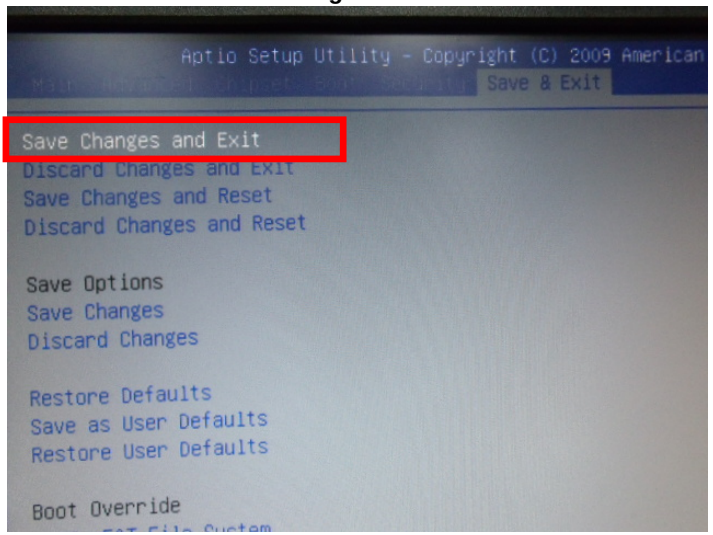
Step 4: The setting procedures "**In BIOS Setup Menu**"
B: Advanced -> Launch Storage OpROM -> Enabled



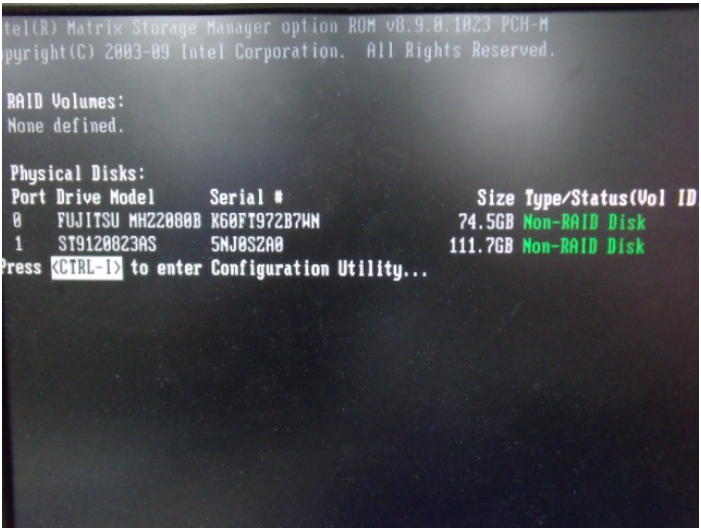
Step 5: The setting procedures "**In BIOS Setup Menu"**
C: Boot -> Boot Option #1 -> DVD-ROM Type



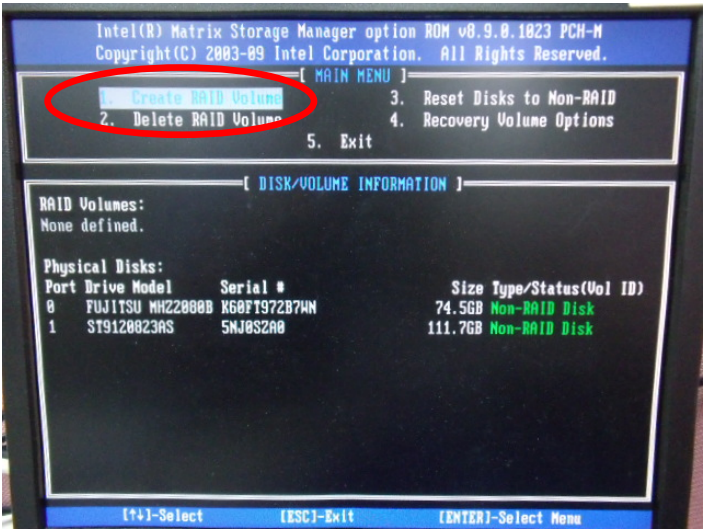
Step 6: The setting procedures "**In BIOS Setup Menu"**
D: Save & Exit -> Save Changes and Exit



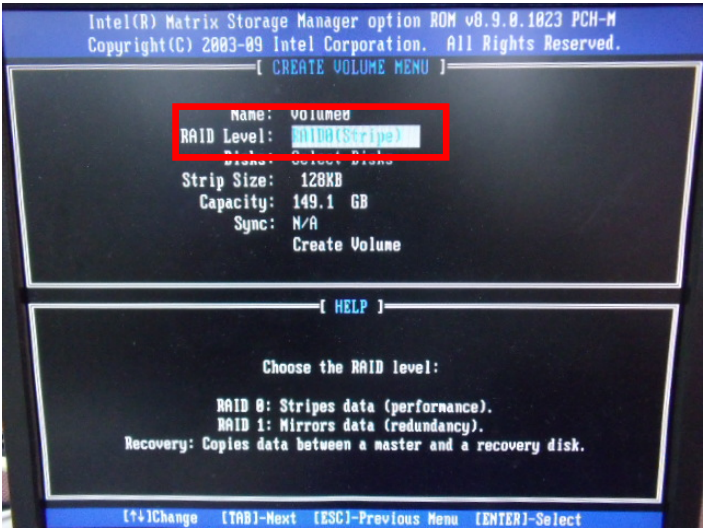
Step 7: Press **Ctrl-I** to enter **MAIN MENU**



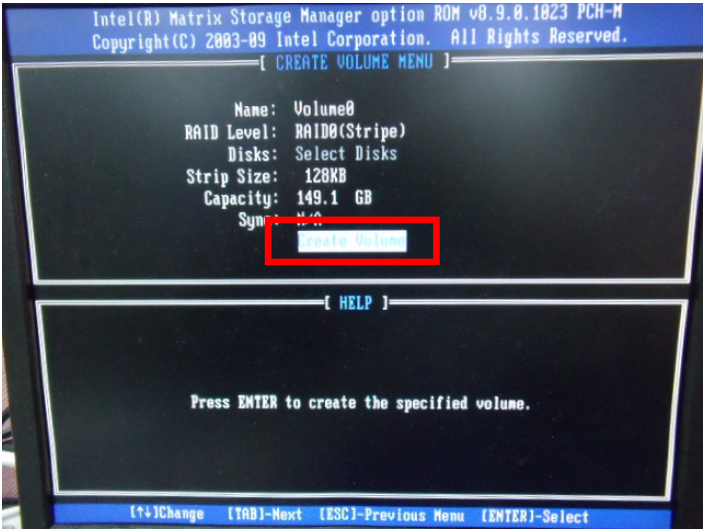
Step 8: Choose "**1.Create RAID Volume**"



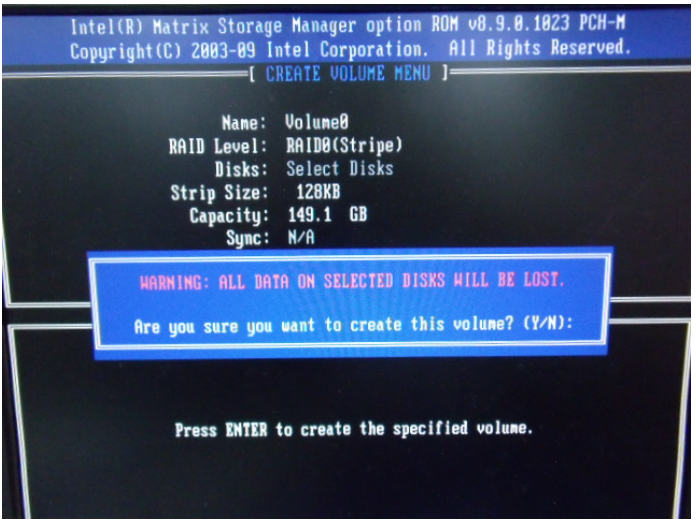
Step 9: RAID Level -> RAID0(Stripe)



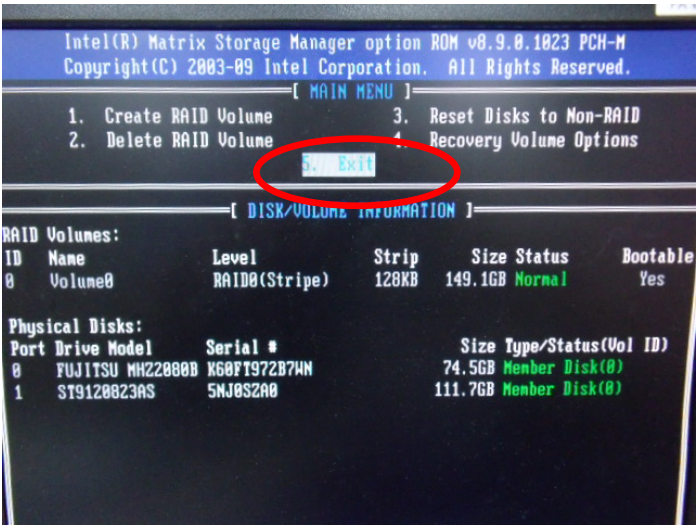
Step 10: Choose "**Create Volume**"



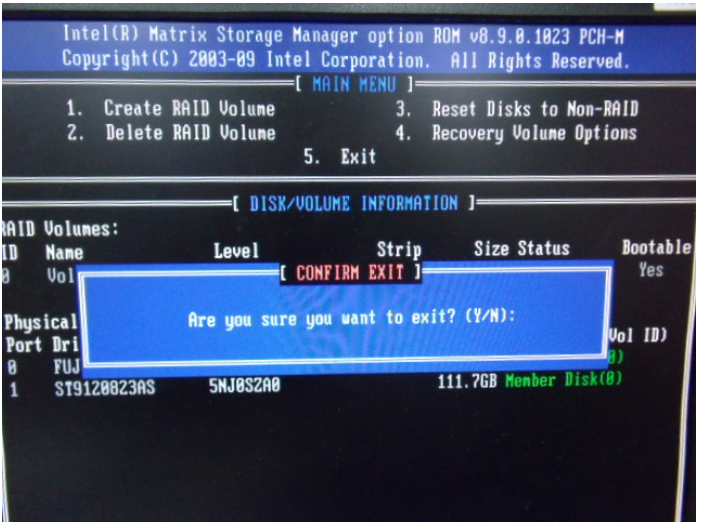
Step 11: Choose "**Y**"



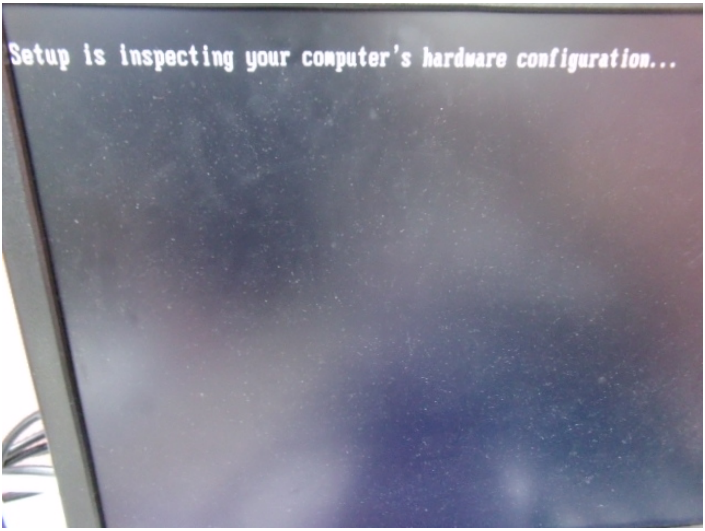
Step 12: Choose "**5. Exit**"



Step 13: Choose "**Y**"

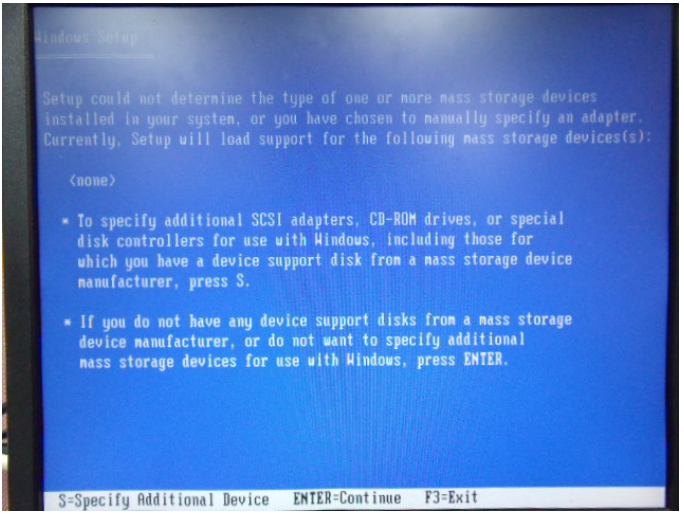


Step 14: Setup OS

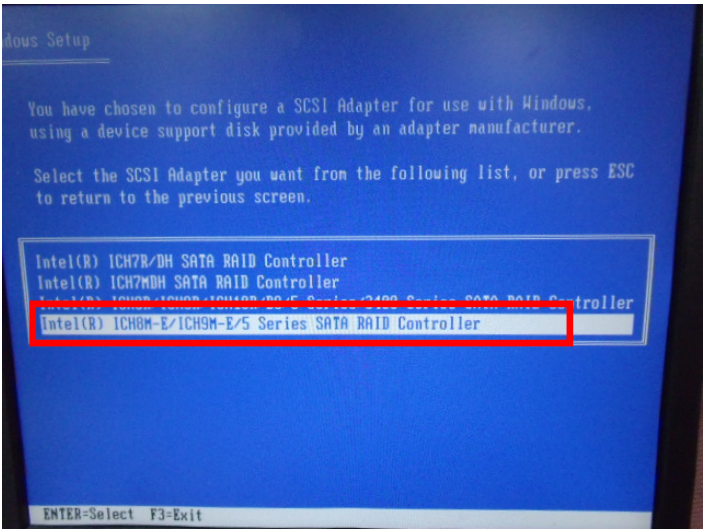


Step 15: Press "**F6**"

Step 16: Choose "**S**"

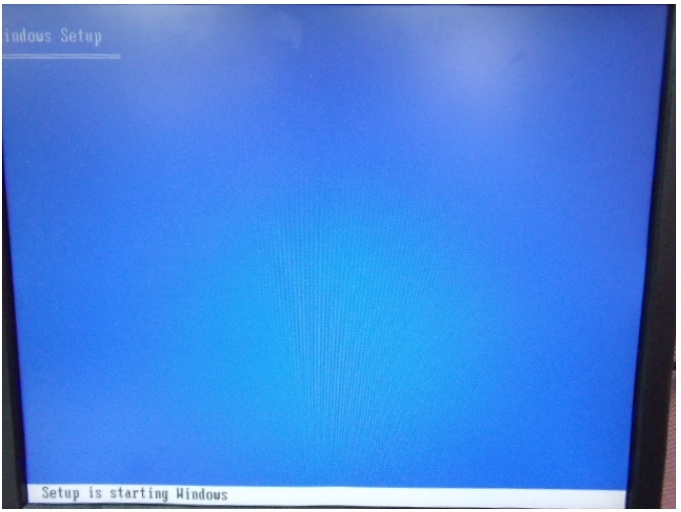


Step 17: Choose "**Intel(R) ICH8M-E/ICH9M-E/5 Series SATA RAID Controller**"



Step 18: It will show the model number you select and then press "**ENTER**"

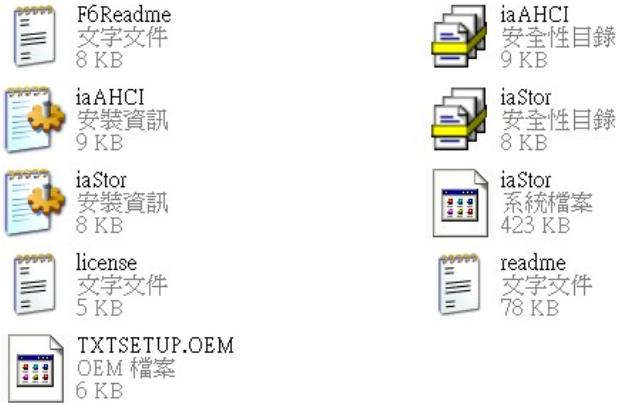
Step 19: Setup is starting Windows



D.2 Setting AHCI

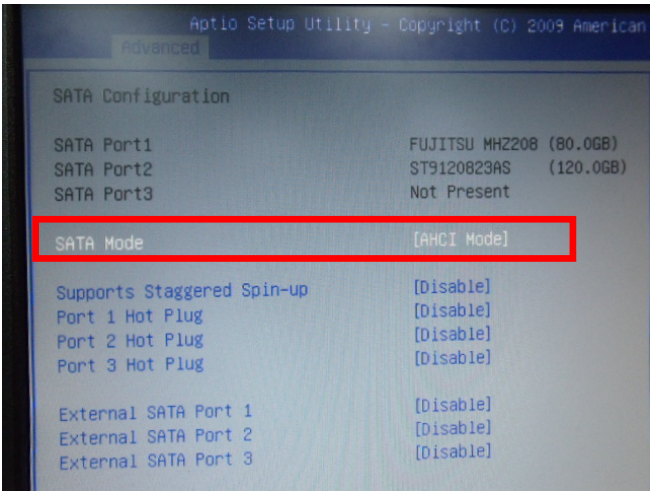
OS installation to setup AHCI Mode

Step 1: Copy the files below from "***Driver CD -> Raid Driver -> F6 Floppy - x86***" to Disk

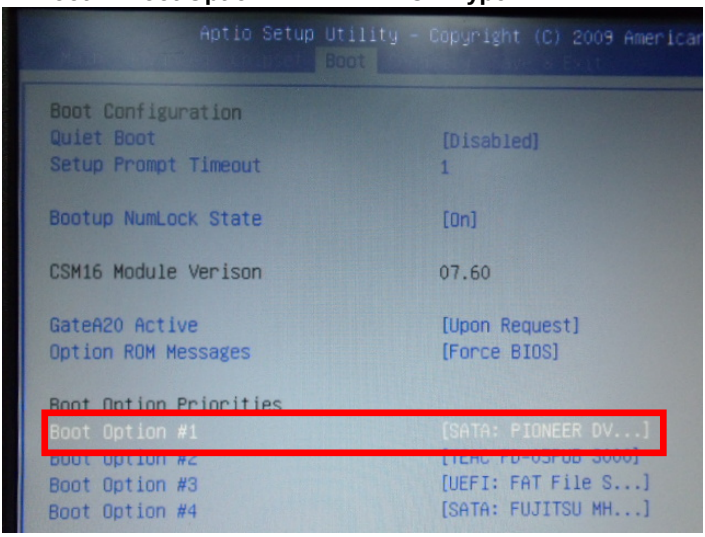


Step 2: Connect the USB Floppy (disk with RAID files) to the board

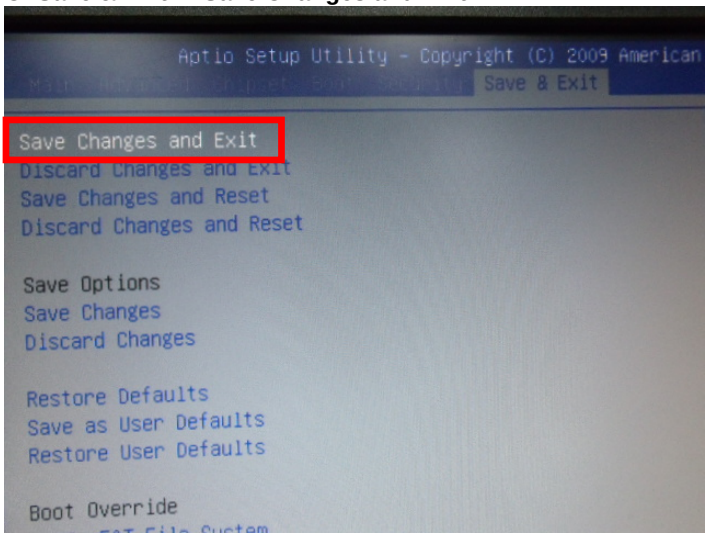
Step 3: The setting procedures " **In BIOS Setup Menu**"
A: Advanced -> SATA Configuration -> SATA Configuration -> SATA Mode -> AHCI Mode



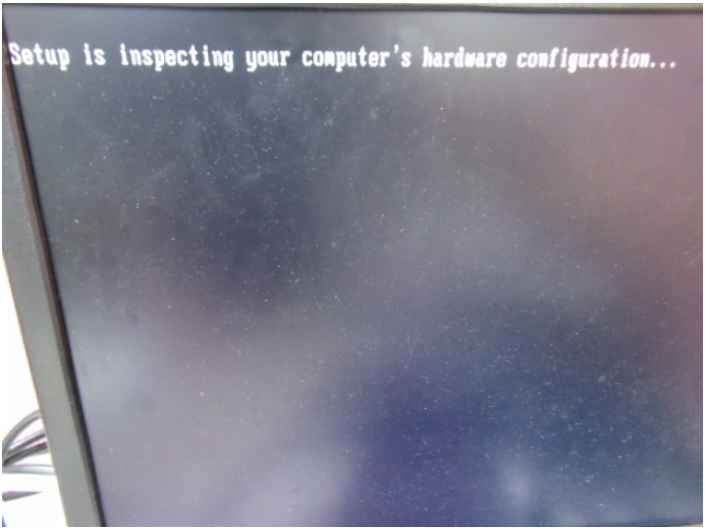
Step 4: The setting procedures "**In BIOS Setup Menu"**
B: Boot -> Boot Option #1 -> DVD-ROM Type



Step 5: The setting procedures "**In BIOS Setup Menu"**
C: Save & Exit -> Save Changes and Exit

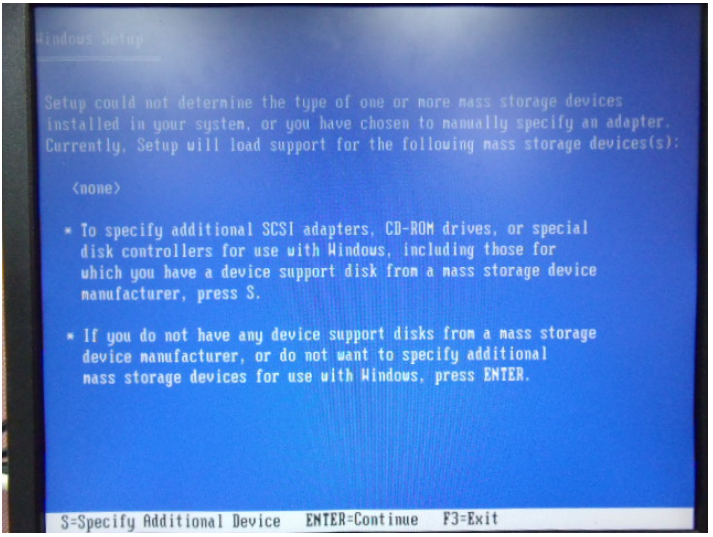


Step 6: Setup OS

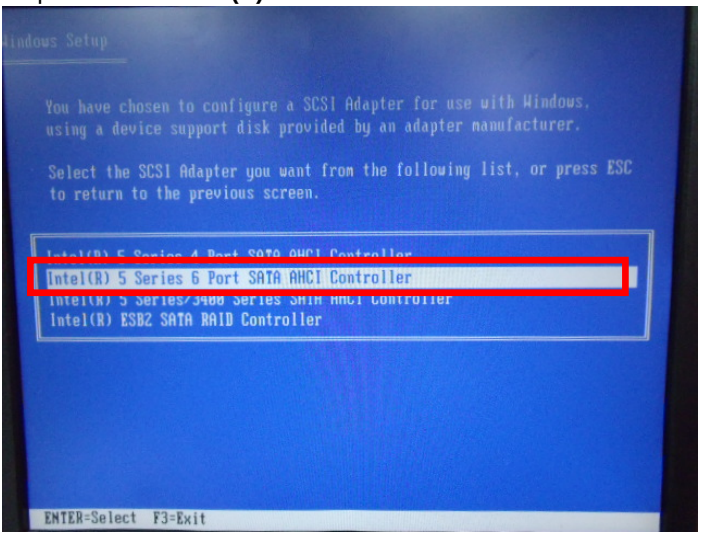


Step 7: Press "**F6**"

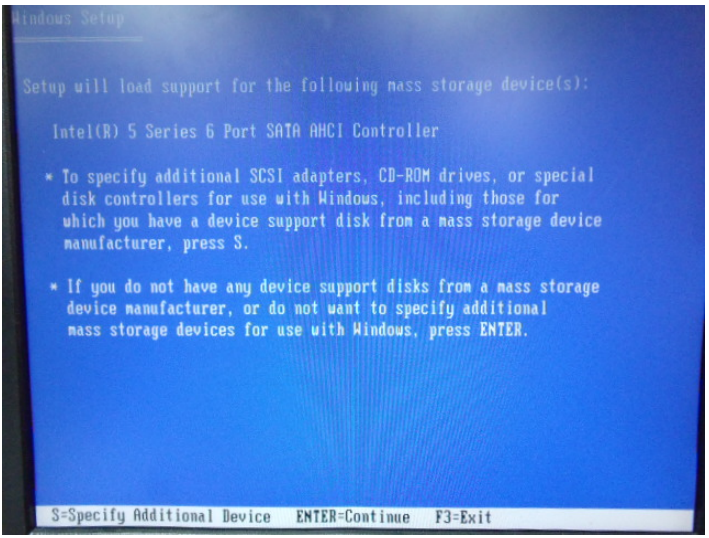
Step 8: Choose "**S**"



Step 9: Choose "**Intel(R) 5 Series 6 Port SATA AHCI Controller**"



Step 10: It will show the model number you select and then press "**ENTER**"



Step 11: Setup is loading files