

AIS-Q574

Advanced System Controller

3.5" Hard Disk Drive Bay

2 Gigabit Ethernet/ 2 COM/

8 USB2.0/ HD Audio Codec

Copyright Notice

This document is copyrighted, 2011. All rights are reserved. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, or for any infringements upon the rights of third parties that may result from its use.

The material in this document is for product information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, AAEON assumes no liabilities resulting from errors or omissions in this document, or from the use of the information contained herein.

AAEON reserves the right to make changes in the product design without notice to its users.

Acknowledgments

All other products' name or trademarks are properties of their respective owners.

- Award is a trademark of Award Software International, Inc.
- CompactFlash™ is a trademark of the Compact Flash Association.
- Microsoft Windows® is a registered trademark of Microsoft Corp.
- Intel®, Core™ i3/i5/i7 are trademarks of Intel Corporation.
- PC/AT, PS/2, and VGA are trademarks of International Business Machines Corporation.

All other product names or trademarks are properties of their respective owners.

Packing List

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

- 4 S221005030 HDD Screws
- 8 S225006010 Wallmount Bracket Screws
- 2 M04Q452020 Wallmount Brackets
- 4 1990666615 Rubber Feet
- 1 AIS-Q574
- 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.

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。

Contents

Chapter 1 General Information

1.1 Introduction.....	1-2
1.2 Features	1-3
1.3 Specifications	1-4

Chapter 2 Hardware Installation

2.1 Location of Connectors	2-2
2.2 Mechanical Drawing	2-3
2.3 List of Jumpers	2-5
2.4 List of Connectors	2-6
2.5 Setting Jumpers	2-7
2.6 Auto PWRBTN Selection (JP1).....	2-8
2.7 CMOS Setting (JP2).....	2-8
2.8 TPM Setting (JP3).....	2-8
2.9 BIOS Load Optimized Defaults Selection (JP4).....	2-8
2.10 Front Panel Connector (FP1)	2-8
2.11 Pin Header (USB_F1, USB_F2).....	2-9
2.12 RS-232 Serial Port Connector (COM1).....	2-9
2.13 RS-232/422/485 Pin Header (COM2)	2-9
2.14 Digital I/O Pin Header (DIO1).....	2-9
2.15 SATA Connector (SATA 1~4)	2-10
2.16 FAN Connector (CPU_FAN, SYS_FAN1~2).....	2-10
2.17 24-Pin ATX Power Connector (ATX1).....	2-10

2.18 4-Pin ATX Power Connector (ATX2).....	2-11
2.19 Riser Card	2-11
2.20 Installing Hard Disk Drive.....	2-12
2.21 Optional Accessories Installation.....	2-18

Chapter 3 AMI BIOS Setup

3.1 System Test and Initialization.	3-2
3.2 AMI BIOS Setup.....	3-3

Chapter 4 Driver Installation

4.1 Installation	4-3
------------------------	-----

Appendix A Programming The Watchdog Timer

A.1 Programming	A-2
A.2 ITE8718 Watchdog Timer Initial Program	A-6

Appendix B I/O Information

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

Appendix C RAID & AHCI Settings

C.1 Setting RAID	C-2
C.2 Setting AHCI	C-12

Chapter

1

**General
Information**

1.1 Introduction

AIS-Q574 adopts the Intel® Core™ i3/i5/i7 LGA 1156 Processors. The chipset is equipped with Intel® Q57. Moreover, the system memory features two DDR3 1066/1333 MHz DIMM up to 4 GB. It deploys two LAN ports that consist of 10/100/1000Base-TX Ethernet RJ-45 ports. AIS-Q574 condensed appearance features desktop and wallmount form factor that fits nicely into a space-limited environment.

This AIS-Q574 equipped with two 3.5" Hard Disk Drive with SATA 3.0Gb/s interface and one optional slim DVD-RW. Moreover, the flexible expansion interfaces feature one PCI-Express[x16], one PCI-Express[x4], and two PCI-Express[x1] x 2 slots. In addition, this model supports two COM ports and eight USB2.0 (four ports at I/O interfaces and four ports on the front panel). Furthermore, the Realtek ALC888 supports HD audio codec and the AIS-Q574 can support dual displays with VGA and DVI via Intel® Q57.

With the increasing demands of high performance in audio and video, AAEON released the specific Advanced System Controller to fulfill the needs of the applications, such as Factory Automation, Building Automation, and etc.

1.2 Features

- Intel® Core™ i3/i5/i7 LGA1156 Processor
- Dual-Channel DDR3 1066/1333 Memory up to 4 GB
- Intel® Integrated Graphics Engine Support Dual View With VGA & DVI
- Gigabit Ethernet x 2
- 3.5" SATA 3.0Gb/s Hard Disk Drive Bay x 2, Slim DVD-RW x 1 (Optional)
- USB2.0 x 8, COM x 2
- Multiple Extended Bus up to Four Slots

1.3 Specifications

● CPU		Intel® Core™ i7/i5/i3 LGA 1156, max. TDP 95W
● Chipset		Intel® Q57
● System Memory		Up to 4 GB (DDR3 1066/1333 MHz, DIMM x 2)
● Display Interface	VGA	1
	DVI	1
● Storage Device	HDD	3.5" Hard Disk Drive Bay x 2
● Network	LAN	10/100/1000Base-TX Ethernet x 2
● Front I/O	USB Host	USB2.0 x 4
● Rear I/O	USB Host	USB2.0 x 4
	LAN	RJ-45 x 2
	Serial Port	COM x 2
	Audio	Audio Jack x 3
	KB/MS	1
● Expansion	PCIe	PCI-Express[x16] x 1, PCI-Express[x4] x 1, PCI-Express[x1] x 2
● Indicator	Front	HDD x 1, PWR x 1
● Power Requirement		AC-in 275W
● Power Consumption		Intel® Core™ i7-860, TDP 95W
● System Cooling		Fan Cooling

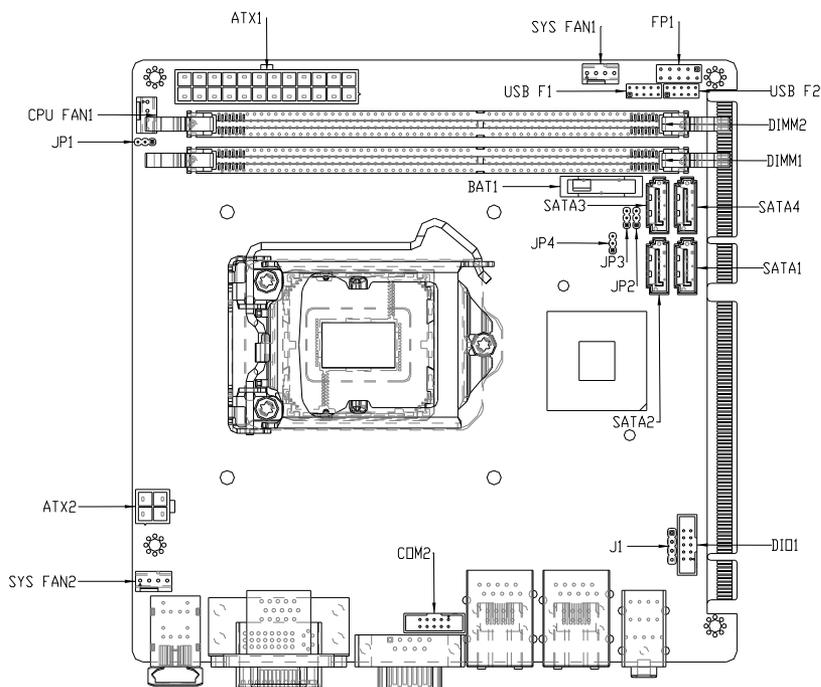
● Mounting	Desktop	
● Operating Temperature	32°F ~113°F (0°C~45°C)	
● Storage Temperature	-4°F ~140°F (-20°C~60°C)	
● Anti-Vibration	0.5g rms/ 5~500 Hz/ operation	
● Anti-Shock	15G with 11 msec. operation	
● Certification	EMC	CE/FCC
● Dimension (W x H x D)	14.17" x 3.93" x 11.81" (360mm x 100mm x 300mm)	
● Gross Weight	22.44 lb (10.2 Kg)	
● OS Support	Windows® XP, Windows® 7, Linux Fedora Core 12	

Chapter

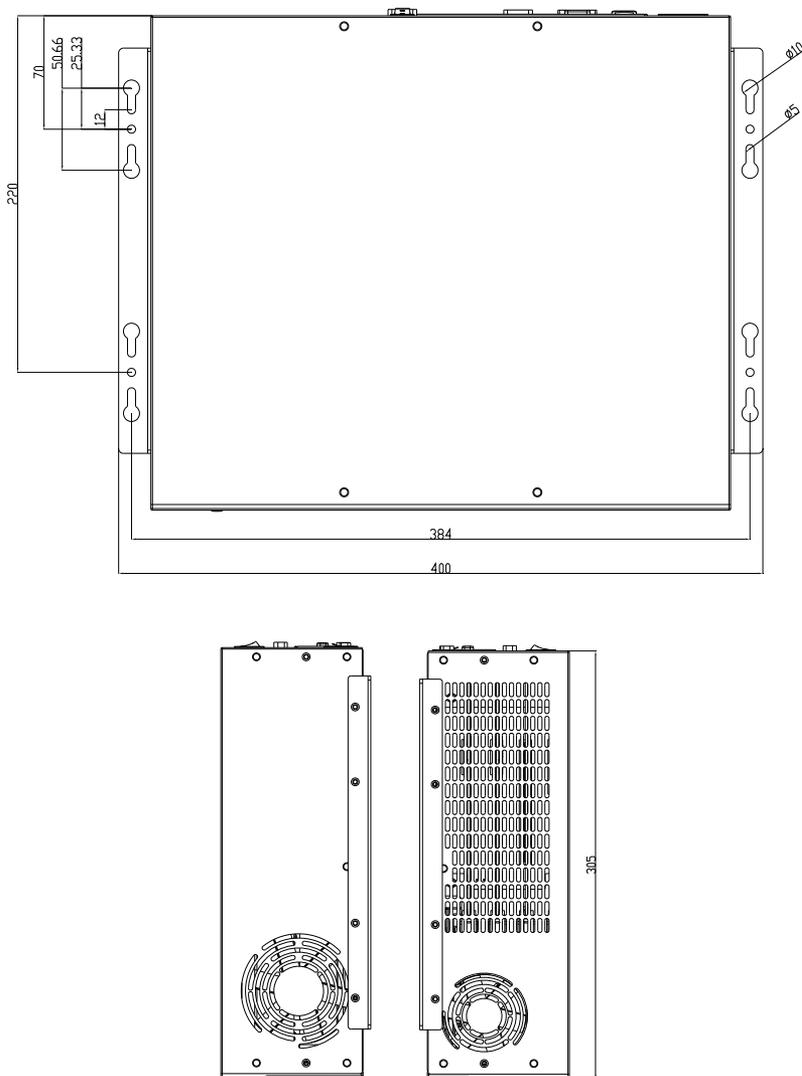
2

**Hardware
Installation**

2.1 Location of Connectors

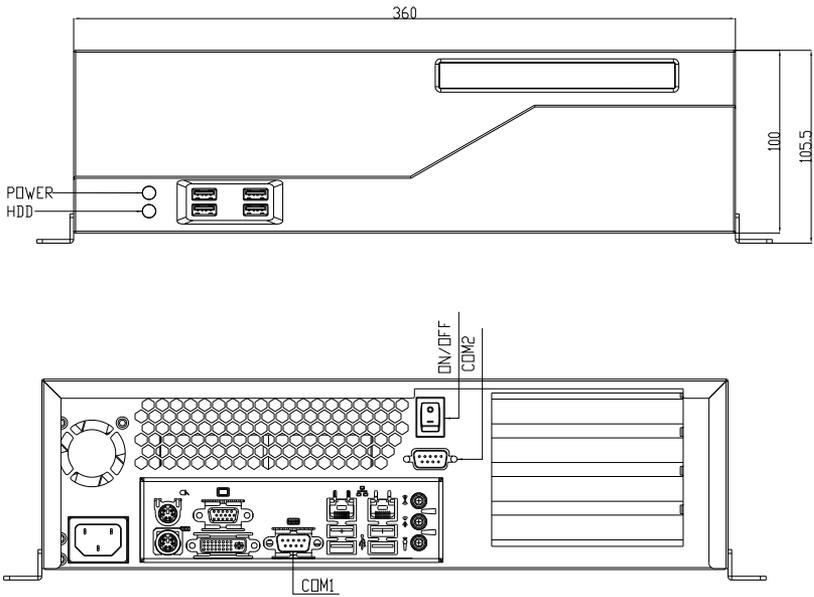


2.2 Mechanical Drawing



**Advanced System
Controller**

AIS-Q574



2.3 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

2.4 List of Connectors

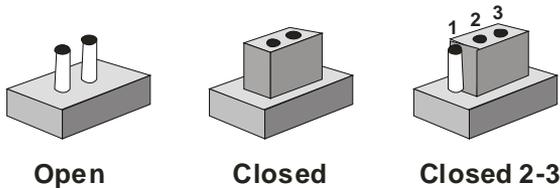
The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

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
ATX1	24-Pin ATX Power
ATX2	4-Pin ATX Power +12V Connector
SATA1~SATA4	SATA Connector
DIO1	Digital I/O
PICMGA1, PICMGB1	Expansion Interface

2.5 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.

2.6 Auto PWRBTN Selection (JP1)

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

2.7 CMOS Setting (JP2)

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

2.8 TPM Setting (JP3)

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

2.9 BIOS Load Optimized Defaults Selection (JP4)

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

2.10 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 (+)

2.11 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

2.12 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		

2.13 RS-232/422/485 Pin Header (COM2)

Pin	Signal	Pin	Signal
1	DCD (422TXD-/485DATA-)	2	RXD (422RXD+)
3	TXD (422TXD+/485DATA+)	4	DTR (422RXD-)
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	N.C

2.14 Digital I/O Pin Header (DIO1)

Pin	Signal	Pin	Signal
1	IN0 (U5 Pin20)	2	IN1 (U5 Pin21)
3	IN2 (U5 Pin22)	4	IN3 (U5 Pin23)
5	OUT0 (U5 Pin24)	6	OUT1 (U5 Pin25)
7	OUT2 (U5 Pin26)	8	OUT3 (U5 Pin27)

9	+5V	10	GND
---	-----	----	-----

2.15 SATA Connector (SATA 1~4)

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

2.16 FAN Connector (CPU_FAN, SYS_FAN1~2)

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

2.17 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

2.18 4-Pin ATX Power Connector (ATX2)

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

2.19 Riser Card

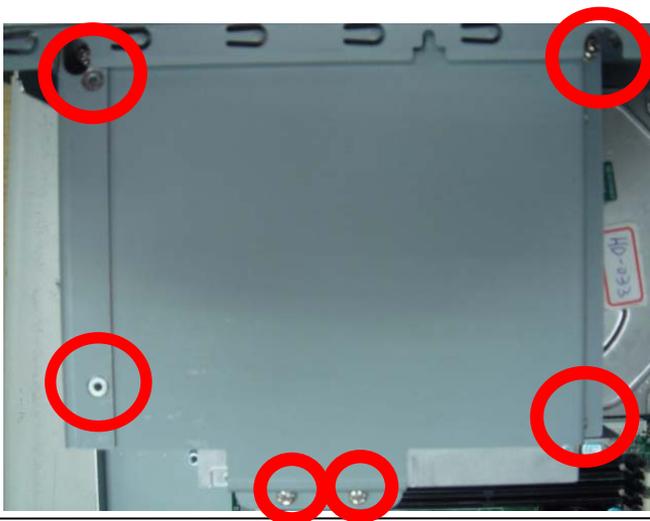
Label	Function
X19PCIE1	PCIE X 16 Connector
PCIE_1	PCIE X 1 Connector
PCIE_2	PCIE X 1 Connector
CN2	PCIE x 4 Connector

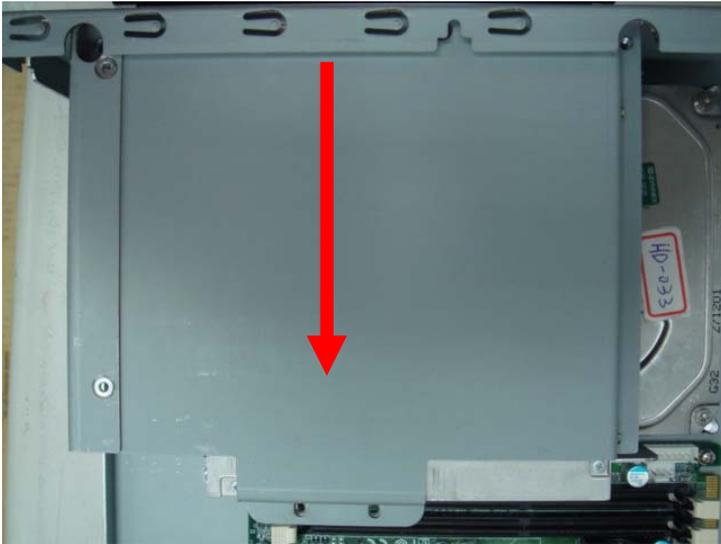
2.20 Installing the Hard Disk Drive

Step 1: Unfasten the four screws on the left and right side of the AIS-Q574

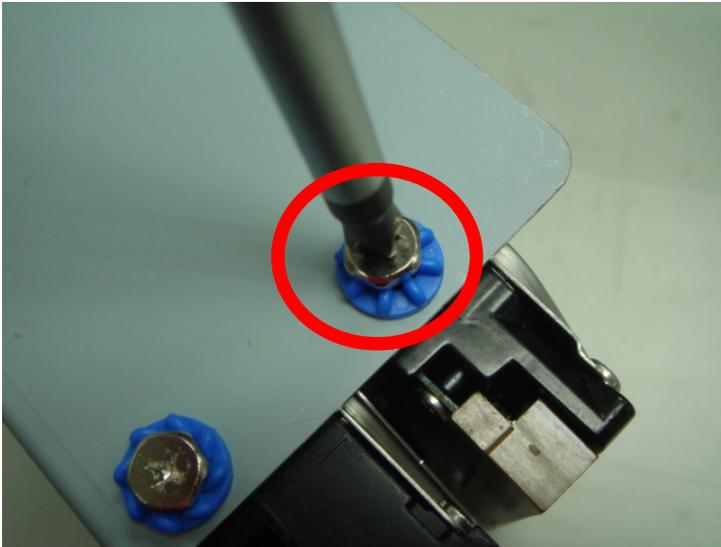


Step 2: Unfasten the screws of the HDD bracket and pull out the bracket



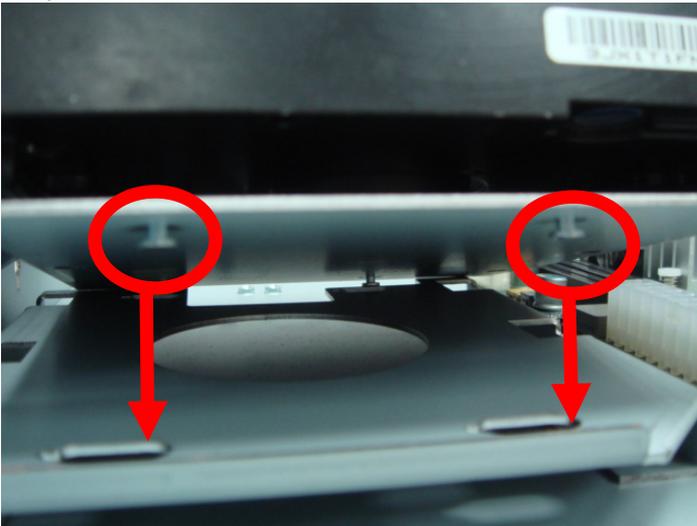


Step 3: Place the HDD to the HDD bracket and fasten the four screws



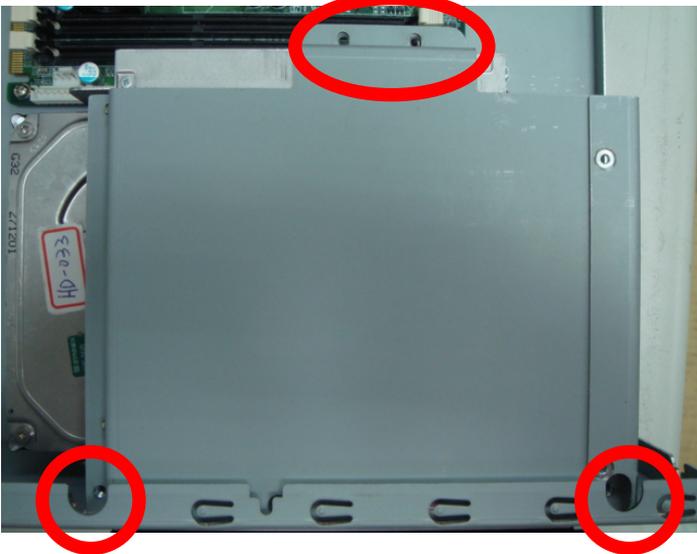


Step 4: Put the HDD back to the chassis by sliding HDD and lock to the position.



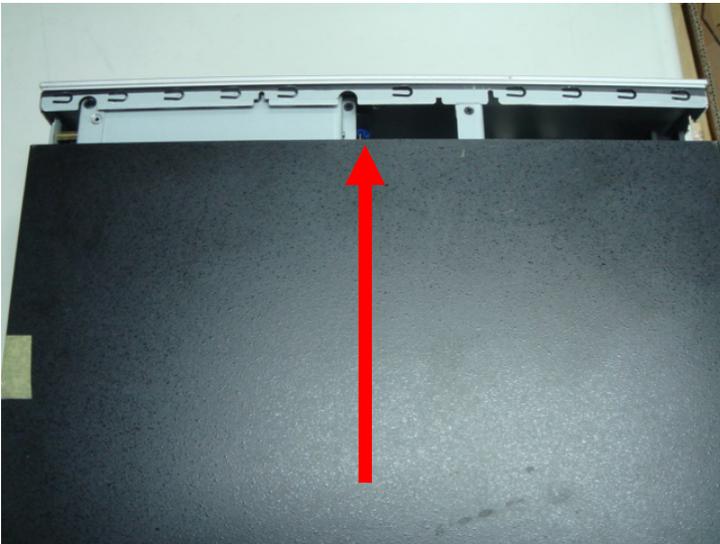


Step 5: Install DVD-ROM module to the chassis, and fasten the screws





Step 6: Close the cover of AIS-Q574 and fasten the screws

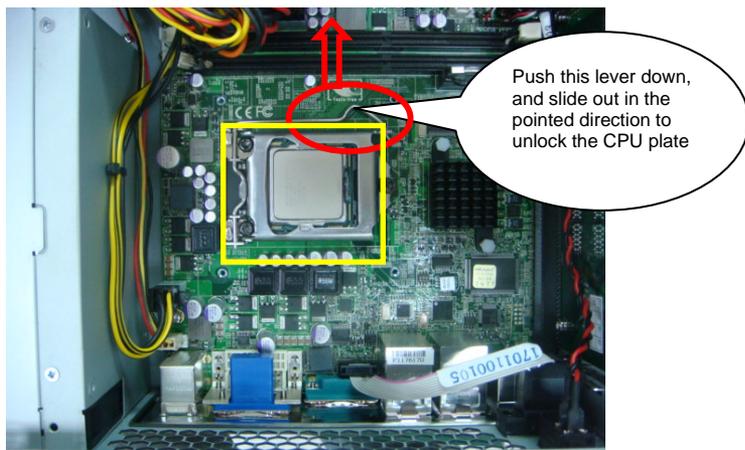




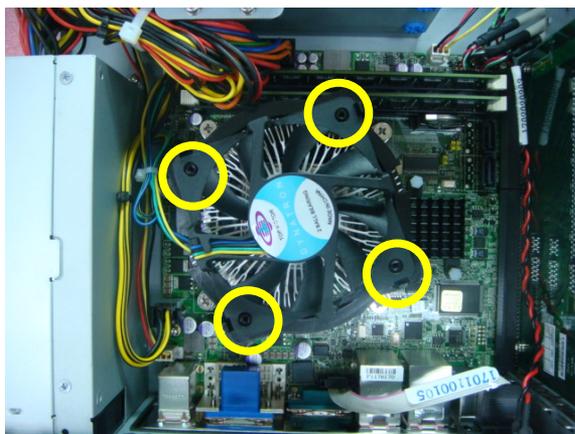
2.21 Optional Accessories Installation

CPU Installation

Step 1: Install CPU into the socket by lifting the CPU plate



Step 2: Insert the CPU fan and secure it using 4 screws

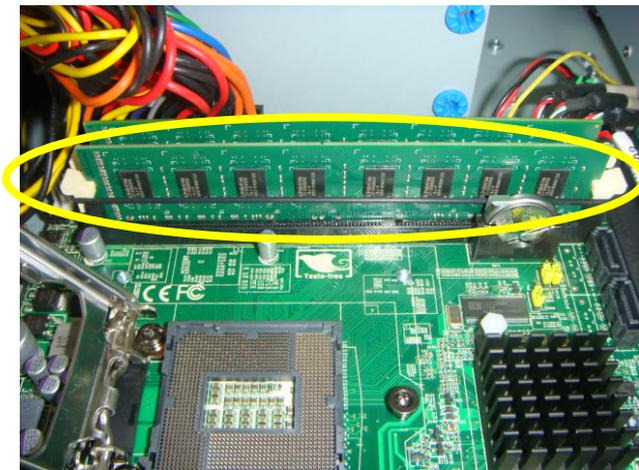


RAM Installation

Step 1: Insert RAM onto the slot

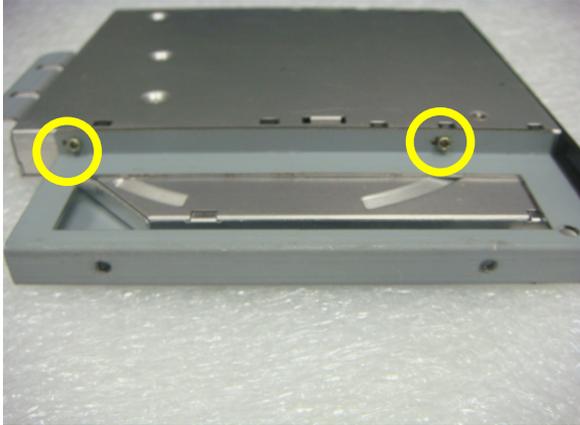


Step 2: Put a rubber band around the RAM to secure it in the slot

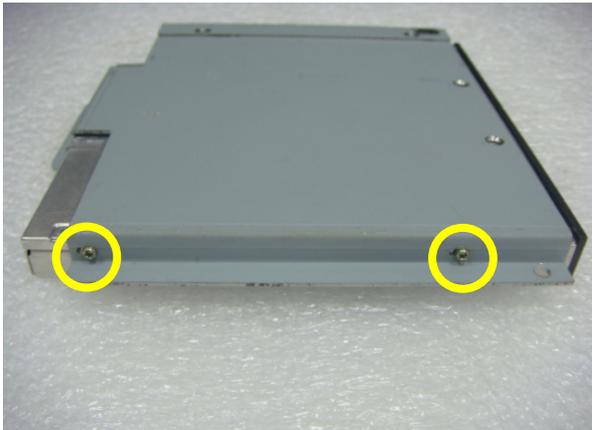


DVD-ROM Installation

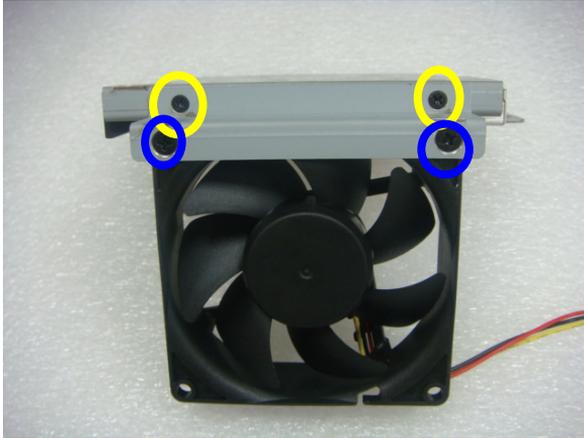
Step 1: Secure the DVD ROM onto the metal plate



Step 2: Secure both sides by installing screws



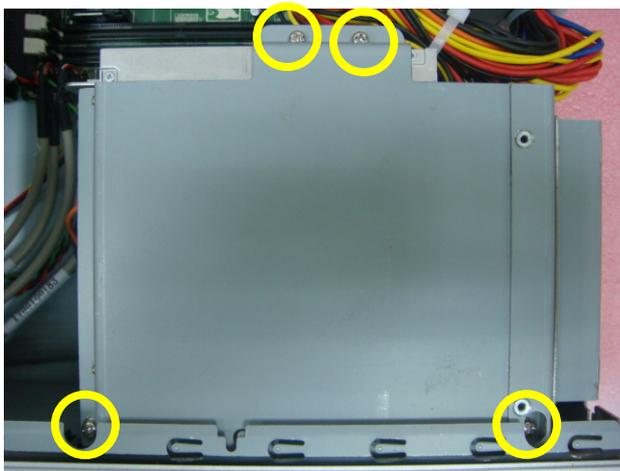
Step 3: Install the bracket onto the system fan



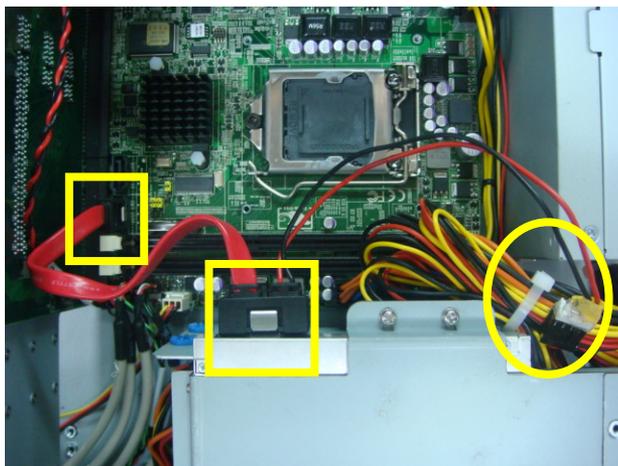
Step 4: Accurate DVD-ROM position is shown below



Step 5: Install the CD bracket

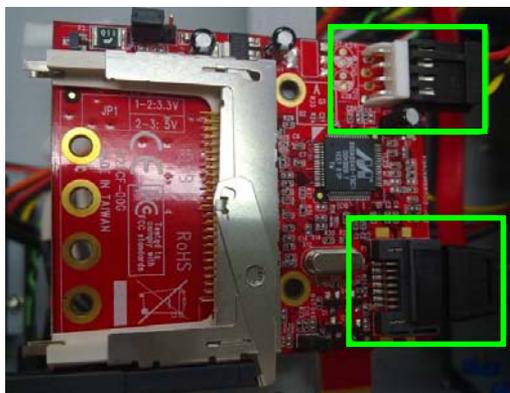


Step 6: Install Slim type SATA Cable for the CD-ROM/DVD-ROM

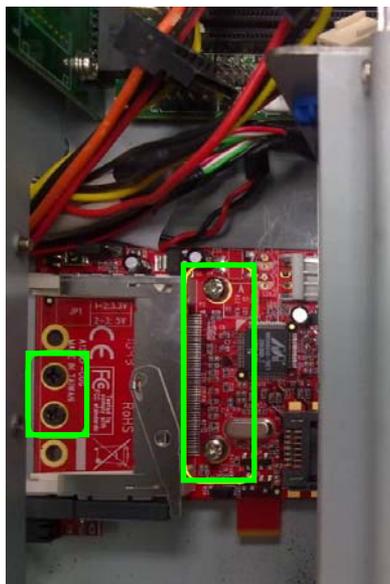


CompactFlash™ Card Installation

Step 1: Connect the SATA Cable and Power Cable



Step 2: Secure the CompactFlash™ card with screws



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 AIS-Q574 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

Enable/disable boot option for legacy network devices.

Chipset

Host bridge parameters.

Boot

Enables/disables quiet boot option.

Security

Set setup administrator password.

Save&Exit

Exit system setup after saving the changes.

Chapter

4

**Driver
Installation**

The AIS-Q574 comes with a DVD-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 AIS-Q574 DVD-ROM into the DVD-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 C RAID & AHCI Settings

Appendix

A

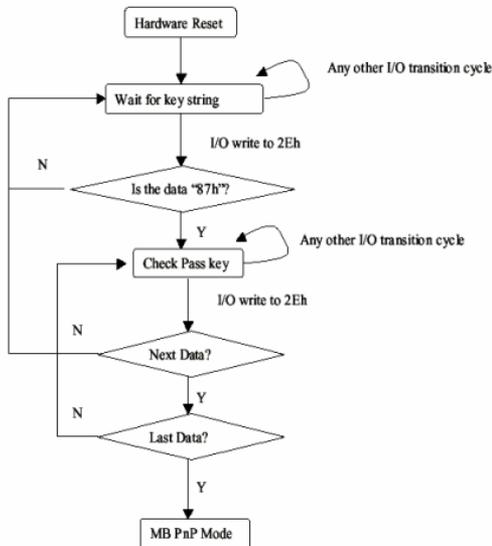
Programming the Watchdog Timer

A.1 Programming

AIS-Q574 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 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 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
[00001070 - 00001077]	Secondary IDE Channel
[000010F0 - 000010F7]	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
[0000F080 - 0000F083]	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

Address Range	Device
[000A0000 - 000BFFFF]	Intel(R) Graphics Media Accelerator HD
[000A0000 - 000BFFFF]	PCI bus
[3C000000 - FFFFFFFF]	PCI bus
[D0000000 - DFFFFFFF]	Intel(R) Graphics Media Accelerator HD
[E0000000 - EFFFFFFF]	System board
[FE000000 - FE3FFFFF]	Intel(R) Graphics Media Accelerator HD
[FE400000 - FE4FFFFF]	Intel(R) 5 Series/3400 Series Chipset Family PCI Express Root Port 8 - 3B50
[FE440000 - FE45FFFF]	Intel(R) Gigabit CT Desktop Adapter
[FE460000 - FE463FFF]	Intel(R) Gigabit CT Desktop Adapter
[FE500000 - FE51FFFF]	Intel(R) 82578DM Gigabit Network Connection
[FE520000 - FE523FFF]	Microsoft UAA Bus Driver for High Definition Audio
[FE524000 - FE5240FF]	Intel(R) 5 Series/3400 Series Chipset Family SMBus Controller - 3B30
[FE525000 - FE5253FF]	Intel(R) 5 Series/3400 Series Chipset Family USB Enhanced Host Controller - 3B34
[FE526000 - FE526FFF]	Intel(R) 82578DM Gigabit Network Connection
[FE527000 - FE52700F]	Intel(R) Management Engine Interface
[FEC00000 - FECFFFFF]	System board
[FED00000 - FED003FF]	High precision event timer
[FED08000 - FED08FFF]	System board
[FED14000 - FED19FFF]	System board
[FED1C000 - FED1FFFF]	System board
[FED20000 - FED3FFFF]	System board
[FED90000 - FED93FFF]	System board
[FEE00000 - FEE0FFFF]	System board
[FFF00000 - FFFFFFFF]	System board

B.3 IRQ Mapping Chart

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	Microsoft PS/2 Mouse
(ISA) 13	Numeric data processor
(ISA) 14	Primary IDE Channel
(PCI) 5	Intel(R) 5 Series/3400 Series Chipset Family SMBus Controller - 3B30
(PCI) 16	Intel(R) Graphics Media Accelerator HD
(PCI) 16	Intel(R) Management Engine Interface
(PCI) 17	Intel(R) 5 Series/3400 Series Chipset Family PCI Express Root Port 1 - 3B42
(PCI) 19	Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B26
(PCI) 19	Intel(R) 5 Series/3400 Series Chipset Family PCI Express Root Port 8 - 3B50
(PCI) 19	Intel(R) Gigabit CT Desktop Adapter
(PCI) 20	Intel(R) 82578DM Gigabit Network Connection
(PCI) 22	Microsoft UAA Bus Driver for High Definition Audio
(PCI) 23	Intel(R) 5 Series/3400 Series Chipset Family USB Enhanced Host Controller - 3B34

B.4 DMA Channel Assignments

DMA Channel	Device
4	Direct memory access controller

Appendix

C

RAID & AHCI Settings

C.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

 F6Readme
文字文件
8 KB

 iaAHCI
安裝資訊
9 KB

 iaStor
安裝資訊
8 KB

 license
文字文件
5 KB

 TXTSETUP.OEM
OEM 檔案
6 KB

 iaAHCI
安全性目錄
9 KB

 iaStor
安全性目錄
8 KB

 iaStor
系統檔案
423 KB

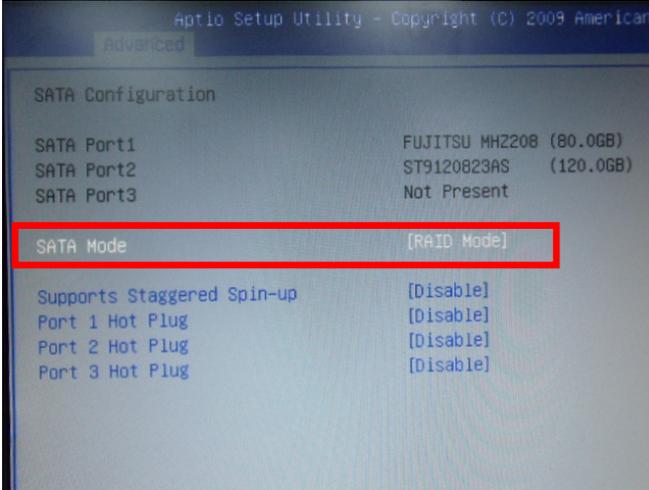
 readme
文字文件
78 KB

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



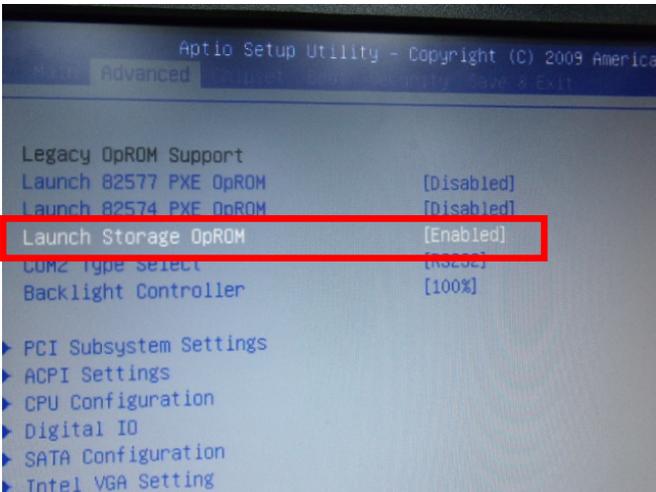
Step 3: The setting procedures “In BIOS Setup Menu”

A: Advanced -> SATA Configuration -> SATA Mode -> RAID Mode



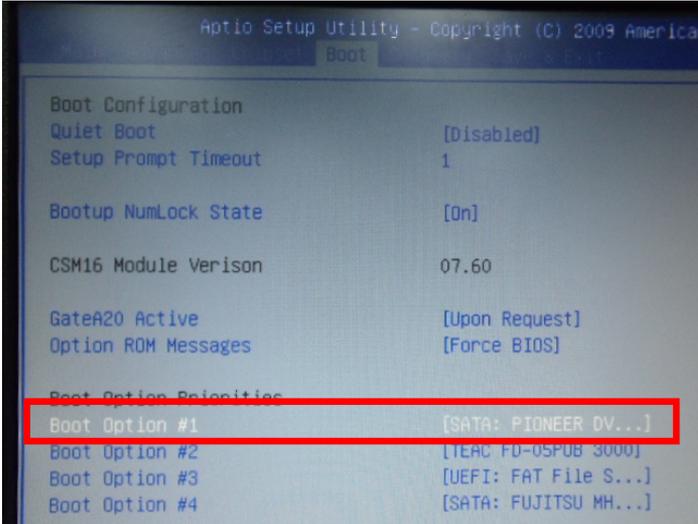
Step 4: The setting procedures “In BIOS Setup Menu”

B: Advanced -> Launch Storage OpROM -> Enabled



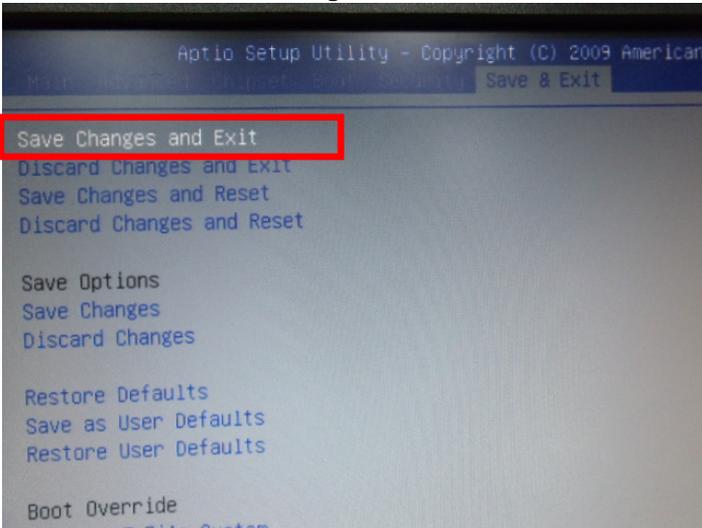
Step 5: The setting procedures "In BIOS Setup Menu"

C: Boot -> Boot Option #1 -> DVD-ROM Type

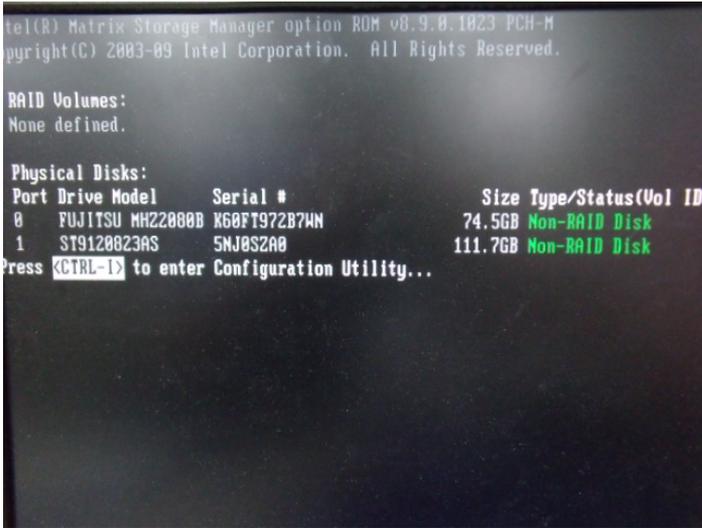


Step 6: The setting procedures "In BIOS Setup Menu"

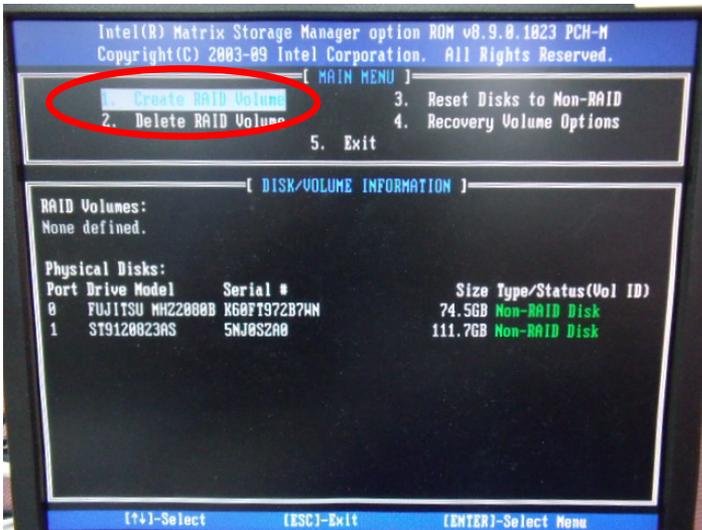
D: Save & Exit -> Save Changes and Exit



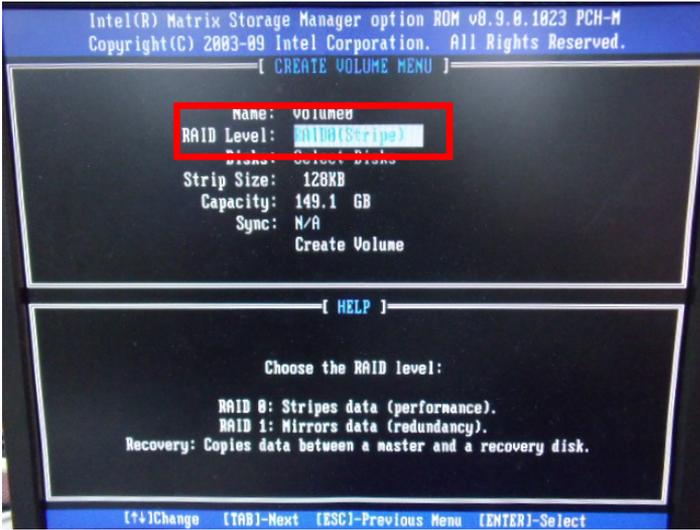
Step 7: Press **Ctrl-I** to enter **MAIN MENU**



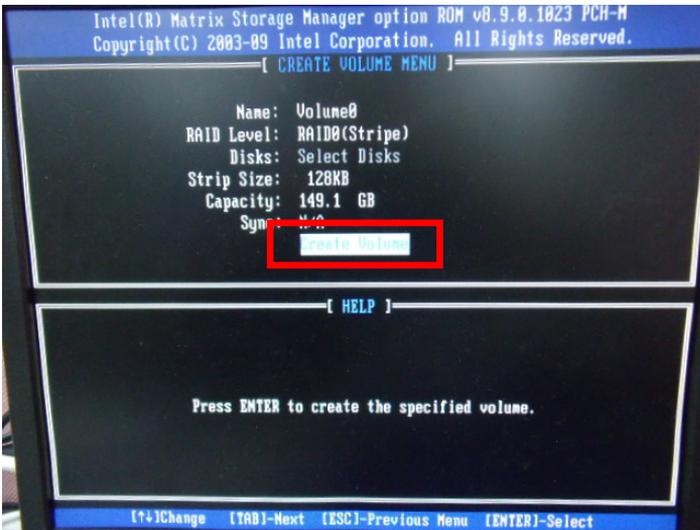
Step 8: Choose "1.Create RAID Volume"



Step 9: RAID Level -> RAID0(Stripe)



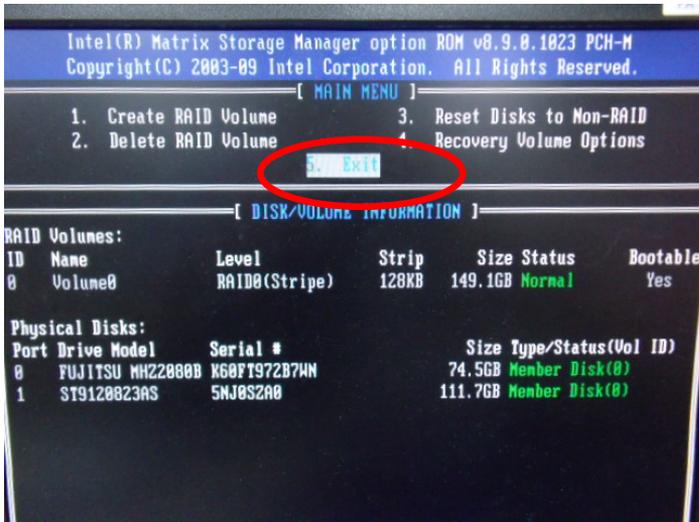
Step 10: Choose "Create Volume"



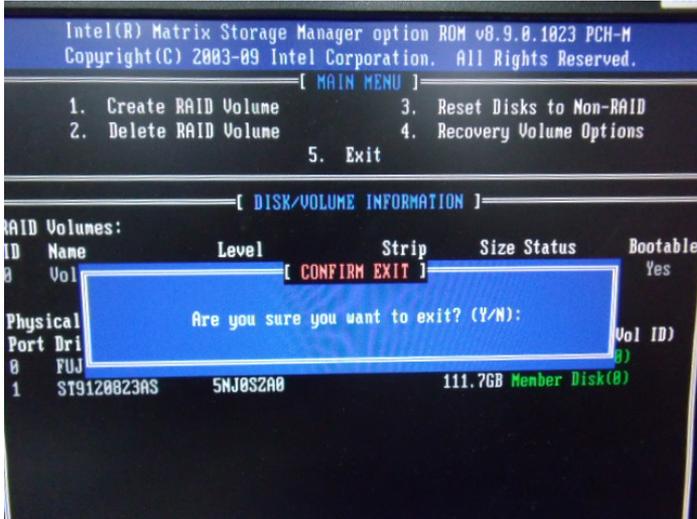
Step 11: Choose "Y"



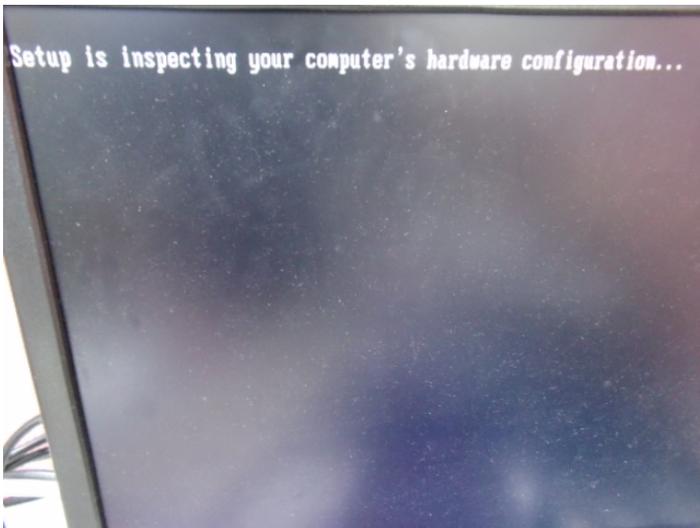
Step 12: Choose "5. Exit"



Step 13: Choose "Y"



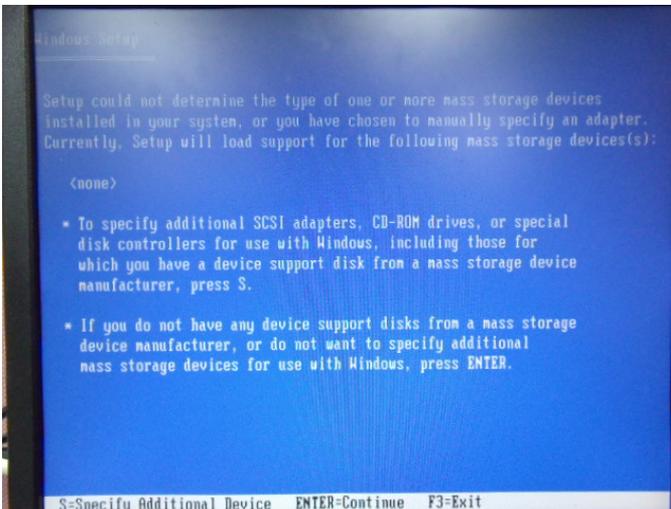
Step 14: Setup OS



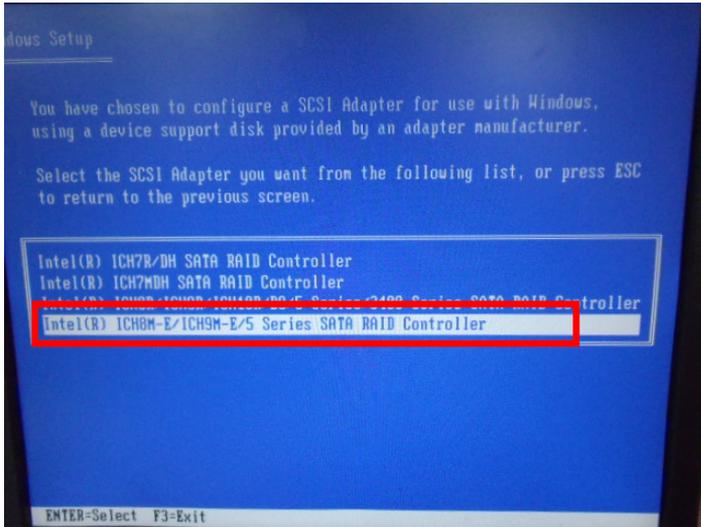
Step 15: Press "F6"



Step 16: Choose "S"



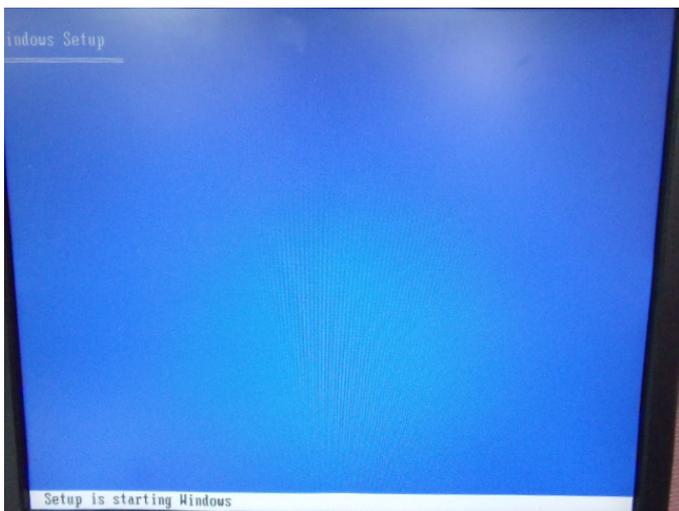
Step 17: Choose “Intel(R) ICH8M-E/ICH9M-E/5 Series SATA RAID Controller”



Step 18: It will show the model number you select and then press “ENTER”



Step 19: Setup is starting Windows



C.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

 F6Readme
文字文件
8 KB

 iaAHCI
安裝資訊
9 KB

 iaStor
安裝資訊
8 KB

 license
文字文件
5 KB

 TXTSETUP.OEM
OEM 檔案
6 KB

 iaAHCI
安全性目錄
9 KB

 iaStor
安全性目錄
8 KB

 iaStor
系統檔案
423 KB

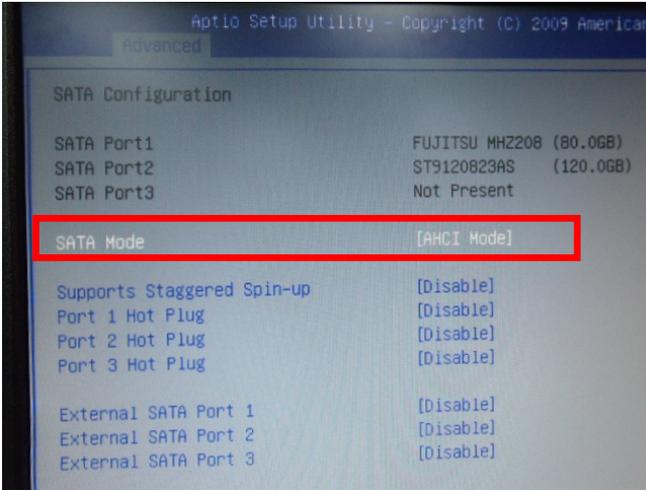
 readme
文字文件
78 KB

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



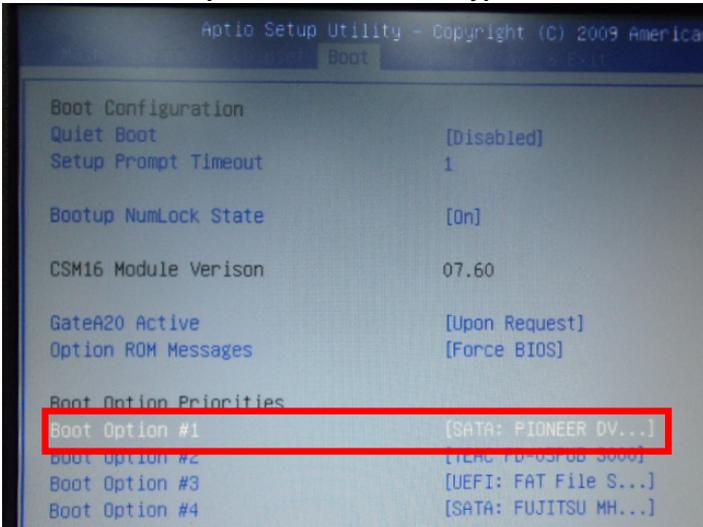
Step 3: The setting procedures “In BIOS Setup Menu”

A: Advanced -> SATA Configuration -> SATA Configuration -> SATA Mode -> AHCI Mode



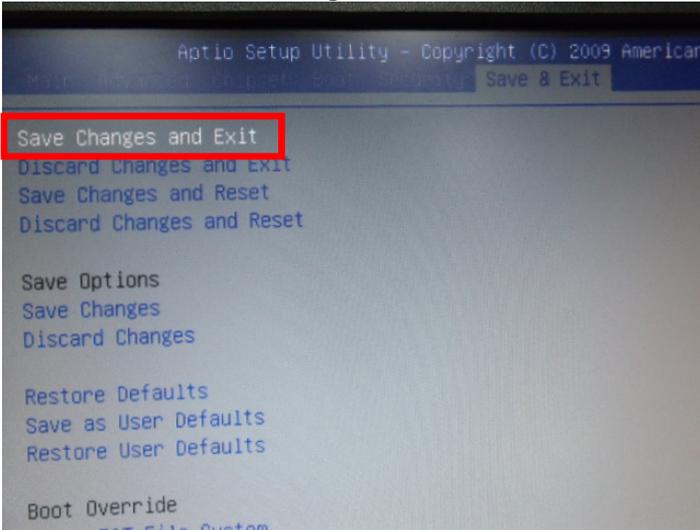
Step 4: The setting procedures “In BIOS Setup Menu”

B: Boot -> Boot Option #1 -> DVD-ROM Type

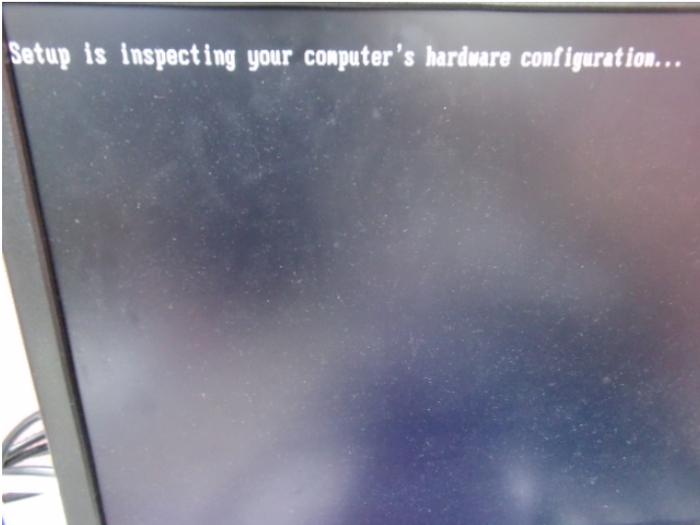


Step 5: The setting procedures "In BIOS Setup Menu"

C: Save & Exit -> Save Changes and Exit



Step 6: Setup OS



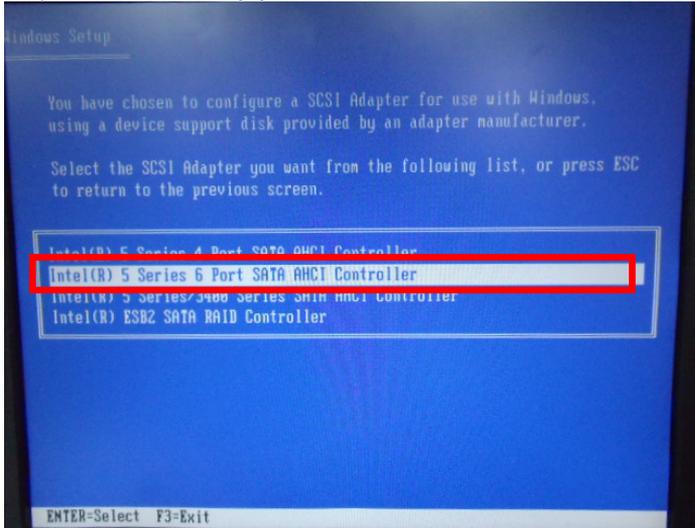
Step 7: Press "F6"



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

