

**AEC-6876**

Fanless Embedded Controller

Intel® Core™ i5-2510E/  
Celeron®-B810 Processor

with 2 Gigabit Ethernet

4 COM, 4 USB, 1 PCI-Express[x4]

DVI, HDMI, VGA

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## Packing List

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

- 1 AEC-6876 Embedded Controller
- 1 Phoenix Power Connector
- 4 M3 x 4mm Screws
- 6 6# -32 x 10mm Screws
- 2 Wallmount Brackets
- 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 70°C (158°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	×	○	○	○	○	○
<p><b>O:</b> 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 <b>SJ/T 11363-2006</b> 标准规定的限量要求以下。</p> <p><b>X:</b> 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 <b>SJ/T 11363-2006</b> 标准规定的限量要求。</p> <p>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。</p>						

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Chapter

1

**General  
Information**

## 1.1 Introduction

---

Due to the growing popularity from the IPC market, the newest Boxer series AEC-6876 has been introduced by AAEON.

### **New Innovation for Entertainment Multimedia Domain**

In this era of information explosion, the advertising of consumer products will not be confined to the family television, but will also spread to high-traffic public areas, like department stores, the bus, transportation station, the supermarket etc. The advertising marketing industry will resort to every conceivable means to transmit product information to consumers. System integrators will need a multifunction device to satisfy commercial needs for such public advertising.

Being a control center, the AEC-6876 is suitable for public multimedia entertainment services. Equipped with a high efficiency heat conduction mechanism.

The AEC-6876 is compact in size but has attractive and flexible extension capabilities such as 4 USB2.0 ports, VGA, Audio, 4 COM ports, and PCI-Express slot.

### **Stable Design for Rugged Environment**

The AEC-6876 is designed for rugged environments due to the following reasons; first, it can withstand tough vibration testing up to

5 g rms. With the anti-vibration hard drive device option, the AEC-6876 can be used in high vibration environments. In addition, the AEC-6876 offers low power consumption system that while operating in ambient temperatures ranging from -10° to 55°C.

The AEC-6876 is a standalone high performance controller designed for long-life operation and with high reliability. It can replace traditional methods and become the mainstream controller for the multimedia entertainment market.

## 1.2 Features

---

- Fanless Design
- Intel® Core™ i5-2510E/ Celeron®-B810 Processor
- Intel® QM67 Chipset
- Gigabit Ethernet, RJ-45 x 2
- Intel® Integrated Graphics Engine Supports Dual View by VGA, DVI, HDMI
- PCI-Express[x4] Slot x 1
- COM x 4

### 1.3 Specifications

● CPU		Intel® Core™ i5-2510E 2.5 GHz/ Celeron®-B810 1.6 GHz Processor
● Chipset		Intel® QM67
● System Memory		DDR3 SODIMM x 2, Max. 8 GB, support DDR3 1066/ 1333
● Display Interface	VGA	DB-15 x 1
	DVI	DVI-D x 1, support 1920 x 1080 @ 60 Hz
	HDMI	HDMI x 1, support 1920 x 1080 @ 60 Hz
● Storage Device	SSD	CFast™ slot
	HDD	SATA 6 GB (SATA 1, SATA 2)
● Network	LAN	Gigabit Ethernet, RJ-45 x 2
	Wireless	Optional by Mini Card
● Front I/O	Serial Port	RS-232 x 3
	Others	Power button x 1
● Rear I/O	USB Host	USB2.0 x 4
	LAN	RJ-45 x 2
	Serial Port	RS-232/422/485 x 1
	Audio	Mic-in, Line-out, Line-out
	KB/MS	PS/2 Keyboard x 1 + Mouse x 1
	Others	Power input x 1
● Expansion	PCIe[x4]	1

	Mini Card	1
● Indicator	Front	Power LED x 1, HDD active LED x 1
● Power Requirement		DC-in 12V, with DC jack lockable, DC 9~30V with 3-pin terminal block
● System Cooling		Passive cooling
● Mounting		Wallmount
● Operating Temperature		14 °F ~ 122°F (-10°C ~ 50°C)—without airflow 14 °F ~ 131°F (-10°C ~ 55°C)—with airflow
● Storage Temperature		-4°F ~ 158°F (-20°C ~ 70°C)
● Anti-Vibration		5 g rms/ 5~500 Hz/ operation-CFast™; 1 g rms/ 5~500 Hz/ operation-HDD
● Anti-Shock		50 G peak acceleration (11 msec. duration) –CFast™ 20 G peak acceleration (11 msec. duration) – HDD
● Certification	EMC	CE/FCC Class A
● Dimension (W x H x D)		8.19" x 4.02" x 9.37" (208mm x 102mm x 238mm)
● OS Support		Windows® XP Embedded, Windows® XP, Windows® 7, Linux Fedora 10



Chapter

2

# Hardware Installation

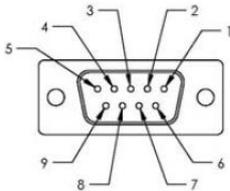




## 2.2 RS-232 Box Header (COM1)

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

## 2.3 RS-232/422/485 Pin Header (COM2)



### RS-232 Mode

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

### RS-422 Mode

Pin	Signal	Pin	Signal
1	TXD-	2	RXD+
3	TXD+	4	RXD-
5	Ground	6	NC
7	NC	8	NC
9	NC		

**RS-485 Mode**

Pin	Signal	Pin	Signal
1	D-	2	NC
3	D+	4	NC
5	Ground	6	NC
7	NC	8	NC
9	NC		

**2.4 RS-232 Box Header (COM3~COM6)**

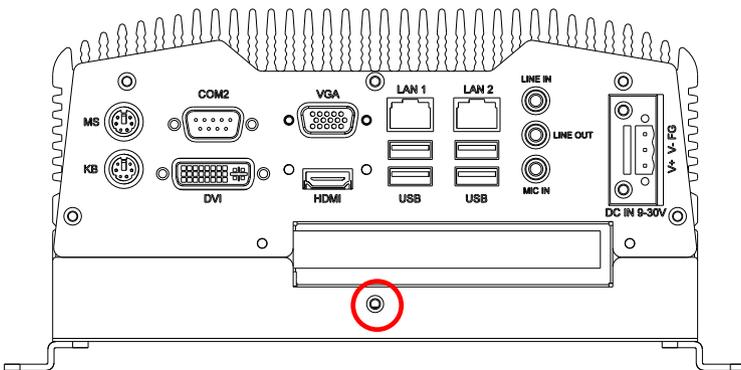
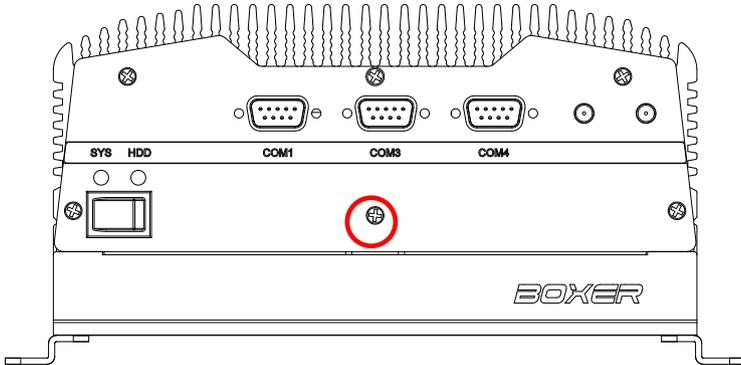
Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

**2.5 USB Box Header (USB3~USB4)**

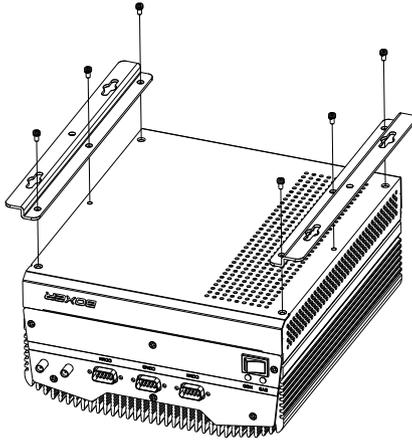
Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD-	4	GND
5	USBD+	6	USBD+
7	GND	8	USBD-
9	GND	10	+5V

## 2.6 HDD Installation

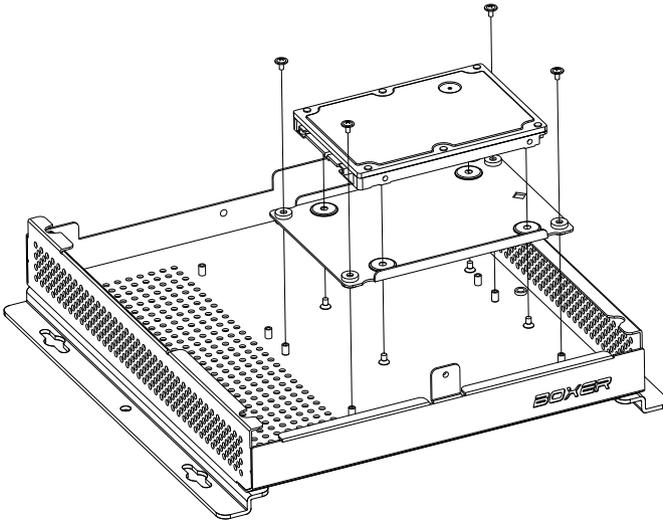
Step 1: Unfasten the two screws on the front and rear panels



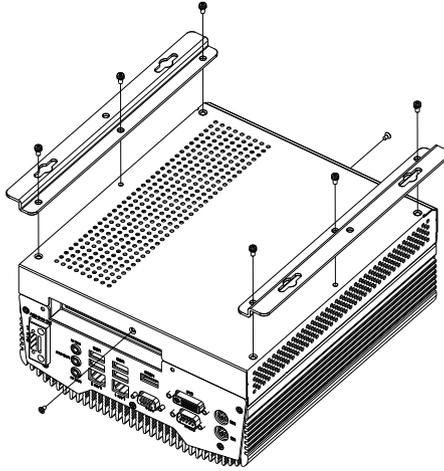
Step 2: Unfasten the six screws on the bottom lid



Step 3: Place the HDD to the HDD bracket and fasten to the bottom lid of AEC-6876

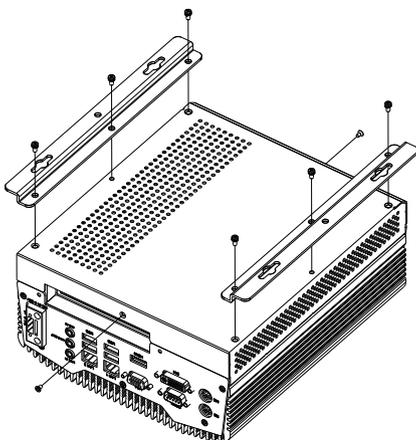


Step 4: Fasten the screws on the front and rear panels, and the brackets of AEC-6876

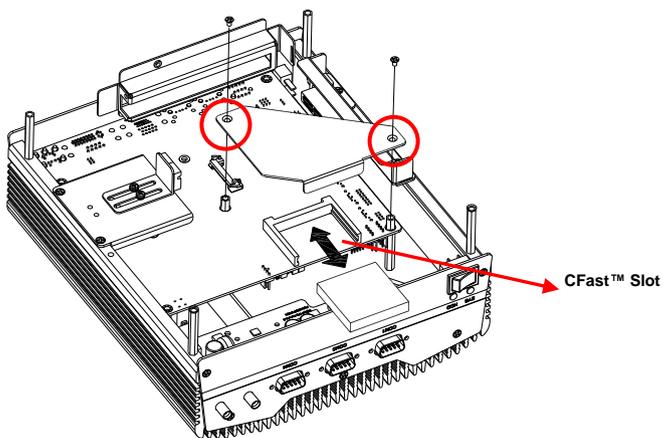


## 2.7 CFast™ Card Installation

Step 1: Unfasten the screws on the front and rear panels, and the brackets of AEC-6876

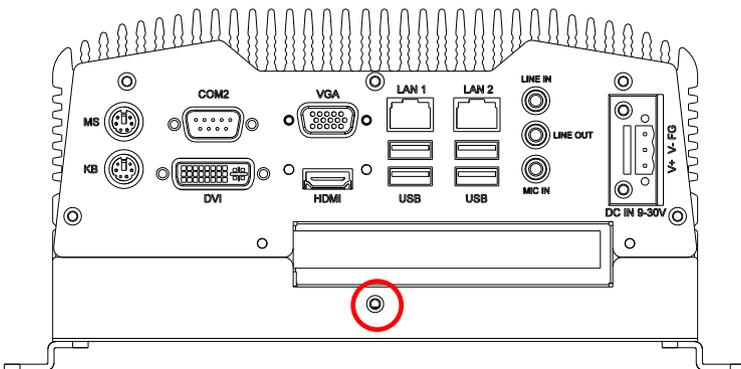
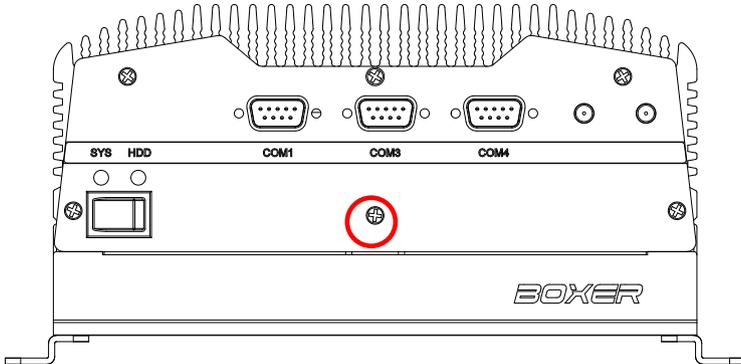


Step 2: After installing the CFast™ Card to the CFast™ Slot, you have to use the cover to fix the CFast™ Card by fastening the two screws

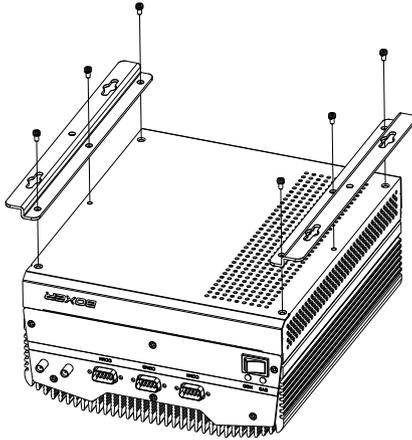


## 2.8 PCI-Express Card Installation

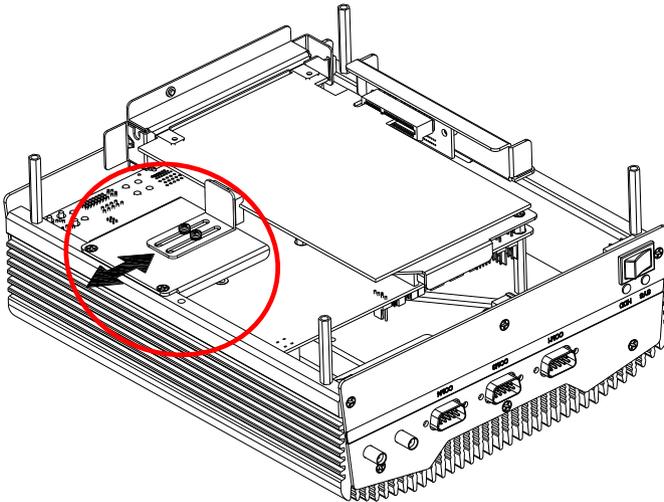
Step 1: Unfasten the two screws on the front and rear panels



Step 2: Unfasten the six screws on the bottom lid

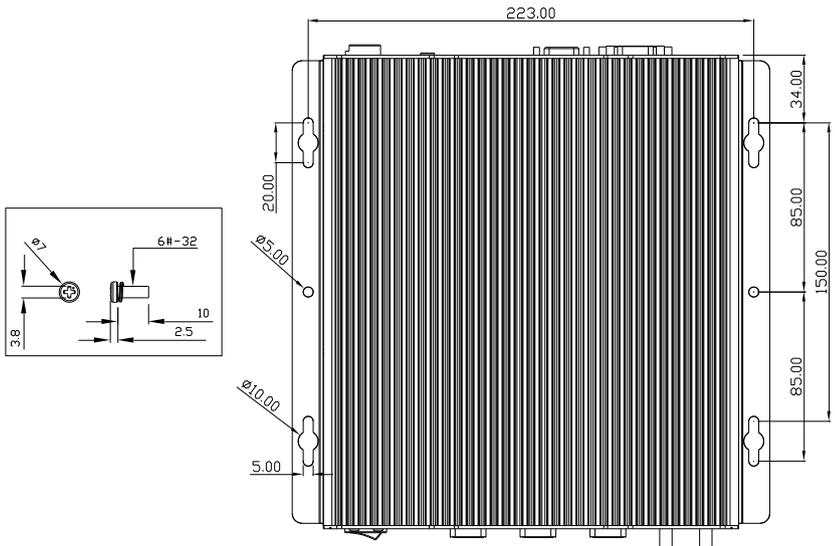
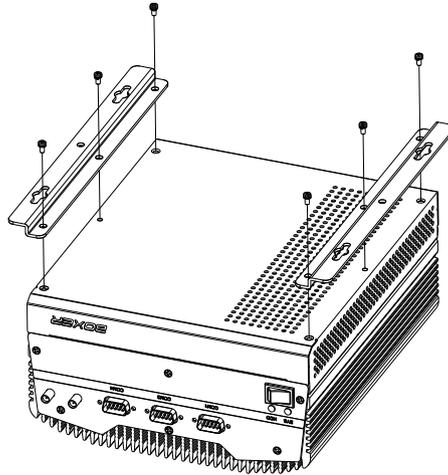


Step 3: Install a hold-down bracket to fix the PCI or PCI-Express Card and make sure the PCI or PCI-Express Card installs properly



## 2.9 Wallmount Bracket Installation

Fasten the brackets with the appropriate 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 AEC-6876 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/disables quiet boot option.

### Security

Set setup administrator password.

### Save&Exit

Exit system setup after saving the changes.

Chapter

4

**Driver  
Installation**

The AEC-6876 comes with an AutoRun DVD-ROM that contains all drivers and utilities that can help you to install the driver automatically.

Insert the driver DVD, the driver DVD-title will auto start and show the installation guide. If not, please follow the sequence below to install the drivers.

***Follow the sequence below to install the drivers:***

Step 1 – Install Chipset 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 & AHCI Driver (Optional)

Step 7 – Install TPM Driver

Step 8 – Install Serial Port Driver (Optional)

**Note:** If you got compatible issue for COM port, please find its driver under STEP 8 folder and then install it by administrative login permission.

Please read instructions below for further detailed installations.

## 4.1 Installation:

---

Insert the AEC-6876 DVD-ROM into the DVD-ROM drive. And install the drivers from Step 1 to Step 8 in order.

### Step 1 – Install Chipset Driver

1. Click on the **STEP 1-CHIPSET** folder and select the OS folder your system is
2. Double click on the **infinst\_autol.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 2 – Install VGA Driver

1. Click on the **STEP2-VGA** folder and select the OS folder your system is
2. Double click on the **.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

#### **Note 1:**

- This motherboard supports VGA and LVDS display devices. In Single Display mode, use the hot keys to switch between VGA to LVDS device or vice versa. By default, press **<Ctrl>+<Alt>+<F1>** to switch to VGA device and press **<Ctrl>+<Alt>+<F3>** to switch to LVDS device.
- Before removing the current display device, connect the display device that you want to use, and then press the hot keys to switch to that device.

**Note 2:** If the OS is Windows® XP, you have to install the driver of dotNet Framework first. Simply click on **dotnetfx35.exe** located in **dotNet Framework** folder.

### Step 3 –Install LAN Driver

1. Click on the **STEP3-LAN** folder and select the OS folder your system is and then select the folder of **Intel 82576LM** or **Realtek 8111E** based on the LAN chipset in your system
2. Double click on the **.exe** file
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 **STEP4-AUDIO** folder and select the OS folder your system is
2. Double click on the **Setup.exe** located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

### Step 5 – Install ME Driver

1. Click on the **STEP5-ME** folder and select the folder of OS folder your system is
2. Double click on the **Setup.exe** located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

## Step 6 – Install RAID & AHCI Driver

Please refer to the **Appendix C RAID & AHCI Settings**

## Step 7 – Install TPM Driver

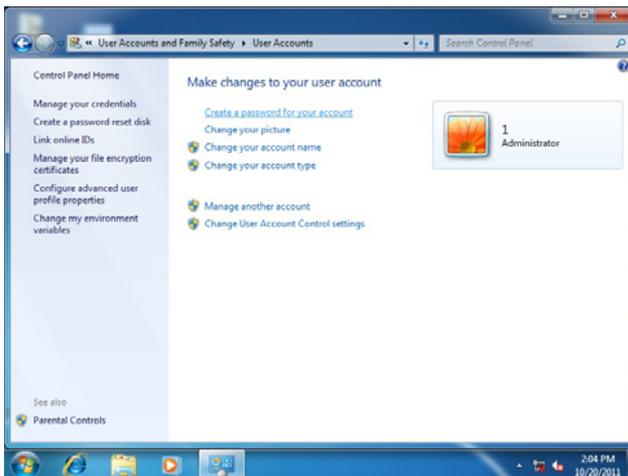
1. Click on the **STEP7-TPM** folder and select the folder of OS folder your system is
2. Double click on the **Setup.exe** located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

## Step 8 –Install Serial Port Driver (Optional)

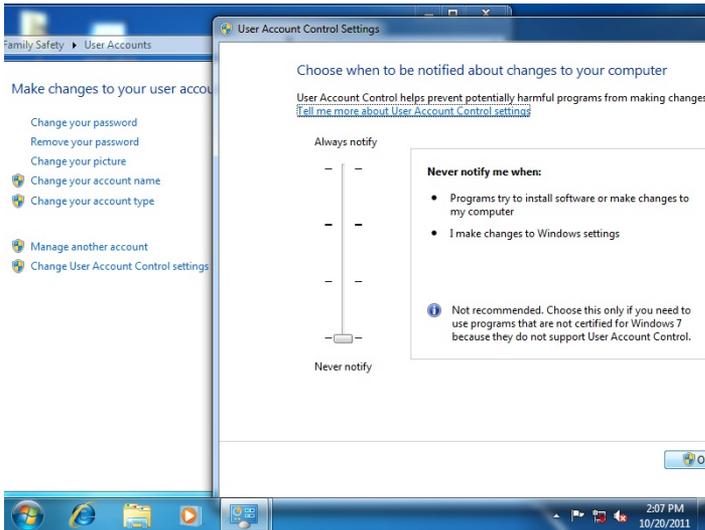
For Windows® XP 32-bit, select the folder of **WINXP\_32** and double click on the **patch.bat**

For Windows® 7, please refer to the installation procedures below.

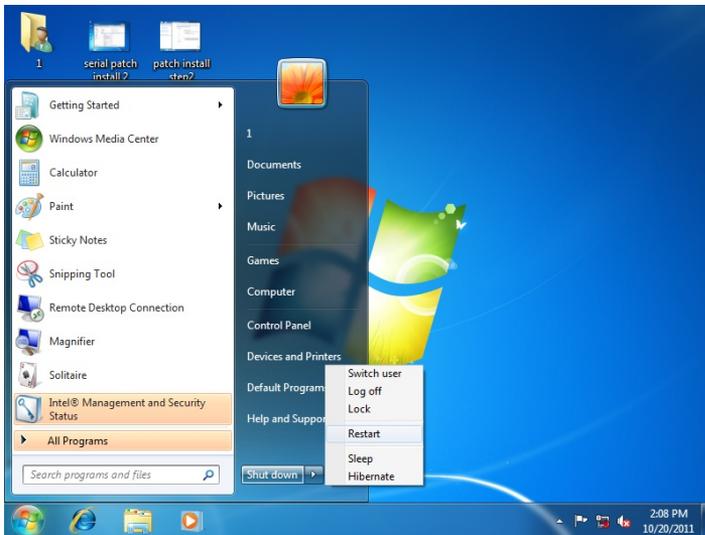
1. Create a password for Administrator account.



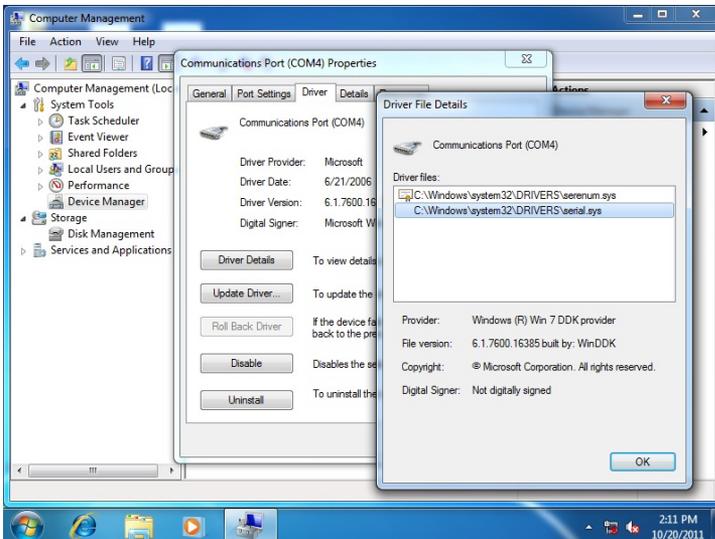
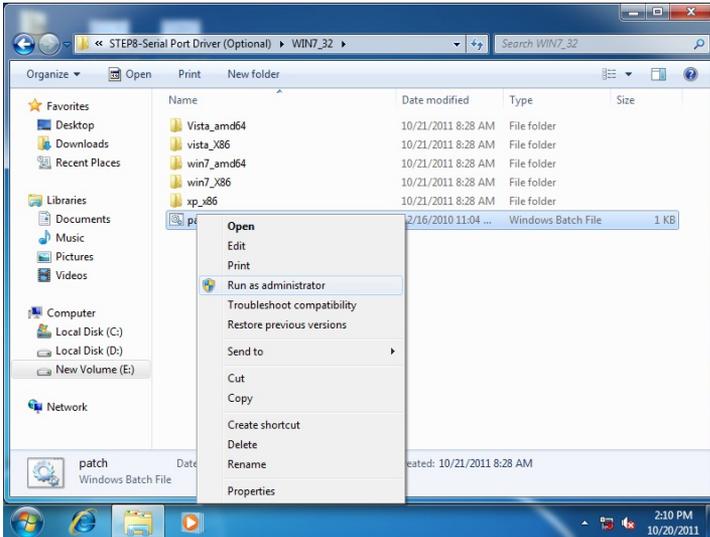
## 2. Change User Account Control Settings to [Never notify]



## 3. Reboot and Administrator login.



4. To run patch.bat with [Run as administrator].



Appendix

**A**

# Programming the Watchdog Timer

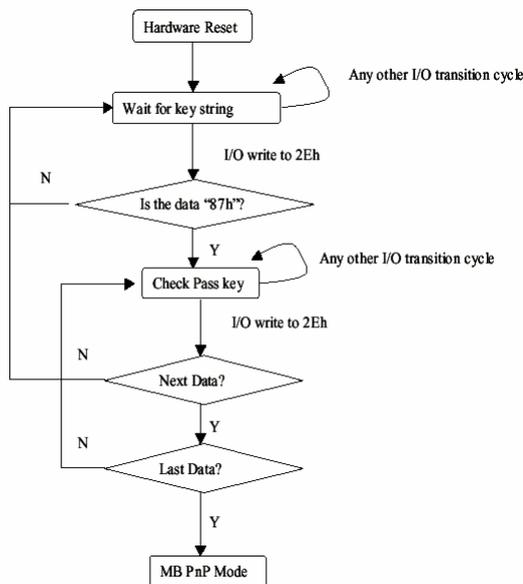
## A.1 Programming

AEC-6876 utilizes ITE IT8728 chipset as its watchdog timer controller.

Below are the procedures to complete its configuration and the AAEMON initial watchdog timer program is also attached based on which you can develop customized program to fit your application.

### Configuring Sequence Description

After the hardware reset or power-on reset, the ITE IT8728 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	N/A	Configure Control
07H	71H	R/W	00H	WatchDog Timer Control Register
07H	72H	R/W	00H	WatchDog Timer Configuration Register
07H	73H	R/W	00H	WatchDog Timer Time-out Value Register

#### Configure Control (Index=02h)

This register is write only. Its values are not sticky; that is to say, a hardware reset will automatically clear the bits, and does not require the software to clear them.

Bit	Description
7-2	Reserved
1	Returns to the Wait for Key state. This bit is used when the configuration sequence is completed
0	Resets all logical devices and restores configuration registers to their power-on states.

**WatchDog Timer Control Register (Index=71h, Default=00h)**

Bit	Description
7	WDT is reset upon a CIR interrupt
6	WDT is reset upon a KBC (mouse) interrupt
5	WDT is reset upon a KBC (keyboard) interrupt
4	WDT is reset upon a read or a write to the Game Port base address
3-2	Reserved
1	Force Time-out. This bit is self-clearing
0	WDT Status
	1: WDT value reaches 0.
	0: WDT value is not 0

**WatchDog Timer Configuration Register (Index=72h, Default=00h)**

Bit	Description
7	WDT Time-out value select
	1: Second
	0: Minute
6	WDT output through KRST (pulse) enable
5-4	Reserved
3-0	Select the interrupt level <sup>Note</sup> for WDT

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

Bit	Description
7-0	WDT Time-out value 7-0

## A.2 ITE8728 Watchdog Timer Initial Program

---

```
.MODEL SMALL
```

```
.CODE
```

Main:

```
CALL Enter_Configuration_mode
```

```
CALL Check_Chip
```

```
mov cl, 7
```

```
call Set_Logic_Device
```

```
;time setting
```

```
mov cl, 10 ; 10 Sec
```

```
dec al
```

Watch\_Dog\_Setting:

```
;Timer setting
```

```
mov al, cl
```

```
mov cl, 73h
```

```
call Superio_Set_Reg
```

```
;Clear by keyboard or mouse interrupt
```

```
mov al, 0f0h
```

```
mov cl, 71h
```

```
call Superio_Set_Reg
```

```
;unit is second.
```

```
mov al, 0C0H
```

```
mov cl, 72h
```

```
call Superio_Set_Reg
```

```
; game port enable  
mov cl, 9  
call Set_Logic_Device
```

```
Initial_OK:  
CALL Exit_Configuration_mode  
MOV AH,4Ch  
INT 21h
```

```
Enter_Configuration_Mode PROC NEAR  
MOV SI,WORD PTR CS:[Offset Cfg_Port]
```

```
MOV DX,02Eh  
MOV CX,04h  
Init_1:  
MOV AL,BYTE PTR CS:[SI]  
OUT DX,AL  
INC SI  
LOOP Init_1  
RET  
Enter_Configuration_Mode ENDP
```

```
Exit_Configuration_Mode PROC NEAR  
MOV AX,0202h  
CALL Write_Configuration_Data
```

RET

Exit\_Configuration\_Mode ENDP

Check\_Chip PROC NEAR

MOV AL,20h

CALL Read\_Configuration\_Data

CMP AL,87h

JNE Not\_Initial

MOV AL,21h

CALL Read\_Configuration\_Data

CMP AL,12h

JNE Not\_Initial

Need\_Initial:

STC

RET

Not\_Initial:

CLC

RET

Check\_Chip ENDP

Read\_Configuration\_Data PROC NEAR

MOV DX,WORD PTR CS:[Cfg\_Port+04h]

OUT DX,AL

```
MOV DX,WORD PTR CS:[Cfg_Port+06h]
IN AL,DX
RET
Read_Configuration_Data ENDP
```

```
Write_Configuration_Data PROC NEAR
MOV DX,WORD PTR CS:[Cfg_Port+04h]
OUT DX,AL
XCHG AL,AH
MOV DX,WORD PTR CS:[Cfg_Port+06h]
OUT DX,AL
RET
Write_Configuration_Data ENDP
```

```
Superio_Set_Reg proc near
push ax
MOV DX,WORD PTR CS:[Cfg_Port+04h]
mov al,cl
out dx,al
pop ax
inc dx
out dx,al
ret
Superio_Set_Reg endp.Set_Logic_Device proc near
Set_Logic_Device proc near
```

```
push ax
push cx
xchg al,cl
mov cl,07h
call Superio_Set_Reg
pop cx
pop ax
ret
Set_Logic_Device endp

;Select 02Eh->Index Port, 02Fh->Data Port
Cfg_Port DB 087h,001h,055h,055h
```

```
DW 02Eh,02Fh
```

## END Main

*Note: Interrupt level mapping*

0Fh-Dh: not valid

0Ch: IRQ12

.

.

03h: IRQ3

02h: not valid

01h: IRQ1

00h: no interrupt selected

Appendix

**B**

# I/O Information

## B.1 I/O Address Map

Input/output (IO)		
[00000000 - 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 101/102-Key or Microsoft Natural PS/2 Keyboard	
[00000061 - 00000061]	Motherboard resources	
[00000063 - 00000063]	Motherboard resources	
[00000064 - 00000064]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	
[00000065 - 00000065]	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	

	[00000274 - 00000277] ISAPNP Read Data Port
	[00000279 - 00000279] ISAPNP Read Data Port
	[000002B0 - 000002B7] Communications Port (COM5)
	[000002B8 - 000002BF] Communications Port (COM6)
	[000002C0 - 000002C7] Communications Port (COM3)
	[000002C8 - 000002CF] Communications Port (COM4)
	[000002F8 - 000002FF] Communications Port (COM1)
	[000003B0 - 000003BB] Intel(R) HD Graphics Family
	[000003C0 - 000003DF] Intel(R) HD Graphics Family
	[000003F8 - 000003FF] Communications Port (COM2)
	[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
	[00000A30 - 00000A3F] Motherboard resources
	[00000A79 - 00000A79] ISAPNP Read Data Port
	[00000D00 - 0000FFFF] PCI bus
	[00001000 - 0000100F] Motherboard resources
	[0000164E - 0000164F] Motherboard resources
	[0000E000 - 0000E0FF] Realtek PCIe GBE Family Controller
	[0000E000 - 0000EFFF] Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
	[0000F000 - 0000F03F] Intel(R) HD Graphics Family
	[0000F040 - 0000F05F] Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22
	[0000F060 - 0000F07F] Intel(R) 82579LM Gigabit Network Connection
	[0000F080 - 0000F08F] Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
	[0000F090 - 0000F09F] Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
	[0000F0A0 - 0000F0A3] Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
	[0000F0B0 - 0000F0B7] Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
	[0000F0C0 - 0000F0C3] Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
	[0000F0D0 - 0000F0D7] Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
	[0000F0E0 - 0000F0EF] Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
	[0000F0F0 - 0000F0FF] Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
	[0000F100 - 0000F103] Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
	[0000F110 - 0000F117] Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
	[0000F120 - 0000F123] Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
	[0000F130 - 0000F137] Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
	[0000FFFF - 0000FFFF] Motherboard resources
	[0000FFFF - 0000FFFF] Motherboard resources

## B.2 Memory Address Map

Address Range	Device / Resource
[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
[7DA00000 - 7DA00FFF]	Motherboard resources
[7DA00000 - FEAF7FFF]	PCI bus
[E0000000 - EFFFFFFF]	Intel(R) HD Graphics Family
[F0000000 - F0033FFF]	Realtek PCIe GBE Family Controller
[F0000000 - F00FFFFF]	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
[F7800000 - F7BFFFFF]	Intel(R) HD Graphics Family
[F7C00000 - F7C00FFF]	Realtek PCIe GBE Family Controller
[F7C00000 - F7C7FFFF]	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
[F7D00000 - F7D1FFFF]	Intel(R) 82579LM Gigabit Network Connection
[F7D20000 - F7D23FFF]	Microsoft UAA Bus Driver for High Definition Audio
[F7D25000 - F7D250FF]	Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22
[F7D26000 - F7D263FF]	Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C26
[F7D27000 - F7D273FF]	Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2D
[F7D28000 - F7D28FFF]	Intel(R) 82579LM Gigabit Network Connection
[F7D2B000 - F7D2B00F]	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]	Infineon Trusted Platform Module
[FED45000 - FED6FFFF]	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)	
(ISA) 0	System timer
(ISA) 1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
(ISA) 3	Communications Port (COM1)
(ISA) 4	Communications Port (COM2)
(ISA) 5	Communications Port (COM3)
(ISA) 5	Communications Port (COM4)
(ISA) 5	Communications Port (COM5)
(ISA) 5	Communications Port (COM6)
(ISA) 8	System CMOS/real time clock
(ISA) 9	Microsoft ACPI-Compliant System
(ISA) 12	Microsoft PS/2 Mouse
(ISA) 13	Numeric data processor
(PCI) 11	Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22
(PCI) 16	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 1 - 1C10
(PCI) 16	Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2D
(PCI) 16	Intel(R) HD Graphics Family
(PCI) 16	Intel(R) Management Engine Interface
(PCI) 17	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
(PCI) 17	Realtek PCIe GBE Family Controller
(PCI) 19	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
(PCI) 19	Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
(PCI) 20	Intel(R) 82579LM Gigabit Network Connection
(PCI) 22	Microsoft UAA Bus Driver for High Definition Audio
(PCI) 23	Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C26

### B.4 DMA Channel Assignments

Direct memory access (DMA)	
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

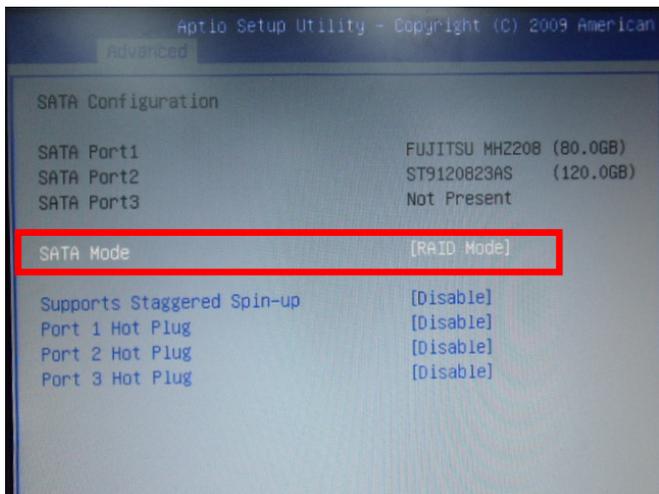
 readme  
文字文件  
78 KB

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



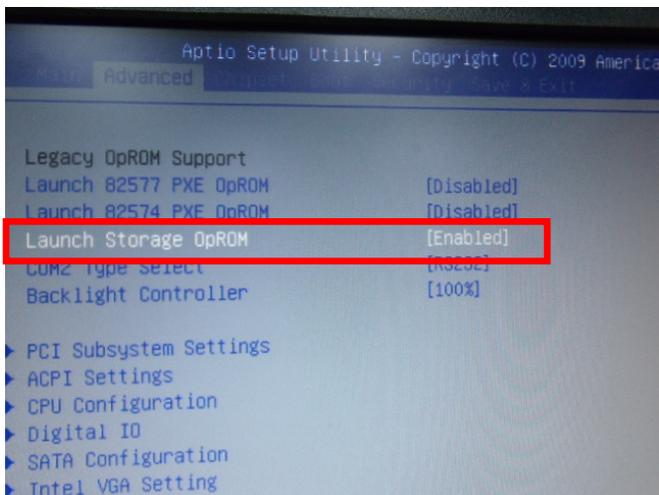
Step 3: The setting procedures “ In BIOS Setup Menu”

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



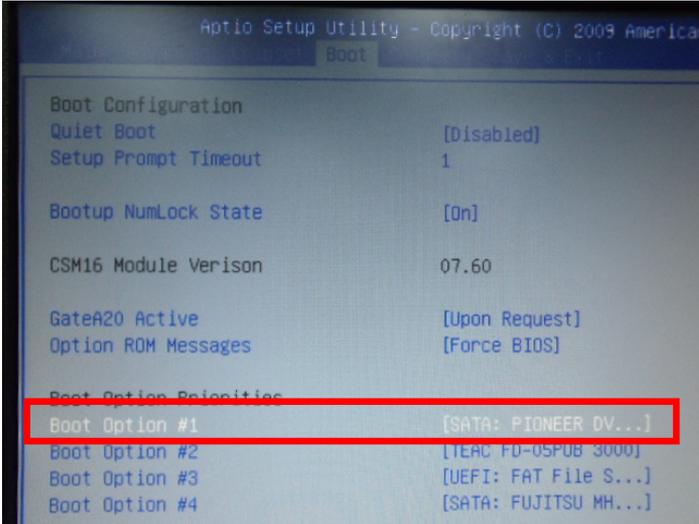
Step 4: The setting procedures “In BIOS Setup Menu”

**B: Advanced -> Launch Storage OpROM -> Enabled**



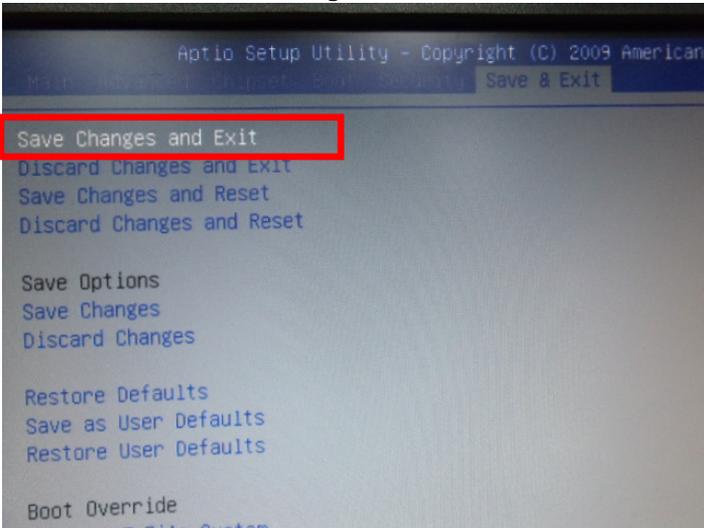
Step 5: The setting procedures "In BIOS Setup Menu"

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

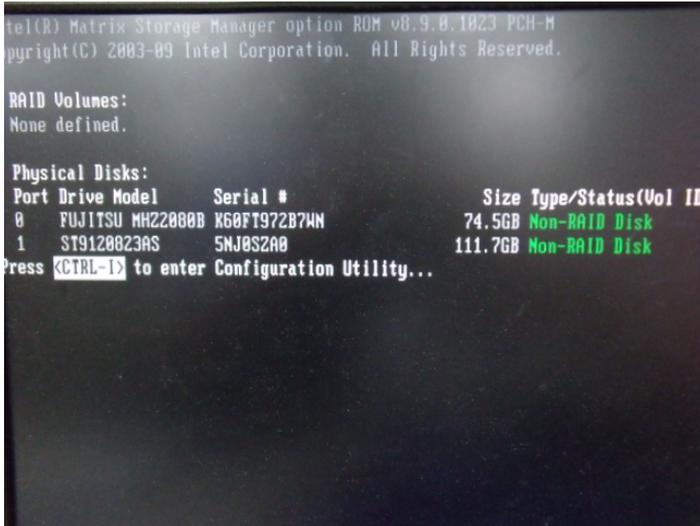


Step 6: The setting procedures "In BIOS Setup Menu"

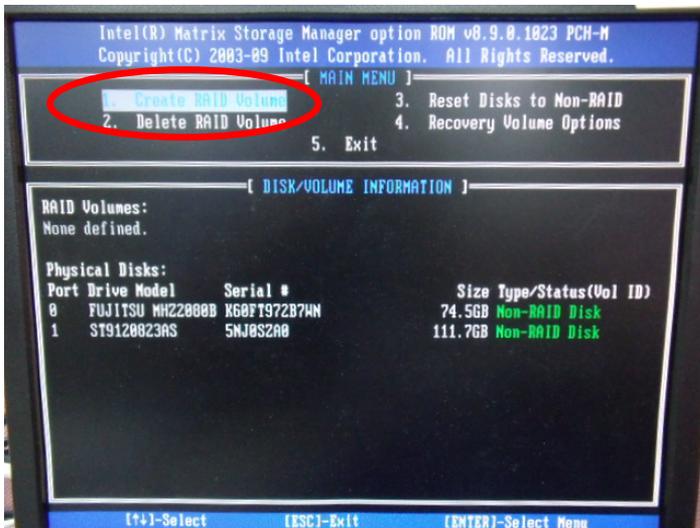
**D: Save & Exit -> Save Changes and Exit**



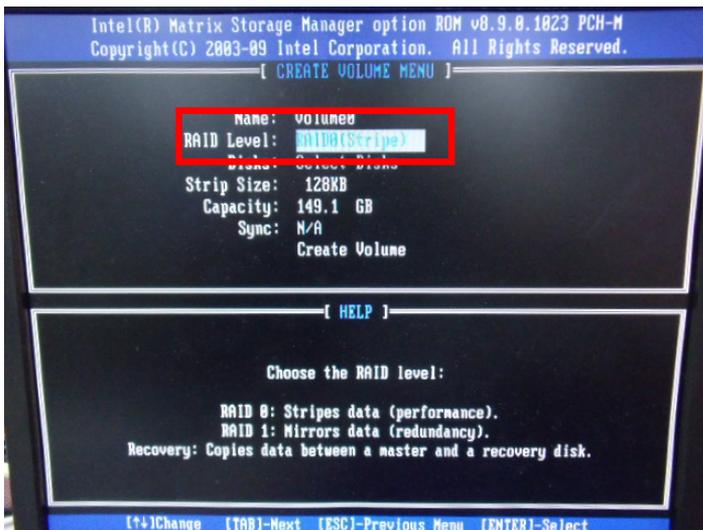
Step 7: Press **Ctrl-I** to enter **MAIN MENU**



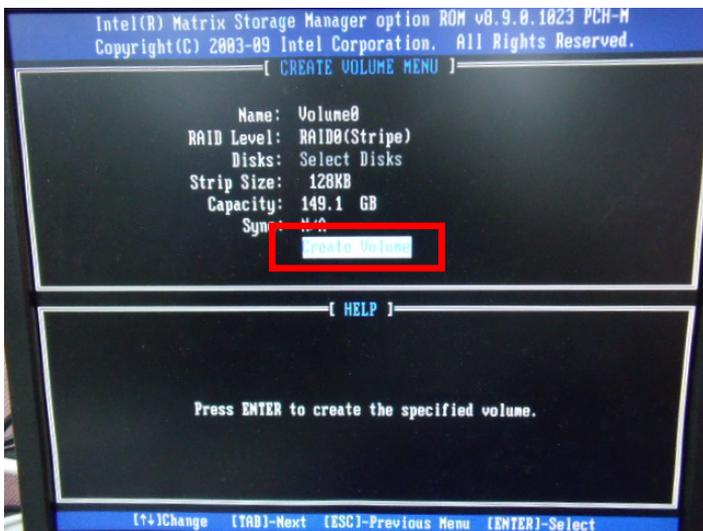
Step 8: Choose "1.Create RAID Volume"



Step 9: RAID Level -> RAID0(Stripe)



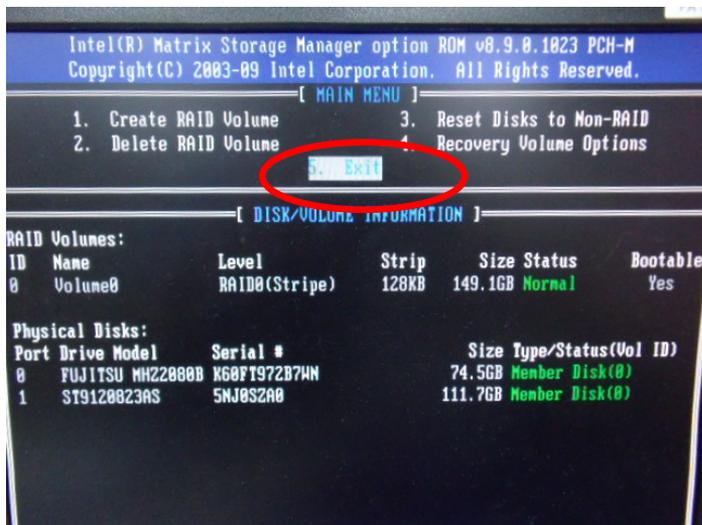
Step 10: Choose "Create Volume"



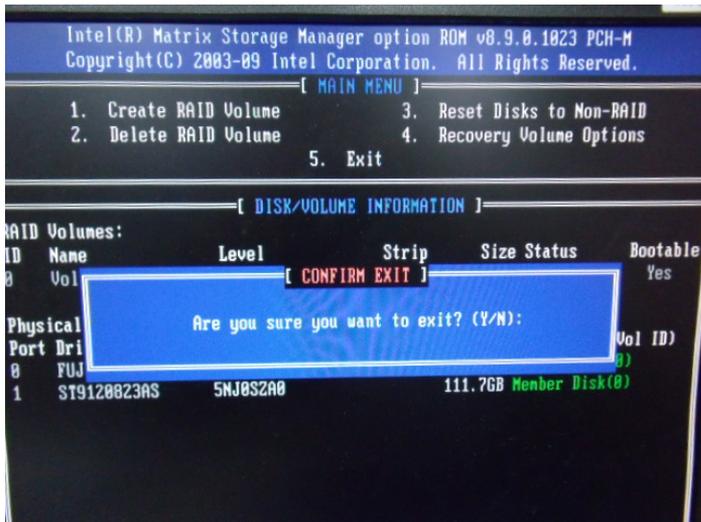
Step 11: Choose "Y"



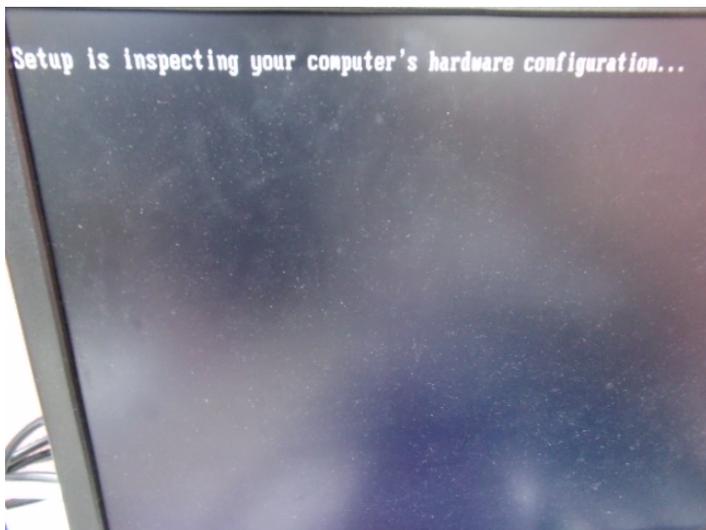
Step 12: Choose "5. Exit"



Step 13: Choose "Y"



Step 14: Setup OS

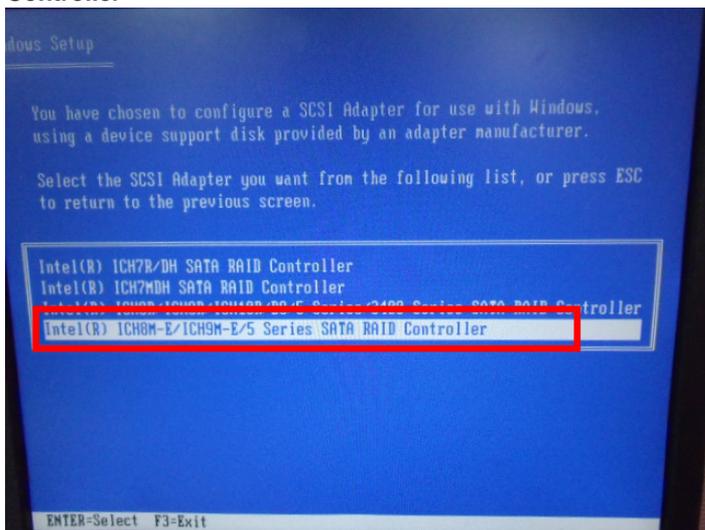


Step 15: Press "F6"

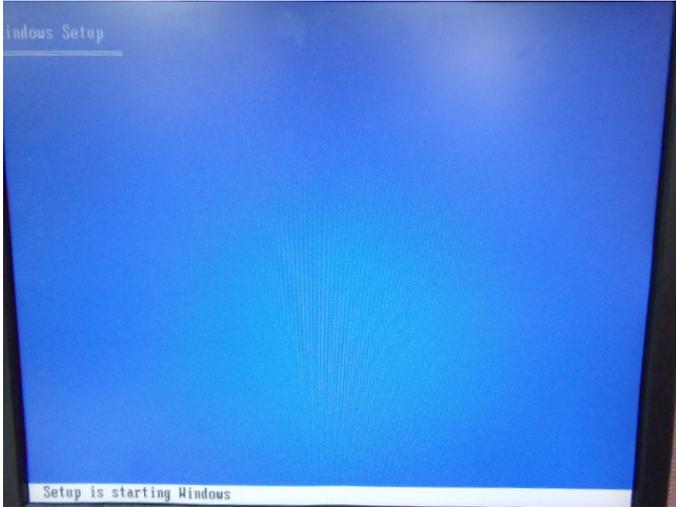


Step 16: Choose "S"



**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

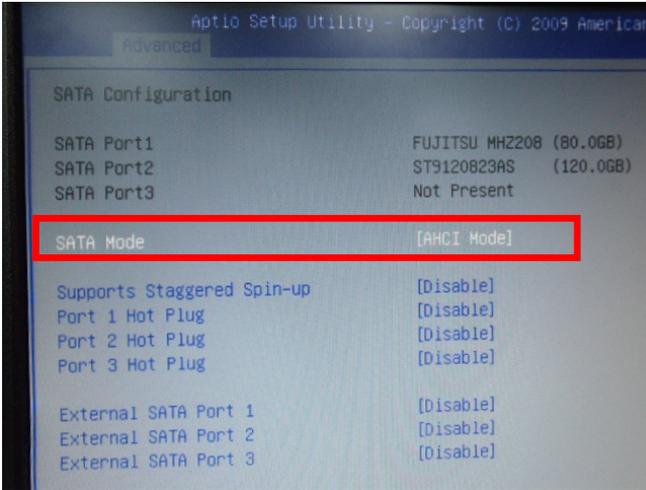
 F6Readme 文字文件 8 KB	 iaAHCI 安全性目錄 9 KB
 iaAHCI 安裝資訊 9 KB	 iaStor 安全性目錄 8 KB
 iaStor 安裝資訊 8 KB	 iaStor 系統檔案 423 KB
 license 文字文件 5 KB	 readme 文字文件 78 KB
 TXTSETUP.OEM OEM 檔案 6 KB	

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



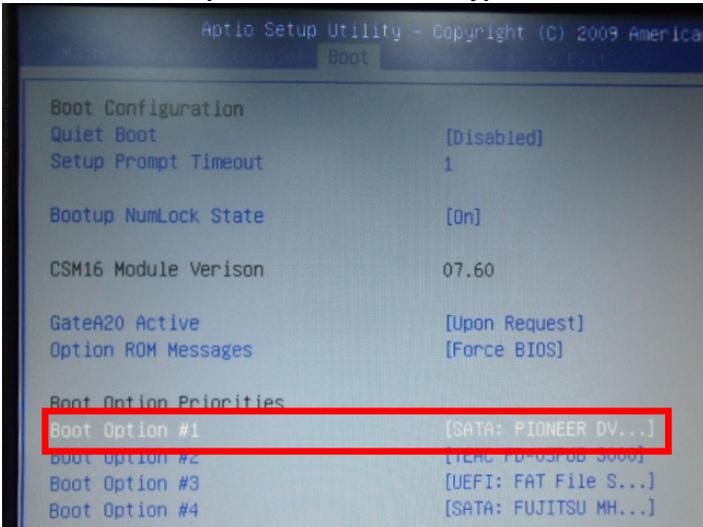
Step 3: The setting procedures “In BIOS Setup Menu”

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



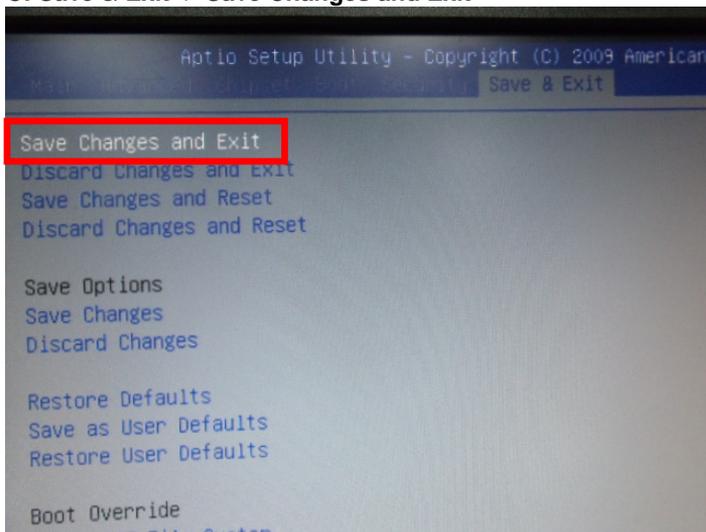
Step 4: The setting procedures “In BIOS Setup Menu”

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

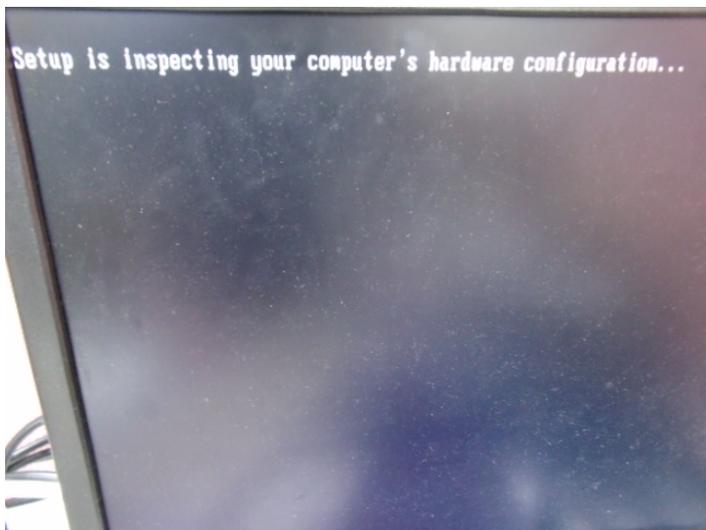


Step 5: The setting procedures "In BIOS Setup Menu"

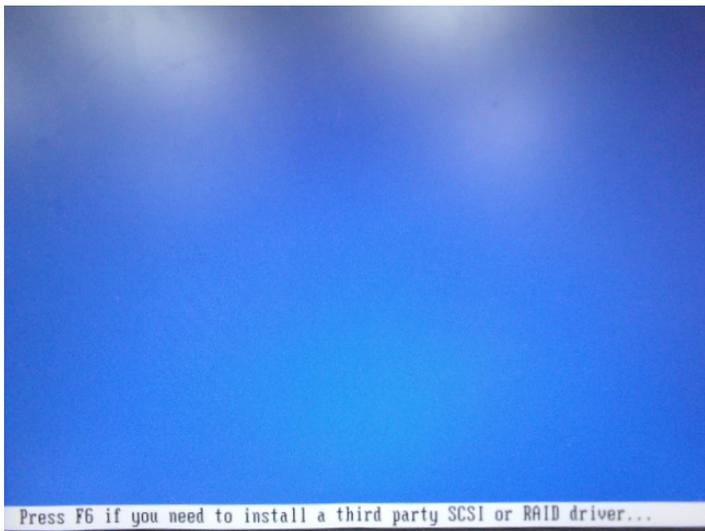
**C: Save & Exit -> Save Changes and Exit**



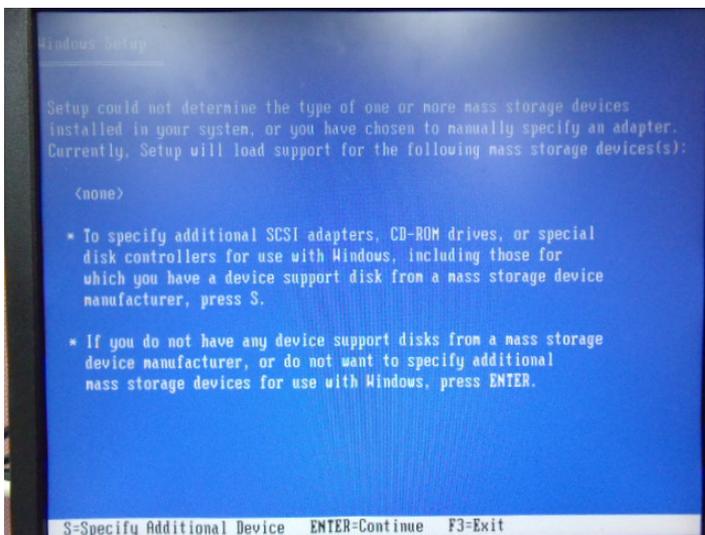
Step 6: Setup OS



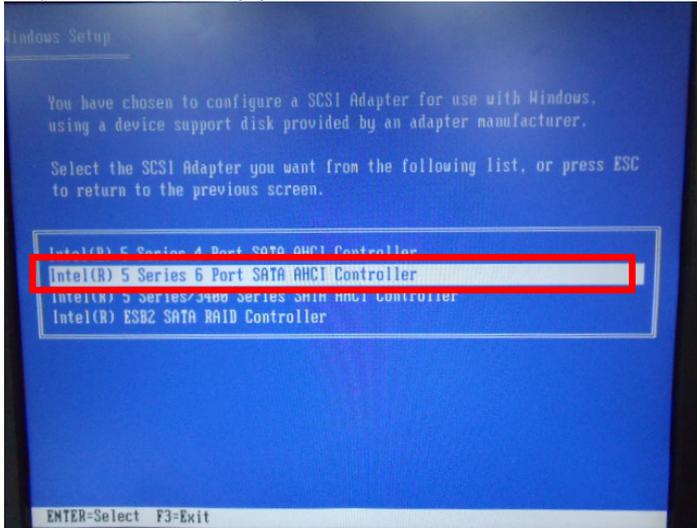
## Step 7: Press "F6"



## 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

