

## **AEC-6913**

Fanless Embedded Controller  
Intel® Atom™ D2550 1.86GHz  
Processor  
2 PCI / PCI-E[x1]  
2 GbE/ 8 COMs/  
4 USB2.0, 2 USB3.0

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## Packing List

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

- 1 AEC-6913 Embedded Controller
- 1 Phoenix Power Connector
- 4 M3 x 4mm Screws
- 6 M4 x 8mm 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.*

### **Attention:**

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte. Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

## 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:</p> <p>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。</p> <p>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**

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Due to the growing popularity from the IPC market, the newest Boxer series AEC-6913 has been introduced by AAEON. Being a control center, the AEC-6913 is suitable for Machine Control, Data Processing, Fleet Management, Data Management. AEC-6913 equips a high efficiency heat conduction mechanism.

The AEC-6913 is compact in size but has attractive and flexible extension capabilities such as 4 USB 2.0 ports and 2 USB 3.0 ports, VGA, Audio, 8 COM ports, and 2 PCI or PCI-E[x1].

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

The AEC-6913 is designed for rugged environments due to the following reasons; first, it can withstand tough vibration testing up to 3 g rms. With the anti-vibration hard drive device option, the AEC-6913 can be used in high vibration environments. In addition, the AEC-6913 offers low power consumption system that while operating in ambient temperatures ranging from -20° to 65°C with Intel® Atom™ D2550 processor.

The AEC-6913 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

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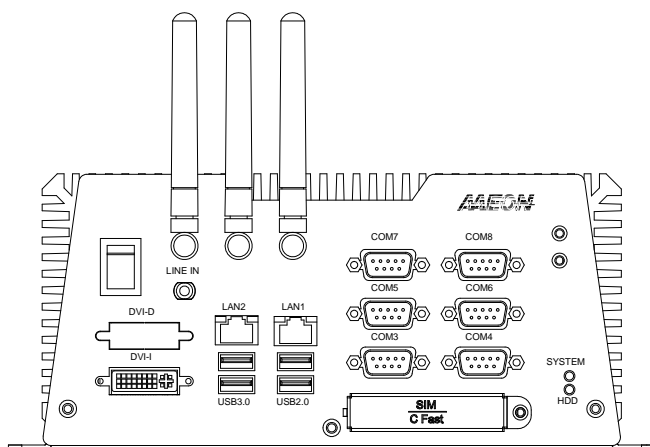
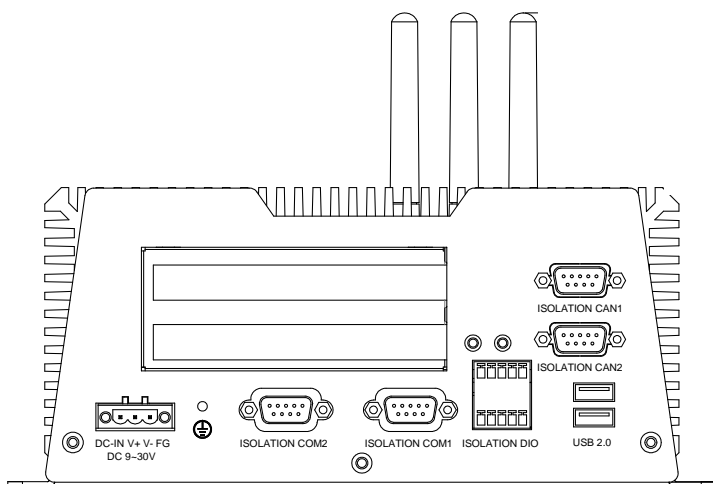
- Fanless Design
- Intel® Atom™ D2550 Processor
- Intel® NM10 Chipset
- Gigabit Ethernet, RJ-45 x 2
- DVI-I x 1
- SATA 3.0 Gb/s x 1, CFAST™ Slot x 1
- USB 2.0 x 4, USB 3.0 x 2, COM x 8 (3 KV Isolation x 2), 3KV Isolated DIO x 1 (4 in, 4 out)
- 2.5" SATA HDD Bay x 1, CFAST™ Slot x 1
- PCI x 2 or PCI-E[x1] x 1 via Riser Card

### 1.3 Specifications

● CPU		Intel® Atom™ D2550 Processor, 1.86 GHz
● Chipset		Intel® NM10
● System Memory		DDR3 SODIMM x 1, Max. 4 GB, support DDR3 800/1066
● Display Interface	VGA	—
	DVI	DVI-I x 1
	HDMI	—
	Others	—
● Storage Device	SSD	CFast™ slot
	HDD	2.5" SATA HDD Bay x 1
	Others	—
● Network	LAN	Gigabit Ethernet
	Wireless	Optional by Mini Card
● Front I/O	USB Host	USB3.0 x 2, USB2.0 x 2
	LAN	RJ-45 x 2
	Serial Port	RS-232 x 4, RS-232/422/485 x 2
	DIO	—
	Audio	Line-out
	KB/MS	—
	Others	DVI-I x 1, Antenna hole x 3, Power switch, LED x 2, CFast slot x 1, SIM slot x 1

● Rear I/O	USB Host	USB 2.0 x 2
	LAN	—
	Serial Port	Insolated RS-232/422/485 x 2 (3KV, jumper selection)
	DIO	Isolated DIO x 1 (4 in and 4 out, 3KV)
	Audio	—
	KB/MS	—
	Others	3-pin terminal power input x 1, grounding screw x 1, PCI x 2 or PCI-E[x1], isolated CANBus x 2 (optional, 3KV)
● Expansion	PCI-E[x1]	PCI-E[x1] via Riser Cad
	PCI	2 via Riser Cad
	Mini Card	2
	Mini PCI	—
	Others	—
● Indicator	Front	—
	Rear	System LED x 1, HDD LED x 1
● Power Requirement		DC-in 9~30V input, optional AC 110V~240V
● System Cooling		Passive cooling
● Mounting		Wallmount
● Operating Temperature		-4°F ~ 149°F (-20°C ~ 65°C) (30W TDP CPU) (Without Airflow, with wide

		temperature Storage and RAM)
● Storage Temperature		-4°F ~ 158°F (-20°C ~ 70°C)
● Anti-Vibration		3 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
	Safety	—
● Dimension (W x H x D)		9.52" x 8.43" x 3.95" (241.8mm x 214mm x 100.2mm)
● Gross Weight		15.29 lb (6.95 Kg)
● Net Weight		11 lb (5 Kg)
● OS Support		Windows® XP Embedded, Windows® XP, Windows® 7, Linux Fedora 10



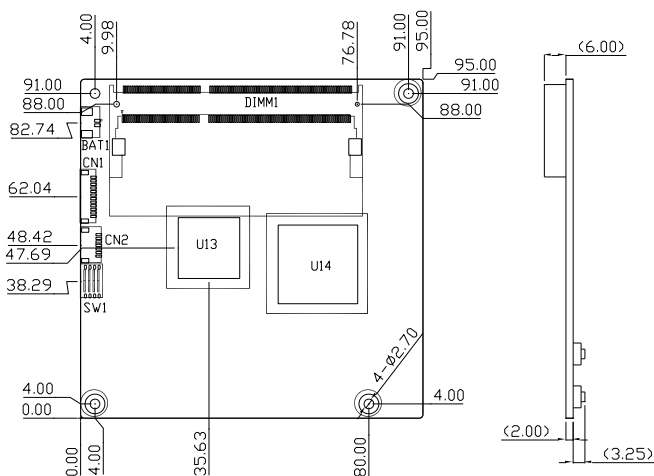


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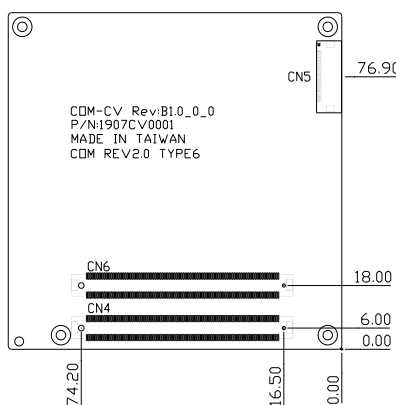
2

**Hardware  
Installation**

## 2.1 Jumpers and Connectors of Main Board

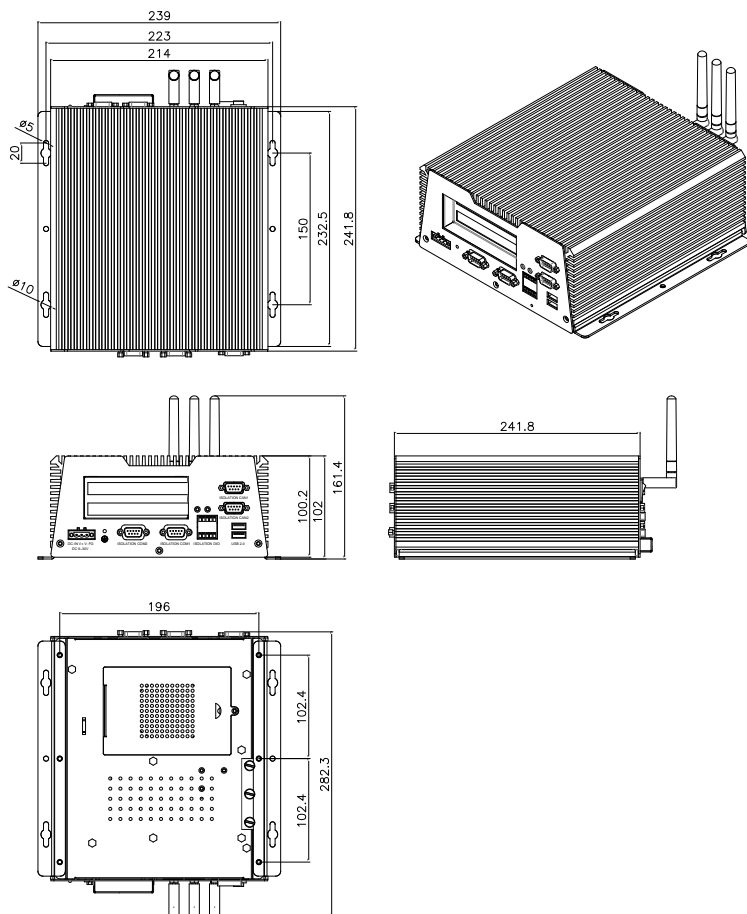


Component Side



Solder Side

## 2.2 Dimension



## 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	PEG Enable
JP3	RS-232/422/485 Selection (COM1)
JP4	RS-232/422/485 Selection (COM2)
JP5	LVDS Port Backlight Lightness Control Mode Selection
JP8	LVDS Inverter Voltage Selection
JP9	LVDS Voltage Selection
JP13	Clear CMOS
JP16	RS-232/422/485 Selection (COM8)
JP17	RS-232/422/485 Selection (COM7)
J1	AT/ATX Mode 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 of the board's connectors:

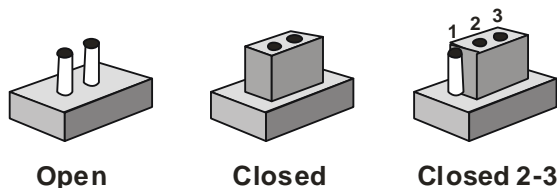
Label	Function
CN1	COM_DIO
CN3	COM SLOT
CN4	DVI-I connector
CN5	Mini Card Connector With external SIM

CN6	Mini Card Connector With onboard SIM
CN9	CFast™ Connector(SATA 3.0)
CN10,CN11	SATA Power
CN12	USB2.0 X2 / LAN1 Connector
CN13	USB3.0 X2 / LAN2 Connector
CN17	LVDS Connector
CN18	LPC Debug port
CN19	Isolated COM1 Connector
CN26	Isolated COM2 Connector
CN20	COM3 RS-232 1x9 Header
CN21	COM4 RS-232 1x9 Header
CN22	COM6 RS-232 1x9 Header
CN23	COM5 RS-232 1x9 Header
CN24	COM7 RS-232/422/485 1x9 Header
CN25	COM8 RS-232/422/485 1x9 Header
CN28	DC IN
CN29	Digital I/O
CN30	USB2.0 x 2 Connector
CN32	LVDS Inverter / Backlight Connector
CN33	4-pin ATX12V Power Connector
CN38	Front Panel Connector
SATA1	SATA2.0 Connector
FAN1	4-Pin Fan Connector
CN39	AUDIO Connector
CN27	Keyboard/Mouse header

## 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 Isolated COM1, COM2 RS-232/485/422 Selection (JP3, JP4)

JP3,JP4	Function
RS-232	1-2,3-4,5-6 close
RS-422	3-4 close , 1-2 5-6 open
RS-485	5-6 close , 1-2 3-4 open

## 2.7 LVDS Port Backlight Lightness Control Mode Selection (JP5)

JP5	Function
1-2	PWM MODE
2-3	VR MODE (Default)

## 2.8 LVDS Inverter Voltage Selection (JP8)

JP8	Function
1-2	+12V (Default)
2-3	+5V

## 2.9 LVDS Voltage Selection (JP9)

JP9	Function
1-2	5V
2-3	3.3V(Default)

## 2.10 Clear CMOS (JP13)

JP13	Function
1-2	Normal (Default)
2-3	Clear CMOS

## 2.11 Auto Power Button (J1)

J1	Function
OPEN	ATX (Default)

1-2 AT

## 2.12 SATA Power (CN10~CN11)

Pin	Signal
1	+12V
2	GND
3	GND
4	+5V

## 2.13 LVDS Connector (CN17)

Pin	Signal	Pin	Signal
1	BKL_EN	2	BKL_CTL
3	LVDSVCC	4	GND
5	LVDSA_CLK#	6	LVDSA_CLK
7	LVDSVCC	8	GND
9	LVDSA_DATA0#	10	LVDSA_DATA0
11	LVDSA_DATA1#	12	LVDSA_DATA1
13	LVDSA_DATA2#	14	LVDSA_DATA2
15	LVDSA_DATA3#	16	LVDSA_DATA3
17	LVDS_DDC_DATA	18	LVDS_DDC_CLK
19	LVDSB_DATA0#	20	LVDSB_DATA0
21	LVDSB_DATA1#	22	LVDSB_DATA1
23	LVDSB_DATA2#	24	LVDSB_DATA2
25	LVDSB_DATA3#	26	LVDSB_DATA3
27	LVDSVCC	28	GND
29	LVDSB_CLK#	30	LVDSB_CLK

## 2.14 ISO DIO (CN29)

Pin	signal	Pin	signal
1	IDO1	2	ID11



3	IDO2	4	IDI2
5	IDO3	6	IDI3
7	IDO4	8	IDI4
9	VISO	10	GND

## 2.15 LVDS Inverter/ Backlight Connector (CN32)

Pin	Signal	Pin	Signal
1	VDD	2	BKL_CTL
3	GND	4	GND
5	BKL_EN		

## 2.16 Front Panel Connector (CN38)

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

## 2.17 RS-232/422/485 Pin Definition (COM1)

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

## 2.18 RS-232/422/485 Pin Definition (COM2)

Pin	Signal	Pin	Signal
1	DCD	2	RXD

3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

## 2.19 RS-232 Header (COM3)

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

## 2.20 RS-232 Header (COM4)

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

## 2.21 RS-232 Header (COM5)

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

## 2.22 RS-232 Header (COM6)

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

## 2.23 RS-232/422/485 Pin Definition (COM7)

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

## 2.24 RS-232/422/485 Pin Definition (COM8)

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	GND	6	NC

<b>Embedded Controller</b>	<b>AEC-6913</b>
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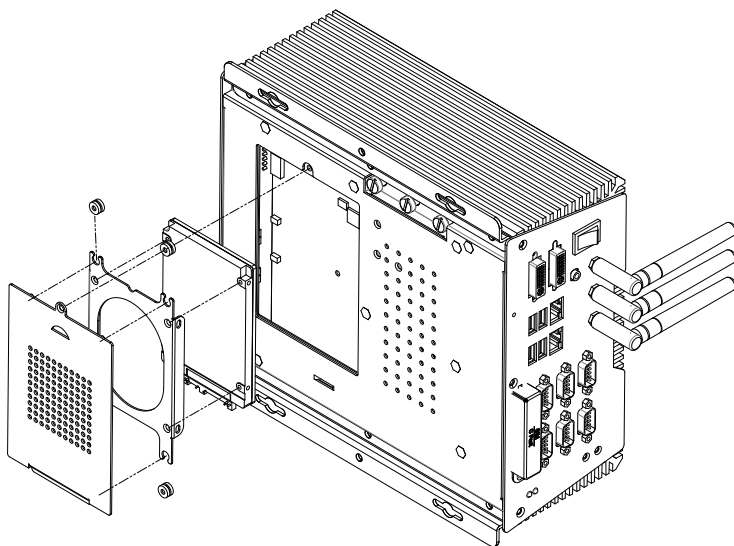
7	NC	8	NC
9	NC		

#### RS-485 mode

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

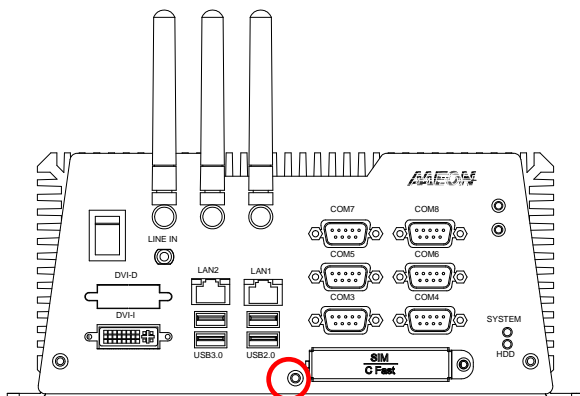
## 2.25 Hard Disk Drive Installation

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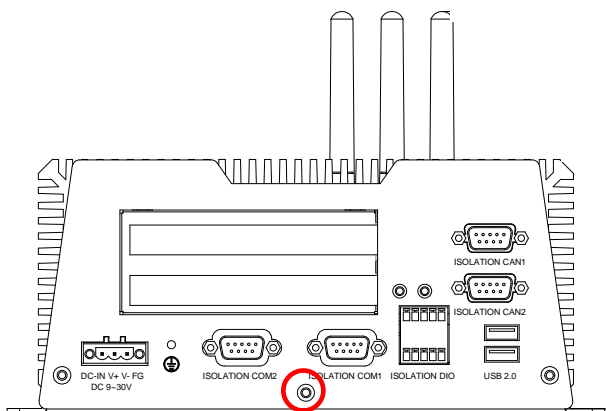


## 2.26 PCI Card Installation

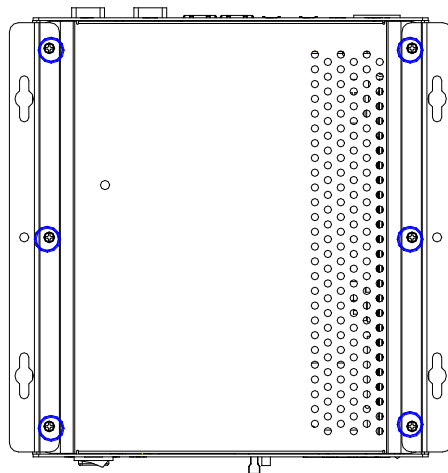
Step 1: Unfasten the screw on the rear panel.



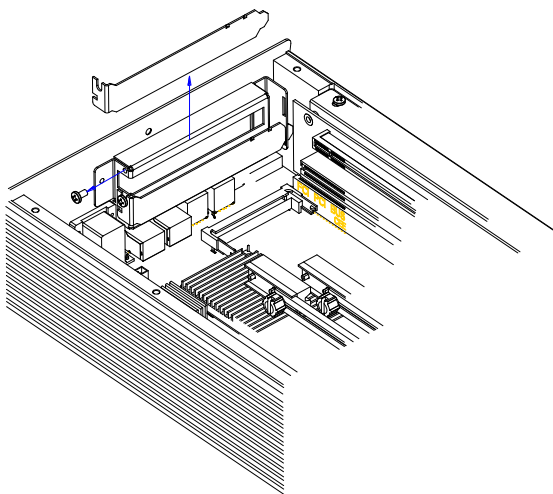
Step 2: Unfasten the screw on the front panel.



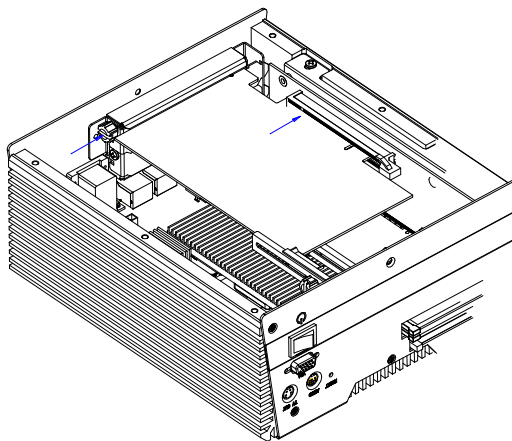
Step 3: Unfasten the six screws on the bottom lid.



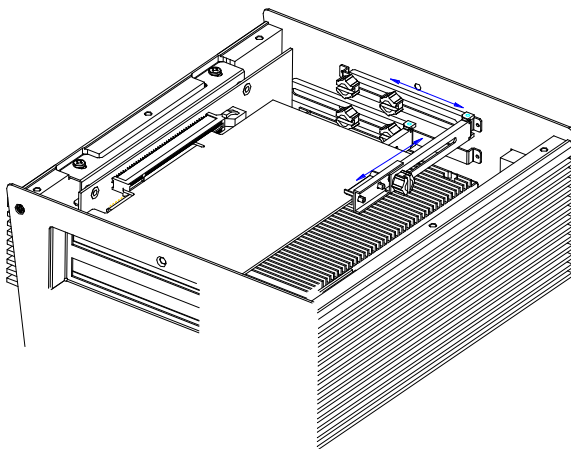
Step 4: Remove the screw with your finger and get the PCI card ready to install. You should keep the shield and screw for use later.



Step 5: Insert the PCI card into the PCI slot and reattach the screw.

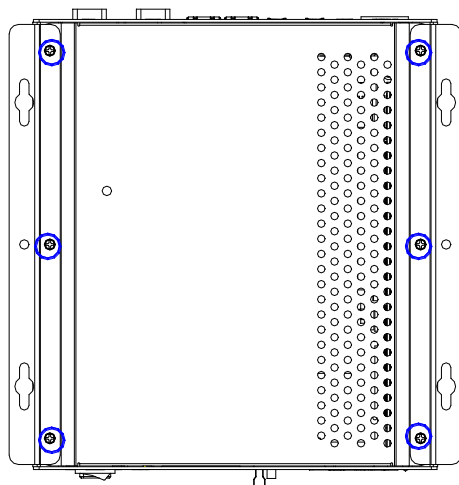


Step 6: Unfasten the screws and push the tenon to lock the PCI card in position.

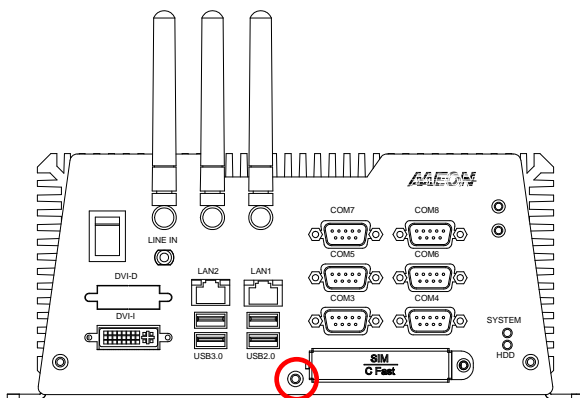


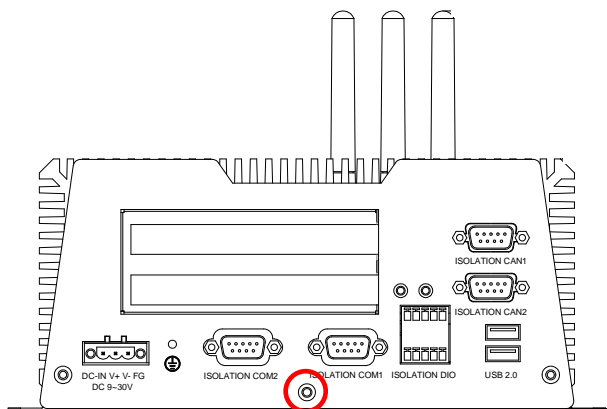


Step 7: Close the bottom lid of the AEC-6913 and fasten six screws on bottom lid.



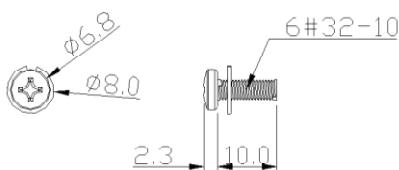
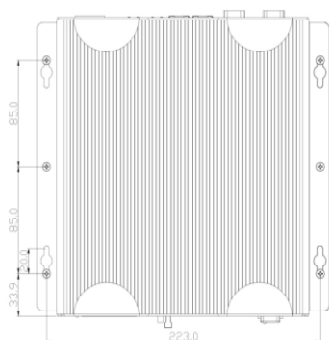
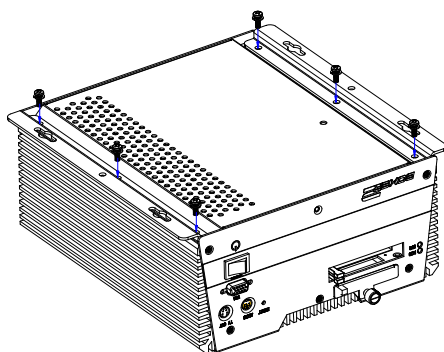
Step 8: Fasten the one screw on the front panel and one screw on the rear panel





## 2.27 Wallmount kit Installation

Step 1: Get the brackets ready and fasten appropriate three screws on each bracket. After fastening the two brackets on the bottom lid of AEC-6913, the wallmount kit installation is finished



## Chapter

# 3

## **AMI BIOS Setup**

### 3.1 System Test and Initialization

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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 stored in the CMOS memory and BIOS NVRAM. If system configuration is not found or system configuration data error is detected, system will load optimized default and re-boot with this default system configuration automatically.

There are four situations in which you will need to setup system configuration:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The system configuration is reset by Clear-CMOS jumper
4. The CMOS memory has lost power and the configuration information has been erased.

The AEC-6913 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 and BIOS NVRAM 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

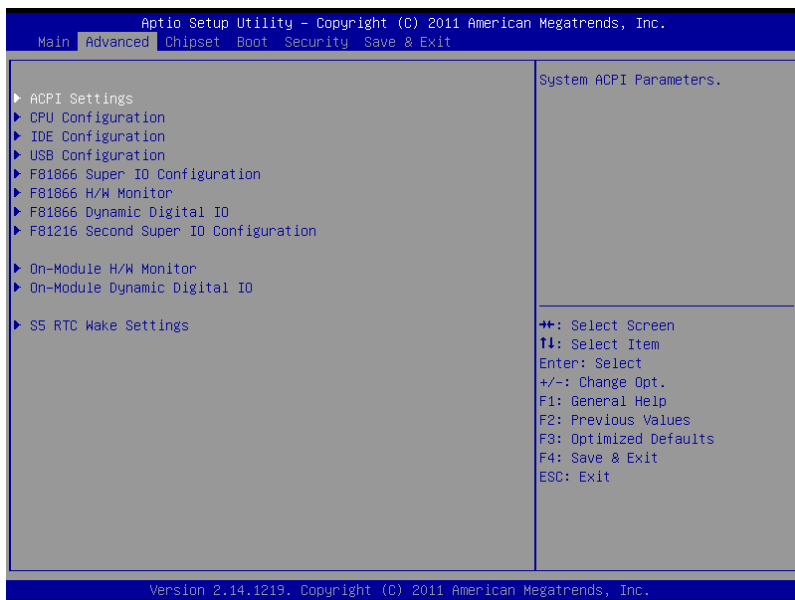
Exit system setup after saving the changes.

## Setup Menu

### Setup submenu: Main

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Main Advanced Chipset Boot Security Save & Exit		
BIOS Information AEC-6913 R1.0(A913AM10) (04/09/2014)		Set the Date. Use Tab to switch between Date elements.
BIOS Vendor	American Megatrends	
Core Version	4.6.5.3	
Compliance	UEFI 2.3; PI 1.2	
Firmware VENDOR	AAEON	
Firmware Information	Mother Board	
Firmware Version	CMCVBE11	
Build Date	2012/4/24	
System Date	[Wed 04/09/2014]	←+: Select Screen
System Time	[21:29:48]	F1: Select Item
		Enter: Select
Access Level	Administrator	+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
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## Setup submenu: Advanced





## ACPI Settings

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

ACPI Settings

ACPI Sleep State [S3 (Suspend to RAM)]

Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

++: Select Screen  
 ↑↓: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

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### Options summary:

Suspend mode	Suspend Disabled	Optimal Default, Failsafe Default
	S3 only (Suspend to RAM)	
Select the ACPI state used for System Suspend		

## CPU Configuration



### Options summary:

Hyper-Threading	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology).		

## IDE Configuration (IDE)

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Advanced		
SATA Port0	Not Present	SATA Ports (0-3) Device Names If Present and Enabled.
SATA Port1	CFast D150Q (16.0G)	
SATA Controller(s)	[Enabled]	
Configure SATA as	[IDE]	
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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## IDE Configuration (AHCI)

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

SATA Port0	Not Present	
SATA Port1	CFast D150Q	(16.0G)
SATA Controller(s)		[Enabled]
Configure SATA as		[AHCI]
SATA Port 0	[Enabled]	
SATA Port 0 Hot Plug	[Enabled]	
SATA Port 1	[Enabled]	
SATA Port 1 Hot Plug	[Enabled]	

Select a configuration for SATA Controller.

++: Select Screen  
 F1: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

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### Options summary:

SATA Controllers	Disabled	Default
	Enabled	
En/Disable SATA Controller.		
SATA Mode	IDE	Default
	AHCI	
IDE: Configure SATA controllers as legacy IDEAHCI: Configure SATA controllers to operate in AHCI mode		
Port x	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable SATA Port.		
Hot Plug	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable Hot Plug feature.		

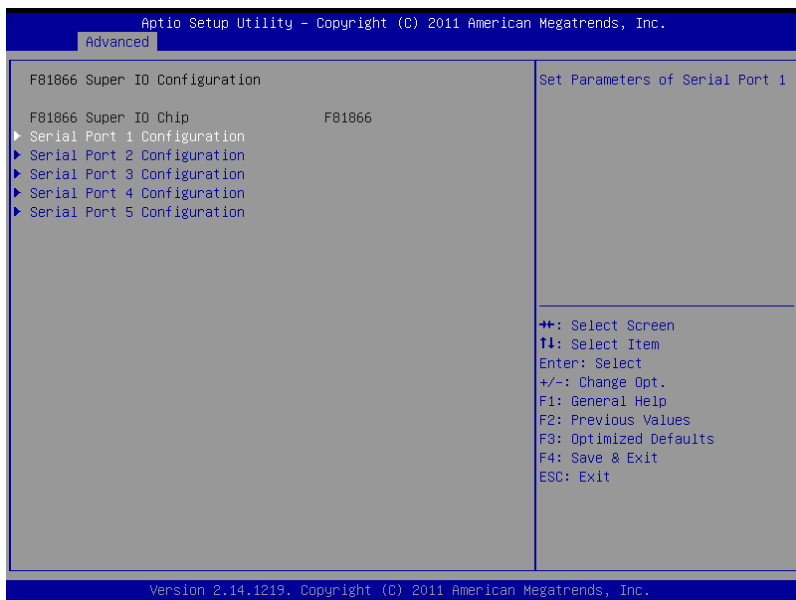
## USB Configuration



### Options summary:

Legacy USB Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
	Auto	
Enables BIOS Support for Legacy USB Support. When enabled, USB can be functional in legacy environment like DOS. AUTO option disables legacy support if no USB devices are connected		
USB3.0 Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable/Disable USB3.0 (XHCI) Controller support.		
XHCI Hand-off	Enabled	Optimal Default, Failsafe Default
	Disabled	
This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.		

## F81866 Super IO Configuration



## Serial Port 1 Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

Serial Port 1 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=3F8h; IRQ=4;	
Change Settings	[Auto]	

++: Select Screen  
 F1: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

### Options summary:

Serial Port	Disabled	Default
	Enabled	
Allows BIOS to En/Disable correspond serial port.		
Change Settings	Auto	Default
	IO=3F8h; IRQ=4;	
	IO=2F8h; IRQ=3	
Allows BIOS to Select Serial Port resource.		

## Serial Port 2 Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

Serial Port 2 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2F8h; IRQ=3;	
Change Settings	[Auto]	
		++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

### Options summary:

Serial Port	Disabled	
	Enabled	Default
Allows BIOS to En/Disable correspond serial port.		
Change Settings	Auto	Default
	IO=2F8h; IRQ=3;	
	IO=3F8h; IRQ=4;	
Allows BIOS to Select Serial Port resource.		



## Serial Port 3 Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

Serial Port 3 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=3E8h; IRQ=11;	
Change Settings	[Auto]	

++: Select Screen  
 F1: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

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### Options summary:

Serial Port	Disabled	Default
	Enabled	
Allows BIOS to En/Disable correspond serial port.		
Change Settings	Auto	Default
	IO=3E8h; IRQ=11;	
	IO=2E8h; IRQ=11;	
Allows BIOS to Select Serial Port resource.		

## Serial Port 4 Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

Serial Port 4 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2E8h; IRQ=11;	
Change Settings	[Auto]	

++: Select Screen  
 F1: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

### Options summary:

Serial Port	Disabled	Default
	Enabled	
Allows BIOS to En/Disable correspond serial port.		
Change Settings	Auto	Default
	IO=3E8h; IRQ=11;	
	IO=2E8h; IRQ=11;	
Allows BIOS to Select Serial Port resource.		

## Serial Port 5 Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

Serial Port 5 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2D0h; IRQ=10;	
Change Settings	[Auto]	

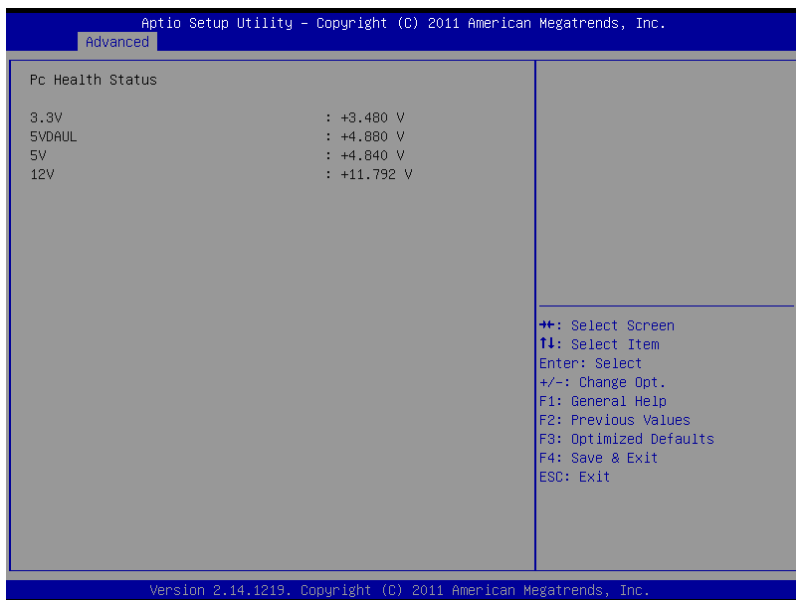
++: Select Screen  
 F1: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

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### Options summary:

Serial Port	Disabled	Default
	Enabled	
Allows BIOS to En/Disable correspond serial port.		
Change Settings	Auto	Default
	IO=2D0h; IRQ=10;	
	IO=2C0h; IRQ=10;	
Allows BIOS to Select Serial Port resource.		

## F81866 H/W Monitor



## F81866 Dynamic Digital IO

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

Dynamic Digital IO Configuration		Set GPIO as Input or Output
GPIO Direction	[Input]	
GPIO1 Direction	[Input]	
GPIO2 Direction	[Input]	
GPIO3 Direction	[Input]	
GPIO0 Direction	[Output]	
Output Level	[Hi]	
GPIO1 Direction	[Output]	
Output Level	[Hi]	
GPIO2 Direction	[Output]	
Output Level	[Hi]	
GPIO3 Direction	[Output]	
Output Level	[Hi]	

++: Select Screen  
 F1: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

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### Options summary:

GPIO~3 Direction	Input	Default
	Output	
Set GPIO as Input or Output.		
GPIO0~3 Direction	Input	Default
	Output	
Set GPIO as Input or Output.		
Output Level	Low	Default
	Hi	
Allows BIOS to select high/low voltage level to output to corresponding DIO ping.		

## F81216 Second Super IO Configuration



## Serial Port 6 Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

Serial Port 6 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2B0h; IRQ=5;	
Change Settings	[Auto]	
Device Mode	[Serial Port Functi...]	
		++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

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### Options summary:

Serial Port	Disabled	Default
	Enabled	
Allows BIOS to En/Disable correspond serial port.		
Change Settings	Auto	Default
	IO=2B0h; IRQ=5;	
	IO=2B8h; IRQ=5;	
Allows BIOS to Select Serial Port resource.		
Device Mode	Serial Port Function Mode	Default
	IR Mode, Pulse 1.6us,Full Duplex	
	IR Mode, Pulse 1.6us,Half Duplex	
	IR Mode, Pulse 3/16 Bit Time, Full Duplex	
	IR Mode, Pulse 3/16 Bit Time, Half Duplex	
Enable or Disable Serial Port (COM).		

## Serial Port 7 Configuration

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Advanced

Serial Port 2 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2F8h; IRQ=3;	
Change Settings	[Auto]	

++: Select Screen  
 F1: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

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### Options summary:

Serial Port	Disabled	
	Enabled	Default
Allows BIOS to En/Disable correspond serial port.		
Change Settings	Auto	Default
	IO=2B0h; IRQ=5;	
	IO=2B8h; IRQ=5;	
Allows BIOS to Select Serial Port resource.		



## Serial Port 8 Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

Serial Port 3 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=3E8h; IRQ=11;	
Change Settings	[Auto]	

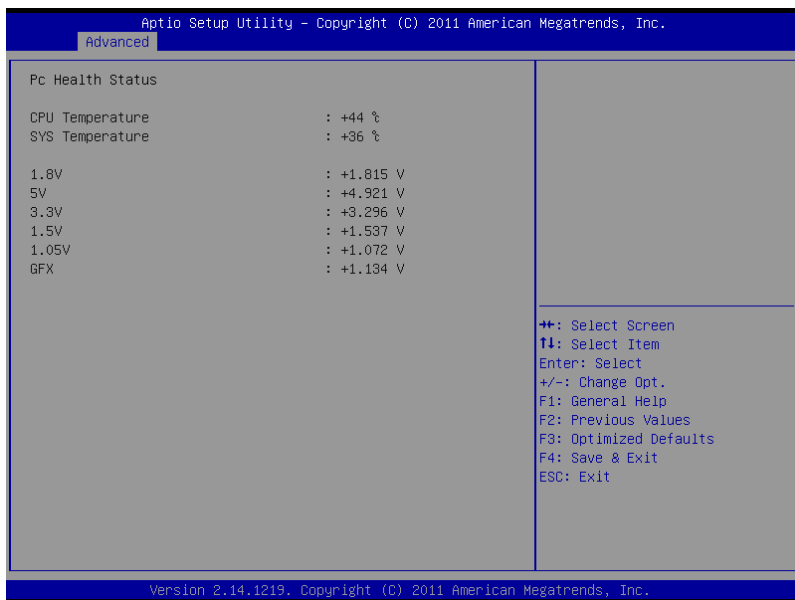
++: Select Screen  
 F1: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

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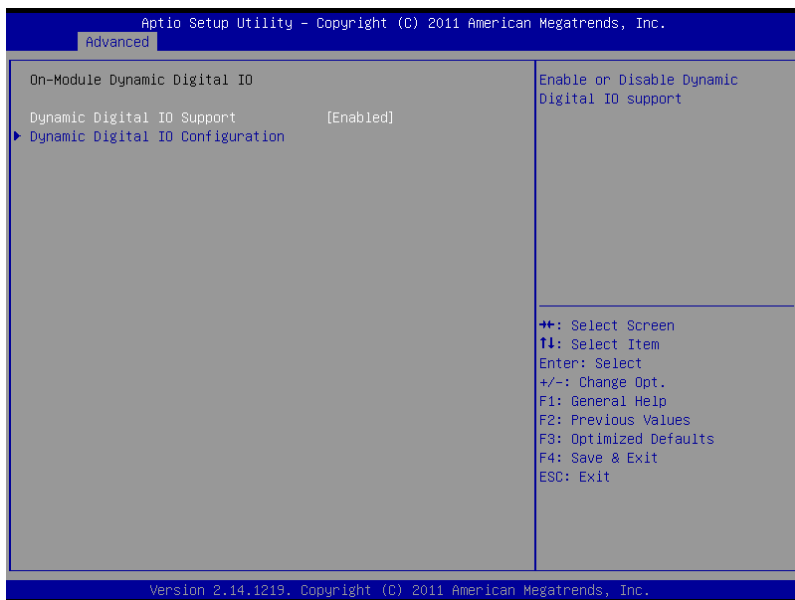
### Options summary:

Serial Port	Disabled	Default
	Enabled	
Allows BIOS to En/Disable correspond serial port.		
Change Settings	Auto	Default
	IO=270h; IRQ=5;	
	IO=278h; IRQ=5;	
Allows BIOS to Select Serial Port resource.		

## On-Module H/W Monitor



## On-Module Dynamic Digital IO



### Options summary:

Dynamic Digital IO Support	Disabled	Default
	Enabled	
En/Disable Dynamic Digital IO Support.		

## Dynamic Digital IO Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

GPI0 Direction	[Input]	Set GPIO as Input or Output
GPI1 Direction	[Input]	
GPI2 Direction	[Input]	
GPI3 Direction	[Input]	
GPO0 Direction	[Output]	++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Output Level	[Hi]	
GPO1 Direction	[Output]	
Output Level	[Hi]	
GPO2 Direction	[Output]	
Output Level	[Hi]	
GPO3 Direction	[Output]	
Output Level	[Hi]	

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### Options summary:

GPIO~3 Direction	Input	Default
	Output	
Set GPIO as Input or Output.		
GPO0~3 Direction	Input	Default
	Output	
Set GPIO as Input or Output.		
Output Level	Low	Default
	Hi	
Allows BIOS to select high/low voltage level to output to corresponding DIO ping.		

## S5 RTC Wake Settings (Fixed Time)

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Advanced

Wake system with Fixed Time	[Enabled]	Enable or disable System wake on alarm event. When enabled, System will wake on the hr::min::sec specified
Wake up day	0	
Wake up hour	0	
Wake up minute	0	
Wake up second	0	
Wake system with Dynamic Time	[Disabled]	

++: Select Screen  
 F1: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

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### Options summary:

Wake system with	Disabled	Optimal Default, Failsafe Default
Fixed Time	Enabled	
En/Disable System wake on alarm event. When enabled, System will wake on the hr:min:sec specified		
Wake up day	0-31	Default 0
Select 0 for daily system wake up, 1-31 for witch day of the moth that you would like the system to wake up.		
Wake up day	0-23	Default 0
Select 0-23 For example enter 3 for 3am and 15 for 3pm		
Wake up day	0-59	Default 0
Select 0-59		
Wake up day	0-59	Default 0
Select 0-59		

## S5 RTC Wake Settings (Dynamic Time)

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

Advanced

Wake system with Fixed Time	[Disabled]	Enable or disable System wake on alarm event. When enabled, System will wake on the current time + Increase minute(s)
Wake system with Dynamic Time	[Enabled]	
Wake up minute increase	1	

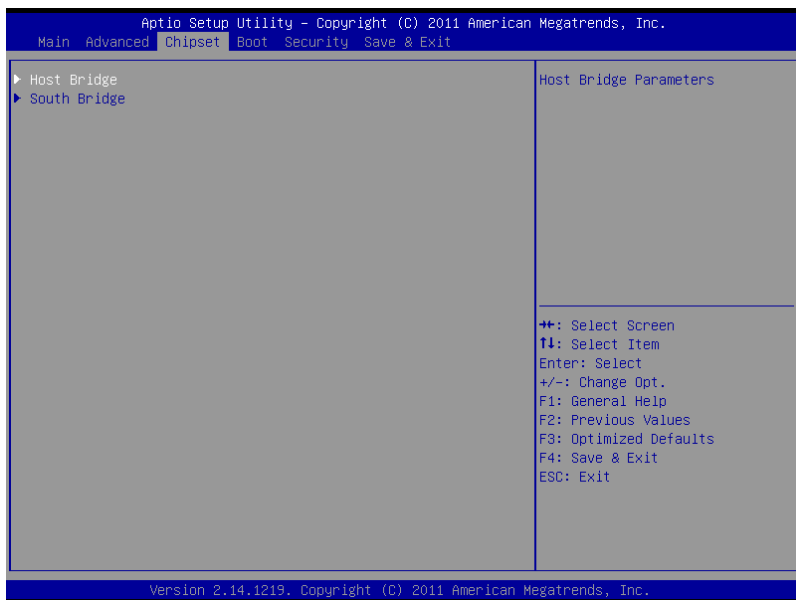
++: Select Screen  
 ↑↓: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

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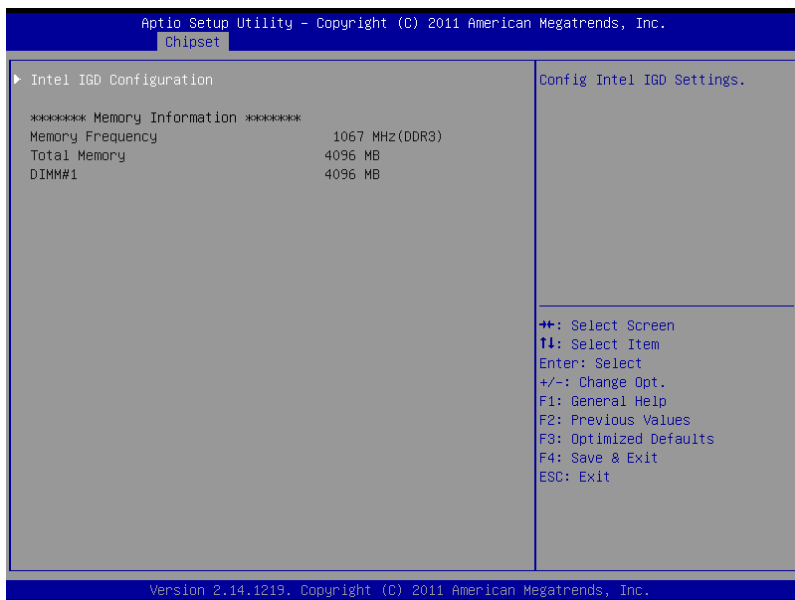
### Options summary:

Wake system with	Disabled	Optimal Default, Failsafe Default
Dynamic Time	Enabled	
En/Disable System wake on alarm event. When enabled, System will wake on current time + Increases minutese(s)		
Wake up day	1-5	Default 1
Select 1-5		

## Setup submenu: Chipset



## Host Bridge





## Intel IGD Configuration

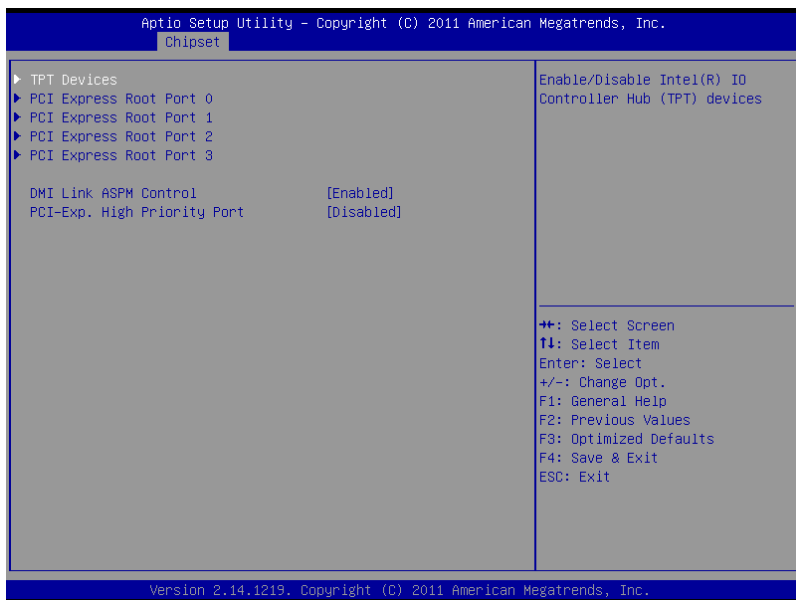
Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Chipset		
Intel IGD Configuration		Select the Video Device which will be activated during POST. This has no effect if external graphics present.
IGFX - Boot Type	[VBIOS Default]	
Active LFP	[LVDS]	
Fixed Graphics Memory Size	[256MB]	
LVDS2	[Enabled]	
LVDS2 Panel Type	[1024x768,18bit,60Hz]	
LVDS Backlight Level	[ 80%]	
LVDS Backlight Type	[Normal]	
		++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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### Options summary:

IGFX - Boot Type	VBIOS Default	Default
	CRT	
	LVDS	
	DVI-I	
Select the Video Device which will be activated during POST.		
Active LFP	No LVDS	Default
	LVDS	
Select the Active LFP Configuration.\n\nNo LVDS: VBIOS does not enable LVDS.\nInt-LVDS:VBIOS enables LVDS driver by Integrated encoder.\nSDVO LVDS:VBIOS enables LVDS driver by SDVO encoder.\neDP Port-A:LFP Driven by Int-DisplayPort encoder from Port-A.\neDP Port-D:LFP Driven by Int-DisplayPort encoder from Port-D(through PCH).		
Fixed Graphics Memory Size	128M	Default
	256M	
Configure Fixed Graphics Memory Size		
LVDS2	Disabled	Default
	Enabled	
LVDS(CH7511) Enabled/Disabled		

LVDS2 Panel Type	640x480,18bit,60Hz	Default
	800x480,18bit,60Hz	
	800x600,18bit,60Hz	
	1024x600,18bit,60Hz	
	1024x768,18bit,60Hz	
	1024x768,24bit,60Hz	
	1280x768,24bit,60Hz	
	1280x1024,48bit,60Hz	
	1366x768,24bit,60Hz	
	1440x900,48bit,60Hz	
	1600x1200,48bit,60Hz	
	1920x1080,48bit,60Hz	
	1920x1200,48bit,60Hz	
Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.		
LVDS Backlight Level	0%	Default
	10%	
	20%	
	30%	
	40%	
	50%	
	60%	
	70%	
	80%	
	90%	
	100%	
Select Backlight brightness of LVDS.		
LVDS Backlight Type	Normal	Default
	Inverted	
Select Backlight Control Type		

## South Bridge



### Options summary:

DMI Link ASPM Control	Enabled	Default
	Disabled	
The control of Active State Power Management on both NB side and SB side of the DMI Link.		
PCI-Exp. High Priority Port	Disabled	Default
	Port 0	
	Port 1	
	Port 2	
	Port 3	
Select a PCI Express High Priority Port.		

## TPT Device

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Chipset		
Power Mode	[ATX Type]	Select the power type used on the system
Restore on AC Power Loss	[Last State]	
Azalia Controller	[HD Audio]	
Spread Spectrum	[Disabled]	
Select USB Mode	[By Controllers]	++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
UHCI #1 (ports 0 and 1)	[Enabled]	
UHCI #2 (ports 2 and 3)	[Enabled]	
UHCI #3 (ports 4 and 5)	[Enabled]	
UHCI #4 (ports 6 and 7)	[Enabled]	
USB 2.0(EHCI) Support	[Enabled]	
SMBus Controller	[Enabled]	
SIRQ Logic	[Enabled]	

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**Options summary:**

Power Mode	ATX Type	Default
	AT Type	
Select the power type used on the system		
Restore on AC Power Loss	Last State	Default
	Always On	
	Always Off	
Power Failure feature / AC Power Loss feature		
Azalia Controller	Disabled	Default
	HD Audio	
Select a OnBoard Azalia Configuration.		
Spread Spectrum	Enabled	Default
	Disabled	
Enable/Disable Clock Generator Spread Spectrum function		
Select USB Mode	By Controllers	Default
	By Ports	
Select USB mode to control USB ports.		
UHCI #1 (ports 0 and 1)	Enabled	Default
	Disabled	
Control the USB UHCI (USB 1.1) functions. Disable from highest to lowest controller.		
UHCI #2 (ports 2 and 3)	Enabled	Default
	Disabled	
Control the USB UHCI (USB 1.1) functions. Disable from highest to lowest controller.		
UHCI #3 (ports 4 and 5)	Enabled	Default
	Disabled	
Control the USB UHCI (USB 1.1) functions. Disable from highest to lowest controller.		
UHCI #4 (ports 6 and 7)	Enabled	Default
	Disabled	
Control the USB UHCI (USB 1.1) functions. Disable from highest to lowest controller.		
USB 2.0(EHCI) Support"	Enabled	Default
	Disabled	
Enable or Disable USB 2.0 (EHCI) Support.		
SMBus Controller"	Enabled	Default
	Disabled	
Enable or Disable OnChip SMBus Controller.		
SIRQ Logic	Enabled	Default
	Disabled	
Enable or Disable SIRQ logic.		

## PCI Express Root Port 0

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Chipset

PCI Express Port 0	[Enabled]	Enable / Disable PCI Express Root Port 0.
Port 0 IOxAPIC	[Enabled]	
Automatic ASPM	[Auto]	

++: Select Screen  
 F1: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

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### Options summary:

PCI Express Port 0	Enabled	Default
	Disabled	
Enable / Disable PCI Express Root Port 0.		
Port 0 IOxAPIC	Enabled	Default
	Disabled	
Enable / Disable PCI Express Root Port 0 I/O APIC.		
Automatic ASPM	Manual	Default
	Auto	
Automatically enable ASPM based on reported capabilities and known issues.		

## PCI Express Root Port 1

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Chipset

PCI Express Port 1	[Enabled]	Enable / Disable PCI Express Root Port 1.
Port 0 IOxAPIC	[Enabled]	
Automatic ASPM	[Auto]	

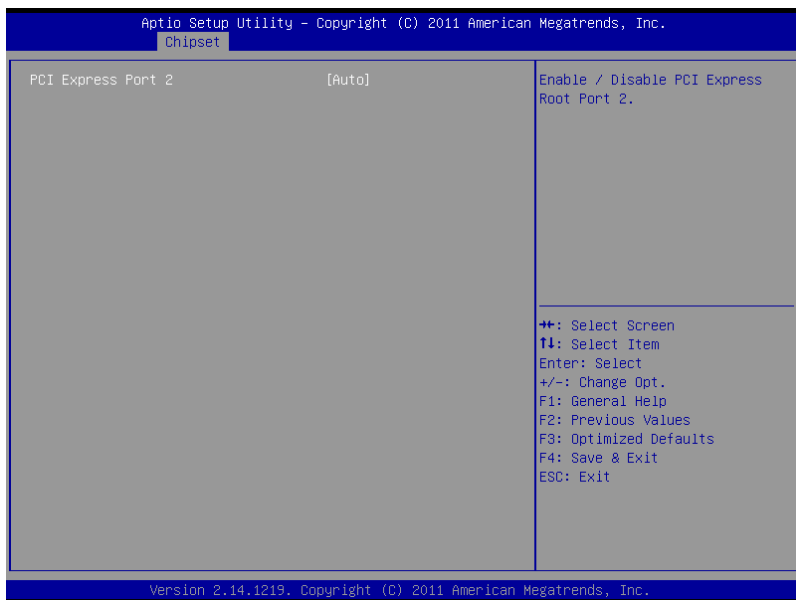
++: Select Screen  
 F1: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

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### Options summary:

PCI Express Port 1	Enabled	Default
	Disabled	
Enable / Disable PCI Express Root Port 1.		
Port 0 IOxAPIC	Enabled	Default
	Disabled	
Enable / Disable PCI Express Root Port 0 I/O APIC.		
Automatic ASPM	Manual	Default
	Auto	
Automatically enable ASPM based on reported capabilities and known issues.		

## PCI Express Root Port 2

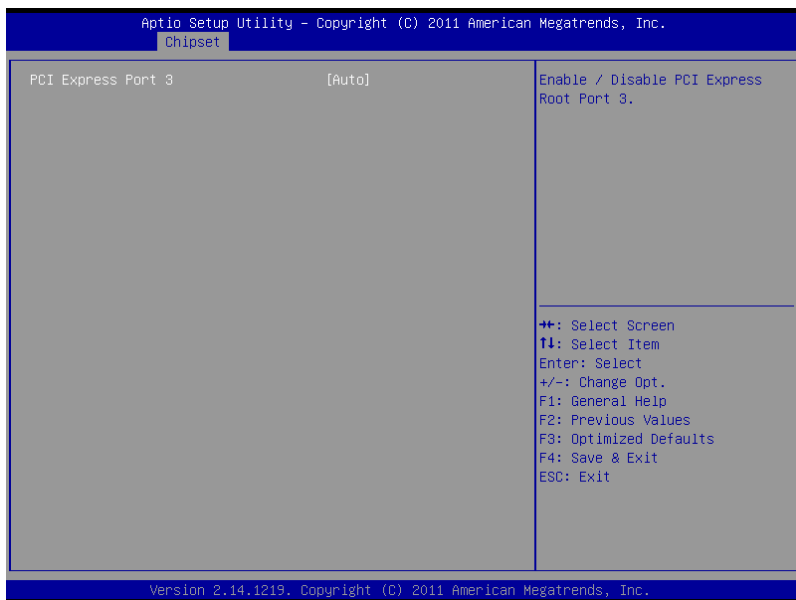


### Options summary:

PCI Express Port 2	Enabled	Default
	Disabled	
	Auto	
Enable / Disable PCI Express Root Port 2.		



## PCI Express Root Port 3



### Options summary:

PCI Express Port 3	Enabled	Default
	Disabled	
	Auto	
Enable / Disable PCI Express Root Port 3.		

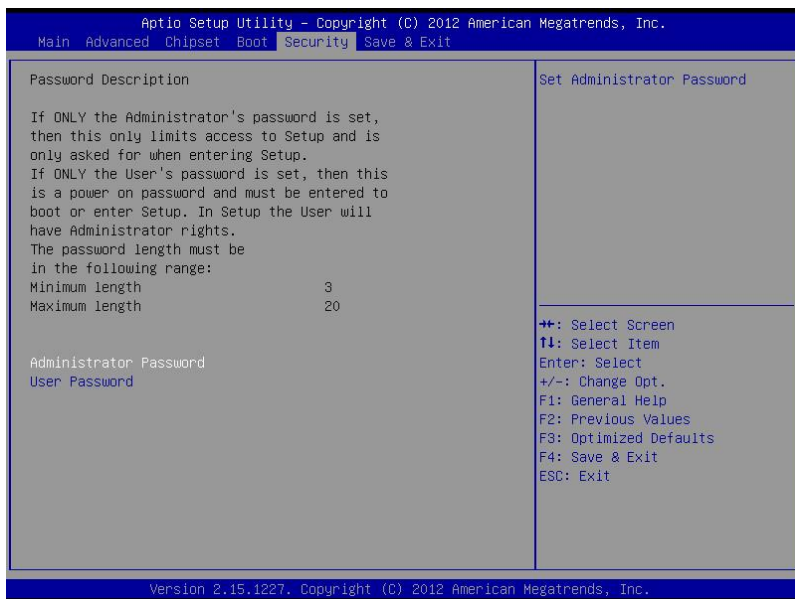
## Setup submenu: Boot

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Main Advanced Chipset Boot Security Save & Exit		
Boot Configuration		Enables or disables Quiet Boot option
Quiet Boot	[Enabled]	
Launch On-Module LAN PXE OpROM	[Disabled]	
Boot Option Priorities		
Boot Option #1	[UEFI: InnostorInno...]	
Boot Option #2	[SATA SM: CFAST D1...]	
Hard Drive BBS Priorities		
		++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.		

### Options summary:

Quiet Boot	Disabled	Default
	Enabled	
En/Disable showing boot logo.		
Launch On-Module LAN PXE OpROM	Disabled	Default
	Enabled	
En/Disable Legacy Boot Option for On-Module I82583V.		

## Security



### Change User/Supervisor Password

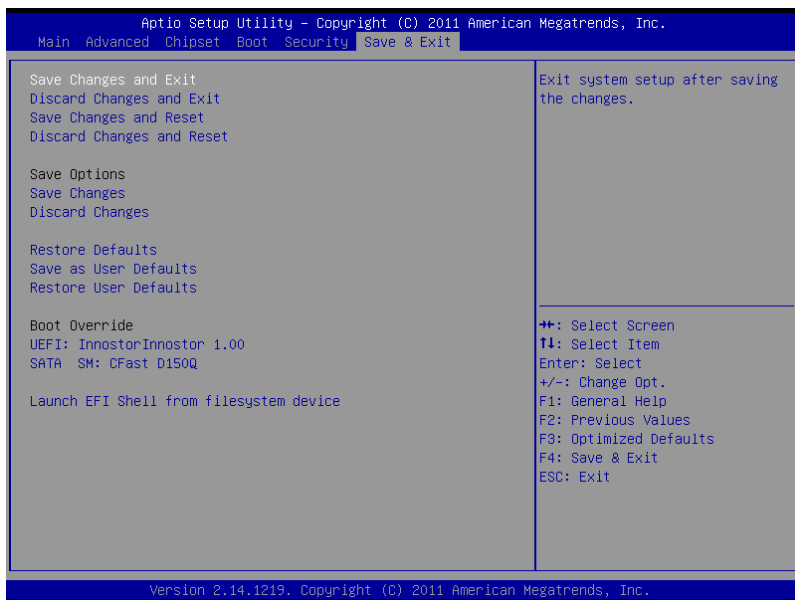
You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

If you highlight these items and press Enter, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

### Removing the Password

Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

## Setup submenu: Exit



## Chapter

# 4

## Driver Installation

The AEC-6913 comes with a CD-ROM that contains all drivers your need.

***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 AHCI Driver

Step 6 – Install USB3.0 Driver

Step 7 – Install Serial Port Driver (Optional)

Please read following instructions for detailed installations.

## 4.1 Installation:

---

Insert the AEC-6913 CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 7 in order.

### Step 1 – Install Chipset Driver

1. Click on the **STEP1-CHIPSET** folder and select the OS folder 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 2 – Install VGA Driver

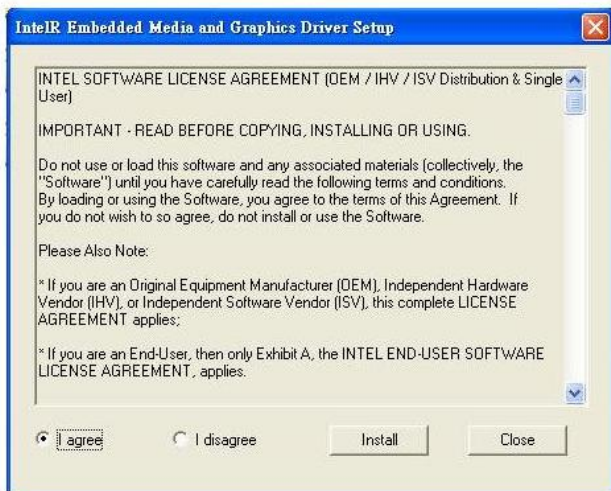
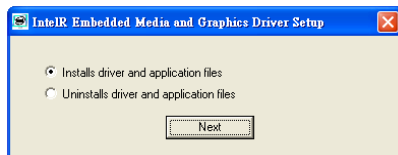
#### For Windows® 7

1. Click on the **STEP2-VGA** folder and select the folder of **WIN7\_32**
2. Double click on the **Setup.exe** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

#### For Windows® XP

1. Click on the **STEP2-VGA** folder and select the folder of **WINXP\_32**
2. Install IEMGD
  - Double click on the **WindowsDriverSETUP.bat**
  - Select the configuration
  - Follow the instructions that the window shows

- The system will help you install the driver automatically

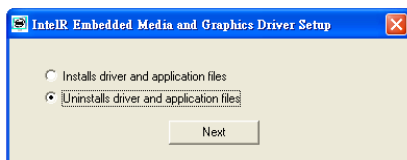




If you want to update driver, please uninstall driver first.

### Uninstall IEMGD

1. Double click on the **WindowsDriverSETUP.bat**
2. Follow the instructions that the window shows
3. The system will help you uninstall the driver automatically



### Step 3 – Install LAN Driver

1. Click on the **STEP3-LAN** folder and select the OS folder 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 4 – Install Audio Driver

1. Click on the **STEP4-AUDIO** folder and select the OS folder 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

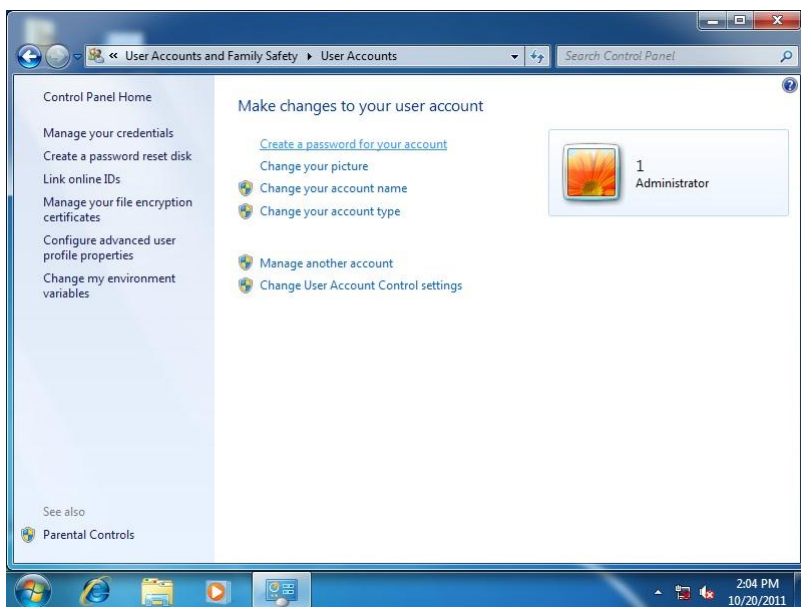
## Step 5 – Install AHCI Driver

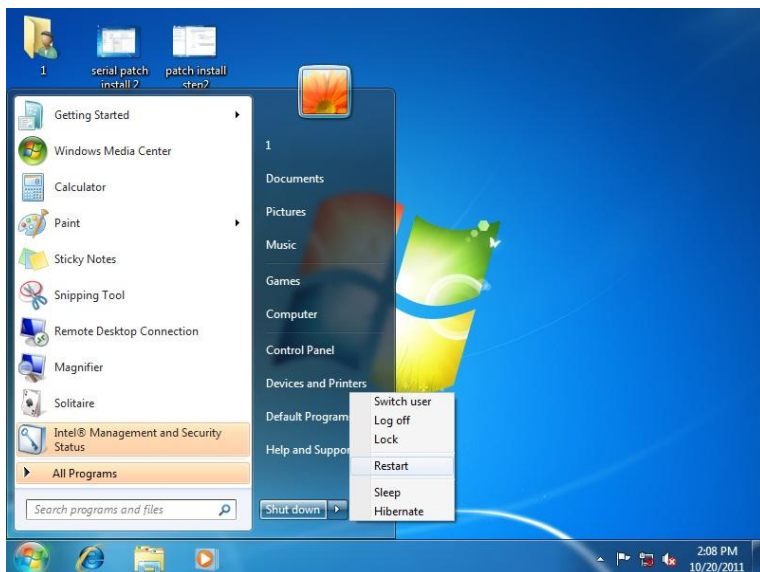
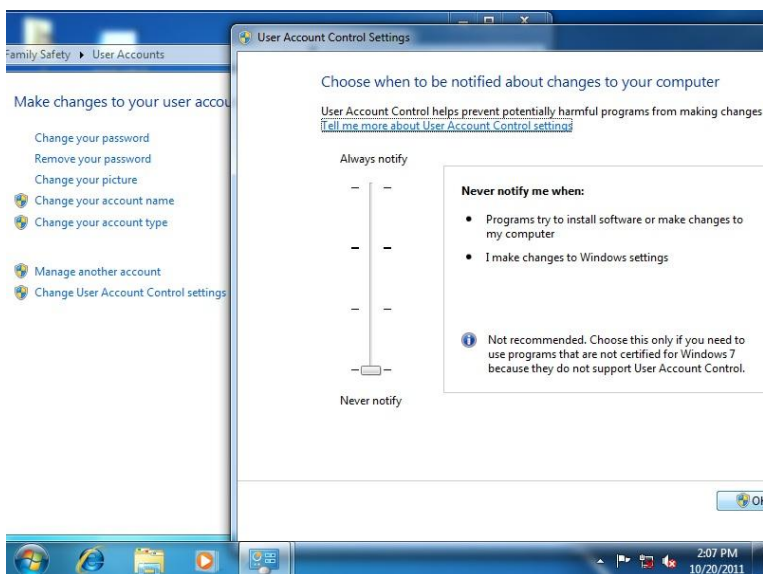
Please refer to Appendix C AHCI Setting

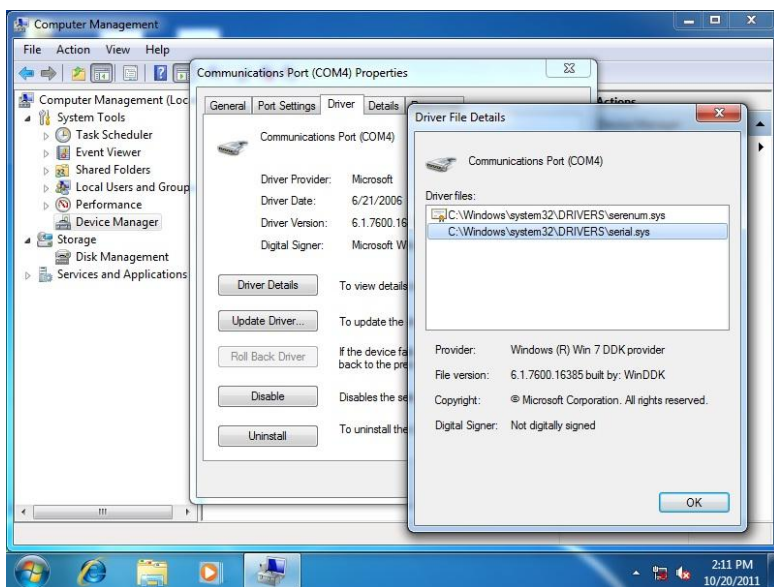
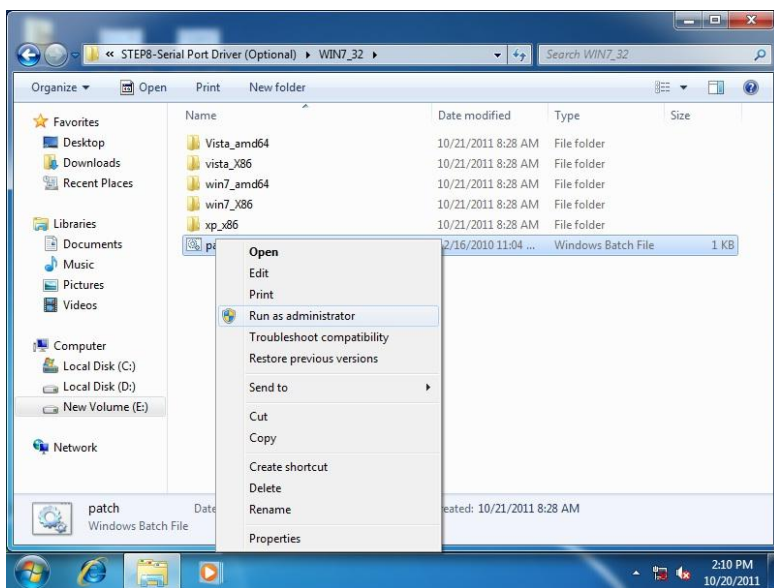
## Step 6 – Install USB3.0 Driver

1. Click on the **Step 6 - USB30 Driver** folder and double click on the **RENESAS-USB3-Host-Driver-21160-setup.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

## Step 7 – Install Serial Port Driver (Optional)







## Appendix

# A

# Programming the Watchdog Timer

## A.1 Watchdog Timer Initial Program

Table 1 : SuperIO relative register table		
	Default Value	Note
Index	0x2E <sup>(Note1)</sup>	SIO MB PnP Mode Index Register 0x2E or 0x4E
Data	0x2F <sup>(Note2)</sup>	SIO MB PnP Mode Data Register 0x2F or 0x4F

Table 2 : Watchdog relative register table					
	LDN	Register	BitNum	Value	Note
Timer Counter	0x07 <sup>(Note3)</sup>	0xF6 <sup>(Note4)</sup>		(Note24)	Time of watchdog timer (0~255) This register is byte access
Counting Unit	0x07 <sup>(Note5)</sup>	0xF5 <sup>(Note6)</sup>	3 <sup>(Note7)</sup>	0 <sup>(Note8)</sup>	Select time unit. 0: second 1: minute
Watchdog Enable	0x07 <sup>(Note9)</sup>	0xF5 <sup>(Note10)</sup>	5 <sup>(Note11)</sup>	1 <sup>(Note12)</sup>	0: Disable 1: Enable
Timeout Status	0x07 <sup>(Note13)</sup>	0xF5 <sup>(Note14)</sup>	6 <sup>(Note15)</sup>	1	1: Clear timeout status
Output Mode	0x07 <sup>(Note16)</sup>	0xF5 <sup>(Note17)</sup>	4 <sup>(Note18)</sup>	1 <sup>(Note19)</sup>	Select WDTRST# output mode 0: level 1: pulse
WDTRST output	0x07 <sup>(Note20)</sup>	0xFA <sup>(Note21)</sup>	0 <sup>(Note22)</sup>	1 <sup>(Note23)</sup>	Enable/Disable time out output via WDTRST# 0: Disable 1: Enable

\*\*\*\*\*

// SuperIO relative definition (Please reference to Table 1)

**#define byte** SIOIndex //This parameter is represented from **Note1**

**#define byte** SIOData //This parameter is represented from **Note2**

**#define void** IOWriteByte(**byte** IOPort, **byte** Value);

**#define byte** IOReadByte(**byte** IOPort);

// Watch Dog relative definition (Please reference to Table 2)

**#define byte** TimerLDN //This parameter is represented from **Note3**

**#define byte** TimerReg //This parameter is represented from **Note4**

**#define byte** TimerVal // This parameter is represented from **Note24**

**#define byte** UnitLDN //This parameter is represented from **Note5**

**#define byte** UnitReg //This parameter is represented from **Note6**

**#define byte** UnitBit //This parameter is represented from **Note7**

**#define byte** UnitVal //This parameter is represented from **Note8**

**#define byte** EnableLDN //This parameter is represented from **Note9**

**#define byte** EnableReg //This parameter is represented from **Note10**

**#define byte** EnableBit //This parameter is represented from **Note11**

**#define byte** EnableVal //This parameter is represented from **Note12**

**#define byte** StatusLDN // This parameter is represented from **Note13**

**#define byte** StatusReg // This parameter is represented from **Note14**

**#define byte** StatusBit // This parameter is represented from **Note15**

**#define byte** ModeLDN // This parameter is represented from **Note16**

**#define byte** ModeReg // This parameter is represented from **Note17**

**#define byte** ModeBit // This parameter is represented from **Note18**

**#define byte** ModeVal // This parameter is represented from **Note19**

**#define byte** WDTRstLDN // This parameter is represented from **Note20**

**#define byte** WDTRstReg // This parameter is represented from **Note21**

**#define byte** WDTRstBit // This parameter is represented from **Note22**

**#define byte** WDTRstVal // This parameter is represented from **Note23**

\*\*\*\*\*

\*\*\*\*\*

VOID **Main()**{

    // Procedure : AaeonWDTConfig

    // (byte)Timer : Time of WDT timer.(0x00~0xFF)

    // (boolean)Unit : Select time unit(0: second, 1: minute).

    AaeonWDTConfig();

    // Procedure : AaeonWDTEnable

    // This procedure will enable the WDT counting.

    AaeonWDTEnable();

}

\*\*\*\*\*



\*\*\*\*\*

// Procedure : AaeonWDTEnable

```
VOID AaeonWDTEnable (){
    WDTEnableDisable(EnableLDN, EnableReg, EnableBit, 1);
}
```

// Procedure : AaeonWDTConfig

```
VOID AaeonWDTConfig (){
    // Disable WDT counting
    WDTEnableDisable(EnableLDN, EnableReg, EnableBit, 0);
    // Clear Watchdog Timeout Status
    WDTClearTimeoutStatus();
    // WDT relative parameter setting
    WDTParameterSetting();
}
```

```
VOID WDTEnableDisable(byte LDN, byte Register, byte BitNum, byte Value){
    SIOBitSet(LDN, Register, BitNum, Value);
}
```

```
VOID WDTParameterSetting() {
    // Watchdog Timer counter setting
    SIOByteSet(TimerLDN, TimerReg, TimerVal);
    // WDT counting unit setting
    SIOBitSet(UnitLDN, UnitReg, UnitBit, UnitVal);
    // WDT output mode setting, level / pulse
    SIOBitSet(ModeLDN, ModeReg, ModeBit, ModeVal);
    // Watchdog timeout output via WDTRST#
    SIOBitSet(WDTRstLDN, WDTRstReg, WDTRstBit, WDTRstVal);
}
```

```
VOID WDTClearTimeoutStatus() {
    SIOBitSet(StatusLDN, StatusReg, StatusBit, 1);
}
```

\*\*\*\*\*

\*\*\*\*\*

```
VOID SIOEnterMBPnPMode(){
    IOWriteByte(SIOIndex, 0x87);
    IOWriteByte(SIOIndex, 0x87);
}
```

```
VOID SIOExitMBPnPMode(){
    IOWriteByte(SIOIndex, 0xAA);
}
```

```
VOID SIOSelectLDN(byte LDN){
    IOWriteByte(SIOIndex, 0x07); // SIO LDN Register Offset = 0x07
    IOWriteByte(SIOData, LDN);
}
```

```
VOID SIOBitSet(byte LDN, byte Register, byte BitNum, byte Value){
    Byte TmpValue;

    SIOEnterMBPnPMode();
    SIOSelectLDN(byte LDN);
    IOWriteByte(SIOIndex, Register);
    TmpValue = IOReadByte(SIOData);
    TmpValue &= ~(1 << BitNum);
    TmpValue |= (Value << BitNum);
    IOWriteByte(SIOData, TmpValue);
    SIOExitMBPnPMode();
}
```

```
VOID SIOByteSet(byte LDN, byte Register, byte Value){
    SIOEnterMBPnPMode();
    SIOSelectLDN(LDN);
    IOWriteByte(SIOIndex, Register);
    IOWriteByte(SIOData, Value);
    SIOExitMBPnPMode();
}
```

\*\*\*\*\*

## Appendix

# B

## I/O Information

## B.1 I/O Address Map












































Input/output (IO)	
[00000000 - 0000001F]	Direct memory access controller
[00000000 - 000000CF7]	PCI bus
[00000010 - 0000001F]	Motherboard resources
[00000020 - 00000021]	Programmable interrupt controller
[00000022 - 0000003F]	Motherboard resources
[00000024 - 00000025]	Programmable interrupt controller
[00000028 - 00000029]	Programmable interrupt controller
[0000002C - 0000002D]	Programmable interrupt controller
[0000002E - 0000002F]	Motherboard resources
[00000030 - 00000031]	Programmable interrupt controller
[00000034 - 00000035]	Programmable interrupt controller
[00000038 - 00000039]	Programmable interrupt controller
[0000003C - 0000003D]	Programmable interrupt controller
[00000040 - 00000043]	System timer
[00000044 - 0000005F]	Motherboard resources
[0000004E - 0000004F]	Motherboard resources
[00000050 - 00000053]	System timer
[00000060 - 00000060]	Standard PS/2 Keyboard
[00000061 - 00000061]	Motherboard resources
[00000062 - 00000063]	Motherboard resources
[00000063 - 00000063]	Motherboard resources
[00000064 - 00000064]	Standard PS/2 Keyboard
[00000065 - 00000065]	Motherboard resources
[00000065 - 0000006F]	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 - 000000F0]	Numeric data processor
	[00000200 - 0000020F]	Motherboard resources
	[00000210 - 0000021F]	Motherboard resources
	[00000220 - 0000022F]	Motherboard resources
	[00000270 - 00000277]	Communications Port (COM8)
	[00000284 - 00000293]	Motherboard resources
	[000002B0 - 000002B7]	Communications Port (COM6)
	[000002B8 - 000002BF]	Communications Port (COM7)
	[000002D0 - 000002D7]	Communications Port (COM5)
	[000002E8 - 000002EF]	Communications Port (COM4)
	[000002F8 - 000002FF]	Communications Port (COM2)
	[000003B0 - 000003BB]	Intel(R) Graphics Media Accelerator 3600 Series
	[000003C0 - 000003DF]	Intel(R) Graphics Media Accelerator 3600 Series
	[000003E8 - 000003EF]	Communications Port (COM3)
	[000003F8 - 000003FF]	Communications Port (COM1)
	[00000400 - 0000047F]	Motherboard resources
	[00000400 - 0000047F]	Motherboard resources
	[000004D0 - 000004D1]	Motherboard resources
	[000004D0 - 000004D1]	Programmable interrupt controller
	[00000500 - 0000053F]	Motherboard resources
	[00000500 - 0000057F]	Motherboard resources
	[00000600 - 0000061F]	Motherboard resources
	[00000600 - 0000061F]	Motherboard resources
	[00000680 - 0000069F]	Motherboard resources
	[000006A0 - 000006AF]	Motherboard resources
	[000006B0 - 000006EF]	Motherboard resources
	[00000D00 - 0000FFFF]	PCI bus
	[00001000 - 0000100F]	Motherboard resources
	[0000D000 - 0000DFFF]	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D6
	[0000E000 - 0000EFFF]	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
	[0000F000 - 0000F01F]	Intel(R) N10/ICH7 Family SMBus Controller - 27DA
	[0000F020 - 0000F03F]	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
	[0000F040 - 0000F05F]	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
	[0000F060 - 0000F07F]	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
	[0000F080 - 0000F09F]	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
	[0000F0A0 - 0000F0AF]	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
	[0000F0B0 - 0000F0B3]	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
	[0000F0C0 - 0000F0C7]	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
	[0000F0D0 - 0000F0D3]	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
	[0000F0E0 - 0000F0E7]	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
	[0000F0F0 - 0000F0F7]	Intel(R) Graphics Media Accelerator 3600 Series
	[0000FFFF - 0000FFFF]	Motherboard resources
	[0000FFFF - 0000FFFF]	Motherboard resources



















































## B.2 Memory Address Map

Memory	
[00000000 - 00000FFF]	Motherboard resources
[00000000 - 00000FFF]	Motherboard resources
[00000000 - 00003FFF]	Motherboard resources
[000A0000 - 000BFFFF]	Intel(R) Graphics Media Accelerator 3600 Series
[000A0000 - 000BFFFF]	PCI bus
[000C0000 - 000DFFFF]	PCI bus
[000E0000 - 000EFFFF]	PCI bus
[000F0000 - 000FFFFFF]	PCI bus
[CF800000 - CFFFFFFF]	PCI bus
[D0000000 - FEBFFFFF]	PCI bus
[DFB00000 - DFBFFFFF]	Intel(R) Graphics Media Accelerator 3600 Series
[DFC00000 - DFC1FFFF]	Intel(R) 82583V Gigabit Network Connection #2
[DFC00000 - DFCFFFFFF]	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D6
[DFC20000 - DFC23FFF]	Intel(R) 82583V Gigabit Network Connection #2
[DFD00000 - DFD01FFF]	Renesas Electronics USB 3.0 Host Controller
[DFD00000 - DFDFFFFFF]	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
[DFE00000 - DFE1FFFF]	Intel(R) 82583V Gigabit Network Connection
[DFE00000 - DFEFFFFFF]	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
[DFE20000 - DFE23FFF]	Intel(R) 82583V Gigabit Network Connection
[DFF00000 - DFF03FFF]	High Definition Audio Controller
[DFF04000 - DFF043FF]	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[DFF05000 - DFF053FF]	Intel(R) N10/ICH7 Family USB2 Enhanced Host Controller - 27CC
[E0000000 - EFFFFFFF]	System board
[FEC00000 - FEC00FFF]	Motherboard resources
[FED00000 - FED003FF]	High precision event timer
[FED14000 - FED19FFF]	System board
[FED1C000 - FED1FFFF]	Motherboard resources
[FED1C000 - FED1FFFF]	Motherboard resources
[FED20000 - FED8FFFF]	Motherboard resources
[FED45000 - FED8FFFF]	Motherboard resources
[FEE00000 - FEE00FFF]	Motherboard resources
[FF000000 - FFFFFFFF]	Intel(R) 82802 Firmware Hub Device
[FF000000 - FFFFFFFF]	Intel(R) 82802 Firmware Hub Device
[FFC00000 - FFFFFFFF]	Motherboard resources




















































## B.3 IRQ Mapping Chart






Interrupt request (IRQ)		
	(ISA) 0x00000000 (00)	System timer
	(ISA) 0x00000001 (01)	Standard PS/2 Keyboard
	(ISA) 0x00000003 (03)	Communications Port (COM2)
	(ISA) 0x00000004 (04)	Communications Port (COM1)
	(ISA) 0x00000005 (05)	Communications Port (COM6)
	(ISA) 0x00000005 (05)	Communications Port (COM7)
	(ISA) 0x00000005 (05)	Communications Port (COM8)
	(ISA) 0x00000008 (08)	System CMOS/real time clock
	(ISA) 0x0000000A (10)	Communications Port (COM5)
	(ISA) 0x0000000B (11)	Communications Port (COM3)
	(ISA) 0x0000000B (11)	Communications Port (COM4)
	(ISA) 0x0000000C (12)	Microsoft PS/2 Mouse
	(ISA) 0x0000000D (13)	Numeric data processor
	(ISA) 0x00000051 (81)	Microsoft ACPI-Compliant System
	(ISA) 0x00000052 (82)	Microsoft ACPI-Compliant System
	(ISA) 0x00000053 (83)	Microsoft ACPI-Compliant System
	(ISA) 0x00000054 (84)	Microsoft ACPI-Compliant System
	(ISA) 0x00000055 (85)	Microsoft ACPI-Compliant System
	(ISA) 0x00000056 (86)	Microsoft ACPI-Compliant System
	(ISA) 0x00000057 (87)	Microsoft ACPI-Compliant System
	(ISA) 0x00000058 (88)	Microsoft ACPI-Compliant System
	(ISA) 0x00000059 (89)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005A (90)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005B (91)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005C (92)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005D (93)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005E (94)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005F (95)	Microsoft ACPI-Compliant System
	(ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
	(ISA) 0x00000061 (97)	Microsoft ACPI-Compliant System
	(ISA) 0x00000062 (98)	Microsoft ACPI-Compliant System
	(ISA) 0x00000063 (99)	Microsoft ACPI-Compliant System
	(ISA) 0x00000064 (100)	Microsoft ACPI-Compliant System
	(ISA) 0x00000065 (101)	Microsoft ACPI-Compliant System
	(ISA) 0x00000066 (102)	Microsoft ACPI-Compliant System
	(ISA) 0x00000067 (103)	Microsoft ACPI-Compliant System
	(ISA) 0x00000068 (104)	Microsoft ACPI-Compliant System
	(ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006B (107)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006D (109)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System



	(ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
	(ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
	(ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System
	(ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
	(ISA) 0x00000073 (115)	Microsoft ACPI-Compliant System
	(ISA) 0x00000074 (116)	Microsoft ACPI-Compliant System
	(ISA) 0x00000075 (117)	Microsoft ACPI-Compliant System
	(ISA) 0x00000076 (118)	Microsoft ACPI-Compliant System
	(ISA) 0x00000077 (119)	Microsoft ACPI-Compliant System
	(ISA) 0x00000078 (120)	Microsoft ACPI-Compliant System
	(ISA) 0x00000079 (121)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007A (122)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007B (123)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007C (124)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007D (125)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007E (126)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007F (127)	Microsoft ACPI-Compliant System
	(ISA) 0x00000080 (128)	Microsoft ACPI-Compliant System
	(ISA) 0x00000081 (129)	Microsoft ACPI-Compliant System
	(ISA) 0x00000082 (130)	Microsoft ACPI-Compliant System
	(ISA) 0x00000083 (131)	Microsoft ACPI-Compliant System
	(ISA) 0x00000084 (132)	Microsoft ACPI-Compliant System
	(ISA) 0x00000085 (133)	Microsoft ACPI-Compliant System
	(ISA) 0x00000086 (134)	Microsoft ACPI-Compliant System
	(ISA) 0x00000087 (135)	Microsoft ACPI-Compliant System
	(ISA) 0x00000088 (136)	Microsoft ACPI-Compliant System
	(ISA) 0x00000089 (137)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008A (138)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008B (139)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008C (140)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008D (141)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008E (142)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008F (143)	Microsoft ACPI-Compliant System
	(ISA) 0x00000090 (144)	Microsoft ACPI-Compliant System
	(ISA) 0x00000091 (145)	Microsoft ACPI-Compliant System
	(ISA) 0x00000092 (146)	Microsoft ACPI-Compliant System
	(ISA) 0x00000093 (147)	Microsoft ACPI-Compliant System
	(ISA) 0x00000094 (148)	Microsoft ACPI-Compliant System
	(ISA) 0x00000095 (149)	Microsoft ACPI-Compliant System
	(ISA) 0x00000096 (150)	Microsoft ACPI-Compliant System
	(ISA) 0x00000097 (151)	Microsoft ACPI-Compliant System
	(ISA) 0x00000098 (152)	Microsoft ACPI-Compliant System
	(ISA) 0x00000099 (153)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009A (154)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009B (155)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009C (156)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009D (157)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009E (158)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009F (159)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A0 (160)	Microsoft ACPI-Compliant System





	(ISA) 0x000000A1 (161)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A2 (162)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A3 (163)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A4 (164)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A5 (165)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A6 (166)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A9 (169)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AA (170)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AB (171)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
	(PCI) 0x00000007 (07)	Intel(R) N10/ICH7 Family SMBus Controller - 27DA
	(PCI) 0x00000010 (16)	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
	(PCI) 0x00000010 (16)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
	(PCI) 0x00000011 (17)	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
	(PCI) 0x00000012 (18)	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D4
	(PCI) 0x00000012 (18)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
	(PCI) 0x00000013 (19)	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D6
	(PCI) 0x00000013 (19)	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
	(PCI) 0x00000013 (19)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
	(PCI) 0x00000016 (22)	High Definition Audio Controller
	(PCI) 0x00000017 (23)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
	(PCI) 0x00000017 (23)	Intel(R) N10/ICH7 Family USB2 Enhanced Host Controller - 27CC
	(PCI) 0xFFFFFFF1 (-15)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFFF2 (-14)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFFF3 (-13)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFFF4 (-12)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFFF5 (-11)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFFF6 (-10)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFFF7 (-9)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFFF8 (-8)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFFF9 (-7)	Intel(R) 82583V Gigabit Network Connection #2

	(PCI) 0xFFFFF7FA (-6)	Intel(R) 82583V Gigabit Network Connection
	(PCI) 0xFFFFF7FB (-5)	Intel(R) Graphics Media Accelerator 3600 Series
	(PCI) 0xFFFFF7FC (-4)	PCI standard PCI-to-PCI bridge
	(PCI) 0xFFFFF7FD (-3)	PCI standard PCI-to-PCI bridge
	(PCI) 0xFFFFF7FE (-2)	PCI standard PCI-to-PCI bridge

## B.4 DMA Channel Assignments

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	Direct memory access (DMA)
	4 Direct memory access controller

## Appendix

# C

## AHCI Setting

## C.1 WIN XP OS installation

Step 1: Copy the files below from **Driver CD** -> **“STEP5 - AHCI WINXP\_32 ” to Disk.**



Step 2: Connect the USB Floppy (disk with AHCI files) to the board (this photo is for reference only)



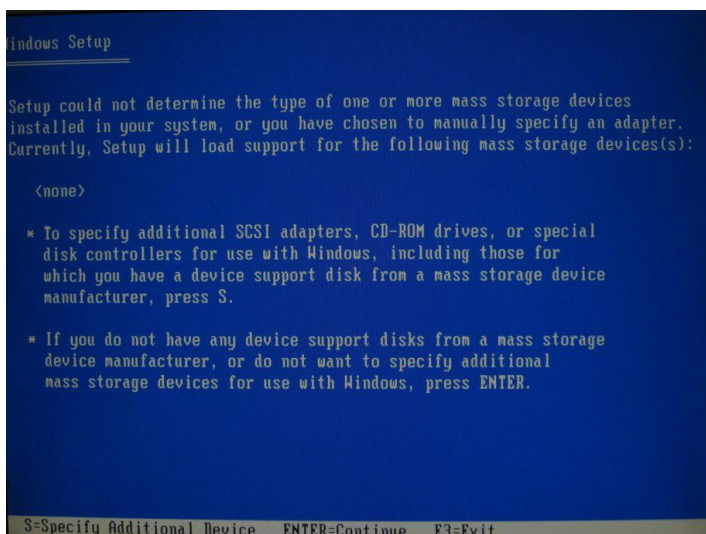
### Step 3: Setup OS

Setup is inspecting your computer's hardware configuration...

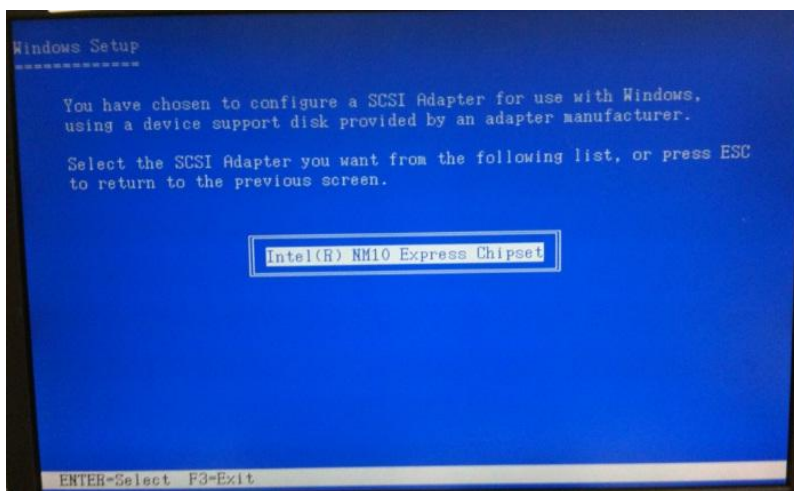
### Step 4: Press "F6"



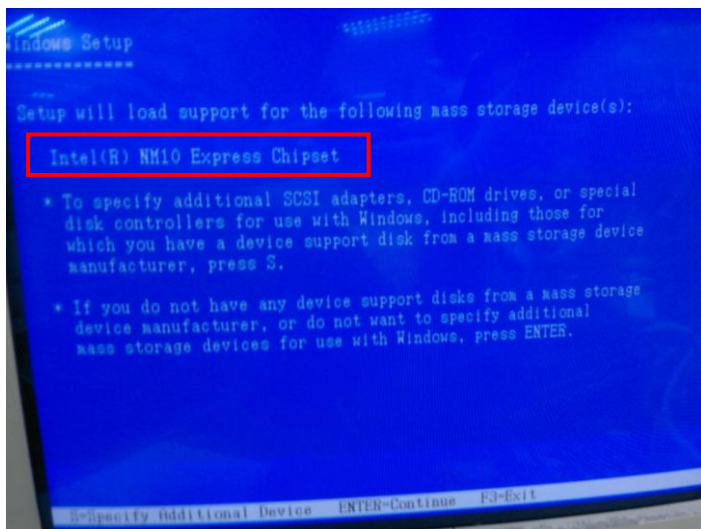
## Step 5: Choose "S"



## Step 6: Choose "Intel(R) NM10 Express Chipset"



Step 7: It will show the model number you select and then press “ENTER”



Step 8: Setup is starting Windows

