AEC-6967

Fanless Embedded Controller

Intel® 2nd Generation CoreTM i/ Celeron®

Processor (FCBGA1023)

with 2 Gigabit Ethernet

COM x 6, USB x 6, CFastTM, Mini Card x 2

SATA 6.0Gb/s x 2, SATA 3.0Gb/s x 2

PCI x 2 or PCI x 1 + PCI-E[x4] x 1 or PCI-E[x4] x 2

VGA x 1, HDMI x 1, DVI-D x 1

Dual-Channel 24-bit LVDS

Copyright Notice

Acknowledgments

- Award is a trademark of Award Software International, Inc.

- CFast™ is a trademark of the Compact Flash Association.

- Intel®, Celeron® and Core™ are trademarkes of Intel® Corporation.

- Microsoft Windows® is a registered trademark of Microsoft Corp.

- PC/AT, PS/2, and VGA are trademarks of International Business Machines Corporation.

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

Packing List

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

- 1   AEC-6967 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	×	○	○	○	○	○

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

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

备注：
一、此产品所标示之环保使用期限，系指在一般正常使用状况下。
二、上述部件物质中央处理器、内存、硬盘、电源为选购品。

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Appendix C RAID & AHCI Settings

Appendix D Electrical Specifications for I/O Ports

Chapter

1

General Information

1.1 Introduction

Due to the growing popularity from the IPC market, the newest Boxer series AEC-6967 has been introduced by AAEON. Being a control center, the AEC-6967 is suitable for Machine Control, Data Processing, Fleet Management, Data Management. AEC-6976 equips a high efficiency heat conduction mechanism.

The AEC-6967 is compact in size but has attractive and flexible extension capabilities such as 6 USB2.0 ports, VGA, Audio, 6 COM ports, PCI and PCI-E[x4].

Stable Design for Rugged Environment

The AEC-6967 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-6967 can be used in high vibration environments. In addition, the AEC-6967 offers low power consumption system that while operating in ambient temperatures ranging from -20° to 65°C with Core™ i7-2610UE processor.

The AEC-6967 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® 2nd Generation Core™ i/ Celeron® Processor (FCBGA1023)

- Intel® QM67 Chipset

- Gigabit Ethernet, RJ-45 x 2

- Intel® Integrated Graphics Engine Supports Dual View by VGA, DVI-D, HDMI

- SATA 6.0 Gb/s x 2, SATA 3.0 Gb/s x 2, Support RAID 0, 1, 5, 10

- USB2.0 x 6, COM x 6 (2.5KV Isolation x 2), 2.5KV Isolated DIO x 1 (4 in, 4 out)

- Mini Card x 2, CFast™ x 1

- PCI x 2 or PCI x 1 + PCI-Express[x4] x 1 or PCI-Express[x4] x 2

1.3 Specifications

● CPU		Intel® 2nd Generation Core™ i/ Celeron® Processor (FCBGA1023)
● Chipset		Intel® QM67
● System Memory		DDR3 SODIMM x 2, Max. 16 GB, support DDR3 1066/ 1333
● Display Interface	VGA	DB-15 x 1, shared system memory up to 512MB/DVMT 5.0
	DVI	DVI-D x 1 (optional 2nd DVI, support 1920x1200 @ 60 Hz
	HDMI	HDMI x 1, support 1920x1200 @ 60 Hz
	Others	Dual-channel 24-bit LVDS (optional extension kit)
● Storage Device	SSD	CFast™ slot
	HDD	SATA 6.0 Gb/s x 2 (SATA 0, 2), SATA 3.0 Gb/s x 2 (SATA 2, 3), support RAID 0, 1, 5, 10
● Network	LAN	Gigabit Ethernet
	Wireless	Optional by Mini Card
● Front I/O	USB Host	USB2.0 x 2
	Serial Port	RS-232 x 1, RS-232/422/485 x 1, both support optional 2.5KV Isolation , optional extra RS-232 x 6
	DIO	8-bit programmable, optional 2.5KV

		Isolation protection
	KB/MS	PS/2 x 1
	Others	Power button x 1, Reset button x 1
● Rear I/O	USB Host	USB2.0 x 4
	LAN	RJ-45 x 2
	Serial Port	RS-232 x 2
	Audio	Mic-in, Line-in, Line-out
	Others	Power input x 1
● Expansion	PCIe[x1]	2 (optional)
	PCI	2 (optional, limited 2.1A @ +12V)
	Mini Card	2 (optional)
	Others	SIM x 1 (optional)
● Indicator	Front	System LED x 1, HDD LED x 1
● Power Requirement		DC-in 9~30V input, optional 100~240V
● System Cooling		Passive cooling
● Mounting		Wallmount
● Operating Temperature		*Without Airflow, with wide temperature Storage and RAM:* $-4^{o}F \sim 122^{o}F$ $(-20^{o}C \sim 50^{o}C)$ (35W TDP CPU) $-4^{o}F \sim 149^{o}F$ $(-20^{o}C \sim 65^{o}C)$ (17W TDP CPU, not include riser card) *Ambient with Airflow, with wide temperature Storage and RAM:*

		-4°F ~ 140°F (-20°C ~ 60°C) (35W TDP CPU) -4°F ~ 167°F (-20°C ~ 65°C) (17W TDP CPU, not include riser card
● 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™
● Certification	EMC	CE/FCC Class A
● Dimension (W x H x D)		8.19" x 4.9" x 9.37" (208mm x 124.4mm x 238mm)
● OS Support		Windows® XP Embedded, Windows® XP, Windows® 7, Linux Fedora 10

Chapter

2

Hardware Installation

2.1 Dimension
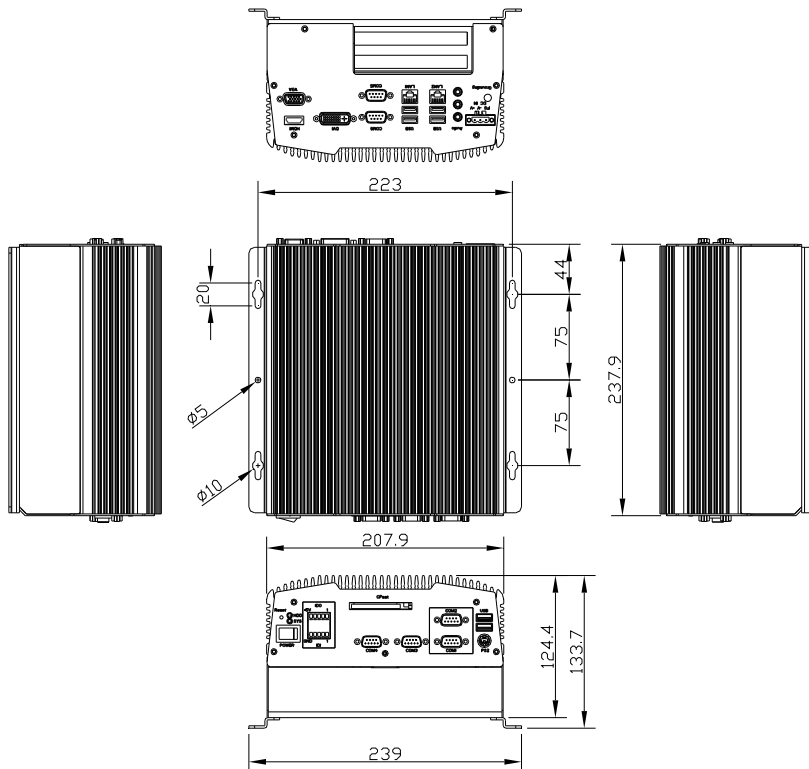
2.2 Location of Jumpers and Connectors

JP1, JP2, JP3, JP4, JP5

JP8

GND
DC IN 12V

JP8

JP8/RS-232/422/485

RS-232 ➤ **Default**

RS-422

RS-485
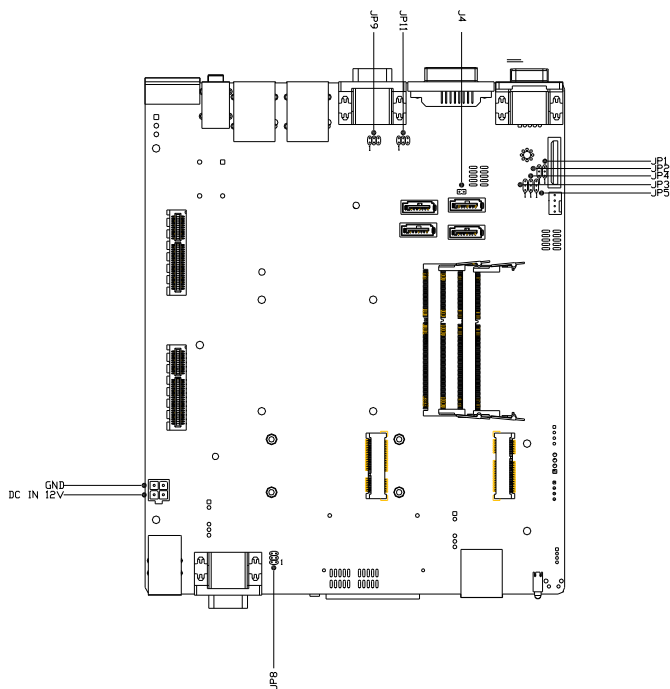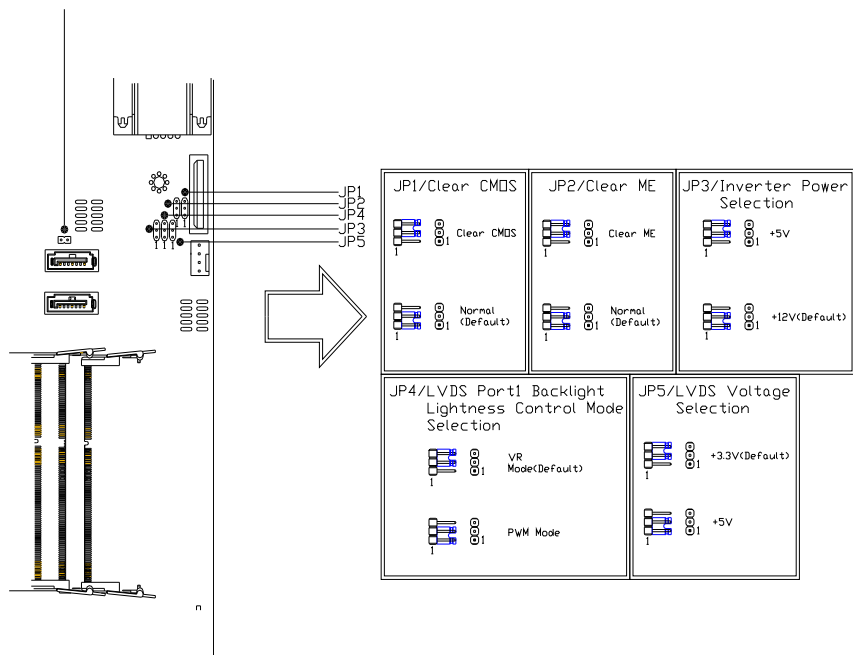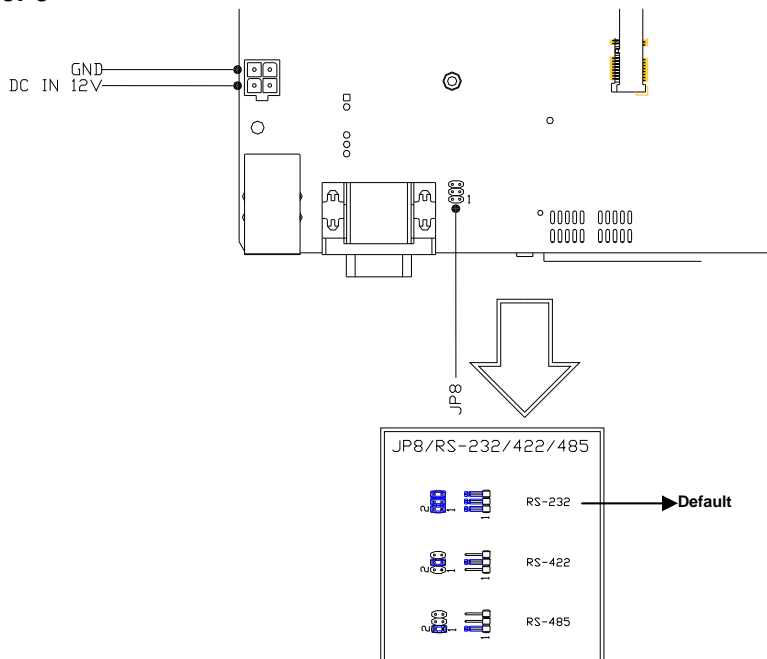
JP9, JP11, J4
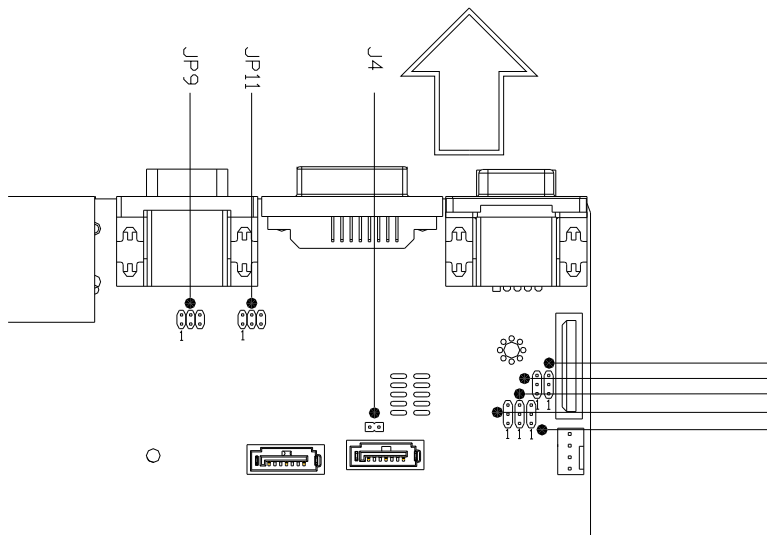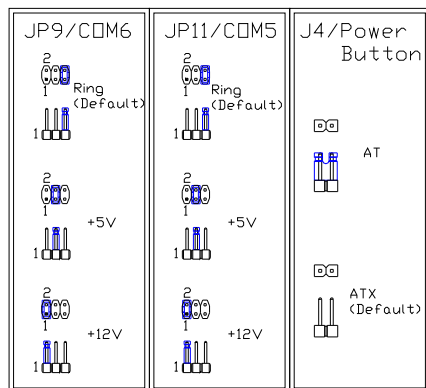
2.3 List of Jumpers

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	Clear CMOS
JP2	Clear ME
JP3	Inverter Power Selection
JP4	LVDS Port Backlight Lightness Control Mode Selection
JP5	LVDS Voltage Selection
JP8	RS-232/422/485 Selection
JP9	COM6 +12V/+5V/RING Selection
JP11	COM5 +12V/+5V/RING Selection
J6	Auto Power Button

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	Front Panel Connector
CN2	4-pin ATX Power +12V Connector
CN6 ~ CN7	LAN / USB Connector
CN8	CFast™ Connector
CN10	COM3 RS-232 Box Header

CN11	COM4 RS-232 Box Header
CN13	COM5 / COM6 Connector
CN15	VGA / HDMI Connector
CN16	DVI-I Connector
CN17	LVDS Connector
CN18	LVDS Inverter / Backlight Connector
CN21	Mini Card Connector With SIM
CN24	Mini Card Connector
CN26/CN33	PCIE*4 Connector
CN27	USB X2 / PS2 Connector
CN29	Digital I/O
CN30	ISOLATION COM1 / COM2 Connector
CN31	DC IN
PWR1 ~ PWR2	SATA POWER
SATA1~SATA2	SATA 3.0 Connector
SATA3~SATA4	SATA Connector
DIMM1,DIMM2	DDR3 DIMM Slot
USB1	USB Box Header
FAN1~ FAN2	4 Pin Fan Connector
AUDIO1	AUDIO Connector

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.

Open   **Closed**   **Closed 2-3**
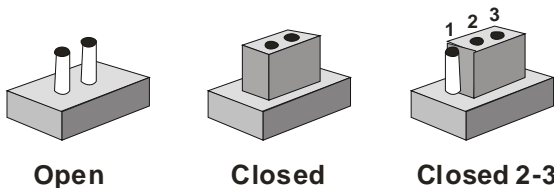
A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any change.

Generally, you simply need a standard cable to make most connections.

2.6 Clear CMOS (JP1)

JP1	Function
1-2	Normal (Default)
2-3	Clear CMOS

2.7 Clear ME (JP2)

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

2.8 Inverter Power Selection (JP3)

JP3	Function
1-2	+12V (Default)
2-3	+5V

2.9 LVDS Port Backlight Lightness Control Mode Selection (JP4)

JP4	Function
1-2	PWM MODE
2-3	VR MODE (Default)

2.10 LCD Voltage Selection (JP5)

JP5	Function
1-2	+5V
2-3	+3.3V (Default)

2.11 Isolation COM2 RS232/RS485/RS422 selection (JP8)

JP8	Function
RS232	1-2,3-4,5-6 close
RS422	3-4 close , 1-2 5-6 open

RS485   5-6 close , 1-2 3-4 open

2.12 COM6 +12V/+5V/Ring Selection (JP9)

JP9	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

2.13 COM5 +12V/+5V/Ring Selection (JP11)

JP6	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

2.14 Auto Power Button (J6)

J6	Function
OPEN	ATX (Default)
1-2	AT

2.15 SATA Power (PWR1~PWR2)

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

2.16 Front Panel Connector (CN4)

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 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

2.18 LVDS Inverter/ Backlight Connector (CN18)

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

2.19 RS-232/422/485 Pin DEFINE (COM2)

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 Box Header (COM3)

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

2.21 RS-232 Box Header (COM4)

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

2.22 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

2.23 HDD Installation

Step 1: Unfasten the six screws on the bottom lid and three screws on the

front and rear panel
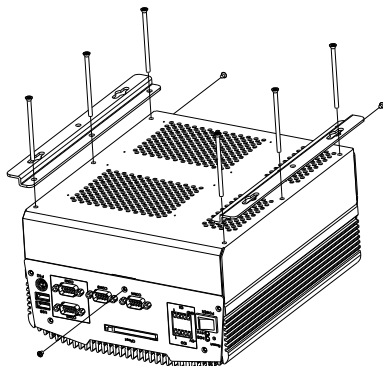
Step 2: Place the HDD to the HDD bracket and fasten the four screws to

the bottom lid of the AEC-6967
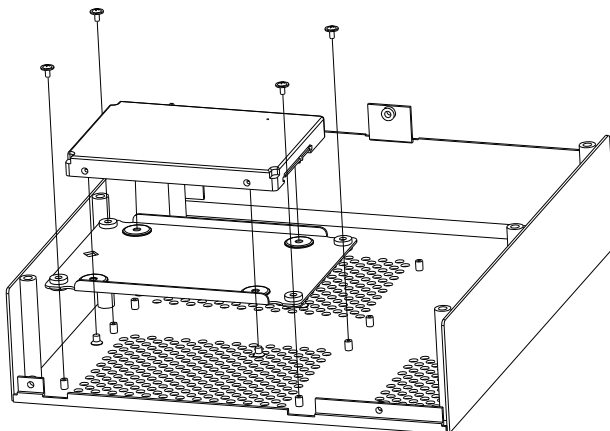
Step 3: Fasten the screws on the front and rear panels, and the brackets
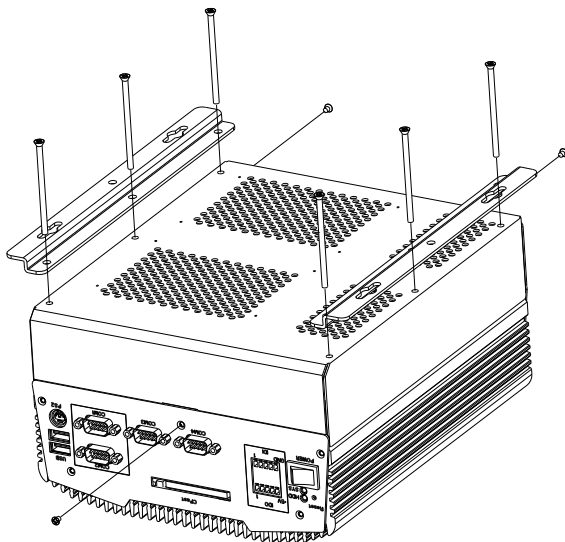
of AEC-6967

2.24 Memory Card Installation

Step 1: Unfasten the six screws on the bottom lid and three screws on the

front and rear panel
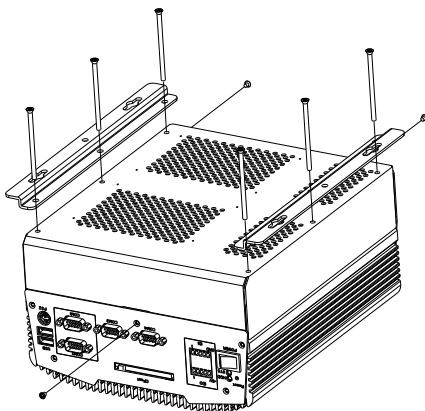
Step 2: Insert the RAM card to the memory slot

Thermal Pad
(1998F15003)
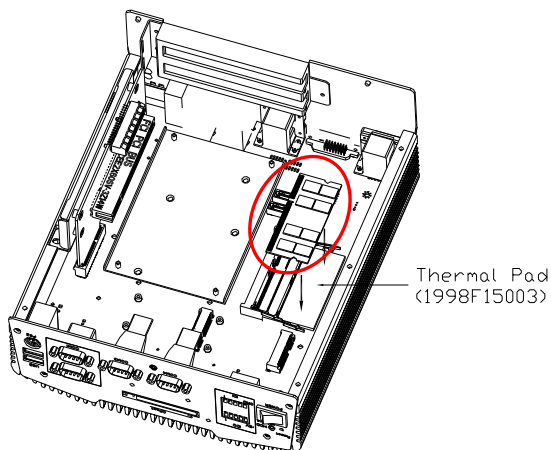
Step 3: Fasten the screws on the front and rear panels, and the brackets

of AEC-6967
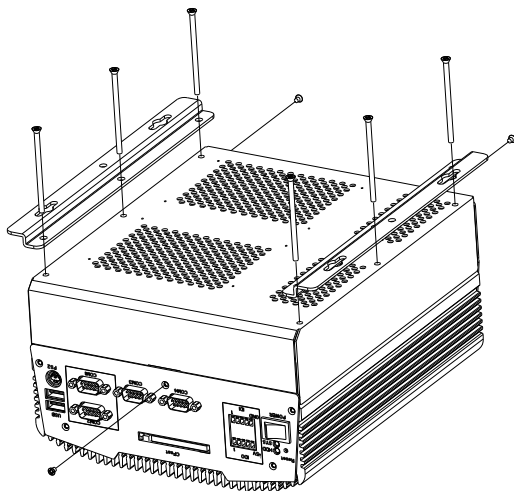
2.25 PCI Card Installation

Step 1: Unfasten the six screws on the bottom lid and the three screws on front and rear panels
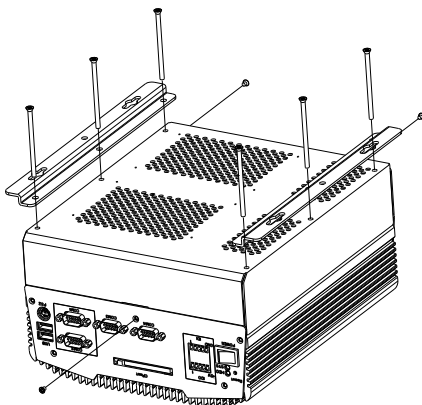
Step 2: Insert the PCI bracket and fasten the two screws to fix the PCI bracket
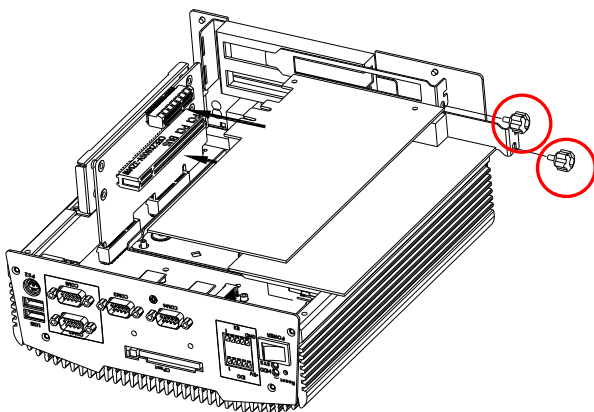
Step 3: Install a hold-down bracket to fix the PCI Card and make sure the

PCI Card installs properly.   Then, use two screws to fix the hold-down

bracket
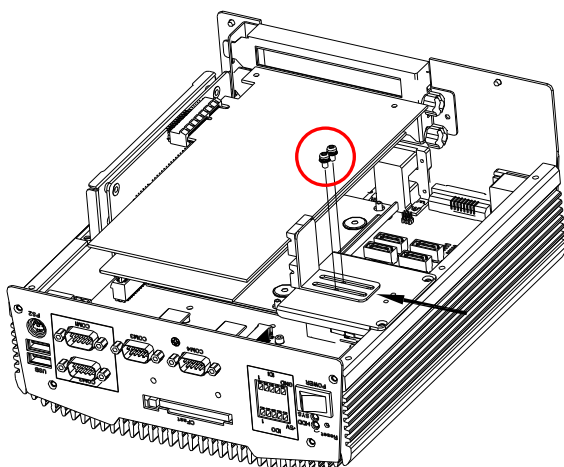
Step 4: Fasten the screws on the front and rear panels, and the brackets

of AEC-6967
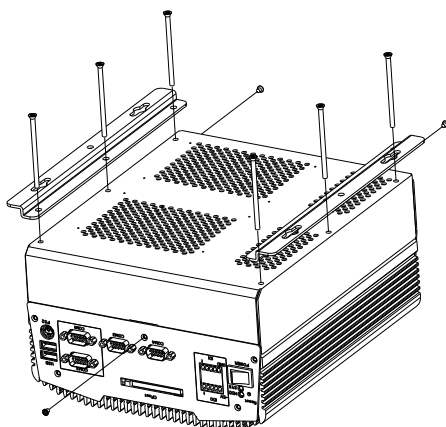
2.26 Wallmount Bracket Installation

Fasten the brackets with the appropriate screws.
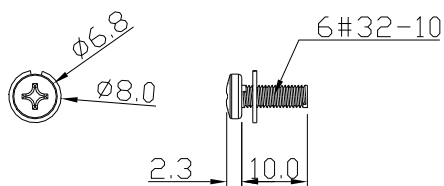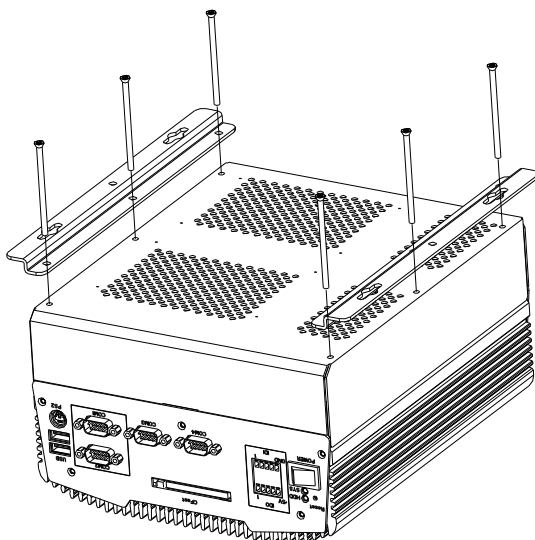
Chapter

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 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-6967 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.

Setup Menu

Setup submenu: Main

```
              Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
   Main  Advanced  Chipset  Boot  Security  Save & Exit

   BIOS Information                                   Set the Date. Use Tab to
      AEC-6967 R1.0(6967AM10) (08/07/2012)            switch between Data elements.

   BIOS Vendor                 American Megatrends
   Core Version                4.6.4.0
   Compliency                  UEFI 2.1

   System Date                 [Tue 08/07/2012]
   System Time                 [15:53:06]

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

              Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

Setup submenu: Advanced

```
               Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
      Main   Advanced   Chipset   Boot   Security   Save & Exit

  ▶ ACPI Settings                                      Configure Management Engine
  ▶ Trusted Computing                                  Technology Parameters
  ▶ CPU Configuration
  ▶ Digital IO
  ▶ SATA Configuration
  ▶ Intel TXT(LT) Configuation
  ▶ PCH-FW Configuration
  ▶ AMT Configuration
  ▶ USB Configuration
  ▶ Super IO Configuration
  ▶ H/W Monitor
                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



               Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

ACPI Settings

```
          Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
     Advanced
 ACPI Settings                                           Select the highest ACPI sleep
                                                         state the system will enter
 ACPI Sleep State                [S1 (CPU Stop Clock)]   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

            Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

Options Summary :

ACPI Sleep State	Suspend Disabled	
	S1 (CPU Stop Clock)	
	S3 (Suspend to RAM)	Default
Select the Highest ACPI sleep state the system will enter when the SUSPEND button is pressed.		

Trusted Computing

```
              Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
      Advanced

  TPM Configuration                                            Enables or Disables TPM
    TPM SUPPORT                        [Disable]               support. O.S. will not show
                                                               TPM. Reset of platform is
                                                               required.
  Current TPM Status Information
    TPM SUPPORT OFF



                                                               →←: 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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```

Option Summary :

TPM	Disable	Default
SUPPORT	Enable	
Enables or Disables TPM support. O.S. will not show TPM. Reset of platform is required.		

CPU Configuration

```
                Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
        Advanced

   CPU Configuration                                          When enabled, a VMM can
                                                              utilize the additional
   Intel(R) Celeron(R) CPU 827E @ 1.40GHz                     hardware capabilities provided
   CPU Signature                206a7                         by Vanderpool Technology
   Microcode Patch              25
   Max CPU Speed                1400 MHz
   Min CPU Speed                800 MHz
   Processor Cores              1
   Intel HT Technology          Not Supported
   Intel VT-x Technology        Supported
   Intel SMX Technology         Not Supported
   64-bit                       Supported

   L1 Data Cache                32 kB x 1                    →←: Select Screen
   L1 Code Cache                32 kB x 1                    ↑↓: Select Item
   L2 Cache                     256 kB x 1                   Enter: Select
   L3 Cache                     1536 kB                      +/-: Change Opt.
                                                             F1: General Help
   Intel Virtualization Technology    [Enabled]             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit



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```

Options Summary :

Intel Virtualization Technology	Disabled	
	Enabled	Default
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology		

Digital IO

```
             Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
      Advanced

 DIO_P#1                          [Input]                    Set GPIO Output as Hi or Low
 DIO_P#2                          [Input]
 DIO_P#3                          [Input]
 DIO_P#4                          [Input]
 DIO_P#5                          [Output]
   DIO_P#5 Direction              [Low]
 DIO_P#6                          [Output]
   DIO_P#6 Direction              [Low]
 DIO_P#7                          [Output]
   DIO_P#7 Direction              [Low]
 DIO_P#8                          [Output]
   DIO_P#8 Direction              [Low]

                                                             →←: 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 :

DIO_P#1	Input	Default
DIO_P#2	Input	Default
DIO_P#3	Input	Default
DIO_P#4	Input	Default
DIO_P#5	Output	Default
DIO_P#5 Direction	Low	Default
	Hi	
DIO_P#6	Output	Default
DIO_P#6 Direction	Low	Default

	Hi	
DIO_P#7	Output	Default
DIO_P#7 Direction	Low	Default
	Hi	
DIO_P#8	Output	Default
DIO_P#8 Direction	Low	Default
	Hi	
Set GPIO Output as Hi or Low		

SATA Configuration (IDE)

```
          Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
      Advanced

   SATA Controller(s)              [Enabled]              Enable or disable SATA Device.
   SATA Mode Selection             [IDE]

   Serial ATA Port 0               Empty
   Serial ATA Port 1               Empty
   Serial ATA Port 2               Empty
   Serial ATA Port 3               Empty
   Serial ATA Port 4               Empty




                                                          →←: 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 :

SATA Controller(s)	Enabled	Default
	Disabled	
Enable or disable SATA Device.		
SATA Mode Selection	IDE	Default
	AHCI	
	RAID	
Determines how SATA controller(s) operate.		

IDE Configuration (AHCI)

```
          Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
     Advanced

   SATA Controller(s)                 [Enabled]            Determines how SATA
   SATA Mode Selection                [AHCI]               controller(s) operate.

   Serial ATA Port 0                  Empty
     Hot Plug                         [Disabled]
   Serial ATA Port 1                  Empty
     Hot Plug                         [Disabled]
   Serial ATA Port 2                  Empty
     Hot Plug                         [Disabled]
   Serial ATA Port 3                  Empty
     Hot Plug                         [Disabled]
   Serial ATA Port 4                  Empty
     Hot Plug                         [Disabled]
                                                           ↔: 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 :

SATA Controller(s)	Disabled	
	Enabled	Default
Enable or Disable SATA Port.		
SATA Mode	IDE	
	AHCI	Selected
	RAID	
Determines how SATA controller(s) operate.		
SATA Port 0 Hot Plug	Disable	Default
	Enabled	
Designates this port as Hot Pluggable.		
SATA Port 1 Hot Plug	Disable	Default
	Enabled	
Designates this port as Hot Pluggable.		
SATA Port 2 Hot Plug	Disable	Default
	Enabled	

Designates this port as Hot Pluggable.		
SATA Port 3 Hot Plug	Disable	Default
	Enabled	
Designates this port as Hot Pluggable.		
SATA Port 4 Hot Plug	Disable	Default
	Enabled	
Designates this port as Hot Pluggable.		

IDE Configuration (RAID)

```
            Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
        Advanced

    SATA Controller(s)              [Enabled]              Determines how SATA
    SATA Mode Selection             [RAID]                 controller(s) operate.

    Serial ATA Port 0               Empty
      Hot Plug                      [Disabled]
    Serial ATA Port 1               Empty
      Hot Plug                      [Disabled]
    Serial ATA Port 2               Empty
      Hot Plug                      [Disabled]
    Serial ATA Port 3               Empty
      Hot Plug                      [Disabled]
    Serial ATA Port 4               Empty
      Hot Plug                      [Disabled]
                                                           →←: 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 :

SATA Controller(s)	Disabled	
	Enabled	Default
Enable or Disable SATA Port.		
SATA Mode	IDE	
	AHCI	Selected
	RAID	
Determines how SATA controller(s) operate.		
SATA Port 0 Hot Plug	Disable	Default
	Enabled	
Designates this port as Hot Pluggable.		
SATA Port 1 Hot Plug	Disable	Default
	Enabled	
Designates this port as Hot Pluggable.		
SATA Port 2 Hot Plug	Disable	Default
	Enabled	

Designates this port as Hot Pluggable.		
SATA Port 3 Hot Plug	Disable	Default
	Enabled	
Designates this port as Hot Pluggable.		
SATA Port 4 Hot Plug	Disable	Default
	Enabled	
Designates this port as Hot Pluggable.		

Intel TXT(LT) Configuration

```
                  Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
          Advanced

    Intel Trusted Execution Technology Configuration

    Intel TXT support only can be enabled/disabled if SMX
    enabled. And must enables the VT support prior to TXT.

    Secure Mode Extensons (SMX)            [Disabled]
    Intel TXT(LT) Support                  [Disabled]




                                                              →←: 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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```

PCH-FW Configuration

```
          Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
     Advanced

   ME FW Version                7.1.40.1161          Configure Management Engine
   ME Firmware Mode             Normal Mode          Technology Parameters
   ME Firmware Type             Full Sku Firmware
   ME Firmware SKU              5MB
 ▶ Firmware Update Configuration




                                                     →←: 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 :

Firmware Update Configuration	Configure Management Engine Technology Parameters.

Firmware Update Configuration

```
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    Advanced

  Me FW Image Re-Flash                 [Disabled]              Enable/Disable Me FW Image
                                                              Re-Flash function.


















                                                              ++: 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 :

Me FW Image Re-Flash	Disabled	Default
	Enabled	
Enable/Disable Me FW Image Re-Flash function.		

AMT Configuration

```
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      Advanced

 Intel AMT                         [Enabled]              Enable/Disable Intel (R)
 Un-Configure ME                   [Disabled]             Active Management Technology
                                                          BIOS Extension.
                                                          Note : iAMT H/W is always
                                                          enabled.
                                                          This option just controls the
                                                          BIOS extension execution.
                                                          If enabled, this requires
                                                          additional firmware in the SPI
                                                          device


                                                          ↔: 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 :

Intel AMT	Disabled	
	Enabled	Default
Enable/Disable Intel (R) Active Management Technology BIOS Extension. Note: iAMT H/W is always enabled. This option just controls the BIOS extension execution. If enabled, this requires additional firmware in the SPI device		
Un-Configure ME	Disabled	Default
	Enabled	
OEMFlag Bit 15: Un-Configure ME without password.		

USB Configuration

```
          Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
      Advanced

   USB Configuration                                      Enables Legacy USB support.
                                                          AUTO option disables legacy
   USB Devices:                                           support if no USB devices are
       1 Drive, 1 Keyboard, 1 Mouse, 2 Hubs               connected. DISABLE option will
                                                          keep USB devices available
   Legacy USB Support                 [Enabled]           only for EFI applications.

   Mass Storage Devices:
   USB 2.0 SD/MMC Reader             [Auto]



                                                          ↔: 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 :

Legacy USB Support	Enabled	Default
	Disabled	
	Auto	
Enable Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.		

Super IO Configuration

```
              Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
        Advanced

    Super IO Configuration                                     Set Parameters of Serial Port
                                                               1 (COMA)
    Super IO Chip                    F81866
  ▶ Serial Port 1 Configuration
  ▶ Serial Port 2 Configuration
  ▶ Serial Port 3 Configuration
  ▶ Serial Port 4 Configuration
  ▶ Serial Port 5 Configuration
  ▶ Serial Port 6 Configuration

    Power Saving Function            [Disabled]


                                                               ++: 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 :

Power Saving	Disabled	Default
Function	Enabled	
Enable to reduce power consumption is system off state. When Enabled, only power button can power-up system.		

Serial Port 1 Configuration

```
           Aptio Setup Utility – Copyright (C) 2010 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
                                                                ↑↓: 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
Enable or Disable serial Port (COM)		
Change Settings (Serial Port 1)	Auto	Default
	IO=3F8h; IRQ=4;	
	IO=3F8h; IRQ=3,4;	
	IO=2F8h; IRQ=3,4'	
	IO=3E8h; IRQ=3,4;	
	IO=2E8h; IRQ=3,4;	
Select an optimal setting for Super IO device.		

Serial Port 2 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
                                                                 ↑↓: 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	Enabled	Default
	Disabled	
Enable or Disable Serial Port (COM)		
Change Settings	Auto	Default
	IO=2F8h; IRQ=3;	
	IO=3F8h; IRQ=3,4;	
	IO=2F8h; IRQ=3,4'	
	IO=3E8h; IRQ=3,4;	
	IO=2E8h; IRQ=3,4;	
Select an optimal setting for Super IO device.		

Serial Port 3 Configuration

```
              Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
        Advanced

    Serial Port 3 Configuration                              Enable or Disable Serial Port
                                                             (COM)
    Serial Port                        [Enabled]
    Device Settings                    IO=3E8h; IRQ=5;

    Change Settings                    [Auto]




                                                             →←: 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 :

Serial Port	Enabled	Default
	Disabled	
Enable or Disable Serial Port (COM)		
Change Settings	Auto	Default
	IO=3E8h; IRQ=5;	
	IO=2E8h; IRQ=5;	
	IO=2D0h; IRQ=5'	
	IO=2D8h; IRQ=5;	
Select an optimal setting for Super IO device.		

Serial Port 4 Configuration

```
         Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
    Advanced

   Serial Port 4 Configuration                              Enable or Disable Serial Port
                                                            (COM)
   Serial Port                        [Enabled]
   Device Settings                    IO=2E8h; IRQ=5;

   Change Settings                    [Auto]



                                                            →←: 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 :

Serial Port	Enabled	Default
	Disabled	
Enable or Disable Serial Port (COM)		
Change Settings	Auto	Default
	IO=2E8h; IRQ=5;	
	IO=3E8h; IRQ=5;	
	IO=2D0h; IRQ=5;	
	IO=2D8h; IRQ=5;	
Select an optimal setting for Super IO device.		

Serial Port 5 Configuration

```
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        Advanced

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

   Change Settings                    [Auto]



                                                            ↔: 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 :

Serial Port	Enabled	Default
	Disabled	
Enable or Disable Serial Port (COM)		
Change Settings	Auto	Default
	IO=2D0h; IRQ=5;	
	IO=3E8h; IRQ=5;	
	IO=2E8h; IRQ=5;	
	IO=2D8h; IRQ=5;	
Select an optimal setting for Super IO device.		

Serial Port 6 Configuration

```
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       Advanced

   Serial Port 6 Configuration                          Enable or Disable Serial Port
                                                        (COM)
   Serial Port                       [Enabled]
   Device Settings                   IO=2D8h; IRQ=5;

   Change Settings                   [Auto]



                                                        →←: 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 :

Serial Port	Enabled	Default
	Disabled	
Enable or Disable Serial Port (COM)		
Change Settings	Auto	Default
	IO=2D8h; IRQ=5	
	IO=3E8h; IRQ=5;	
	IO=2E8h; IRQ=5;	
	IO=2D0h; IRQ=5;	
Select an optimal setting for Super IO device.		

H/W Monitor

```
              Aptio Setup Utility — Copyright (C) 2010 American Megatrends, Inc.
        Advanced

  Pc Health Status

  PCH Outside Temperature          : +39 %
  CPU Outside Temperature          : +41 %
  CPU Inside Temperature           : +32 %
  PCH Inside Temperature           : +43 %
  VCC_CORE                         : +0.976 V
  V5A_DUAL                         : +5.080 V
  V5S                              : +5.080 V
  V12S                             : +11.792 V
  VSB5V                            : +5.304 V
  VCC3V                            : +3.392 V
  VSB3V                            : +3.376 V
  VBAT                             : +3.344 V                 ↔: 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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```
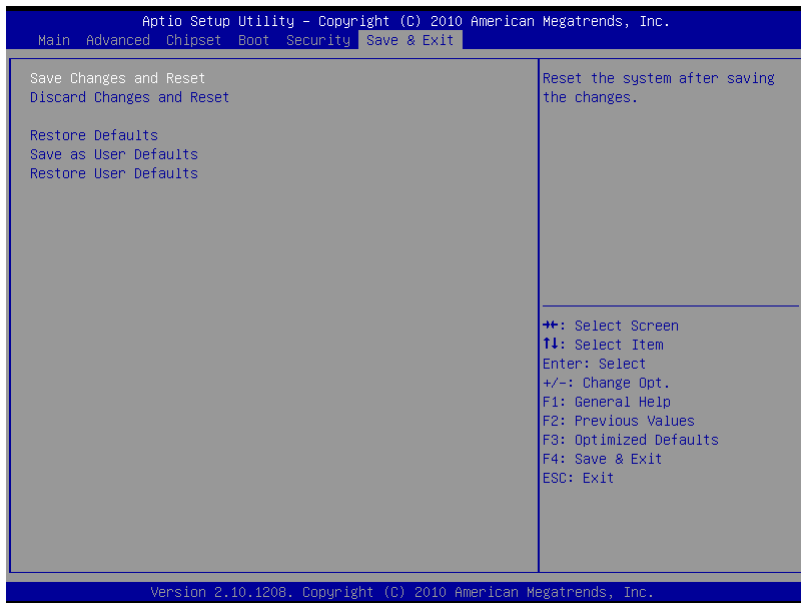
Setup submenu: Chipset

```
                    Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
      Main   Advanced   Chipset   Boot   Security   Save & Exit

  ▶ System Agent (SA) Configuration                              System Agent (SA) Parameters
  ▶ PCH-IO Configuration




                                                                ➔←: 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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```

System Agent (SA) Configuration

```
Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
                   Chipset

 VT-d Capability              Unsupported            Config Graphics Settings.
 Memory Frequency             1333 Mhz
 Total Memory                 2048 MB (DDR3)
 DIMM#0                       Not Present
 DIMM#2                       2048 MB (DDR3)

▶ Graphics Configuration




                                                    ↔: 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 :

Graphics Configuration	Config Graphics Settings.

Graphics Configuration

```
          Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
             Chipset

  Graphics Configuration                                    Keep IGD enabled based on the
                                                            setup options.
  Internal Graphics                    [Auto]
  DVMT Pre-Allocated                   [64M]
  DVMT Total Gfx Mem                   [MAX]

▶ Display Control






                                                            ➜←: 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 :

Internal Graphics	Auto	Default
	Disabled	
	Enabled	
Keep IGD enabled based on the setup options.		
DVMT Pre-Allocated	0M	
	32M	
	64M	Default
	96M	
	128M	
	160M	
	192M	
	224M	
	256M	
	288M	
	320M	

	352M	
	384M	
	416M	
	448M	
	480M	
	512M	
Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.		
DVMT Total Gfx Men	128M	
	256M	
	MAX	Default
Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.		

Display Control

```
         Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
                   Chipset

 Display Control                                          Select the Video Device during
                                                          POST and DOS.
 Boot Display Select              [VBIOS Default]         This has no effect if external
                                                          graphics present.




                                                          ↔: 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 :

Boot Display Select	VBIOS Default	Default
	CRT	
	HDMI	
	DVI	
Select the Video Device during POST and DOS. This has no effect if external graphics present.		

PCH-IO Configuration

```
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                    Chipset

   PCH-IO Configuration                                      Select power supply mode.

   Power Mode                        [ATX Type]
   Restore AC Power Loss             [Last State]

   Azalia                            [Auto]
     Azalia Internal HDMI Codec      [Enabled]
       Azalia HDMI codec Port B      [Disabled]
       Azalia HDMI codec Port C      [Enabled]
       Azalia HDMI codec Port D      [Disabled]

   PCH LAN Controller                [Enabled]
     Wake on LAN                     [Enabled]              →←: Select Screen
                                                            ↑↓: Select Item
   OnBoard LAN 2                     [Enabled]              Enter: Select
   PCIe Mini-Card 1                  [Enabled]              +/-: Change Opt.
   PCIe Mini-Card 2                  [Enabled]              F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit



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```

Options Summary :

Power Mode	ATX Type	Default
	AT Type	
Select power supply mode.		
Restore AC Power Loss	Power off	
	Power on	
	Last State	Default
Select AC power state when power is re-applied after a power failure.		
Azalia	Disabled	
	Enabled	
	Auto	Default

Control Detection of the Azalia device.		
Disabled = Azalia will be unconditionally disabled		
Enabled = Azalia will be unconditionally Enabled		
Auto = Azalia will be enabled if present, disabled otherwise.		
Azalia Internal HDMI Codec for Azalia	Disabled	
	Enabled	Default
Enable or disable internal HDMI codec for Azalia.		
Azalia HDMI codec Port B	Disabled	Default
	Enabled	
Enable or disable internal HDMI codec Port for Azalia.		
Azalia HDMI codec Port C	Disabled	
	Enabled	Default
Enable or disable internal HDMI codec Port for Azalia.		
Azalia HDMI codec Port D	Disabled	Default
	Enabled	
Enable or disable internal HDMI codec Port for Azalia.		
PCH LAN Controller	Enabled	Default
	Disabled	
Enable or disable onboard NIC.		
Wake on LAN	Enabled	Default
	Disabled	
Enable or disable integrated LAN to wake the system.		
OnBoard LAN 2	Disabled	
	Enabled	Default
OnBoard LAN 2 RTL8111E LAN En/Disable Control		
PCIe Mini-Card 1	Disabled	
	Enabled	Default
Enable / Disable PCIe Mini-Card 1		
PCIe Mini-Card 2	Disabled	
	Enabled	Default
Enable / Disable PCIe Mini-Card 2		

Setup submenu: Boot

```
                Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
      Main   Advanced  Chipset   Boot  Security  Save & Exit

   Boot Configuration                                           Enables or disables Quiet Boot
   Quiet Boot                         [Enabled]                 option
   Launch I82579LM PXE OpROM          [Disabled]
   Launch RTL8111E PXE OpROM          [Disabled]

   Boot Option Priorities
   Boot Option #1                     [UEFI: USB 2.0 SD/M...]
   Boot Option #2                     [USB 2.0 SD/MMC Rea...]

   Hard Drive BBS Priorities

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


                Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

Options Summary :

Quiet Boot	Disabled	
	Enabled	Default
Enables or disables Quiet Boot option		
Launch I82579LM PXE OpROM	Disabled	Default
	Enabled	
Enable or Disable Legacy Boot Option for I82579LM.		
Launch RTL8111E PXE OpROM	Disabled	Default
	Enabled	
Enable or Disable Legacy Boot Option for RTL8111E		
Boot options #X	Your storage/disk devices	
Sets the system boot order		

Hard Drives BBS Priorities

```
        Aptio Setup Utility — Copyright (C) 2010 American Megatrends, Inc.
                              Boot

  Boot Option #1                    [USB 2.0 SD/MMC Rea...]    Sets the system boot order












                                                              ↔: 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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```

Submenu: Security

```
              Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
     Main  Advanced  Chipset  Boot  Security  Save & Exit

    Password Description                              Set Setup Administrator
                                                      Password
    If ONLY the Administrator's password is set,
    then this only limits access to Setup and is
    only asked for when entering Setup.
    If ONLY the User's password is set, then this
    is a power on password and must be entered to
    boot or enter Setup. In Setup the User will
    have Administrator rights.
    The password must be 3 to 20 characters long.


    Administrator Password
    User Password                                     �→←: 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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```

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.

Embedded Controller　　**A E C - 6 9 6 7**

Setup submenu: Exit

```
            Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
   Main  Advanced  Chipset  Boot  Security  Save & Exit

  Save Changes and Reset                            Reset the system after saving
  Discard Changes and Reset                         the changes.

  Restore Defaults
  Save as User Defaults
  Restore User Defaults




                                                    →←: 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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```

Chapter

4

Driver
Installation

.

The AEC-6967 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 Audio Driver

        Step 4 – Install LAN Driver

        Step 5 – Install ME Driver

        Step 6 – Install RAID & AHCI Driver

        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-6967 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 double click on
   the ***infinst_autol.exe*** file
2. Follow the instructions that the window shows
3. 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

<u>**Note 1:**</u>
● 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.

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

dotNet Framwork folder.

Step 3 –Install Audio Driver

1. Click on the *STEP3-AUDIO* folder and select the OS folder
   your system is
2. Double click on the *.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 4 –Install LAN Driver

1. Click on the *STEP4-LAN* folder and select the folder of
   intel_82579 or *realtek_8111E* based on the LAN chipset in
   your system.
2. Select the OS folder your system is located in the chipset
   folder, then double click on *.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 5 – Install ME Driver

1. Click on the *STEP5-ME* folder and double click on the
   setup.exe file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 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 double click on the
       Setup.exe file

    2. Follow the instructions that the window shows

    3. The system will help you install the driver automatically

Step 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.
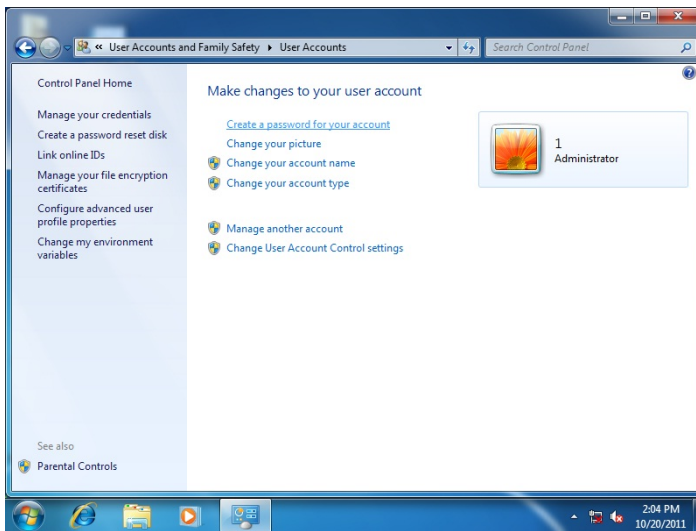
2. Change User Account Control Settings to [Never notify]
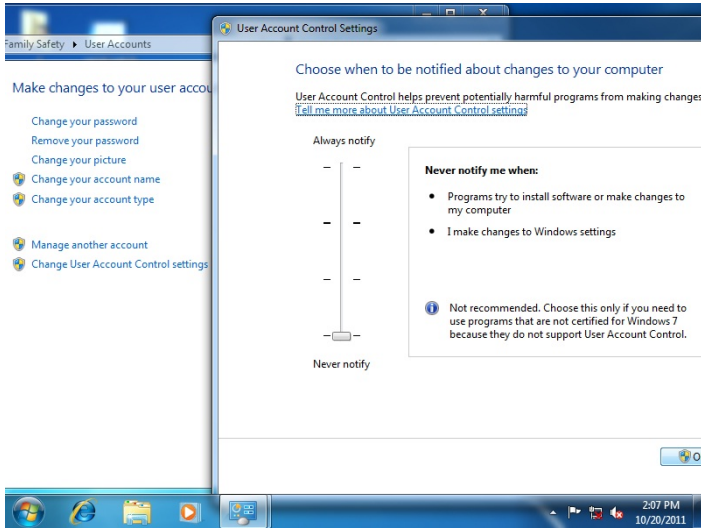
3. Reboot and Administrator login.
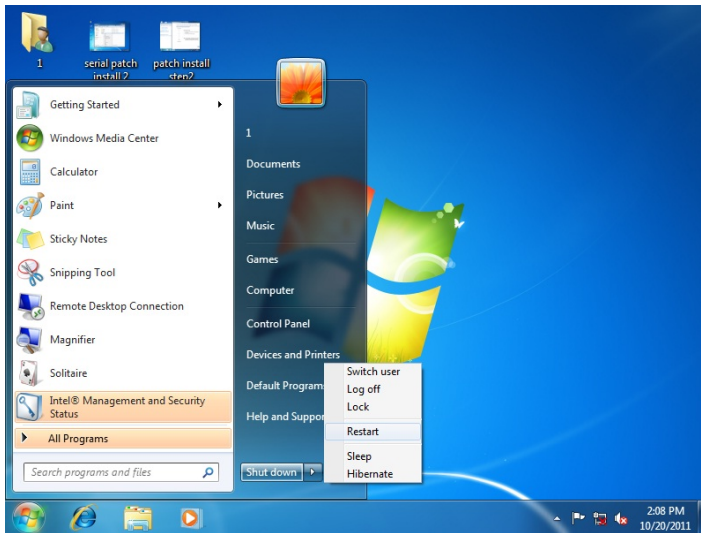
4. To run patch.bat with [Run as administrator].
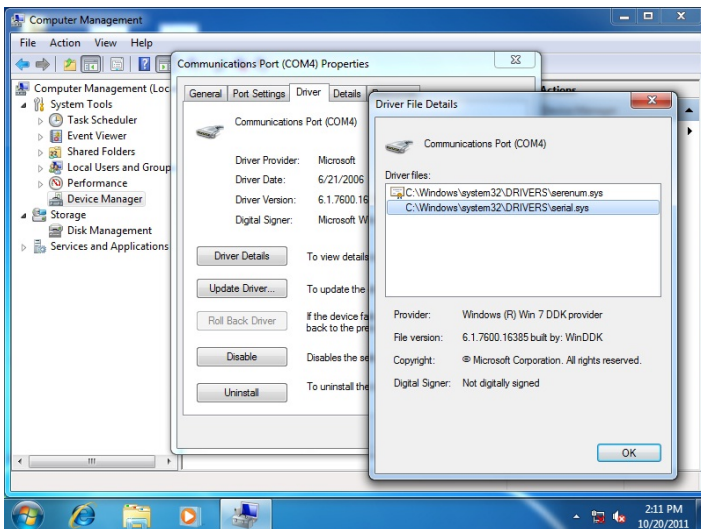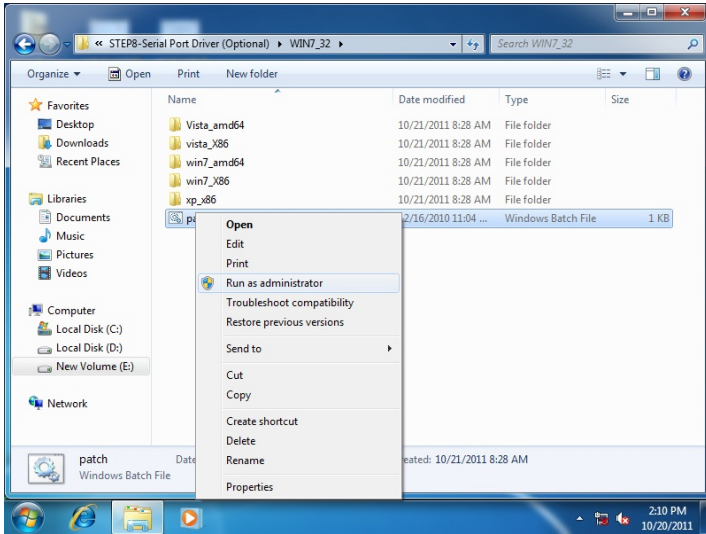
Appendix

A

Programming the Watchdog Timer

A.1 Watchdog Timer Initial Program

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

Table 2 : Watchdog relative register table					
	LDN	**Register**	**BitNum**	**Value**	**Note**
Timer Counter	**0x07** (Note3)	**0xF6** (Note4)		(Note24)	Time of watchdog timer (0~255) This register is byte access
Counting Unit	**0x07** (Note5)	**0xF5** (Note6)	**3** (Note7)	**0**(Note8)	Select time unit. 0: second 1: minute
Watchdog Enable	**0x07** (Note9)	**0xF5** (Note10)	**5** (Note11)	**1** (Note12)	0: Disable 1: Enable
Timeout Status	**0x07** (Note13)	**0xF5** (Note14)	**6** (Note15)	**1**	1:Clear timeout status
Output Mode	**0x07** (Note16)	**0xF5** (Note17)	**4** (Note18)	**1** (Note19)	Select WDTRST# output mode 0: level 1: pulse
WDTRST output	**0x07** (Note20)	**0xFA** (Note21)	**0** (Note22)	**1**(Note23)	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 procudure 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 - 00000CF7] PCI bus
- [00000D00 - 0000FFFF] PCI bus

B.2 Memory Address Map

Memory
- [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 - 201FFFFF] System board
- [40000000 - 401FFFFF] System board
- [7DA00000 - FEAFFFFF] PCI bus
- [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] System board
- [FED45000 - FED8FFFF] Motherboard resources
- [FED90000 - FED93FFF] Motherboard resources
- [FEE00000 - FEEFFFFF] Motherboard resources
- [FF000000 - FFFFFFFF] Intel(R) 82802 Firmware Hub Device

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 (COM3)
    ▽ (ISA) 0x00000005 (05)    Communications Port (COM4)
    ▽ (ISA) 0x00000005 (05)    Communications Port (COM5)
    ▽ (ISA) 0x00000005 (05)    Communications Port (COM6)
    ▗▙ (ISA) 0x00000008 (08)    System CMOS/real time clock
    🖱 (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) 0x0000000B (11)	Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22	
(PCI) 0x00000010 (16)	Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2D	
(PCI) 0x00000010 (16)	Intel(R) Management Engine Interface	
(PCI) 0x00000013 (19)	Standard Dual Channel PCI IDE Controller	
(PCI) 0x00000013 (19)	Standard Dual Channel PCI IDE Controller	
(PCI) 0x00000016 (22)	High Definition Audio Controller	
(PCI) 0x00000017 (23)	Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C26	
(PCI) 0xFFFFFFF8 (-8)	Realtek PCIe GBE Family Controller #8	
(PCI) 0xFFFFFFF9 (-7)	Intel(R) 82579LM Gigabit Network Connection #2	
(PCI) 0xFFFFFFFA (-6)	Intel(R) HD Graphics	
(PCI) 0xFFFFFFFB (-5)	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12	
(PCI) 0xFFFFFFFC (-4)	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 1 - 1C10	
(PCI) 0xFFFFFFFD (-3)	PCI Express standard Root Port	
(PCI) 0xFFFFFFFE (-2)	PCI Express standard Root Port	

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 the Driver CD: STEP 6 -
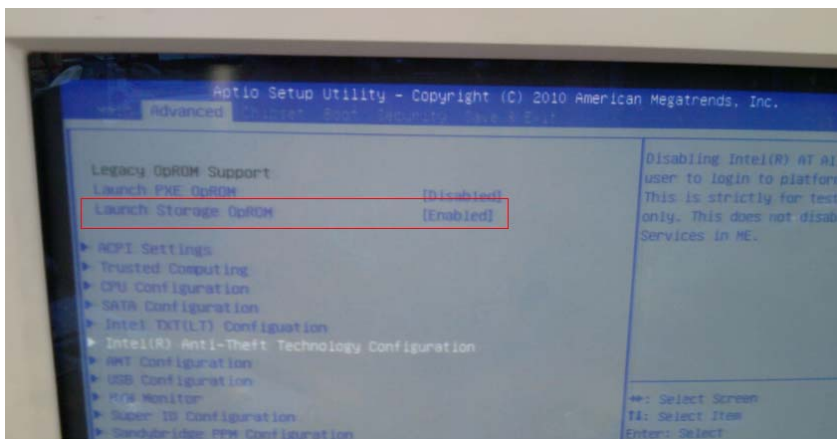
RAID&AHCI\WINXP_32 to Disk.

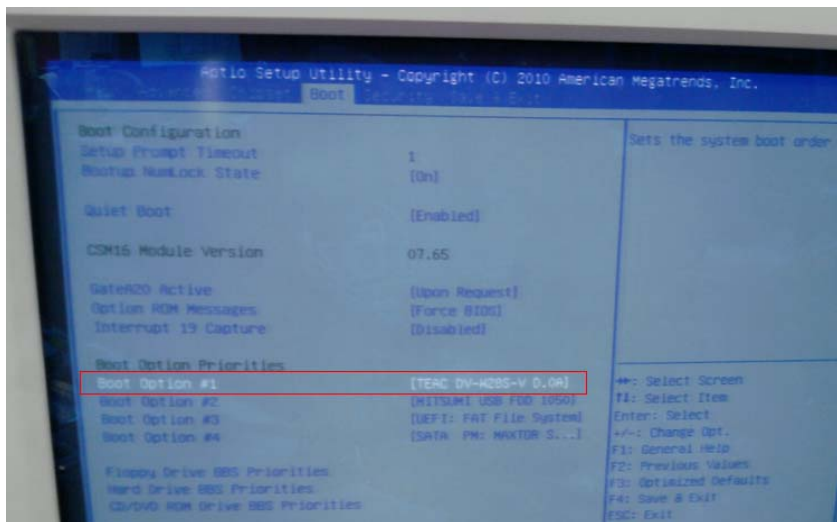Step 2: Connect the USB Floppy (Disk with the RAID&AHCI files) to

the board.
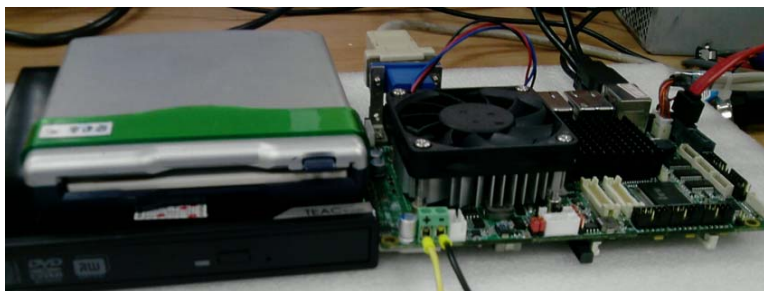
Step 3: The setting procedures "**In BIOS Setup Menu**": Select
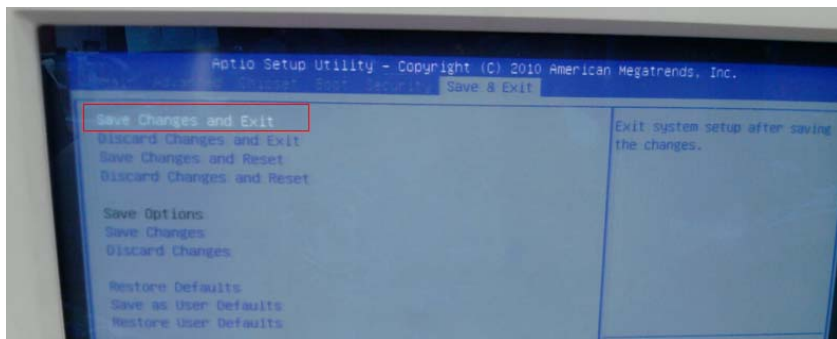**Advanced -> SATA Configuration -> SATA Mode Selection ->**
RAID
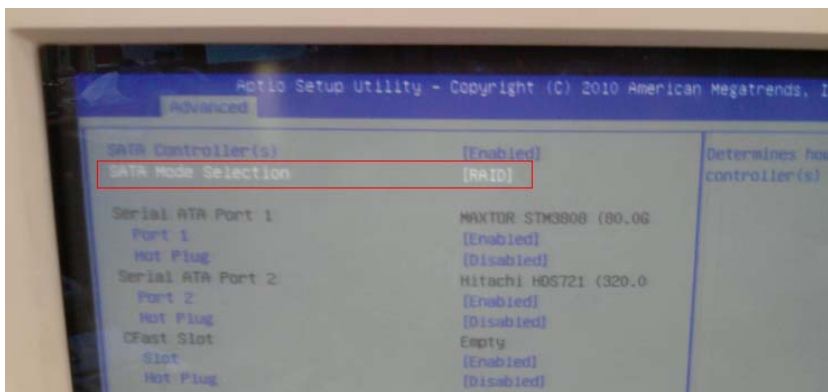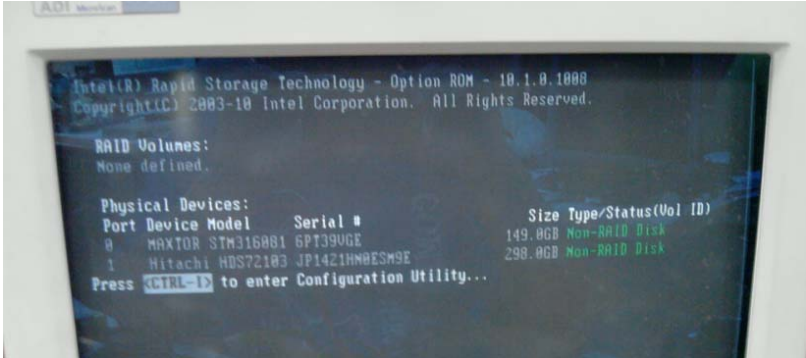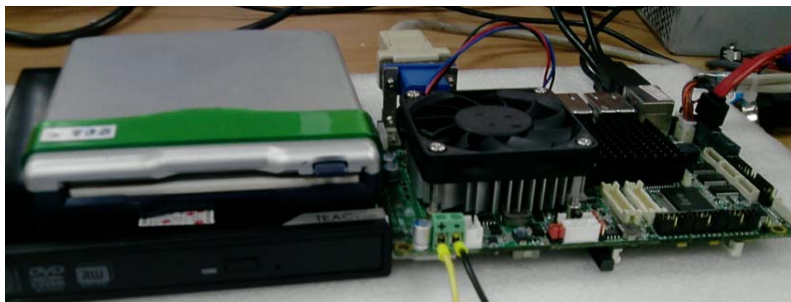

Step 4: Select **Advanced** -> **Launch Storage OpROM** -> **Enabled**

Step 5: Select **Boot** -> **Boot Option #1** -> **DVD ROM Type**

Step 6: Select **Save & Exit** -> **Save Changes and Exit**

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

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

Step 9: Select **RAID Level -> RAID0(Stripe)**

Step 10: Select "**Create Volume**"
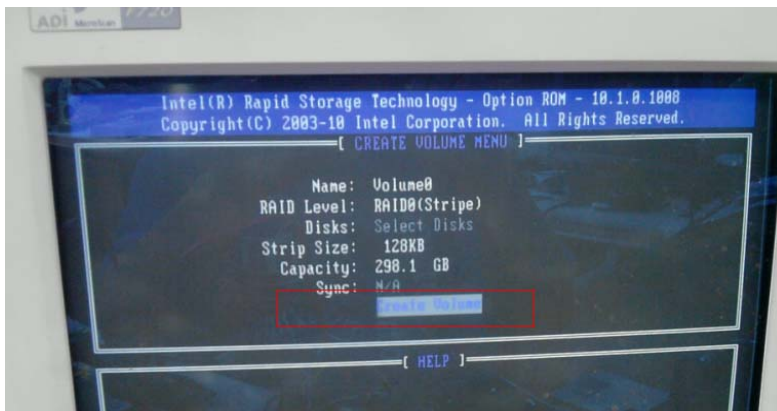
Step 11: Type "**Y**" for confirmation

Step 12: Select "**5. Exit**"
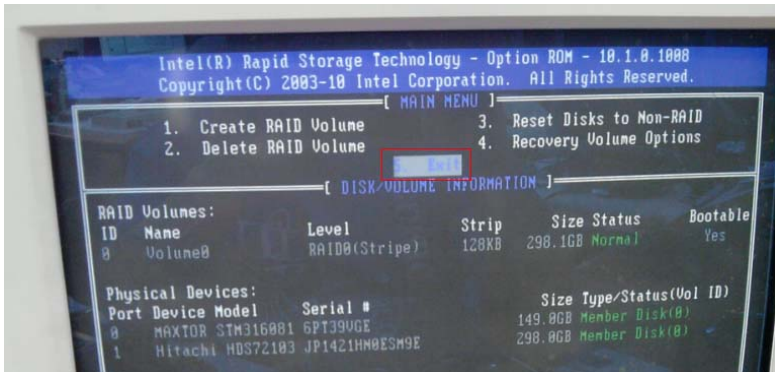
Step 13: Choose "**Y**"

Step 14: Setup OS

Step 15: Press "**F6**"

Step 16: Choose "**S**"
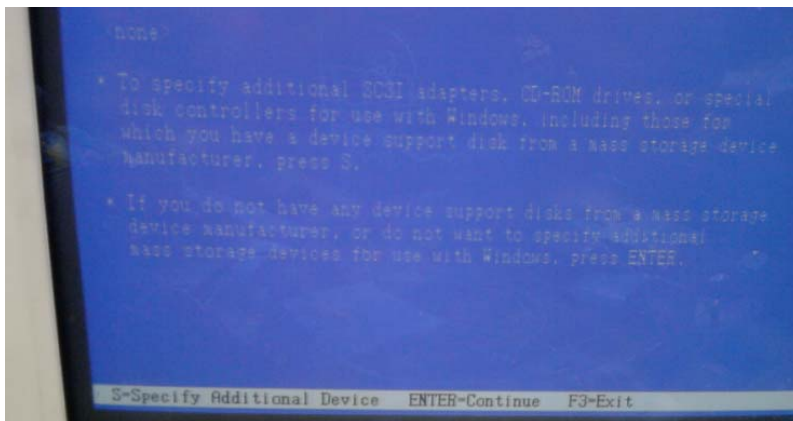
Step 17: Select the "**Intel® Mobile Express Chipset SATA RAID Controller**"
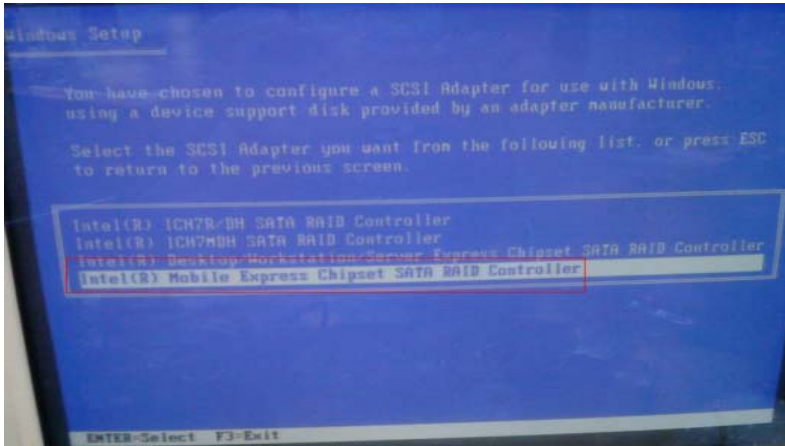
Step 18: Select "ENTER" after choosing the model number.
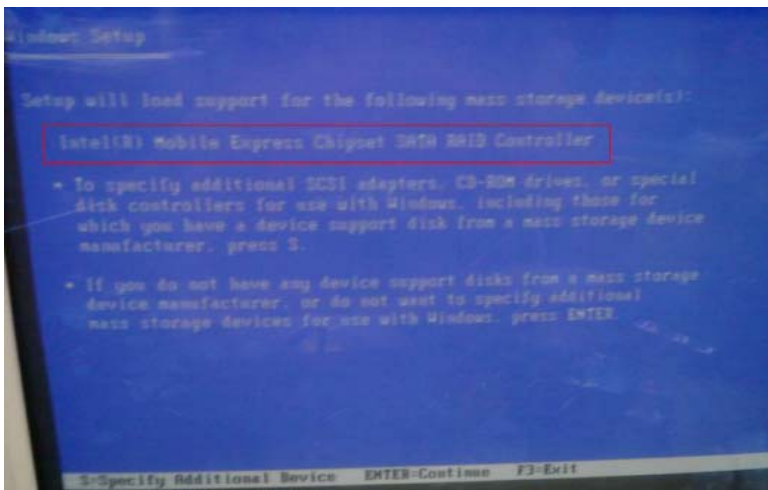
Step 19: Setup is loading files.
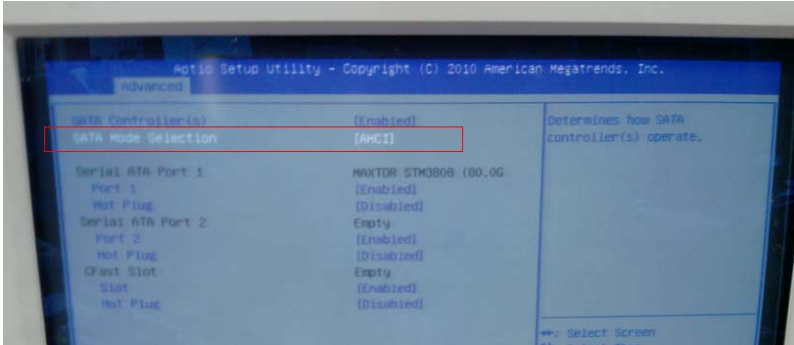
C.2 Setting AHCI

OS Installation to Setup AHCI mode

Step 1: Copy the files below from the Driver CD: STEP 6 -
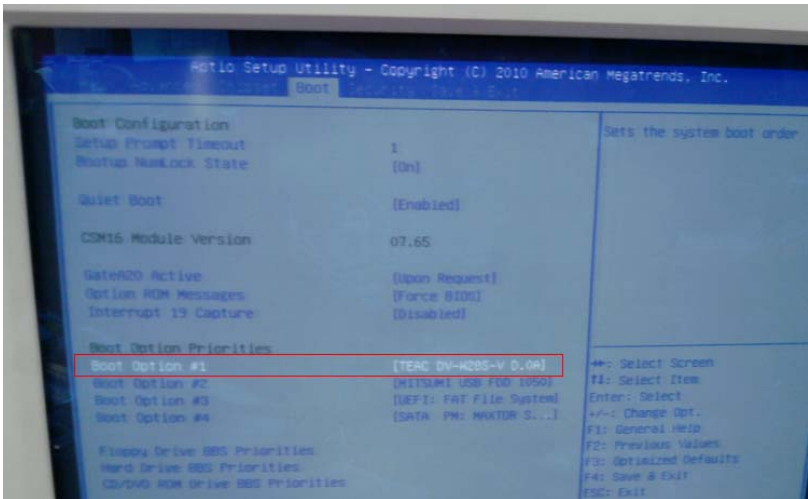
RAID&AHCI\WINXP_32 to Disk.

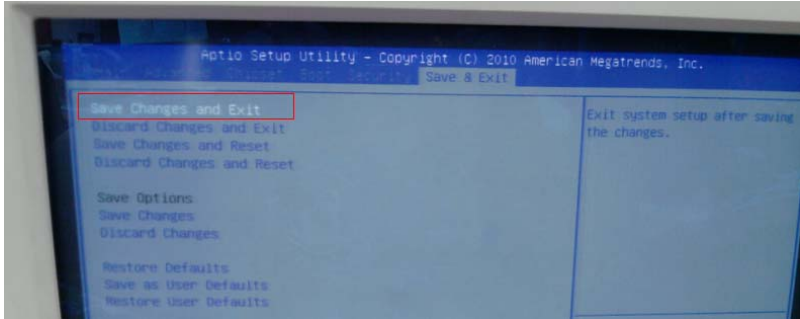Step 2: Connect the USB Floppy Disk with the RAID&AHCI files to

the board.

Step 3: To install **"In BIOS Setup Menu"**, select **Advanced** ->

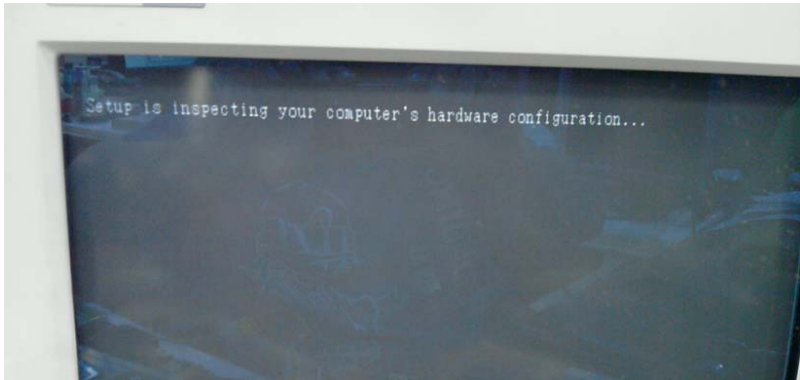**SATA Configuration** -> **SATA Mode Selection** -> **AHCI**

Step 4: Next, select **Boot** -> **Boot Option #1** -> **DVD ROM**

Type

Step 5: To save, select **Save & Exit** -> **Save Changes and Exit**
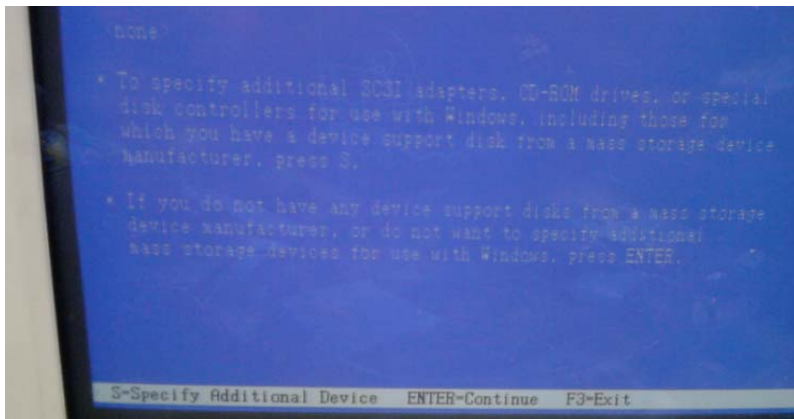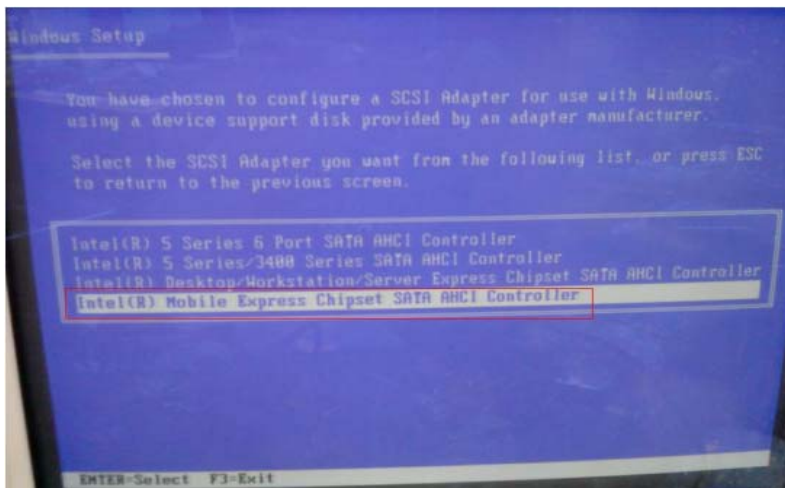

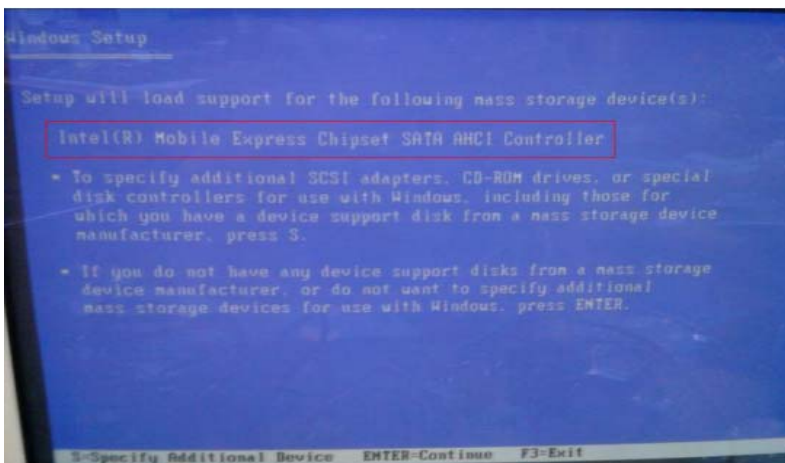Step 6: Setup OS

Step 7: Press "**F6**"

Step 8: Choose "**S**"

Step 9: Choose "Intel® Mobile Express Chipset SATA AHCI

Controller

Step 10: Select "ENTER" to choose the model number

Step 11: Setup is loading files

Appendix

D

Electrical Specifications for I/O Ports

D.1 DIO Programming

AEC-6967 utilizes FINTEK F81866 chipset as its Digital I/O controller.

Below are the procedures to complete its configuration and the AAEON initial watchdog timer program is also attached based on which you can develop customized program to fit your application. 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.(These three steps are the same as programming WDT)

Please be noted, the Isolation protection DIO is fixed 4 Input / 4 Output type.

DIO_P#1~4 : Input

DIO_P#5~8 : Output

D.2 Digital I/O Register

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

Table 2 : Digital Input relative register table					
	LDN	**Register**	**BitNum**	**Value**	**Note**
DIO_P#1 Pin Status	**0x06**(Note3)	**0x8A**(Note4)	**0**(Note5)		GPIO80
DIO_P#2 Pin Status	**0x06**(Note6)	**0x8A**(Note7)	**1**(Note8)		GPIO81
DIO_P#3 Pin Status	**0x06**(Note9)	**0x8A**(Note10)	**2**(Note11)		GPIO82
DIO_P#4 Pin Status	**0x06**(Note12)	**0x8A**(Note13)	**3**(Note14)		GPIO83
DIO_P#5 Pin Status	**0x06**(Note15)	**0x8A**(Note16)	**4**(Note17)		GPIO84
DIO_P#6 Pin Status	**0x06**(Note18)	**0x8A**(Note19)	**5**(Note20)		GPIO85
DIO_P#7 Pin Status	**0x06**(Note21)	**0x8A**(Note22)	**6**(Note23)		GPIO86
DIO_P#8 Pin Status	**0x06**(Note24)	**0x8A**(Note25)	**7**(Note26)		GPIO87

Table 3 : Digital Output relative register table					
	LDN	**Register**	**BitNum**	**Value**	**Note**
DIO_P#5 Output Data	**0x06**(Note43)	**0x89**(Note44)	**4**(Note45)	(Note46)	GPIO84
DIO_P#6 Output Data	**0x06**(Note47)	**0x89**(Note48)	**5**(Note49)	(Note50)	GPIO85
DIO_P#7 Output Data	**0x06**(Note51)	**0x89**(Note52)	**6**(Note53)	(Note54)	GPIO86
DIO_P#8 Output Data	**0x06**(Note55)	**0x89**(Note56)	**7**(Note57)	(Note58)	GPIO87

D.3 Digital I/O Sample Program

```
********************************************************************************
// 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);
// Digital Input Status relative definition (Please reference to Table 2)
#define byte    DInput1LDN    // This parameter is represented from Note3
#define byte    DInput1Reg    // This parameter is represented from Note4
#define byte    DInput1Bit    // This parameter is represented from Note5
#define byte    DInput2LDN    // This parameter is represented from Note6
#define byte    DInput2Reg    // This parameter is represented from Note7
#define byte    DInput2Bit    // This parameter is represented from Note8
#define byte    DInput3LDN    // This parameter is represented from Note9
#define byte    DInput3Reg    // This parameter is represented from Note10
#define byte    DInput3Bit    // This parameter is represented from Note11
#define byte    DInput4LDN    // This parameter is represented from Note12
#define byte    DInput4Reg    // This parameter is represented from Note13
#define byte    DInput4Bit    // This parameter is represented from Note14
#define byte    DInput5LDN    // This parameter is represented from Note15
#define byte    DInput5Reg    // This parameter is represented from Note16
#define byte    DInput5Bit    // This parameter is represented from Note17
#define byte    DInput6LDN    // This parameter is represented from Note18
#define byte    DInput6Reg    // This parameter is represented from Note19
#define byte    DInput6Bit    // This parameter is represented from Note20
#define byte    DInput7LDN    // This parameter is represented from Note21
#define byte    DInput7Reg    // This parameter is represented from Note22
#define byte    DInput7Bit    // This parameter is represented from Note23
#define byte    DInput8LDN    // This parameter is represented from Note24
#define byte    DInput8Reg    // This parameter is represented from Note25
#define byte    DInput8Bit    // This parameter is represented from Note26
********************************************************************************
```

```
***************************************************************************
```
// Digital Output control relative definition (Please reference to Table 3)

#define byte   DOutput5LDN   // This parameter is represented from **Note43**
#define byte   DOutput5Reg   // This parameter is represented from **Note44**
#define byte   DOutput5Bit   // This parameter is represented from **Note45**
#define byte   DOutput5Val   // This parameter is represented from **Note46**
#define byte   DOutput6LDN   // This parameter is represented from **Note47**
#define byte   DOutput6Reg   // This parameter is represented from **Note48**
#define byte   DOutput6Bit   // This parameter is represented from **Note49**
#define byte   DOutput6Val   // This parameter is represented from **Note50**
#define byte   DOutput7LDN   // This parameter is represented from **Note51**
#define byte   DOutput7Reg   // This parameter is represented from **Note52**
#define byte   DOutput7Bit   // This parameter is represented from **Note53**
#define byte   DOutput7Val   // This parameter is represented from **Note54**
#define byte   DOutput8LDN   // This parameter is represented from **Note55**
#define byte   DOutput8Reg   // This parameter is represented from **Note56**
#define byte   DOutput8Bit   // This parameter is represented from **Note57**
#define byte   DOutput8Val   // This parameter is represented from **Note58**

```
***************************************************************************
```

```
**************************************************************************************
VOID   Main(){
        Boolean PinStatus ;

        // Procedure : AaeonReadPinStatus
        // Input :
        //      Example, Read Digital I/O Pin 3 status
        // Output :
        //      InputStatus :
        //              0: Digital I/O Pin level is low
        //              1: Digital I/O Pin level is High
        PinStatus = AaeonReadPinStatus(DInput3LDN, DInput3Reg, DInput3Bit);

        // Procedure : AaeonSetOutputLevel
        // Input :
        //      Example, Set Digital I/O Pin 6 level
        AaeonSetOutputLevel(DOutput6LDN, DOutput6Reg, DOutput6Bit, DOutput6Val);
}
**************************************************************************************
```

```
*************************************************************************************

Boolean   AaeonReadPinStatus(byte LDN, byte Register, byte BitNum){
       Boolean PinStatus ;

       PinStatus = SIOBitRead(LDN, Register, BitNum);
       Return PinStatus ;
}
VOID   AaeonSetOutputLevel(byte LDN, byte Register, byte BitNum, byte Value){
       ConfigToOutputMode(LDN, Register, BitNum);
       SIOBitSet(LDN, Register, BitNum, Value);
}
*************************************************************************************
```

```
*********************************************************************************
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();
}
*********************************************************************************
```

```
*************************************************************************
Boolean   SIOBitRead(byte LDN, byte Register, byte BitNum){
        Byte TmpValue;

        SIOEnterMBPnPMode();
        SIOSelectLDN(LDN);
        IOWriteByte(SIOIndex, Register);
        TmpValue = IOReadByte(SIOData);
        TmpValue &= (1 << BitNum);
        SIOExitMBPnPMode();
        If(TmpValue == 0)
                Return 0;
        Return 1;
}
VOID   ConfigToOutputMode(byte LDN, byte Register, byte BitNum){
        Byte TmpValue, OutputEnableReg;

        OutputEnableReg = Register-1;
        SIOEnterMBPnPMode();
        SIOSelectLDN(LDN);
        IOWriteByte(SIOIndex, OutputEnableReg);
        TmpValue = IOReadByte(SIOData);
        TmpValue |= (1 << BitNum);
        IOWriteByte(SIOData, OutputEnableReg);
        SIOExitMBPnPMode();
}
*************************************************************************
```