

# **ID70 Motherboard**

**Mini-ITX Fanless SBC w/Intel Atom D2550 1.86GHz Processor,  
VGA, LVDS, Dual Giga Ethernet,  
PCI and Mini-PCIe Interface.**

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**Version 1.2**

## **Safety Precautions**

### ◆ **Warning!**



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronic personnel should open the PC chassis.

### ◆ **Caution!**



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

## **Safety and Warranty**

1. Please read these safety instructions carefully.
2. Please keep this user's manual for later reference.
3. Please 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 reliable 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 uncontrolled environment where the storage temperature is below  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ) or above  $60^{\circ}\text{C}$  ( $140^{\circ}\text{F}$ ). It may damage the equipment.

# Contents

|                  |   |           |
|------------------|---|-----------|
| <b>CHAPTER 1</b> | <b>GENERAL INFORMATION .....</b>          | <b>2</b>  |
| 1.1              | INTRODUCTION.....                         | 2         |
| 1.2              | FEATURE.....                              | 2         |
| 1.3              | MOTHERBOARD SPECIFICATIONS .....          | 3         |
| 1.4              | FUNCTION BLOCK .....                      | 4         |
| 1.5              | BOARD DIMENSIONS.....                     | 5         |
| <b>CHAPTER 2</b> | <b>INSTALLATIONS .....</b>                | <b>7</b>  |
| 2.1              | MEMORY MODULE (SO-DIMM) INSTALLATION..... | 7         |
| 2.2              | I/O EQUIPMENT INSTALLATION .....          | 8         |
| 2.3              | JUMPERS AND CONNECTORS.....               | 9         |
| 2.4              | JUMPER SETTING.....                       | 11        |
| 2.5              | CONNECTORS AND PIN ASSIGNMENT.....        | 14        |
| <b>CHAPTER 3</b> | <b>GRAPHIC DRIVER INSTALLATION .....</b>  | <b>21</b> |
| 3.1              | STANDARD CMOS FEATURE.....                | 21        |
| 3.2              | PANEL RESOLUTION SETTING.....             | 25        |
| <b>CHAPTER 4</b> | <b>CHIPSET DRIVER INSTALLATION.....</b>   | <b>28</b> |
| 4.1              | STANDARD CMOS FEATURES .....              | 28        |
| <b>CHAPTER 5</b> | <b>ETHERNET DRIVER INSTALLATION.....</b>  | <b>32</b> |
|                  | INSTALLATION OF ETHERNET DRIVER.....      | 32        |
| <b>CHAPTER 6</b> | <b>AUDIO DRIVER INSTALLATION .....</b>    | <b>36</b> |
| 6.1              | INTRODUCTION .....                        | 36        |
| 6.2              | INSTALLATION OF AUDIO DRIVER .....        | 36        |
| <b>CHAPTER 7</b> | <b>AMI BIOS SETUP .....</b>               | <b>43</b> |
| 7.1              | ADVANCED SETTING .....                    | 44        |

# General Information

This chapter includes the ID30 Motherboard background information.

Sections include:

- Introduction
- Feature
- Motherboard Specification
- Function Block
- Board Dimensions

# Chapter 1 General Information

## 1.1 Introduction

The ID70 SBC is integrated with Intel® NM10 express chipset, 17x17mm, and Atom D2550 Processor. Intel Atom Processor with 32nm low power design enables down to 50% less average power consumption and the chipset delivers up to 4x improvement in graphics performance and enables up to 50% higher data transfer bus speed rate.

In peripheral connectivity, ID70 SBC features with two Mini-PCIe I/O ports, one PCI slot, two Serial ATA connectors, six Serial Port (Three Connector; Three Pin Header ) and Eight Hi-Speed USB 2.0 connectors(Four Connector ; Four Pin Header ) .Additionally, ID70 SBC build-in a 12V DC-IN power adapter.

Thus, the ID70 SBC is designed to satisfy most of the applications in the industrial computer market, such as Gaming, POS, KIOSK, Industrial Automation, and Programmable Control System. It is a compact design to meet the demanding performance requirements of today's business and industrial applications.

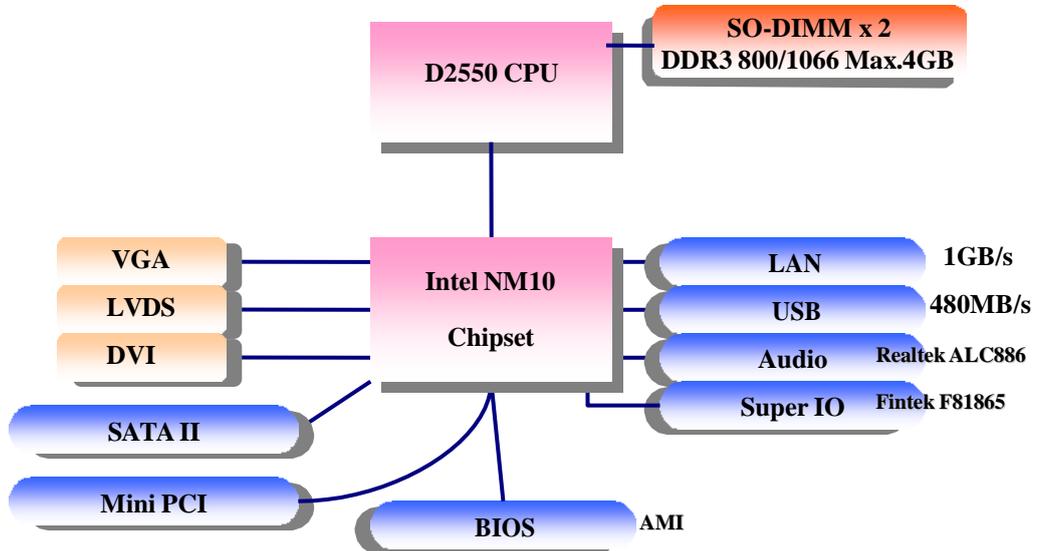
## 1.2 Feature

- Mini-ITX Form Factor ( 170mm x 170mm)
- Supports Intel® Atom D2550 1.86GHz processor
- System memory up to 4GB DDR3 800/1066, SO-DIMM
- Intel NM10 Chipset
- Intel® Graphic Accelerator 3650 Integrated Graphics Engine.
- Dual Broadcom BCM57780 GbE controller
- 1 x PCI, 2 x Mini PCIe, 6 x COM, 8 x USB2.0, 2 x SATA, 8 x GPIO ports, 1 x DVI, 1 x LPT port

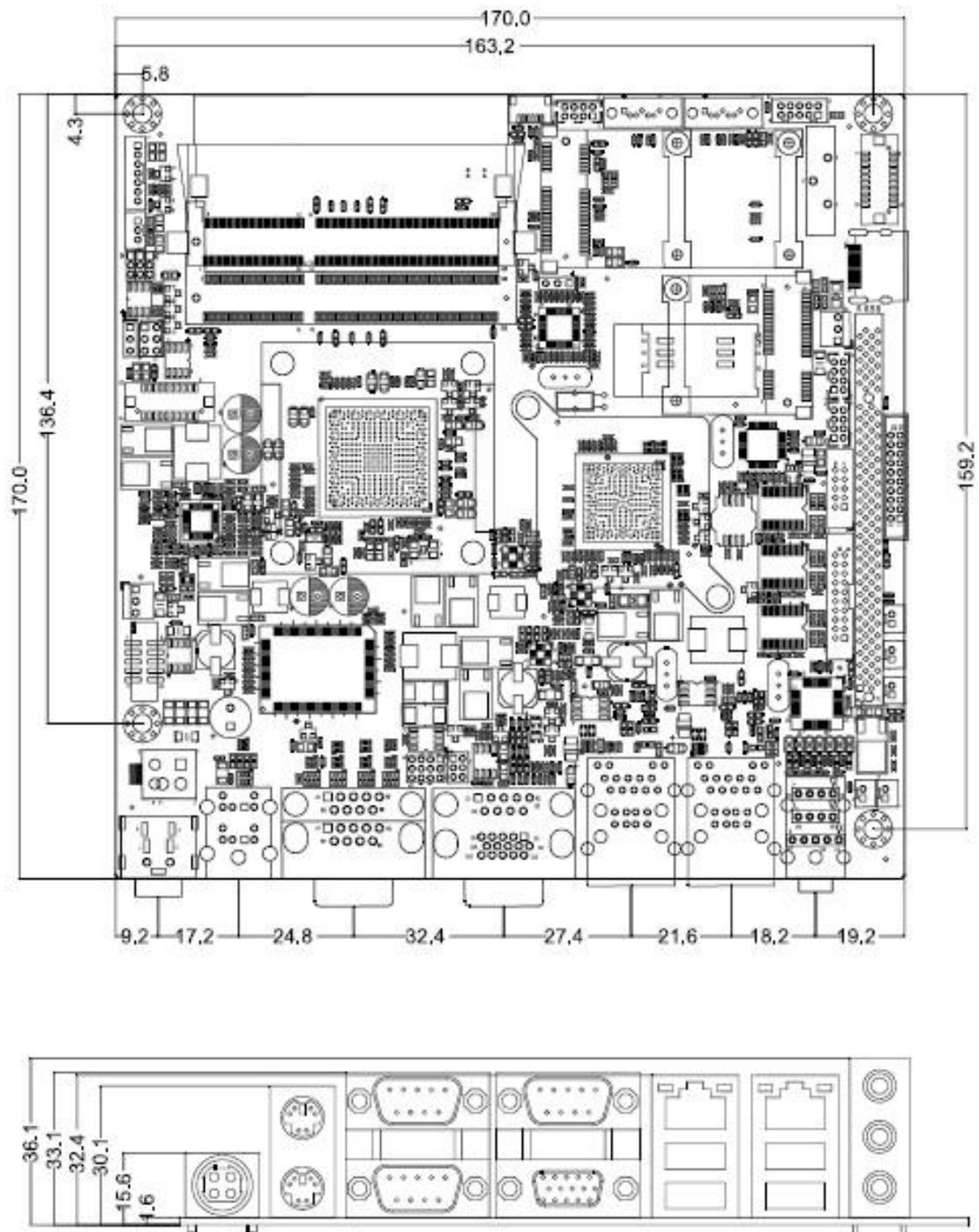
## 1.3 Motherboard Specifications

|                                       |  |
|---------------------------------------|--|
| <b>CPU Type</b>                       | Intel Atom Dual Core D2550 1.86GHz Processor   |
| <b>CPU Speed</b>                      | 1.86GHz  |
| <b>Chipset</b>                        | Intel NM10   |
| <b>BIOS</b>                           | AMI 16Mbit Flash   |
| <b>Graphic</b>                        | Intel® Graphic Accelerator 3650 support DX10, OGL2.0   |
| <b>LCD interface</b>                  | Single-channel 24 bit LVDS Up to 1440 x 900 @ 60Hz   |
| <b>Resolution</b>                     | VGA mode : Up to 1920 x 1200 @ 60Hz<br>DVI : 1920 x 1200 @ 60Hz  |
| <b>LAN</b>                            | 2 x Giga LAN (Broadcom BCM57780 GbE controller )   |
| <b>Memory Type</b>                    | 2 x SO-DIMM socket, supports up to 4GB DDR3 800/1066   |
| <b>Super I/O</b>                      | Fintek F81865  |
| <b>Sound</b>                          | Realtek ALC886 HD Audio Codec  |
| <b>USB</b>                            | 8 ports, USB 2.0 (4 x USB Connector, 4 x USB pin-header )  |
| <b>Edge Connectors</b>                | 1 x DC-IN Jack (+12V)<br>1 x VGA out connector<br>2 x Gigabit LAN RJ-45<br>1 x RS232/422/485<br>2 x RS232<br>4 x USB connector<br>2 x PS2<br>1 x Audio Jack(Line in, Line out, Mic in)   |
| <b>On Board Pin-Header Connectors</b> | 2 x SATA connector for SATA/II 3.0 Gb/s<br>1 x 10pins pin-header for Front Panel(2x5)<br>1 x 8pins pin-header for 5V/12V external power<br>1 x 3pins pin-header for CPU Fan<br>1 x 3pins pin-header for System Fan<br>2 x 2pins pin-header for 5V external power<br>1 x 2pins pin-header for 12V external power<br>2 x 8pins pin-header for USB (2X4)<br>1 x 10pins Digital I/O(2x5)<br>1 x 20pins pin-header for COM 5.6(RS232) (2X10)<br>1 x 10pins pin-header for COM2 (2X5)<br>1 x 4-pin Power-input connector<br>1 x 20pins Connector for LVDS<br>1 x 20pins Connector for DVI<br>1 x 3pins digital panel backlight brightness controller<br>1 x 7pins digital panel inverter<br>2 x 2pins pin-header for Speaker<br>1 x 20pins pin-header for LPT port(2X10) |
| <b>Power Connector</b>                | Input: 4-pin Power-input connector   |
| <b>Expansion Slots</b>                | 2 x Mini PCIe slot<br>1 x PCI slot   |
| <b>Form Factor</b>                    | Mini-ITX   |
| <b>Dimensions</b>                     | 170mm x 170mm  |
| <b>Mechanical &amp; environmental</b> | Operating temperature: 0 deg. C to 60 deg. C<br>Operating Humidity: 10 ~ 90% Relative humidity, non-condensing<br>Shock: Operating 15G, 11ms duration<br>Vibration: Operating 5 Hz~500Hz / 1Grms / 3 Axis<br>Certification: CE, FCC, RoHS  |

## Function Block



## Board dimensions



## Installations

This chapter provides information on how to use the jumps and connectors on the ID70 Motherboard.

The Sections include:

- Memory Module Installation
- I / O Equipment Installation
- Setting the Jumpers
- Connectors on ID70 Motherboard

## Chapter 2 Installations

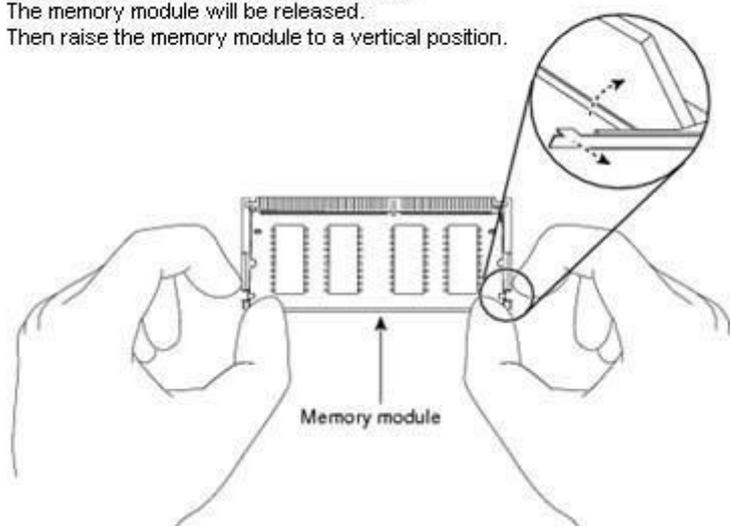
### 2.1 Memory Module (SO-DIMM) Installation

The ID70 Motherboard provides one 204-pin SODIMM slot. The socket supports up to 4GB DDR3 800/1066 SDRAM. When installing the Memory device, please follow the steps below :

Step.1. Firmly insert the SO-DIMM at an angle into its slot. Align the SO-DIMM on the slot such that the notch on the SO-DIMM matches the break on the slot.

Step.2. Press downwards on SO-DIMM until the retaining clips at both ends fully snap back in place and the SO-DIMM is properly seated.

Pull the tabs away with your thumbs, bracing your forefingers against the rails. The memory module will be released. Then raise the memory module to a vertical position.



➤ **Caution!**



The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the development board and the SO-DIMM if the SO-DIMM is forced into the slot at the incorrect orientation.

## **2.2 I/O Equipment Installation**

### **2.2.1 12V DC-IN**

The Motherboard allows plugging 12V DC-IN jack on the board without another power module converter under power consumption by Intel Atom D2550 1.86GHz Processor in NM10 chipset.

**※Without power/reset OSD, you can short circuit pin5 & 6 of the onboard panel connector to boot up the motherboard.**

### **2.2.2 Serial COM ports**

Three RS-232 connectors build in the rear I/O. One optional COM ports support RS-422/485. When an optional touch-screen is ordered with PPC, serial com port can connect to a serial or an optional touch-screen.

### **2.2.3 External VGA**

The Motherboard has one VGA port that can be connected to an external CRT/ LCD monitor. Use VGA cable to connect to an external CRT / LCD monitor, and connect the power cable to the outlet. The VGA connector is a standard 15-pin D-SUB connector.

### **2.2.4 Ethernet interface**

The Motherboard is equipped with Broadcom BCM57780 chipset which is fully compliant with the PCI 10/100/1000 Mbps Ethernet protocol compatible. It is supported by major network operating systems. The Ethernet ports provide two standard RJ-45 jacks.

### **2.2.5 USB ports**

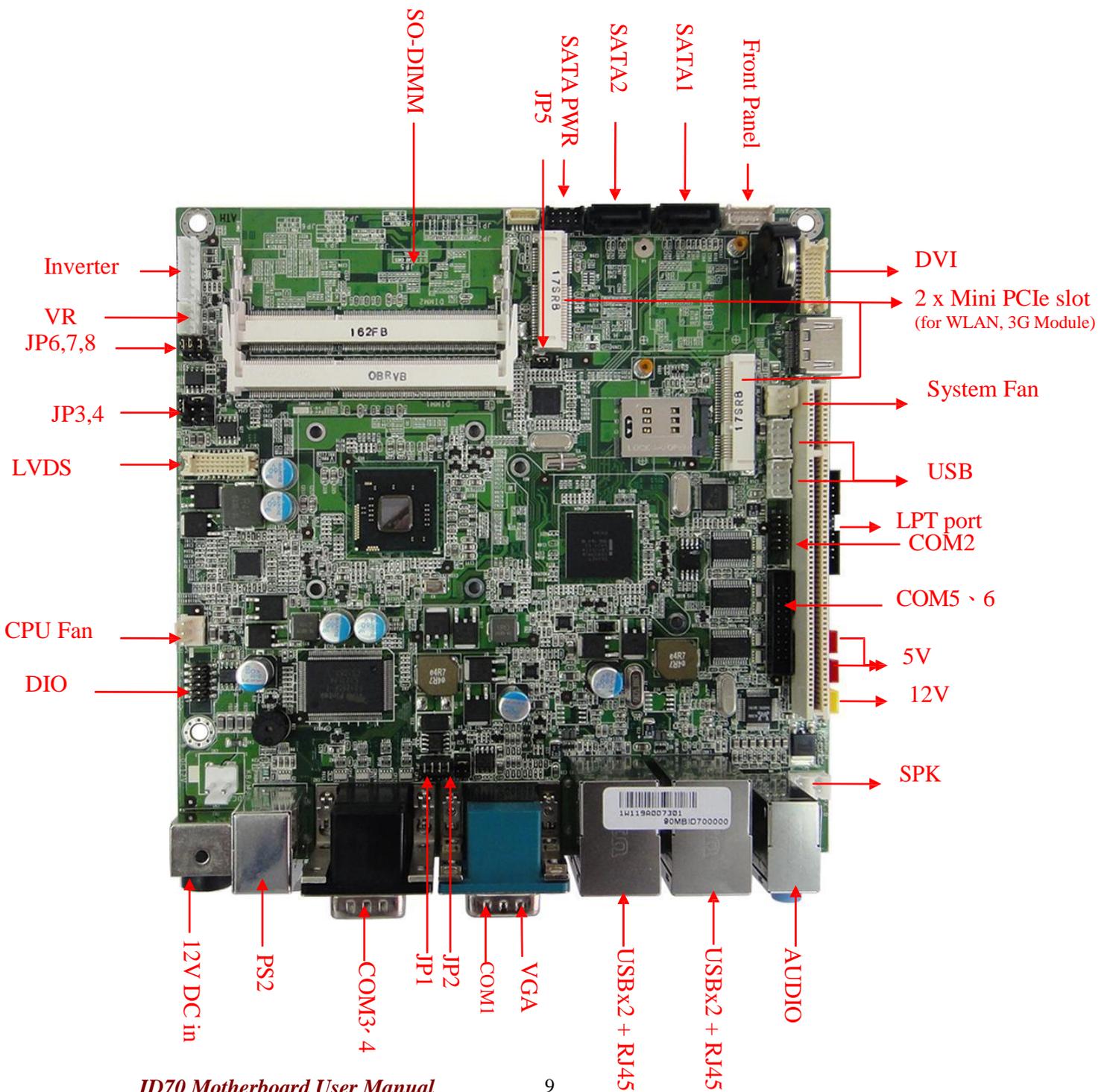
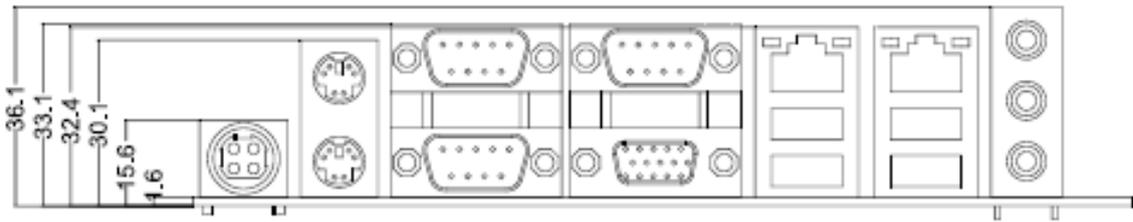
Eight USB devices (Four with pin headers) may be connected to the system though an adapter cable. Various adapters may come with USB ports. USB usually connect the external system to the system. The USB ports support hot plug-in connection. Whatever, you should install the device driver before you use the device.

### **2.2.6 Audio function**

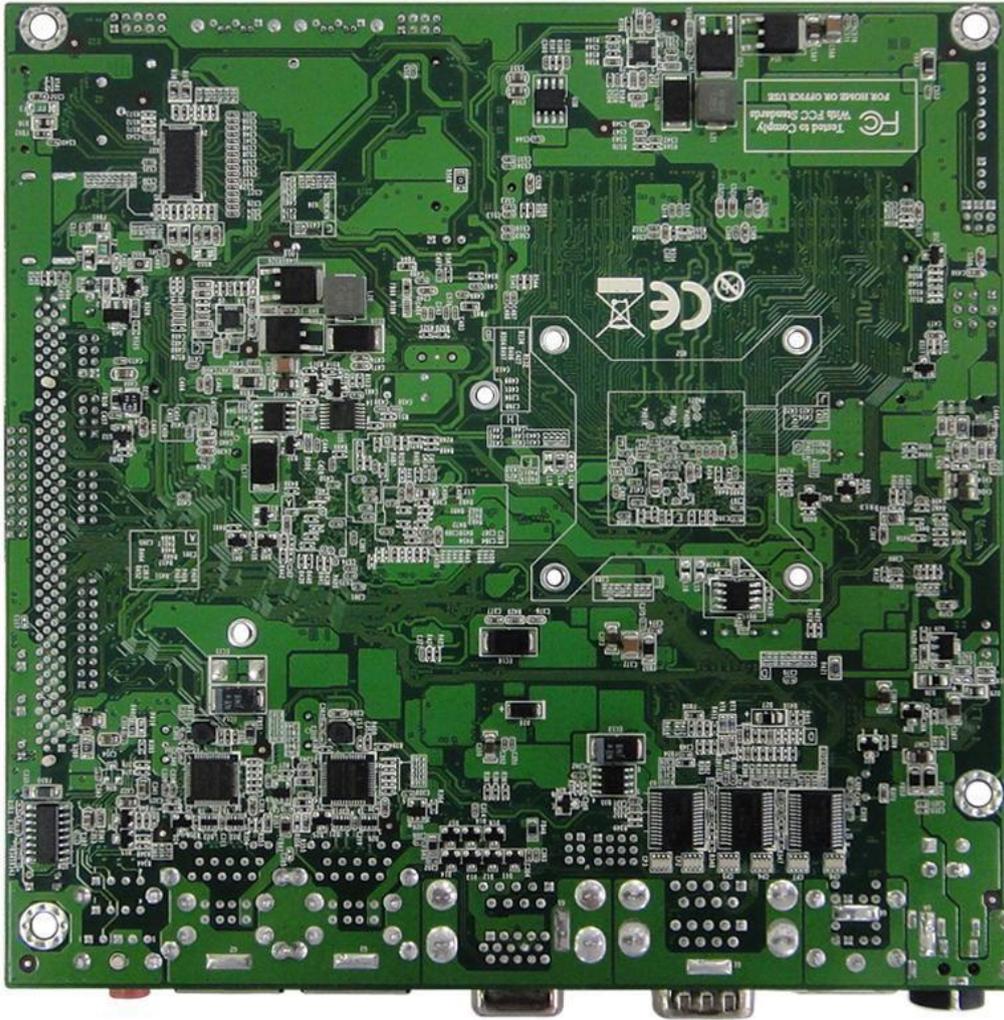
The Audio 7.1 channel capabilities are provided by a Realtek ALC886 chipset supporting digital audio outputs. The audio interface includes three jacks: line-in, line-out and mic in.

## 2.3 Jumpers and Connectors

TOP



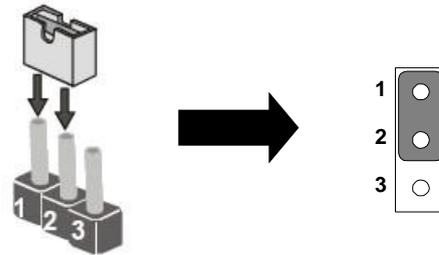
BOTTOM



## 2.4 Jumper Setting

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

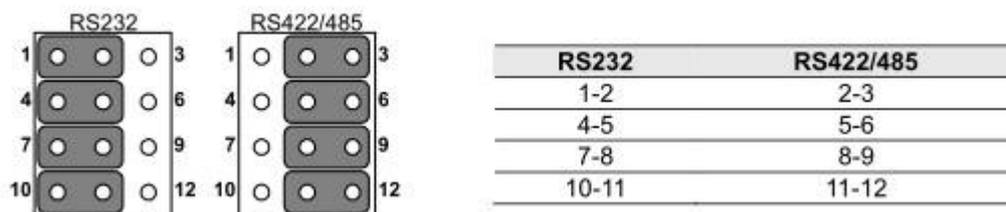
The jumper setting diagram is as below. If a jumper shorts pin 1 and pin 2, the setting diagram is shown as the right one.



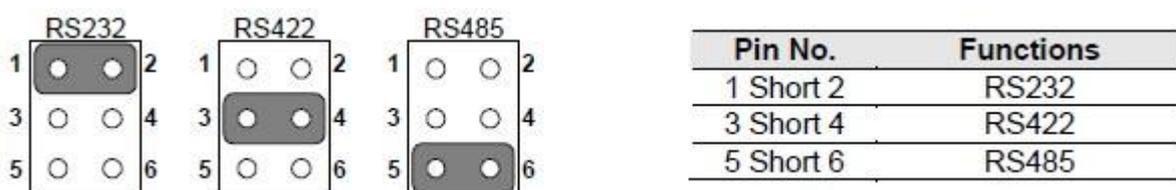
The following tables list the function of each of the board's jumpers.

| Label | Function                       | Note                     |
|-------|--------------------------------|--------------------------|
| JP1   | RS232 / RS422 / RS485 Selector | 3x4 header , pitch 2.0mm |
| JP2   | RS232 / RS422 / RS485 Selector | 2x3 header , pitch 2.0mm |
| JP3   | LVDS PWR Selector              | 2x3 header , pitch 2.5mm |
| JP4   | Back Light PWR                 | 3x1 header , pitch 2.5mm |
| JP5   | Clear CMOS                     | 3x1 header , pitch 2.5mm |
| JP6   | PWM Level                      | 3x1 header , pitch 2.0mm |
| JP7   | PWM/DA                         | 3x1 header , pitch 2.0mm |
| JP8   | VR/Software                    | 3x1 header , pitch 2.0mm |

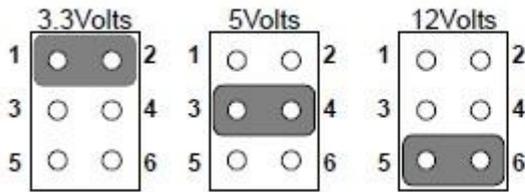
### 2.4.1 JP1: RS232 / RS422 / RS485 Selector for CON port



### 2.4.2 JP2 : RS232 / RS422 / RS485 Selector for CON port

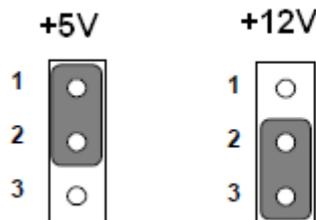


### 2.4.3 JP3 : LCD Panel Voltage Select



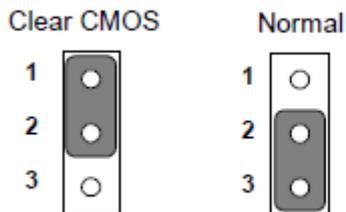
| Pin No.   | Functions         |
|-----------|-------------------|
| 1 Short 2 | 3.3Volts Selected |
| 2 Short 3 | 5Volts Selected   |
| 5 Short 6 | 12Volts Selected  |

### 2.4.4 JP4 : Back Light PWR



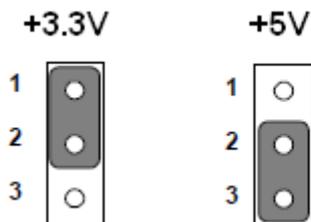
| Pin No.   | Functions |
|-----------|-----------|
| 1 Short 2 | +5V       |
| 2 Short 3 | +12V      |

### 2.4.5 JP5 : Clear CMOS



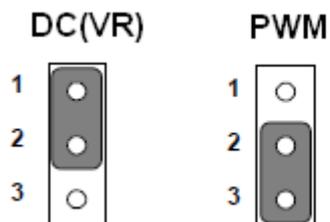
| Pin No.   | Functions  |
|-----------|------------|
| 1 Short 2 | Clear CMOS |
| 2 Short 3 | Normal     |

### 2.4.6 JP6 : PWM Level



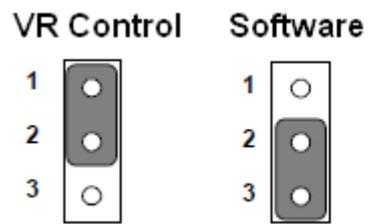
| Pin No.   | Functions |
|-----------|-----------|
| 1 Short 2 | +3.3V     |
| 2 Short 3 | +5V       |

### 2.4.7 JP7 : Brightness Control(DC/PWM)



| Pin No.   | Functions |
|-----------|-----------|
| 1 Short 2 | DC(VR)    |
| 2 Short 3 | PWM       |

## 2.4.8 JP8 : Brightness Control(VR/Software)



| Pin No.   | Functions  |
|-----------|------------|
| 1 Short 2 | VR Control |
| 2 Short 3 | Software   |

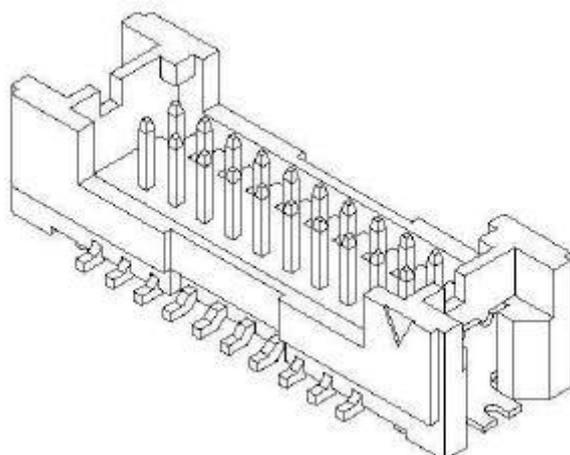
## 2.5 Connectors and Pin Assignment

The table below lists the function of each of the board's connectors.

| Label         | Function                                   | Note                     |
|---------------|--|--------------------------|
| LVDS          | LVDS LCD Output Connector                  | 2x10 Pin, 1.25mm         |
| CN16          | Digital Panel Backlight Brightness Control | 3x1 header, pitch 2.54mm |
| CN19          | Digital Panel Backlight Inverter Power     | 7x1 header, pitch 2.54mm |
| COM2          | COM2 for RS232                             | 2x5 header               |
| COM5、6        | COM5、6 for RS232                           | 2x10 header              |
| USB           | USB PIN HEADER                             | 4x2 Pin Header           |
| CPU_FAN       | CPU Fan CONNECTOR                          | 3x1 Pin Header           |
| SYS FAN       | System Fan Connector                       | 3x1 Pin Header           |
| PANEL1        | System Function Connector                  | 5x2 header ,pitch 2.0mm  |
| DVI           | DVI Output Connector                       | 2x10 Pin, 1.25mm         |
| 12V           | 12V External Power                         | 2x1 header, pitch 2.0mm  |
| 5V            | 5V External Power                          | 2x1 header, pitch 2.0mm  |
| HDD PWR       | 12V/5V External Power                      | 4x2 header ,pitch 2.54mm |
| DC JACK       | 12V DC Jack                                | 4 Pin Jack               |
| DIO           | Digital I/O                                | 2x5 Pin header           |
| SPK           | Speaker(Right/Left)                        | 2 Pin header             |
| LPT           | Printer Port                               | 2x10 header              |
| 2 x Mini PCIe | Mini PCIe for WLAN, 3G module              | Mini PCIe slot           |

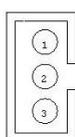
\* Not Default Connector

## 2.5.1 LVDS: LVDS Connector



| Pin No. | SYMBOL | Pin No. | SYMBOL      |
|---------|--------|---------|-------------|
| 1       | GND    | 2       | LVDS_TX0_DN |
| 3       | GND    | 4       | LVDS_TX0_DP |
| 5       | GND    | 6       | LVDS_TX1_DN |
| 7       | GND    | 8       | LVDS_TX1_DP |
| 9       | GND    | 10      | LVDS_TX2_DN |
| 11      | N/C    | 12      | LVDS_TX2_DP |
| 13      | LCDVDD | 14      | LVDS_CLK_DN |
| 15      | LCDVDD | 16      | LVDS_CLK_DP |
| 17      | NC     | 18      | LVDS_TX3_DN |
| 19      | LCDVDD | 20      | LVDS_TX3_DP |

## 2.5.2 CN16: Digital Panel Backlight Brightness Control



| Pin No. | SYMBOL              |
|---------|---------------------|
| 1       | 5V/12V              |
| 2       | Black Light Control |
| 3       | GND                 |

### 2.5.3 CN19: Inverter Power

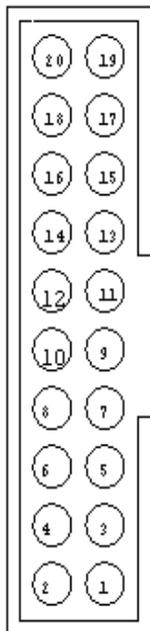


| Pin No. | SYMBOL              |
|---------|---------------------|
| 1       | +12V                |
| 2       | +12V                |
| 3       | +12V                |
| 4       | GND                 |
| 5       | Black Light Control |
| 6       | GND                 |
| 7       | Black Light EN 5V   |

### 2.5.4 COM5、6: Dual Output

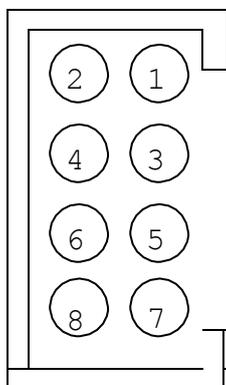
The serial port COM5、6, which is RS232 only, is the Fintek I/O serial port.

10x2 header, pitch 2.0mm



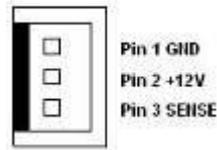
| Pin No. | SYMBOL   | Pin No. | SYMBOL    |
|---------|----------|---------|-----------|
| 20      | GND      | 19      | GND       |
| 18      | FK NRI6  | 17      | FK NDTR6  |
| 16      | FK NCTS6 | 15      | FK NSOUT6 |
| 14      | FK NRTS6 | 13      | FK NSIN6  |
| 12      | FK NDSR6 | 11      | FK NDSD6  |
| 10      | GND      | 9       | GND       |
| 8       | FK NRI5  | 7       | FK NDTR5  |
| 6       | FK NCTS5 | 5       | FK NSOUT5 |
| 4       | FK NRTS5 | 3       | FK NSIN5  |
| 2       | FK NDSR5 | 1       | FK NDSD5  |

### 2.5.5 USB : USB PIN HEADER



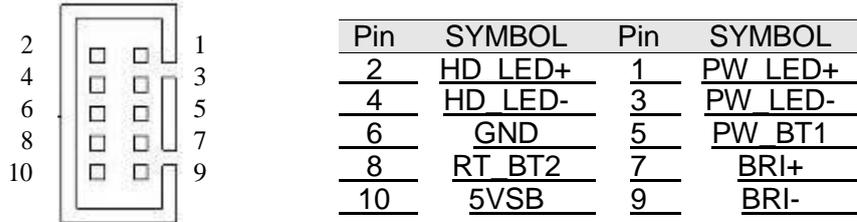
| USB |         |     |         |
|-----|---------|-----|---------|
| Pin | SYMBOL  | Pin | SYMBOL  |
| 2   | USB_5V  | 1   | USB_5V  |
| 4   | USB_P6- | 3   | USB_P7- |
| 6   | USB_P6+ | 5   | USB_P7+ |
| 8   | GND     | 7   | GND     |

## 2.5.6 CPU\_FAN: FAN CONNECTOR

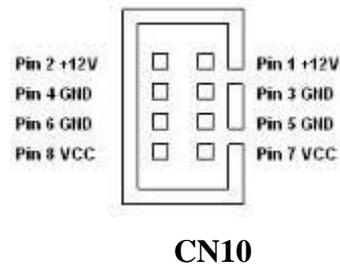
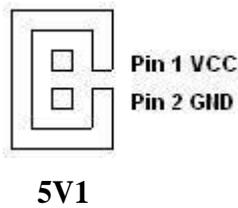
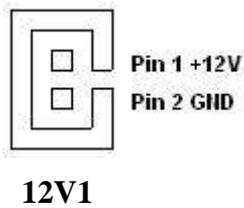


## 2.5.7 PANEL1: Front Panel System Function Connector

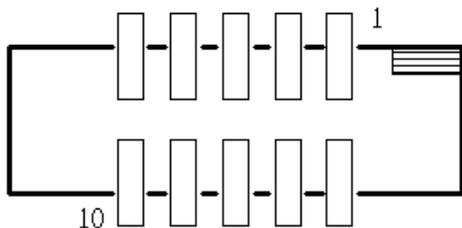
Without power/reset OSD, short circuit pin 5 and 6 together to boot up the motherboard.



## 2.5.8 5V/12V/CN10: External Power

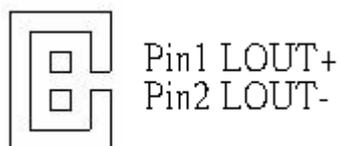


## 2.5.9 DIDO1: Digital I/O Connector

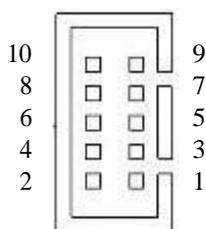


| Pin | SYMBOL | Pin | SYMBOL |
|-----|--------|-----|--------|
| 2   | Vcc    | 1   | GND    |
| 4   | Out1   | 3   | Out3   |
| 6   | Out0   | 5   | Out2   |
| 8   | IN2    | 7   | IN3    |
| 10  | IN0    | 9   | IN1    |

## 2.5.10 J2/J3: Amplifier

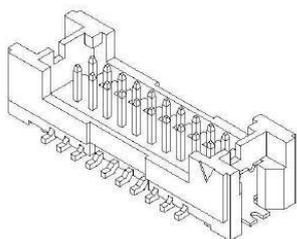


### 2.5.11 COM2: Serial port COM2



| Pin | SYMBOL | Pin | SYMBOL |
|-----|--------|-----|--------|
| 10  | GND    | 9   | GND    |
| 8   | NR1A   | 7   | NDTR1A |
| 6   | NCTS1A | 5   | NTXD1A |
| 4   | NRTS1A | 3   | NRXD1A |
| 2   | NDSR1A | 1   | NDCD1A |

### 2.5.12 DVI1: DVI connector



| Pin No. | SYMBOL         | Pin No. | SYMBOL         |
|---------|----------------|---------|----------------|
| 1       | GND            | 2       | TMDSB_DATA0-   |
| 3       | GND            | 4       | TMDSB_DATA0+   |
| 5       | DVIC_LVDS_DET  | 6       | TMDSB_DATA1-   |
| 7       | DVIC_BKLTEN    | 8       | TMDSB_DATA1+   |
| 9       | DVIC_VDDEN     | 10      | TMDSB_DATA2-   |
| 11      | DVI_HOT_DETECT | 12      | TMDSB_DATA2+   |
| 13      | LCDVDD         | 14      | TMDSB_BLK-     |
| 15      | LCDVDD         | 16      | TMDSB_BLK+     |
| 17      | +V5S           | 18      | DVI1_DDC_CLK_R |
| 19      | +V5S           | 20      | DVI_DDC_DAT_R  |

### 2.5.13 Switch 1



| Pin | Signal Name |
|-----|-------------|
| 1   | OFF         |
| 2   | OFF         |
| 3   | PWM         |
| 4   | DC          |

### 2.5.14 Switch 2



| Pin | Signal Name |
|-----|-------------|
| 1   | OFF         |
| 2   | OFF         |
| 3   | VR          |
| 4   | OSD         |

### 2.5.15 Mini PCIe slot for WLAN

| Pin Number | Signal Name | Pin Number | Signal Name  |
|------------|-------------|------------|--------------|
| 1          | NC          | 2          | +V3.3DX_SSD  |
| 3          | NC          | 4          | GND          |
| 5          | NC          | 6          | +V1.5S_SSD   |
| 7          | NC          | 8          | NC           |
| 9          | GND         | 10         | NC           |
| 11         | NC          | 12         | NC           |
| 13         | NC          | 14         | NC           |
| 15         | GND         | 16         | NC           |
| 17         | NC          | 18         | GND          |
| 19         | NC          | 20         | NC           |
| 21         | GND         | 22         | NC           |
| 23         | SATA_RXP2   | 24         | +V3.3DX_SSD  |
| 25         | SATA_RXN2   | 26         | GND          |
| 27         | GND         | 28         | +V1.5S_SSD   |
| 29         | GND         | 30         | NC           |
| 31         | SATA_TXN2   | 32         | NC           |
| 33         | SATA_TXP2   | 34         | GND          |
| 35         | GND         | 36         | NC           |
| 37         | GND         | 38         | NC           |
| 39         | +V3.3DX_SSD | 40         | GND          |
| 41         | +V3.3DX_SSD | 42         | NC           |
| 43         | GND         | 44         | SATA2_DEVSLP |
| 45         | NC          | 46         | NC           |
| 47         | NC          | 48         | +V1.5S_SSD   |
| 49         | SSD_LED#    | 50         | GND          |
| 51         | +V3.3DX_SSD | 52         | +V3.3DX_SSD  |
| M1         | GND         | M1         | GND          |
| M2         | GND         | M2         | GND          |

## Graphic Driver Installation

This chapter offers information on the chipset software Installation utility

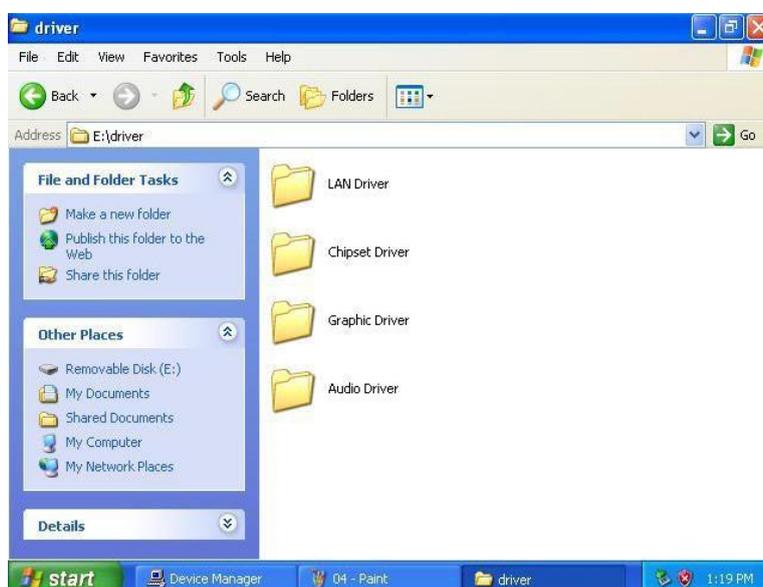
- Installation of Graphic Driver
- Panel Resolution Setting

## Chapter 3 Graphic Driver Installation

### 3.1 Standard CMOS Feature

ID30 Motherboard is equipped with Intel NM10 Companion Device. The Intel Graphic Drivers should be installed first, and it will enable “Video Controller (VGA compatible). Follow the instructions below to complete the installation. You will quickly complete the installation.

**Step.1.** Insert the CD that comes with the Motherboard. Open the file document “Graphic Driver “.



**Step.2.** Click on “setup” to execute the setup.

| Name                | Date modified        | Type                  | Size   |
|---------------------|----------------------|-----------------------|--------|
| Graphics            | 12/27/2011 5:26 PM   | File folder           |        |
| HDMI                | 12/27/2011 5:26 PM   | File folder           |        |
| ICC                 | 12/27/2011 5:26 PM   | File folder           |        |
| Lang                | 12/27/2011 5:26 PM   | File folder           |        |
| autorun             | 12/30/2008 3:31 PM   | Setup Information     | 1 KB   |
| DIFxAPI.dll         | 11/2/2006 7:21 AM    | Application extens... | 312 KB |
| Installation_Readme | 12/20/2011 10:37 ... | Text Document         | 30 KB  |
| Readme              | 12/20/2011 10:37 ... | Text Document         | 3 KB   |
| Setup               | 12/13/2011 3:20 PM   | Application           | 930 KB |
| Setup.if2           | 6/22/2010 2:21 PM    | IF2 File              | 19 KB  |
| Setup2.if2          | 9 2:15 PM            | IF2 File              | 3 KB   |

Type: Application  
Size: 929 KB  
Date modified: 12/13/2011 3:20 PM

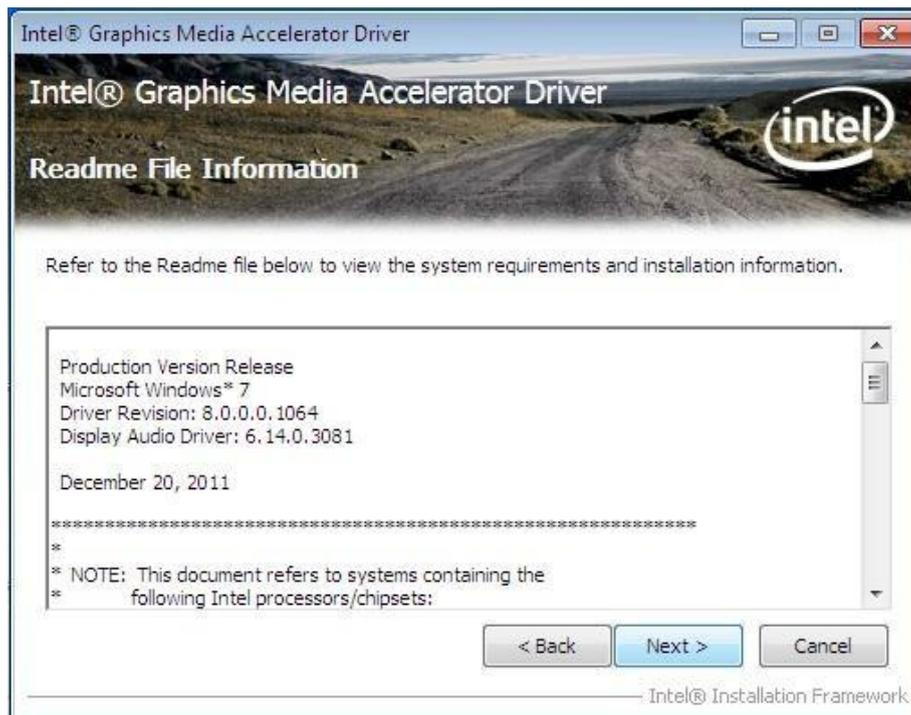
**Step.3.** Click on “Next “ to install Driver.



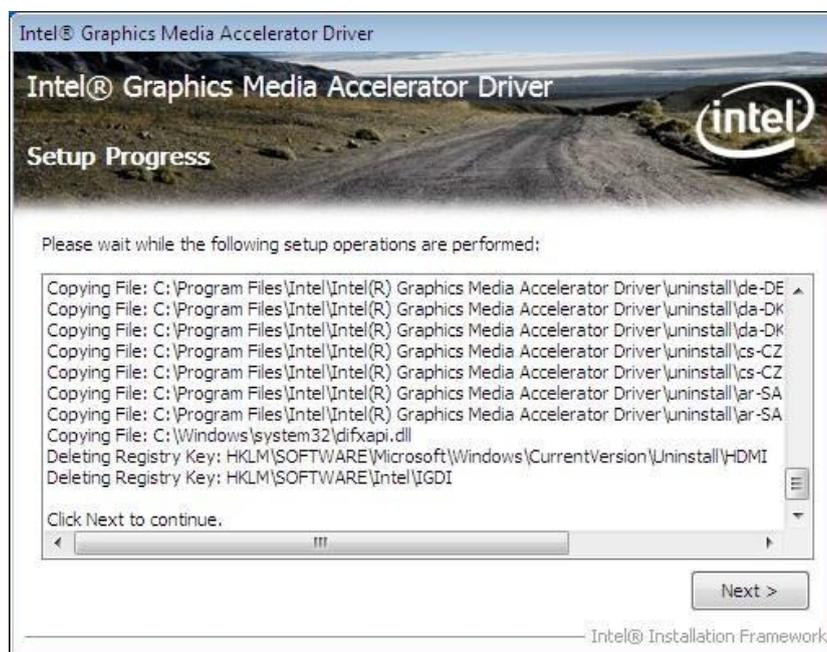
**Step.4.** Click on “Yes “ to agree License.



**Step.5.** Click on “Next “ to install Driver.



**Step.6.** Click on “Next “ to install Driver.



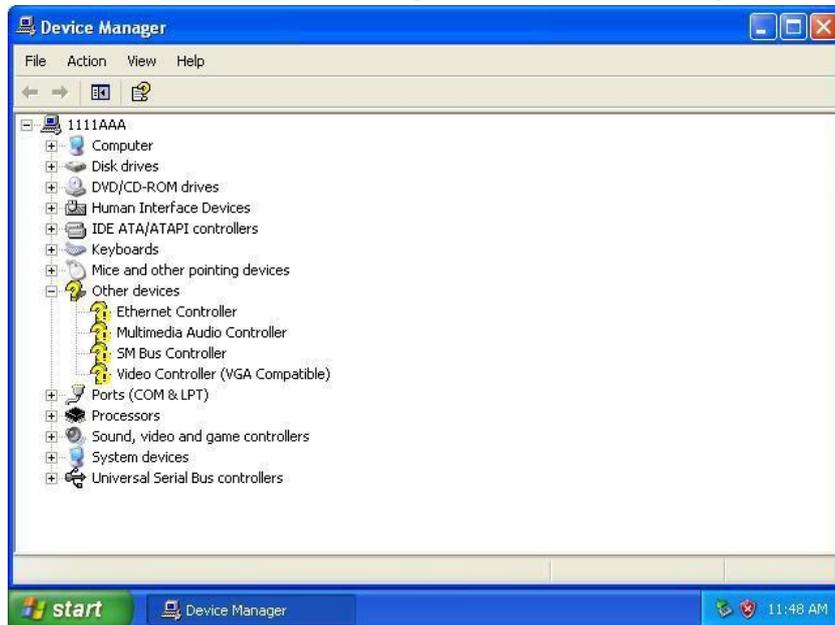
**Step.7.** Click on “Yes, I want to restart this computer now“ to go on.



### 3.2 Panel Resolution Setting

**Step.1.** Right-click the desktop, and then click Properties.

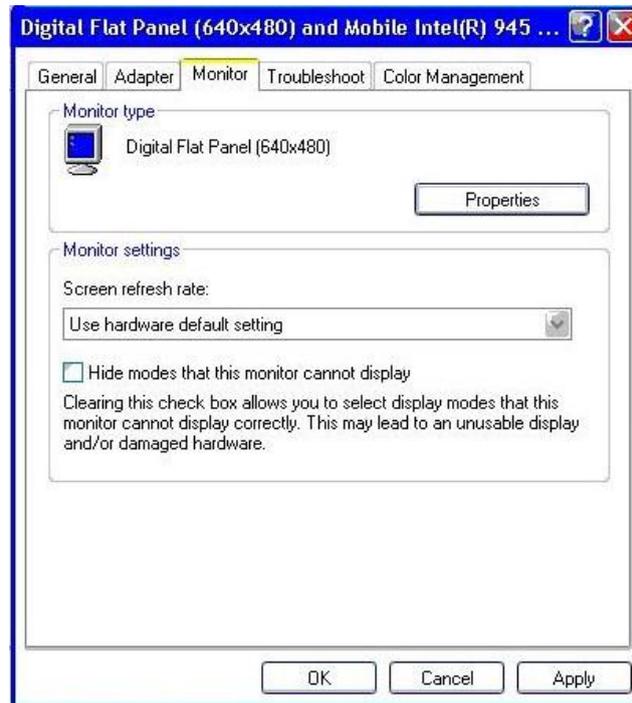
**Step.2.** In the Display Properties dialog box, click the Settings tab.



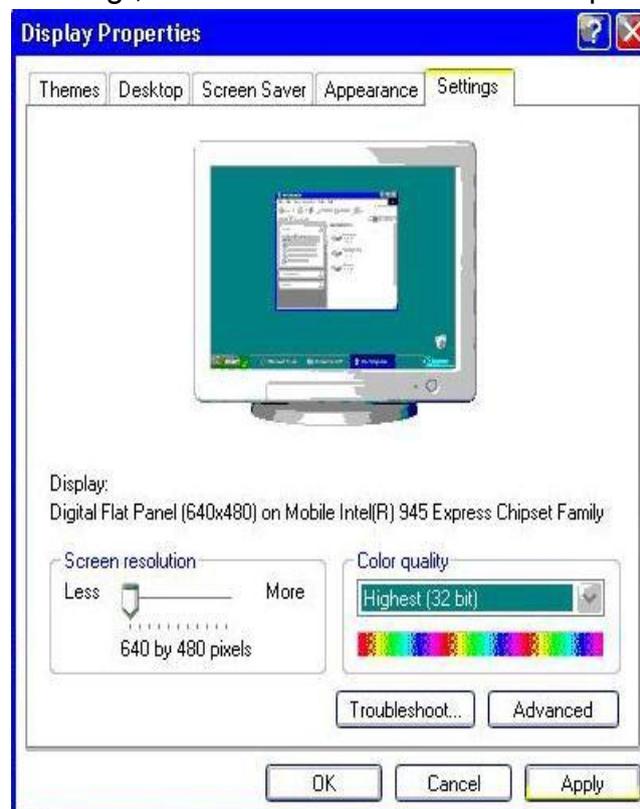
**Step.3.** Click on "Monitor".



**Step.4.** Click on “Hide modes that this monitor cannot display” to remove this option.



**Step.5.** Click on “Setting”, then could choose 32bit color qualify.



## Chipset Driver Installation

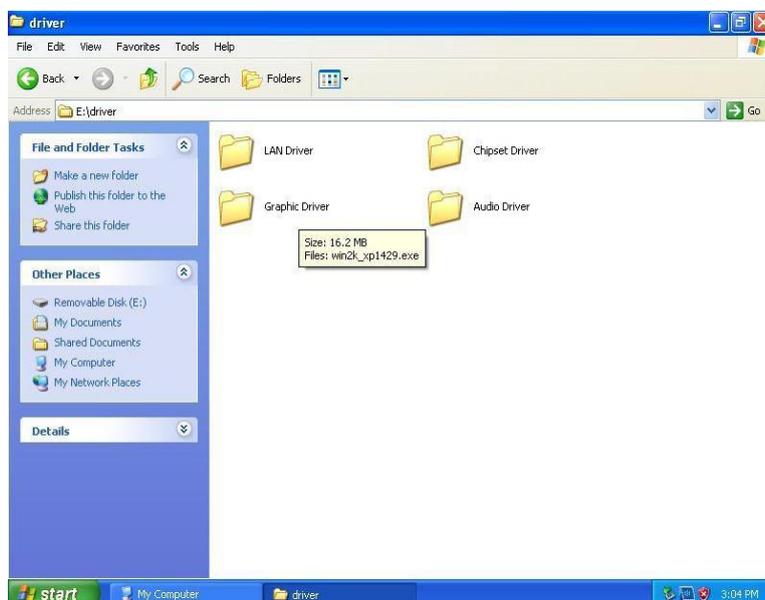
This chapter offers information on the chipset software Installation utility

- Installation of Chipset Driver
- Further information

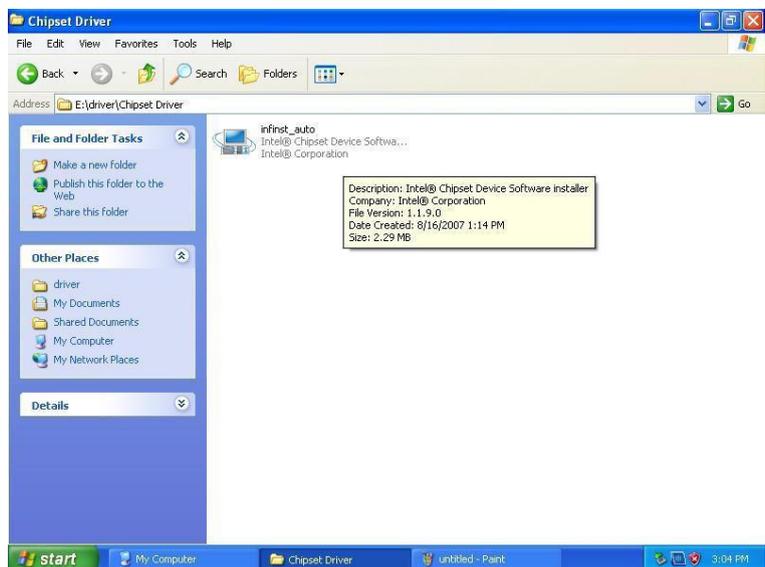
## Chapter 4 Chipset Driver Installation

### 4.1 Standard CMOS Features

**Setp.1.** Insert the CD that comes with the motherboard. Open the file document “Chipset Driver”.



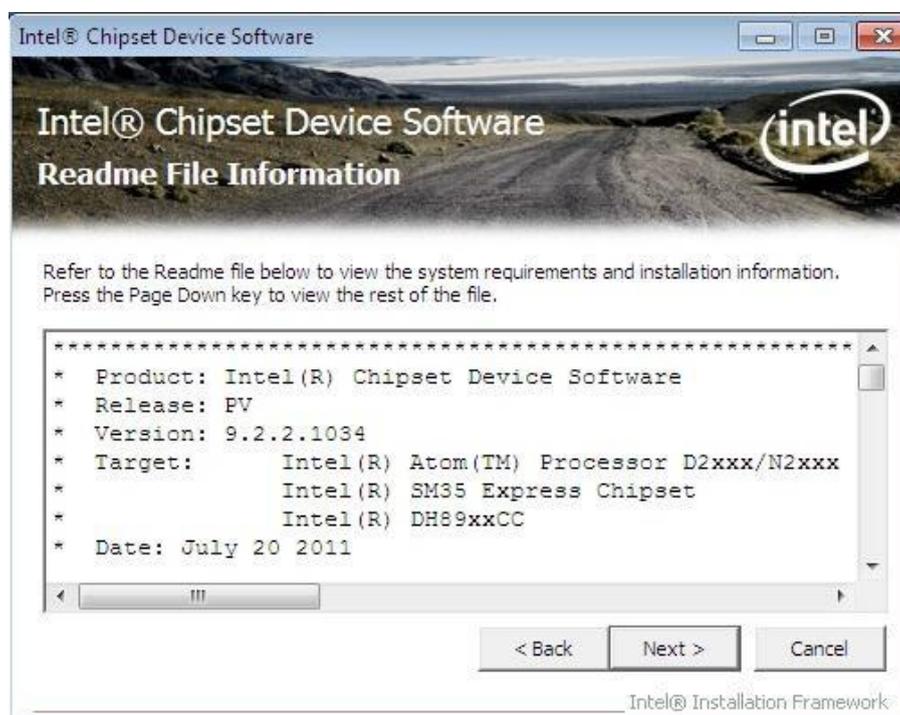
**Setp.2.** Click on “infinst\_auto.exe” to install driver.



**Setp.3.** Click on “Yes “ to agree License



**Setp.4.** Click on “Next“ to install driver.



**Setp.5.** Click on “Next“ to install driver.



**Step.7.** Click on “Yes, I want to restart this computer now“ to go on.



## Ethernet Driver Installation

This chapter offers information on the Ethernet software installation utility.

Sections include:

- Introduction
- Installation of Ethernet Driver

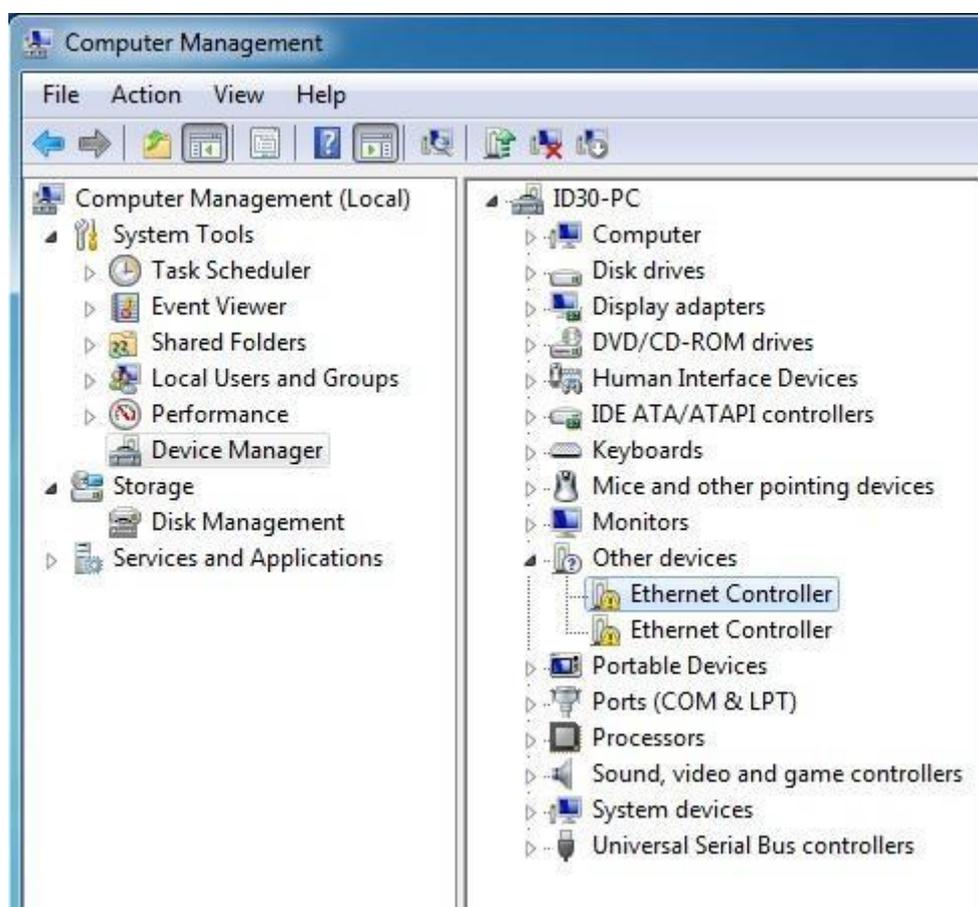
## Chapter 5 Ethernet Driver Installation

### Installation of Ethernet Driver

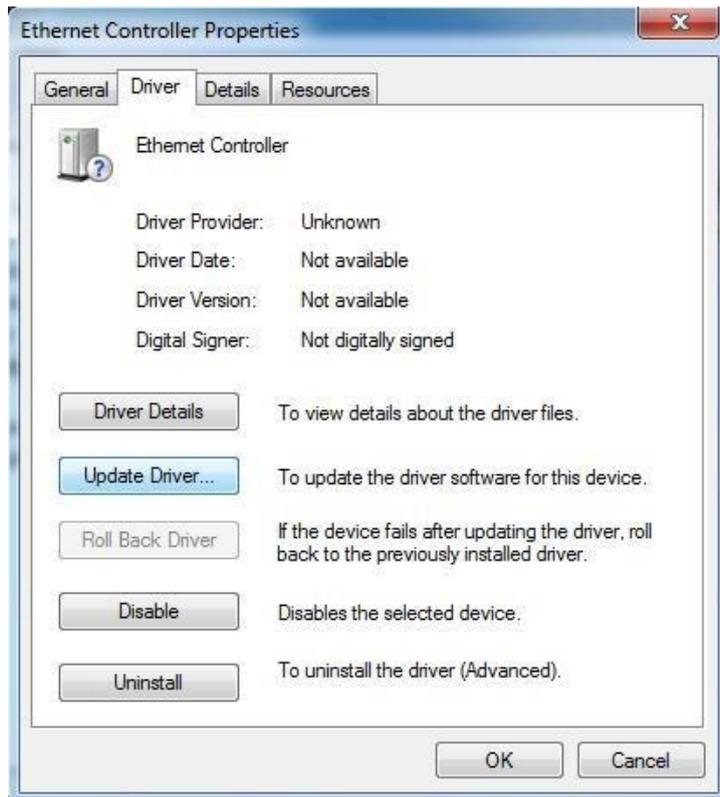
The Users must make sure which operating system you are using in the ID30 Motherboard before installing the Ethernet drivers. Follow the steps below to complete the installation of the Broadcom BCM57780 Gigabit Ethernet controller LAN drivers. You will quickly complete the installation.

**Step.1.** Right-click the desktop, and then click Properties.

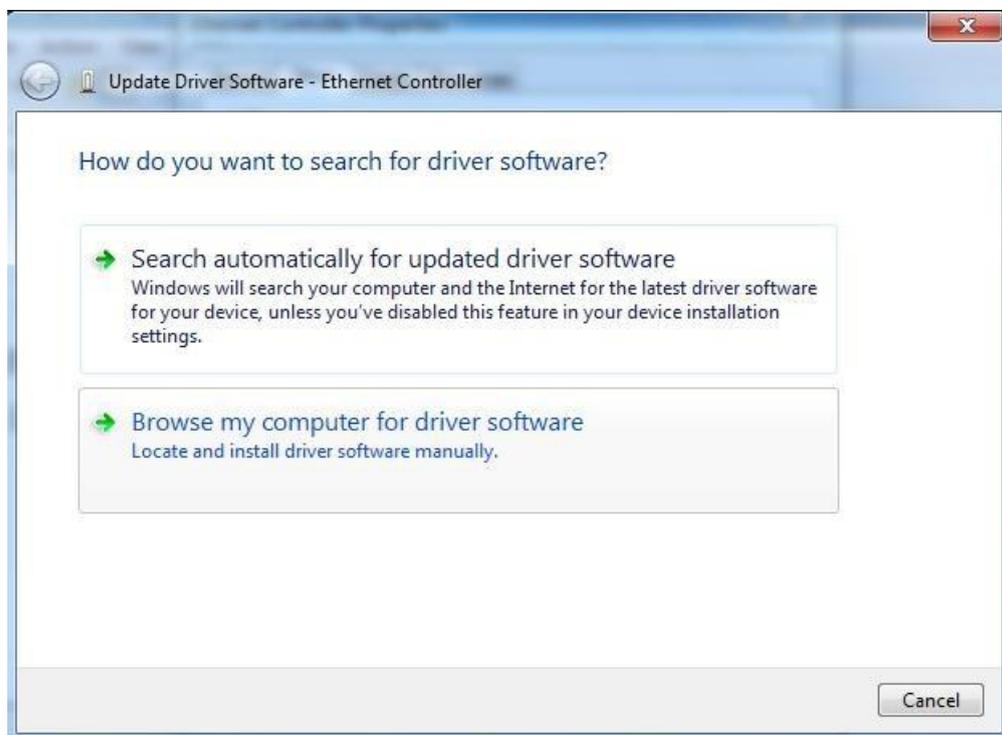
**Step.2.** In the Other device dialog box, click the Settings tab.



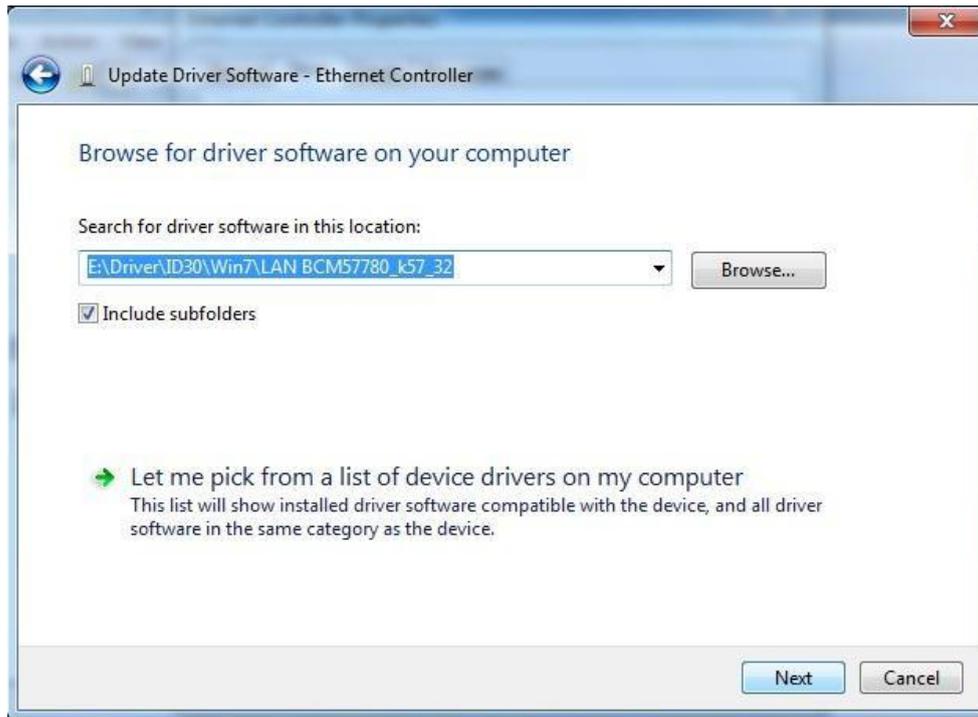
**Step.2** Click on “Update Driver” to execute the setup.



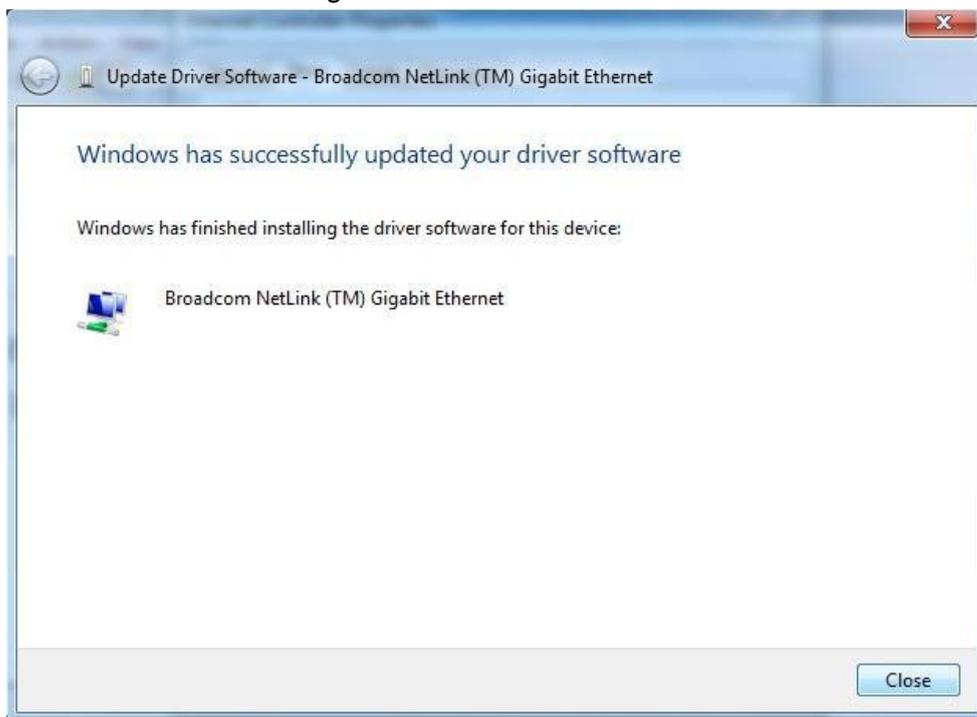
**Step.4.** Click on “Browse my computer for driver software” to install driver.



**Step.5.** Choose the path to install driver.



**Step.6.** Click on “Close” and go on.



## Audio Driver Installation

This chapter offers information on the Audio software installation utility.

Sections include:

- Introduction
- Installation of Audio Driver

## Chapter 6 Audio Driver Installation

### 6.1 Introduction

The ALC888 series are high-performance 7.1+2 Channel High Definition Audio Codecs providing ten DAC channels that simultaneously support 7.1 sound playback, plus 2 channels of independent stereo sound output (multiple streaming) through the front panel stereo outputs. The series integrates two stereo ADCs that can support a stereo microphone, and feature Acoustic Echo Cancellation (AEC), Beam Forming (BF), and Noise Suppression (NS) technology.

### 6.2 Installation of Audio Driver

The users must make sure which operating system you are using in the IA30 Motherboard before installing the Audio drivers. Follow the steps below to complete the installation of the Realtek ALC655 Audio drivers. You will quickly complete the installation.

**Step.1.** Insert the CD that comes with the motherboard. Open the file document “alc655\_driver” and click on “Vista\_Win7\_R260.exe” to execute the setup.

| Name  | Date modified     | Type        | Size      |
|---|-------------------|-------------|-----------|
|  Vista_Win7_R260 | 5/10/2011 3:21 PM | Application | 86,021 KB |

**Step.2.** Click on “Yes“ to install driver.



**Step.3.** Click on “Yes, I want to restart my computer now” to finish installation.



## Fintek COM Port

### Driver Installation

This chapter describes the step by step method to install the Fintek COM port driver.

STEP 1.If the system is WIN7 please first do close UAC.(Refer following “Disabling User Account

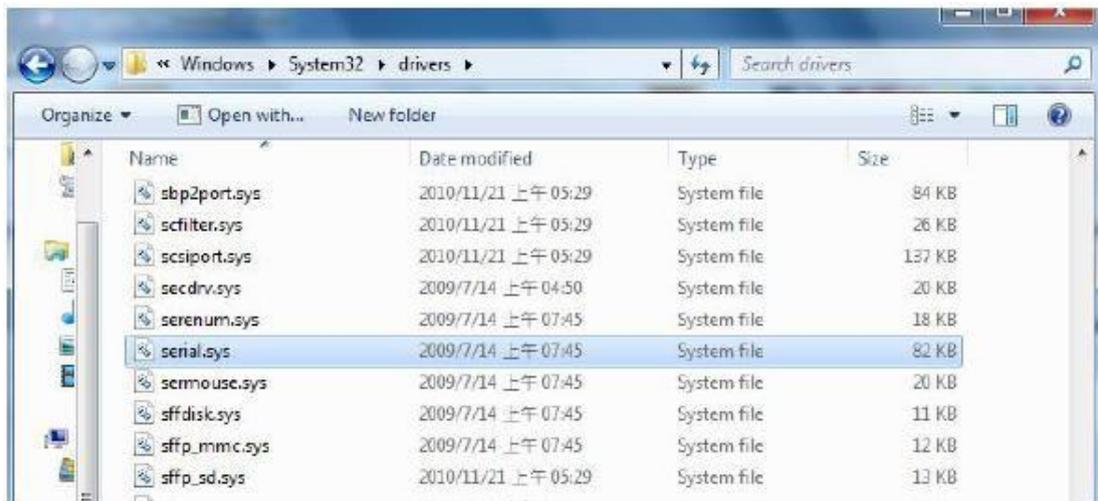
Control (UAC) in Windows 7”)

STEP 2.Extract the Patch\_0408.zip to a folder.

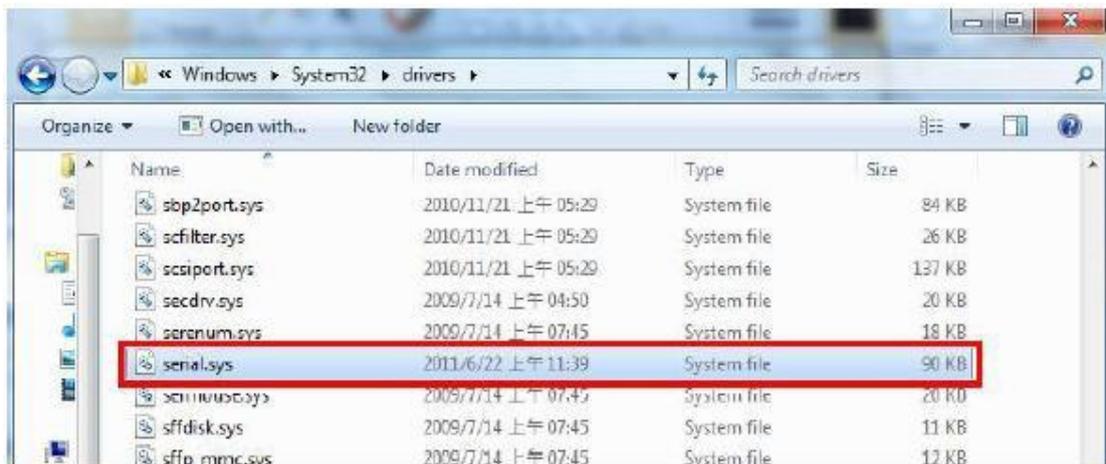
STEP 3.Double-click batch file(patch.bat) will install driver.

STEP 4.Check driver install success.

Before the update or update fail.



After the update and update success.



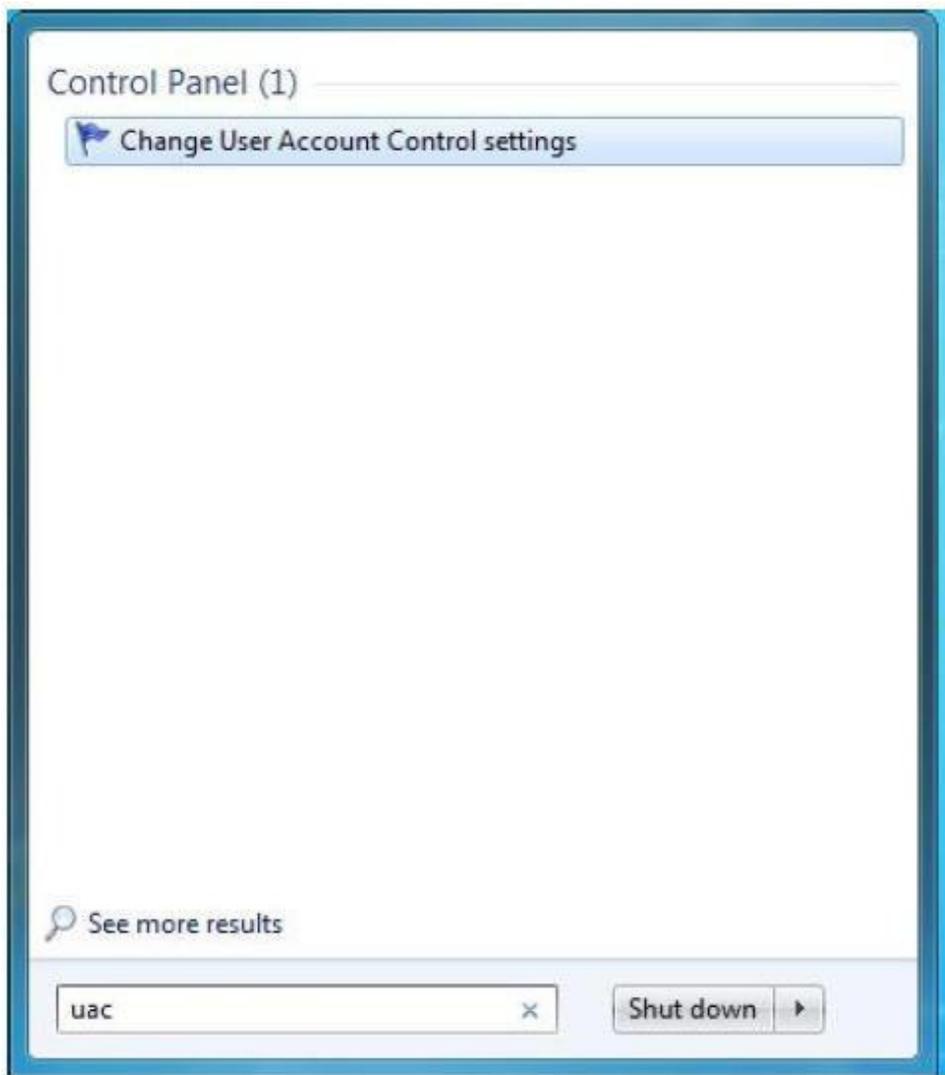
STEP 5.You will need to restart your computer for driver install success.

Type in this command from the Run menu:

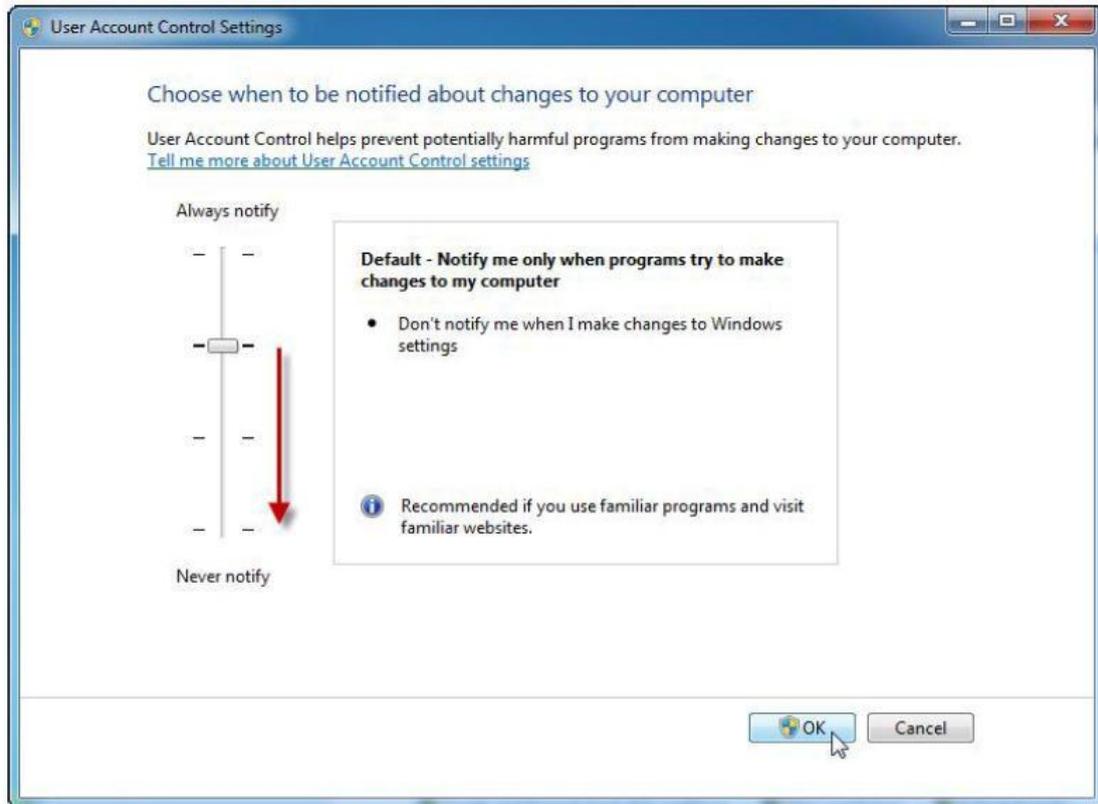
C:\Windows\System32\UserAccountControlSettings.exe

or

uac



To turn off UAC, move the slider to the Never notify position, and then click OK. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.



To turn UAC back on, move the slider to choose when you want to be notified, and then click OK. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.

You will need to restart your computer for UAC to be turned off.

## AMI BIOS Setup

This chapter describes how to set up the BIOS configuration

## Chapter 7 AMI BIOS SETUP

Your computer comes with a hardware configuration program which called BIOS Setup that allows you to view and set up the system parameters.

The BIOS (Basic Input / Output System) is a layer of the software called ‘firmware’ which translates instructions from software (such as the operating system) into instructions that allow the computer hardware to understand the software programs. The BIOS settings also identify installed devices and establish many special features.

### ENTERING BIOS SETUP

You can access the BIOS program just after you turn on your computer. Just press the “DEL” key when the following prompt appears:

Press <DEL> to enter Setup.

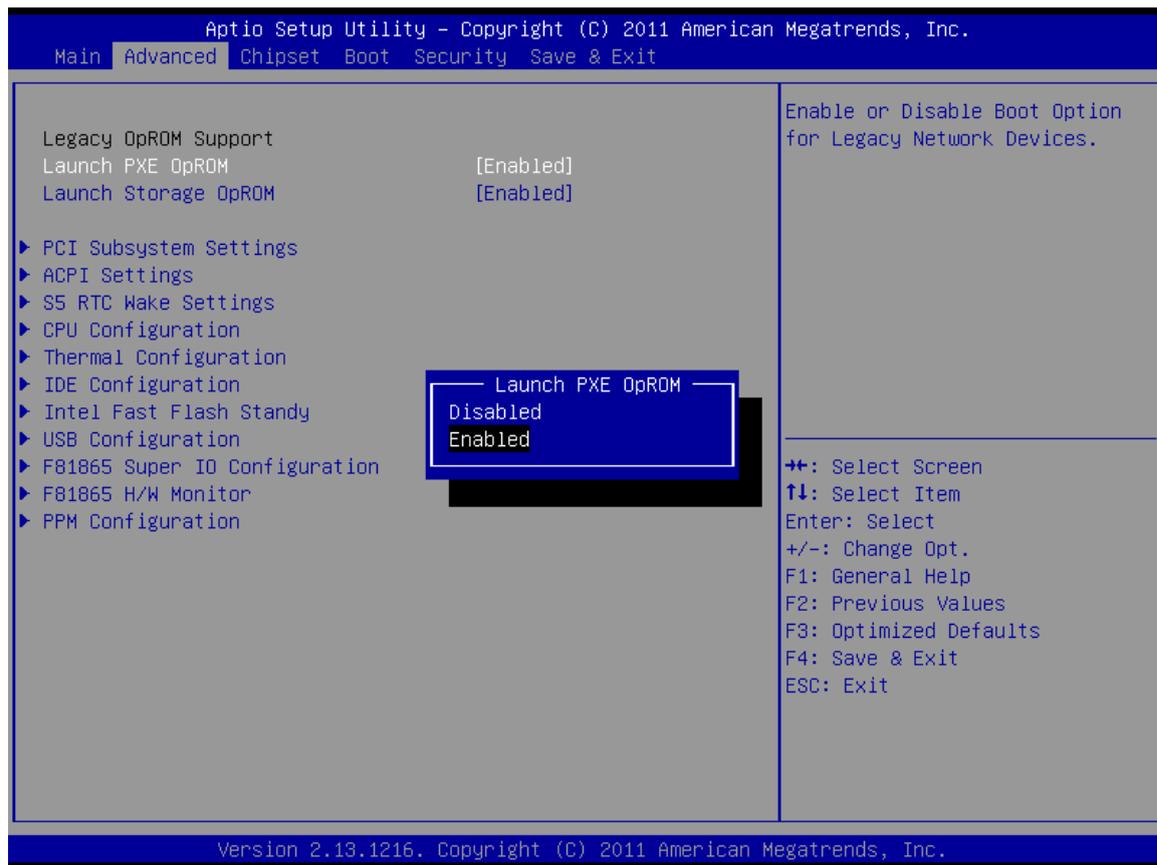
When you press <DEL> to enter the BIOS Setup image, the system interrupts the Power-On Self-Test (POST).

When you first enter the BIOS Setup Utility, you will enter the Main setup image. You can always return to the Main setup image by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup image is shown as below.



The Main BIOS setup image has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. On the contrary, options in blue can be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

### 7.1 Advanced Setting



#### ➤ Launch PXE OpROM

| SETTING         | DESCRIPTION  |
|-----------------|--|
| <b>Disabled</b> | Use this setting to ignore all PXE Option ROMs.  |
| <b>Enabled</b>  | Use this setting to load PXE Option ROMs. To limit the PXE support to particular devices, use the function Use device for PXE. |

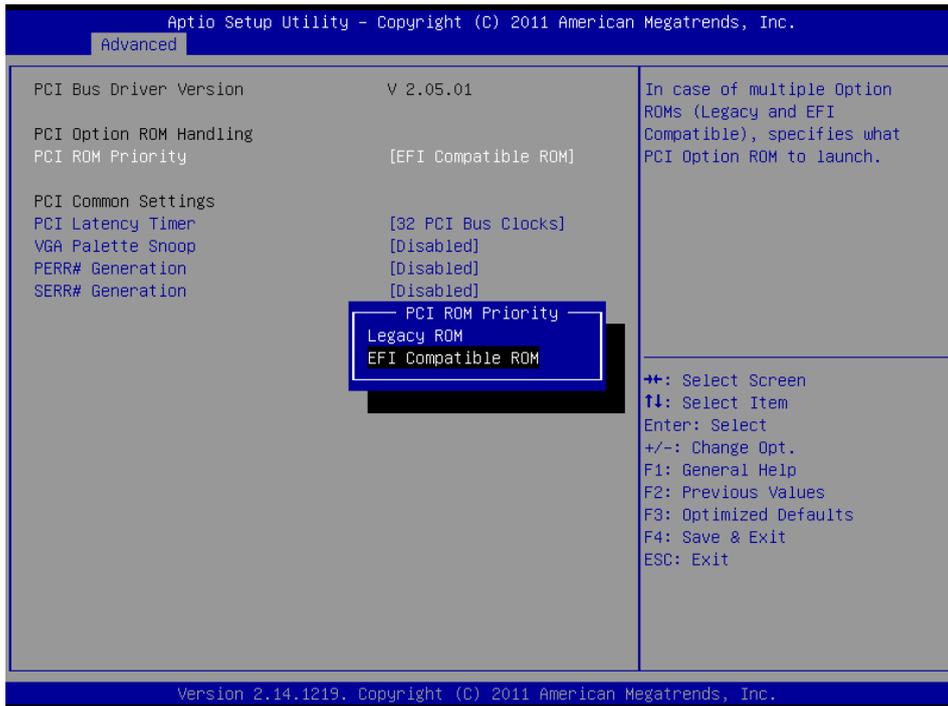
Default: Disabled

#### ➤ Launch Storage OpROM

| SETTING         | DESCRIPTION  |
|-----------------|--|
| <b>Disabled</b> | Use this setting to ignore all Storage Option ROMs.  |
| <b>Enabled</b>  | Use this setting to load Storage Option ROMs. To limit the Storage support to particular devices, use the function Use device for Storage. |

Default: Disabled

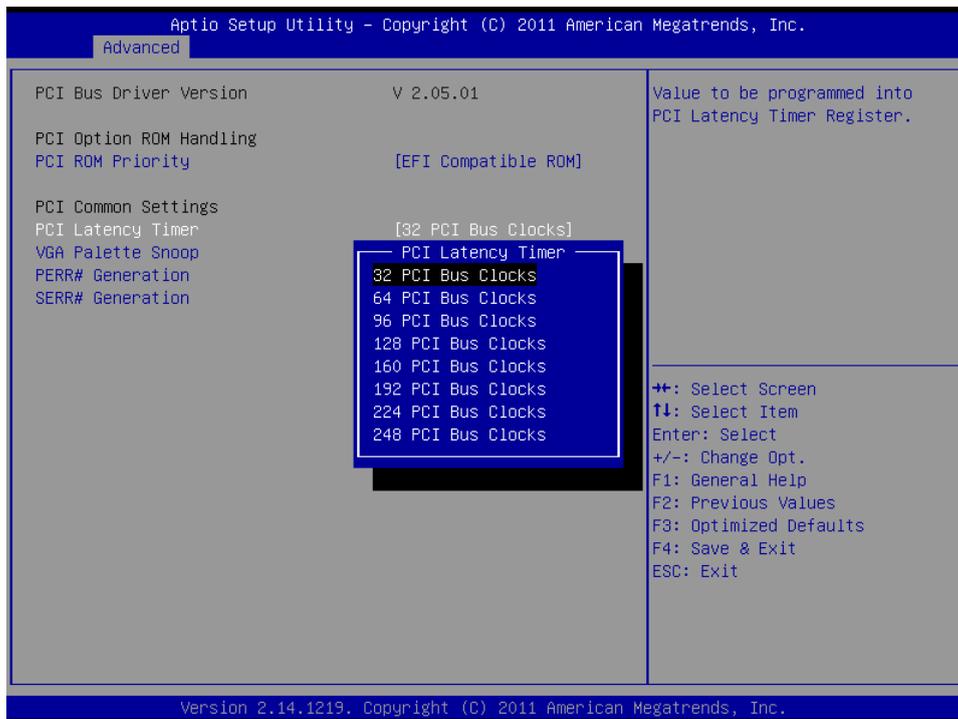
➤ **PCI ROM Priority**



Selects the PCI Option ROM to launch in case Multiple Option ROMs (**Legacy ROM** and **EFI Compatible ROM**) are present.

➤ **PCI Latency Timer**

Use this function to select the number of PCI bus clocks to be used for the PCI latency timer.

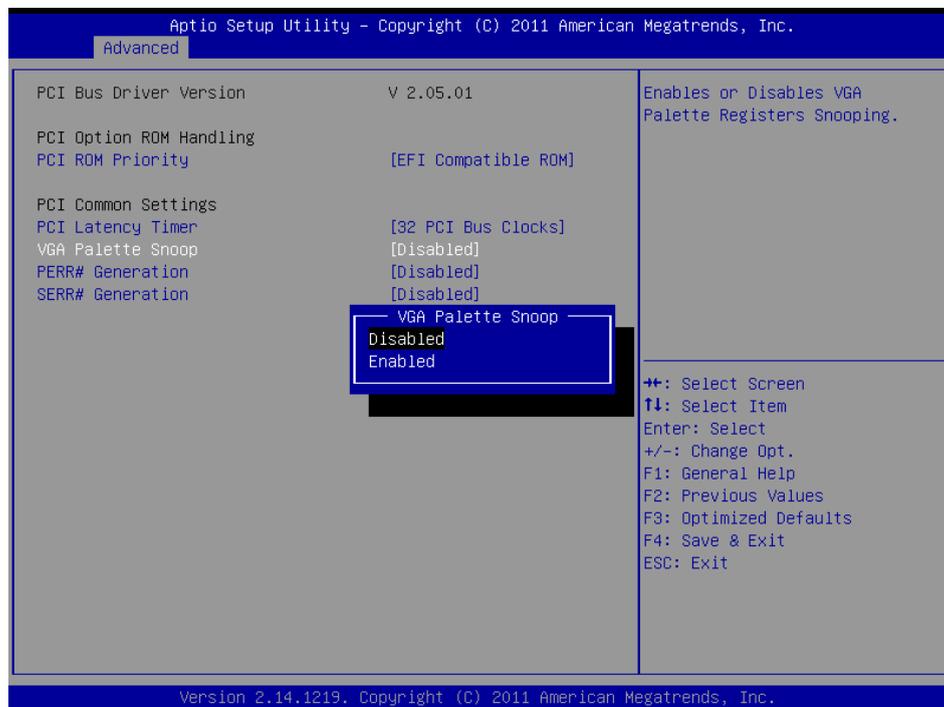


| SETTING                   | DESCRIPTION  |
|---------------------------|--|
| <b>32 PCI Bus Clocks</b>  | Use this setting to program the PCI latency timer to 32 PCI bus clocks.  |
| <b>64 PCI Bus Clocks</b>  | Use this setting to program the PCI latency timer to 64 PCI bus clocks.  |
| <b>96 PCI Bus Clocks</b>  | Use this setting to program the PCI latency timer to 96 PCI bus clocks.  |
| <b>128 PCI Bus Clocks</b> | Use this setting to program the PCI latency timer to 128 PCI bus clocks. |
| <b>160 PCI Bus Clocks</b> | Use this setting to program the PCI latency timer to 160 PCI bus clocks. |
| <b>192 PCI Bus Clocks</b> | Use this setting to program the PCI latency timer to 192 PCI bus clocks. |
| <b>224 PCI Bus Clocks</b> | Use this setting to program the PCI latency timer to 224 PCI bus clocks. |
| <b>248 PCI Bus Clocks</b> | Use this setting to program the PCI latency timer to 248 PCI bus clocks. |

Default: 32 PCI Bus Clocks

➤ **VGA Palette Snoop**

This field controls the ability of a primary PCI VGA controller to share a common palette (when a snoop write cycles) with an ISA video card.



Enables or Disables VGA Palette Registers Snooping.

Default: Disabled

➤ **PERR# Generation**

Enables or Disables PCI Device to Generate PERR#.

Default: Disabled

➤ **SERR# Generation**

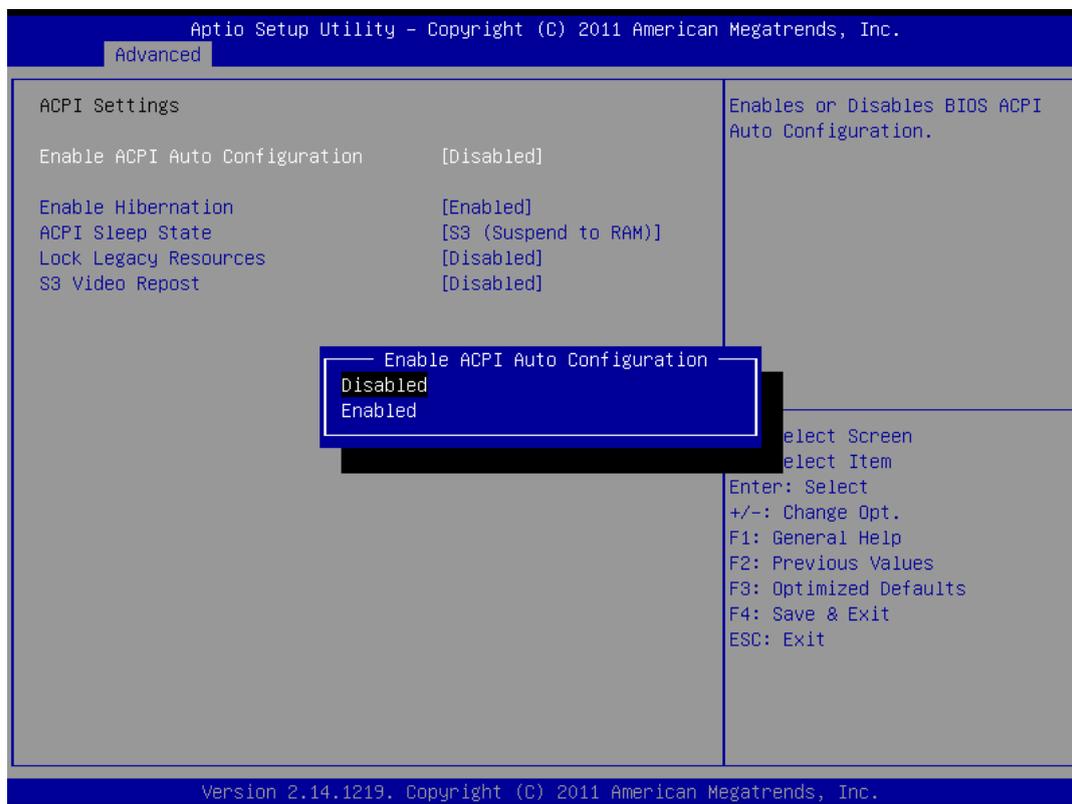
Enables or Disables PCI Device to Generate SERR#.

Default: Disabled

## ACPI Settings

### ➤ Enable ACPI Auto Configuration

Enables or Disables BIOS ACPI Auto Configuration



**Default:** Disabled

### ➤ Enable Hibernation

Enables or Disables System ability to Hibernate. This option may be not effective with some OS.

### ➤ ACPI Sleep State

| SETTING                | DESCRIPTION                                     |
|------------------------|---|
| <b>Suspend Disable</b> | System ability to Hibernate (OS/S3 Sleep State) |
| <b>S1</b>              | CPU Stop Clock                                  |
| <b>S3</b>              | Suspend to RAM                                  |

**Default:** S3 (Suspend to RAM)

### ➤ Lock Legacy Resources

Enables or Disable Lock of Legacy Resource.

**Default:** Disable

### ➤ S3 Video Repost

Enables or Disable S3 Video Repost

**Default:** Disable

## S5 RTC Wake Settings

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

Main **Advanced** Chipset Boot Security Save & Exit

|   |  |
|---|--|
| Legacy OpROM Support<br>Launch PXE OpROM [Disabled]   | Enable system to wake from S5 using RTC alarm  |
| ▶ PCI Subsystem Settings<br>▶ ACPI Settings<br>▶ S5 RTC Wake Settings<br>▶ CPU Configuration<br>▶ Thermal Configuration<br>▶ IDE Configuration<br>▶ Intel Fast Flash Standby<br>▶ USB Configuration<br>▶ FB1865 Super ID Configuration<br>▶ FB1865 H/W Monitor<br>▶ PPM Configuration | ++: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/-: Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Exit<br>ESC: Exit |

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| SETTING                              | DESCRIPTION  |
|--------------------------------------|--|
| <b>Wake system with Fixed Time</b>   | System wake on alarm event. When enabled, System will wake on the hr: min:: sec specified. |
| <b>Wake system with Dynamic Time</b> | Options: Enabled, Disabled   |

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

**Advanced**

|  |   |
|--|---|
| Wake system with Fixed Time [Disabled]   | Enable or disable System wake on alarm event. When enabled, System will wake on the hr:min::sec specified |
| Wake system with Dynamic Time [Disabled] |   |

Wake system with Fixed Time  
 Disabled  
 Enabled

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

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## CPU Configuration



### ➤ Hyper-threading

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

When Disabled, only one thread per enabled core is enabled.

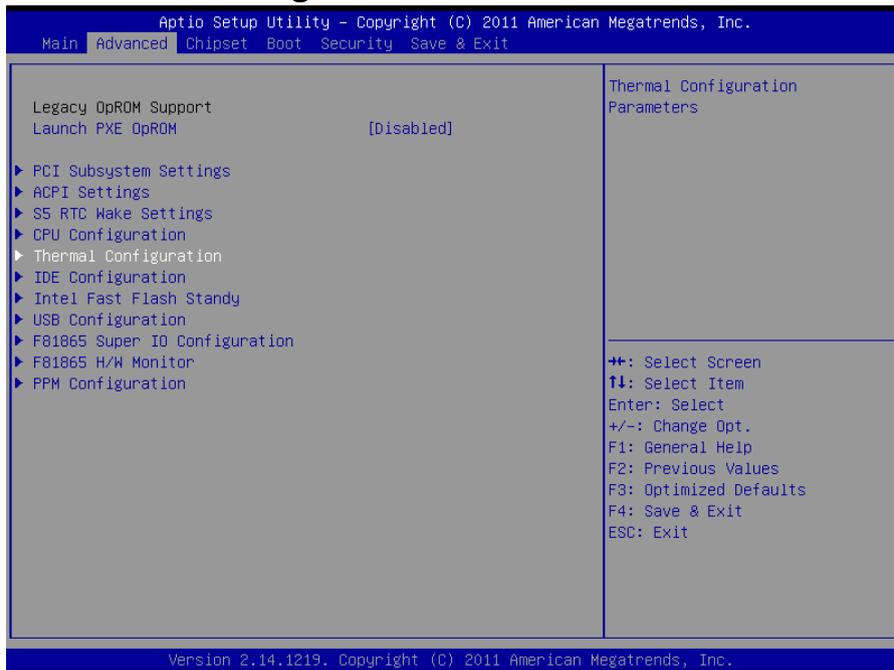
### ➤ Execute Disable Bit

XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.)

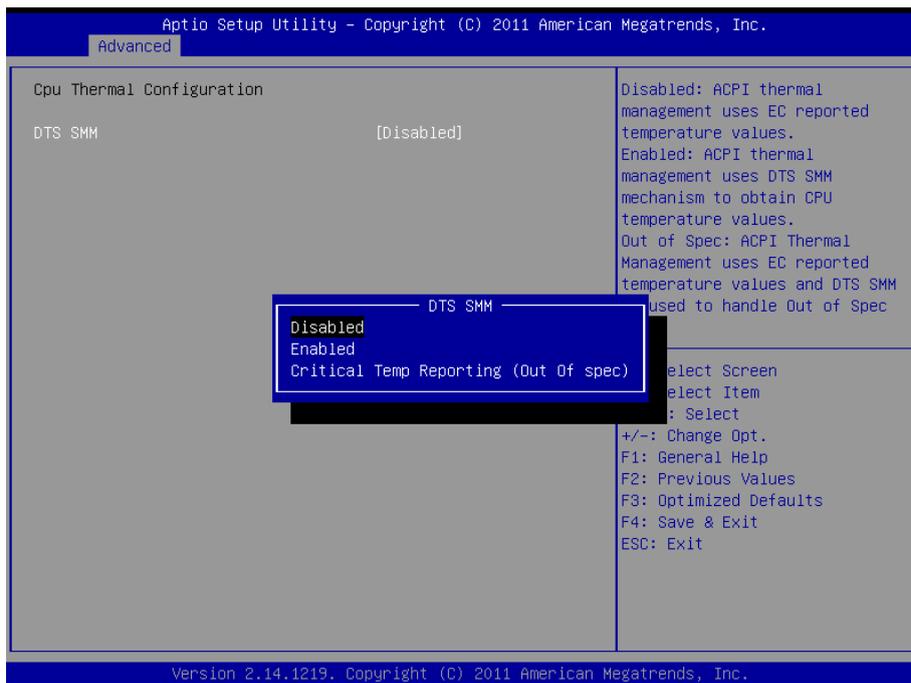
### ➤ Limit CPUID Maximum

Disabled for Windows XP

## Thermal Configuration



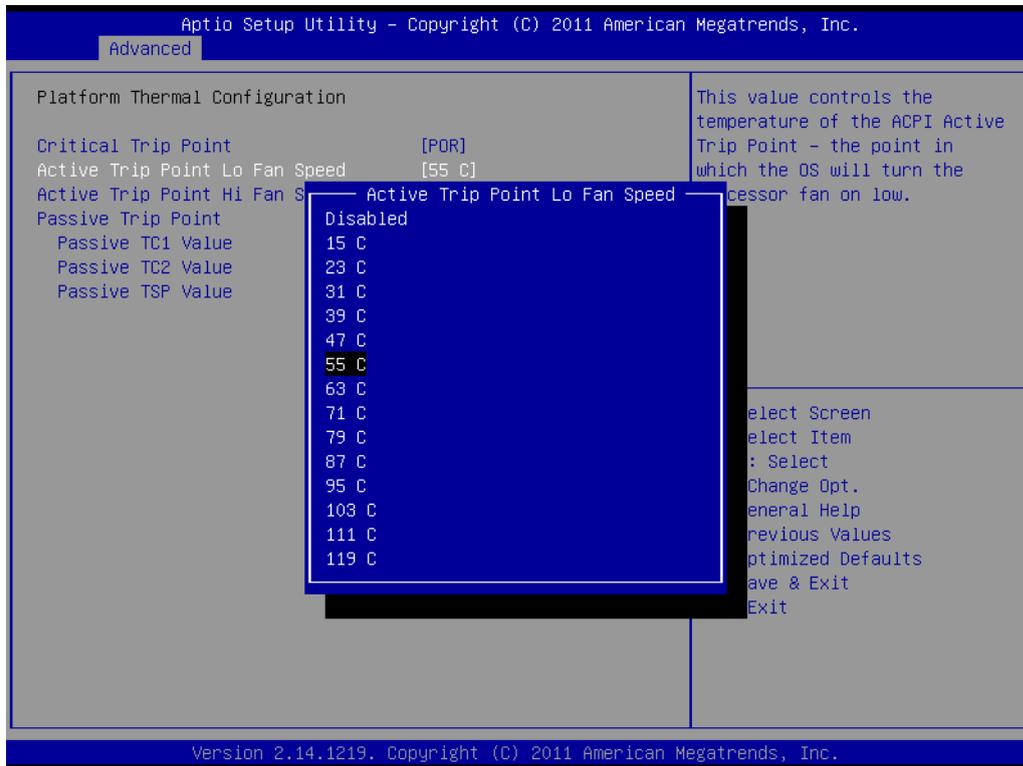
### ➤ CPU Thermal Configuration > DTS SMM



| SETTING                              | DESCRIPTION   |
|--------------------------------------|---|
| Disabled                             | Uses EC reported temperature values                                   |
| Enabled                              | Uses DTS SMM mechanism to obtain CPU temperature value                |
| Critical Temp Reporting(Out of spec) | Uses EC reported temperature values and DTS SMM to handle out of spec |

➤ **Critical Trip Point**

This value controls the temperature of the ACPI critical Trip point—the point in which the OS will shut the system off.



➤ **Active Trip Point Lo Fan Speed**

➤ **Active Trip Point Hi Fan Speed**

This field enables or disables the smart fan feature. At a certain temperature, the fan starts turning. Once the temperature drops to a certain level, it stops turning again.

➤ **Passive TC1 Value**

➤ **Passive TC2 Value**

➤ **Passive TSP Value**

## IDE Configuration

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

Main **Advanced** Chipset Boot Security Save & Exit

Legacy OpROM Support  
Launch PXE OpROM [Disabled]

- ▶ PCI Subsystem Settings
- ▶ ACPI Settings
- ▶ S5 RTC Wake Settings
- ▶ CPU Configuration
- ▶ Thermal Configuration
- ▶ IDE Configuration
- ▶ Intel Fast Flash Standby
- ▶ USB Configuration
- ▶ F81865 Super IO Configuration
- ▶ F81865 H/W Monitor
- ▶ PPM Configuration

IDE Devices 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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### ➤ Configure SATA as

Determines how SATA controllers(s) operate. The options are IDE and AHCI.

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**Advanced**

SATA Port0 Not Present  
SATA Port1 Not Present

SATA Controller(s) [Enabled]

Configure SATA as [AHCI]  
Port0 Speed Limit [No Limit]  
Port1 Speed Limit [No Limit]

SATA Port 0 [Enabled]  
SATA Port 0 Hot Plug  
SATA Port 1  
SATA Port 1 Hot Plug

Misc Configuration for hard disk

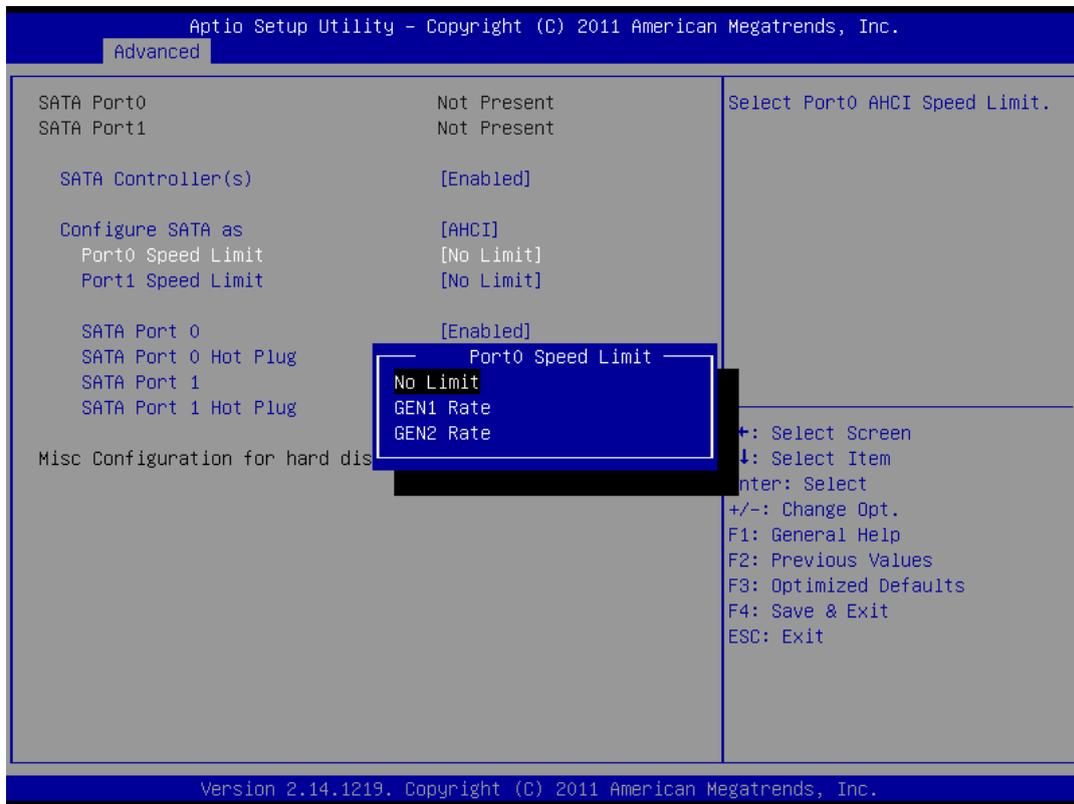
Select a configuration for SATA Controller.

++: 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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➤ **Port0 Speed Limit**

Select Port0 AHCI Speed Limit. The options are No Limit, GEN1 Rate and GEN2 Rate.



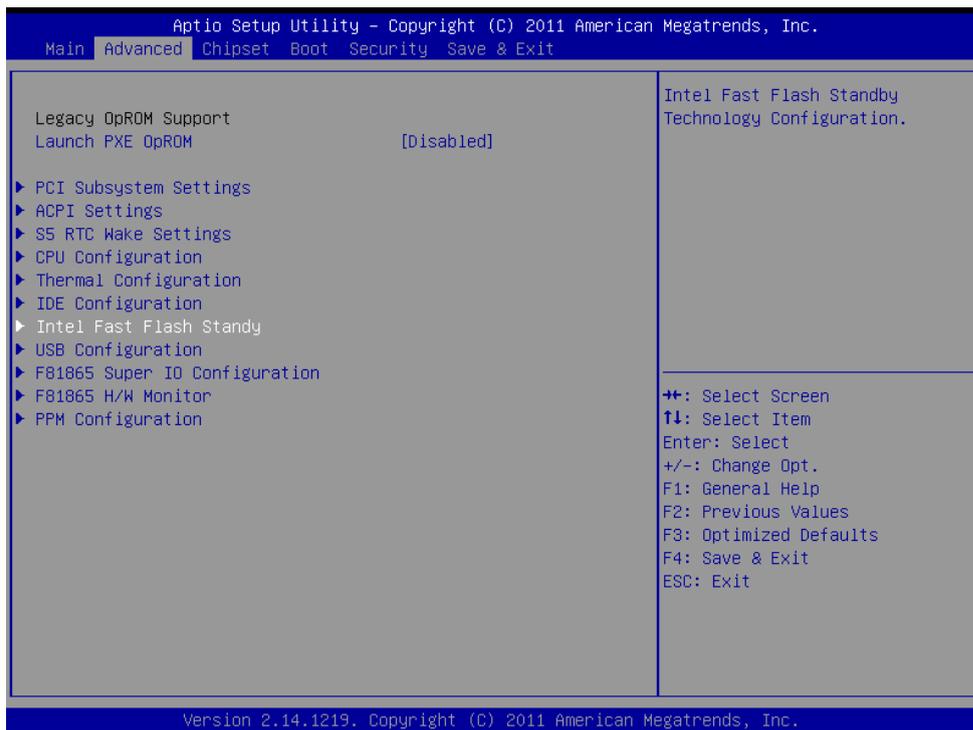
➤ **SATA Port 0/1**

Enable or disable SATA Port.

➤ **SATA Port 0/1 Hot Plug**

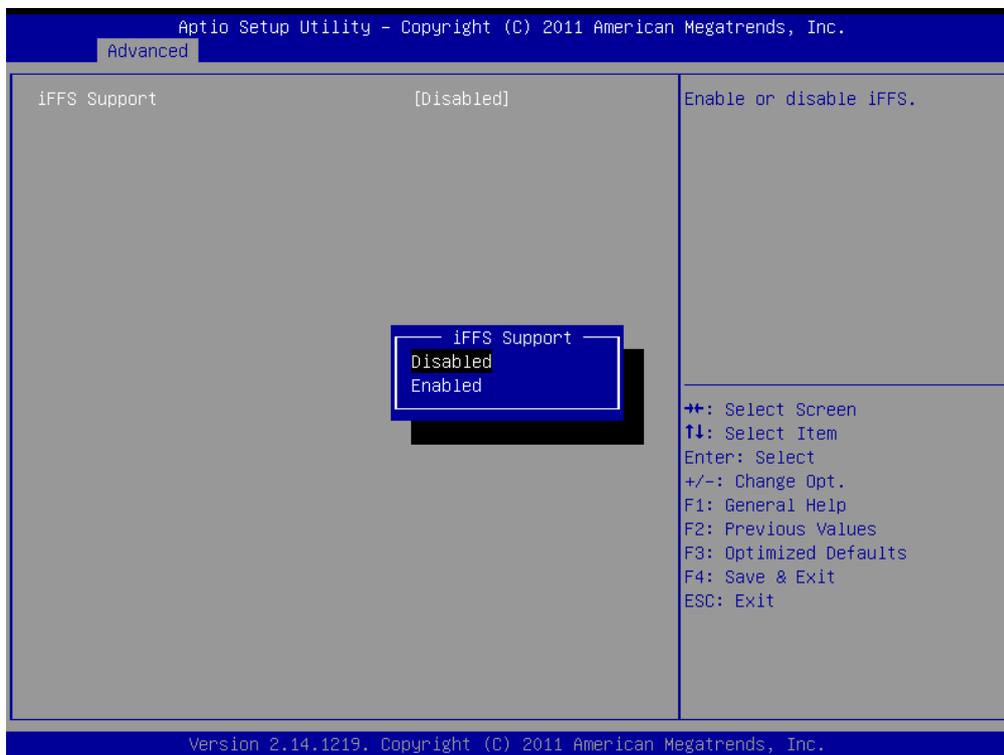
Designates this port as Hot Pluggable

## Intel Fast Flash Standby

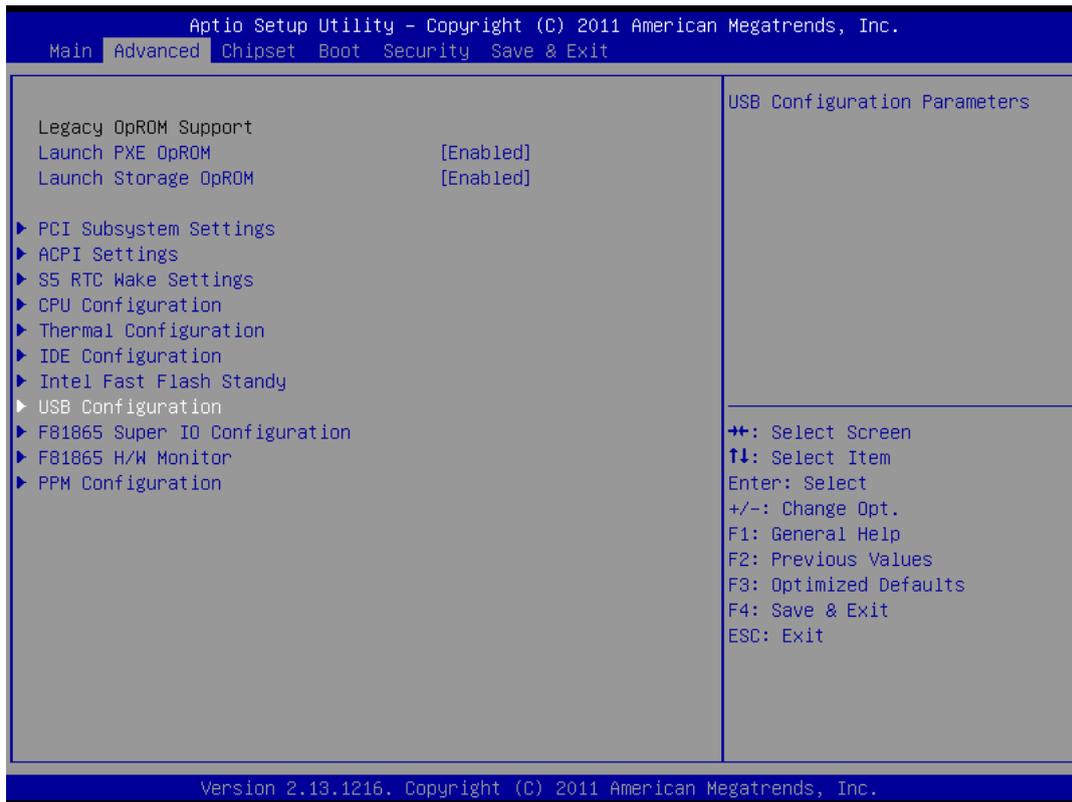


### ➤ iFFS Support

#### Enable or disable iFFS.



## USB Configuration



### ➤ Legacy USB support

Enables Legacy USB support. AUTO option disable legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

### ➤ EHCI Hand-off

This is a workaround for OSES without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

**Default:** Disabled

### ➤ USB transfer time-out

The time-out value for control, bulk, and Interrupt transfers.

Default: 20 sec

### ➤ Device reset time-out

The USB mass storage device Start Unit command time-out.

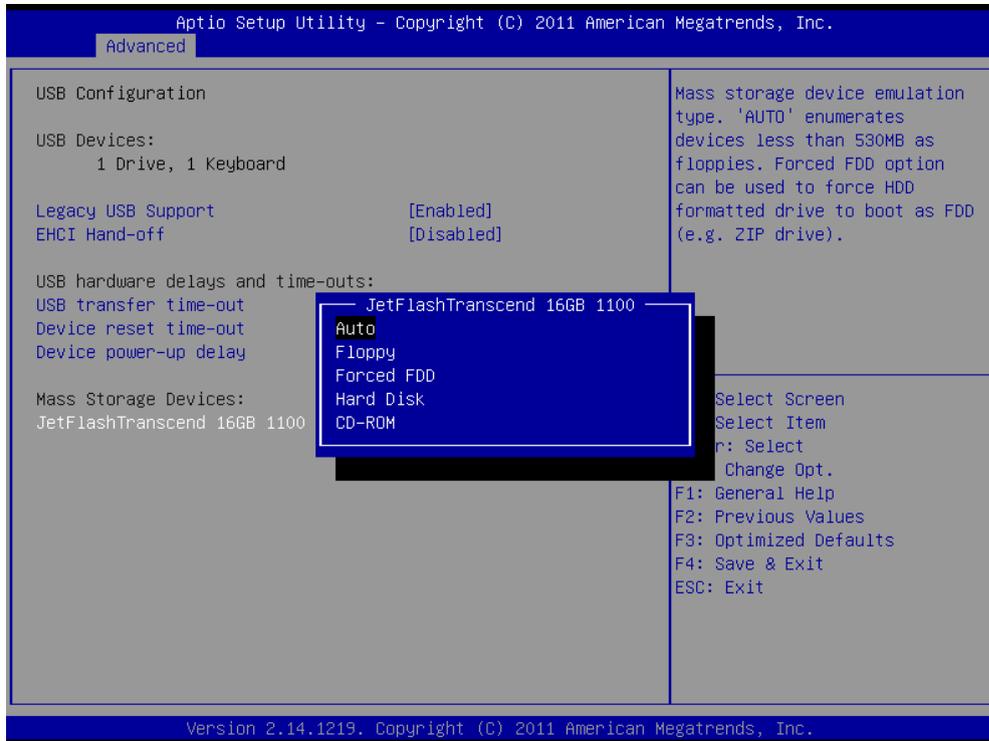
Default: 20 sec

### ➤ Device power-up delay

Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.

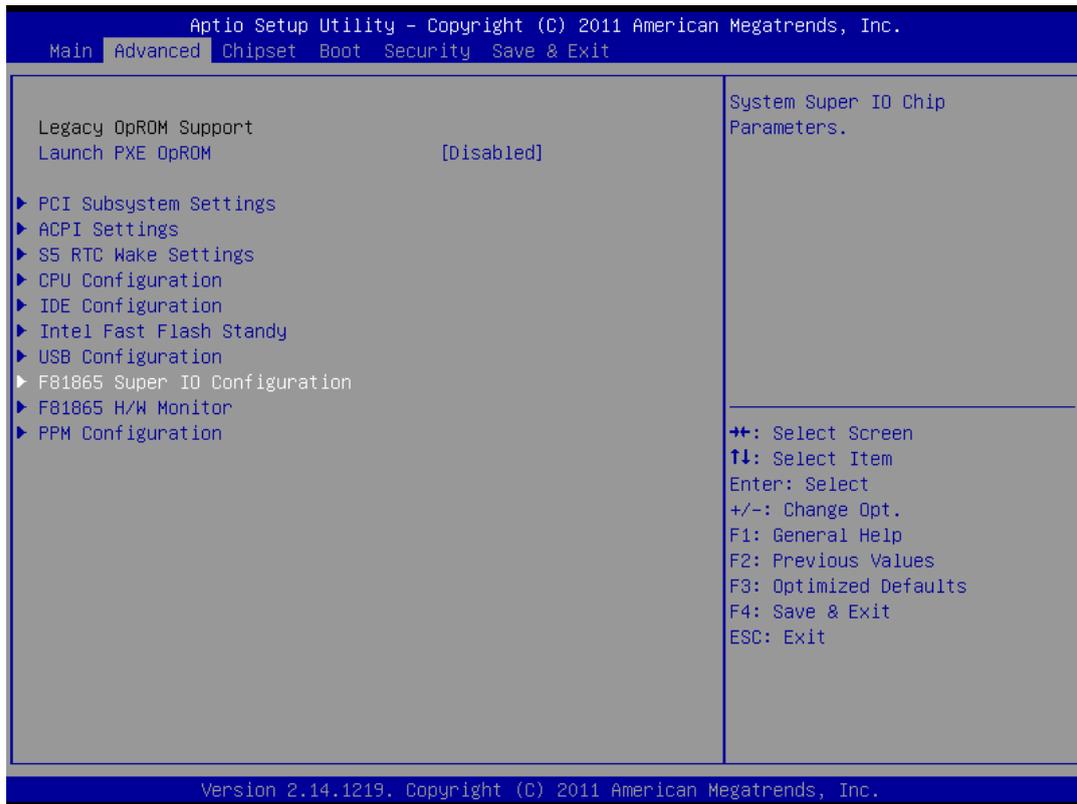
➤ **Mass Storage Device:**

Mass storage device emulation type. 'AUTO' enumerates devices less than 530MB as floppies. Forced FDD option can be used to force HDD formatted drive to boot as FDD.

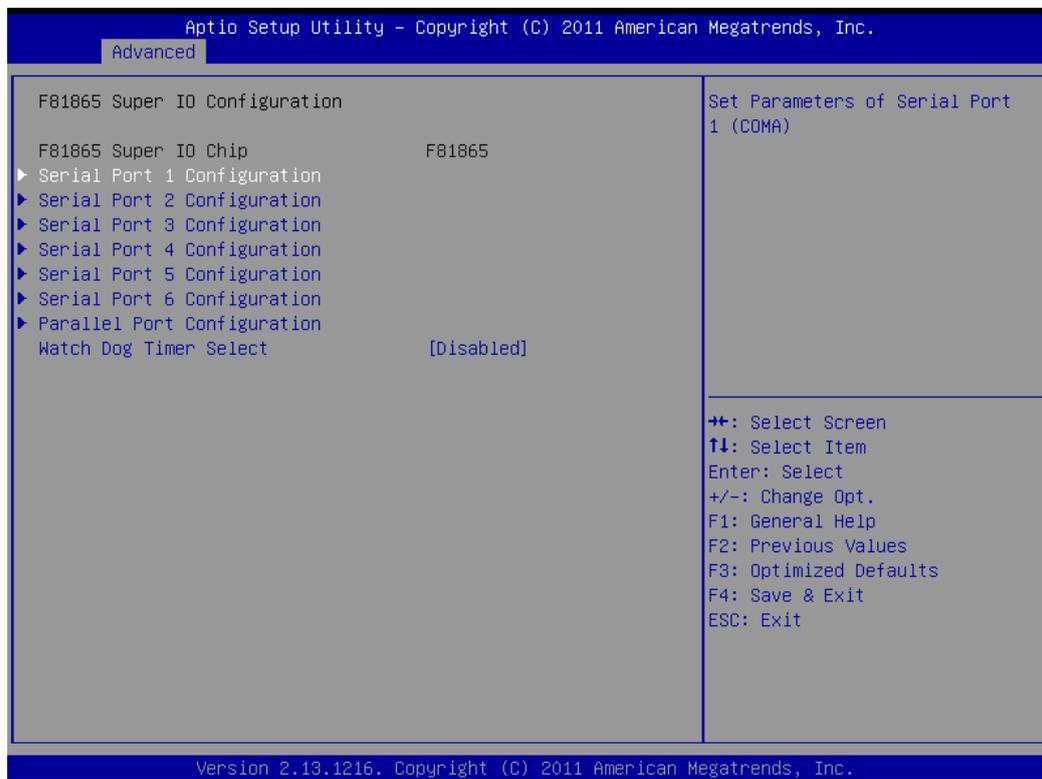


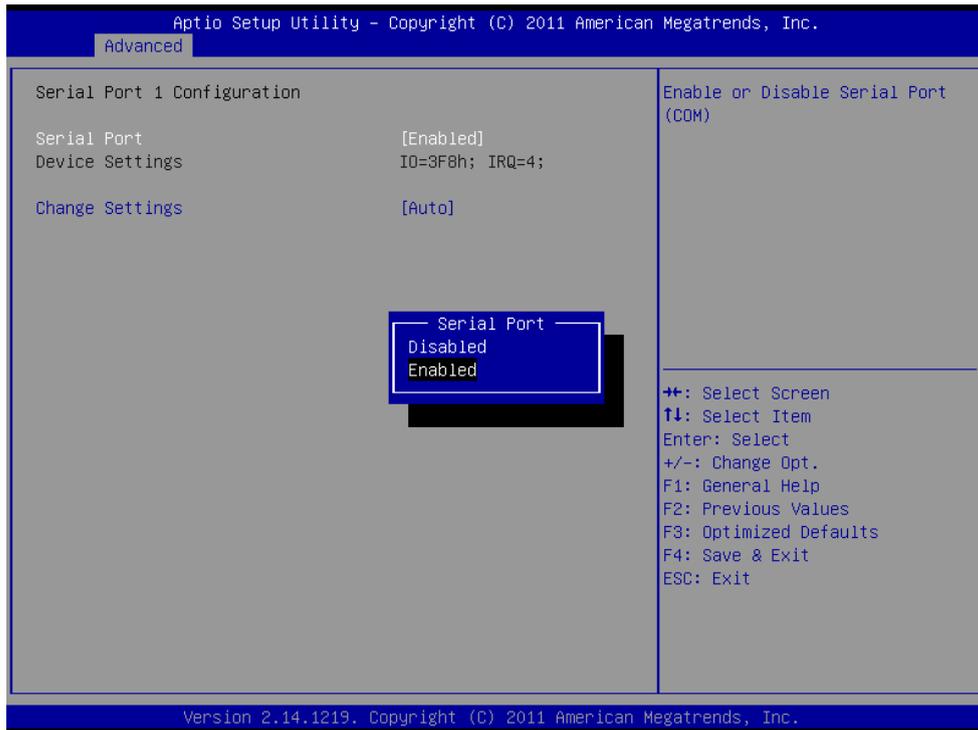
## F81865 Super IO Configuration

System Super IO Chip Parameters.



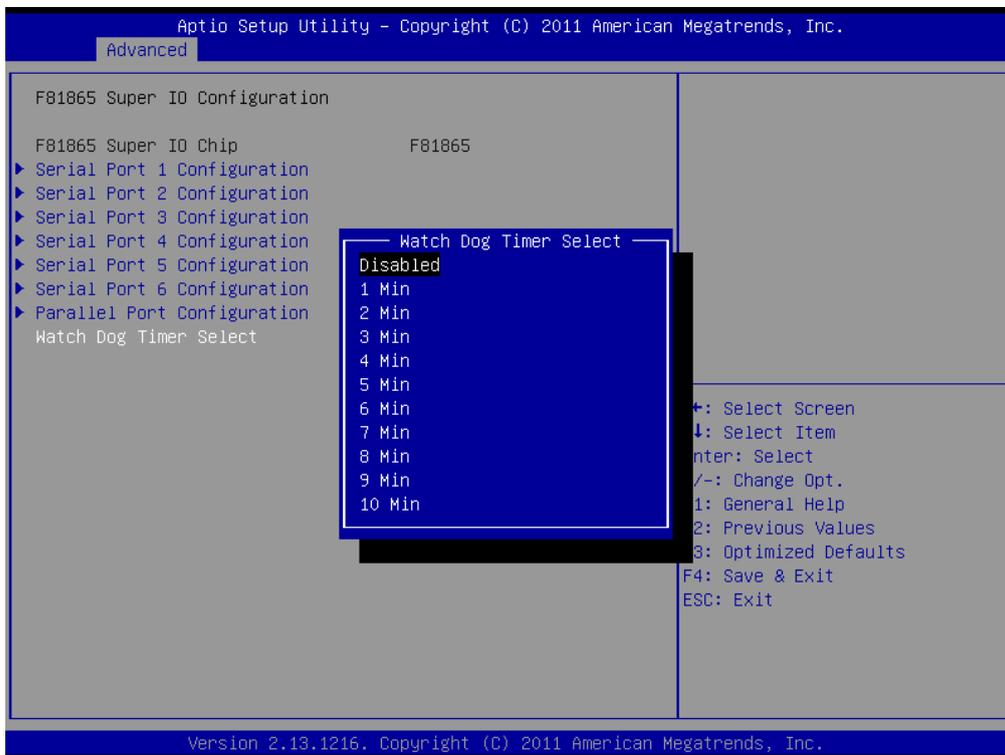
### ➤ Serial Port 1、2、3、4、5、6 Configuration





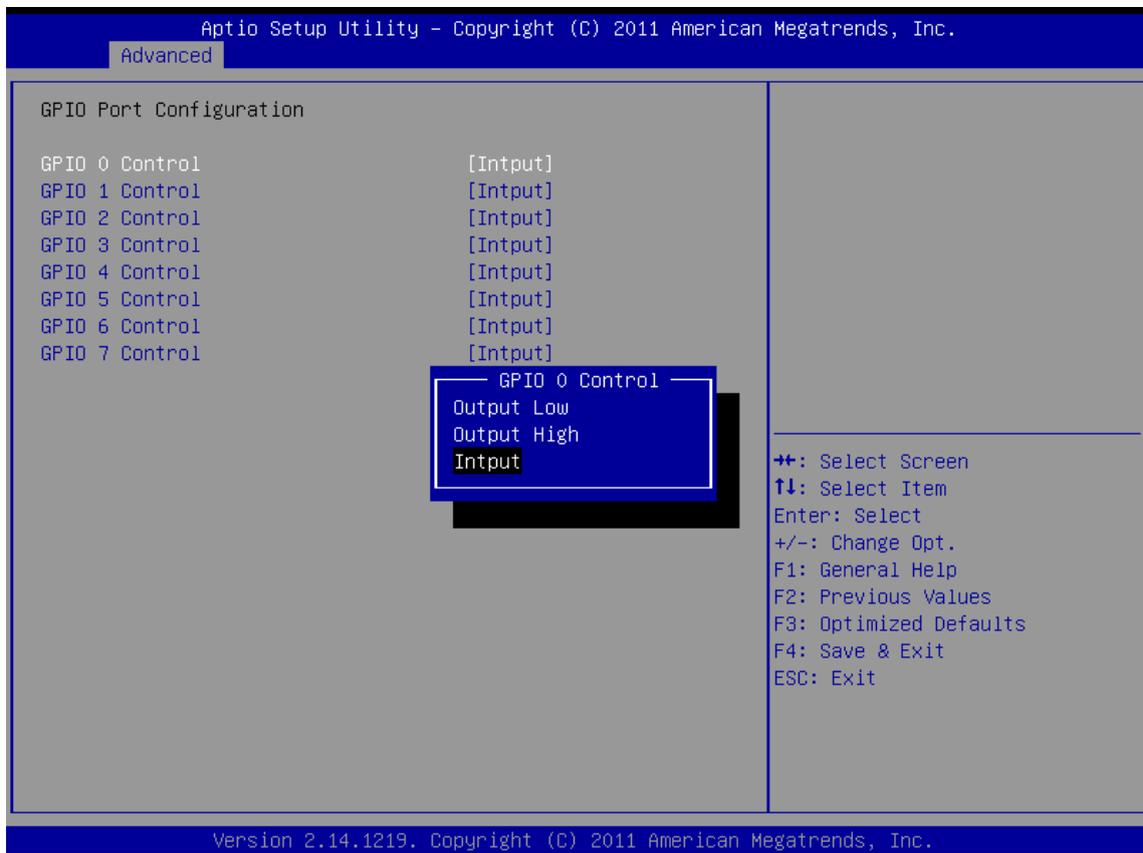
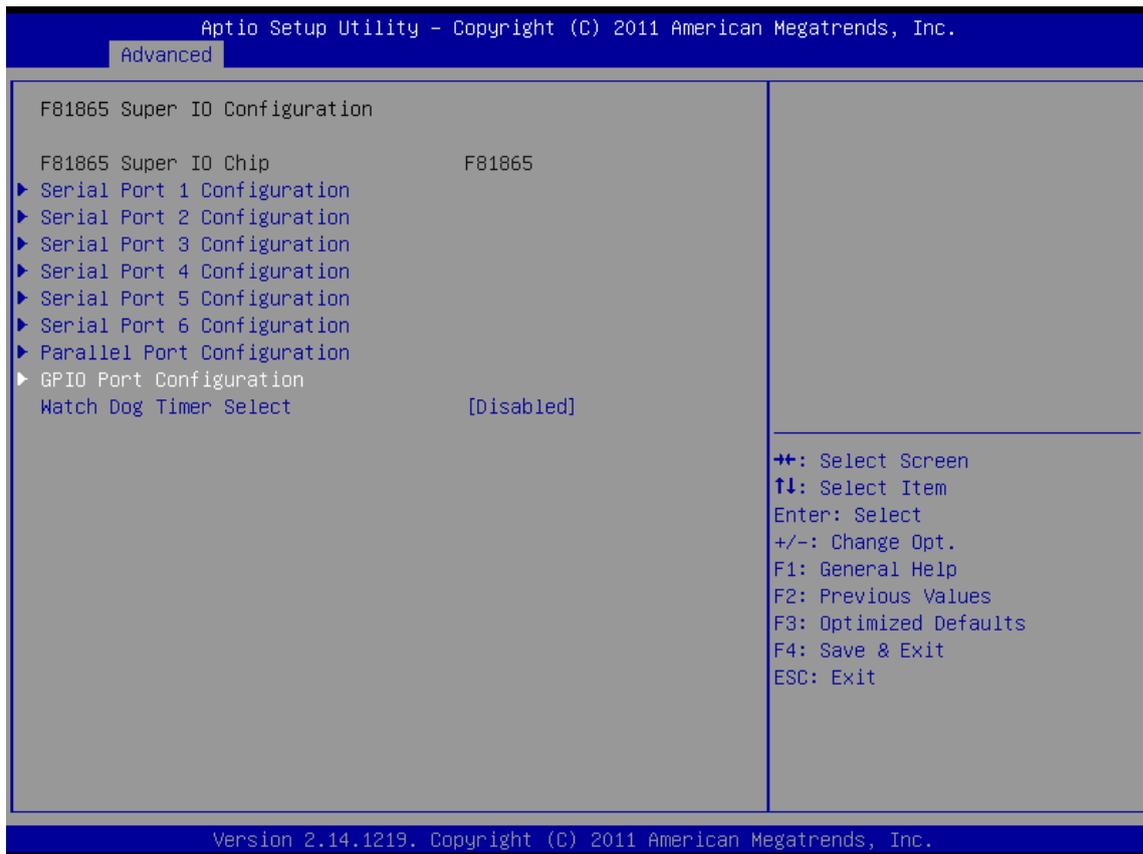
Set Parameters of Serial Ports. User can Enable/Disable the serial port and Select an optimal settings for the Super IO Device. Enable or Disable Serial Port (COM)

**Default:** Enable

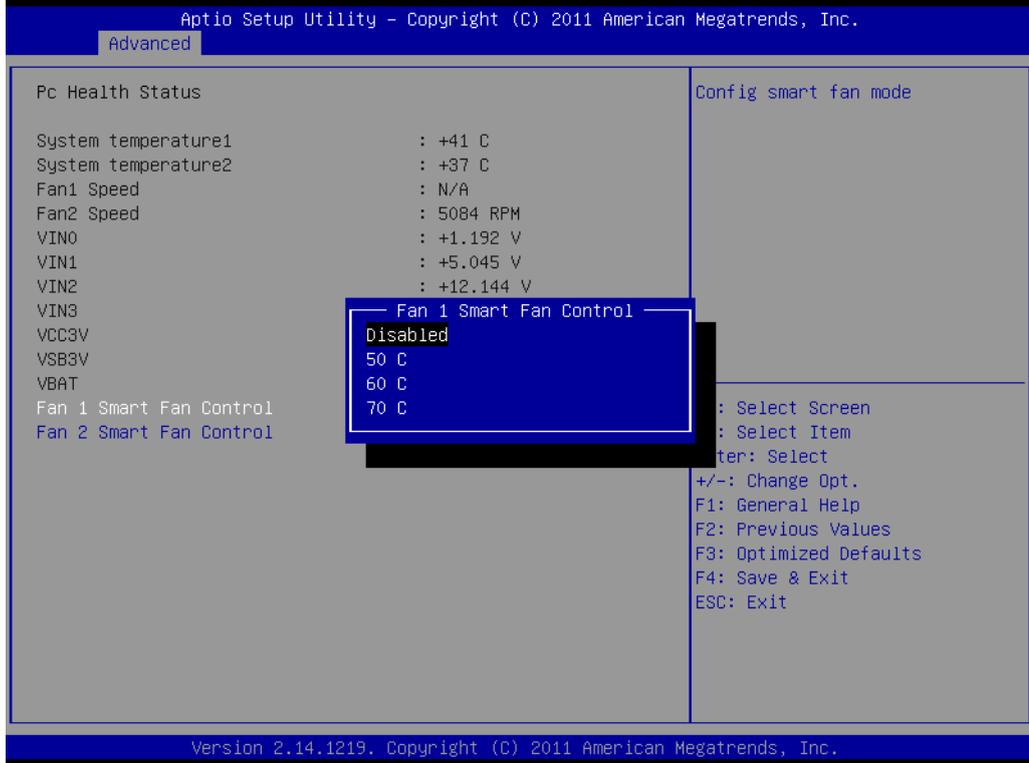
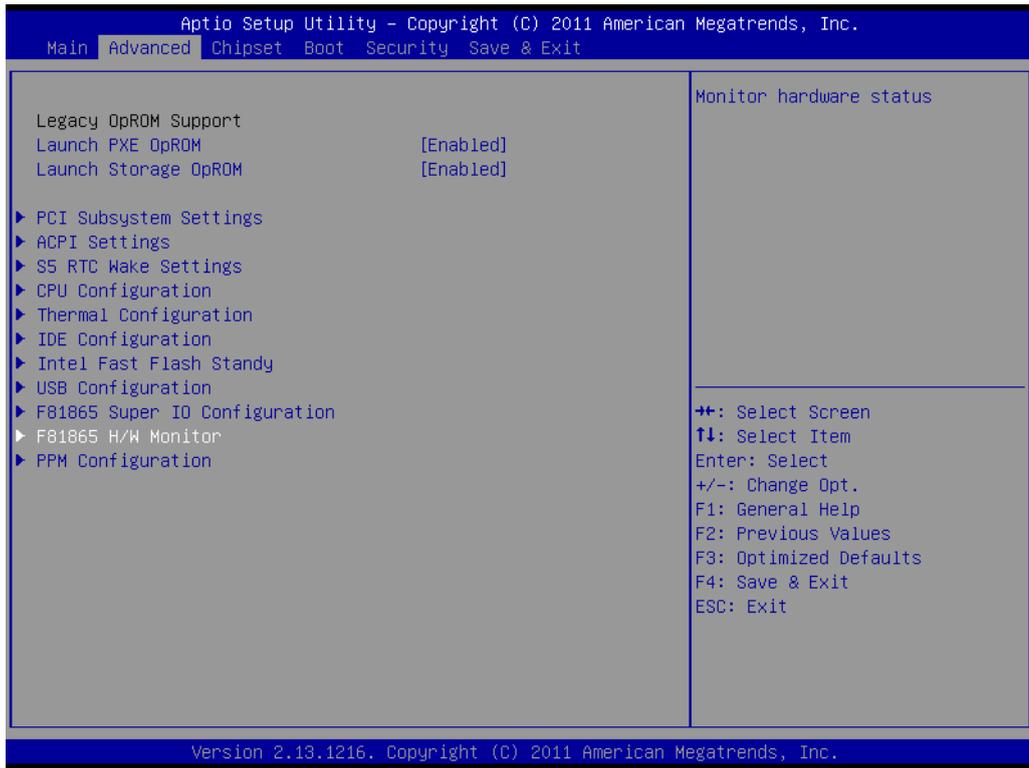


The watchdog timer circuit has to be triggered within a specified time by the application software. If the watchdog is not triggered because proper software execution fails or a hardware malfunction occurs, it will reset the system

➤ **GPIO Port Configuration**

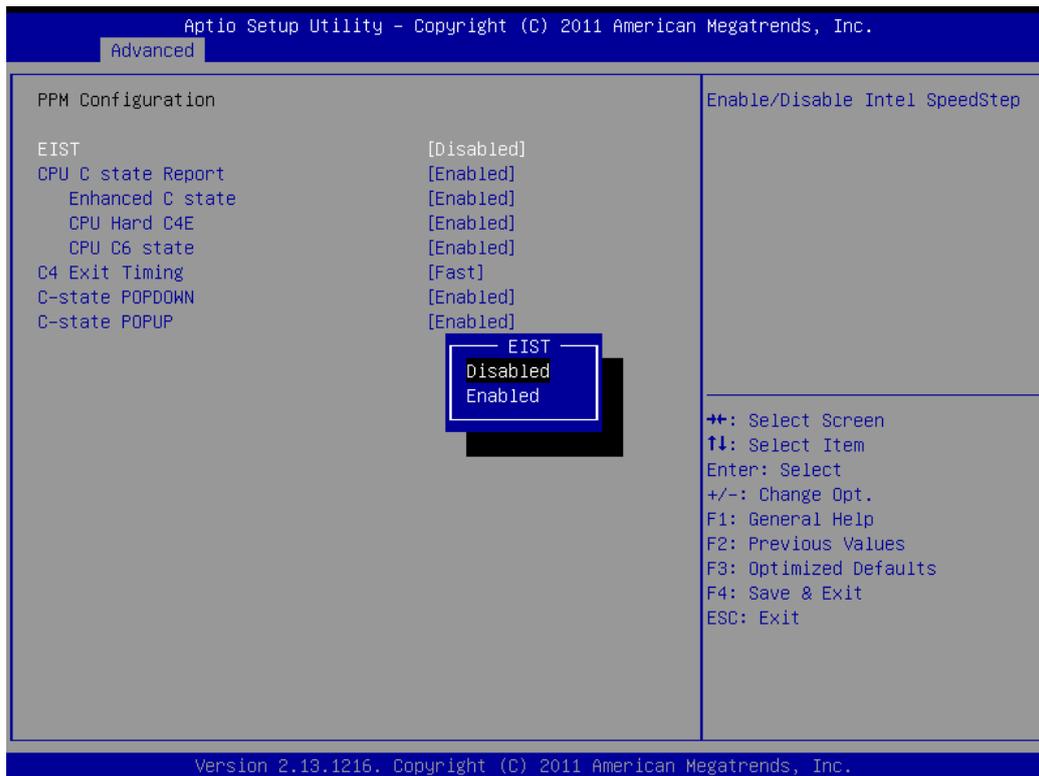
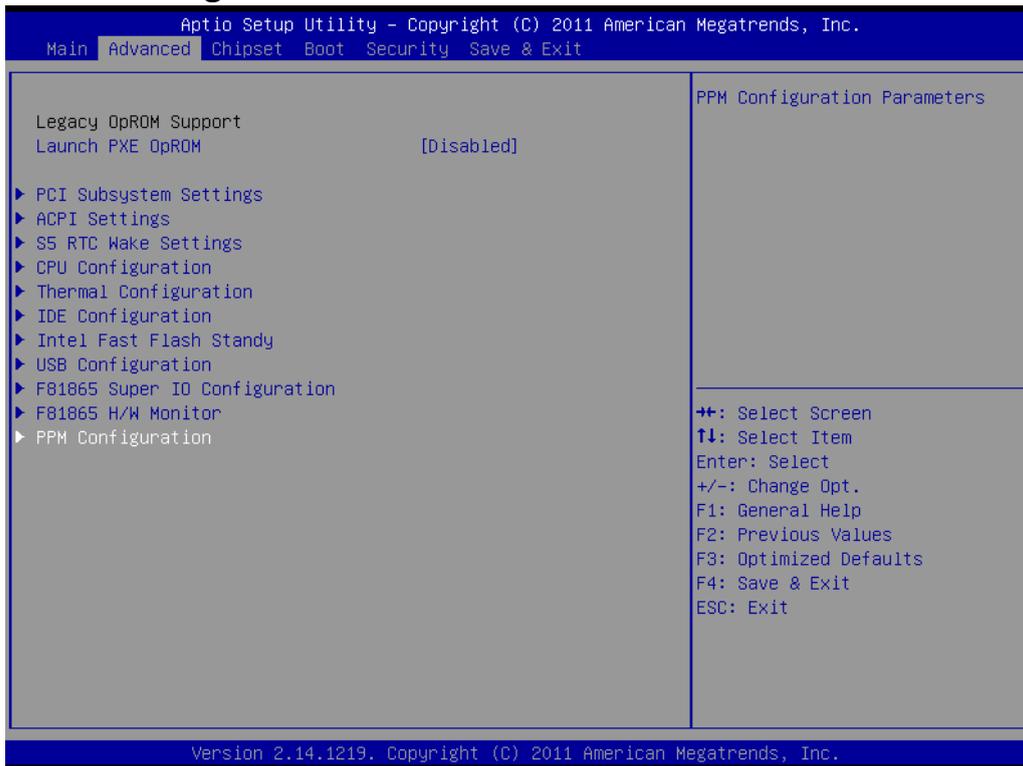


➤ **F81865 H/W Monitor**



Fan 1、2 Config smart fan mode, can choose 50,60 and 70 three degree mode

## PPM Configuration

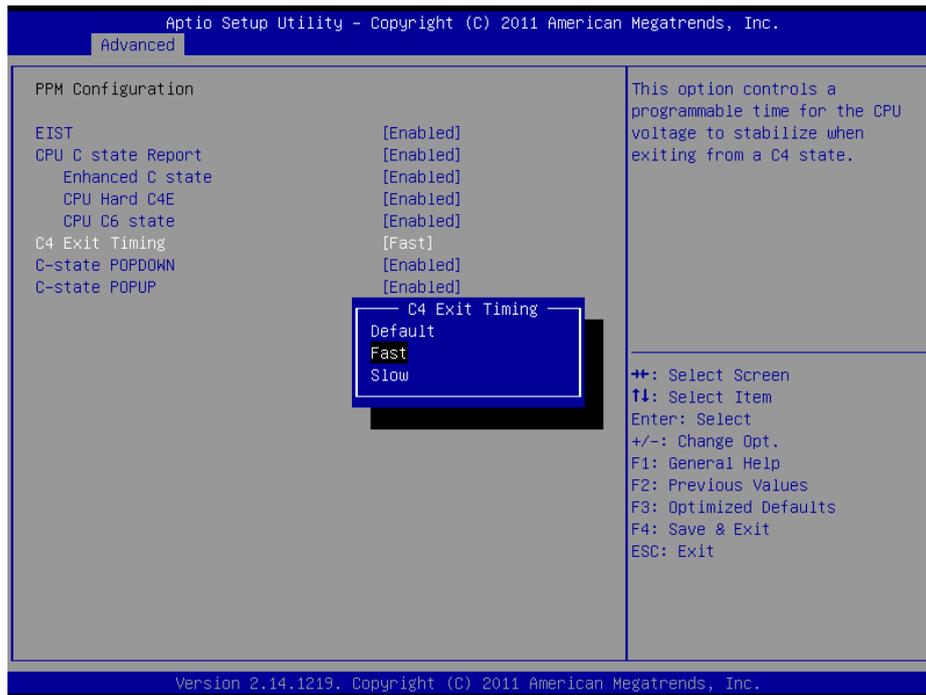


### ➤ EIST

Enable/Disable Intel SpeedStep.

### ➤ CPU C state Report

Enable/Disable CPU C state report to OS.

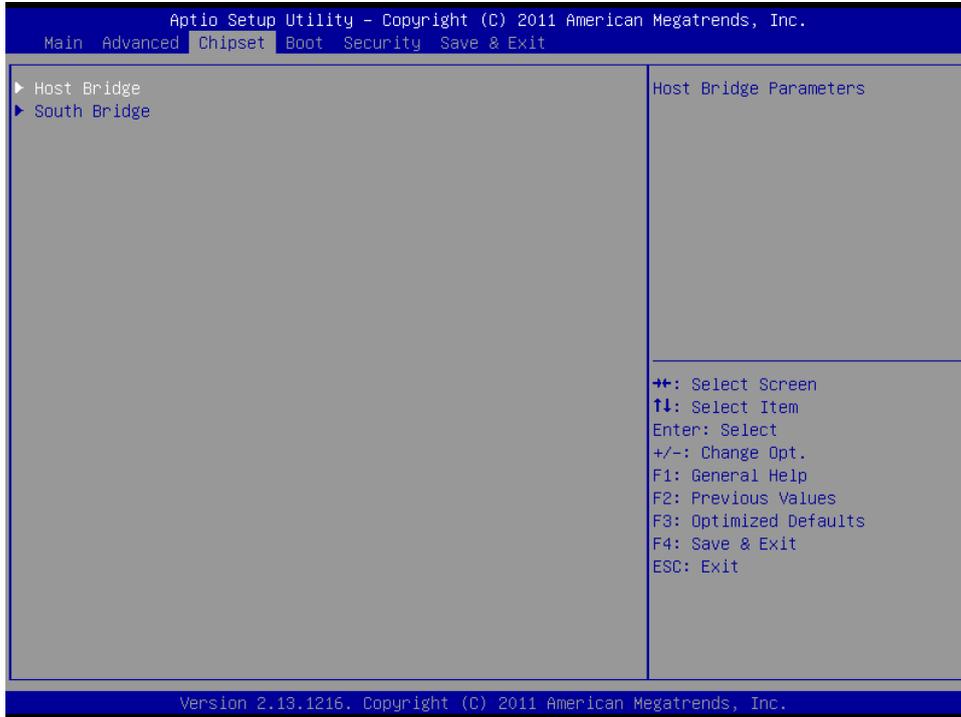


### ➤ C4 Exit Timing

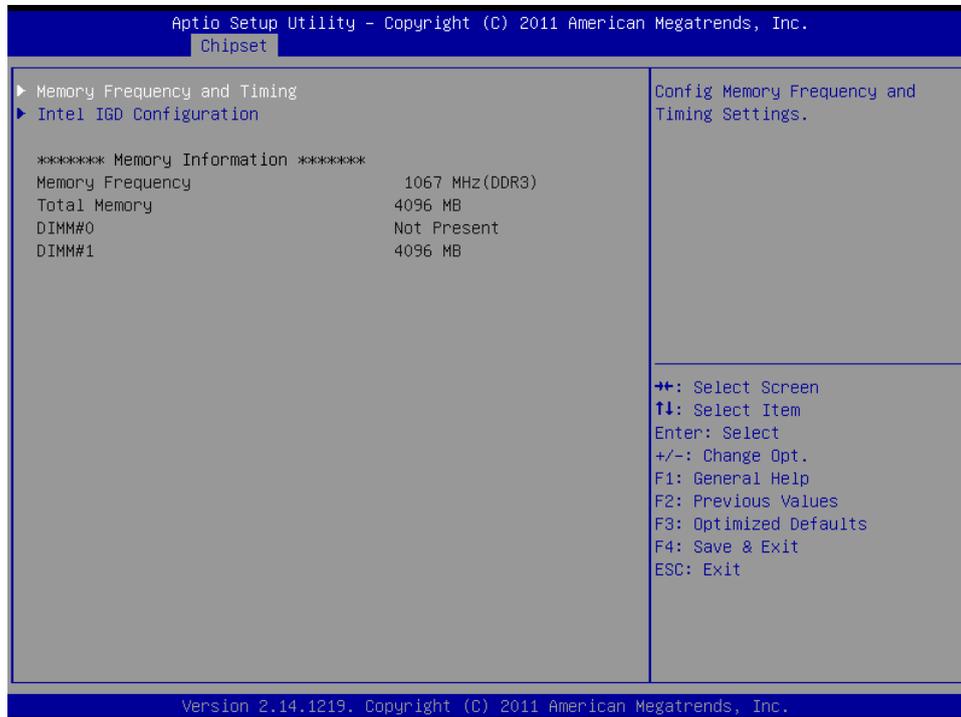
This option controls a programmable time for the CPU voltage to stabilize when exiting from a C4 state.

# Chipset

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.



## ➤ Memory Frequency and Timing



Can choose enable or disable MRC fast boot.

## ➤ Intel IGD Configuration

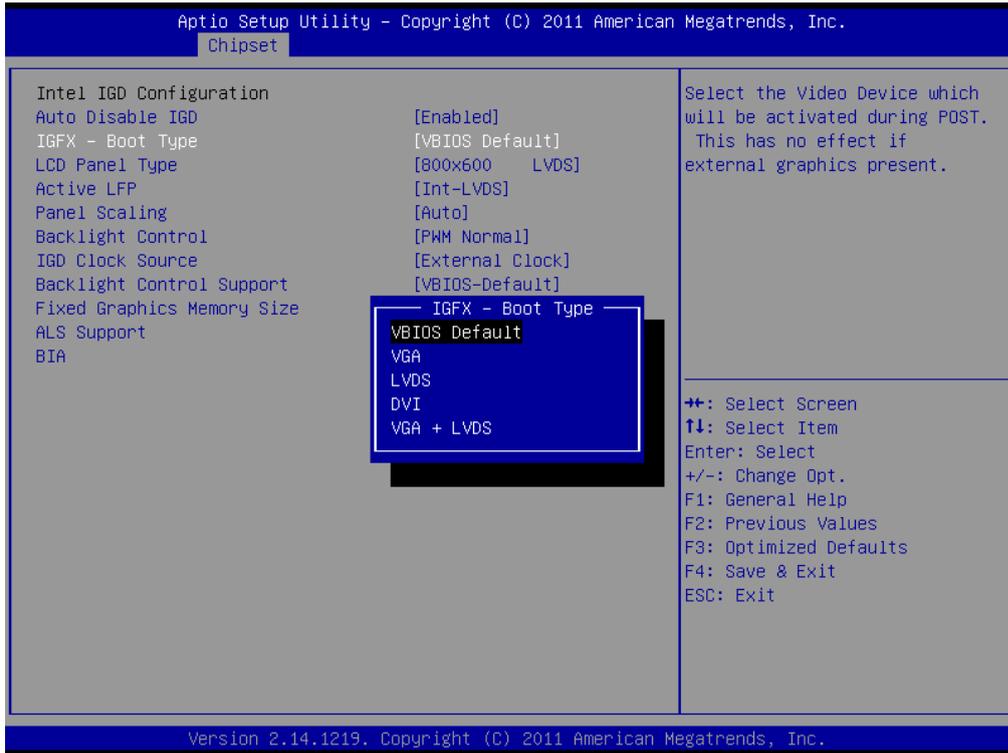
The image displays two screenshots of the Aptio Setup Utility interface, specifically the 'Chipset' section.

**Top Screenshot:** Shows the main menu with 'Intel IGD Configuration' selected. The right pane displays 'Config Intel IGD Settings.' Below the menu, memory information is shown: Memory Frequency (1067 MHz(DDR3)), Total Memory (4096 MB), DIMM#0 (Not Present), and DIMM#1 (4096 MB). A legend at the bottom right lists navigation keys: ++ for Select Screen, ↑↓ for Select Item, Enter for Select, +/- for Change Opt., F1 for General Help, F2 for Previous Values, F3 for Optimized Defaults, F4 for Save & Exit, and ESC for Exit.

**Bottom Screenshot:** Shows the 'Intel IGD Configuration' menu with various settings: Auto Disable IGD [Enabled], IGFX - Boot Type [VBIOS Default], LCD Panel Type [800x600 LVDS], Active LFP [Int-LVDS], Panel Scaling [Auto], Backlight Control [PWM Normal], IGD Clock Source [External Clock], Backlight Control Support [VBIOS-Default], Fixed Graphics Memory Size [128MB], ALS Support, and BIA. The 'Auto Disable IGD' option is highlighted, and a sub-menu is open showing 'Disabled' and 'Enabled' options. The same legend as the top screenshot is present.

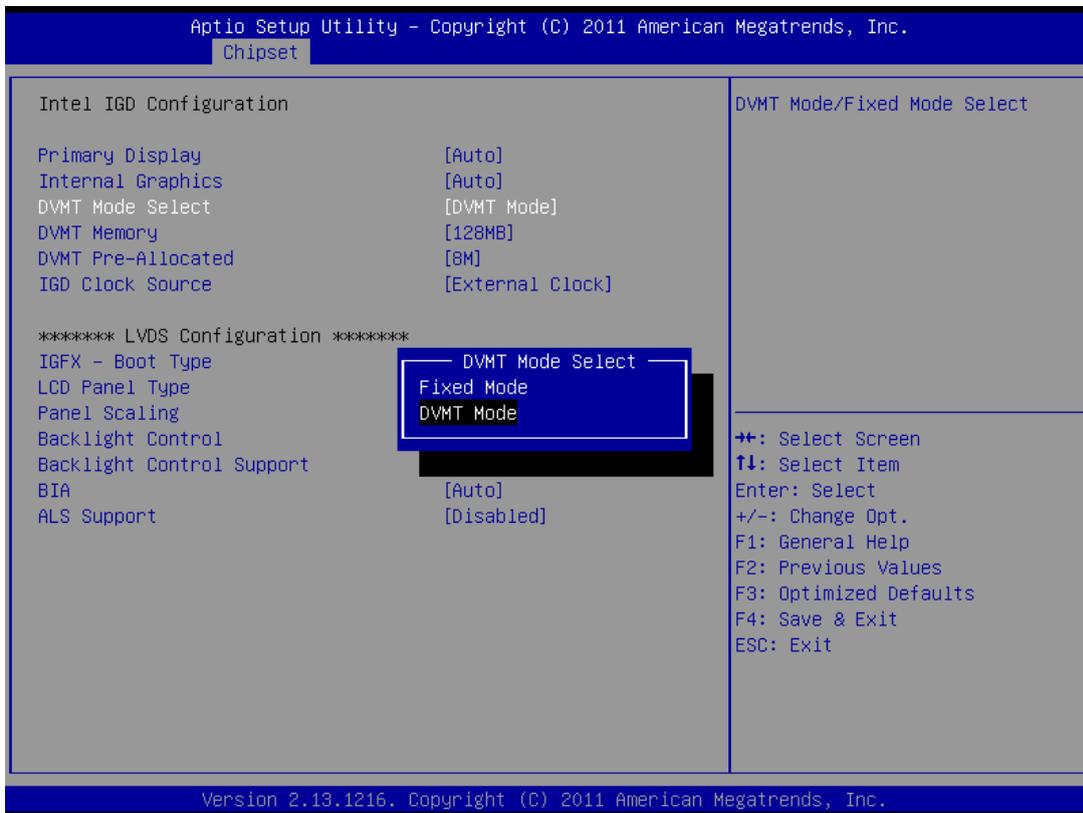
## ➤ Auto Disable IGD

Auto disable IGD upon external GFX detected.



### ➤ IGFX-Boot Type

Select the Video Device which will be activated during POST. This has no effect if external graphics present.



### ➤ DVMT

Intel's Dynamic Video Memory Technology (DVMT) takes that concept further by allowing the system to dynamically allocate memory resources according to the demands of the system at any point in time. The key idea in DVMT is to improve the efficiency of the memory allocated to either system or graphics processor.

➤ **IGD Clock Source**

IGD clock selection.

➤ **LCD Panel Type**

Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.

➤ **Panel Scaling**

Select the LCD panel scaling option used by the Internal Graphics Device.

➤ **Backlight Control**

IGD clock selection.

➤ **Backlight Control Support**

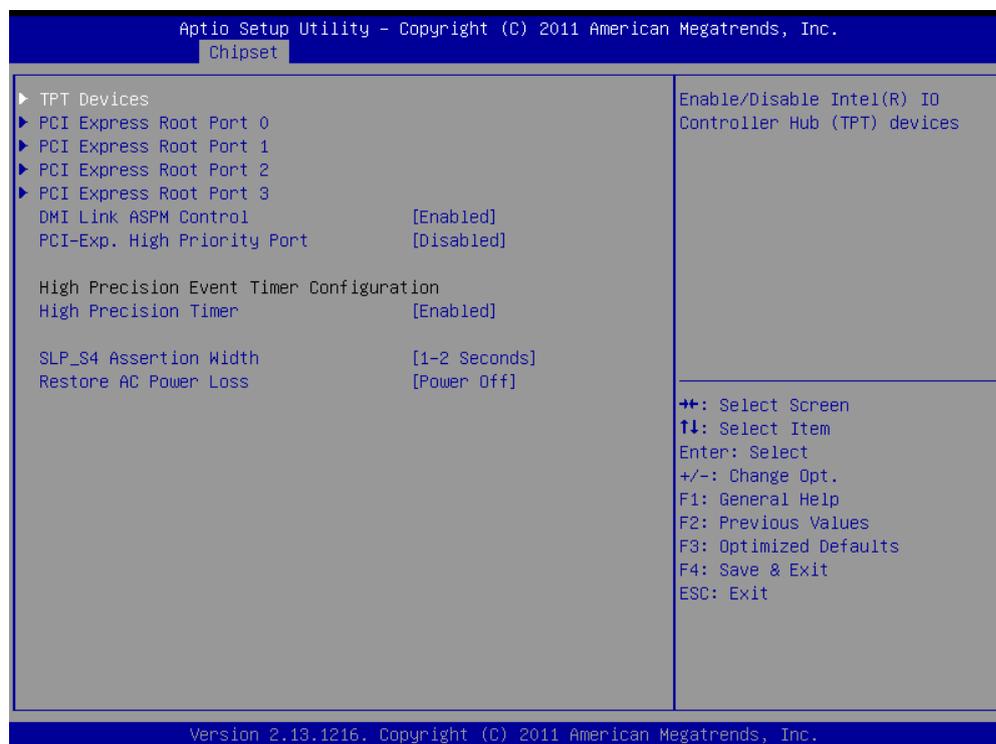
Back Light Control Setting.

➤ **BIA**

Auto:GMCH Use VBT Default; Level n: Enabled with Selected Aggressiveness Level, .

➤ **ALS Support**

Valid only for ACPI.



➤ **TPT Devices**

Enable/Disable Intel IO controller hub device

➤ **PCI Express Root Port 0/1/2/3**

PCI Express root port settings

➤ **DMI Link ASPM Control**

The Desktop Management Interface (DMI) generates a standard framework for managing and tracking components in a desktop, notebook or server computer, by abstracting these components from the software that manages them.

➤ **PCI-Exp. High Priority Port**

Select a PCI Express High Priority Port.

➤ **Restore AC Power Loss**

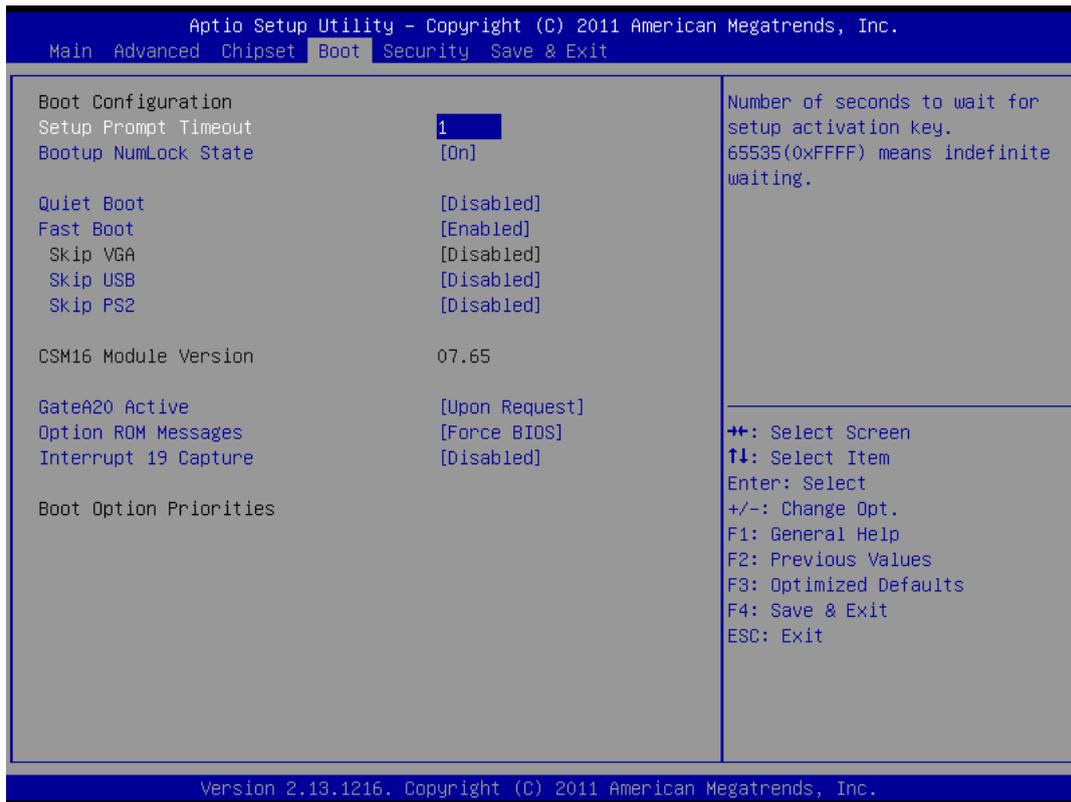
Select power on/off when AC power plug in.

## 5.3 Boot

➤ **Setup Prompt Timeout**

Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.

**Default:** 1



➤ **Bootup NumLock State**

Select the keyboard NumLock State

**Default:** On

➤ **Quiet Boot**

Enable or Disable Quiet Boot Option.

**Default:** Disable

➤ **GateA20 Active**

UPON REQUEST – GA20 can be disabled using BIOS services. Always – do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

➤ **Option ROM Messages**

Set display mode for Option ROM. Options are Force BIOS and Keep Current.

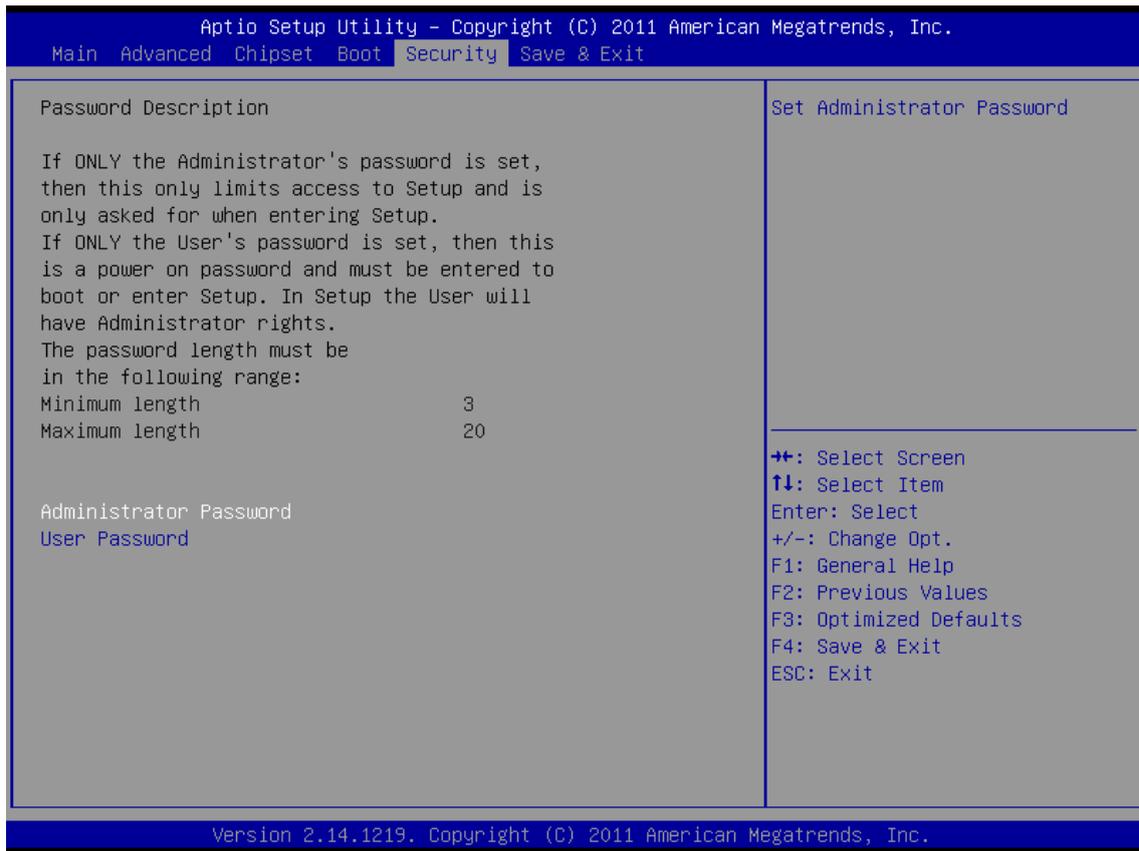
➤ **Interrupt 19 Canture**

Enable: Allows Option ROMs to trap Int 19.

## 5.4 Security

➤ **Administrator Password**

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.



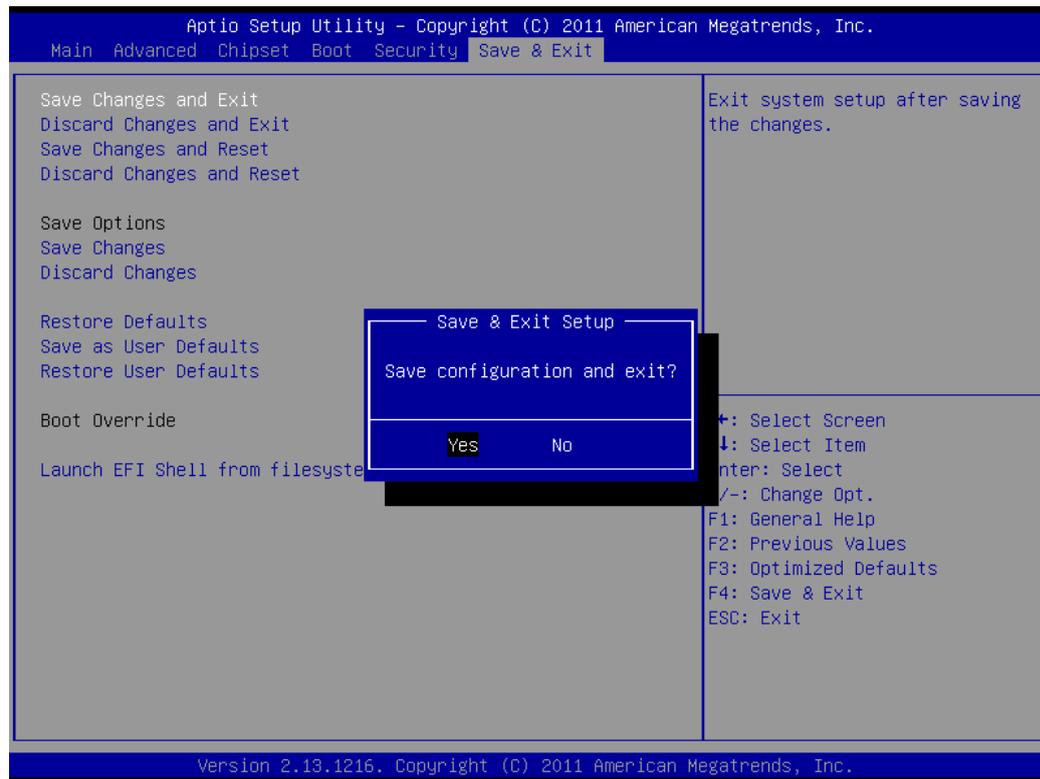
➤ **Administrator Password**

Set Setup Administrator Password.

➤ **User Password**

Set User Password.

## 5.5 Save & Exit



### ➤ **Save Changes and Exit**

Exit system setup after saving the changes.

### ➤ **Discard Changes and Exit**

Exit system setup without saving any changes.

### ➤ **Save Changes and Reset**

Reset the system after saving the changes.

### ➤ **Discard Changes and Reset**

Reset system setup without saving any changes.

### ➤ **Save Changes**

Save Changes done so far to any of the setup options.

### ➤ **Discard Changes**

Discard Changes done so far to any of the setup options.

### ➤ **Restore Defaults**

Restore/Load Defaults values for all the setup options.

### ➤ **Save as User Defaults**

Save the changes done so far as User Defaults.

### ➤ **Restore User Defaults**

Restore the User Defaults to all the setup options.

### ➤ **Launch EFI Shell from filesystem devices**

Attempts to launch EFI shell application from one of the available filesystem devices.

## **Appendix**

### **Note1: Digital I/O Sample Code**

To find the Digital I/O Sample code, please refer to the IH70 driver DVD SDK or contact us.

### **Note2: Watchdog Sample Code**

To find the Watchdog Sample code, please refer to the IH70 driver DVD SDK or contact us.