User Manual
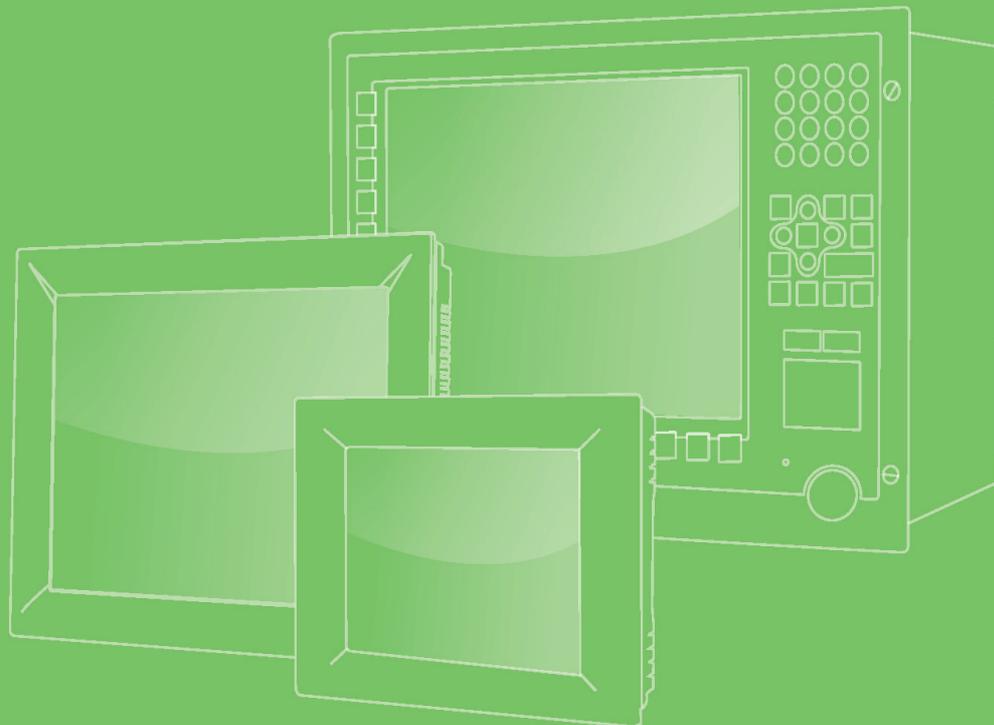
IPPC-6192A Series

19" SXGA TFT LCD Core 2 Quad
/ Core 2 Duo Industrial Panel PC
with 2 x PCI Slots

ADVANTECH

*e*Automation

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Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

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Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

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1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.

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Declaration of Conformity

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Technical Support and Assistance

1. Visit the Advantech web site at **www.advantech.com/support** where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
   – Product name and serial number
   – Description of your peripheral attachments
   – Description of your software (operating system, version, application software, etc.)
   – A complete description of the problem
   – The exact wording of any error messages

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located 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 may 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 overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one 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 MAY GO BELOW -40° C OR ABOVE 85° C. THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

■ To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.

■ Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

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Chapter 1

General Information

1.1 Introduction

The IPPC-6192A is an Industrial Panel PC with front USB access, supports the powerful Intel Core 2 Quad/Core 2 Duo, high speed DDR3 memory, two expansion PCI slots and slim type DVD-RW. The processor and chipset combination form the foundation of vPro, Intel's next generation digital office platform, offering remote out-of-band manageability, improved security, and energy efficient performance. Two SATA hard driver interface with RAID 0,1 support provides data security. The flat-sealed front panel design also allows easier cleaning and liquid run off. Also the control box has a gull-wing design for easy component installation and maintenance.

Sturdy Structure

The whole system is protected by a firm solid structure. The front panel is made of sturdy aluminum and has strengthened glass. It is shock resistant, and complies with NEMA4/IP65.

Easy Maintenance

The rear cover with gull open design above the motherboard. Thus users can easily maintain the CPU, HDD, SDRAM and DVD-RW drive. Jumpers can be easily set without removing the rear cover.

High Performance

The IPPC-6192A supports Intel LGA775 socket. It supports Core 2 Quad up to 2.8GHz or Core 2 Duo up to 3.0GHz

Friendly HMI

Systems in the IPPC-6192A series are equipped with a 19" LCD screen, which provides high resolution display quality. The result is vivid, bright, and sharp quality images. The panel PC is perfectly suited for Windows OS. The touschscreen version enables simple operation, making the Panel PC a solid industrial digital controller interface. In addition friendly HMI design of the IPPC-6192A series offers front USB access port and reset key for various requirements.

1.2 Specifications

1.2.1 General

- **Dimensions (W x H x D):**
  Front Panel: 481.92 x 355.87 x 26 mm
  Control Box: 362 x 285 x 112.2 mm
  Cut out Dimensions: 454 x 338 mm
- **Weight:** 16.6 Kg (36.5 lb)
- **Power Supply:** 350 W
- **Input Voltage:** 100VAC~240VAC@60~50Hz, 7~3.5A
- **Output Voltage:** +3.3V@ 16.0A, +5V@19.0A,+12V1@16.0A,
  +12V2@16.0A,+5Vsb@2.0A,-12V@0.3A
- **Storage:** 2 x 2.5" SATA HDDs with RAID 0/1 support

1.2.2 Standard PC Functions

- **CPU:** Socket LGA775 Core 2 Quad up to 2.8GHz or Core 2 Duo up to 3.0GHz
- **BIOS:** AMI 4MB Flash BIOS
- **North Bridge:** Intel Q45
- **South Bridge:** Intel ICH10D0
- **Chipset:** Intel Q45 GMCH / ICH10D0
- **2nd Level Cache:** Depends on CPU from 2MB to 12MB
- **RAM:** Two DDR3 240pin slots up to 8GB 1066/1333 MHz SDRAM NON-ECC, NON-REG
- **Serial Ports:** 2 x RS-232, 1 x RS-232/422/485
- **Universal Serial Bus (USB) Port:** Supports up to 5 x USB (2.0) ports
- **PCI Bus Expansion Slots:** 2 x half-length PCI slots
- **Watchdog Timer:** 255-level interval timer, setup by software, Super I/O integrated, SMSC controller
- **Battery:** 3.0 V @ 196 mAH lithium battery

1.2.3 Display

- **Backlight Life:** 50,000 hrs
- **Contrast Ratio:** 1300:1
- **Display Size:** 19"
- **Display Type:** SXGA TFT LCD
- **Luminance:** 300 cd/m2
- **Max. Colors:** 16.7M
- **Max. Resolution:** 1280 x 1024
- **Viewing Angle (H/V):** 178/178

1.2.4 Audio Functions

- **Chipset:** Integrated in Intel Q45 ICH10D0 South Bridge
- **Audio Codec:** HD audio Realtek ALC888
- **Audio Interface:** Mic in, Line in, Line out

1.2.5 PCI bus Ethernet Interface

Chipset: Intel 82567-LM Gigabit LAN (IAMT), Intel 82574L Gigabit LAN
Ethernet Interface: 10/100/1000Base-T x 2

1.2.6 Touchscreen Specifications

- **Type:** Analog resistive 5-wire
- **Lifespan:** 36 million, writing rate is 250g at 2 times/s
- **Light Transmission:** >80%
- **Controller:** RS-232 interface
- **Power Consumption:** +5.5 V @ 20 mA
- **Software Drivers:** Supports Windows 7, Windows XP

1.2.7 Environmental

- **Operating Temperature:** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature:** -20 ~ 60°C (-4 ~ 140°F)
- **Relative Humidity:** 5~85% @ 40°C (non-condensing)
- **Shock:** 30 G peak acceleration (11 ms duration)
- **Power MTBF:** 100,000 hrs
- **Certifications:** CE, CCC, FCC Class A, UL, BSMI

1.3 Dimensions

362.00 [14.25]

99.47 [3.92]

481.94 [18.97]

384.60 [15.14]

133.00 [5.24]

36.00 [1.42]

7.00 [0.28]

285.00 [11.22]   23.50 [0.93]

445.92 [17.56]

18.01 [0.71]

21.04 [0.83]
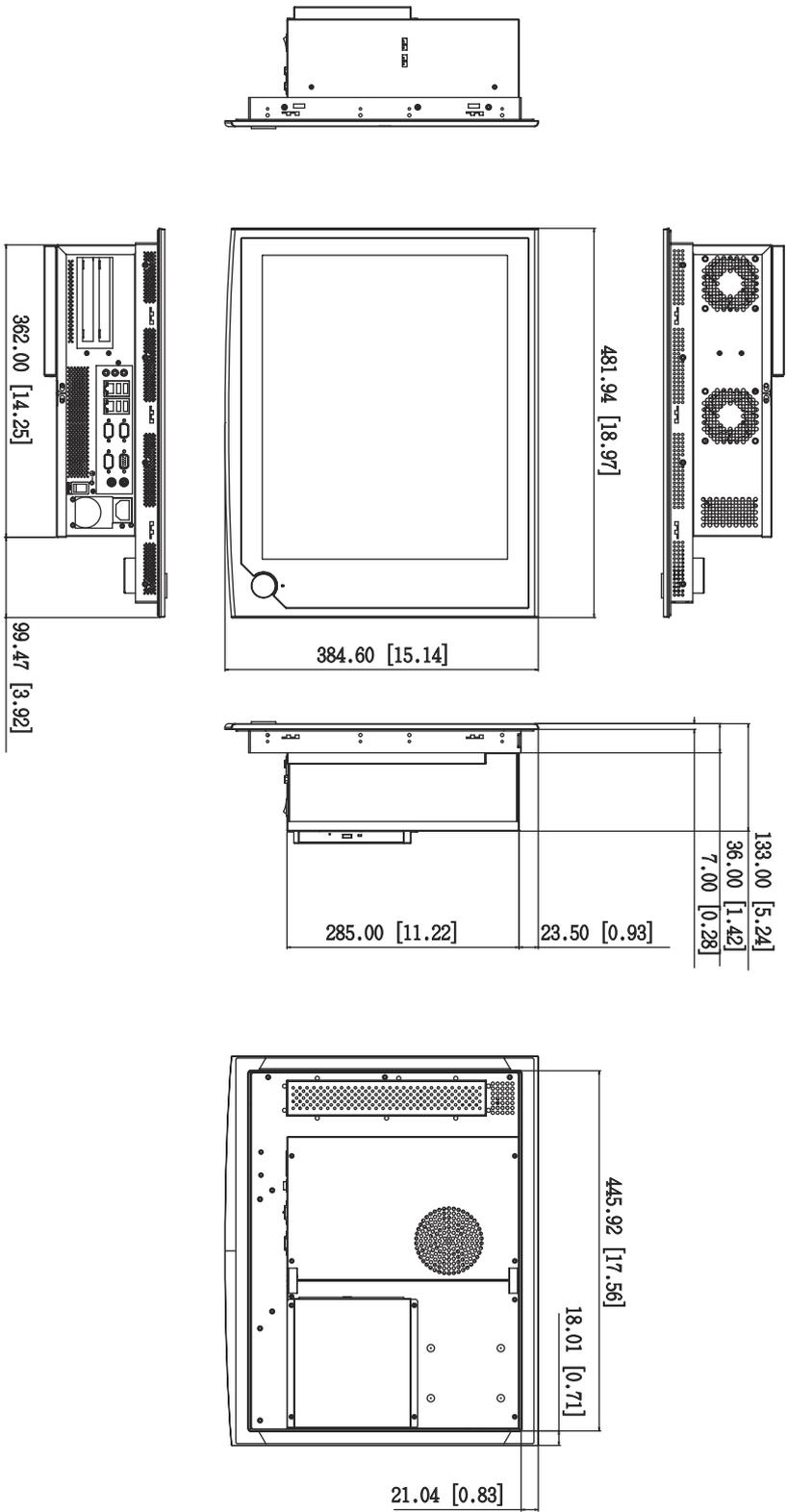
Chapter 2

System Setup

2.1 General

Before you start the computer, please follow these procedures for set up:

1. Check and adjust jumpers on the motherboard (see Chapter 3)
2. Install DDR3 SDRAM
3. Install a CPU
4. Install add-on cards
5. Connect the wires, cables and accessories
6. Mount the computer
7. Program the BIOS settings
8. Install an operating system.

> **Warning!**
>
> 1. Switch off and unplug every time you access its interior.
> 2. The motherboard inside the system is composed of many delicate ICs, chips and other integrated circuit components. These components are easily damaged by static shock.
>
> **When you begin to install components, please:**
>
> - Avoid touching the metal parts of the motherboard.
> - Use anti-static ring when handling CPU or SDRAM module.
> - Put SDRAM modules and the CPU inside an anti-static bag or a similar place before installation.

2.1.1 PS/2 Mouse & Keyboard

If you wish to use a full-size desktop keyboard and PS/2 mouse with your panel PC, follow these instructions:

1. Be sure the panel PC is turned off.
2. Attach the keyboard adapter to the 5-pin green port on the rear bottom side of the rear cover.
3. Attach the mouse adapter to the 5-pin purple port on the rear side of the cover.

2.1.2 VGA Port

An external VGA-compatible device may be connected to the system via 15-pin external port on the rear of the unit. The panel PC simultaneously supports an external monitor in addition to its own LCD display.

2.1.3 Serial COM Ports

You can easily attach a serial device to the panel PC, such as an external modem or mouse. Follow these instructions:

1. Make sure the panel PC and any other peripherial devices you mayhave connected to the panel PC are turned off.
2. Attach the interface cable of the serial device to the panel PC's serial port. If necessary, attach the other end of the interface cable to your serial device. Fasten any retaining screws.
3. Turn on any other peripheral devices you may have connected to the panel PC, and then turn on the panel PC.
4. Refer to the manual(s) which accompanied your serial device(s) for instructions on configuring your operating environment to recognize the device(s).
5. Run the BIOS setup program to set the I/O address and IRQ, and configure the jumper settings to change the mode of the COM ports (refer to section 3.3).

2.1.4 USB Ports

An external USB device may be connected to the system via the 4-pin USB ports located on the rear side of the system unit.

1. Connect the external device to the system.
2. The USB ports support hot plug-in connection. You should install the device driver before you use the device.

2.1.5 Audio Interface

The audio interface includes three jacks: microphone-in, line-out and line-in. Their functions are:

■ **Microphone-in:** Use an external microphone to record voice and sound.
■ **Line-out:** Output audio to external devices such as speakers or earphones. The built-in speaker will not be disabled when the line-out jack is connected to external audio devices.
■ **Line-in:** Input audio from an external CD player or radio.

1. Connect the audio device to the system.
2. Install the driver before you use the device.

2.1.6 Ethernet

To install Ethernet for your system:

1. Connect the Ethernet cable.
2. Turn on the panel PC.
3. Run the Ethernet driver to connect up to the network.

2.2 Installing SDRAM

The Panel PC system provides two 240pin DDR3 SDRAM sockets

1. Unlock the back cover and open it.
2. Push the two white eject levers on each side of the DIMM outward until they are separated from the black vertical posts.
3. Insert the memory module into the socket at an angle of 90 degrees.
4. Push the two eject levers toward the vertical posts at each end of the socket until the module is upright.

2.3 Installing a CPU

The CPU can be upgraded to improve system performance. The system provides Socket LGA775 architecture which supports Intel Core 2 Quad up to 2.8GHz and Intel Core 2 Duo up to 3.0GHz.

1. Unlock the back cover and open it.
2. Remove the CPU cooler.
3. Insert the CPU with the correct orientation. The notched corner of the CPU (with the white dot) should point toward the end of the lever. The end of the lever is the blank area where one hole is missing from the corner of the square array of pin holes. An arrowhead printed on the motherboard points to the end of the lever.
4. Slide the CPU in gently. It should insert easily. If not, pull the lever up a little more and make sure the pins of the CPU correspond with the holes of the socket. DO NOT USE EXCESSIVE FORCE!
5. Press the lever down. The plate will slide forward.
6. Place the heat sink on top of the CPU, secure with heat sink clip.
7. Connect the CPU's cooling fan power connector.
8. Put back the rear cover and screw it back.

Warning! *Always disconnect the power cord from your panel PC when you are working on it. Do not make connections while the power is on, because sensitive electronic components can be damaged by the sudden rush of power. Only experienced electronics personnel should open the panel PC.*

2.4 Installing a 2.5" SATA HDD

You can attach two enhanced Serial Advanced Technology Attachment (SATA) hard disk drives to IPPC-6192A's internal controller which uses PCI local bus interface. The following instructions are for installation:

1. Unscrew the back cover and open it.
2. Remove the two screws and take off CD-ROM, HDD cover.
3. Remove four screws and take off HDD bracket.
4. Insert the HDD into the bracket (see figure)
5. Put the HDD bracket into the Chassis and fasten the four screws.
6. Then attach the HDD flat cable and power cable.
7. Close the rear cover
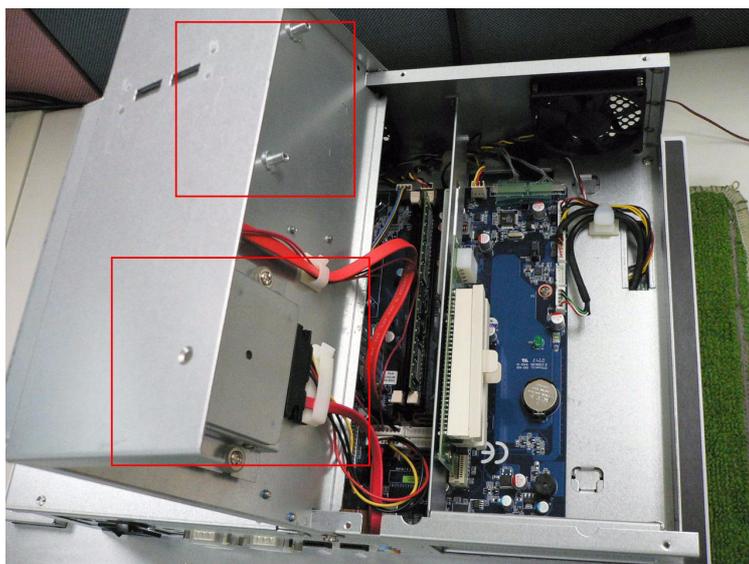
2.5 Installing Add-on Cards

This system supports two PCI expansion cards.

1. Detach the five screws on the back to open the lid.
2. Take away the slot bracket.
3. Insert the add-on card, and put on the lid.
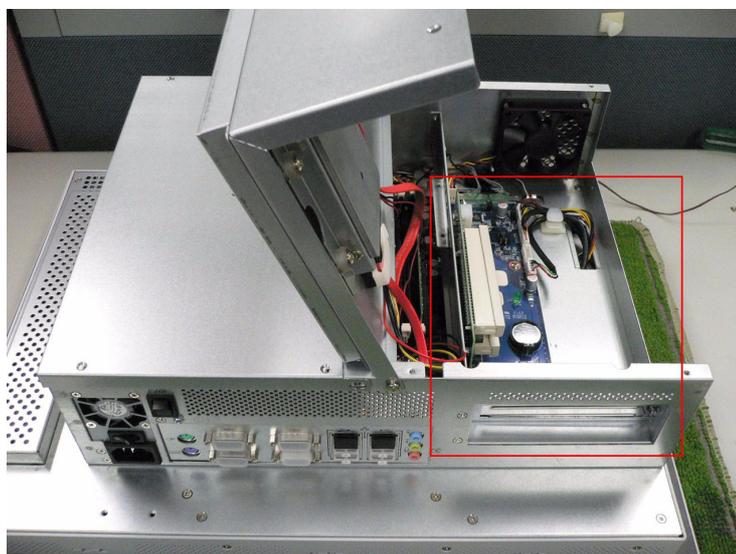
2.6 Mounting Instructions

There are two ways to mount the system: panel mounting or rack mounting.

2.6.1 Panel Mounting

1. Take the four mounting brackets out of the accessory box.
2. Attach the four mounting brackets by inserting the screws into the keyhole slots on the cover of the monitor.
3. Use the screws to secure the brackets to the cover. Tighten the screws to secure the monitor to the back panel.

2.6.2 Rack Mounting

Please order IPPC-6192A-RMKE option kit to install to a 19" industrial rack

Chapter **3**

Jumper Settings & Connectors

3.1 Jumper Settings

This section tells how to set the jumpers to configure your card. For the locations of each jumper, see the board layout diagram depicted earlier in this chapter. 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 cap (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the cap. To "open" a jumper you remove the cap. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you connect either pins 1 and 2 or 2 and 3.

| Open | Closed | Closed 2-3 |
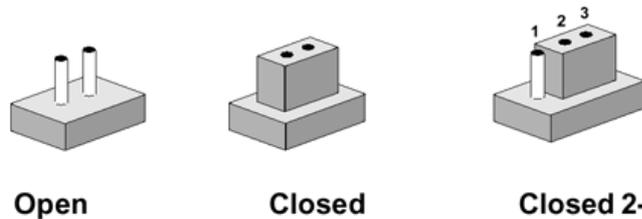
The jumper settings are schematically depicted in this manual as follows.

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

3.1.1 Jumpers & Switches

The motherboard of the IPPC-6192A has a number of jumpers that allow you to configure your system to suit your applications. The table below lists the function of each of the board's jumpers.

Table 3.1: Jumpers & Switches	
J20	COM4 Setting
CLRTC1	CLEAR CMOS

3.1.2 Connectors

Onboard connectors link the panel PC to external devices such as hard disk drives or floppy drives. The table below lists the function of each of the board's connectors.

Table 3.2: Connectors		
CN1	CRT&COM3	D-Sub15-PIN&D-Sub9-PIN
CN2&CN3	LVDS	24/48 BIT LVDS
CN4	LCD INVER Power Connector	WaferBOX 2.0mm 10P
CN5	Touchscreen	WaferBOX 2.0mm 9P
CN6&CN7	USB Port4& Port5	WaferBOX 2.54mm 5P
CN9&CN10&CN11&CN12	SATA POWER PORT	WaferBOX 2.54mm 8P
CN18	PANEL HEADER	WaferBOX 2.0mm 9P
KBMS1	PS2	KEYBOARD,MOUSE
COMD1	COM1&COM2	D-Sub 9-PIN*2
LAN1_USB12	LAN1/USB0/USB1	PhoneJack RJ45+USB*2
LAN1_USB1	LAN2/USB2/USB3	PhoneJack RJ45+USB*2
AUDIO1	AUDIO	LINE IN,LINE OUT,MIC IN
FAN0,FAN1,FAN2	FAN CONNECTOR	Wafer 2.54mm 4P
FAN3	FAN CONNECTOR	Wafer 2.54mm 3P
ATX12V1	+12V CONNECTOR	2X2 12V POWER CONN
EATPWR1	ATXPOWER CONNECTOR	2X12 ATX Power CONN.
SPI1	SPI Interface CONNECTOR	2x8 Cut 8 pin 2.54mm \
SAT1&SAT2&SAT3&SAT4	SATA PORT	SerialATA Conn 7P 180D
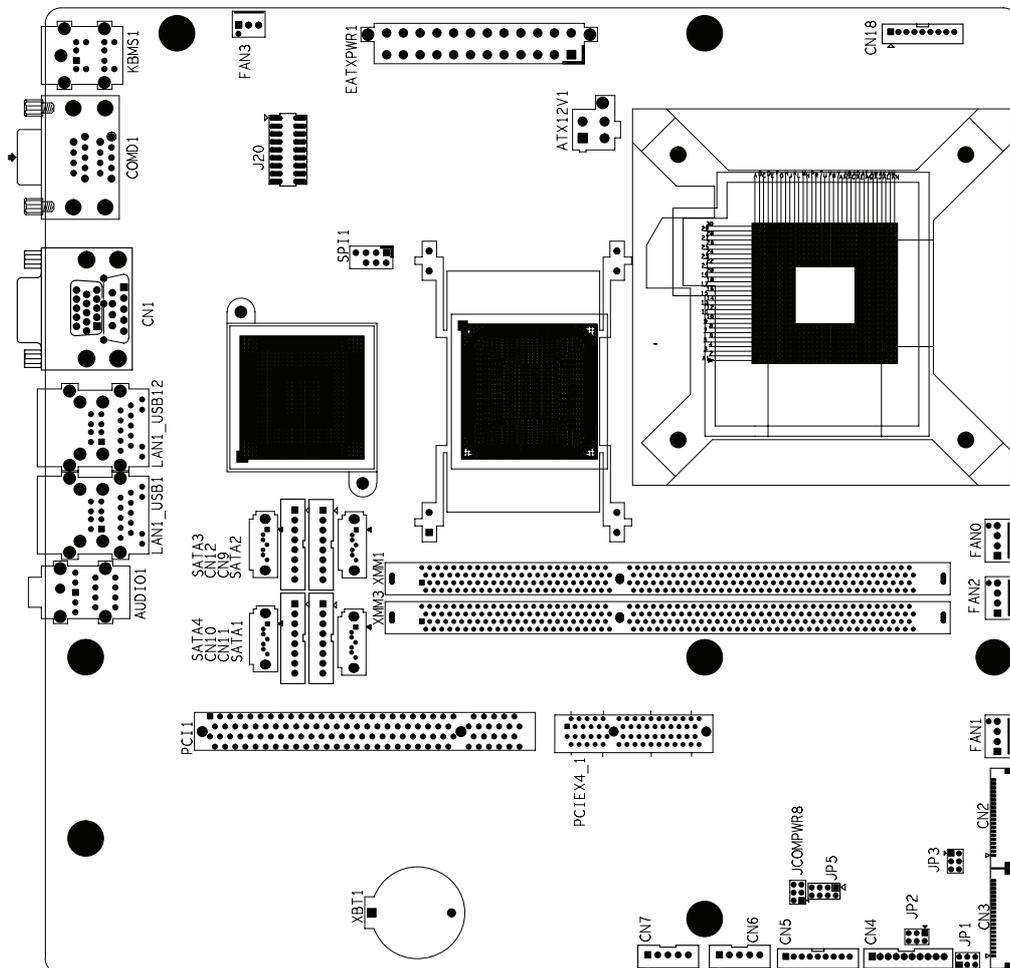
3.1.3 COM4 Settings (J20)

This jumper is used to select RS232 / RS422 / RS485

Table 3.3: COM4 Settings

RS-232	RS-422	RS-485
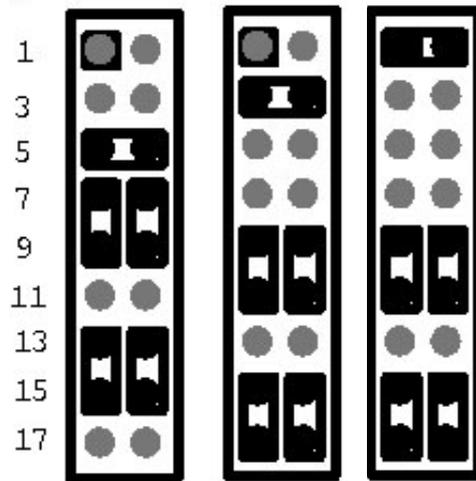
3.1.4 Clear CMOS (CLRTC1)

This jumper is used to erase CMOS data and reset system BIOS information. Follow the procedures below to clear the CMOS.

1. Turn off the system.
2. Remove the Jumper CLRTC1(1-2).
3. Close jumper CLRTC1(2-3).
4. Remove the Jumper CLRTC1(2-3).
5. Close jumper CLRTC1(1-2).
6. Turn on the system.The CMOS is now cleared.
7. Set the BIOS to default..

Table 3.4: Clear CMOS JP4

Clear	
Normal	

Chapter 4

Intel Chipset

4.1 Overview

In IPPC-6192A, Advantech provides a CD-ROM with utilities and drivers included. Please install the Chipset INF driver, VGA graphics driver, LAN driver, audio driver, Touch Screen driver sequentially.

4.2 Utilities and Drivers

The following utilities and drivers are provided with IPPC-6192A. You can also find out the updated description of the utilities and drivers in the ReadMe.txt file on the CD-ROM.
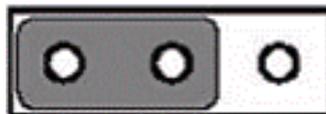
Intel Chipset Software Installation Utility

Path: \INF

Available for the OS's below,

- Microsoft Windows 7
- Microsoft Windows XP

VGA Drivers (Intel(R) Graphics Driver)

Path: \VGA

Available for the OS's below,

- Microsoft Windows 7
- Microsoft Windows XP

Intel Network Driver

Path: \Lan

Available for the OS's below,

- Microsoft Windows 7
- Microsoft Windows XP

Audio Driver

Path: \ audio

Available for the OS's below,

- Microsoft Windows 7
- Microsoft Windows XP

Touchscreen Driver

**Path: \ Pen mount **

Available for the OS's below,

- Microsoft Windows 7
- Microsoft Windows XP and more, on the driver CD-ROM.

4.3 Dual Display Setting

If you use CRT monitor, you must Connections to CRT port in during system boot up. During system boot up, the system will set CRT parameter. If you have multiple devices, you can set them.

1. Click Intel graphic icon from the toolbars

2. Select Graphics properties

3. This control allows selection of a device page. The currentlyactive is indicated by a checkmark on the icon. If you have multipledevices, activation of an alternate device is accomplished by selectingthat device icon. Then, select either Apply or OK button. Intel Dual Display Clone is for CRT monitor and IPPC-6192A LCD as the below.
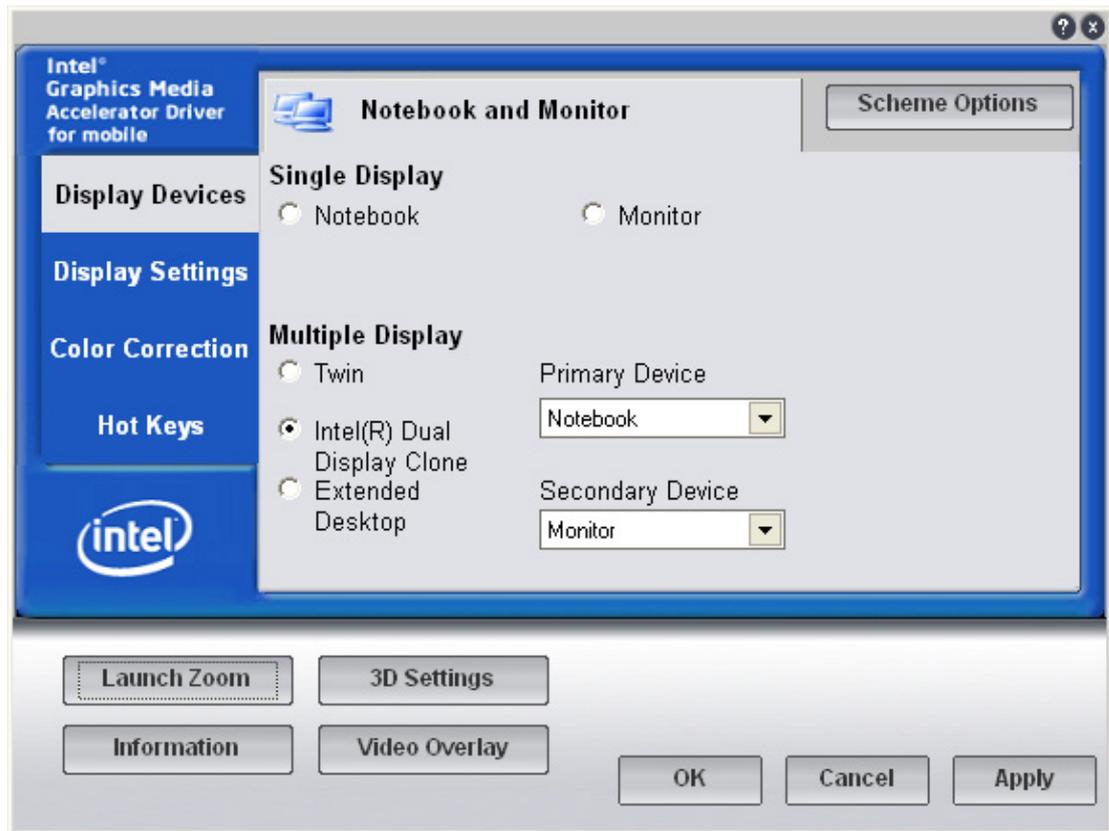
4.3.1 Touchscreen Installation & Configuration

Driver Installation

For driver installation, please insert the support CD and refer to the path: \\Touch-screen Driver\DMC 6000 (Combo)\Manual\PenMount Win2K&XP&2003&Vista Uni-versal Driver Manual V1.02.pdf

Chapter 5

AMI BIOS Setup

5.1 BIOS Setup Program

The main BIOS setup menu is the first screen that you can navigate. Each main BIOS setup menu option is described in this user's guide.

The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. "Grayed-out" options cannot be configured. Options is blue can be. 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.

> *Note!* *The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the Load Default Settings item under the Exit Menu.*

5.1.1 Legend Box

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.

These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.

The keys in the legend bar allow you to navigate through the various setup menus.

Keys	Function Description
←, → Left/Right	The *Left and Right* <Arrow> keys allow you to select an setup screen. For example: Main screen, Advanced screen, Chipset screen, and so on.
↑, ↓ Up/Down	The *Up and Down* <Arrow> keys allow you to select an setup item or sub-screen.
+, - Plus/Minus	The *Plus and Minus* <Arrow> keys allow you to change the field value of a particular setup item. For example: Date and Time.
Tab	The <Tab> key allows you to select setup fields.
F1	The <F1> key allows you to display the *General Help screen*. Press the <F1> key to open the *General Help screen*.
F10	The <F10> key allows you to save any changes you have made and exit Setup. Press the <F10> key to save your changes.
ESC	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

5.1.2 List Box

This box appears only in the opening screen. The box displays an initial list of configurable items in the menu you selected.

5.1.3 Sub-menu

Note that a right pointer symbol (u) appears to the left of certain fields. This pointer indicates that you can display a sub-menu from this field. A sub-menu contains additional options for a field parameter. To display a sub-menu, move the highlight to the field and press <Enter>. The sub-menu appears. Use the legend keys to enter values and move from field to field within a sub-menu as you would within a menu. Use the <Esc> key to return to the main menu.

Take some time to familiarize yourself with the legend keys and their corresponding functions. Practice navigating through the various menus and submenus. While moving around through the Setup program, note that explanations appear in the Item Specific Help window located to the right of each menu. This window displays the help text for the currently highlighted field.

5.2 Main Setup

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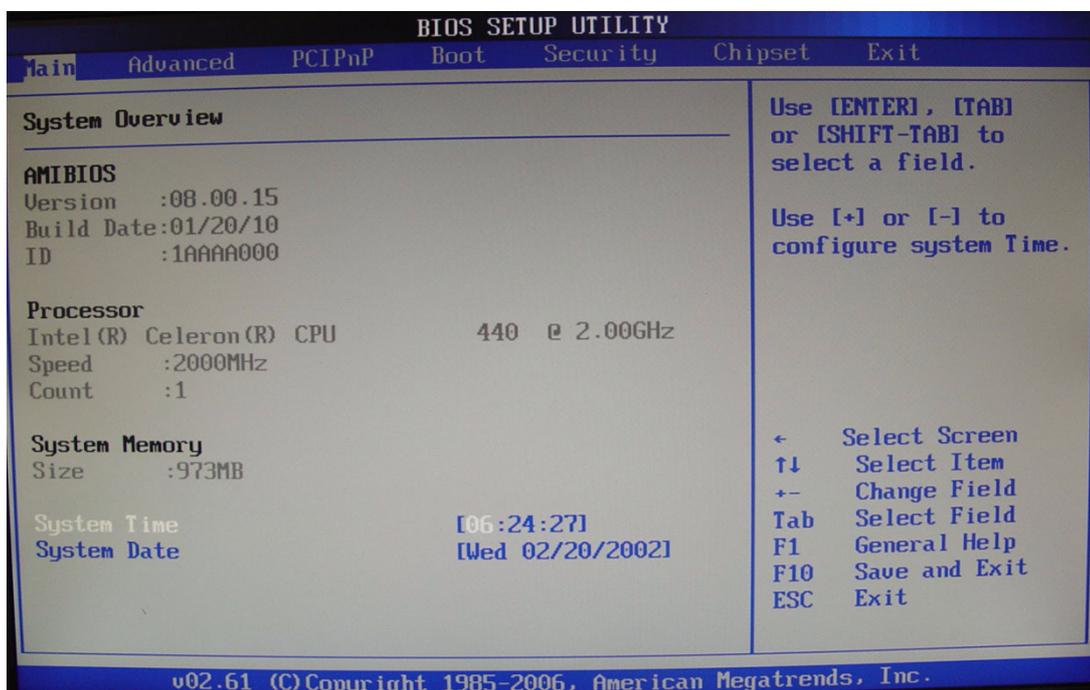

System Time/System Date

Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

5.3 Advanced BIOS Setup

Select the Advanced tab from the setup screen to enter the Advanced BIOS Setup screen. You can select any of the items in the left frame of the screen, such as SuperIO Configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screen is shown below. The sub menus are described on the following pages.
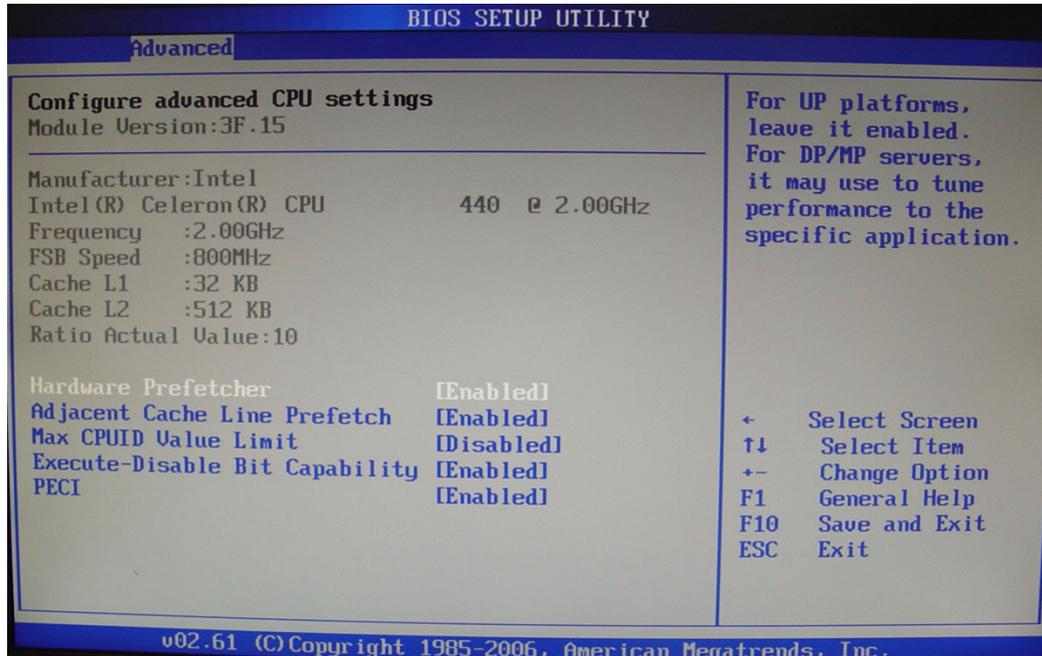
CPU Configuration Setting

You can use this screen to select options for the CPU Configuration Settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on the following pages.
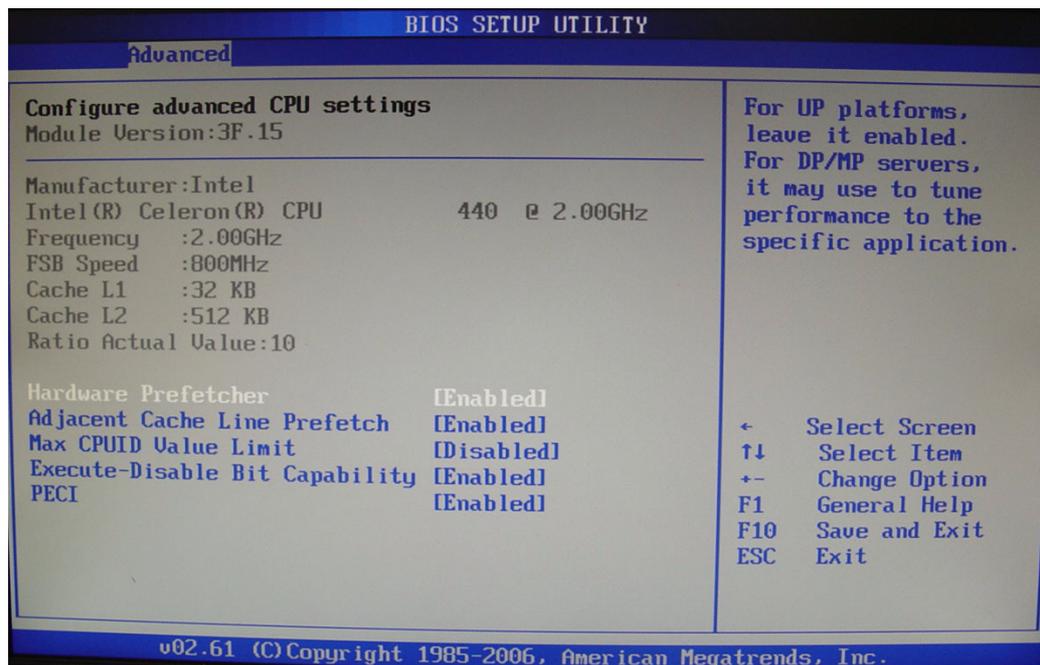
Hardware Prefetcher

The choices of Hardware Prefetcher which prefetchs data from memory to L2 cache are Disabled, and Enabled.

Adjacent Cache Line Prefetch

The choices of Adjacement Cache Line Prefetch which automatically fetches an extra 64-byte cache line are Enabled, Disabled.

Max CPUID Value Limit

The choices of Max CPUID Value Limit are Disabled, and Enabled.

Execute-Disable Bit Capability

The choices of Execute-Disable Bit Capability are Enabled, Disabled.

IDE Configuration Setting

You can use this screen to select options for the IDE Configuration Settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on the following pages.
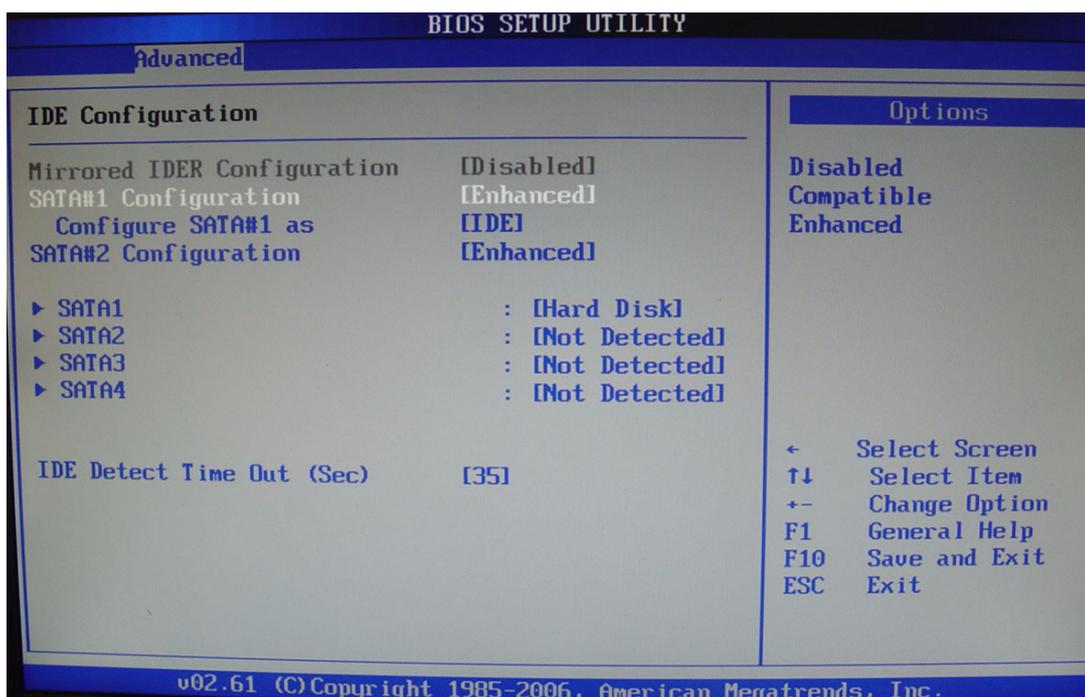
Mirrored IDER Configuration

The choices of Mirrored IDER configuration are Disabled, and Enabled.

SATA#1 Configuration

The choices of SATA configuration are Disabled, Compatible, and Enhanced.

Configure SATA #1 as

This item allows to configure SATA as IDE, RAID, or AHCI.

SATA#2 Configuration

The choices of SATA configuration are Disabled and Enhanced.

Primary/Secondary IDE Master/Slave, Third/Fourth IDE Master, Fifth IDE Master/Slave

Select one of the hard disk drives to configure it. Press <Enter> to access its the sub menu. The options on the sub menu are described in the following sections.

IDE Detect Time Out (Sec)

Set this option to stop the AMIBIOS from searching for IDE devices within the specified number of seconds. Basically, this allows you to fine-tune the settings to allow for faster boot times. Adjust this setting until a suitable timing that can detect all IDE disk drives attached is found.

The default setting is 35.

Option	Description
0	This value is the best setting to use if the onboard IDE controllers are set to a specific IDE disk drive in the AMIBIOS.
5	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in five seconds. A large majority of ultra ATA hard disk drives can be detected well within five seconds.
10	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 10 seconds.
15	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 15 seconds.
20	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 20 seconds.
25	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 25 seconds.
30	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 30 seconds.
35	35 is the default value. It is the recommended setting when all IDE connectors are set to AUTO in the AMIBIOS setting.

Note! *Different IDE disk drives take longer for the BIOS to locate than others do.*

5.3.1 Super I/O Configuration

You can use this screen to select options for the Super I/O settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.

```
                         BIOS SETUP UTILITY
    Advanced

Configure SCH3114 Super IO Chipset            Allows BIOS to Select
                                              Serial Port1 Base
Serial Port1 Address            [3F8]         Addresses.
   Serial Port1 IRQ             [4]
Serial Port2 Address            [2F8]
   Serial Port2 IRQ             [3]
Serial Port3 Address            [3E8]
   Serial Port3 IRQ             [7]
Serial Port4 Address            [2E8]
   Serial Port4 IRQ             [10]
   RS-485 Control for SP4       [Disabled]
Watch Dog Timer Select:         [000]
                                              ←      Select Screen
                                              ↑↓     Select Item
                                              +-     Change Option
                                              F1     General Help
                                              F10    Save and Exit
                                              ESC    Exit

         v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.
```
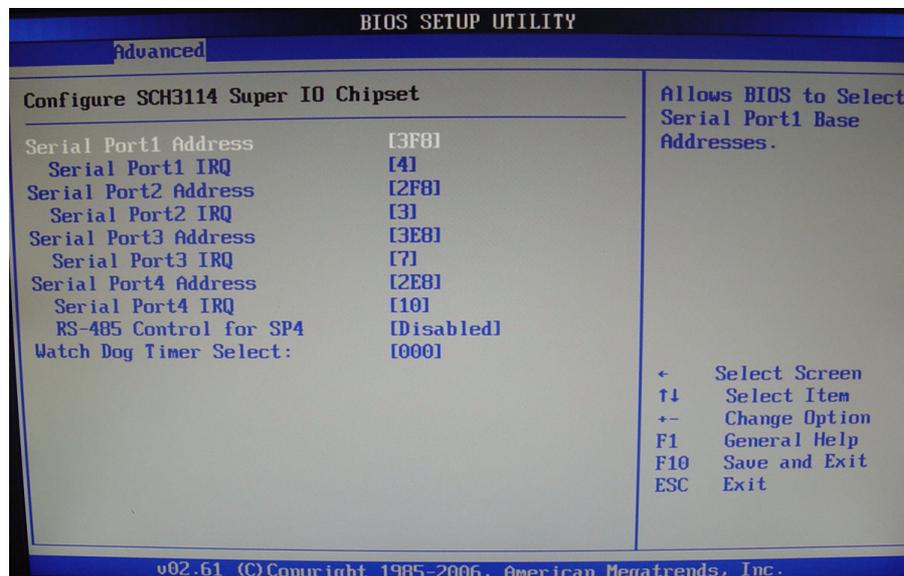
Serial Port1 Address

The base I/O port address and Interrupt Request address of serial port 1. The Optimal setting is 3F8/IRQ4.

Option	Description
Disabled	Set this value to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port physically becomes unavailable.
3F8/IRQ4	Set this value to allow the serial port to use 3F8 as its I/O port address and IRQ4 for the interrupt address. This is the default setting. The majority of serial port 1 or COM1 ports on computer systems use IRQ4 and I/O Port 3F8 as the standard setting. The most common serial device connected to this port is a mouse. If the system will not use a serial device, it is best to set this port to Disabled.

Serial Port2 Address

The base I/O port address and Interrupt Request address of serial port 2. The Optimal setting is 2F8/IRQ3.

Option	Description
Disabled	Set this value to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port physically becomes unavailable.
2F8/IRQ3	Set this value to allow the serial port to use 2F8 as its I/O port address and IRQ 3 for the interrupt address. This is the default setting. The majority of serial port 2 or COM2 ports on computer systems use IRQ3 and I/O Port 2F8 as the standard setting. The most common serial device connected to this port is an external modem. If the system will not use an external modem, set this port to Disabled.

> **Note!** *Most internal modems require the use of the second COM port and use 3F8 as its I/O port address and IRQ 4 for its interrupt address. This requires that the Serial Port2 Address be set to Disabled or another base I/O port address and Interrupt Request address.*

Serial Port3 Address

The base I/O port address of serial port 3. The Optimal setting is 3E8.

Serial Port3 IRQ

The Interrupt Request address of serial port 3. The Optimal setting is 10.

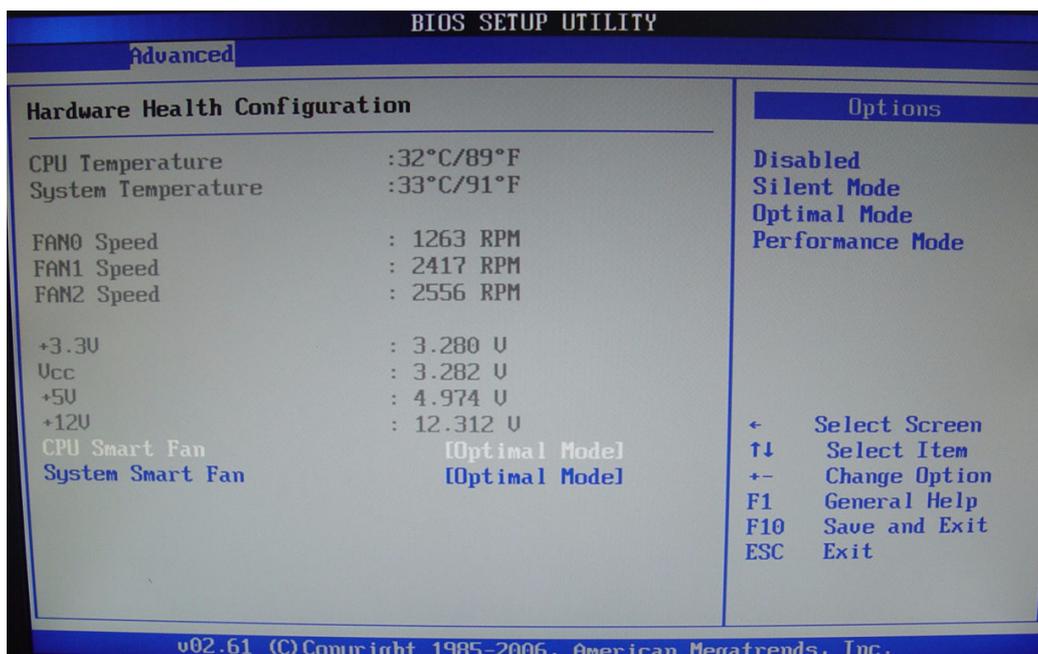| Option	Description
Disabled	Set this value to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port physically becomes unavailable.
3E8/IRQ10	Set this value to allow the serial port to use 3E8 as its I/O port address and IRQ10 for the interrupt address. This is the default setting. If the system will not use a serial device, it is best to set this port to Disabled.

Serial Port4 Address

The base I/O port address of serial port 4. The Optimal setting is 2E8.

Serial Port4 IRQ

The Interrupt Request address of serial port 4. The Optimal setting is 11.

Option	Description
Disabled	Set this value to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port physically becomes unavailable.
2E8/IRQ11	Set this value to allow the serial port to use 2E8 as its I/O port address and IRQ11 for the interrupt address. This is the default setting. If the system will not use a serial device, it is best to set this port to Disabled.

You can use this screen to select options for the Hardware Health settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.

```
                        BIOS SETUP UTILITY
      Advanced

Hardware Health Configuration                           Options

CPU Temperature              :32°C/89°F          Disabled
System Temperature           :33°C/91°F          Silent Mode
                                                 Optimal Mode
FAN0 Speed                   : 1263 RPM          Performance Mode
FAN1 Speed                   : 2417 RPM
FAN2 Speed                   : 2556 RPM

+3.3V                        : 3.280 V
Vcc                          : 3.282 V
+5V                          : 4.974 V
+12V                         : 12.312 V          ←     Select Screen
CPU Smart Fan                   [Optimal Mode]    ↑↓    Select Item
System Smart Fan                [Optimal Mode]    +-    Change Option
                                                  F1    General Help
                                                  F10   Save and Exit
                                                  ESC   Exit

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```

CPU Temperature

This shows you the current CPU temperature.

System Temperature

This shows you the current temperature of system.

FAN 0 Speed

This shows the current CPU FAN operating speed.

FAN 1 Speed

This shows the current System FAN 1operating speed.

FAN 2 Speed

This shows the current System FAN 2 operating speed.

Vcore/ 3VCC/ +12V/ +5V/ 5VSB/ 3VSB/ VBAT

This shows the voltage of VCORE, 3VCC, +12V, +5V, 5VSB(V), 3VSB(V) and VBAT(V).

CPU Smart Fan

The options are Disabled, Silent mode, Optimal mode and Performance mode.

System Smart Fan

The options are Disabled, Silent mode, Optimal mode and Performance mode.

5.3.2 ACPI Configuration

You can use this screen to select options for the ACPI settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.
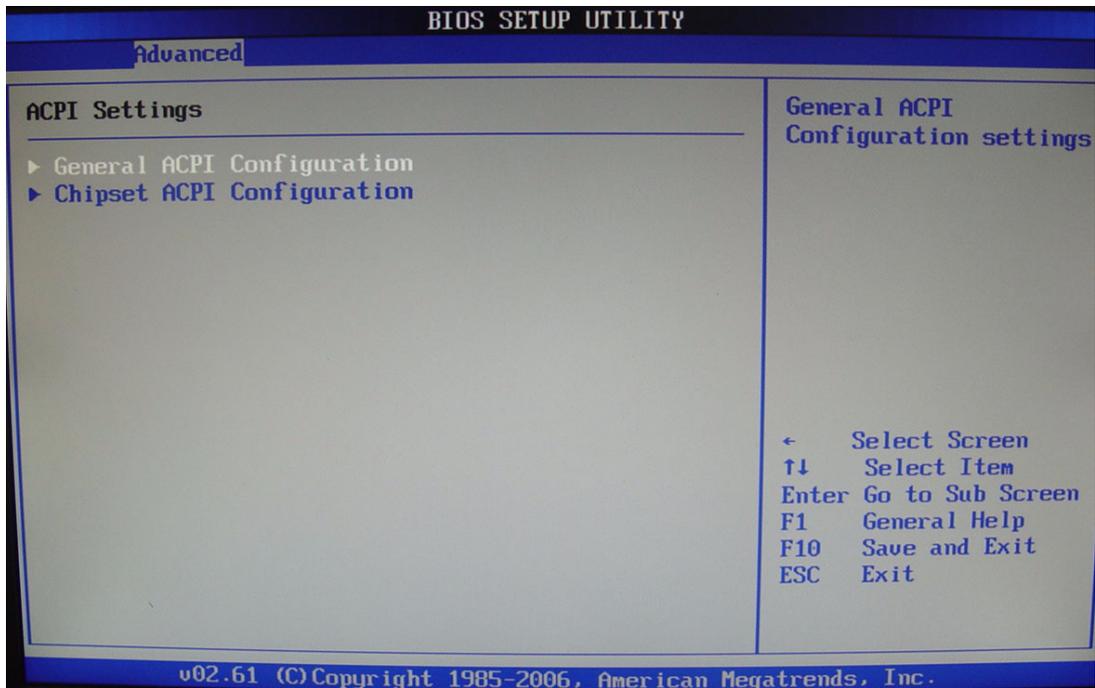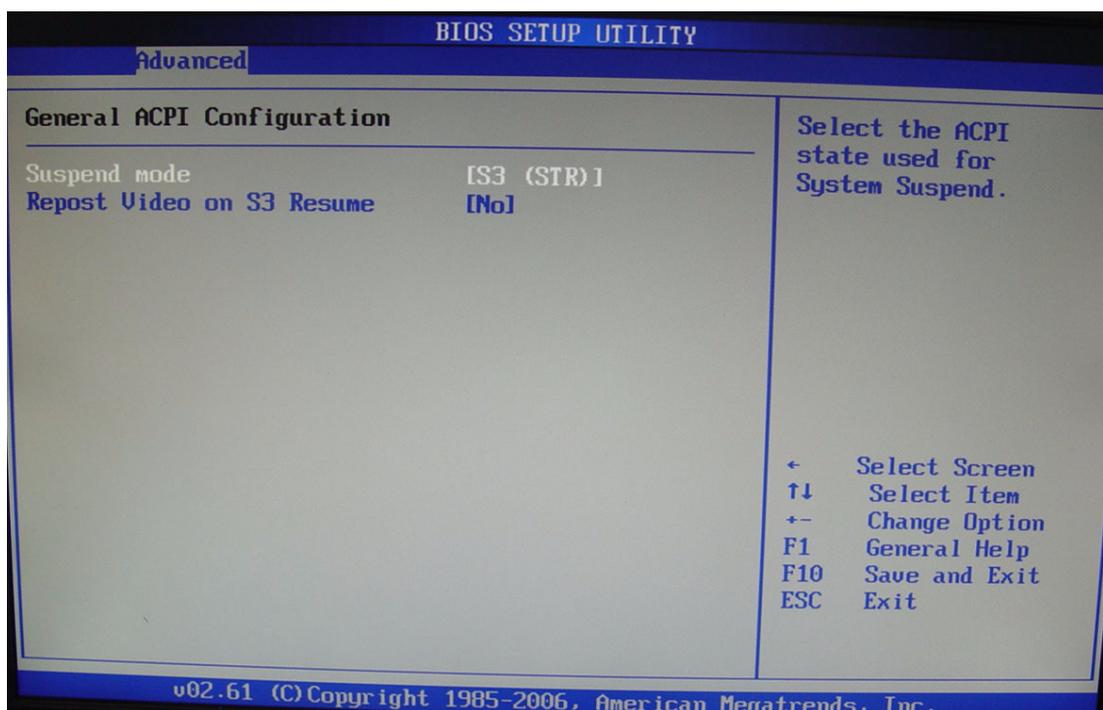

General ACPI Configuration

This item allows you to set general ACPI Configuration.

**Chipset ACPI Configuration**

This item allows you to set South Bridge ACPI Configuration.

Suspend mode

The item allows you to select the suspend type under the ACPI operating system.

Option	Description
S1 (POS)	Power on Suspend
S3 (STR)	Suspend to RAM
Auto	POS+STR

Repost Video on S3 Resume

Determines whether to invoke VGA BIOS post on S3/STR resume. The choices are No or Yes.
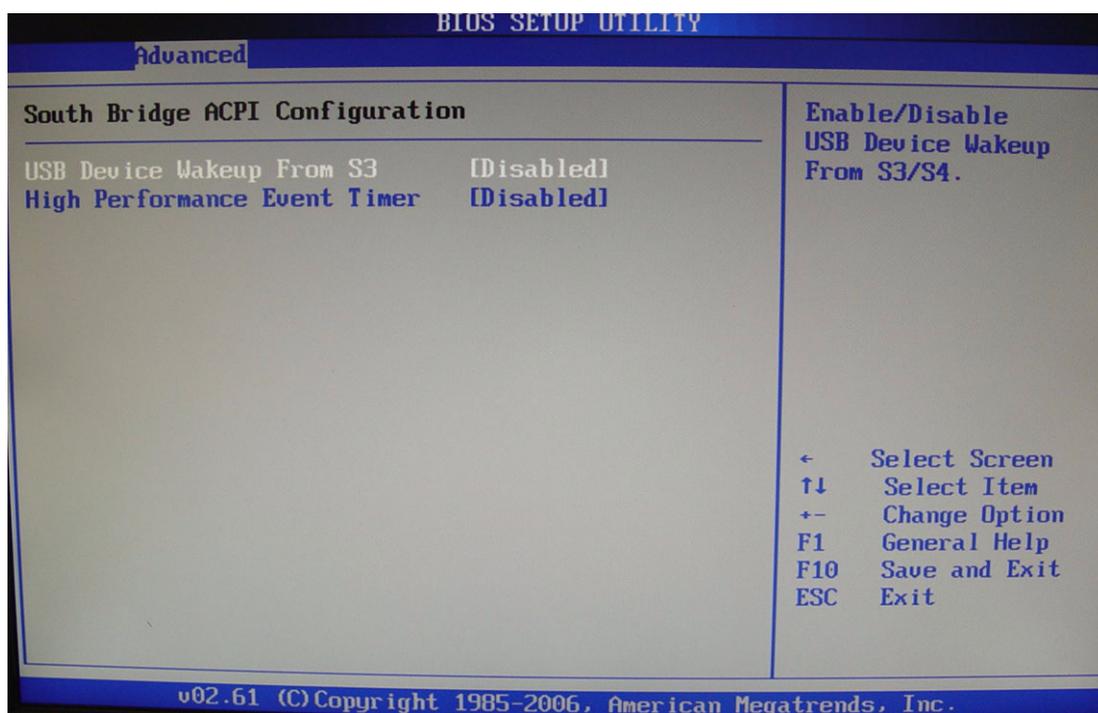
USB Device Wakeup from S3

This item allows you to enable or disabled the USB resume from S3/S4 status.

High Performance Event Timer

This item allows you to enable or disable the High Performance Event Timer.

5.3.3 AHCI Configuration

You can use this screen to select options for the AHCI settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.
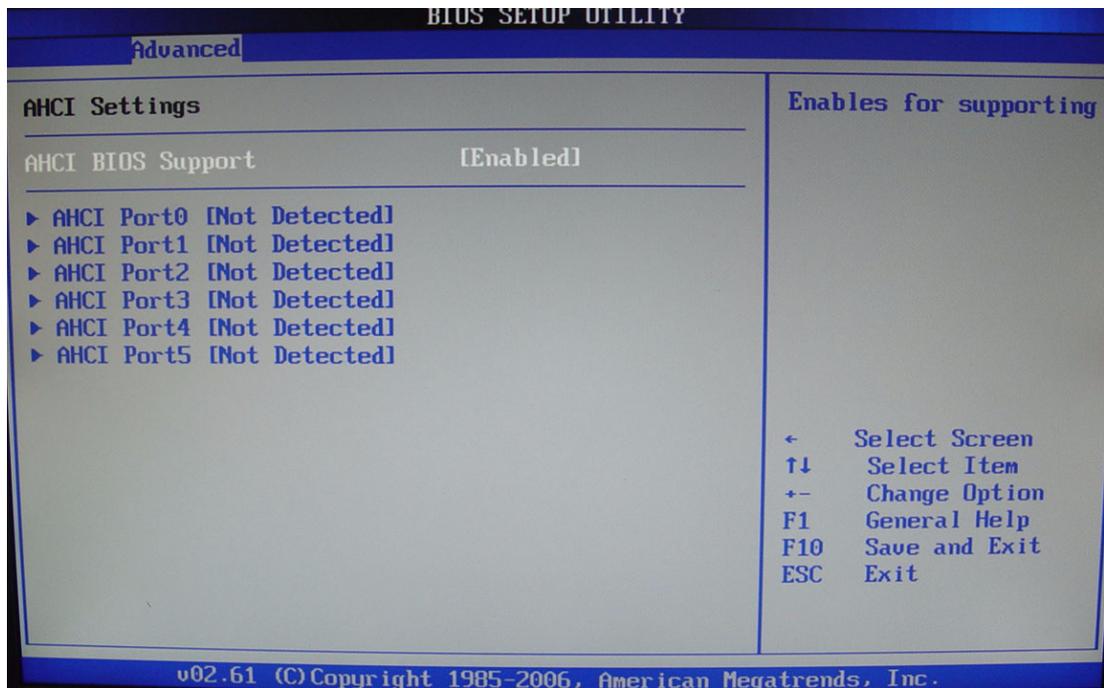
AHCI BIOS Support

This BIOS feature controls the AHCI function of SATA controller. The choice are Enabled (Default) / Disabled
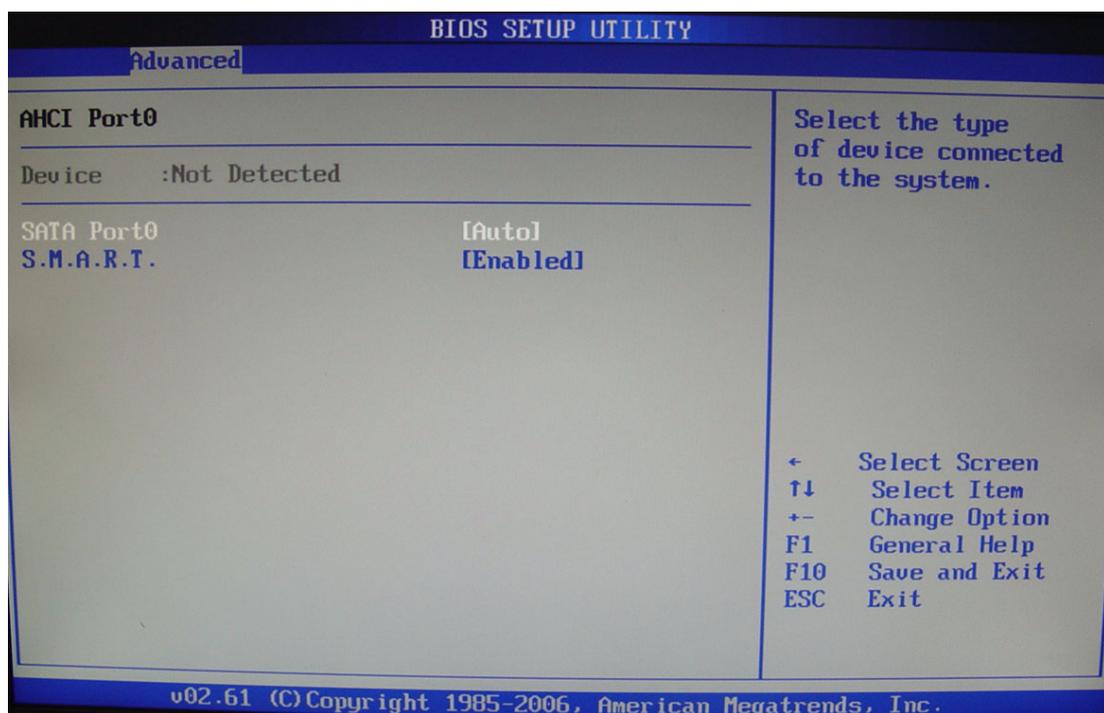
Device

This area shows the detected connected device.

SATA Port0/1/2/3/4/5

This item allows you to select the connected device type. Options: Auto (Default)

S.M.A.R.T.

This item allows you to control the device S.M.A.R.T function. The options are Enabled (Default) / Disabled

5.3.4 APM Configuration

You can use this screen to select options for the APM settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages.
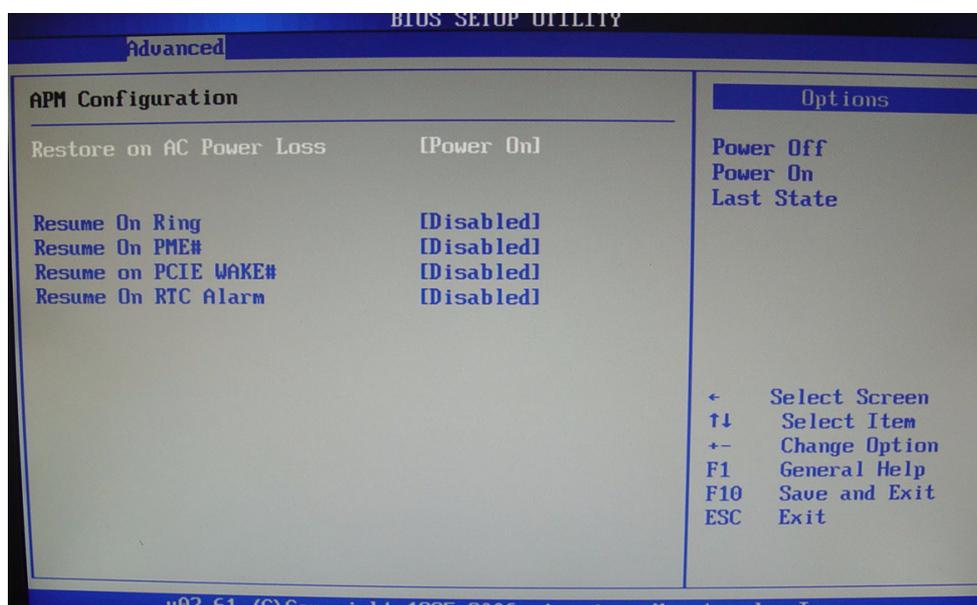
Restore on AC Power Loss

This item allows you to set AC Power Loss to Power Off, Power On, or Last State.

Resume On Ring

Disable or Enable RI to generate a wake event.

Resume On PME#

Disable or Enable PME to generate a wake event.

Resume On PCIE WAKE#

Disable or Enable PCIE generate a wake event.

Resume RTC Alarm

Disable or Enable RTC to generate a wake event.

5.3.5 Intel AMT Configuration

You can use this screen to select options for Intel AMT settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages.
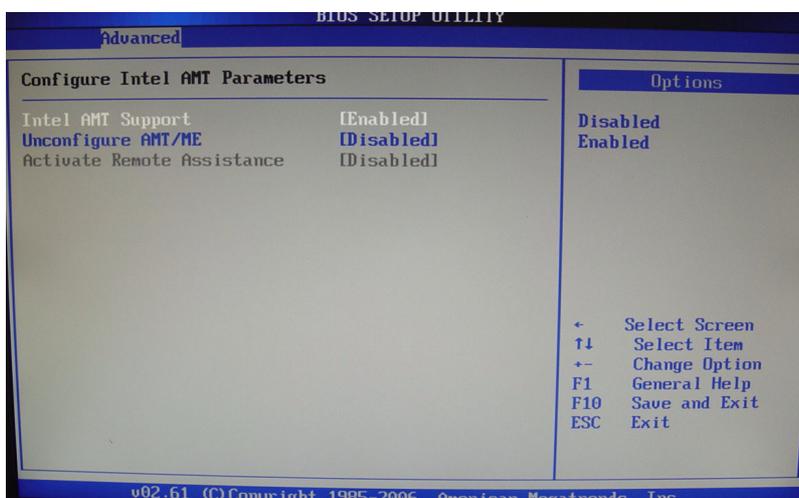
**Intel AMT Support**

Intel Active Management Technology (AMT) is hardware-based technology for remotely managing and securing PCs out-of-band.

Unconfigure AMT/ME

To finish the unconfiguration of AMT, set this setting to [Enabled] and the BIOS

will unconfigure all of AMT/ME settings and all the passwords are reset.

Intel TXT (LT) Configuration

You can use this screen to select options for the Intel TXT (LT) settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option.
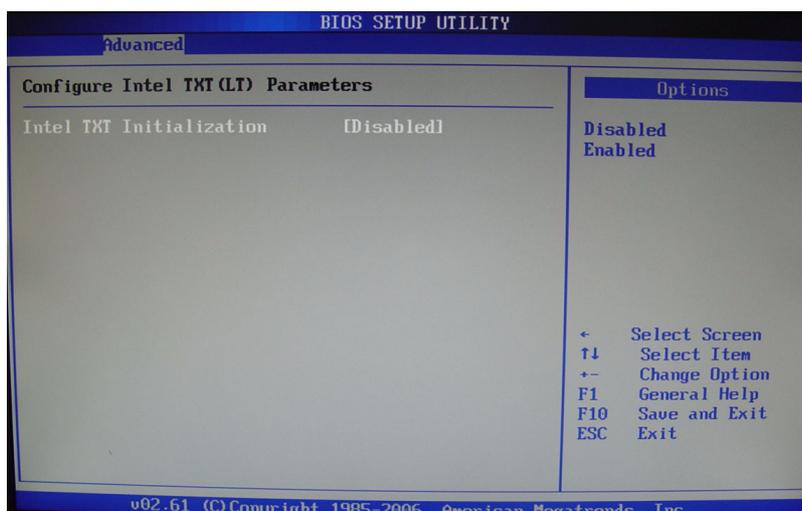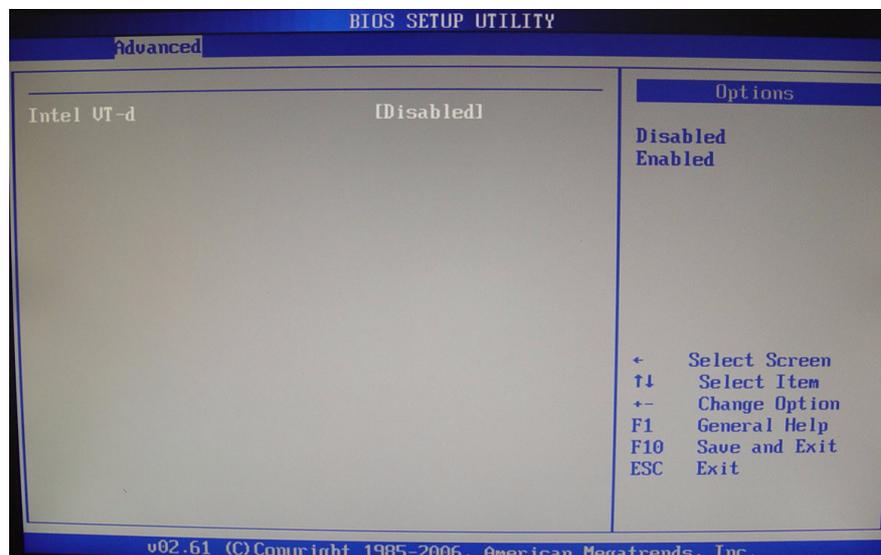

Intel TXT Initialization

The Choices are enabled or disabled the Intel TXT initialization.

5.3.6 Intel VT-d Configuration

You can use this screen to select options for the Intel VT-d settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.
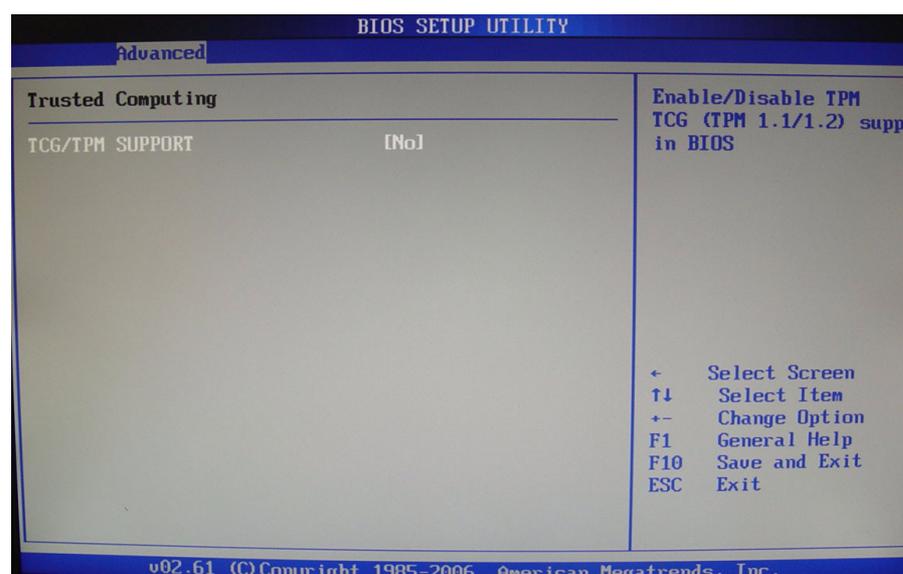

Intel VT-d

The Choices are enabled or disabled the Intel VT-d.

5.3.7 Trusted Computing

You can use this screen to select options for the Intel Trusted Computing settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.


TCG/TPM SUPPORT

Enable or disable TPM TCG (TPM 1.1/1.2) support in BIOS.

5.4 Advanced PCI/PnP Settings

Select the PCI/PnP tab from the setup screen to enter the Plug and Play BIOS Setup screen. You can display a Plug and Play BIOS Setup option by highlighting it using the <Arrow> keys. All Plug and Play BIOS Setup options are described in this section. The Plug and Play BIOS Setup screen is shown below.
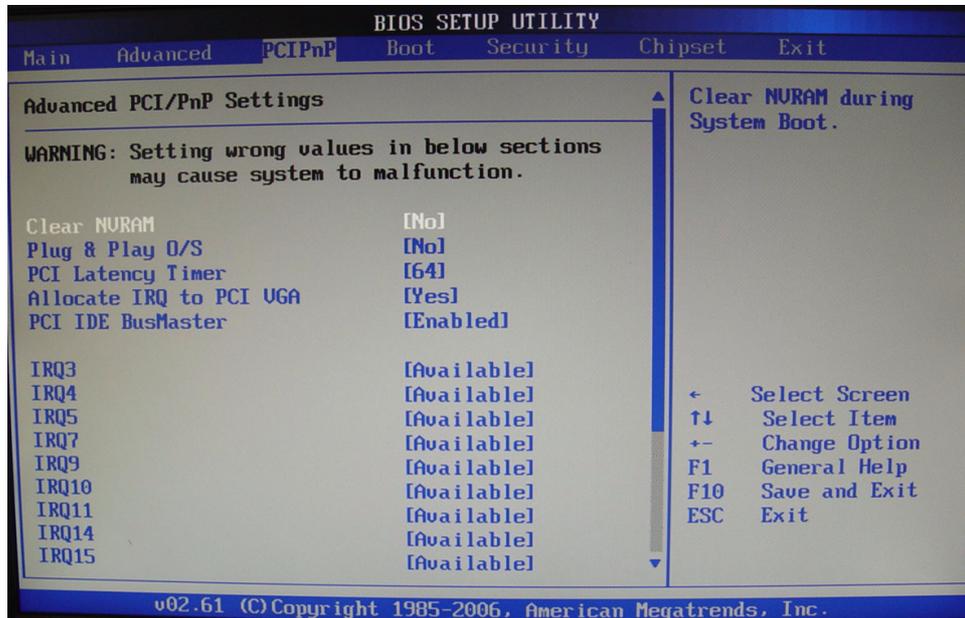
Clear NVRAM

This item is to clear NVRAM during system boot. The choices are No or Yes.

Plug & Play O/S

Set this value to allow the system to modify the settings for Plug and Play operating system support. The default setting is No.

Option	Description
No	The No setting is for operating systems that do not meet the Plug and Play specifications. It allows the BIOS to configure all the devices in the system. This is the default setting.
Yes	The Yes setting allows the operating system to change the interrupt, I/O and DMA settings. Set this option if the system is running Plug and Play aware operating systems.

PCI Latency Timer

Set this value to allow the PCI Latency Timer to be adjusted. This option sets the latency of all PCI devices on the PCI bus. The default setting is 64.

Option	Description
32	This option sets the PCI latency to 32 PCI clock cycles.
64	This option sets the PCI latency to 64 PCI clock cycles. This is the default setting.
96	This option sets the PCI latency to 96 PCI clock cycles.
128	This option sets the PCI latency to 128 PCI clock cycles.
160	This option sets the PCI latency to 160 PCI clock cycles.
192	This option sets the PCI latency to 192 PCI clock cycles.
224	This option sets the PCI latency to 224 PCI clock cycles.
248	This option sets the PCI latency to 248 PCI clock cycles.

Allocate IRQ to PCI VGA

Set this value to allow or restrict the system from giving the VGA adapter card an interrupt address. The default setting is Yes.

Option	Description
Yes	Set this value to allow the allocation of an IRQ to a VGA adapter card that uses the PCI local bus. This is the default setting.
No	Set this value to prevent the allocation of an IRQ to a VGA adapter card that uses the PCI local bus.

PCI IDE BusMaster

Set this value to allow or prevent the use of PCI IDE busmastering. The setting is Disabled.

Option	Description
Disabled	Set this value to prevent PCI busmastering. This is the default setting.
Enabled	This option specifies that the IDE controller on the PCI local bus has mastering capabilities.

IRQ

Set this value to allow the IRQ settings to be modified.

Interrupt	Option	Description
IRQ3	Available	This setting allows the specified IRQ to be used by a PCI/PnP device. This is the default setting.
IRQ4		
IRQ5		
IRQ7		
IRQ9	Reserved	This setting allows the specified IRQ to be used by a legacy ISA device.
IRQ10		
IRQ11		
IRQ14		
IRQ15		

DMA

Set this value to allow the DMA setting to be modified.

| DMA Channel	Option	Description
DMA Channel 0	Available	This setting allows the specified DMA to be used by PCI/PnP device. This is the default setting.
DMA Channel 1		
DMA Channel 3		
DMA Channel 5		
DMA Channel 6	Reserved	This setting allows the specified DMA to be used by a legacy ISA device.
DMA Channel 7		

5.5 Boot Setting Configuration

Select the Boot tab from the setup screen to enter the Boot Setup screen. You can display a Boot Setup option by highlighting it using the <Arrow> keys. All Boot BIOS Setup options are described in this section.
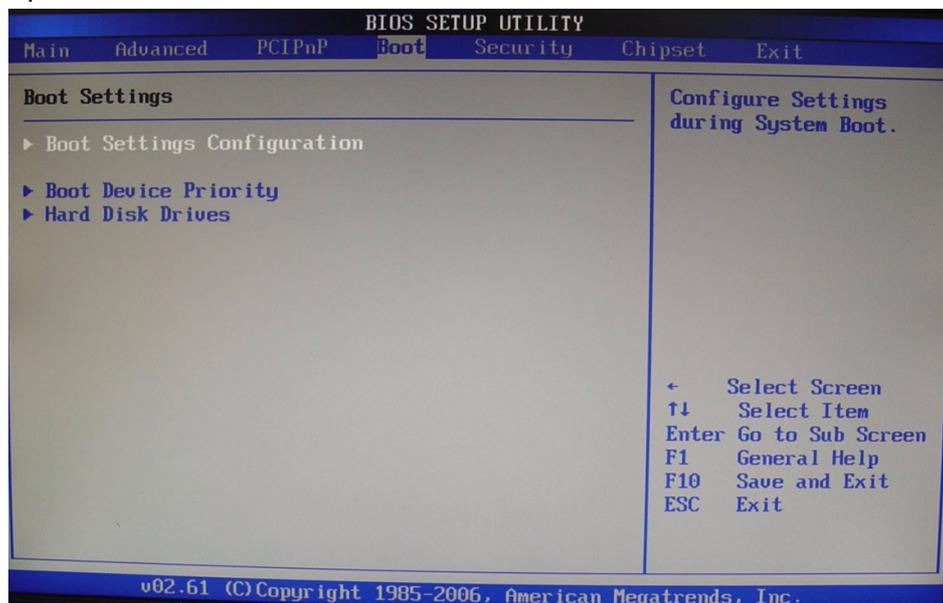
Boot Settings Configuration

You can use this screen to select options for the Boot settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.
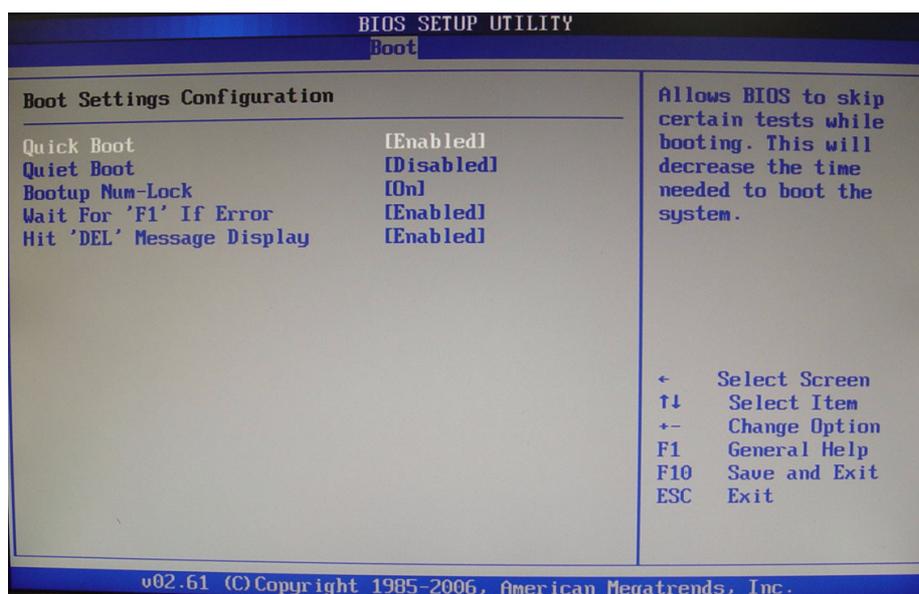
Quick Boot

The default setting is Enabled.

Option	Description
Disabled	Set this value to allow the BIOS to perform all POST tests.
Enabled	Set this value to allow the BIOS to skip certain POST tests to boot faster.

Quiet Boot

Set this value to allow the boot up screen options to be modified between POST messages or OEM logo. The default setting is Disabled.

Option	Description
Disabled	Set this value to allow the computer system to display the POST messages.
Enabled	Set this value to allow the computer system to display the OEM logo. This is the default setting.

Bootup Num-Lock

Set this value to allow the Number Lock setting to be modified during boot up. The default setting is On.

Option	Description
Off	This option does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard will light up when the Number Lock is engaged.
On	Set this value to allow the Number Lock on the keyboard to be enabled automatically when the computer system is boot up. This allows the immediate use of 10-keys numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard will be lit. This is the default setting.

Wait For "F1" If Error

Set this value to allow the Wait for "F1" Error setting to be modified. The default setting is Enabled.

| Option	Description
Disabled	This prevents the to wait on an error for user intervention. This setting should be used if there is a known reason for a BIOS error to appear. An example would be a system administrator must remote boot the system. The computer system does not have a keyboard currently attached. If this setting is set, the system will continue to boot up in to the operating system. If "F1" is enabled, the system will wait until the BIOS setup is entered.
Enabled	Set this value to allow the system BIOS to wait for any error. If an error is detected, pressing <F1> will enter Setup and the BIOS setting can be adjusted to fix the problem. This normally happens when upgrading the hardware and not setting the BIOS to recognized it. This is the default setting.

Hit "DEL" Message Display

Set this value to allow the Hit "DEL" to enter Setup Message Display to be modified. The default setting is Enabled.

Option	Description
Disabled	This prevents to display "Hit Del to Enter Setup" during memory initialization. If Quiet Boot is enabled, the message will not display.
Enabled	This allows to display "Hit Del to Enter Setup" during memory initialization. This is the default setting.

5.6 Security Setup

Select Security Setup from the Setup main BIOS setup menu. All Security Setup options, such as password protection and virus protection, are described in this section. To access the sub menu for the following items, select the item and press <Enter>: Change Supervisor Password
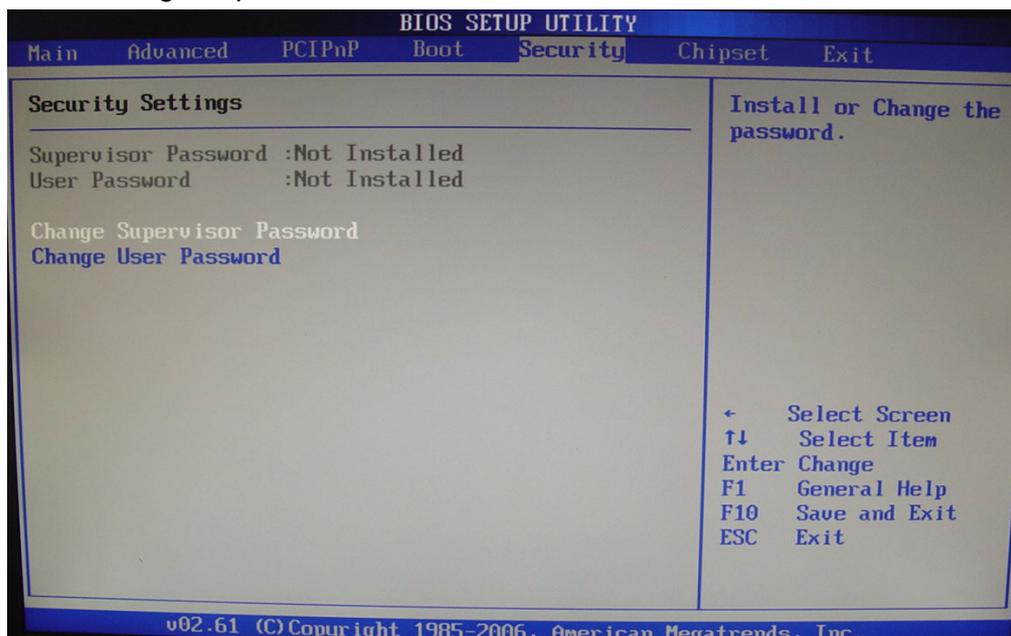
Change Supervisor Password

This item indicates whether a supervisor password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

Change User Password

This item indicates whether a user password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

5.7 Chipset Setup

Select the Chipset tab from the setup screen to enter the Chipset BIOS Setup screen. You can select any of the items in the left frame of the screen, such as CPU Configuration, to go to the sub menu for that item. You can display a Chipset BIOS Setup option by highlighting it using the <Arrow> keys. All Chipset BIOS Setup options are described in this section.
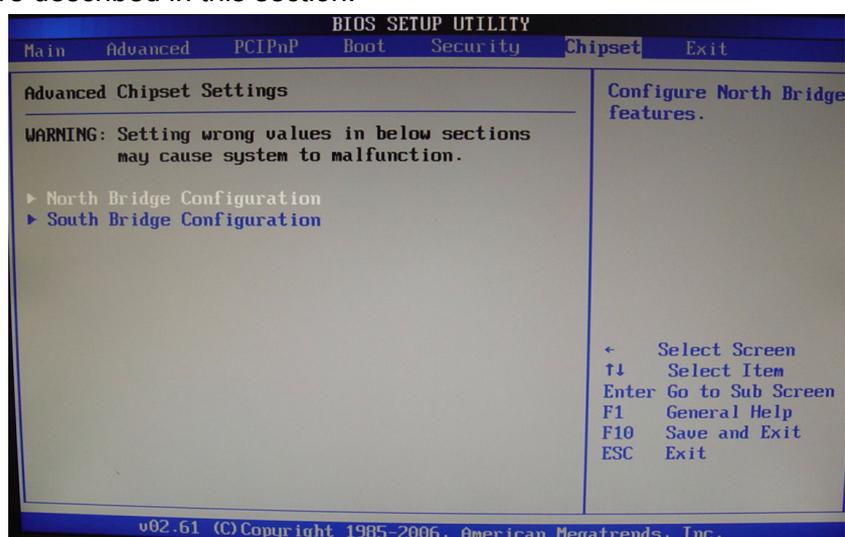
5.7.1 North Bridge Configuration

You can use this screen to select options for the North Bridge Configuration. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option.
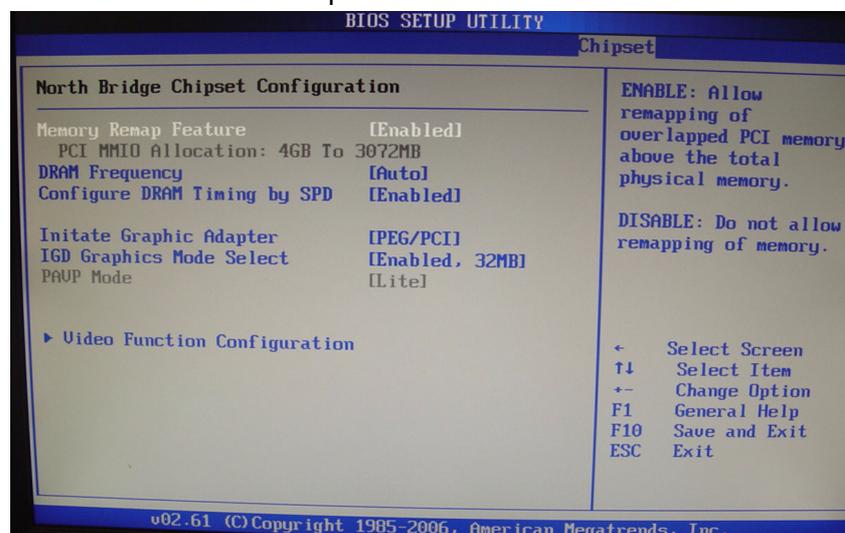
Initate Graphics Adaptor

This item selects which graphics controller to use as the primary boot device. The options are IGD, PCI/IGD, PCI/PEG, PEG/IGD, PEG/PCI. The default setting is PEG/PCI.

Internal Graphics Mode Select

This item selects the amount of system memory used by the internal graphics device. The choices are Disabled, Enabled 32MB, Enabled 64MB, and Enabled 128MB.

Video Function Configuration
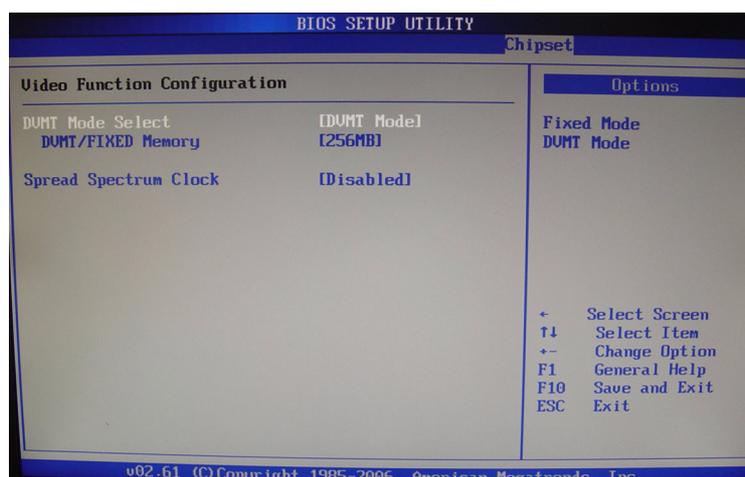
DVMT Mode Select

Use this field to select the memory to allocate for video memory. The choice is "DVMT".

DVMT/Fixed Memory Size

Specify the size of DVMT/system memory to allocate for video memory. The options are 128MB, 256MB and Maximum DVMT.

Spread Spectrum

This setting allows you to reduce EMI by modulating the signals the CPU generates so that the spikes are reduced to flatter curves. This is achieved by varying the frequency slightly so that the signal does not use any particular frequency for more than a moment. The options: Disabled and Enabled.

5.7.2 South Bridge Configuration

You can use this screen to select options for the South Bridge Configuration. South Bridge is a chipset on the motherboard that controls the basic I/O functions, USB ports, audio functions, modem functions, IDE channels, and PCI slots. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option.
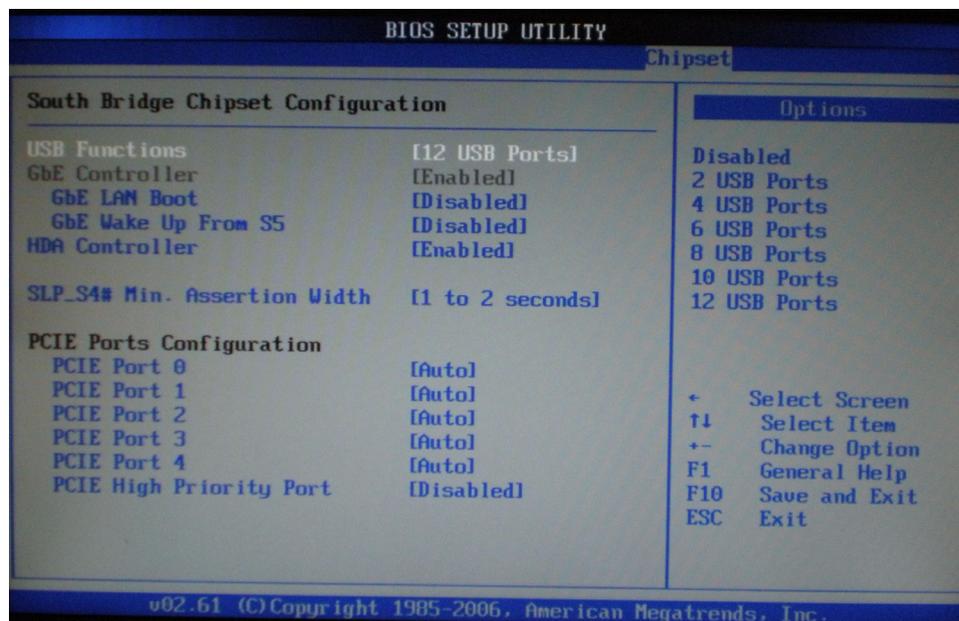
USB Functions

Set this value to allow the system to enable or disable the onboard USB ports. The choices are Disabled, 2 USB Ports, 4 USB Ports, 6 USB Ports, 8 USB Ports, 10 USB Ports, 12 USB Ports.

GbE Controller

Options are "Enabled" and "Disabled". Select "Disabled" if you don't want to use onboard LAN controller.

GbE LAN Boot

When [Enabled], the BIOS attempts to boot from a LAN boot image before it

attempts to boot from a local storage device.

GbE Wake up From S5

This field specifies whether the system will be awakened from the S5 power

saving mode when activity or input signal of onboard LAN is detected.

HDA Controller

Options are "Enabled" and "Disabled". Select "Disabled" if you don't want to use HDA controller.

SLP_S4# Min. Assertion Width

The choices are 4 to 5 seconds, 3 to 4 seconds, 2 to 3 seconds, and 1 to 2 seconds.

PCIE Ports Configuration

Option	Description
PCIE Port 0	This setting allows to enable the PCIE Port 0. The choices are Auto, Enabled, and Disabled.
PCIE Port 1	This setting allows to enable the PCIE Port 1. The choices are Auto, Enabled, and Disabled.
PCIE Port 2	This setting allows to enable the PCIE Port 2. The choices are Auto, Enabled, and Disabled.
PCIE Port 3	This setting allows to enable the PCIE Port 3. The choices are Auto, Enabled, and Disabled.
PCIE High Priority Port	This setting allows to select the PCIE High Priority Port. The choices are Disabled, Port 0, Port 1, Port 2 and Port 3.

5.8 Exit Menu

Select the Exit tab from the setup screen to enter the Exit BIOS Setup screen. You can display an Exit BIOS Setup option by highlighting it using the <Arrow> keys. All Exit BIOS Setup options are described in this section. The Exit BIOS Setup screen is shown below.
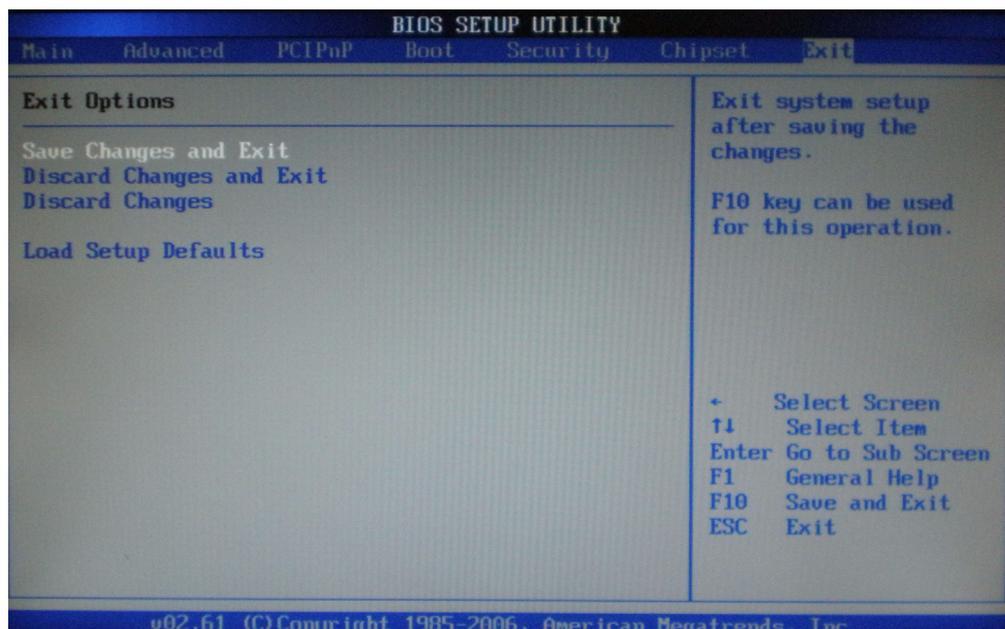
Save Changes and Exit

When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Exit Saving Changes from the Exit menu and press <Enter>.

Save Configuration Changes and Exit Now?

[Ok]   [Cancel] appears in the window. Select Ok to save changes and exit.

Discard Changes and Exit

Select this option to quit Setup without making any permanent changes to the system configuration. Select Exit Discarding Changes from the Exit menu and press <Enter>.

Discard Changes and Exit Setup Now?

[Ok]   [Cancel] appears in the window. Select Ok to discard changes and exit.

Discard Changes

Select Discard Changes from the Exit menu and press <Enter>.

Discard Changes ?

[Ok]   [Cancel] appears in the window. Select Ok to discard changes.

Load Setup Default

Automatically sets all Setup options to a complete set of default settings when you Select this option. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal Setup options if your computer is experiencing system configuration problems. Select Load Setup Defaults from the Exit menu and press <Enter>. Select Ok to load optimal defaults.
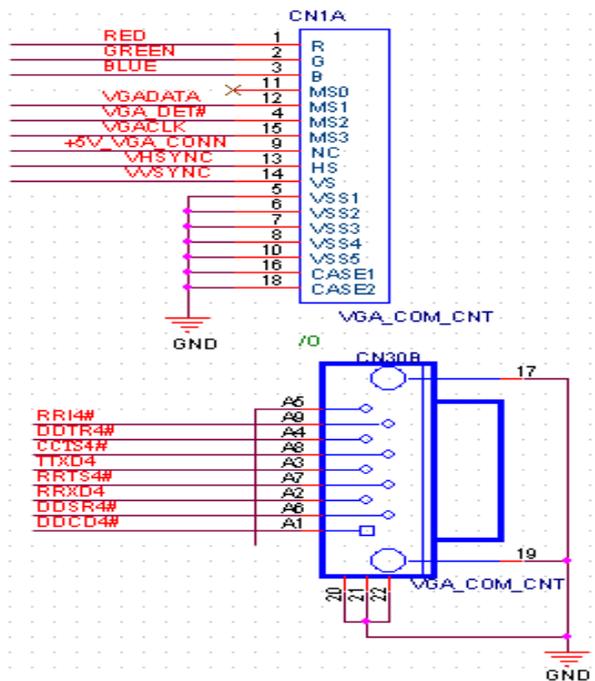
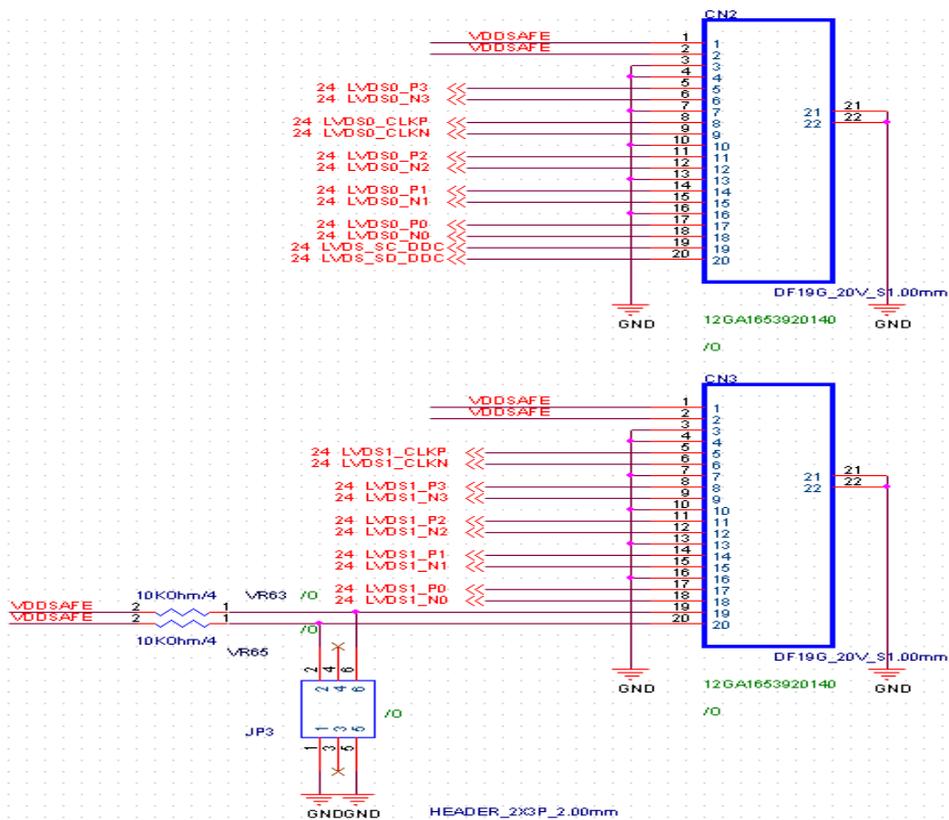# Appendix A

IO & Connector Pin Assignments

A.1 CN1, CN2 LVDS

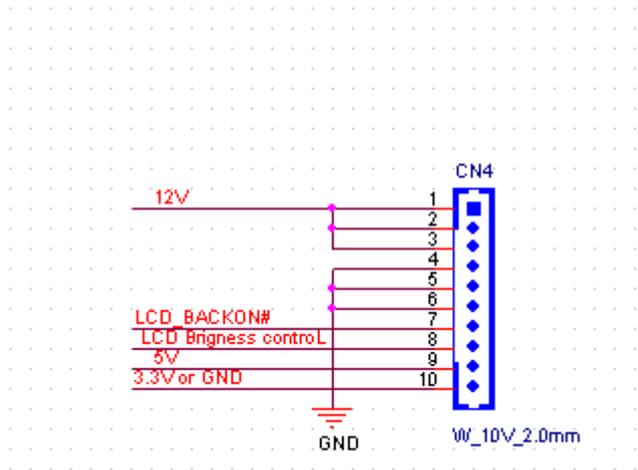CN1   CRT&COM3   D-Sub   15-PIN&   D-Sub   9-PIN

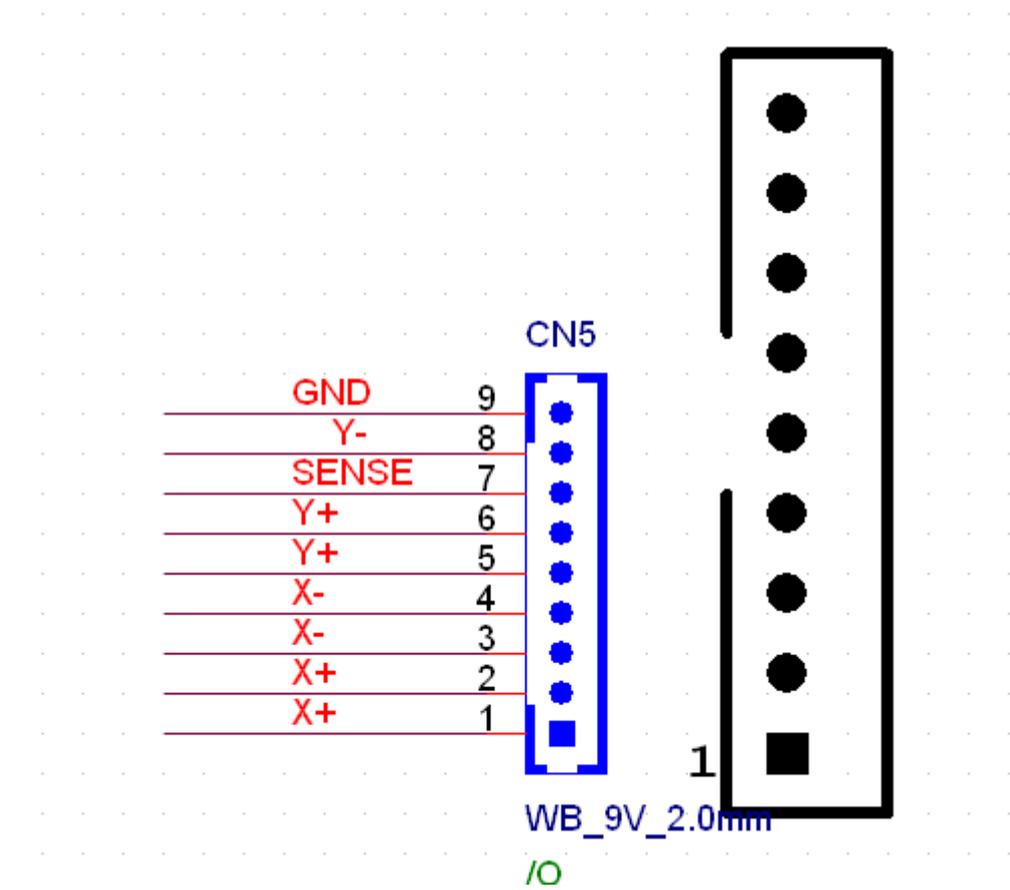

CN2&CN3   LVDS   24/48 BIT LVDS

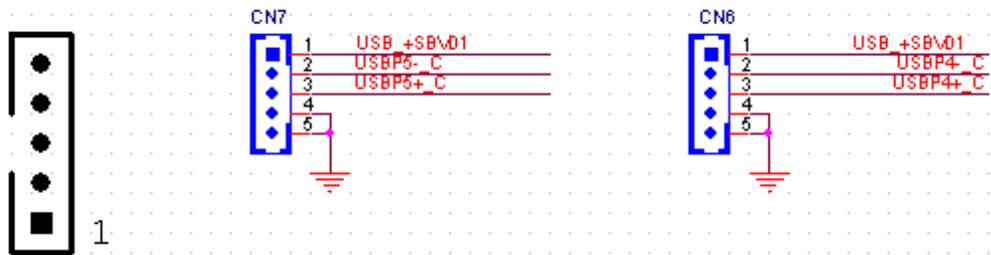CN4   LCD INVER Power Connector   WaferBOX 2.0mm 10P

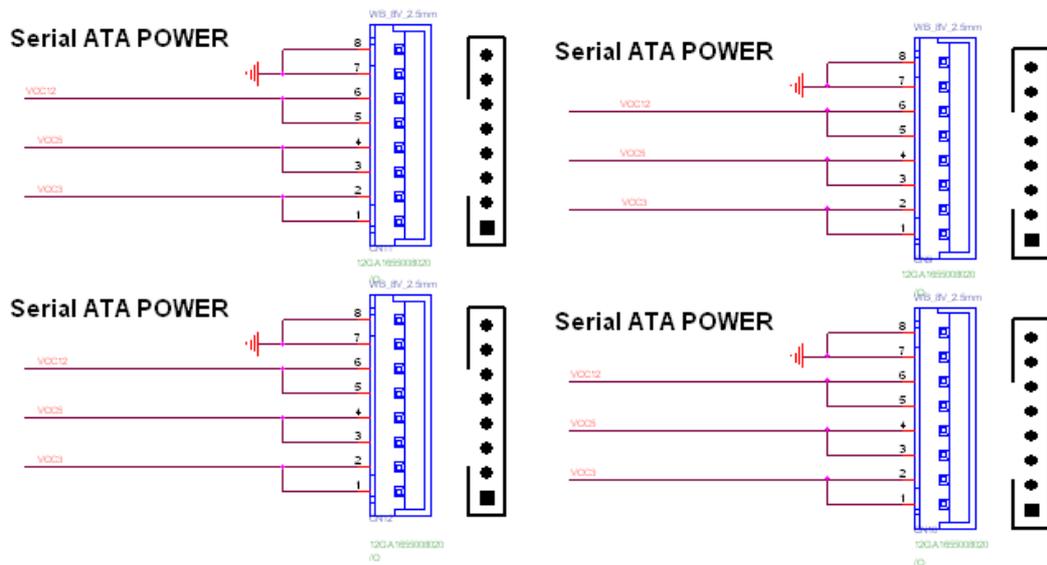

CN5   Touchscreen   WaferBOX 2.0mm 9P

CN6&CN7   USB Port4& Port5   WaferBOX 2.54mm 5P

CN7
1 USB_+SBVD1
2 USBP5-_C
3 USBP5+_C
4
5

CN6
1 USB_+SBVD1
2 USBP4-_C
3 USBP4+_C
4
5

CN9&CN10&CN11&CN12 SATA POWER PORT   WaferBOX 2.54mm 8P

Serial ATA POWER

Serial ATA POWER

Serial ATA POWER

Serial ATA POWER

CN18   PANEL HEADER   WaferBOX 2.0mm 9P

CN18
HDLED+   9
HD_LED#   8
PLED   7
           6
FP_SYS_RST# 5
           4
FP_PWRBTN# 3
           2
           1

GND

KBMS1   PS2   KEYBOARD,MOUSE

COMD1   COM1&COM2   D-Sub 9-PIN*2

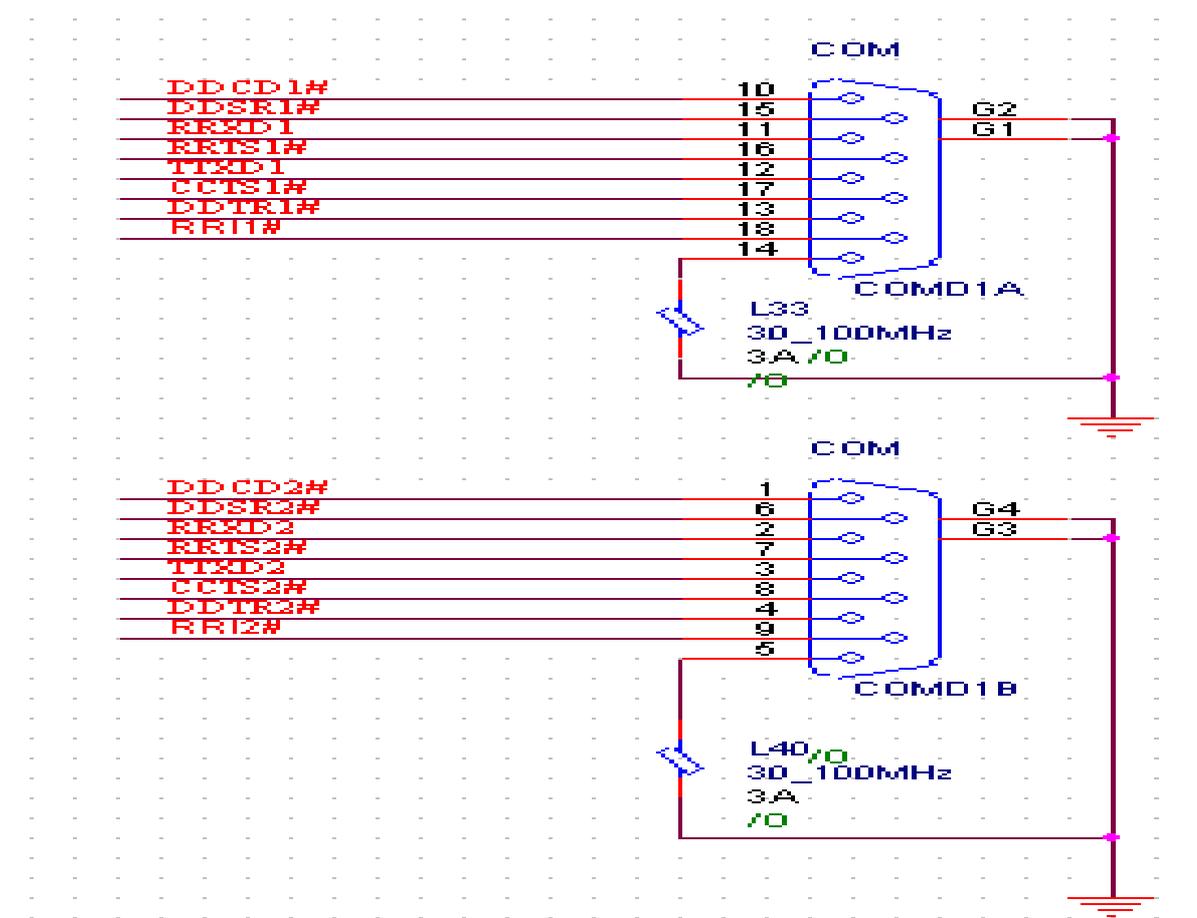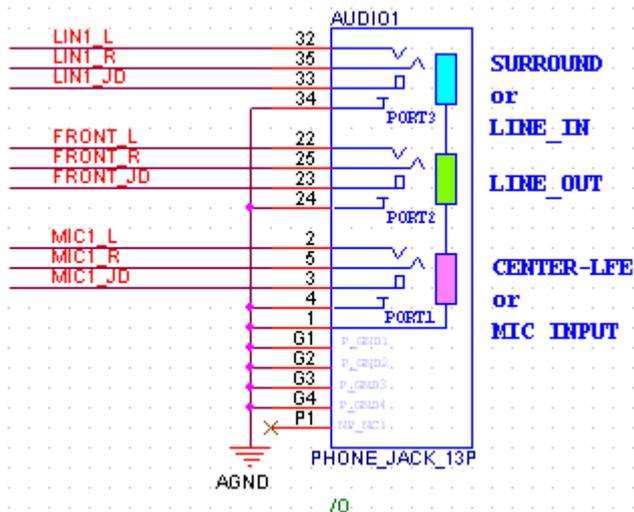LAN1_USB12   LAN1/USB0/USB1   PhoneJack RJ45+USB*2

LAN1_USB12

GND 30

LANGND30 LANGND28 LANGND27 LANGND29

ACTLEDP 22 82567_LINK10_100#
ACTLEDN 21 82567_LINK1000#

82567_+SBV01 8 VCC1
              7 VCC2
USBP1+ 6 2P-
USBP1- 5 1P-
USBP0+ 4 2P+
USBP0- 3 1P+
        2 GND1
        1 GND2

LAN_GND 18 GND
TD4 17 LAN_MDI3_N
TD4+ 16 LAN_MDI3_P
TD3- 15 LAN_MDI2_N
TD3+ 14 LAN_MDI2_P
TD2- 13 LAN_MDI1_N
TD2+ 12 LAN_MDI1_P
TD1- 11 LAN_MDI0_N
TD1+ 10 LAN_MDI0_P
CTR 9   82567_LAN_CTR

LILEDN 20 3VSB
LILEDP 19 82567_LAN_ACT#

GND

USBGND26 USBGND24 USBGND23 USBGND25

LAN_CON_USB

26 24 23 25

LAN1_USB1   LAN2/USB2/USB3   PhoneJack RJ45+USB*2

LAN1_USB1

GND 30

LANGND30 LANGND28 LANGND27 LANGND29

ACTLEDP 22 LINK10_100#
ACTLEDN 21 LINK1000#

+5V_DUAL_USB1 8 VCC1
               7 VCC2
USBP2+ 6 2P-
USBP2- 5 1P-
USBP3+ 4 2P+
USBP3- 3 1P+
        2 GND1
        1 GND2

LAN_GND 18 GND
TD4 17 Intel1_MDI_D-
TD4+ 16 Intel1_MDI_D+
TD3- 15 Intel1_MDI_C-
TD3+ 14 Intel1_MDI_C+
TD2- 13 Intel1_MDI_B-
TD2+ 12 Intel1_MDI_B+
TD1- 11 Intel1_MDI_A-
TD1+ 10 Intel1_MDI_A+
CTR 9   LAN_CTR

LILEDN 20 +3P3VSB
LILEDP 19 LAN_ACT#

GND

USBGND26 USBGND24 USBGND23 USBGND25

LAN_CON_USB

26 24 23 25

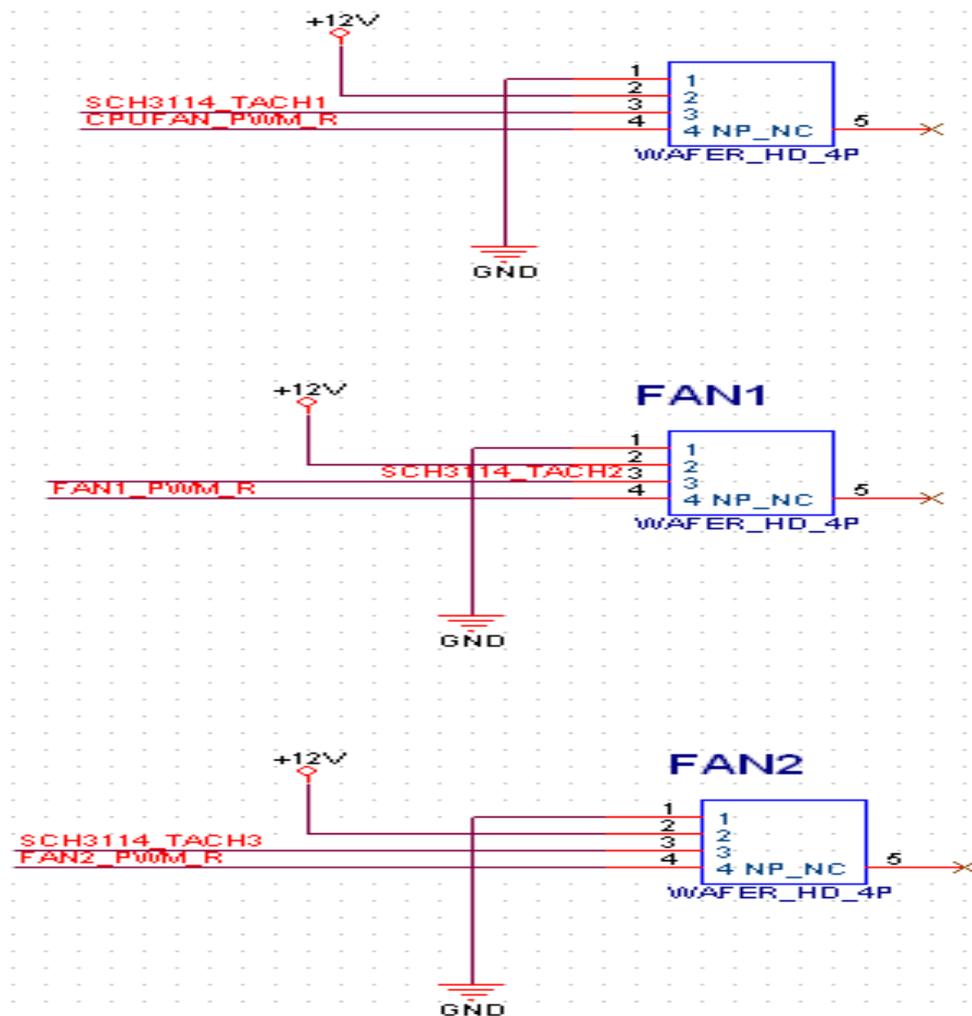GND

AUDIO1   AUDIO   LINE IN,LINE OUT,MIC IN

FAN0,FAN1,FAN2 FAN CONNECTOR   Wafer 2.54mm 4P
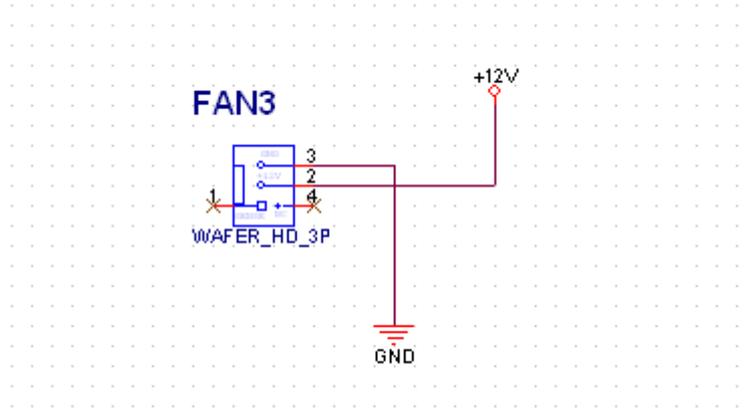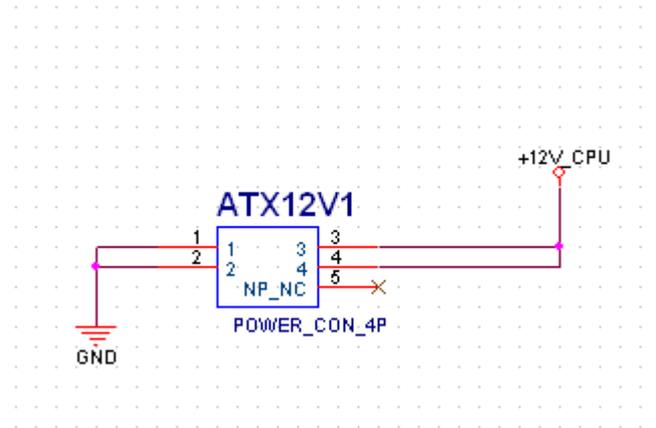
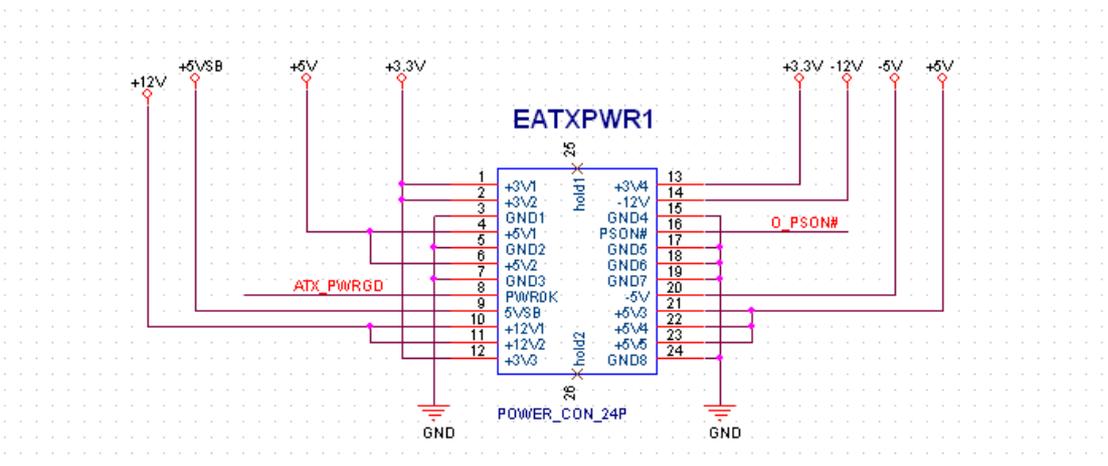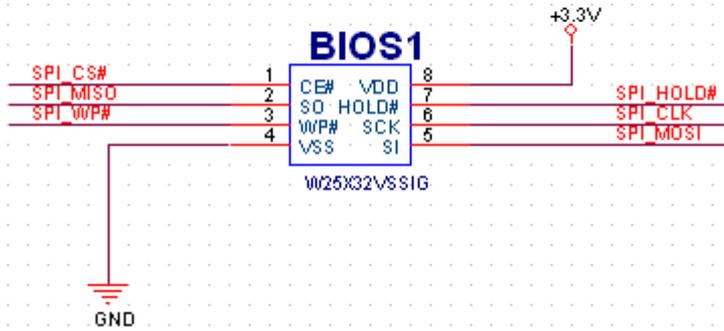FAN3　　　FAN CONNECTOR　　　Wafer 2.54mm 3P

ATX12V1　　+12V CONNECTOR　　　2X2 12V POWER CONN

EATPWR1　　ATXPOWER CONNECTOR　　　2X12 ATX Power CONN.
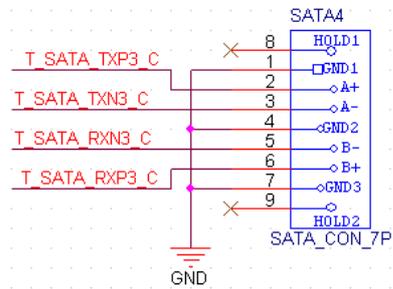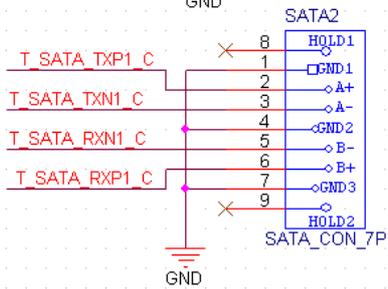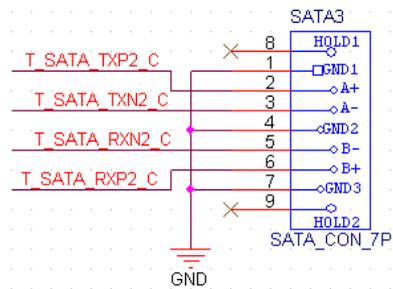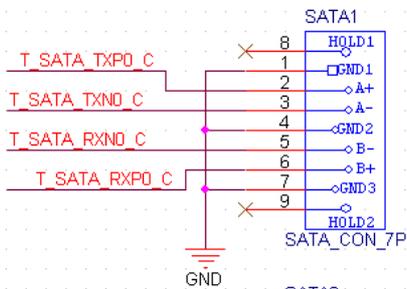
SPI1   SPI Interface CONNECTOR   2x8 Cut 8 pin 2.54mm \

SAT1&SAT2&SAT3&SAT4 SATA PORT   SerialATA Conn 7P 180D

Appendix B

System Assignments

B.1 System I/O Ports

Table B.1: System I/O Ports	
Addr. Range (Hex)	**Device**
000-01F	DMA controller
020-021	Interrupt controller 1, master
022-023	Chipset address
040-05F	8254 timer
060-06F	8042 (keyboard controller)
070-07F	Real-time clock, non-maskable interrupt (NMI) mask
080-09F	DMA page register
0A0-0BF	Interrupt controller 2
0C0-0DF	DMA controller
0F0	Clear math co-processor
0F1	Reset math co-processor
0F8-0FF	Math co-processor
1F0-1F8	Fixed disk
278-27F	Parallel printer port 2 (LPT3)
290-297	On-board hardware monitor
2F8-2FF	Serial port 2
360-36F	Reserved
378-37F	Parallel printer port 1 (LPT2)
3C0-3CF	Reserved
3D0-3DF	Color/graphics monitor adapter
3F0-3F7	Diskette controller
3F8-3FF	Serial port 1
3E8-3EF	Serial port 3
2E8-2EF	Serial port 4

B.2 DMA Channel Assignments

Table B.2: DMA Channel Assignments	
Channel	**Function**
0	Available
1	Available
2	Available
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

B.3 Interrupt Assignments

Table B.3: Interrupt Assignments

Priority	Interrupt#	Interrupt Source
1	NMI	Parity error detected
2	IRQ0	Interval timer
3	IRQ1	Keyboard
	- IRQ2	Interrupt from controller 2 (cascade)
4	IRQ8	Real-time clock
5	IRQ9	Cascaded to INT 0A (IRQ 2)
6	IRQ10	Serial communication port 4
7	IRQ11	Available
8	IRQ12	PS/2 mouse
9	IRQ13	INT from co-processor
10	IRQ14	Fixed disk controller
11	IRQ15	Available
12	IRQ3	Serial communication port 2
13	IRQ4	Serial communication port 1
14	IRQ5	Parallel port 2
15	IRQ6	Available
16	IRQ7	Serial communication port 3

B.4 1st MB Memory Map

Table B.4: 1st MB Memory Map

Addr. range (Hex)	Device
E0000h - FFFFFh	System ROM
CC000h - DFFFFh	Unused
C0000h - CBFFFh	VGA BIOS
A0000h - BFFFFh	VGA buffer
00000h - 9FFFFh	Base memory

B.5 PCI Bus Map

Table B.5: PCI Bus Map

Function Signals:	Device ID	INT# Pin	GNT# Pin
Onboard LAN1	AD24	INT E	
PCI slot 2	AD29	INT B,C,D,A	GNT2#
PCI slot 3	AD30	INT C,D,A,B	GNT1#
PCI slot 4	AD31	INT D,A,B,C	GNT0#

Appendix C

Watchdog Timer

C.1 Overview

The IPPC-6192 cards' watchdog timer can be used to monitor system software operation and take corrective action if the software fails to function after the programmed period. This section describes the operation of the watchdog timer, and how to program it. The watchdog timer is built into the super I/O controller SCH3114. It provides the following functions for user programming:
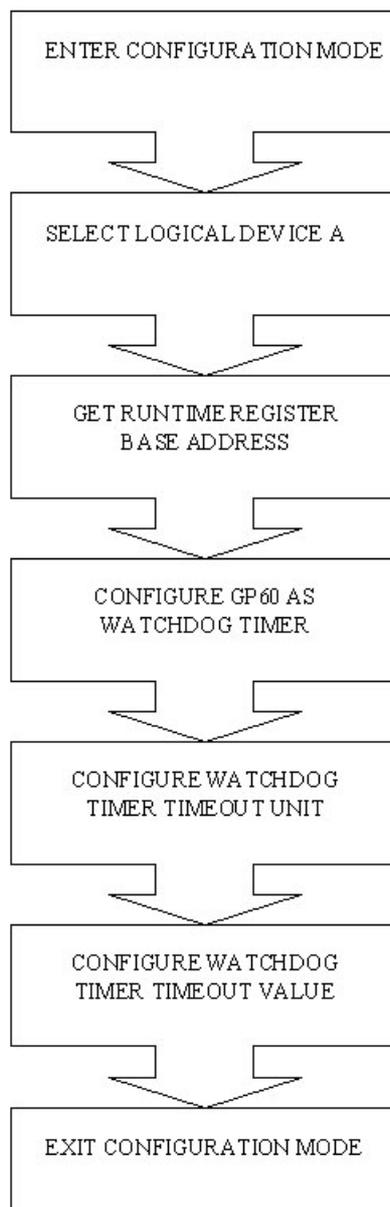
Can be enabled and disabled by user's program.

Timer can be set from 1 to 255 seconds.

Generates an interrupt or resets signal if the software fails to reset the

timer after time-out.

C.2 Watchdog Timer Programming

The I/O port address of the watchdog timer is 4E(hex) .

```
; Sample Code

Superio_Config_PortEQU4Eh

;---------------------------------------------
;           ENTER CONFIGURATION MODE
;---------------------------------------------

        mov   dx, Superio_Config_Port
        mov   al, 055h
        out    dx, al
        out    dx, al

        IODELAY

;-----------------------------------------
;
;-----------------------------------------

        mov   dx, Superio_Config_Port
        mov   al, 7h
        out    dx, al
        IODELAY
        inc    dx
        mov   al, 0ah
        out    dx, al

        IODELAY

;---------------------------------------------
;           GET RUNTIME REGISTER BASE ADDRESS
;---------------------------------------------

        mov   dx, Superio_Config_Port
        mov   al, 60h
        out    dx, al
        IODELAY
        inc    dx
        in     al, dx
        mov   bh, al         ; high byte in BH

        IODELAY

        mov   dx, Superio_Config_Port
        mov   al, 61h
```

```
        out    dx, al
        IODELAY
        inc    dx
        in     al, dx
        mov   bl, al        ; low byte in BL

        IODELAY


;---------------------------------------------
;          CONFIGURE GP60 AS WATCHDOG TIMER
;---------------------------------------------

        mov   dx, bx
        add    dx, 47h
        in     al, dx
        IODELAY
        or     al, 0ch      ;WDT
        and    al, 0feh;output, don't touch bit 1
        out    dx, al

        IODELAY


;---------------------------------------------
;          CONFIGURE WATCHDOG TIMER TIMEOUT UNIT
;---------------------------------------------

        mov   dx, bx
        add    dx, 65h
        mov   al, 80h       ; units(second)
        out    dx, al

        IODELAY


;---------------------------------------------
;          CONFIGURE WATCHDOG TIMER TIMEOUT VALUE
;---------------------------------------------

        mov   dx, bx
        add    dx, 66h
        mov   al, ?         ; timeout value
        out    dx, al

        IODELAY


;---------------------------------------------
```

```
;        EXIT CONFIGURATION MODE
;--------------------------------------------

        mov   dx, Superio_Config_Port
        mov   al, 0AAh
        out    dx, al
```

ADVANTECH

*e*Automation