I771 Motherboard

Mini ITX SBC with Intel ® Core2 Quad /Core2 Duo Processor
LVDS, VGA, Dual Giga Ethernet, Mini-PCI, PCIe slot

User Manual / Engineering Spec.

Version 1.2

FCC Statement

This device complies with part 15 FCC rules. Operation is subject to the following two conditions：

- This device may not cause harmful interference.
- This device must accept any interference received including interference that may cause undesired operation.

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 him own expense.

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Trademark Acknowledgement

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Disclaimer

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Warranty

We warrant that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, We will, at its option, repair or replace the defective product at no charge to the customer, provided it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in its original packaging to obtain warranty service.

If the serial number and the product shipping data differ by over 30 days, the in-warranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W07Axxxxxxxx means October of year 2007.

Packing List

Before using this Motherboard, please make sure that all the items listed below are present in your package：

- I771 Motherboard
- I771 SBC User Manual
- HDD SATA、IDE Cable
- User's Manual & Driver CD

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Customer Service

We provide service guide for any problem as follow steps： Please contact with your distributor, sales representative, or our customer service center for technical support if you need additional assistance. You may have the following information ready before you call：

- Product serial number
- Peripheral attachments
- Software (OS, version, application software, etc.)
- Description of complete problem
- The exact wording of any error messages

In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

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° C (-4°F) or above 60° C (140° F). It may damage the equipment.

Revision History

Version	Date	Note	Author
1.2	2015.03.26	✓ Jumper,Connector	Austin Chang
1.1	2011.04.22	✓ BIOS、Connector	Henry Hsu
1.0	2009.01.12	✓ Initial Draft	Aladin Huang

Contents

CHAPTER 1

General Information

This chapter includes I771 Motherboard background information.

Sections include:

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

Chapter 1 General Information

1.1 Introduction

I771 SBC is equipped with Intel GM45 North Bridge and Intel ICH9M-E South Bridge which are designed with Intel's mobile platform. Intel's GM45 platform delivers the performance and high scalability cutting-edge embedded computing application.

In peripheral connectivity, I771 SBC with one PCIE x 16 and PCIE x 1 slot and Mini-PCI I/O ports, One PATA connectors, and eight Hi-Speed USB connectors.

Thus, I771 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.

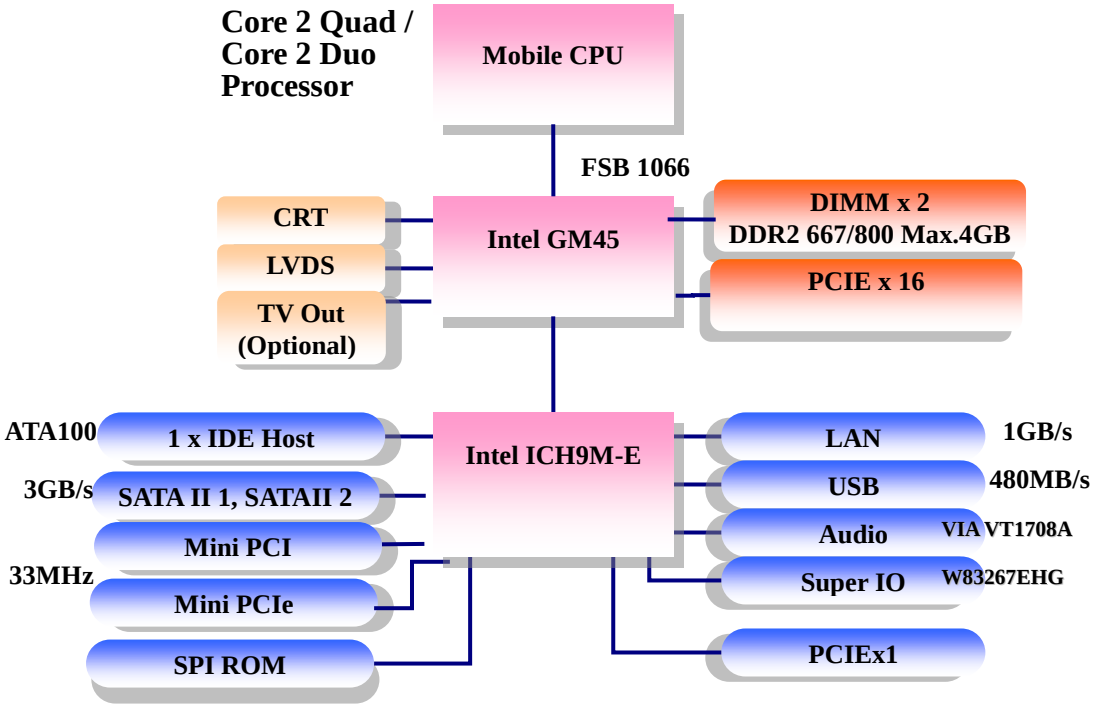
1.2 Feature

- Mini-ITX Form Factor (170mm x 170mm)
- Supports Intel® Core 2 Quad/Core 2 Duo processors
- System memory up to 4GB DDR2 667/800, 2xDIMM
- Integrated Intel GM45 + ICH9M-E Chipset
- Intel® GMA4500 MHD Graphic Engine, 384MB shared Memory.
- Microsoft DirectX*10 support, Blu-ray* support @ 40 Mb/s
- Dual Gigabit Ethernet (Dual Fast Ethernet optional)
- 1 x PCIEx16 slot, 1 x PCIEx1,1 x Mini PCI, 4 x COM, 8 x USB2.0, 1 x TV out, 1 x Mini PCIe (Optional)
- COM 1/4: Provides +5V & +12V output options by JP1 Jumper setting
- 1 x PATA(1 x 44 pins IDE), 3 x SATA
- SATA2 : Provides +5V output options by JP3 Jumper setting
- Support RAID 0,1,5

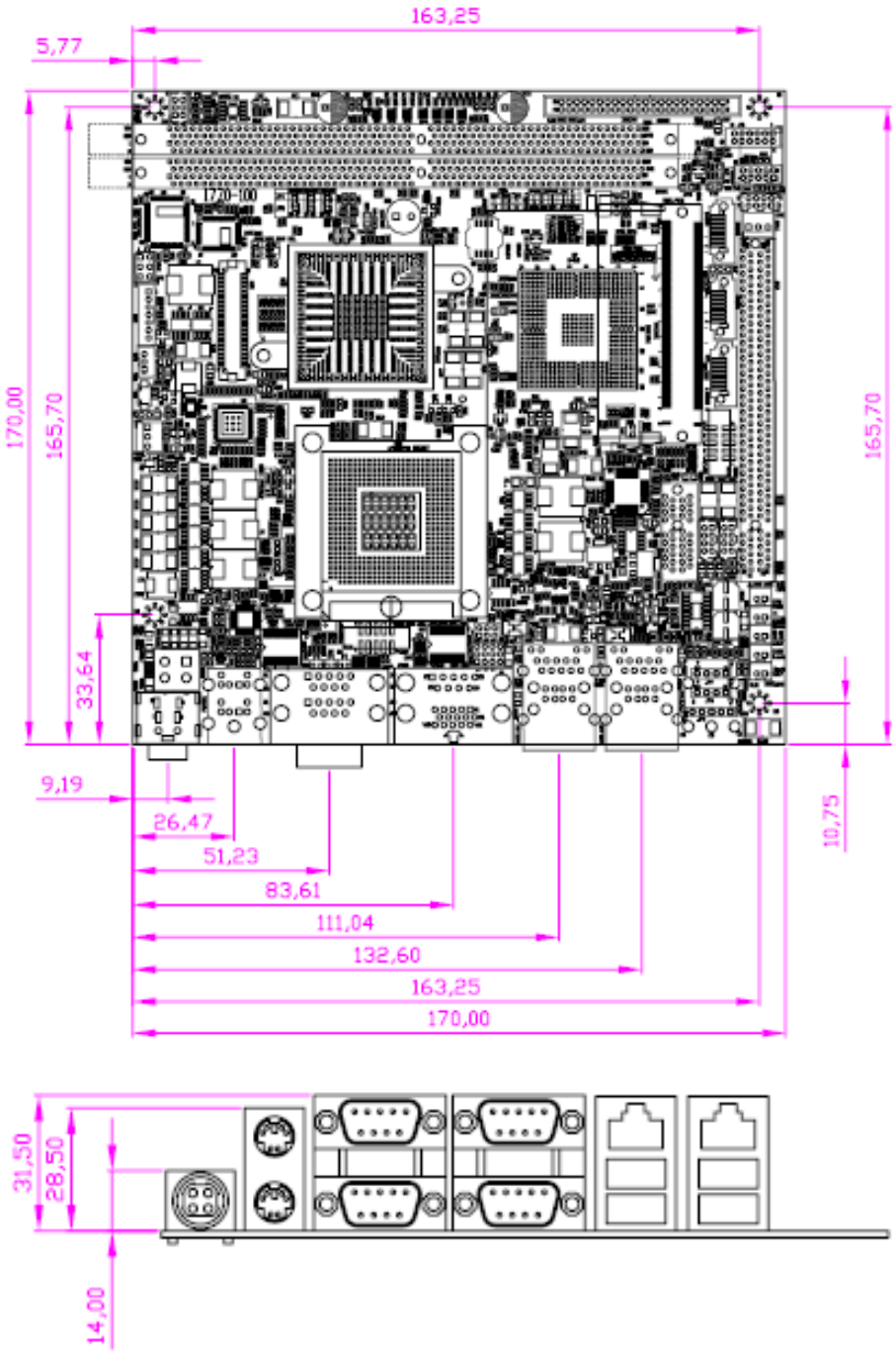
1.3 Motherboard Specifications

CPU Type	Intel® Core 2 Quad/Core 2 Duo Processor
CPU FSB	1066 MHz
CPU Socket	Intel Socket P type
Chipset	Intel GM45/ICH9M-E
BIOS	Award 4Mbit Flash
VGA	Intel GMA4500 MHD graphics engine 384MB shared with system memory
LVDS	Intel® GM45 built in single- or Dual-channel panel support up to 1920 x 1200, 24bit
LAN	2 x Giga LAN (Intel 82574L+82567LM)
Memory Type	2 x DDR2 DIMM socket, supports up to 4GB DDR2 800/667
LPC I/O	Winbond W83627EHG integrated hardware monitoring
Keyboard/Mouse	2 x PS/2 Keyboard/Mouse connectors
IDE Interface	Dual channels; supports Ultra DMA 33/66/100
Sound	VIA VT1708B(Line-in, Line-out, Mic in)
USB	8 ports, USB 2.0 (4 x USB Connector, 4 x USB pin-header)
Edge Connectors	1 x +12V DC-IN Jack 2 x PS/2 connector for keyboard/mouse 2 x DB9 for COM3 & COM4 1 x VGA out connector + 1 x DB9 for COM1 2 x Gigabit LAN RJ-45 + 1 x dual USB stack connector 1 x Audio Jack for Audio (Line-in, Line-Out, Mic-in) (Optional)
On Board Pin-Header Connectors	1 x 44 pins box-header 1 x 10pins pin-header for Front Panel(2x5) 1 x 3pins pin-header for CPU Fan 1 x 3pins pin-header for System FAN 1 x 8pins pin-header for 5V/12V external power 2 x 2pins pin-header for 5V external power (Red) 1 x 2pins pin-header for 12V external power (Yellow) 1 x 4pins ATX 12V connector 2 x 2pins pin-header for Front Audio (with Amp.) 2 x 8pins pin-header for USB 5/6, 7/8(2x5) 1 x 10pins pin-header for COM2(RS232)(2x5) 1 x 40pins DF13 Connector for LVDS 1 x 3pins digital panel backlight brightness controller 1 x 7pins digital panel backlight controller 1 x 10pins pin-header for DIO(2x5) 3 x SATA connector for SATAI/II 3.0 Gb/s 1 x 6pins TV-Out connecter
Power Connector	Input: 4-pin ATX 12V Power input
Expansion Slots	1 x PCIEx1, 1 x PCIEx16, 1 x Mini-PCI. 1xMini-PCIe (Optional)
Form Factor	Mini-ITX
Dimensions	170mm x 170mm
Mechanical & environmental	Operating temperature: 0 deg. C to 60 deg. C Operating Humidity: 30 ~ 90% Relative humidity, non-condensing Certification: CE, FCC, RoHS

1.4 Function Block



1.5 Board dimensions



CHAPTER 2

Installations

This chapter provides information on how to use the jumps and connectors on I771 Motherboard.
The Sections include:

- Memory Module Installation
- I / O Equipment Installation
- Jumpers and Connects
- Jumpers Setting
- Connectors on I771 Motherboard

Chapter 2 Installations

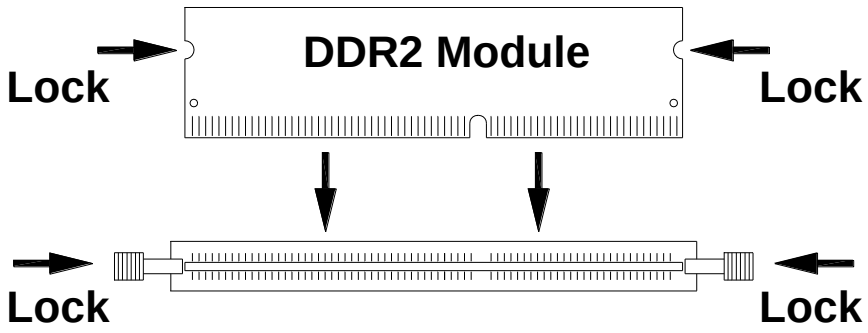
2.1 Memory Module（DIMM）Installation

I771 motherboard supports dual DDR2 memory socket for a maximum total memory of 4GB in DDR2 memory type.

2.1.1 Installing and Removing Memory Modules

To install the DDR2 modules, locate the memory slot on the board and perform the following steps:

1. Hold the DDR2 module so that the key of the DDR2 module align with those on the memory slot.
2. Gently push the DDR2 module in an upright position until the clips of the slot close to hold the DDR2 module in place when the DDR2 module touches the bottom of the slot.
3. To remove the DDR2 module, press the clips with both hands.



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 Socket P processor in GM45 with ICH9M-E chipset.

※Without power/reset OSD, short circuit pin 5 and 6 together to boot up the motherboard. (Front Panel Connector)

2.2.2 PS/2 Keyboard and PS/2 Mouse

The Motherboard provides two PS/2 interface. The PS/2 connector supports Keyboard and Mouse. In other cases, especially in embedded applications, a mouse is not used.

Therefore, the BIOS standard setup menu allows you to select* “All, But Keyboard” under the “Halt On”. This allows no-keyboard operation in embedded system applications without the system halting under POST.

2.2.3 Serial COM ports

Three RS-232 connectors build in the rear I/O. Fourth optional COM ports support RS-232. When an optional touch-screen is ordered with PPC, serial com port can connect to a serial or an optional touch-screen. One optional COM port supports RS232/422/485 choice through jumper setting.

2.2.4 Internal 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.

2.2.5 Ethernet interface

The Motherboard is equipped with Intel 82574L+82567LM 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.

2.2.6 USB ports

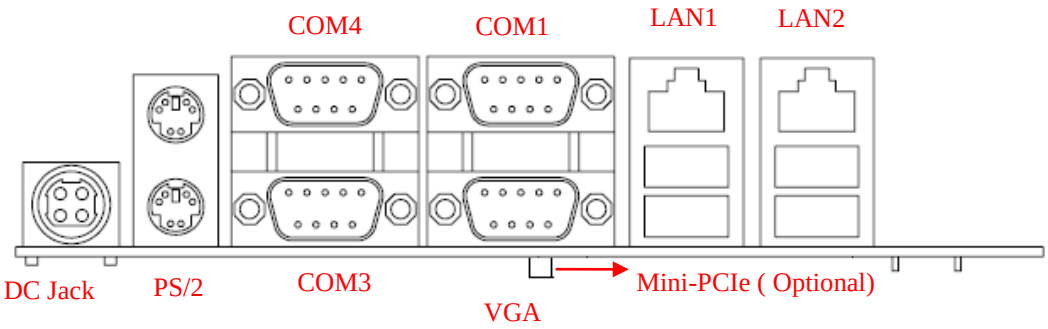
Eight USB devices (four with pin headers) may be connected to the system though an adapter cable. Various adapters may come with USB ports. USB usually connect the external system to the system. The USB ports support hot plug-in connection. Whatever, you should install the device driver before you use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

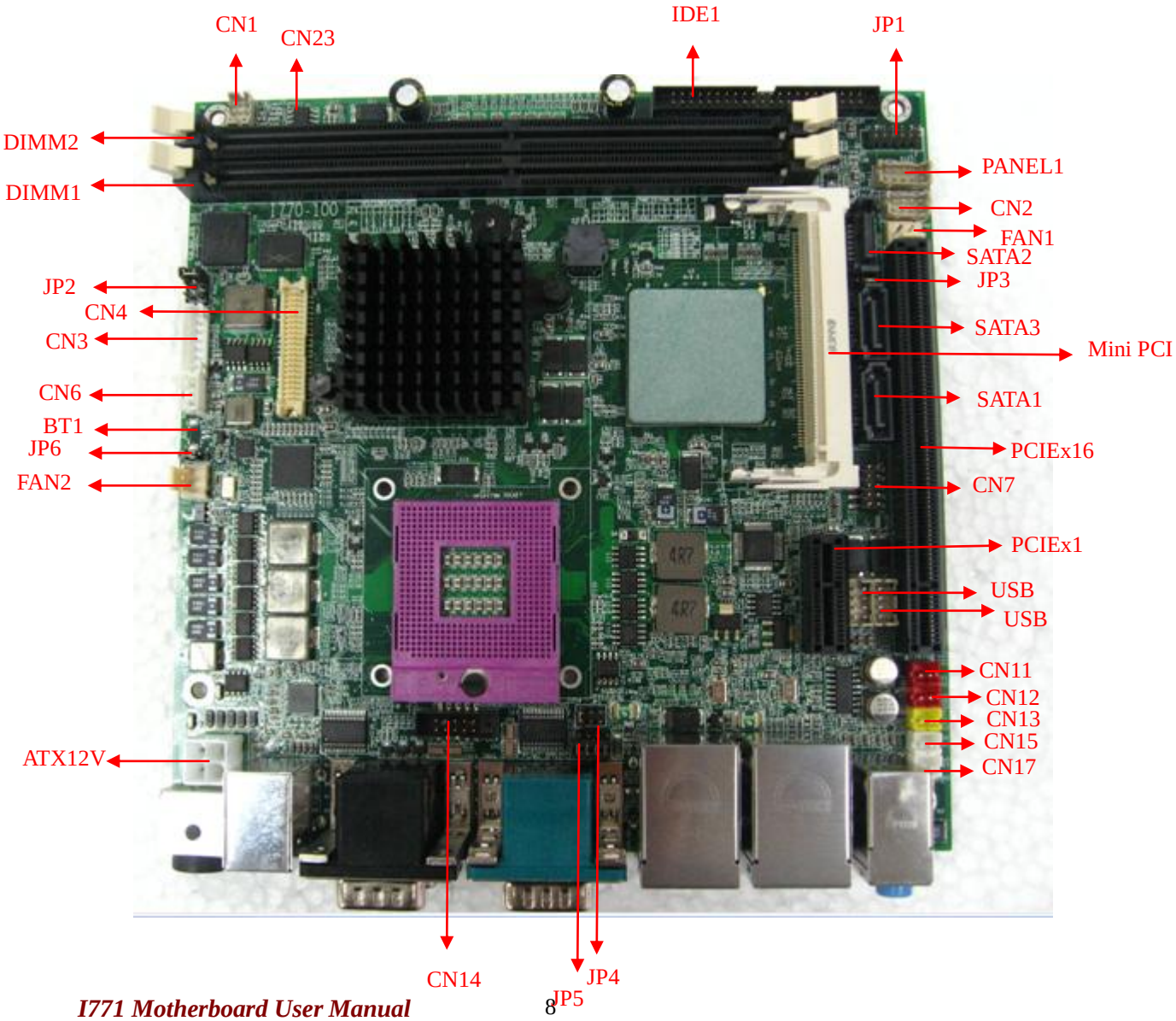
2.2.7 Audio Jack (Pin-header)

The Audio 5.1 channel capabilities are provided by a VIA VT1708B chipset supporting digital audio outputs. The audio interface includes Mic-in,: line-in and line-out.

2.3 Jumpers and Connectors

TOP

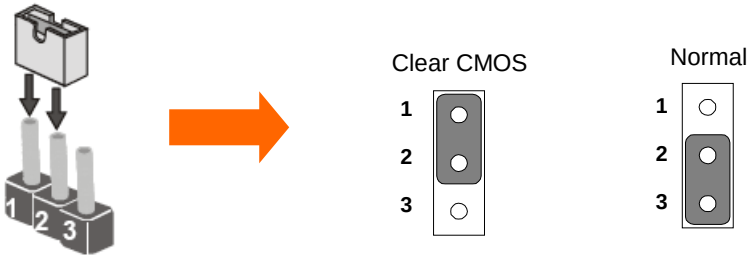




2.4 Jumper Setting

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.

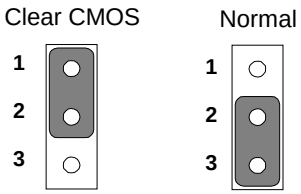


The following tables list the function of each of the board's jumpers.

Label	Function	Note
JP1	COM Configure	3x1 header , pitch 2.0mm
JP2	LVDS VOLTAGE	2x3 header , pitch 2.54mm
JP3	SATA Configure	3x1 header , pitch 2.0mm
JP4	RS232 / RS422 / RS485 Selector	2x3 header , pitch 2.0mm
JP5	RS232 / RS422 / RS485 Selector	3x4 header , pitch 2.0mm
JP6	Clear CMOS	3x1 header , pitch 2.0mm

2.4.1 JP6: Clear CMOS

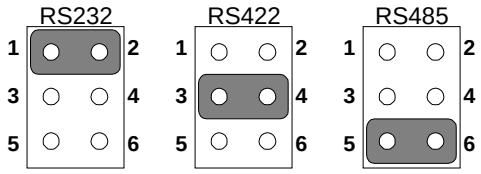
User must make sure the power supply to turn off the power supply before setting Clear CMOS. Users remember to setting jumper back to Normal before turning on the power supply. Default: 2 short 3.



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

JP4 : COM1 RS232 / RS422 / RS485 Function Selector

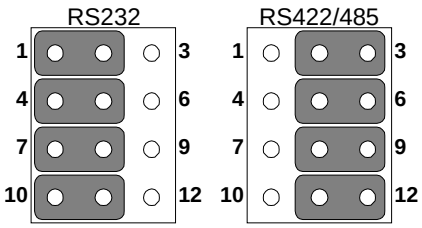
The jumper can be configured to operate COM1 in RS-232/422/485 mode. And the setting must be cooperated with the 2.4.2 settings. Default 1 short 2.



Pin No.	Functions
1 Short 2	RS232
3 Short 4	RS422
5 Short 6	RS485

2.4.2 JP5: RS232 / RS422 / RS485 Selector

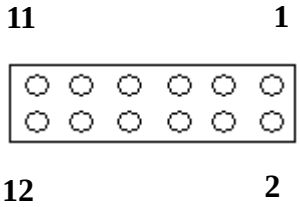
The jumper can be configured to operate COM1 in RS-232/422/485 mode. And the setting must be cooperated with JP4 settings.



RS232	RS422/485
1-2	2-3
4-5	5-6
7-8	8-9
10-11	11-12

2.4.3 JP1: COM Configure

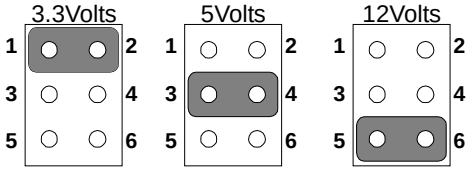
JP1 can be configured to provide RI/+5V/+12V on COM1/COM4.



Pin No.	Functions
1 Short 2	COM1 RI =RI
3 Short 4	COM1 RI = +12V
5 Short 6	COM1 RI = +5V
7 Short 8	COM4 RI =RI
9 Short 10	COM4 RI = +12V
11 Short 12	COM4 RI = +5V

2.4.4 JP2: LCD Panel Voltage Select

CN4 can be configured to operate in 3.3Volts / 5Volts / 12Volts mode.



Pin No.	Functions
1 Short 2	3.3Volts Selected
3 Short 4	5Volts Selected
5 Short 6	12Volts Selected

2.4.5 JP3: HDD/DOM SATA2 Select

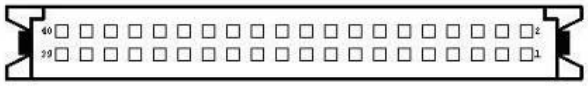
Pin No.	Functions
1 Short 2	SATA DOM
2 Short 3	SATA HDD

2.5 Connectors and Pin Assignment

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

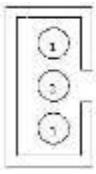
Label	Function	Note
CN4	LVDS LCD Output Connector	DF13-40DP-1.25V
CN6	Digital Panel Backlight Brightness Control	3x1 header, pitch 2.54mm
CN3	Inverter Connecter	7x1 header, pitch 2.54mm
CN14	Serial port COM2	9pin COM port
IDE1	IDE Connector	44Pin IDE Conn.
USB	USB PIN HEADER	4x2 Pin Header
FAN1_SYS	FAN CONNECTOR	3x1 Pin Header
FAN2_CPU	FAN CONNECTOR	3x1 Pin Header
PANEL1	System Function Connector	5x2 header ,pitch 2.0mm
CN17	Front Audio (Right)	1x2 header ,pitch 2.54mm
CN15	Front Audio (Left)	1x2 header ,pitch 2.54mm
CN13(Yellow)	12V External Power	2x1 header, pitch 2.54mm
CON11(Red)	5V External Power	2x1 header, pitch 2.54mm
CON12(Red)	5V External Power	2x1 header, pitch 2.54mm
CN2	5V/12V External Power	4x2 header ,pitch 2.54mm
CN1	TV Out	3x2 header ,pitch 2.54mm
CN7	Digital I/O	10 pin Digital I/O function
ATX_PWR	12V DC Connector	2x2 Pin Connecter
PWIN1	12V DC Connector	4 Pin Connecter
CN23	MEJ TAG	2x4 wafer 1.27mm

2.5.1 CN4: LVDS Connector



Pin No.	SYMBOL	Pin No.	SYMBOL
1	LCDVDD	2	LVDS_ATX0-
3	LCDVDD	4	LVDS_ATX0+
5	LCDVDD	6	LVDS_ATX1-
7	GND	8	LVDS_ATX1+
9	GND	10	LVDS_ATX2-
11	GND	12	LVDS_ATX2+
13	GND	14	LVDS_ATXCLK-
15	GND	16	LCDS_ATXCLK+
17	GND	18	ATX3-
19	GND	20	ATX3+
21	GND	22	LVDS_BTX0-
23	GND	24	LVDS_BTX0+
25	GND	26	LVDS_BTX1-
27	GND	28	LVDS_BTX1+
29	GND	30	LVDS_BTX2-
31	GND	32	LVDS_BTX2+
33	GND	34	LVDS_BTXCLK-
35	GND	36	LVDS_BTXCLK+
37	GND	38	BTX3-
39	GND	40	BTX3+

2.5.2 CN6: Digital Panel Backlight Brightness Control

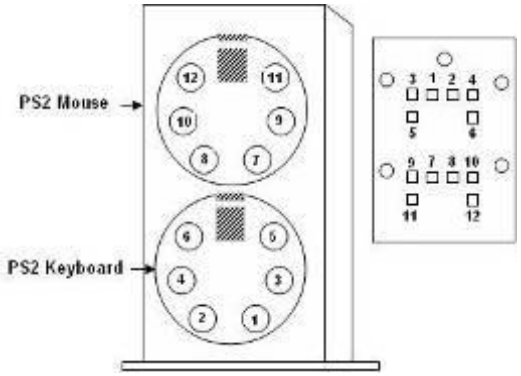


Pin No.	SYMBOL
1	VCC(5V)
2	Black Light Control
3	GND

2.5.3 CN3: Digital Panel Backlight Control

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

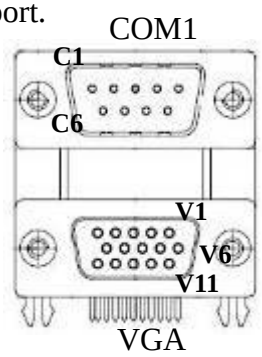
2.5.4 PSKBM1: PS2 Keyboard/Mouse Connector



PS/2 Keyboard		PS/2 Mouse	
Pin No.	SYMBOL	Pin No.	SYMBOL
1	KDATA	7	MDATA
2	NC1	8	NC3
3	Ground	9	Ground
4	VCC(5V)	10	VCC(5V)
5	KBCLK	15	MSCLK
6	NC2	16	NC4

2.5.5 D-SUB Dual Output

The serial port COM1, which is option for RS232 / RS422 / RS485, is the Winbond I/O serial port.



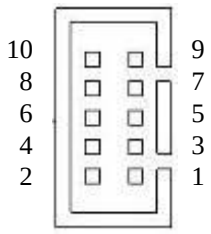
Up: 9(Male)

Down: 15(Female)

Pin No.	SYMBOL	Pin No.	SYMBOL
C1	DCD4/485TXRX-	V1	R
C2	SRD4/485TXRX+	V2	G
C3	STD4/422RX+	V3	B
C4	DTR4/422RX-	V4	NA
C5	GND	V5	GND
C6	NDSRA	V6	GND
C7	NRTSA	V7	GND
C8	NCTSA	V8	GND
C9	NRIA	V9	VCC(5V)
		V10	GND
		V11	NA
		V12	DDC_DATA
		V13	CRT_HS
		V14	CRT_VS
		V15	DDC_CLK

2.5.6 CN14: Serial port COM2

The serial port COM2, which is Winbond I/O support, is RS232 only.

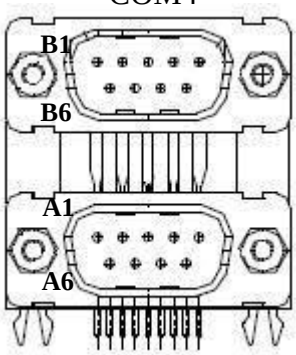


Pin	SYMBOL	Pin	SYMBOL
10	GND	9	GND
8	NRI1A	7	NDTR1A
6	NCTS1A	5	NTXD1A
4	NRTS1A	3	NRXD1A
2	NDSR1A	1	NDCD1A

2.5.7 D-SUB Dual Serial Port

The serial port COM3/4, RS232 only, from A1 to A9 is COM3, and B1 to B9 is COM4, which is supported by Fintek.

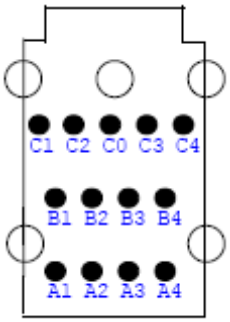
COM4



COM3

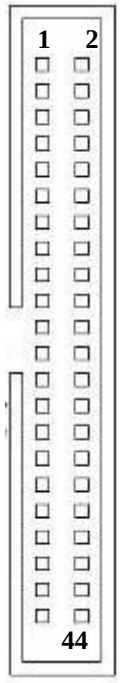
Pin No.	SYMBOL	Pin No.	SYMBOL
A1	FK_NDCD1	B1	FK_NDCD2
A2	FK_NSIN1	B2	FK_NSIN2
A3	FK_NSOUT1	B3	FK_NSOUT2
A4	FK_NDTR1	B4	FK_NDTR2
A5	GND	B5	GND
A6	FK_NDSR1	B6	FK_NDSR2
A7	FK_NRTS1	B7	FK_NRTS2
A8	FK_NCTS1	B8	FK_NCTS2
A9	FK_NRI1	B9	FK_NRI2

2.5.8 AUDIO401: Audio Jack (Pin-header)



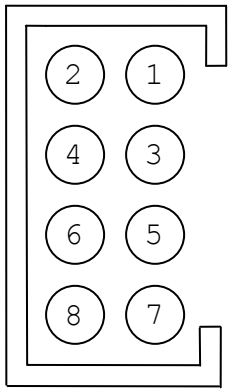
Color	Signal
Blue	Line In
Green	Line Out
Pink	Microphone In
Pin-Header	
C0~C4	Line in
B1~B4	Line out
A1~A4	Mic in

2.5.9 IDE1: 44 pins IDE Connector



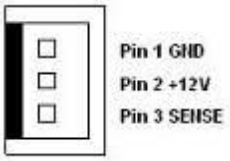
Pin No.	SYMBOL	Pin No.	SYMBOL
1	RESET	2	GND3
3	DD7	4	DD8
5	DD6	6	DD9
7	DD5	8	DD10
9	DD4	10	DD11
11	DD3	12	DD12
13	DD2	14	DD13
15	DD1	16	DD14
17	DD0	18	DD15
19	GND1	20	NC1
21	DREQ	22	GND4
23	DIOW#	24	GND5
25	DIOR#	26	GND6
27	IO_RDYD	28	CSEL
29	DACK#	30	GND7
31	IRQ	32	IOCS16#
33	DA1	34	CBL_ID#
35	DA0	36	DA2
37	DCS#1	38	DCS#3
39	DASP#	40	GND8
41	+5V1	42	+5V2
43	GND2	44	NC2

2.5.10 USB: USB PIN HEADER

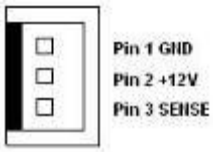


USB1			
Pin	SYMBOL	Pin	SYMBOL
2	+5V	1	+5V
4	USB_DATA1-	3	USB_DATA0-
6	USB_DATA1+	5	USB_DATA0+
8	GND	7	GND

2.5.11 FAN1_SYS/FAN2_CPU: FAN CONNECTOR



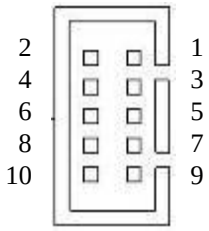
FAN1_SYS



FAN2_CPU

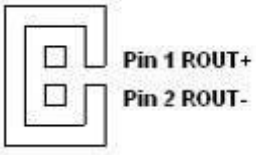
2.5.12 PANEL1: Front Panel System Function Connector

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

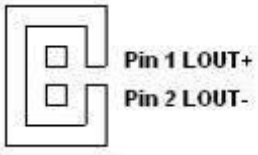


Pin	SYMBOL	Pin	SYMBOL
2	HD_LED+	1	PW_LED+
4	HD_LED-	3	PW_LED-
6	RT_BT1	5	PW_BT1
8	RT_BT2	7	PW_BT2
10	5VSB	9	RSEV

2.5.13 CN15/CN17: Front Audio

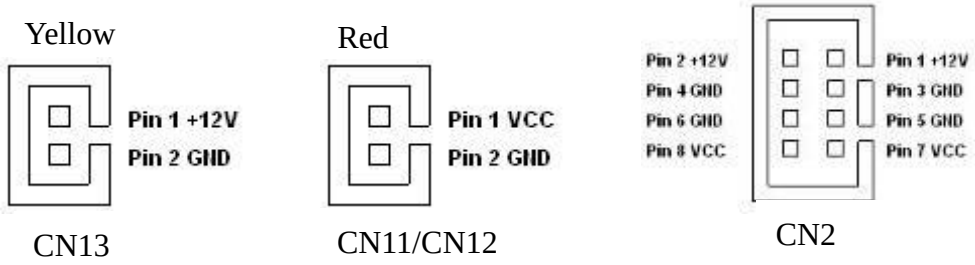


CN17

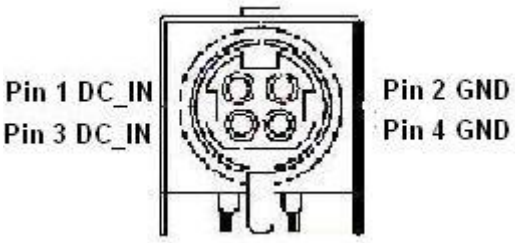


CN15

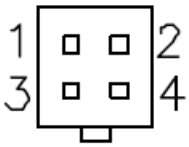
2.5.14 CN11/CN12/CN13/CN2: External Power



2.5.15 PWIN1: DC Jack (+12V) / Input

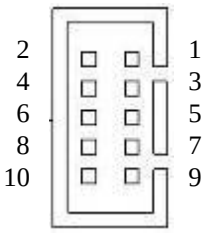


2.5.16 ATX_PWR / Input: 12V DC Connector



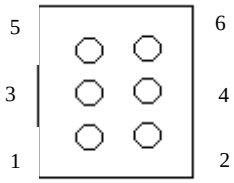
Pin	SYMBOL
1	Ground
2	Ground
3	+12V
4	+12V

2.5.17 : CN7: Digital I/O Connector



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

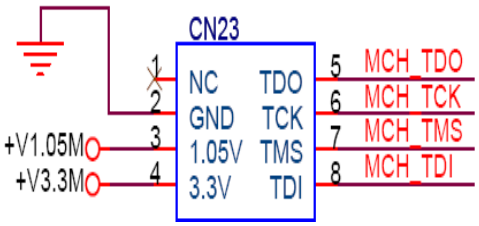
2.5.18 : CN1: TV out Connector (Optional)

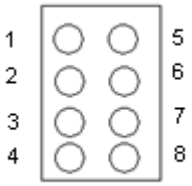


Pin	SYMBOL	Pin	SYMBOL
5	DACC_L	6	TV_DCONSEL1_MCH
3	DACB_L	4	TV_DCONSEL0_MCH
1	GND	2	DACA_L

2.5.19 : CN23: ME JTAG(Optional)

CN23 is ME JTAG for Intel iAMT function.





Pin	SYMBOL	Pin	SYMBOL
1	NC	5	TDO
2	GND	6	TCK
3	+1.05V	7	TMS
4	+3.3V	8	TDI

CHAPTER 3

Graphic Driver Installation

This chapter offers information on the chipset software Installation utility

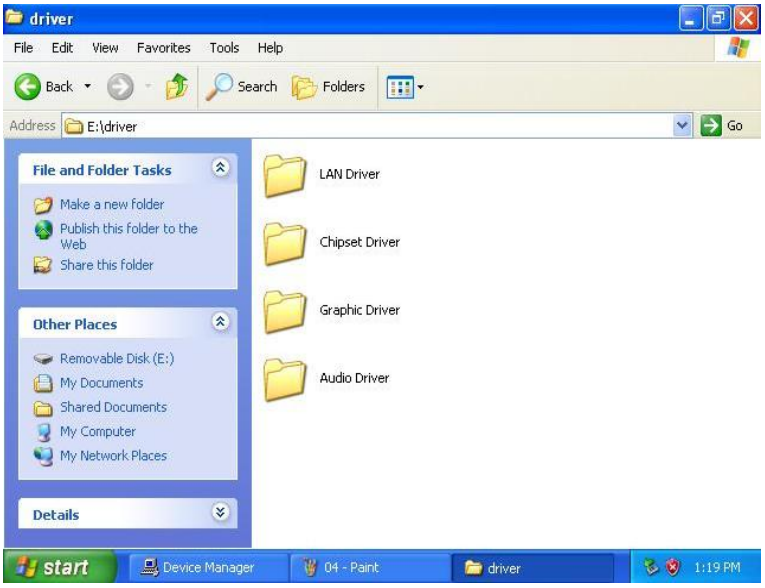
- Graphic Driver Installation

Chapter 3 Graphic Driver Installation

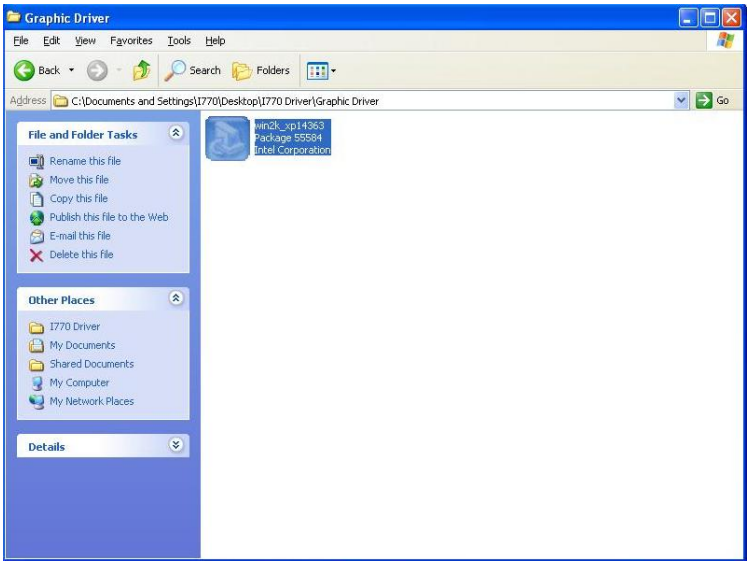
3.1 Graphic Driver Installation

I771 Motherboard is equipped with Intel GM45 / ICH9M-E 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.

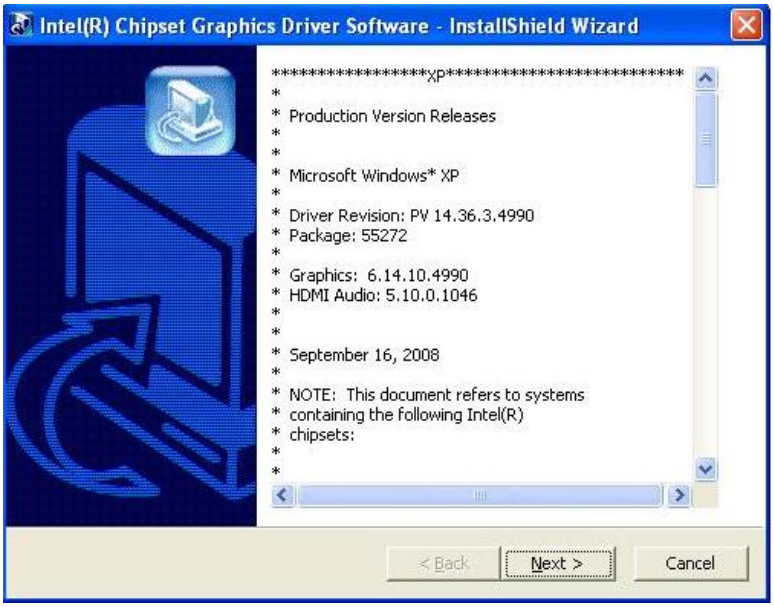
Step.1. Insert the CD that comes with the Motherboard. Open the file document “Graphic Driver “.



Step.2. Click on “winxp_14428” to execute the setup.

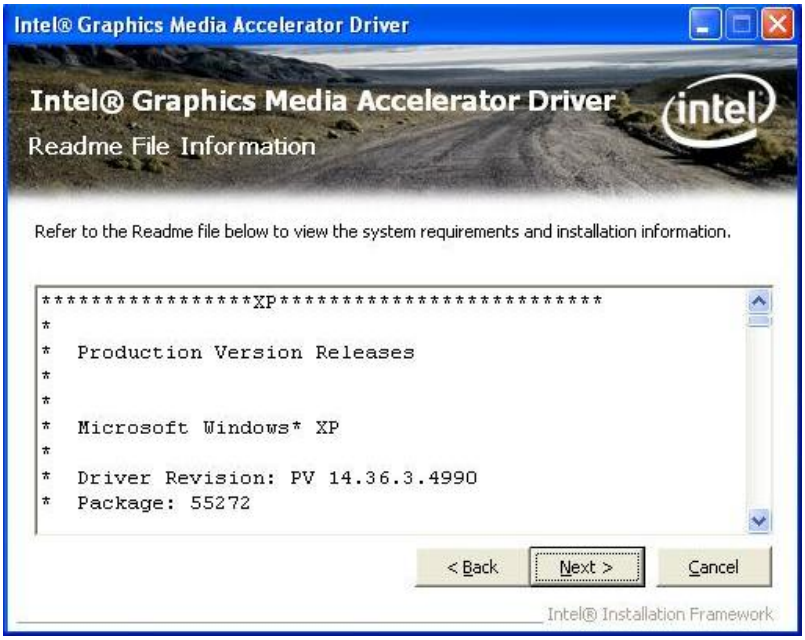


Step.3. Click on “Next “ to install Driver.



Step.4. Click on “Next “ to install Driver.

Step.5. Click on “Yes “ to agree License.



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

CHAPTER 4

Chipset Driver Installation

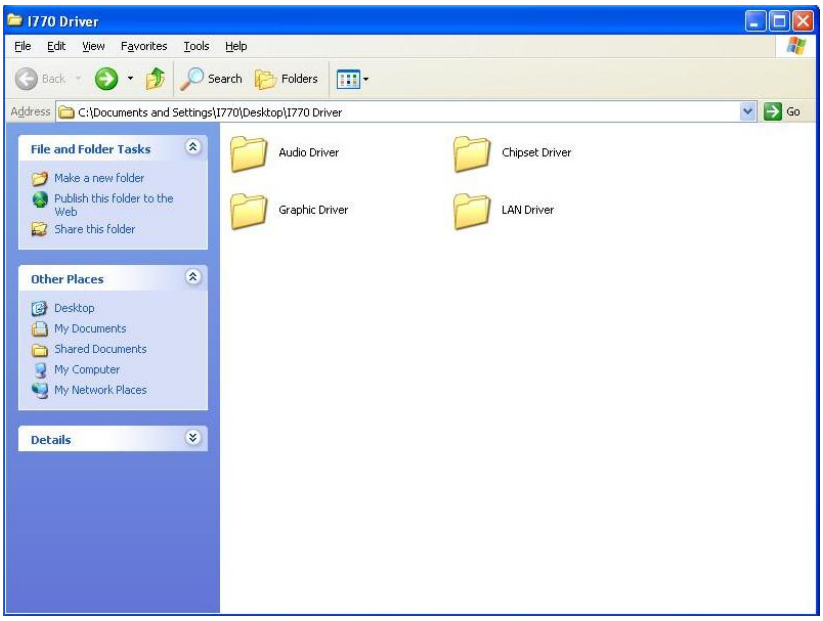
This chapter offers information on the chipset software Installation utility

- Chipset Driver Installation

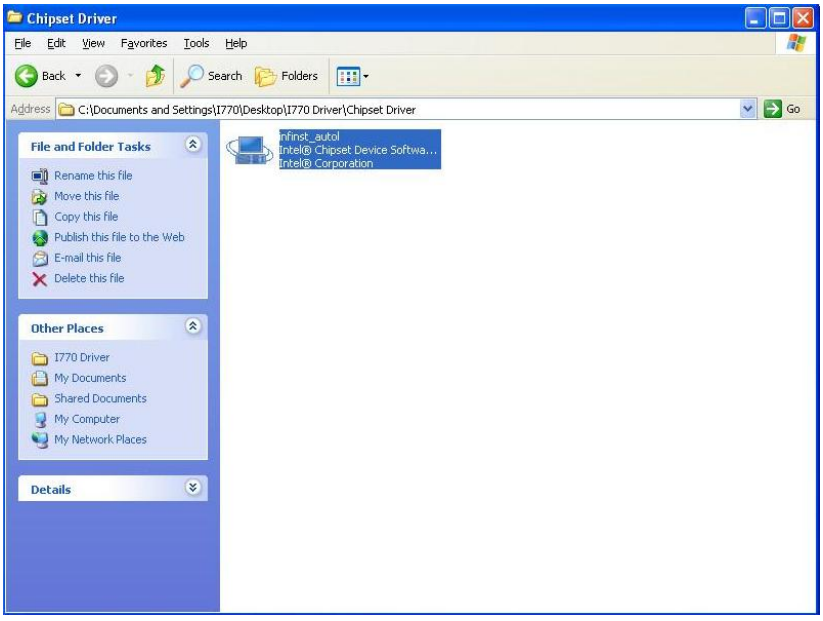
Chapter 4 Chipset Driver Installation

4.1 Chipset Driver Installation

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



Setp.2. Click on “Setup“ to install driver.



Setp.3. Click on “Next“ to install driver.

Setp.4. Click on “Yes “ to agree License

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

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

CHAPTER 5

Ethernet Driver Installation

This chapter offers information on the Ethernet software installation utility.
Sections include:

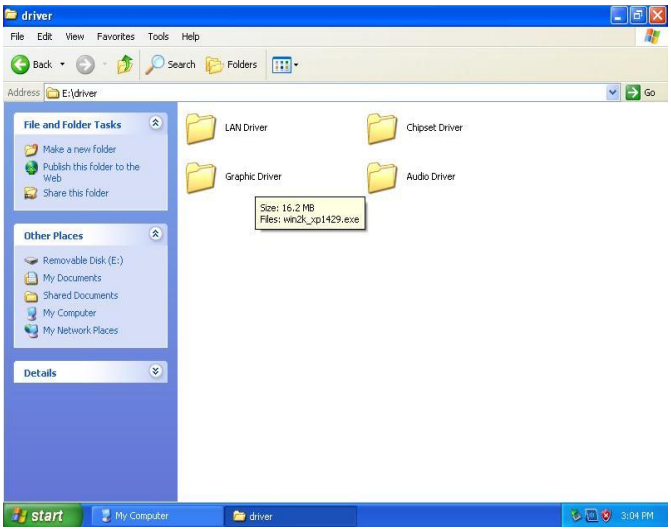
- Installation of Ethernet Driver

Chapter 5 Ethernet Driver Installation

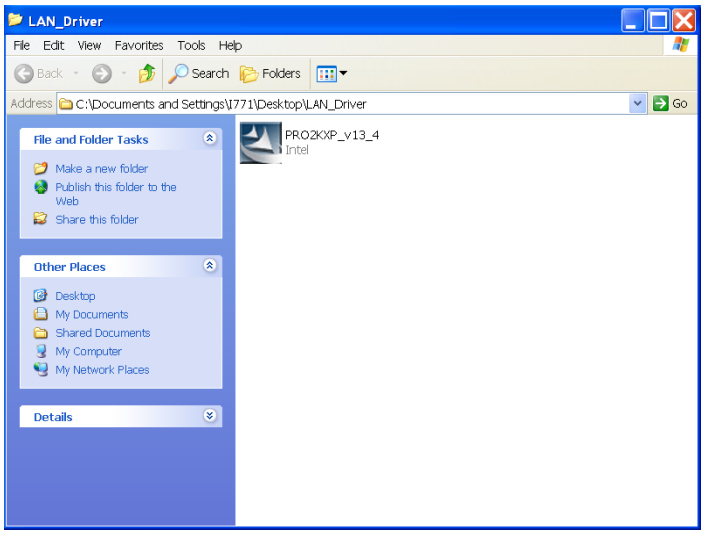
5.1 Installation of Ethernet Driver

The Users must make sure which operating system you are using in the I771 Motherboard before installing the Ethernet drivers. Follow the steps below to complete the installation of the Intel 82574L + 82567LM LAN drivers. You will quickly complete the installation.

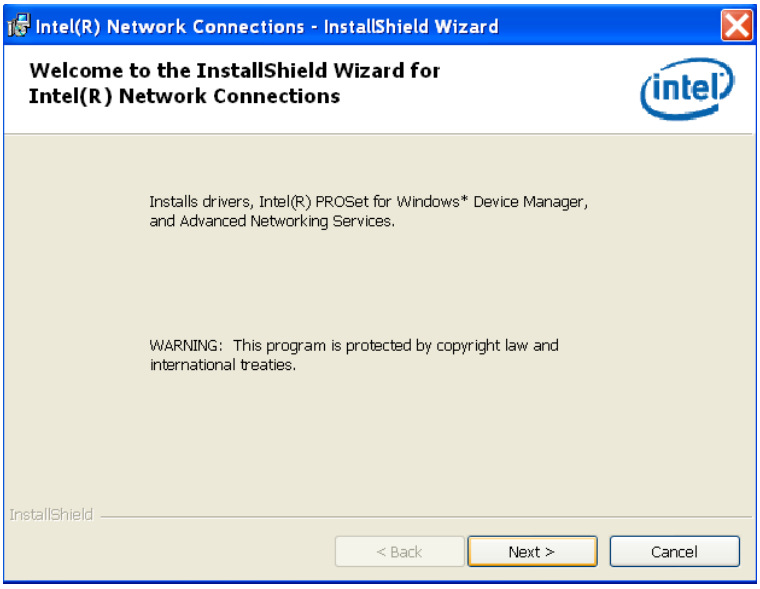
Step.1. Insert the CD that comes with the motherboard. Open the file document “LAN Driver”.



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

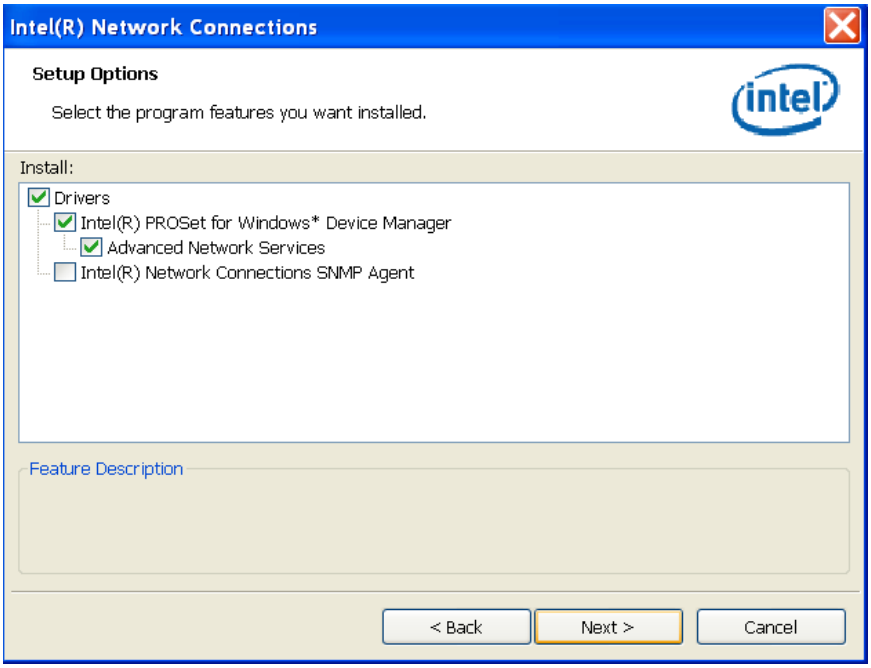


Step.3. Click on “Next“ to install driver.

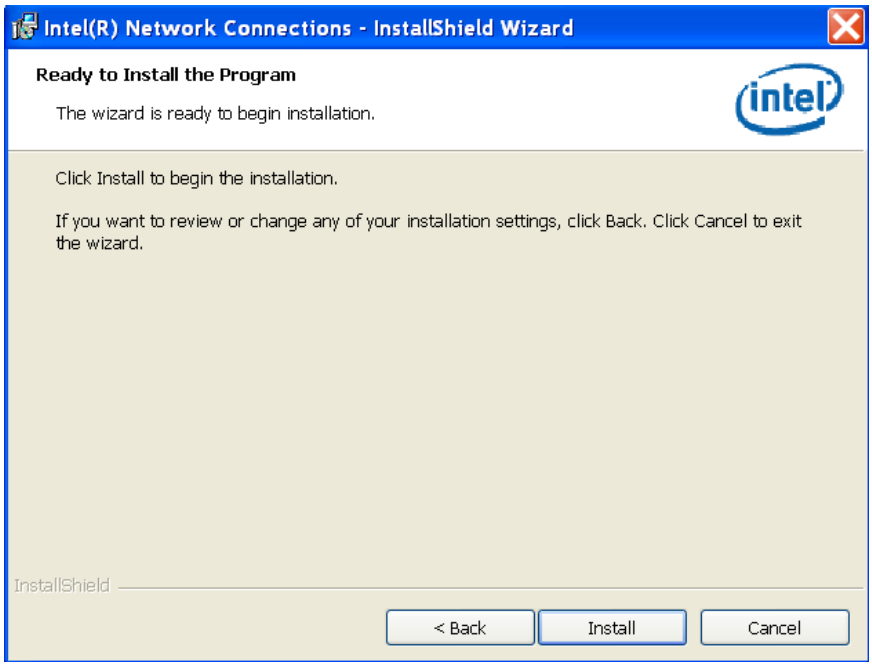


Step.4. Click on “I accept the terms in the license agreement.”

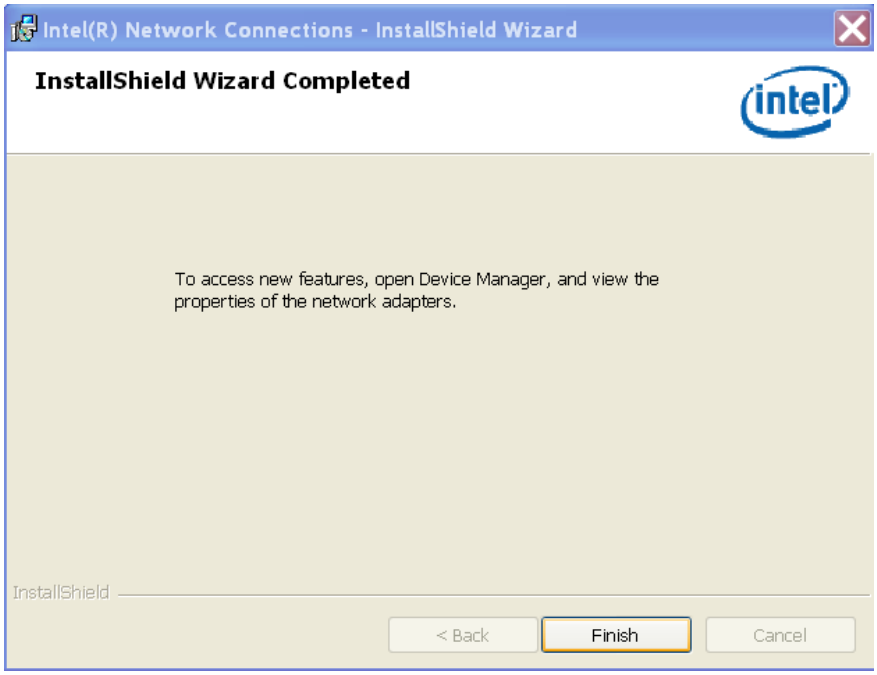
Setp.5. Click on “Advanced Network Services“ and go on.



Setp.6. Click on “Next“ to install driver.



Setp.7. Click on “Finish“.



CHAPTER 6

Audio Driver Installation

This chapter offers information on the Audio software installation utility.
Sections include:

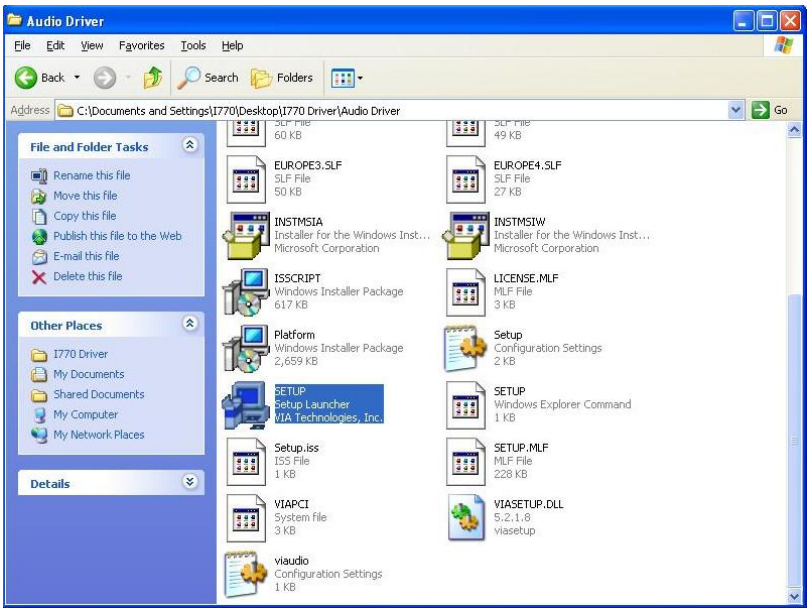
- Installation of Audio Driver

Chapter 6 Audio Driver Installation

6.1 Installation of Audio Driver

The users must make sure which operating system you are using in the I771 Motherboard before installing the Audio drivers. Follow the steps below to complete the installation of the VIA VT1708B Audio drivers. You will quickly complete the installation.

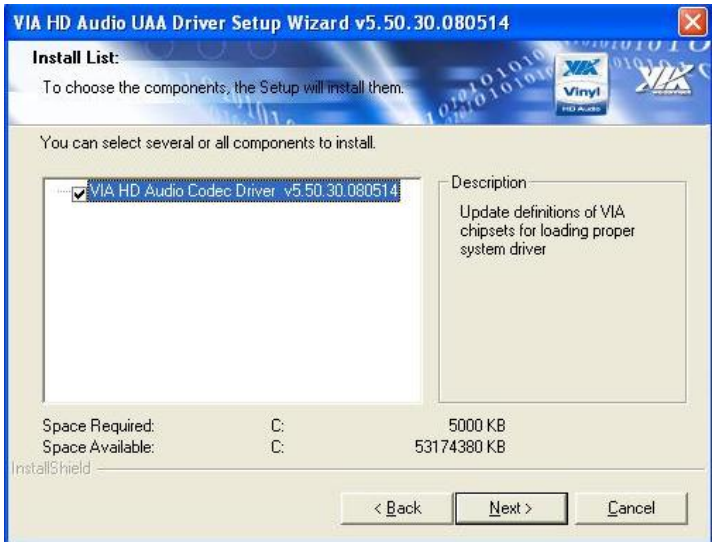
Step.1. Insert the CD that comes with the motherboard. Open the file “Audio driver” and click on “Setup” to execute the setup.



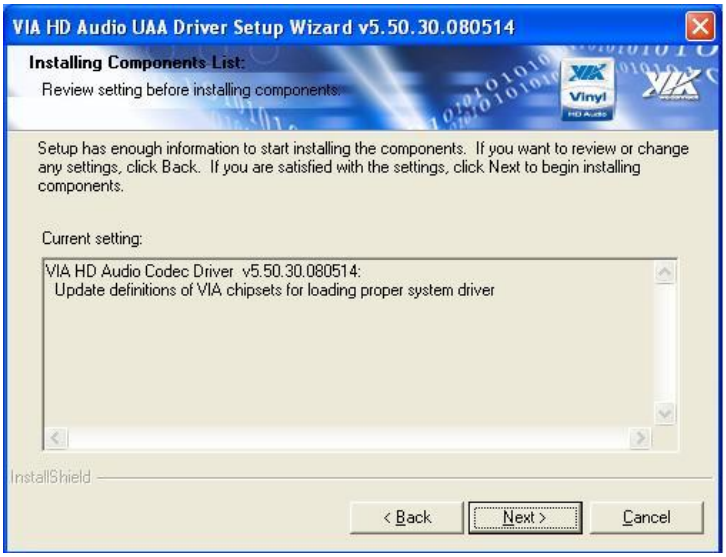
Step.2. Click on “Next“ to install driver.

Step.3. Click on “Yes “ to agree License

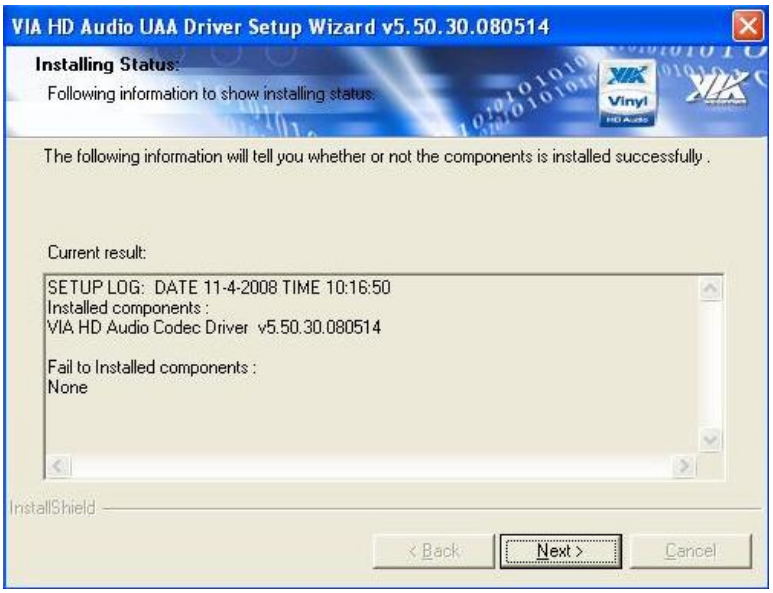
Step.4. Click on “Next“ to install driver.



Step.5. Click on “Next“ to install driver.

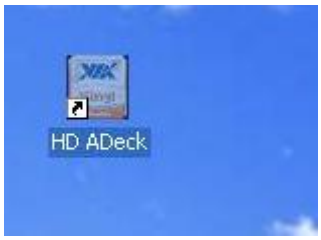


Step.6. Click on “Next“ to install driver.



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

Step.9 After restart computer, cliick on “HD ADeck “ to set up Line in/Mic in.



Step.10 Select ” Analog to the Line out “ and click “ Next page”

Step.11 Select ” Analog to the Line out “ and move the bar.

CHAPTER 7

AMI BIOS Installation

This chapter describes the different settings available in the AMI BIOS that comes with the board. This chapter offers information on the Award BIOS installation utility. Sections include:

- Starting Setup
- System Overview
- Advanced Setting
- PCI/PnP
- Boot
- Security
- Chipset
-

Chapter 7 AMI BIOS SETUP

7.1 Starting Setup

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

The BIOS (Basic Input / Output System) is a layer of software, called 'firmware', that translates instructions from software (such as the operating system) into instructions that the computer hardware can understand. The BIOS settings also identify installed devices and establish 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:

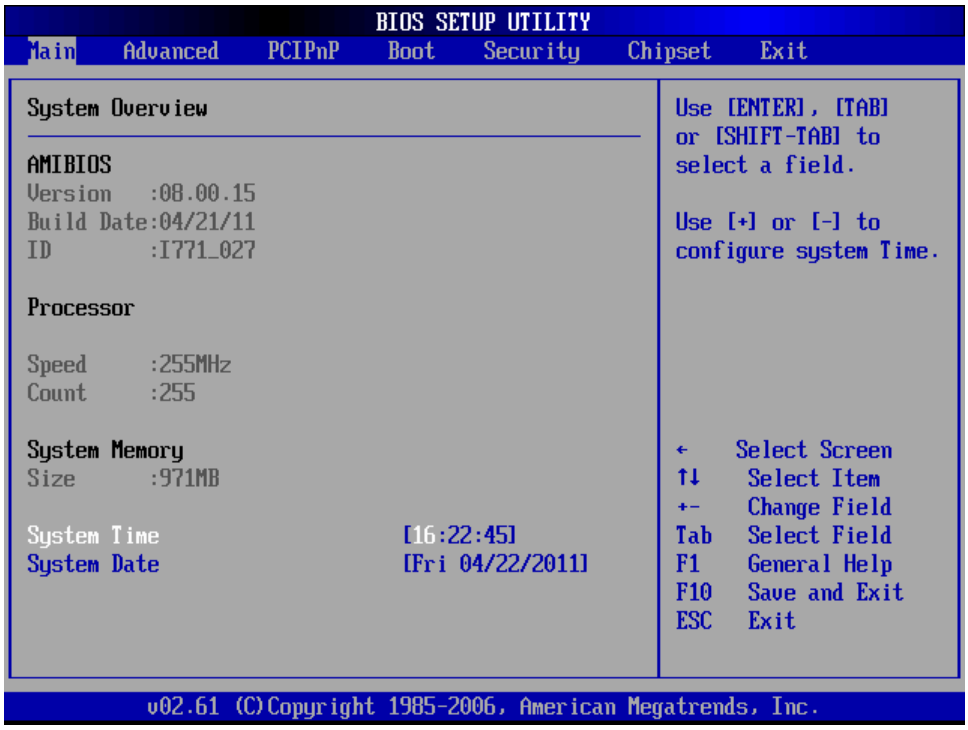
Press <DEL> to enter Setup.

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

When you first enter the BIOS 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.

The Main BIOS setup screen has two main frames. The left frame dis- plays all the options that can be configured. Grayed-out options cannot be configured; options in blue can be. The right frame displays the key leg- end.
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.

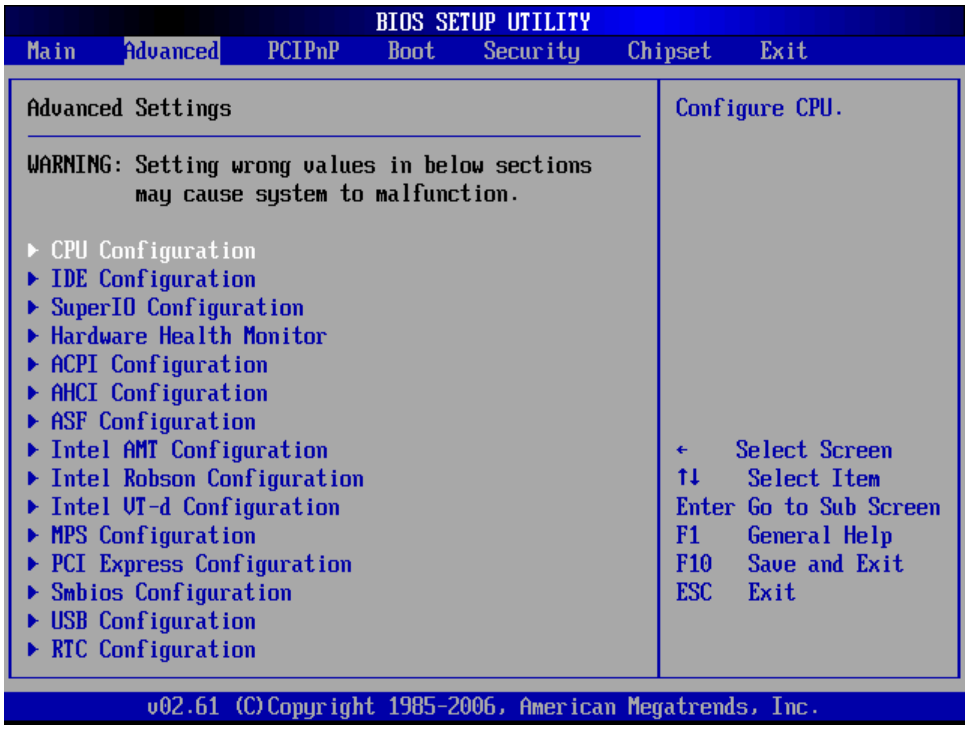
7.2 System Overview



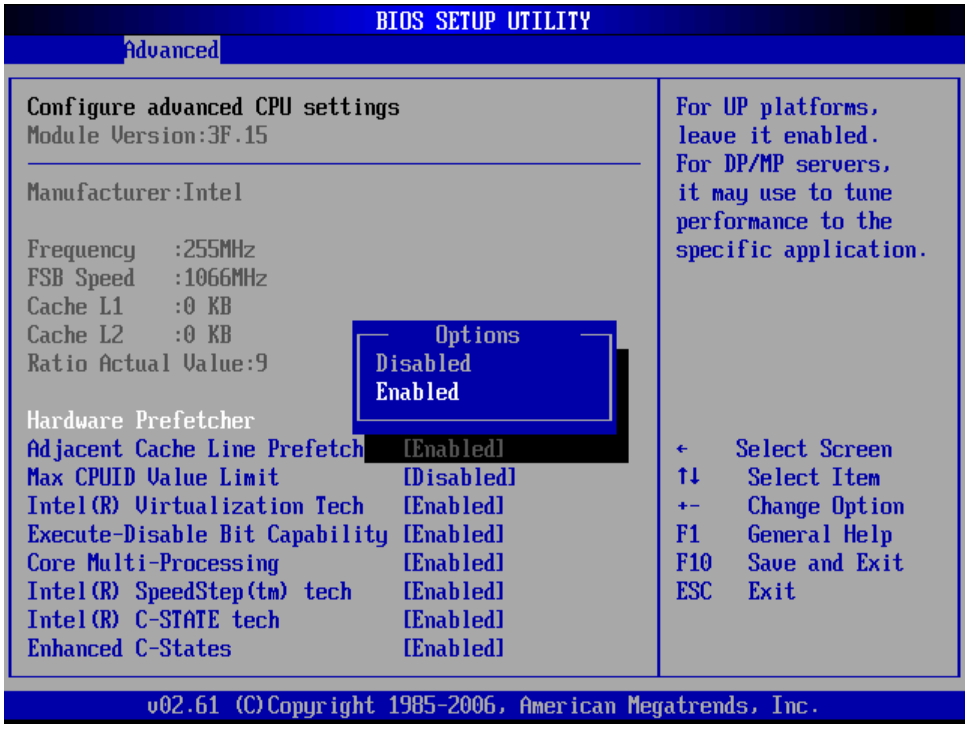
Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format

7.3 Advanced Setting

CPU Configuration

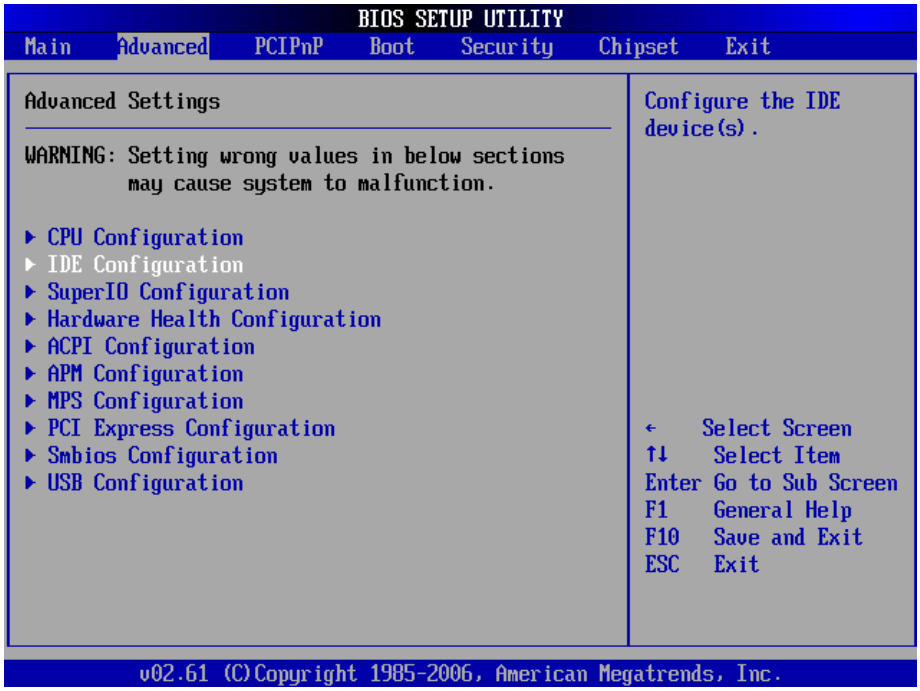


Press “Enter” to CPU Configuration setting.

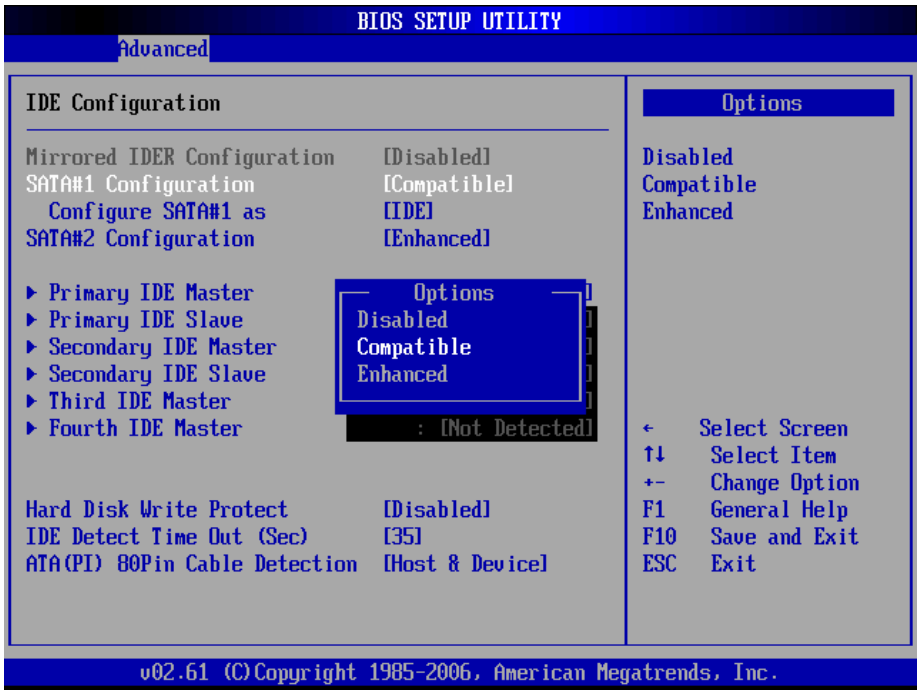


CPU configuration differs from writing an executable program. It is equivalent to setting dip switches or jumpers on a circuit board. The executing program has no way to change this configuration.

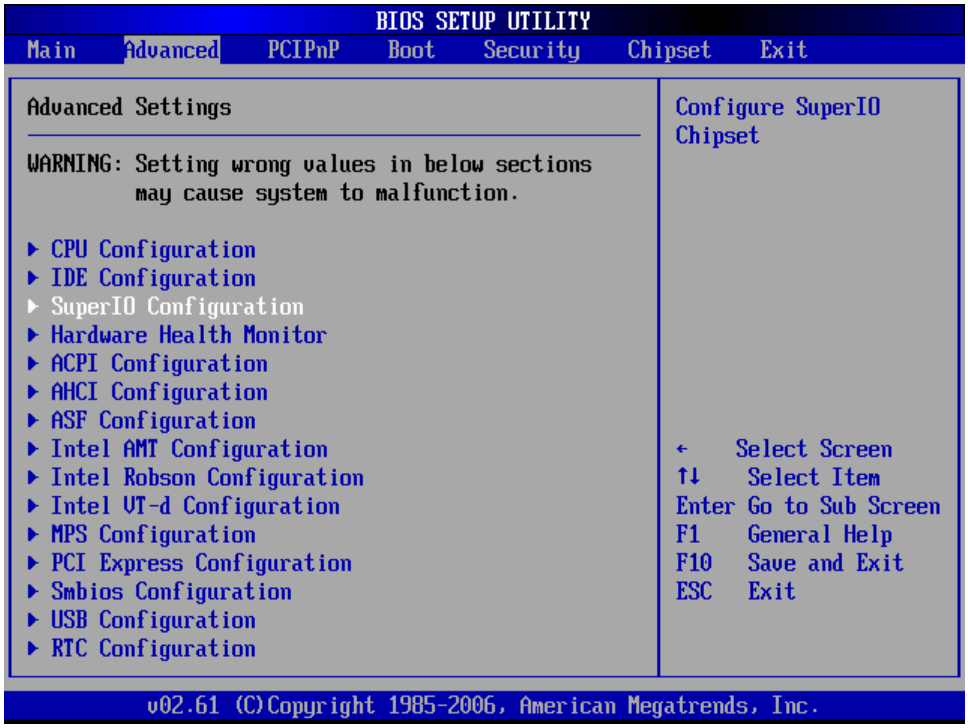
IDE/SATA Configuration



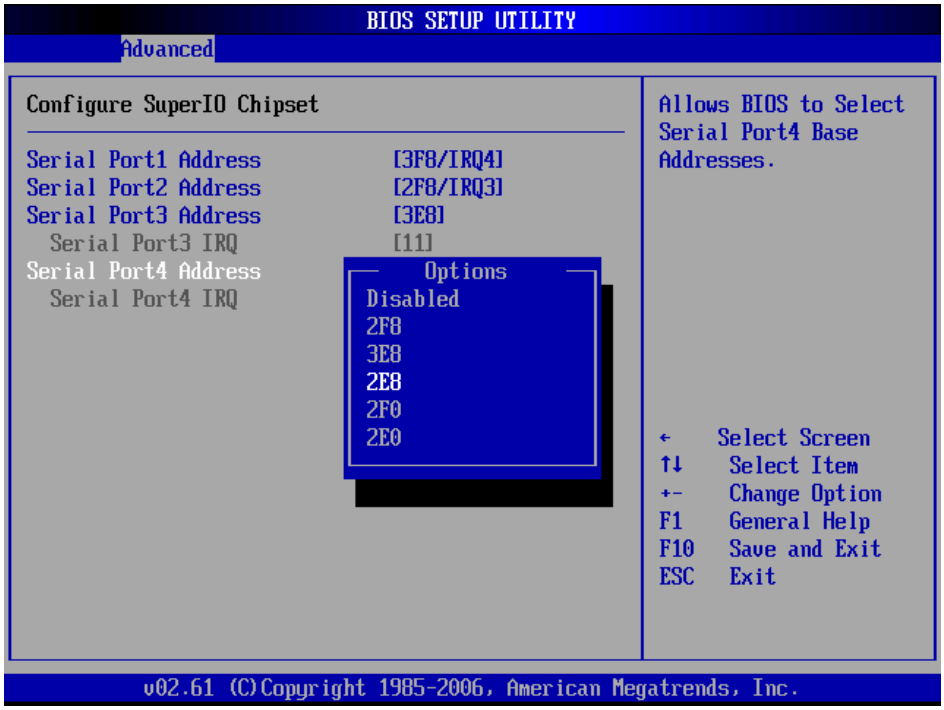
The IDE Configuration menu is used to change and/or set the configuration of the IDE devices installed in the system.



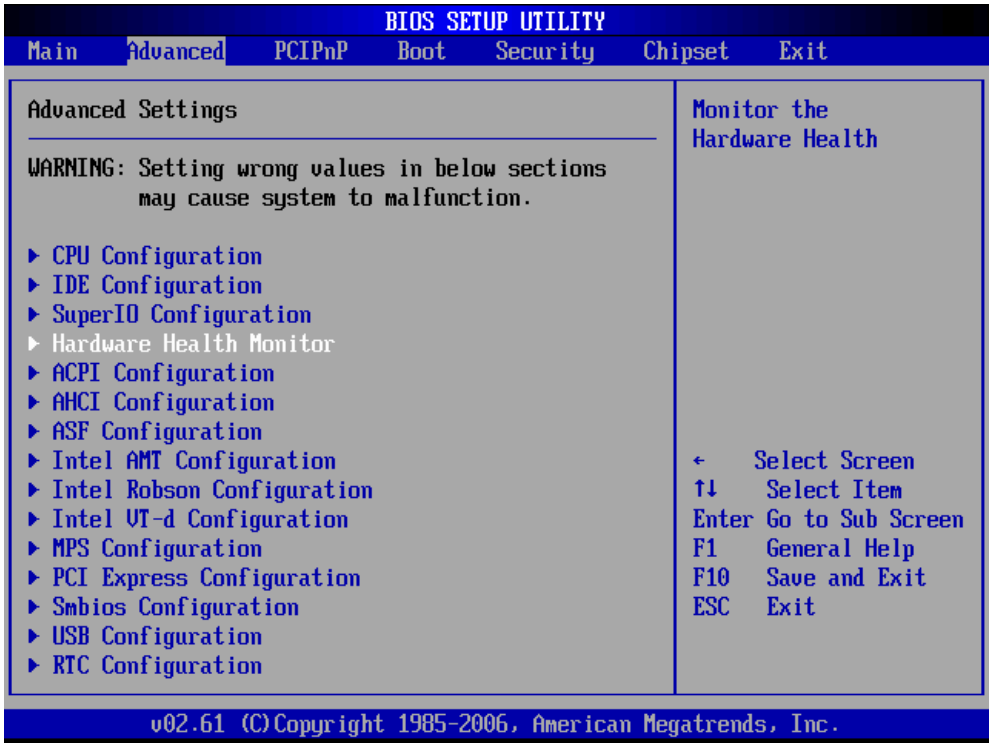
Super IO Configuration



Allows you to select the Serial Port base address.

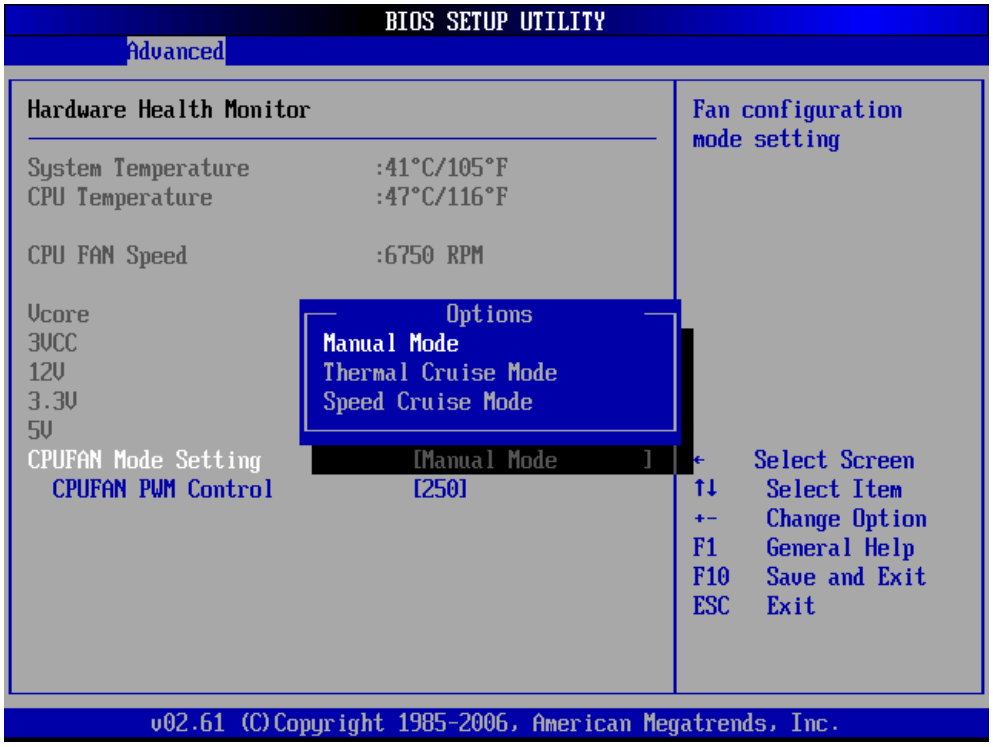


Hardware Health Configuration

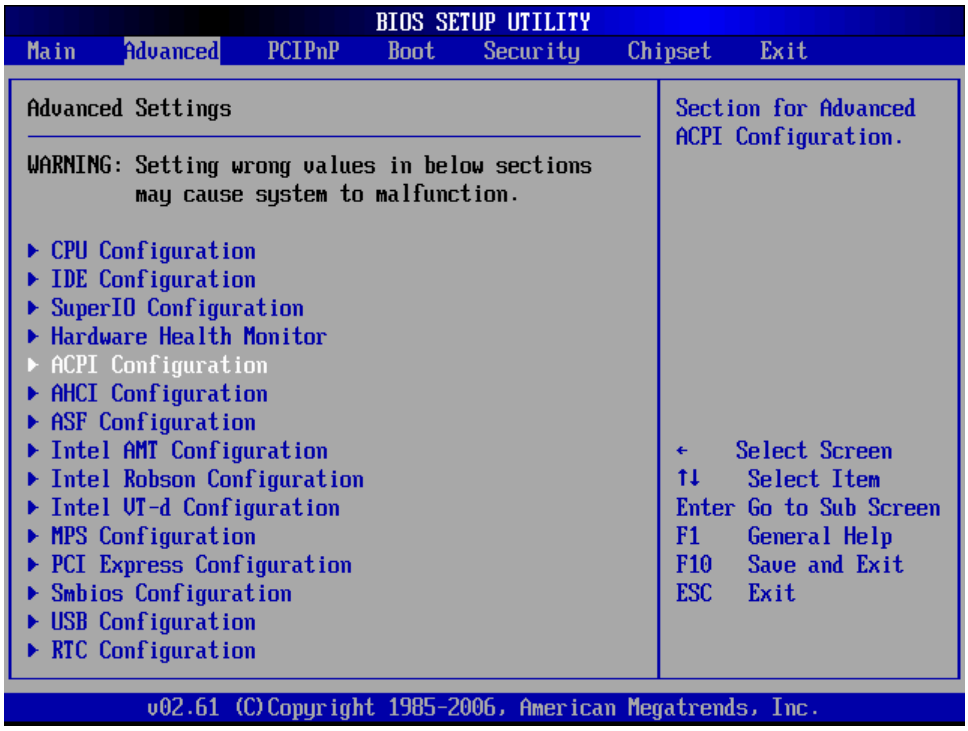


CPU Temperature

The onboard hardware monitor automatically detects and displays the CPU temperatures.

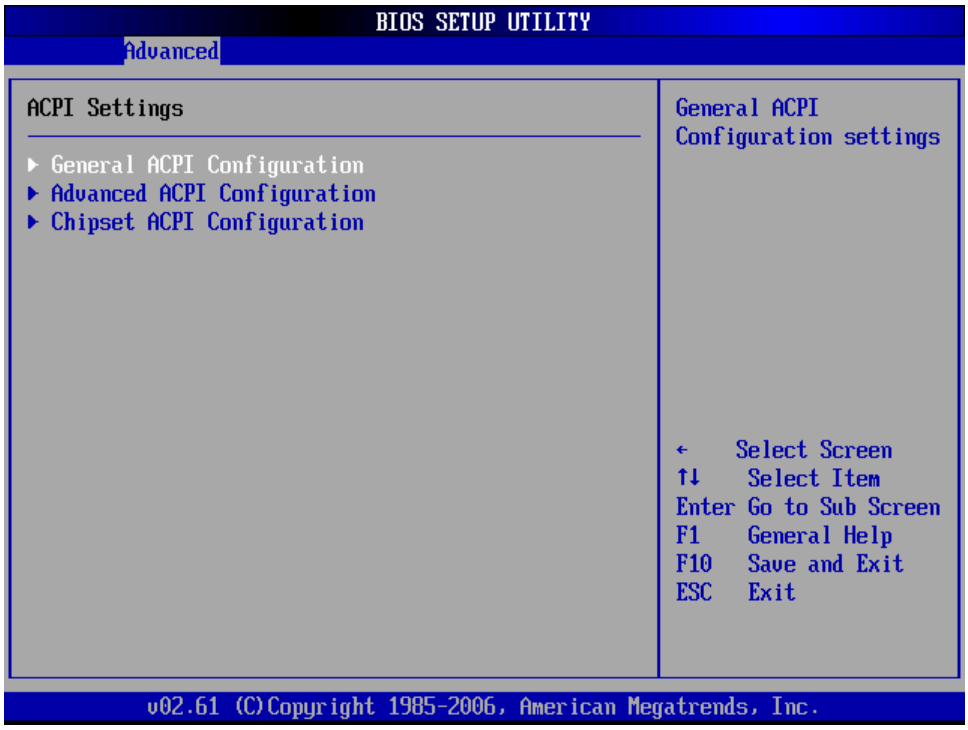


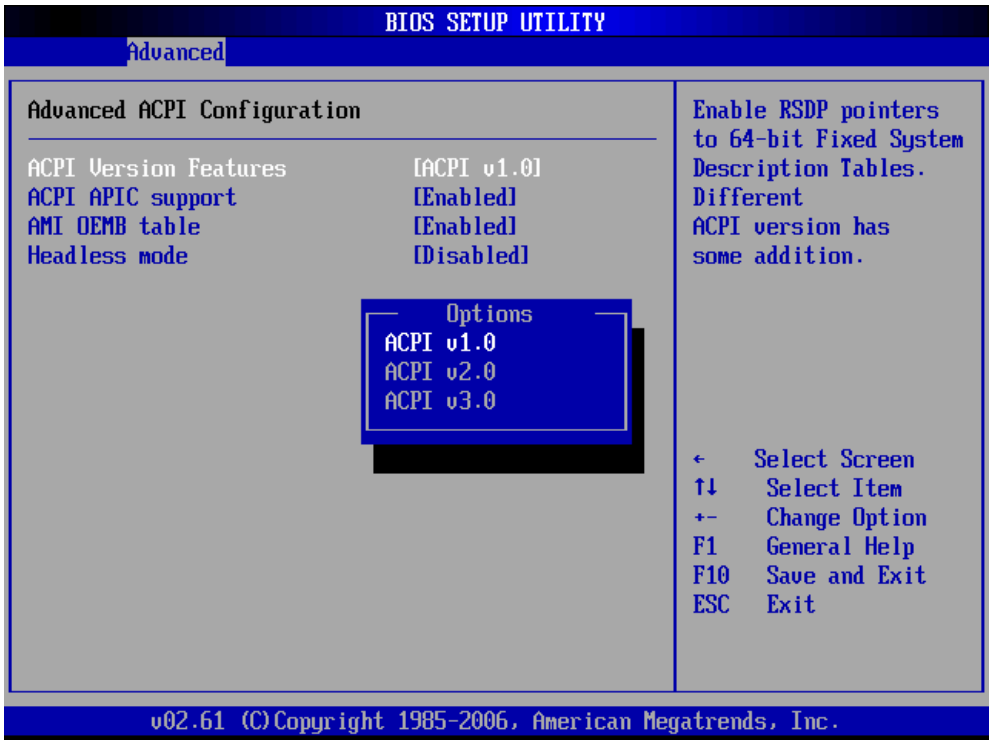
ACPI Configuration



Advanced Configuration and Power Interface (**ACPI**)
provides an open standard for unified operating system-centric device configuration and power management.

General ACPI Configuration





ACPI APIC Support

Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Application-Specific Integrated Circuit (ASIC). When set to Enabled, the ACPI APCI table pointer is included in the RSDT pointer list. The options: [Disabled], [Enabled].

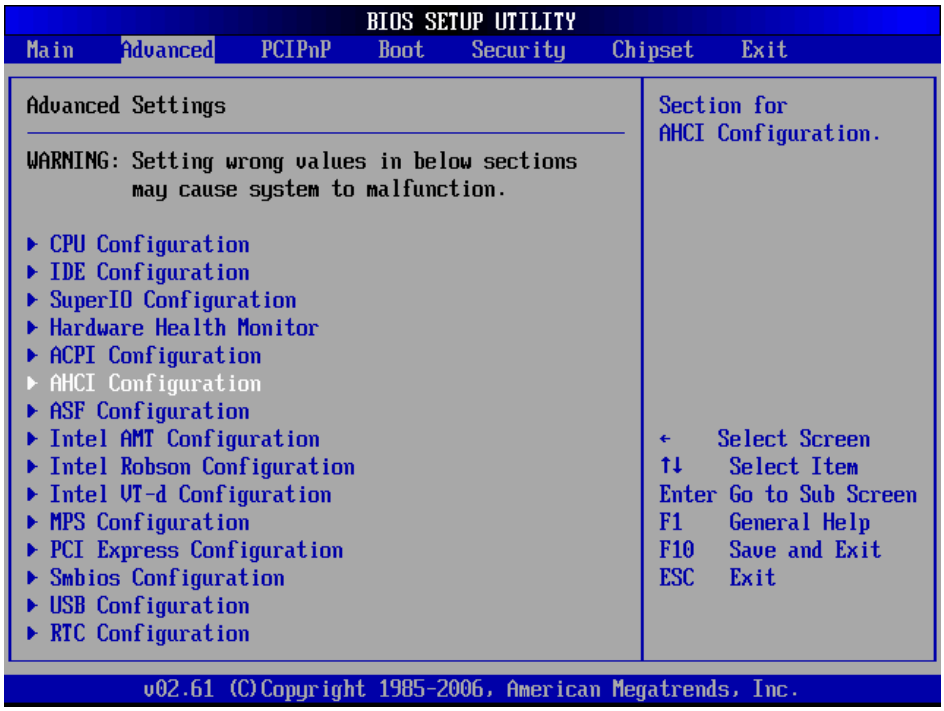
AMI OEMB table

Set this value to allow the ACPI BIOS to add a pointer to an OEMB table in the Root System Description Table (RSDT) table.

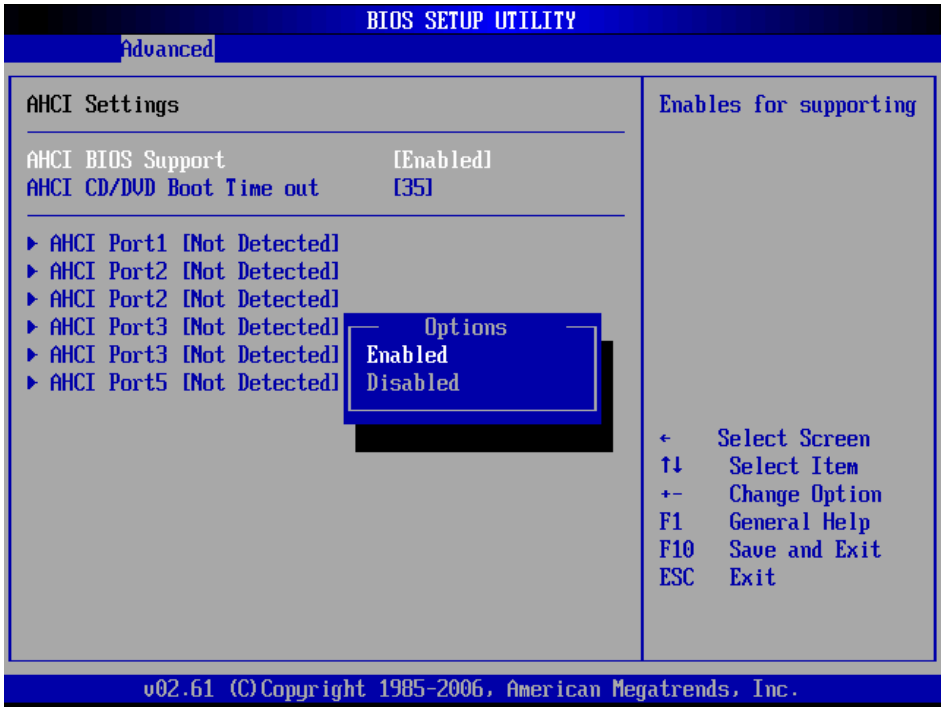
Headless mode

A feature that allows the bios and operating system to run without keyboard, monitor, or mouse. Must be supported by operating system in order to be used.

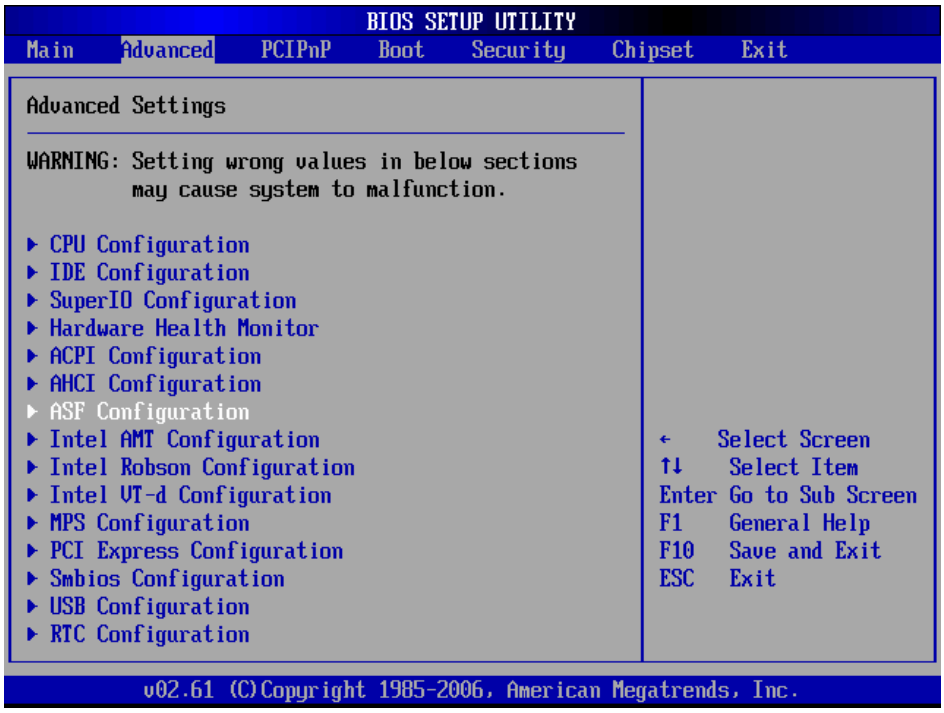
AHCI Configuration



AHCI mode is enabled in the BIOS where 3 settings are commonly available: IDE, AHCI, and RAID. The last two (AHCI and RAID) require a floppy disk with the driver that can be introduced into the operating system installation through F6. Otherwise, the hard disks won't be detected.

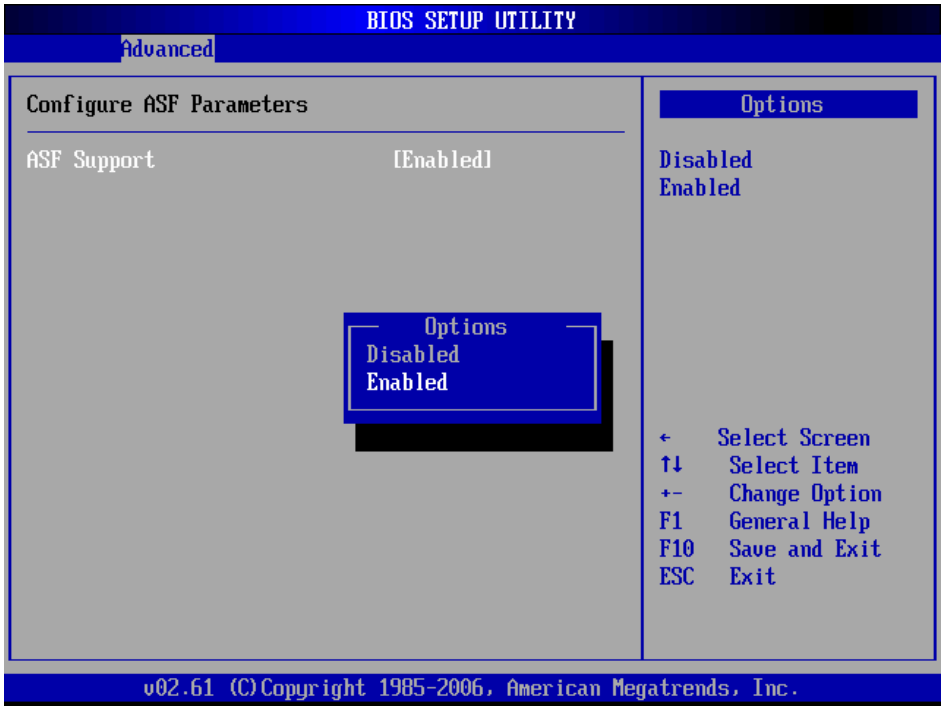


ASF Configuration

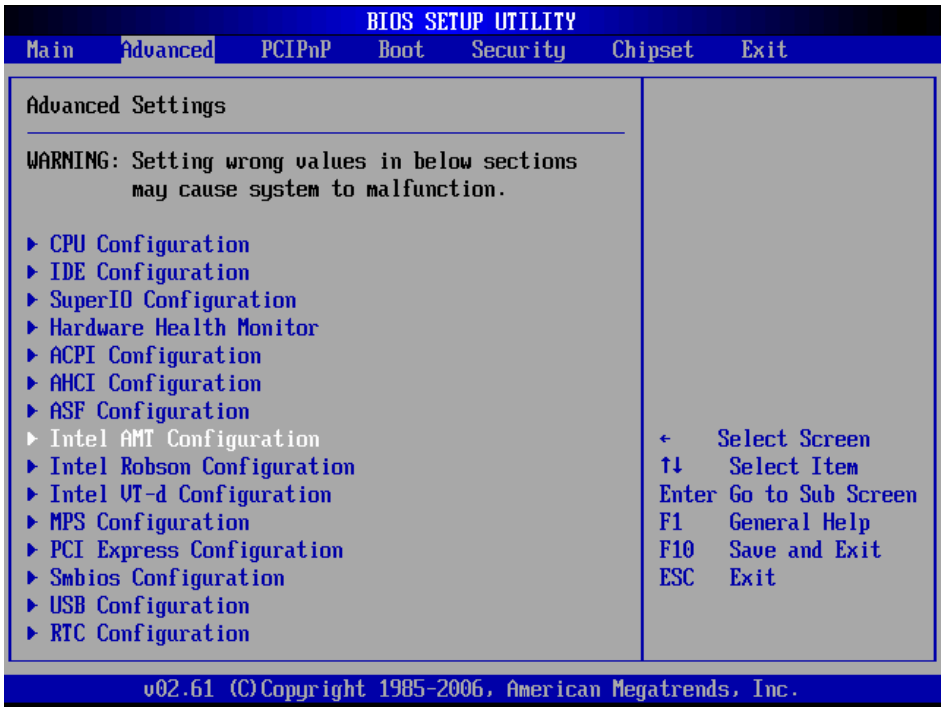


Alert Standard Format

The term "system manageability" represents a wide range of technologies that enable remote system access and control in both OS-present and OS-absent environments. These technologies are primarily focused on minimizing on-site I/T maintenance, maximizing system availability and performance to the local user, maximizing remote visibility of (and access to) local systems by I/T managers and minimizing the system power consumption required to keep this remote connection intact.

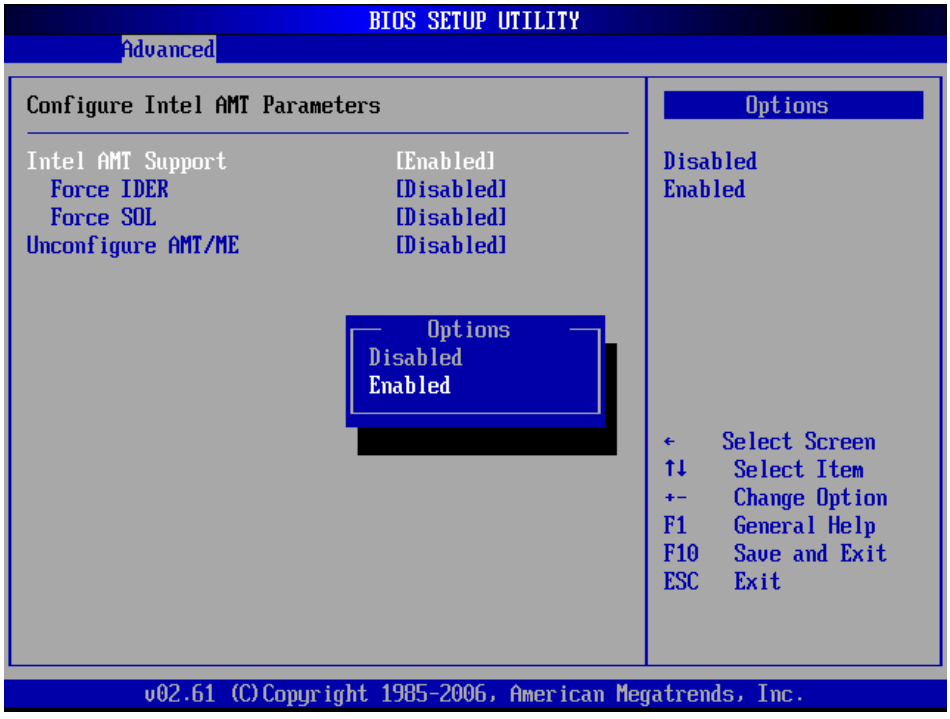


Intel AMT Configuration

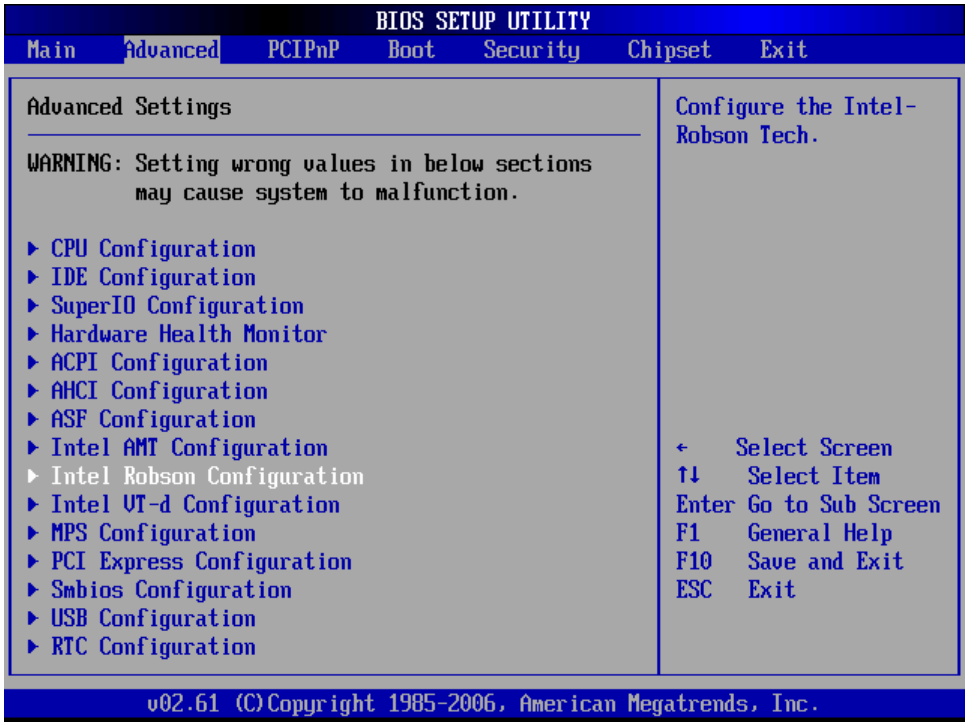


Allows you to enable or disable iAMT support.

Active Management Technology (AMT) is hardware-based technology for remotely managing and securing PCs out-of-band. Currently, Intel AMT is available in desktop PCs with Intel Core 2 processor with Intel vPro technology and available in laptop PCs with Centrino or Centrino 2 platform with vPro technology

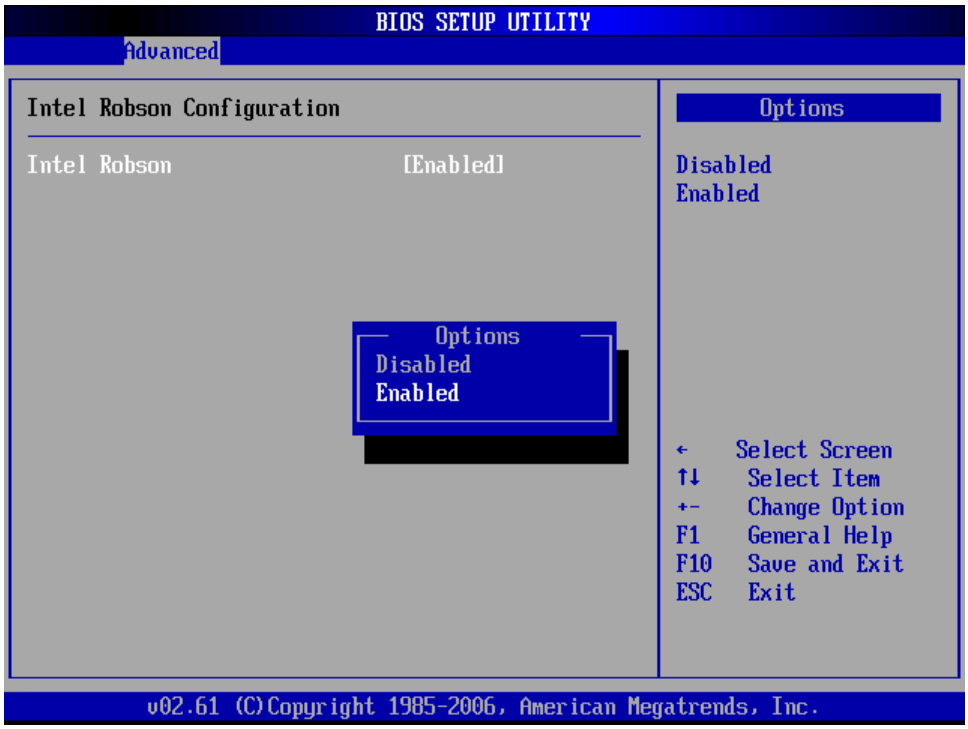


Intel Robson Configuration

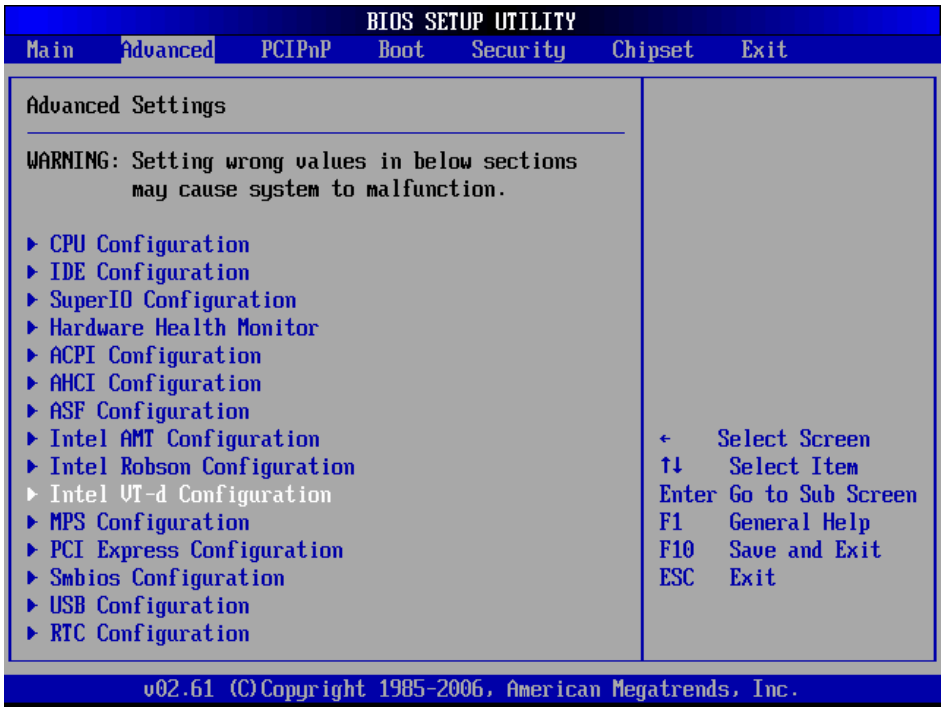


Allows you to configure Intel Robson Tech.

The technology attempts to decrease hard drive usage by moving frequently accessed data over to the flash memory. Flash memory can be accessed faster than hard drives and requires less power to operate, thereby allowing laptops to operate faster while also being more power efficient.

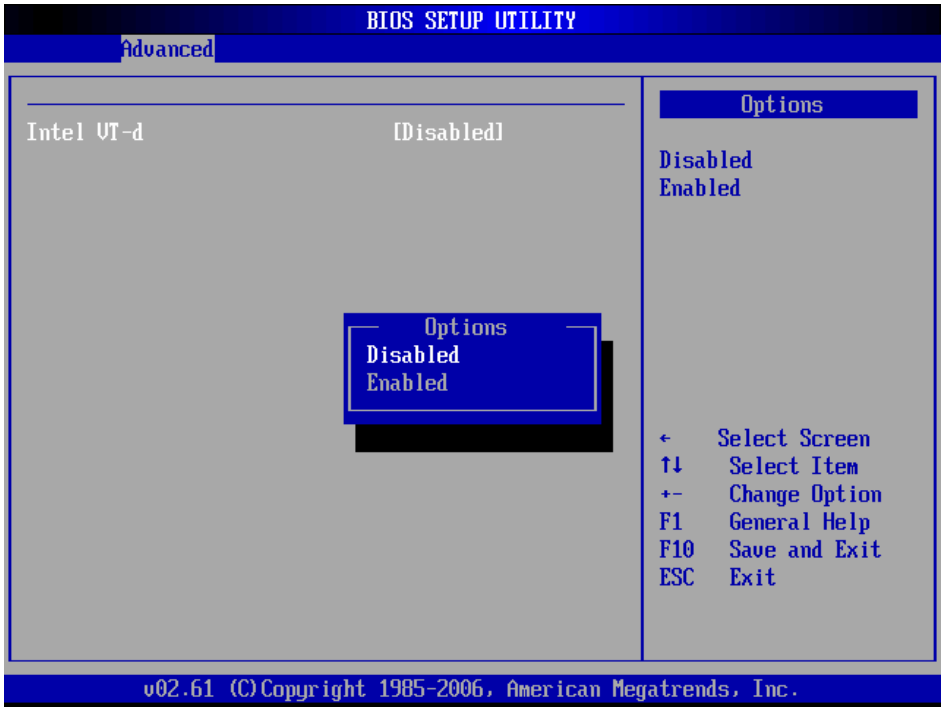


Intel VT-d Configuration

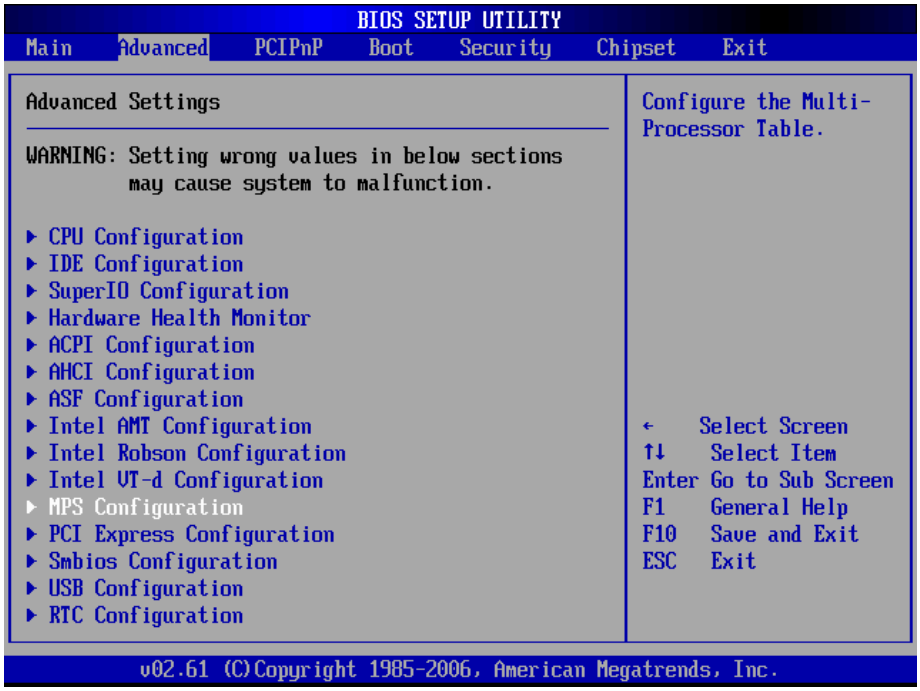


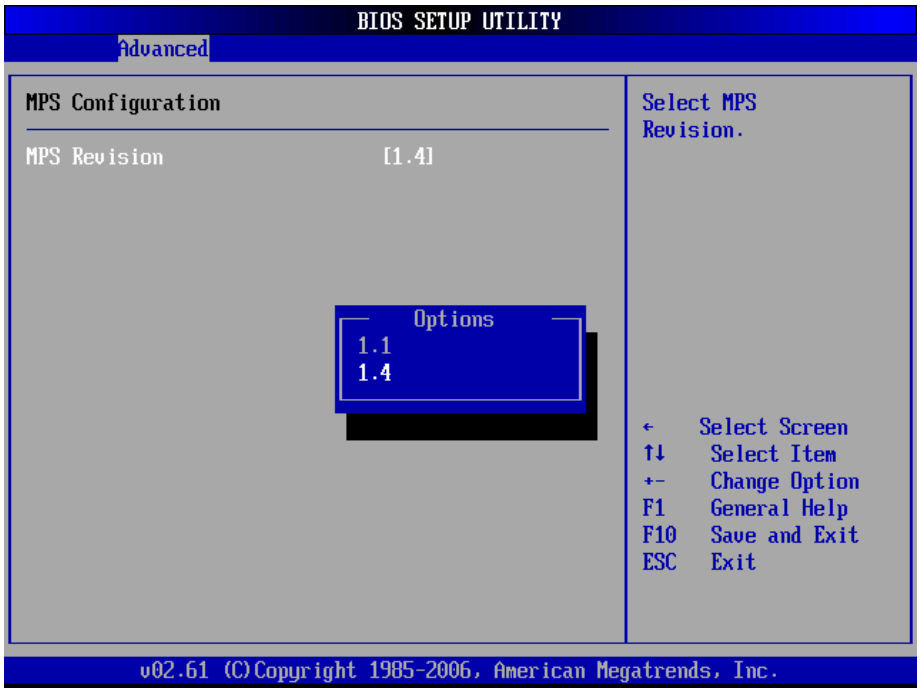
Allows you to configure Intel VT-d Tech.

An input/output memory management unit (IOMMU) enables guest virtual machines to directly use peripheral devices, such as Ethernet, accelerated graphics cards, and hard-drive controllers, through DMA and interrupt remapping

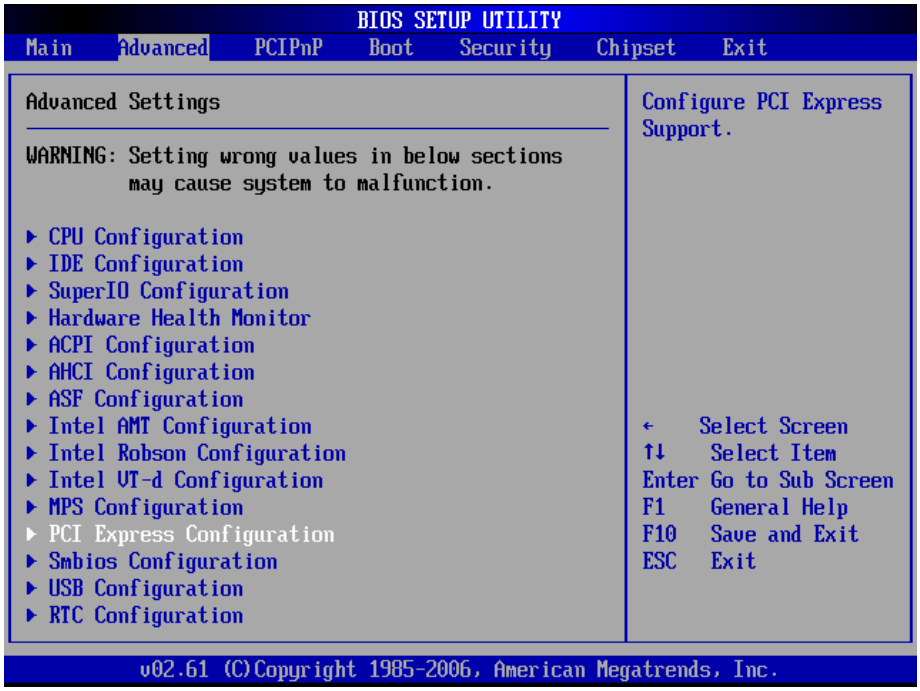


MPS Configuration

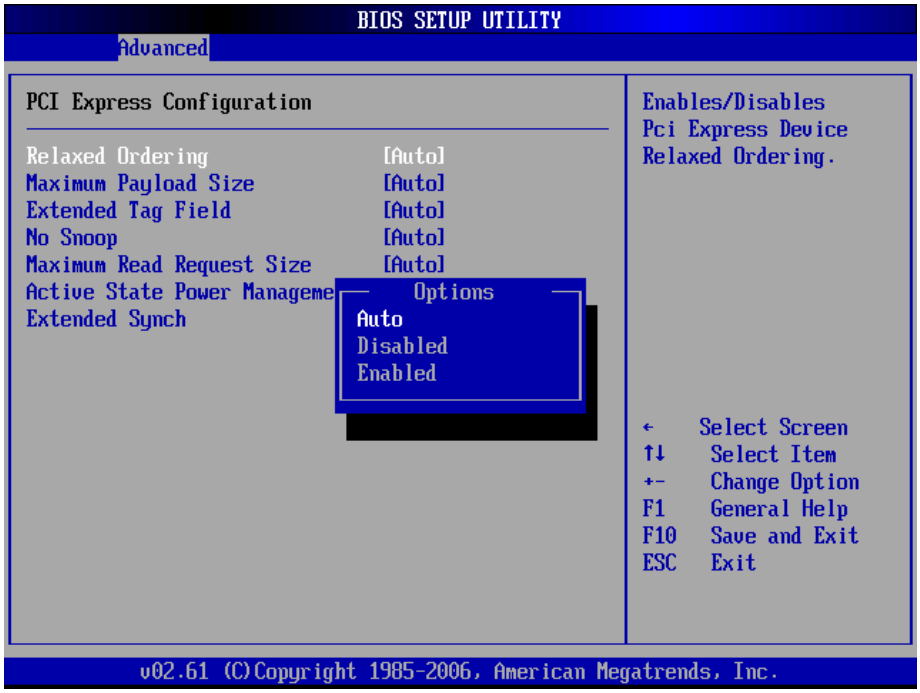




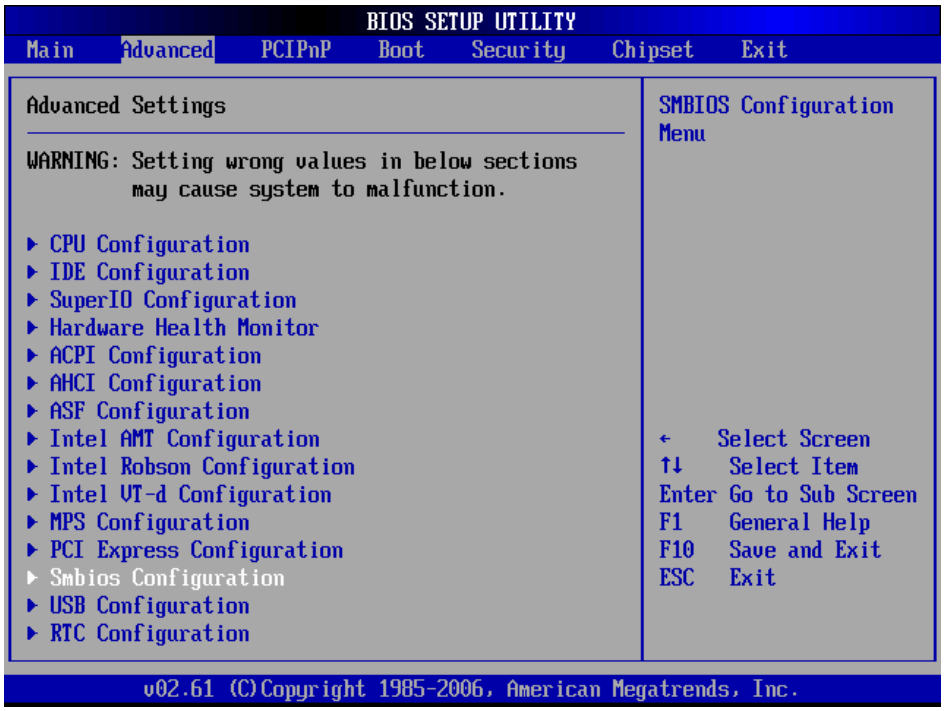
PCI Express Configuration



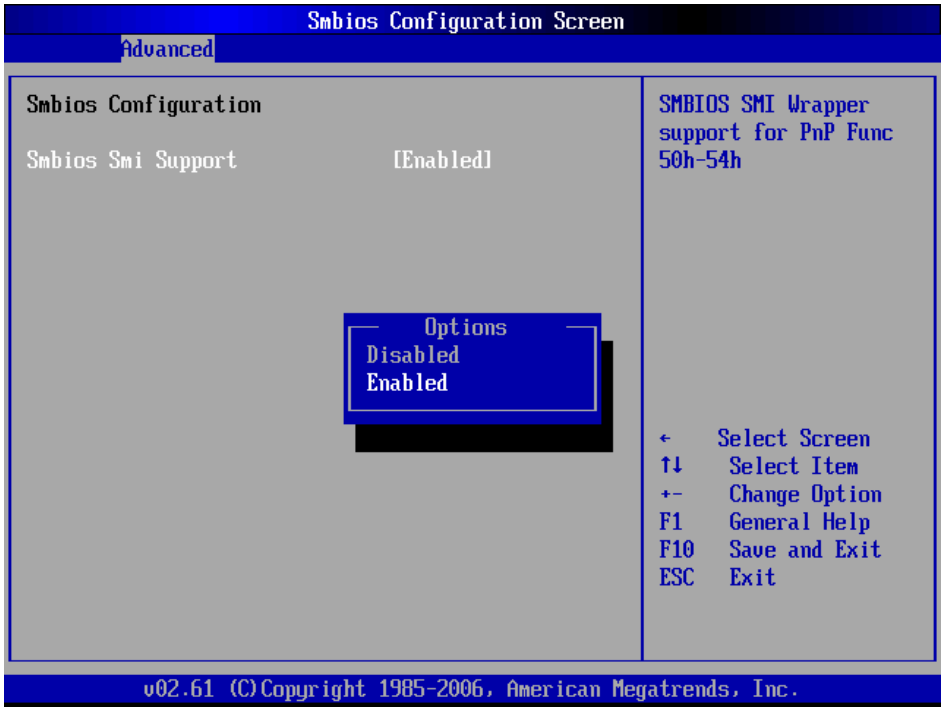
The Expansion Slot Utility allows you to change the number of "lanes" available for PCIe cards to utilize.



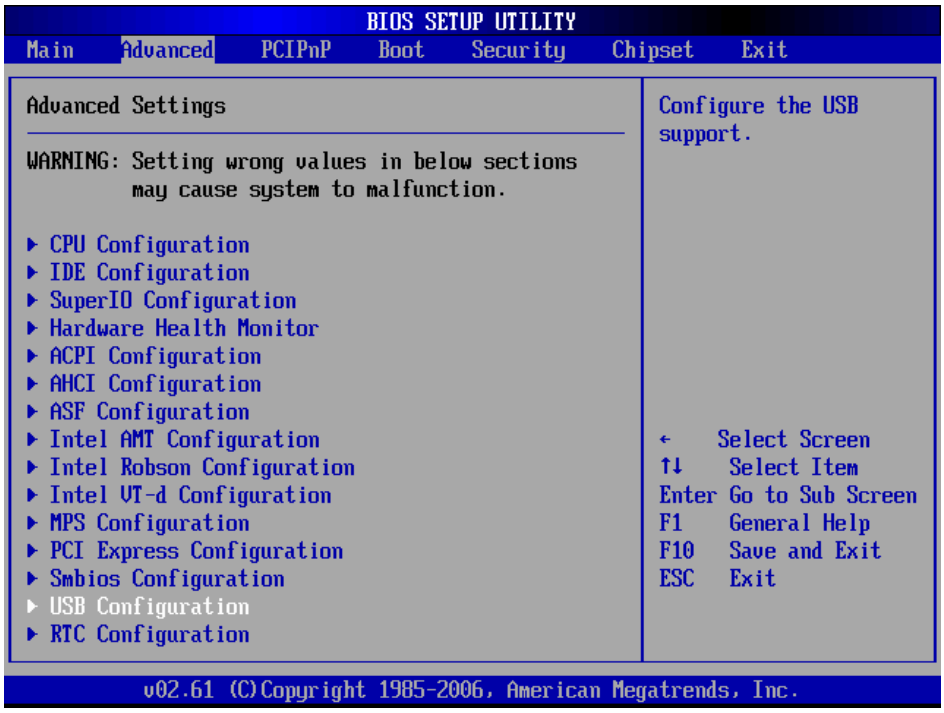
Smbios Configuration



System Management BIOS (SMBIOS) specification defines data structures (and access methods) in a BIOS which allows a user or application to store and retrieve information specifically about the computer in question.

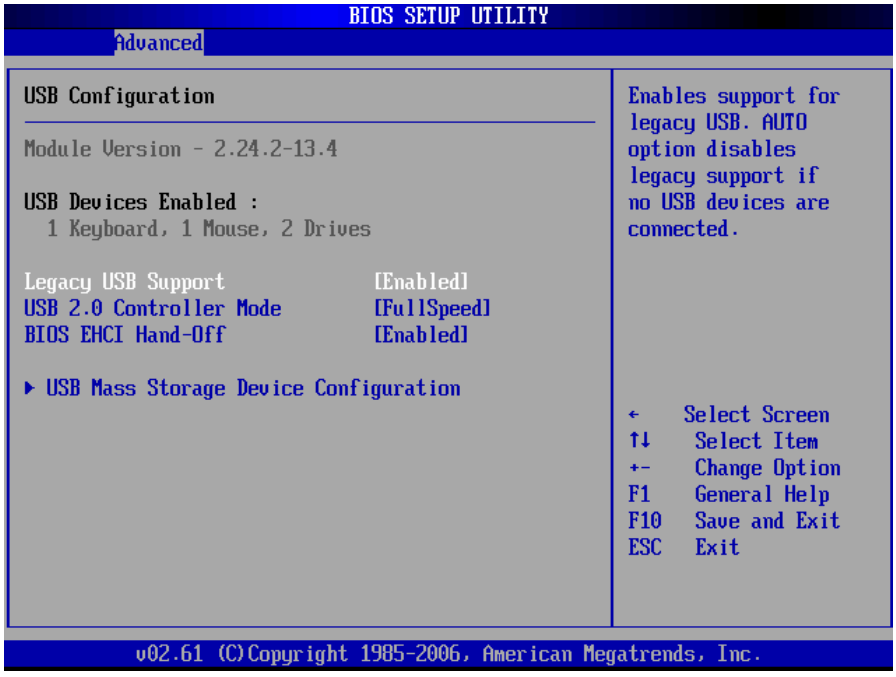


USB Configuration

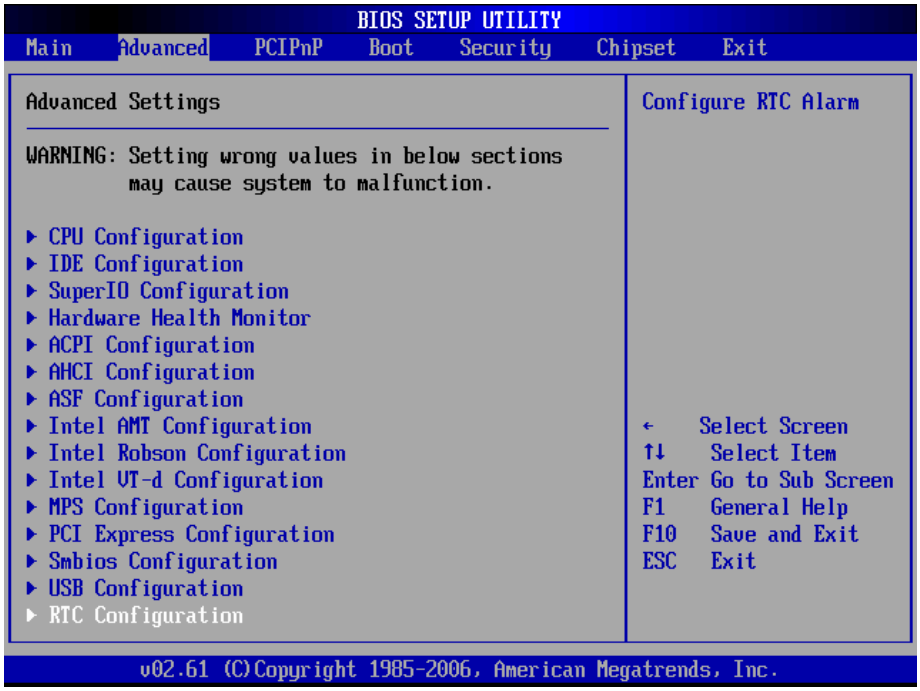


Legacy USB Support

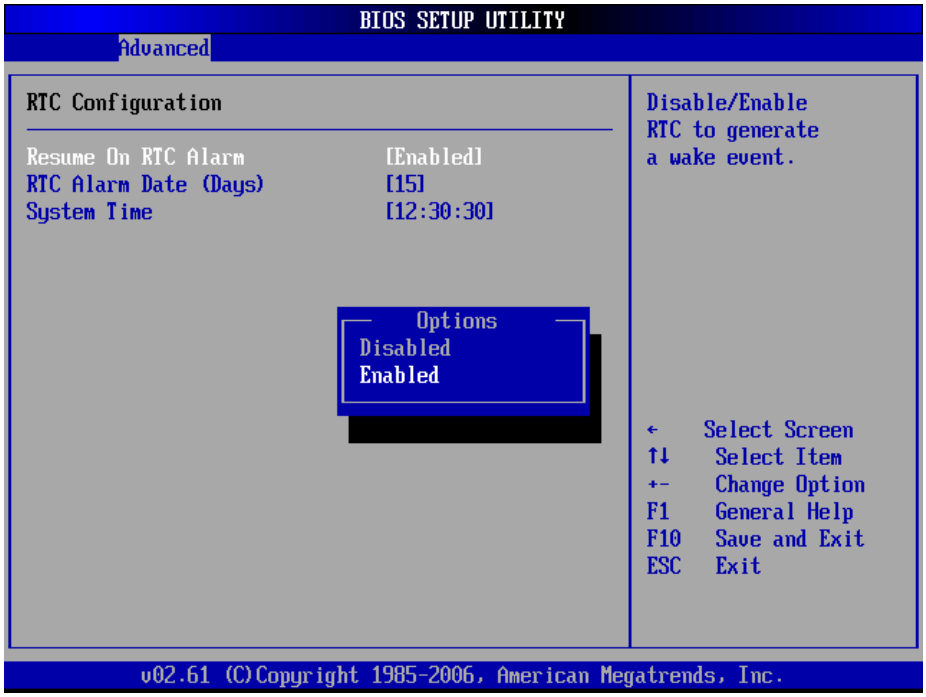
Allows you to enable or disable support for USB devices on legacy operating system (OS). Setting to Auto allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled. The options: [Disabled], [Enabled], [Auto].USB 2.0 Controller Allows you to enable or disable the USB 2.0 controller. The options: [Disabled] [Enabled].



RTC Configuration

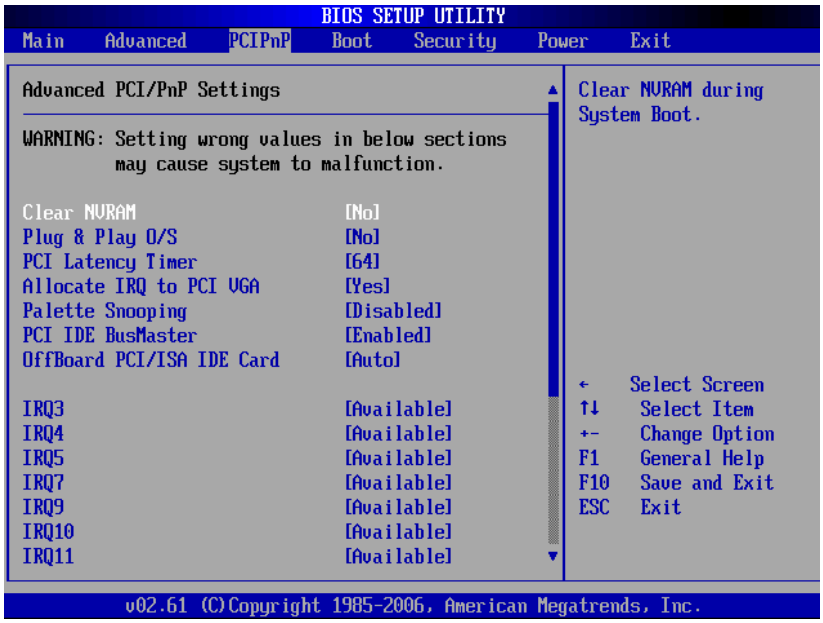


Real time clock alarm is a feature that can be used to allow a computer to 'wake up' after shut down to execute tasks every day or on a certain day



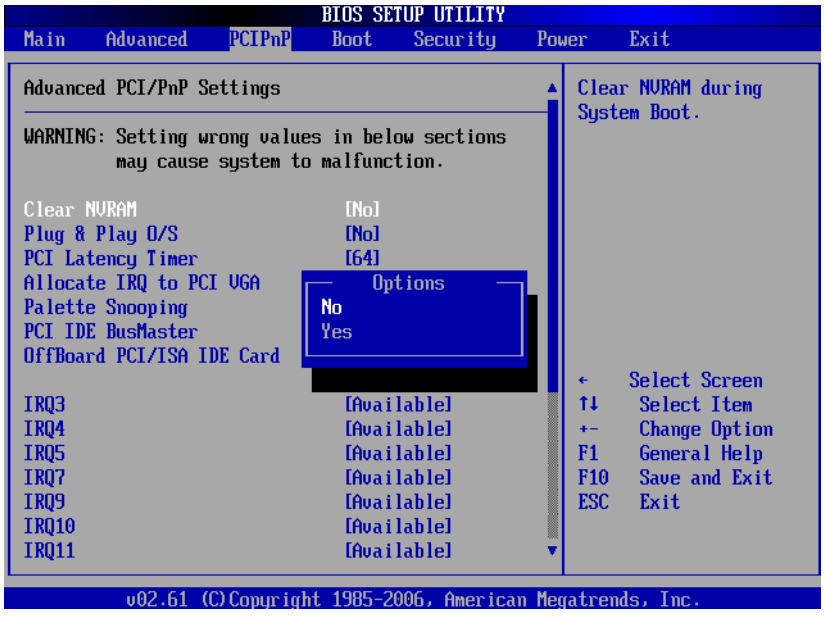
7.4 PCI/PnP

The PCI PnP menu items allow you to change the advanced settings for PCI/PnP devices. The menu includes setting IRQ and DMA channel resources for either PCI/ PnP or legacy ISA devices, and setting the memory size block for legacy ISA devices



Clear NVRAM

Clear NVRAM during system boot. The options: [No], [Yes].



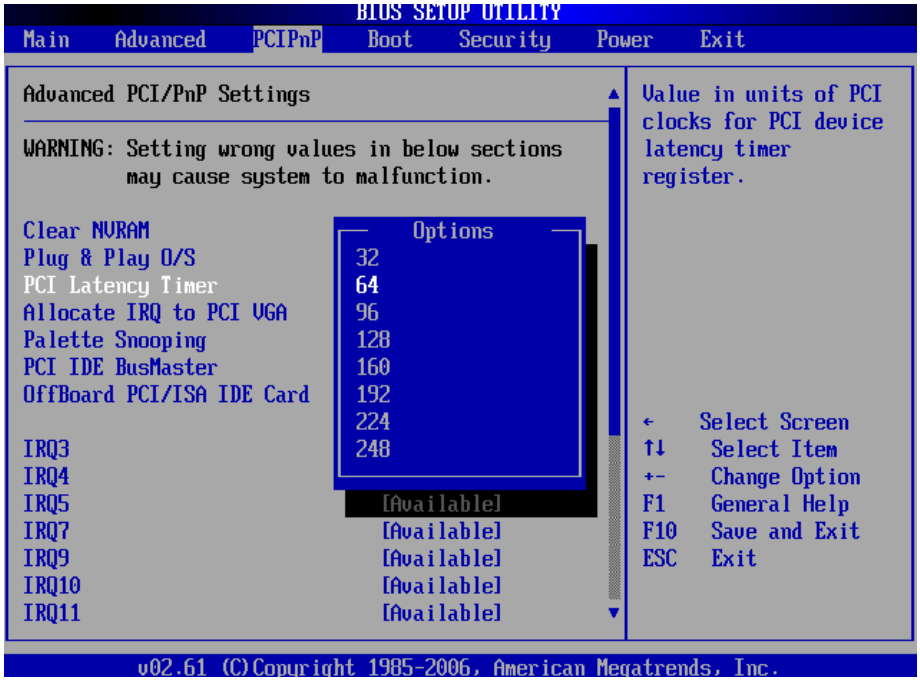
Plug & Play O/S

When set to [No], BIOS configures all the devices in the system. When set to [Yes] and if you install a Plug and Play operating system, the operating system configures the Plug and Play devices not required for boot.

The options: [No] [Yes].

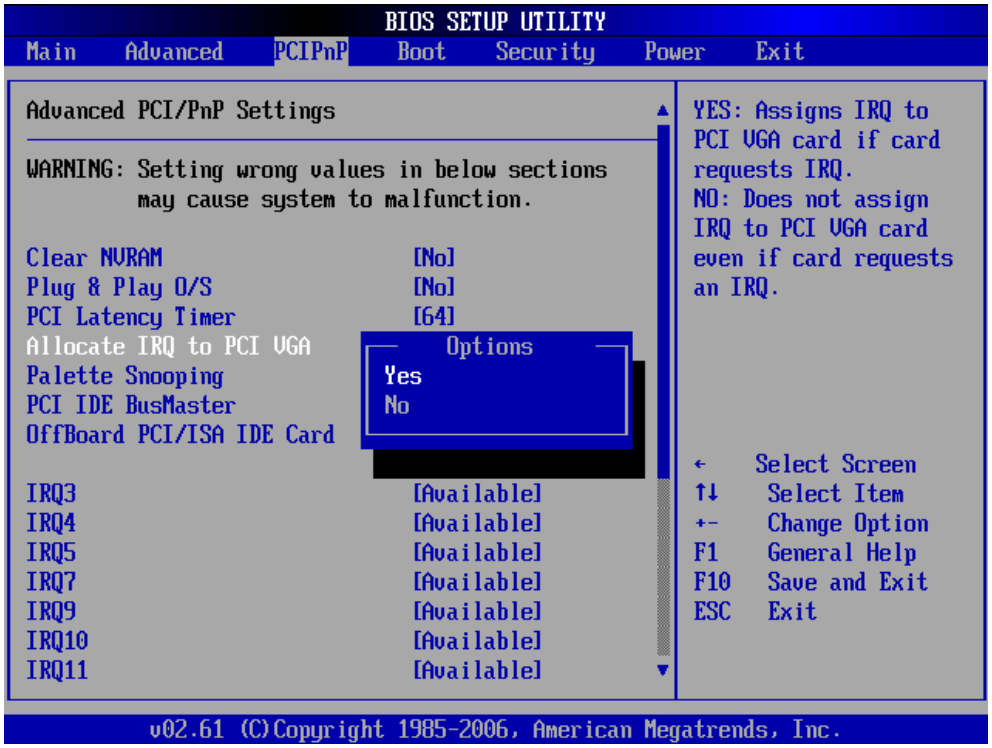
PCI Latency Timer

Allows you to select the value in units of PCI clocks for the PCI device latency timer register. The options: [32] [64] [96] [128] [160] [192] [224] [248].



Allocate IRQ to PCI VGA

When set to [Yes], BIOS assigns an IRQ to PCI VGA card if the card requests for an IRQ. When set to [No], BIOS does not assign an IRQ to the PCI VGA card even if requested. The options: [No] [Yes].



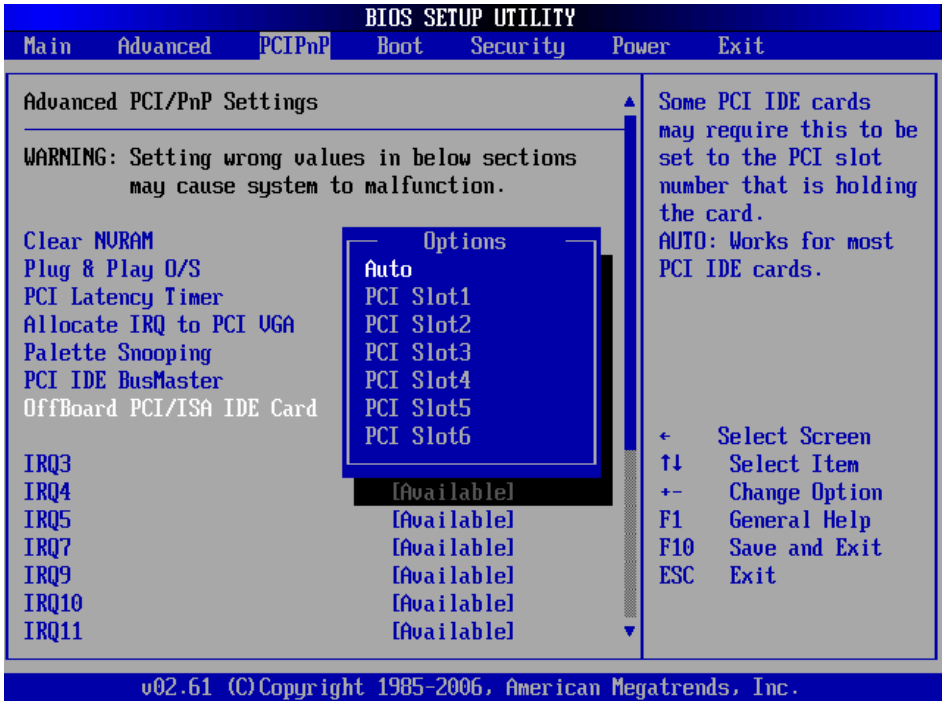
Palette Snooping

When set to [Enabled], the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly. The options: [Disabled] [Enabled].

PCI IDE BusMaster the BIOS use PCI bus mastering for reading/writing to IDE device. The options: [Disabled], [Enabled].

OffBoard PCI/ISA IDE Card

Allows you to set the PCI slot number. The options: [Auto], [PCI Slot1], [PCI Slot2], [PCI Slot 3], [PCI Slot4], [PCI Slot5], [PCI Slot6].

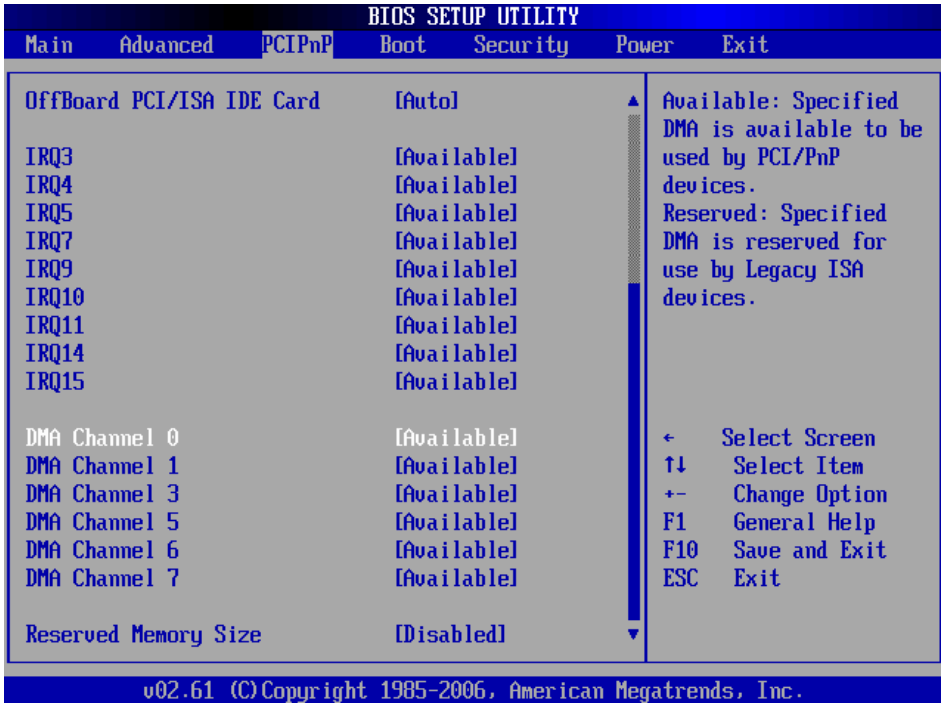


IRQ3,4,5,7,9,10,11,14,15

Allows you to specify IRQ that is available to be used by PCI/PnP or Legacy ISA device. The options: [Available], [Reserved].

DMA Channel 0,1,3,5,6,7

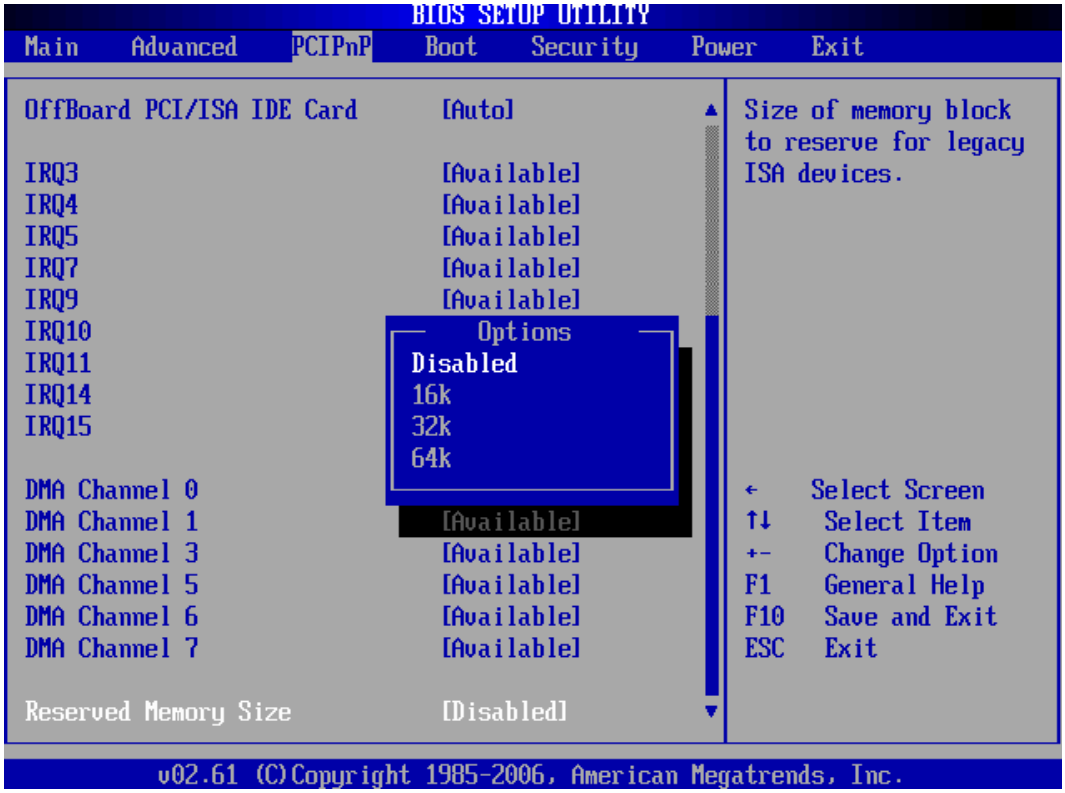
DMA Channel PCI/PMP functions. The options: [Available], [Reserved].



Reserved Memory Size

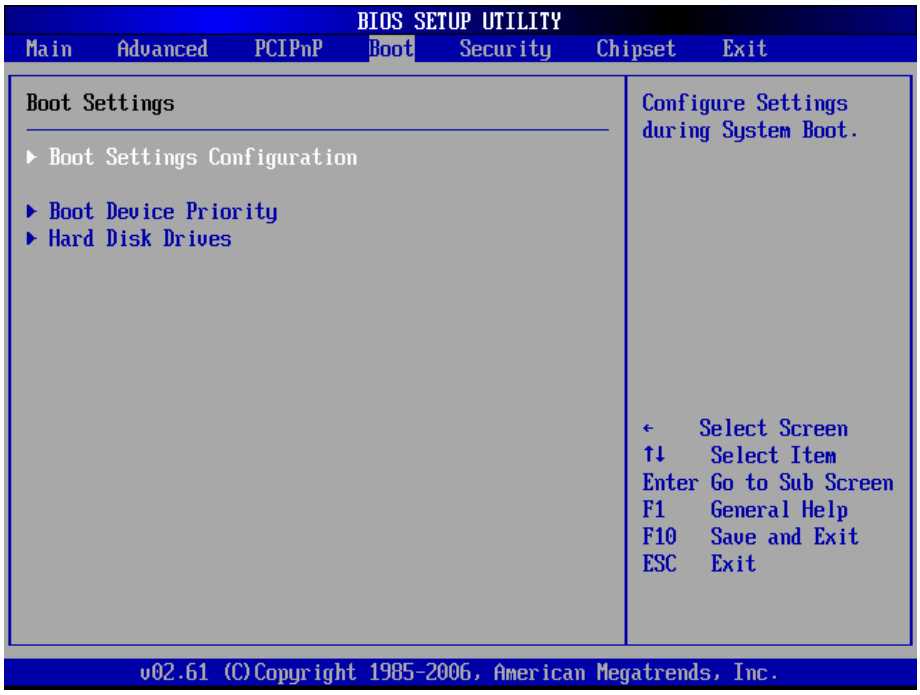
Set the size of memory block to reserve for legacy ISA devices.

The options: [Disabled], [16 K], [32 K], [64 K].


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Power Exit
OffBoard PCI/ISA IDE Card [Auto]
IRQ3 [Available]
IRQ4 [Available]
IRQ5 [Available]
IRQ7 [Available]
IRQ9 [Available]
IRQ10
IRQ11
IRQ14
IRQ15
DMA Channel 0
DMA Channel 1 [Available]
DMA Channel 3 [Available]
DMA Channel 5 [Available]
DMA Channel 6 [Available]
DMA Channel 7 [Available]
Reserved Memory Size [Disabled]
Options
Disabled
16k
32k
64k
Size of memory block to reserve for legacy ISA devices.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

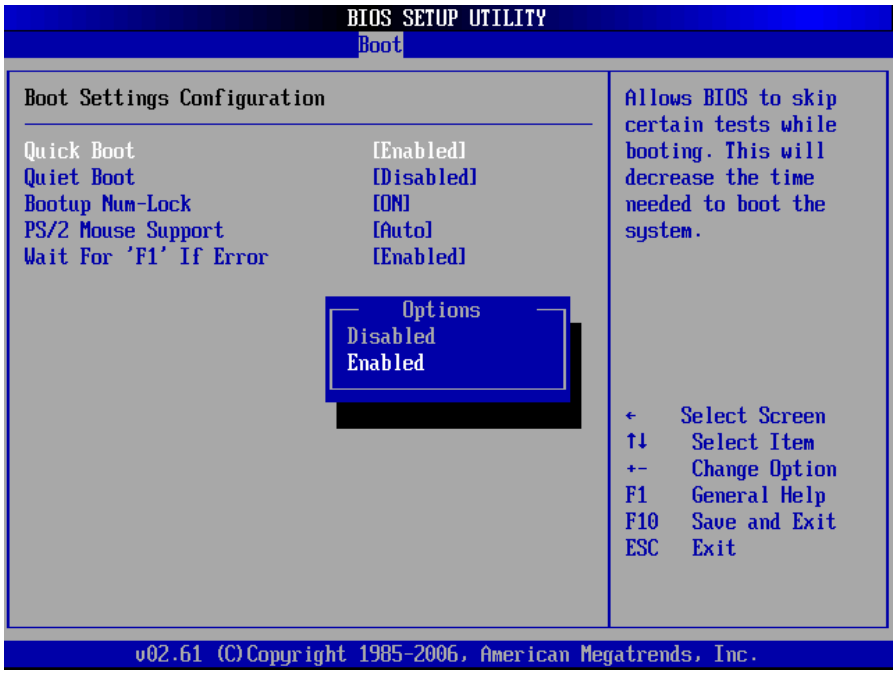
7.5 Boot

Boot Setting Configuration



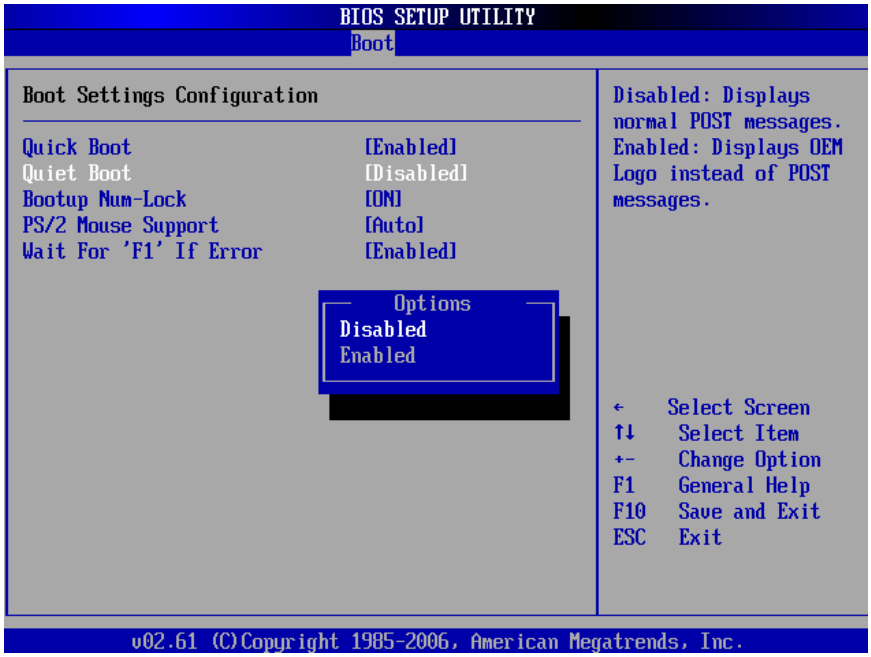
Quick Boot

Enable this item allows the BIOS to skip some power on self test (POST) while booting to decrease the time needed to boot the system. When set to [Disabled], BIOS performs all the POST items. The options: [Disabled], [Enabled].



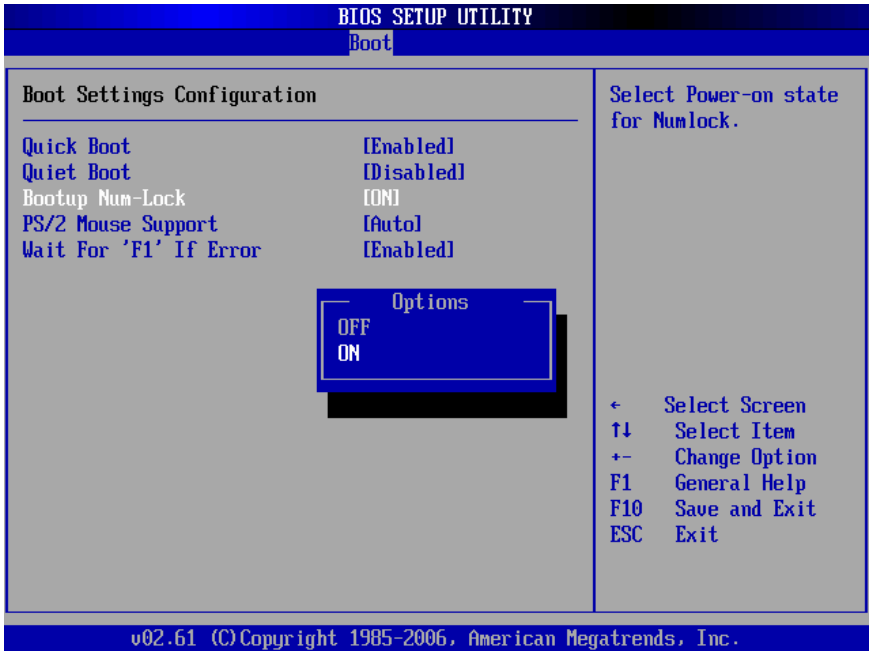
Quiet Boot

Allows you to display Normal POST message or OEM logo. The options: [Disabled], [Enabled].



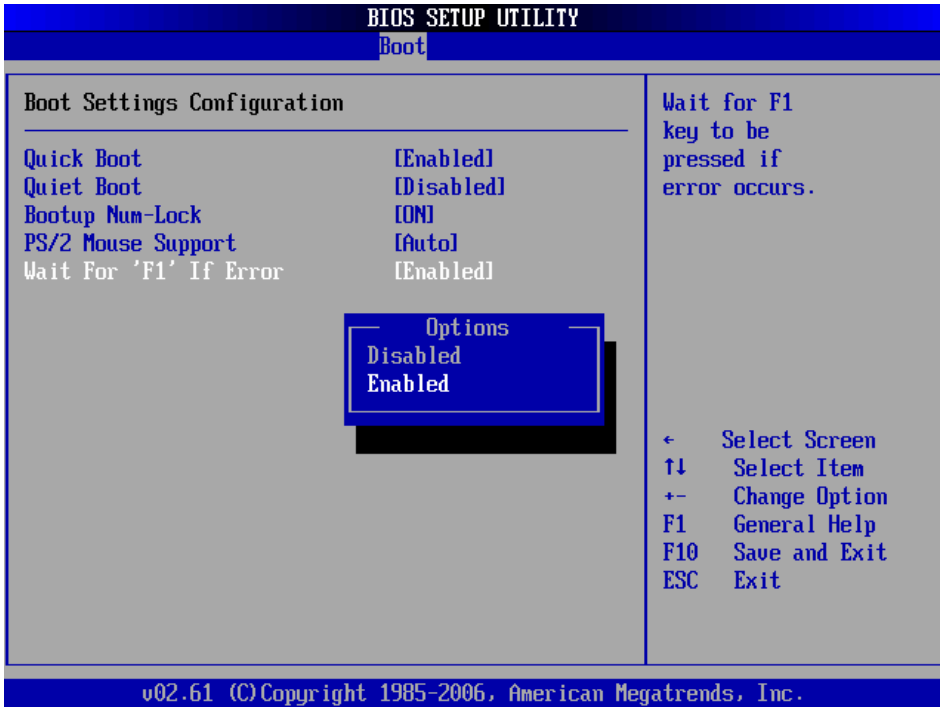
Boot up Num-Lock

Allows you to select the power-on state for the NumLock. The options: [Off], [On].

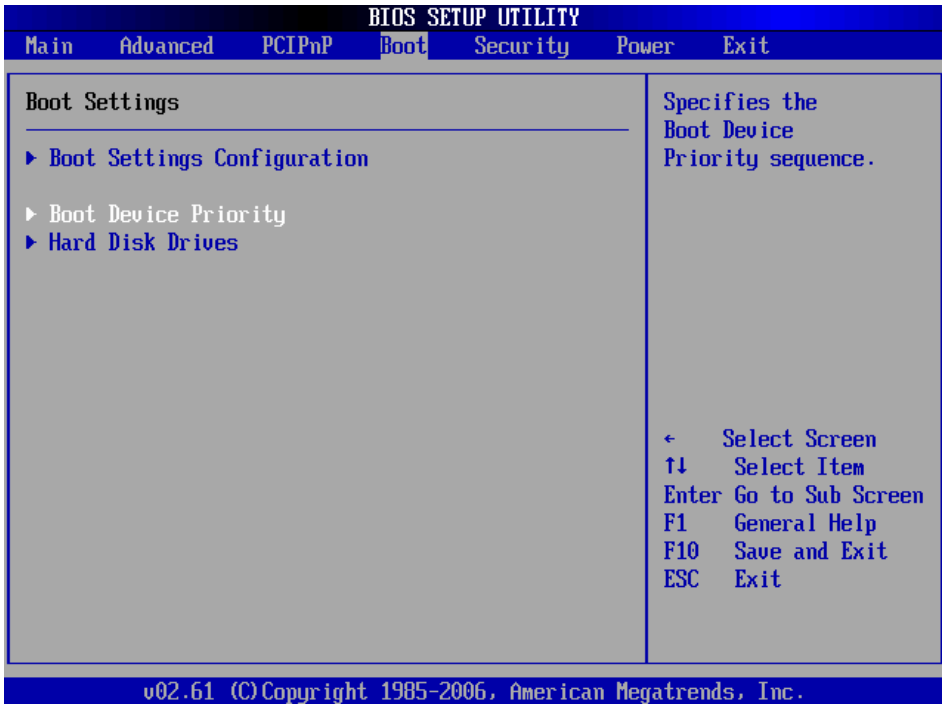


Wait for ‘F1’ If Error

When set to Enabled, the system waits for the F1 key to be pressed when error occurs. The options: [Disabled], [Enabled].

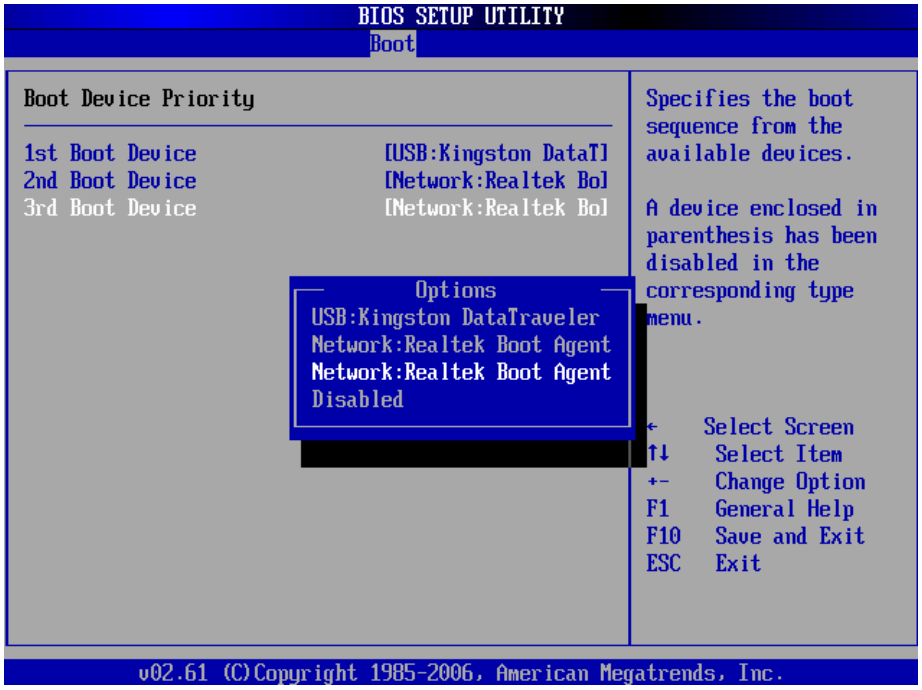


Boot Device Priority

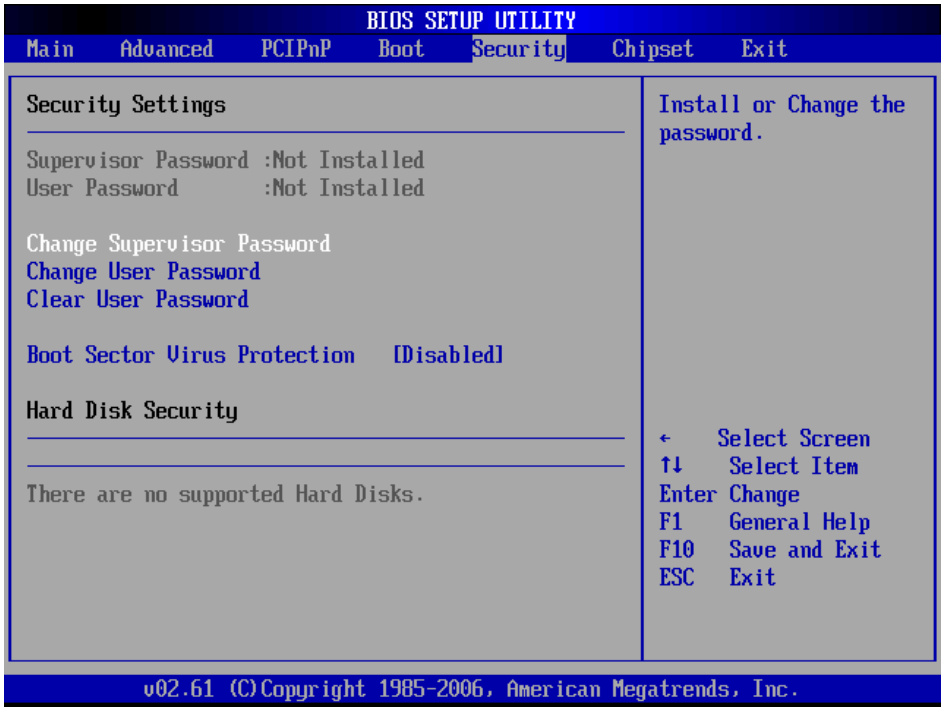


Boot Device Priority

Select the priority of Boot devices.



7.6 Security



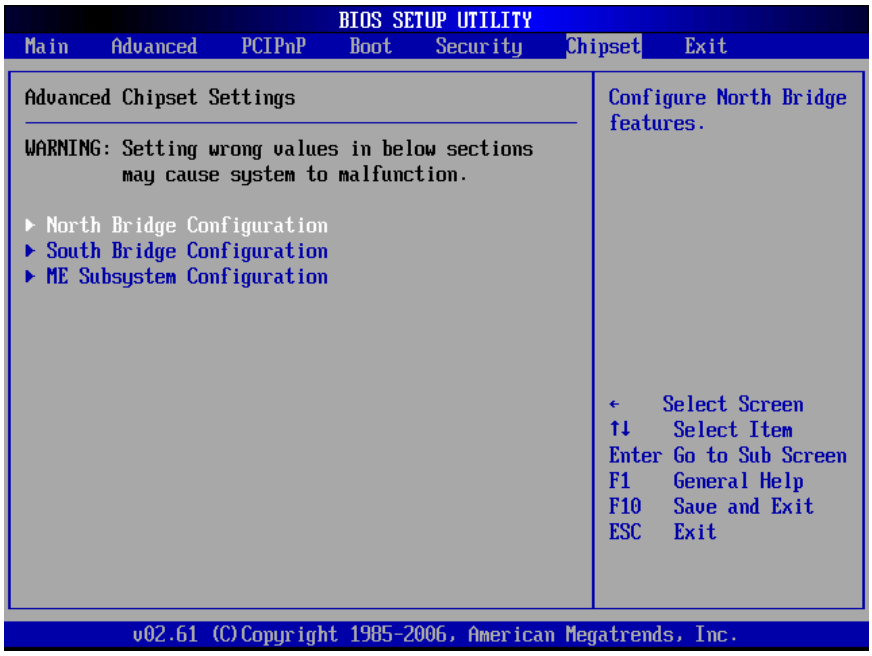
Select Security Setup from the I771 Setup main BIOS setup menu. All Security Setup options, such as password protection and virus protec- tion are described in this section. To access the sub menu for the follow- ing items, select the item and press <Enter>:

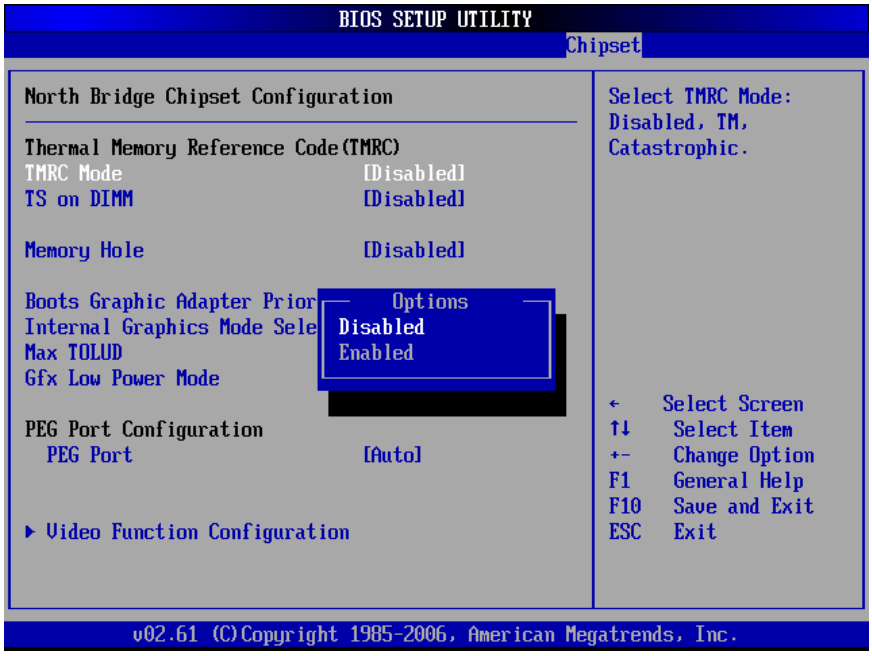
ï Change Supervisor Password

ï Boot sector Virus protection: The boot sector virus protection will warn if any program tries to write to the boot sector.

7.7 Chipset

This menu controls the advanced features of the onboard Northbridge and Southbridge.





TMRC Mode

Select TMRC Mode.
The choice: Enabled, Disabled

TS on DIMM

Enable/Disable Thermal Sensor on DIMM.
The choice: Enabled, Disabled

Memory Hole

In order to improve performance, certain space in memory is reserved for ISA cards.
This memory must be mapped into the memory space below 16MB.
The choice: Disabled, 15MB-16MB.

Boots Graphic Adapter Priority

Select which graphics controller to use as the primary boot device.
The choice: IGD, PCI/IGD, PCI/PEG, PEG/IGD, PEG/PCI.

Internal Graphics Mode Select

Select the amount of system memory used by the internal graphics device.
The choice: Enabled, 32MB, Enabled, 64MB, Enabled, 128MB.

Max TOLUD

Maximum Value of TOLUD
The choice: 3G Bytes, 2.5G Bytes, 2G Bytes

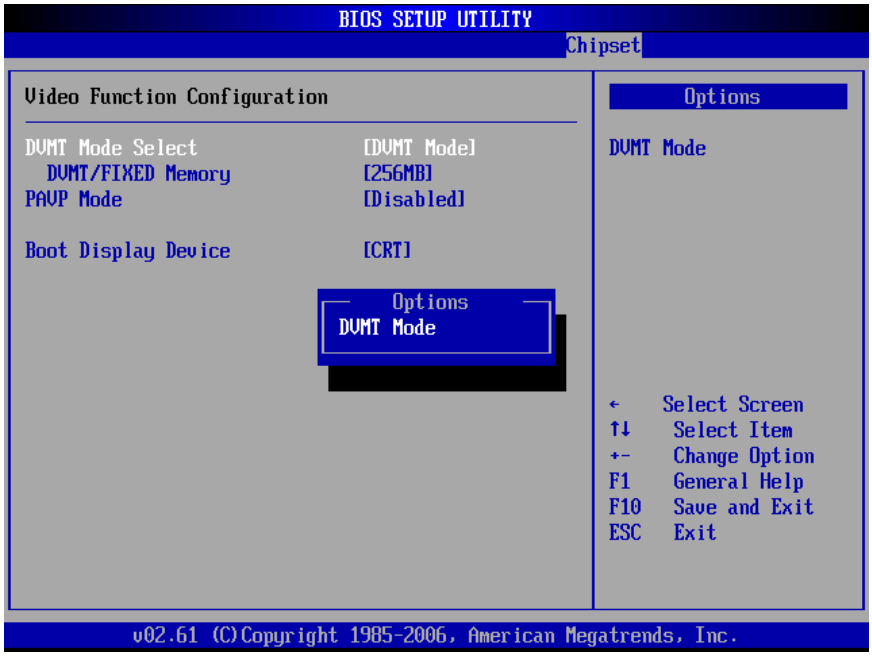
GFx Low Power Mode

This option is applicable for SFF only
The choice: Disabled, Enabled.

PEG Port

This setting allows you to select whether to use the on-chip graphics processor or the PCI Express card. When set to [Auto], the BIOS checks to see if a PCI Express graphics card is installed. If it detects that a PCI Express graphics card is present, the motherboard boots up using that card. Otherwise, it defaults to the onboard graphics processor.
The choice: Auto, Disabled.

Video Function Configuration



DVMT Mode Select

Intel's Dynamic Video Memory Technology (DVMT) allows 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.

It is recommended that you set this BIOS feature to DVMT Mode for maximum performance. Setting it to DVMT Mode ensures that system memory is dynamically allocated for optimal balance between graphics and system performance.

The choice: DVMT Mode.

DVMT/FIXED Memory

When set to DVMT/FIXED Mode, the graphics driver will allocate a fixed amount of memory as dedicated graphics memory, as well as allow more system memory to be dynamically allocated between the graphics processor and the operating system.

The choice: 128MB, 256MB.

PAVP Mode

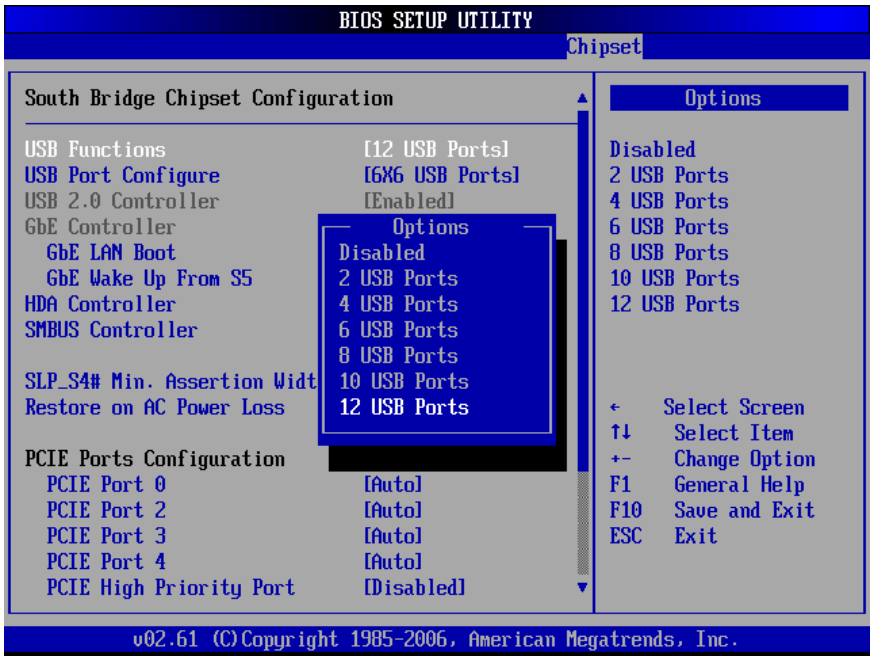
GMCH Protected Audio Video Path (PAVP) BIOS Support.

The choice: Disabled, Lite, High.

Boot Display Device

The choice: VBIOS-Default, CRT, DVI, CRT+DVI .

South Bridge Configuration



USB Functions

The choice: Disabled, 2 USB Ports, 4 USB Ports, 6 USB Ports, 8 USB Ports, 10 USBPorts, 12 USB Ports.

USB Port Configure

The choice: 6x6 USB Ports, 8x4 USB Ports.

USB 2.0 Controller (Read Only)

Set to [Enabled] if you need to use any USB 2.0 device in the operating system thatdoes not support or have any USB 2.0 driver installed, such as DOS and SCO Unix.

GbE Controller (Read Only)

This setting Enable the onboard Gigabit Ethernet controller.

GbE LAN Boot

When [Enabled], the BIOS attempts to boot from a LAN boot image before it attemptsto boot from a local storage device.
The choice: Enabled, Disabled.

GbE Wake Up From S5

This field specifies whether the system will be awakened from the S5 power savingmode when activity or input signal of onboard LAN is detected.
The choice: Enabled, Disabled.

HDA Controller

This setting controls the High Definition Audio interface integrated in the Southbridge.
The choice: Enabled, Disabled.

SMBUS Controller

The choice: Enabled, Disabled.

SLP_S4# Min. Assertion Width

The choice: 4 to 5 seconds, 3 to 4 seconds, 2 to 3 seconds, 1 to 2 seconds.

Restore on AC Power Loss

This item allows user to configure the power status of using ATX power supply after a serious power loss occurs.
The choice: Power Off, Power On, Last State.

PICE Port 0/1/2/3/4

The choice: Auto, Enabled, Disabled.

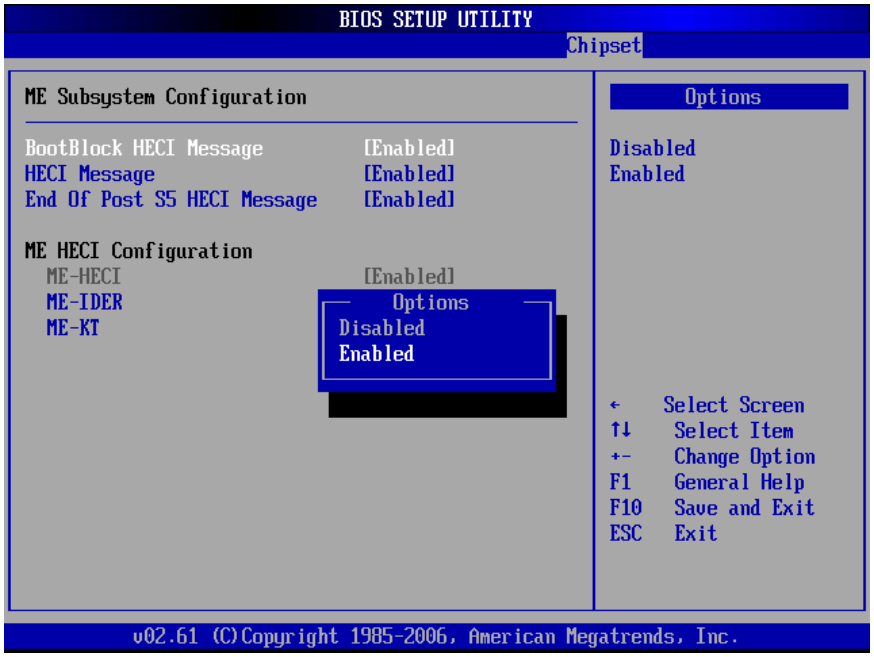
PICE High Priority Port

The choice: Disable, Port 0, Port 1, Port 2, Port 3, Port 4, Port 5.

PICE Port 0/1/2/3/4/5 IOxAPIC Enable

The choice: Enabled, Disabled.

ME Subsystem Configuration



BootBlock HECI Message

The choice: Disabled, Enabled.

HECI Message

The choice: Disabled, Enabled.

End Of Post S5 HECI Message

The choice: Disabled, Enabled.

ME-HECI

The choice: Disabled, Enabled.

ME-IDER

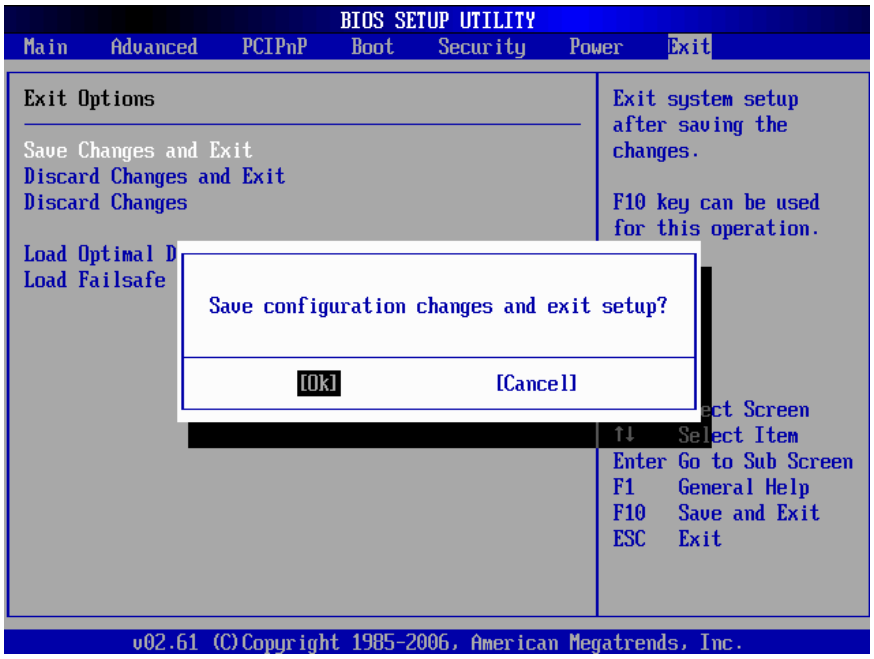
The choice: Disabled, Enabled.

ME-KT

The choice: Disabled, Enabled.

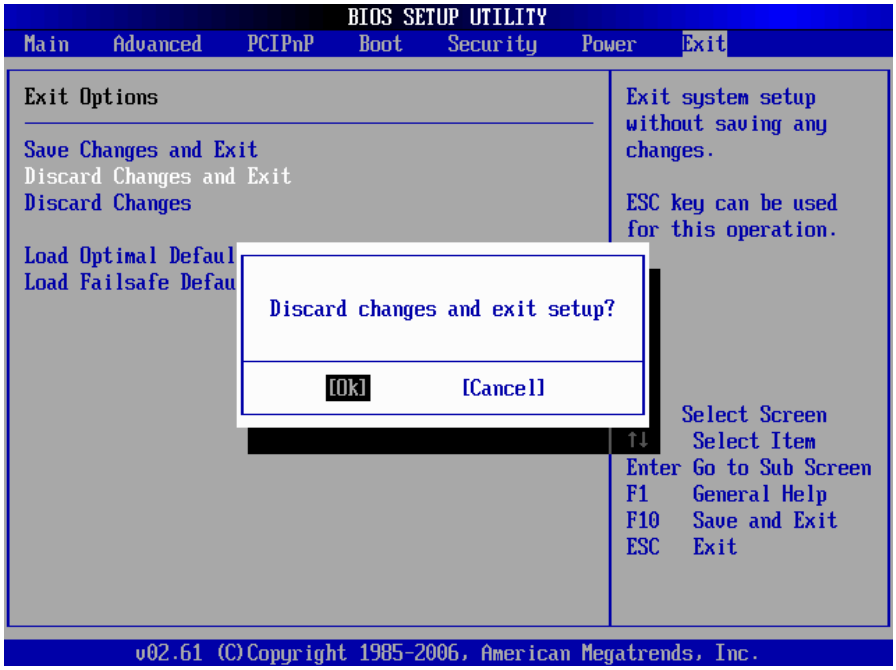
7.8 Exit

This Exit menu items allow you to load the optimal or failsafe default value for the BIOS items, and save or discard your changes to the BIOS items.



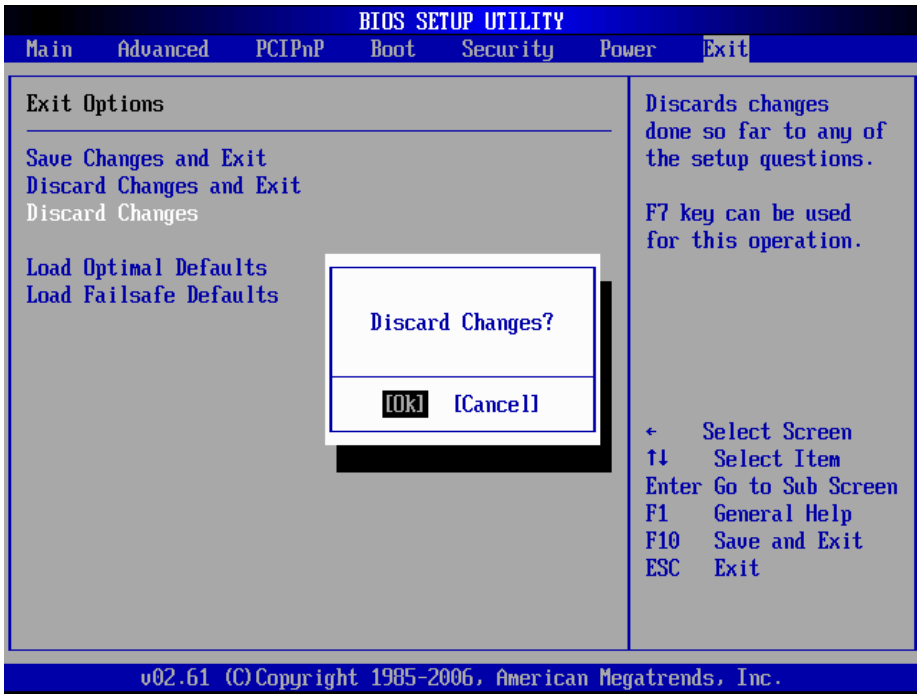
Discard Changes and Exit

Select this option only if you do not want to save the changes that you made to the setup program. If you made changes to fields other than System Date, System time, and Password, the BIOS asks for a confirmation before exiting.



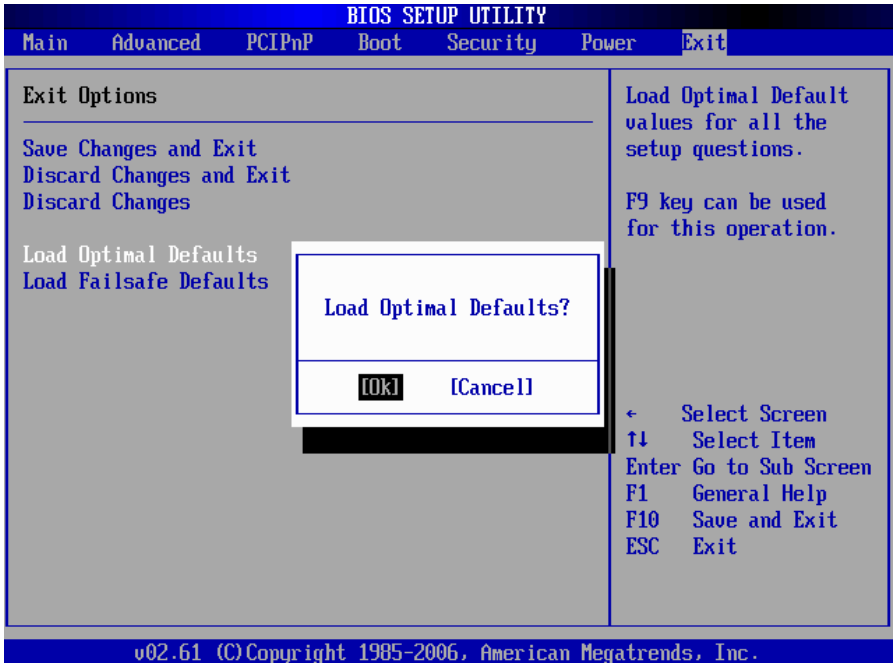
Discard Changes

This option allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select [OK] to discard any changes and load the previously saved values.



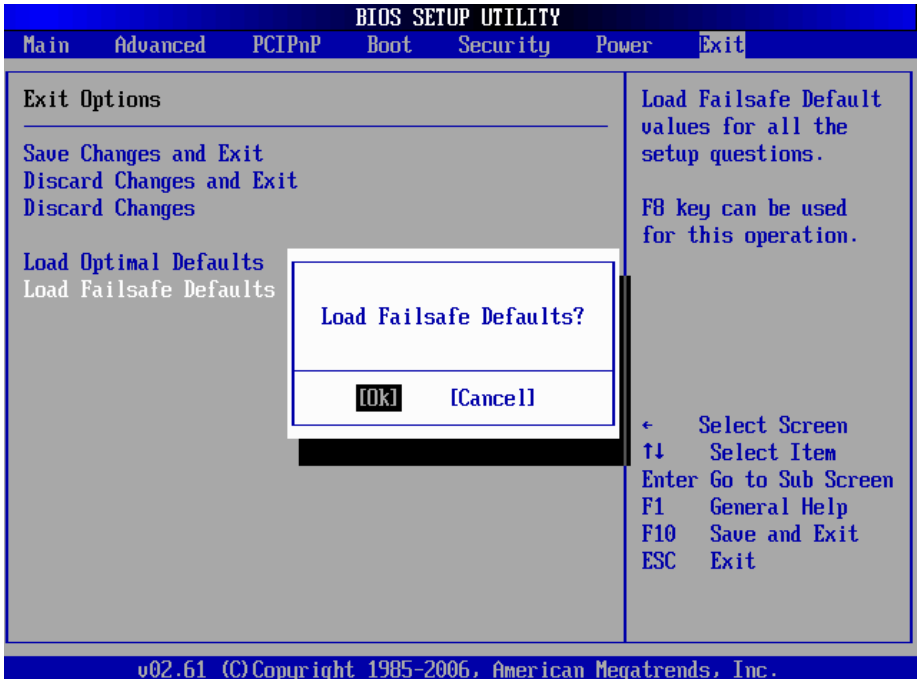
Load Optimal Defaults

This option allows you to load the optimal default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select [OK] to load optimal default values. Select [Save Change and Exit] or make other changes before saving the values to the non-volatile RAM.



Load Failsafe Defaults

This option allows you to load the failsafe default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select [OK] to load failsafe default values.



Note1: Digital I/O Sample Code

```
//File of the Main.cpp
//=============================================================
//This code is for test I570 Super I/O.
//=============================================================
#include <dos.h>
#include <conio.h>
#include <stdio.h>
#include <stdlib.h>

//=============================================================
#define W83627EHG_INDEX_PORT 0x2E
#define W83627EHG_DATA_PORT 0x2F
//=============================================================
#define W83627EHG_REG_LD 0x07
//=============================================================
#define W83627EHG_UNLOCK 0x87
#define W83627EHG_LOCK 0xAA

//=============================================================
void ClrKbBuf(void);
void Unlock_W83627EHG(void);
void Lock_W83627EHG(void);
void Set_W83627EHG_Reg(unsigned char,unsigned char);
unsigned char Get_W83627EHG_Reg(unsigned char);
int main ();
//=============================================================
int main ()
{
      unsigned char ucDO = 0; //data for digital output
      unsigned char ucDI; //data for digital input
      unsigned char ucBuf;
      Set_W83627EHG_Reg(0x07,0x07);//switch to logic device 7

//    PIN 121~128 function select
//    Bit0 = 0 -> Game Port.
```

```
//            = 1 -> GPIO1.
        ucBuf = Get_W83627EHG_Reg(0x29);
        Set_W83627EHG_Reg(0x29,ucBuf|0x01);

//    Bit0 = 0 -> GPIO1 is inactive.
//     Bit1 = 1 -> Activate GPIO1.
        ucBuf = Get_W83627EHG_Reg(0x30);
        Set_W83627EHG_Reg(0x30,ucBuf|0x01);//Activate GPIO1

        Set_W83627EHG_Reg(0xF0,0x0F);//switch GPIO Input(1)/Output(0) port

        Set_W83627EHG_Reg(0xF1, 0x00); //clear
        ucDI = Get_W83627EHG_Reg(0xF1) & 0x0F;
        ClrKbBuf();
        while(1)
        {
                ucDO++;
                Set_W83627EHG_Reg(0xF1, ((ucDO & 0x0F) << 4));
                ucBuf = Get_W83627EHG_Reg(0xF1) & 0x0F;
                if (ucBuf != ucDI)
                {
                        ucDI = ucBuf;
                        printf("Digital I/O Input Changed. Current Data is 0x%X\n",ucDI);
                }
                if (kbhit())
                {
                        getch();
                        break;
                }
                delay(500);
        }
        return 0;
}
//============================================================
void ClrKbBuf(void)
{
        while(kbhit())
        { getch(); }
```

```
}
//---------------------------------------------------------------------------

void Unlock_W83627EHG (void)
{
	outportb(W83627EHG_INDEX_PORT, W83627EHG_UNLOCK);
	outportb(W83627EHG_INDEX_PORT, W83627EHG_UNLOCK);
}
//---------------------------------------------------------------------------
void Lock_W83627EHG (void)
{
	outportb(W83627EHG_INDEX_PORT, W83627EHG_LOCK);
}
//---------------------------------------------------------------------------
void Set_W83627EHG_Reg( unsigned char REG, unsigned char DATA)
{
	Unlock_W83627EHG();
	outportb(W83627EHG_INDEX_PORT, REG);
	outportb(W83627EHG_DATA_PORT, DATA);
	Lock_W83627EHG();
}
//---------------------------------------------------------------------------
unsigned char Get_W83627EHG_Reg( unsigned char REG)
{
	unsigned char Result;
	Unlock_W83627EHG();
	outportb(W83627EHG_INDEX_PORT, REG);
	Result = inportb(W83627EHG_DATA_PORT);
	Lock_W83627EHG();
	return Result;
}
//---------------------------------------------------------------------------
```

Note2: Watchdog Sample Code

```
//File of the Watchdog.cpp
//=============================================================
//This Sample code is for Watchdog timer configuration
//=============================================================
//=============================================================
#include <dos.h>
#include <conio.h>
#include <stdio.h>
#include <stdlib.h>

//=============================================================
#define W83627_INDEX_PORT 0x2E
#define W83627_DATA_PORT 0x2F
#define W83627_UNLOCK 0x87
#define W83627_LOCK 0xAA
//#define Watchdog_timeout 10

//=============================================================
void Unlock_W83627(void);
void Lock_W83627(void);
void Set_W83627_Reg(unsigned char,unsigned char);
unsigned char Get_W83627_Reg(unsigned char);
//=============================================================

int main ()
{

    int Watchdog_timeout = 10;
    printf("Input Watchdog Timer time-out value [0-255] : ");
    scanf("%d",&Watchdog_timeout);
    if(Watchdog_timeout <= 0 || Watchdog_timeout > 255)
    {
        printf("Time-out value out of range!!\n\n");
        printf("Input Watchdog Timer time-out value [0-255] : ");
        scanf("%d",&Watchdog_timeout);
```

```
    }
    Set_W83627_Reg(0x07,0x08);//switch to logic device 8

    Set_W83627_Reg(0x30,0x01);//Activate watchdog

    Set_W83627_Reg(0xF5,0x06);//Select WDTO# count mode.Second Mode.

    Set_W83627_Reg(0xF6,Watchdog_timeout); //Set Watch Dog Timer Time-out
value

    //Set_W83627_Reg(0xF7,0xC0); //Clear Watchdog timer event

    int i = Watchdog_timeout;
    while(1)
    {
        if (kbhit())
        {
            if(getch()==0x1B)  //Esc
                break;
            else{
                i=Watchdog_timeout;     //Reset Watchdog timer
                Set_W83627_Reg(0xF6,Watchdog_timeout); //Set Watch Dog
Timer Time-out value
            }
        }
        clrscr();
        if(i>0){
            i--;
            printf("After %2d sec reset computer!\n",i);
            printf("Press any key to reset watchdog timer!\n");
            printf("Press [Esc] to exit!\n");

        }
        else
            printf("Watchdog timer fail!");
        delay(1000);
    }
```

```
	Set_W83627_Reg(0xF6,0);    //Disable Watchdog timer

	return 0;
}


//---------------------------------------------------------------------

void Unlock_W83627 (void)
{
	outportb(W83627_INDEX_PORT, W83627_UNLOCK);
	outportb(W83627_INDEX_PORT, W83627_UNLOCK);
}
//=============================================================
void Lock_W83627 (void)
{
	outportb(W83627_INDEX_PORT, W83627_LOCK);
}
//=============================================================
void Set_W83627_Reg( unsigned char REG, unsigned char DATA)
{
	Unlock_W83627();
	outportb(W83627_INDEX_PORT, REG);
	outportb(W83627_DATA_PORT, DATA);
	Lock_W83627();
}
//=============================================================
unsigned char Get_W83627_Reg( unsigned char REG)
{
	unsigned char Result;
	Unlock_W83627();
	outportb(W83627_INDEX_PORT, REG);
	Result = inportb(W83627_DATA_PORT);
	Lock_W83627();
	return Result;
}
```