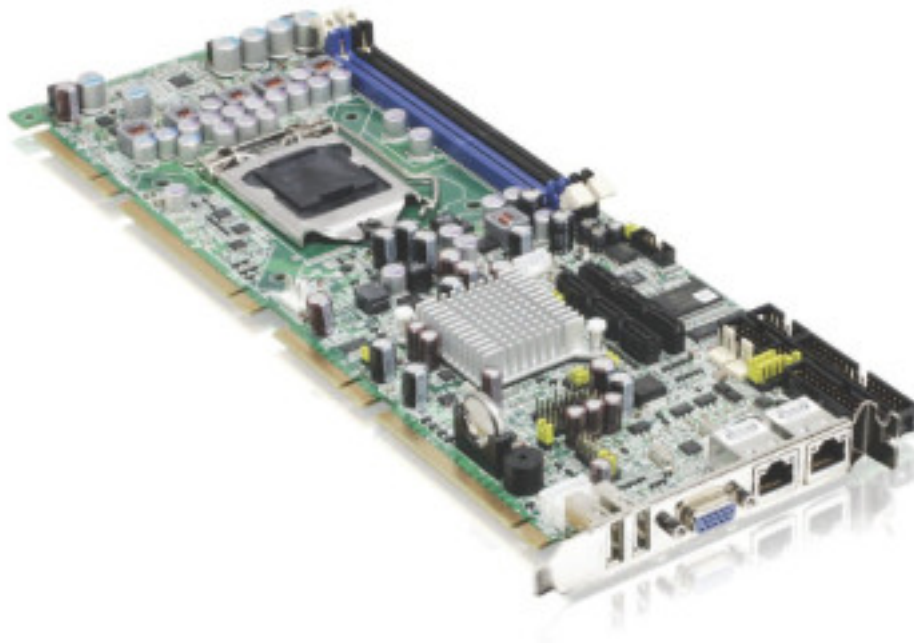


» Kontron User's Guide «



PCI-761

User's Guide (Version V1.01)
0-0096-4764

This page is intentionally left blank.

1. Table of Contents

1. Table of Contents	1
2. Introduction	4
2.1. Symbols used in this Manual.....	5
3. Safety Instructions	6
3.1. Safety Instructions for the Lithium Battery.....	6
3.2. Basic Safety and EMC Compatibility	6
4. Important Instructions	7
4.1. Electrostatic Discharge (ESD)	7
4.2. Note on the Warranty	7
4.3. Exclusion of Accident Liability Obligation.....	7
4.4. Liability Limitation / Exemption from the Warranty Obligation	7
4.5. General Instruction on Usage	7
5. Scope of Delivery	8
5.1. Labeling Information	8
6. Product Description	9
6.1. I/O Bracket	9
7. Features	10
8. Main Specifications	12
8.1. Electrical Specifications.....	12
8.2. Environmental Specifications	12
8.3. CE Directives.....	12
8.4. Mechanical Specifications	13
8.4.1. Board Dimensions.....	13
9. Jumpers and Connectors	14
9.1. Board Layout.....	14
9.2. Tables with Connectors / Jumpers	15
9.3. Jumpers and Settings.....	16
9.3.1. COM1 Mode Select Jumpers for RS-232/422/485 (JP2, JP3, JP4)	16
9.3.2. CMOS & RTC Clear Jumper (JP8)	16
9.3.3. ATX Auto Power On/Off (JP9)	17
9.3.4. CPU Frequency Jumper (JP5)	17
9.3.5. ME Disable/Enable Jumper (JP7)	17
9.3.6. TPM Disable/Enable Jumper (JP6, JP10)	18
9.3.7. Audio Amplifier Jumper (JP1)	18
9.4. Connectors.....	19
9.4.1. ATX 4 Pin 12V IN Connector (CN5)	19
9.4.2. Front Panel Connector (CN26)	20
9.4.3. LAN1 LED Connectors (CN19)	21
9.4.4. LAN2 LED Connectors (CN10)	21
9.4.5. COM Port RS-232 Pin Assignment (CN3, CN6).....	22
9.4.6. COM2 RS-422/485 Pin Assignment	22
9.4.7. CPU Fan Connector (CN30).....	23

9.4.8. System & Auxiliary Fan Connectors (CN9, CN8)	23
9.4.9. Floppy Disk Port Connector (CN4)	24
9.4.10. Intel® HD Audio Digital Header (CN1)	24
9.4.11. PS/2 Keyboard, Mouse Connectors (CN28, CN29)	24
9.4.12. Ethernet RJ-45 Connectors (CN14, CN20)	25
9.4.13. Parallel Port Connector (CN7)	26
9.4.14. SATA Connectors (CN11, CN12, CN13, CN16, CN17, CN18)	26
9.4.15. Internal USB Connectors (CN21, CN22, CN25)	27
9.4.16. External USB Port Connectors (USB1, USB2)	27
9.4.17. DB15 VGA Connector (CN23)	28
10. Lithium Battery	29
10.1. Replacing the Lithium Battery	29
11. Hardware Description	30
11.1. Processors	30
11.2. BIOS	30
11.3. System Memory	30
11.4. Hardware Installation	31
11.4.1. Installing the Processor	31
11.5. Installing the Memory	36
12. AMI BIOS Utility	37
12.1. Starting	37
12.2. Navigation Keys	37
12.3. Main Menu	38
12.3.1. System Time	38
12.4. Advanced Menu	39
12.4.1. CPU Configuration	40
12.4.2. IDE Configuration	41
12.4.3. SuperIO Configuration	42
12.4.4. Hardware Health Configuration	43
12.4.5. ACPI Configuration	44
12.4.6. AHCI Configuration	45
12.4.7. Intel AMT Configuration	46
12.4.8. Intel VT-d Configuration	47
12.4.9. Remote Access Configuration	48
12.4.10. PCI Express Configuration	49
12.4.11. Trusted Computing	50
12.4.12. USB Configuration	51
12.5. PCI PnP Menu	52
12.6. Boot Menu	53
12.6.1. Boot Settings Configuration	54
12.6.2. Boot Device Priority	55
12.6.3. Removable Drives	55
12.7. Security Menu	56
12.8. Chipset Menu	57
12.8.1. North Bridge Configuration	58
12.8.2. South Bridge Configuration	59
12.8.3. ME Subsystem Configuration	60
12.9. Exit Menu	61

13. PCI IRQ Routing	62
13.1. PICMG PCI IRQ Routing.....	62
14. Configuring SATA for RAID.....	63
14.1. Configuring SATA Hard Drive(s) for RAID Function (Controller: Intel® Q57)	63
15. iAMT Settings	75
15.1. D.1 Entering MEBx.....	75
15.2. D.2 Set & Change Password	76
15.3. D.3 Intel® iAMT Settings.....	77
15.4. D.4 iAMT Web Console	82
16. Technical Support	84
16.1. Returning Defective Merchandise.....	84

2. Introduction

Kontron Embedded Computers would like to point out that the information contained in this manual may be subject to technical alteration, particularly as a result of the constant upgrading of Kontron Embedded Computers products. The attached documentation does not entail any guarantee on the part of Kontron Embedded Computers with respect to technical processes described in the manual or any product characteristics set out in the manual. Kontron Embedded Computers does not accept any liability for any printing errors or other inaccuracies in the manual unless it can be proven that Kontron Embedded Computers is aware of such errors or inaccuracies or that Kontron Embedded Computers is unaware of these as a result of gross negligence and Kontron Embedded Computers has failed to eliminate these errors or inaccuracies for this reason. Kontron Embedded Computers expressly informs the user that this manual only contains a general description of technical processes and instructions which may not be applicable in every individual case. In cases of doubt, please contact Kontron Embedded Computers.

This manual is protected by copyright. All rights are reserved by Kontron Embedded Computers. Copies of all or part of this manual or translations into a different language may only be made with the prior written consent of Kontron Embedded Computers. Kontron Embedded Computers points out that the information contained in this manual is constantly being updated in line with the technical alterations and improvements made by Kontron Embedded Computers to the products and thus this manual only reflects the technical status of the products by Kontron Embedded Computers at the time of printing.

© 2011 by Kontron Embedded Computers

Printing and duplication, even of sections, is only permissible with the express approval of





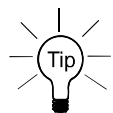
Kontron Embedded Computers GmbH

Oskar-von-Miller-Str. 1

85386 Eching near Munich

Germany



2.1. Symbols used in this Manual

Symbol	Meaning
	This symbol indicates the danger of injury to the user or the risk of damage to the product if the corresponding warning notices are not observed.
	This symbol indicates that the product or parts thereof may be damaged if the corresponding warning notices are not observed.
	This symbol indicates general information about the product and the user manual.
	This symbol indicates detail information about the specific product configuration.
	This symbol precedes helpful hints and tips for daily use.

3. Safety Instructions

3.1. Safety Instructions for the Lithium Battery

The PCI-761 board is equipped with a Lithium battery. For the replacing of this battery please observe the instructions described in the chapter 10.1 "Replacing the Lithium Battery".

	<p>Caution!</p> <p>Danger of explosion when replaced with wrong type of battery. Replace the battery only with UL recognized Lithium battery that has the same or equivalent type recommended by Kontron.</p>
	<p>Do not dispose of lithium batteries in domestic waste. Dispose of the battery according to the local regulations dealing with the disposal of these special materials (e.g. to the collecting points for the disposal of batteries).</p>

3.2. Basic Safety and EMC Compatibility

The PCI-761 board is a fixed component that shall be installed into a stationary system by applying good engineering practices and respecting the information on the intended use of the components with a view to meeting the protection requirements [refer to (a) and (b)].

The PCI-761 board was designed and manufactured, having regard to the state of the art, as to ensure that:

- (a) the electromagnetic disturbance generated does not exceed the level above which radio and telecommunications equipment or other equipment cannot operate as intended;
- (b) it has a level of immunity to the electromagnetic disturbance to be expected in its intended use which allows it to operate without unacceptable degradation of its intended use.

The PCI-761 board was designed, manufactured and checked according to the basic safety requirements in the scope of the low-voltage (LVD) directive.

4. Important Instructions

The manufacturer's instructions provide useful information on your PCI-761 board.



4.1. Electrostatic Discharge (ESD)

The components on the board are sensitive to static electricity. Care must therefore be exercised at all times during handling and inspection of the PCI-761 board, in order to ensure the product integrity.

- Do not handle this product while it is outside its protective enclosure, while it is not used for operational purposes, unless it is otherwise anti-static protected.
- Unpack or install this product only at EOS/ESD safe workstations. When safe work station are not guaranteed, it is important for the user to be electrically discharged before touching the PCI-761 board with his/her hands or tools. This is most easily done by touching a metal part of your system housing.
- Only hold the assemblies at the edge.
- Do not touch any connection pins or conductors on the assembly.

4.2. Note on the Warranty

Due to their limited service life, parts which, by their nature, are especially subject to wear (wearing parts) are not included in the guarantee beyond the legal stipulations. This applies to the batteries, for example.

4.3. Exclusion of Accident Liability Obligation

Kontron Embedded Computers shall be exempted from the statutory accident liability obligation if the user fails to observe the safety instructions.

4.4. Liability Limitation / Exemption from the Warranty Obligation

In the event of damage to the device caused by failure to observe the hints in this manual and eventually on the device (especially the safety instructions), Kontron Embedded Computers shall not be required to honor the warranty even during the warranty period and shall be exempted from the statutory accident liability obligation.

4.5. General Instruction on Usage

In order to ensure safe operation, the user must observe the instructions and warnings contained in this manual.

- The PCI-761 board must be used in accordance with the instructions for use.
- The PCI-761 board is designed to be built-in to a system, which fulfill all necessary technical and environmental requirements.
- When installing the board into a system, ensure that the system is switched off and the systems power cord is disconnected from the power source. Disconnect all cable connections of peripheral devices from the system.
- Ensure that the DC operating voltages adheres to the specification given in the section 8.1 "Electrical Specifications".
- Only devices and components which fulfill the requirements of a SELV circuit (security extra low voltage) in accordance with IEC / EN 60950-1 may be connected to the interfaces of the PCI-761 board.
- If extensions are made to the PCI-761 board, the legal stipulations and the board specifications must be observed.

5. Scope of Delivery

- 1x PCI-761 Board [PICMG 1.3 Single Board Computer (full-size)]
- Driver CD
- General Safety Instruction for IT Equipment
- Serial Part cable

Optional Parts

- CPU HEAT SINK

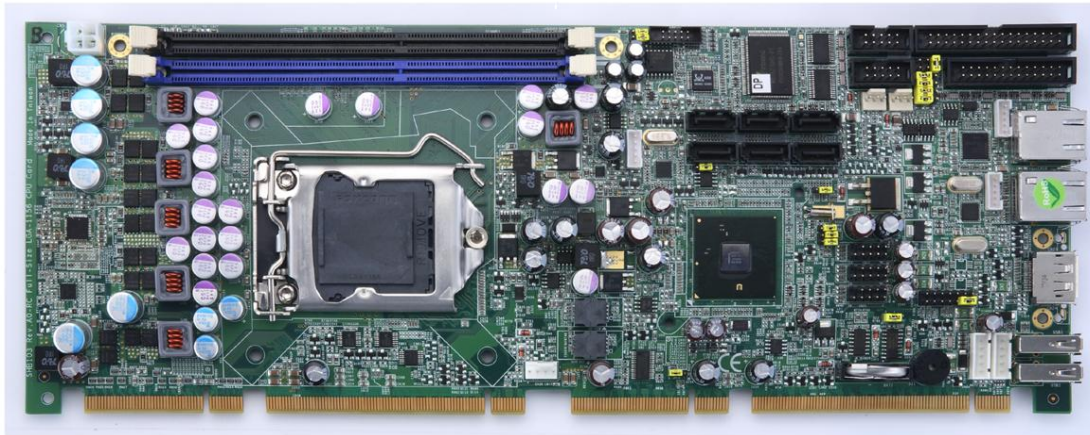
5.1. Labeling Information

Two types of printed labels on the PCI-761 board must show the following information:

1. Board identification label that has implemented: Board Designation/Serial Number/Part Number/Product Revision/QM-Field/Bar Code/Datamatrix Code
2. MAC-Address Labels

System Type	Product Designation	Product Identification
PCI-761	1042-7975	Q57 based PICMG 1.3 SBC supporting i3/i5/i7

6. Product Description



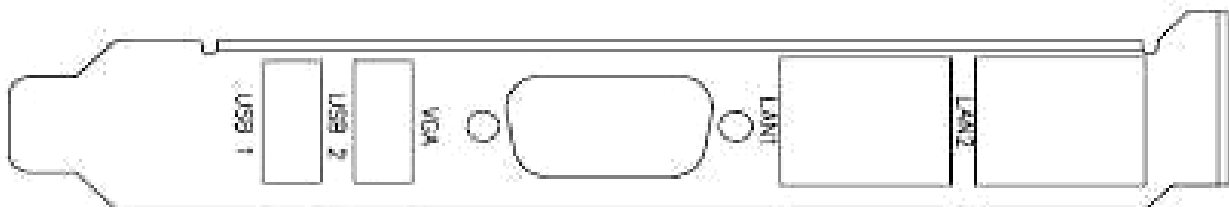
The PCI-761 PICMG 1.3 full-size Single Board Computer (SBC) supports LGA1156 socket for Intel® Pentium® Desktop Processor(G6950), Intel® Core™ i3 Desktop Processor, Intel® Core™ i5 Desktop Processor, Intel® Core™ i7-800 series Desktop Processor with 32/45nm technology and Transfer Rate 1066/1333 MHz.

The board integrates Intel® Q57 chipset that delivers outstanding system performance through high-bandwidth interfaces, multiple I/O functions for interactive applications and various embedded computing solutions.

There are four 240-pin DDR3 DIMM sockets for dual channel DDR3 1066/1333, maximum memory capacity up to 8GB (Assuming Dual Channel Mode with two x8 double sided unbuffered, non-ECC DIMM memory configuration).

The board also features dual Gigabit Ethernet, six serial ATA ports at maximum transfer rate up to 3Gbs, and SATA RAID 0/1/5/10 by ICH. Ten USB 2.0 high speed compliant ports and built-in Intel® HD Audio Digital Header can achieve the best stability and reliability for industrial applications.

6.1. I/O Bracket



7. Features

- **CPU**
 - Intel® Pentium® Desktop Processor(G6950),
 - Intel® Core™ i3 Desktop Processor,
 - Intel® Core™ i5 Desktop Processor,
 - Intel® Core™ i7-800 series Desktop Processor
- **System Chipset**
 - Intel® Q57
- **CPU Socket**
 - LGA1156 Socket
- **DRAM Transfer Rate**
 - 1066/1333 MHz
- **BIOS**
 - AMI BIOS via SPI interface with socket
- **System Memory**
 - Two 240-pin DDR3 DIMM sockets
 - Maximum up to 8GB DDR3 memory
 - Supports DDR3 1066/1333 memory
- **Onboard Multi-I/O**
 - Parallel Port: one 26-pin 2.54-pitch box-header, SPP/EPP/ECP supported
 - Serial Port: one for RS-232/422/485 with 10-pin, 2.54-pitch box-header (COM1) and one port for RS-232 with 10-pin, 2.54-pitch box-header (COM2)
 - Floppy controller: one 34-pin, 2.54-pitch box-header supports two drives (1.44MB for each)
- **VGA Controller**
 - Chipset - Intel® integrated Graphics Gen5 on Intel® Q57 supports 3D, 2D, video capabilities
 - Memory Size - Intel® DVMT 5.0 supported; pre allocated memory for frame buffer option as OS option:
 1. Windows XP:
 - * For 1 GB to 1.5 GB Total System Memory,
Graphics sharing memory = 512 MB Maximum;
 - * For 1.5 GB to 2 GB Total System Memory,
Graphics sharing memory = 768 MB Maximum;
 - * For 2 GB and Above Total System Memory,
Graphics sharing memory = 1GB Maximum.
 2. Windows Vista:
 - * Graphics sharing memory max to 0.5* (OS Ram Size – 512)
 - Resolution -- Analog output -- the analog port utilizes an integrated 350MHz 24-bit RAMDAC that can directly drive a standard progressive scan analog monitor up to a resolution of 2048x1536 pixels with 32-bit color at 75 Hz
 - Analog Output Interface -- CRT from DAC output via 15-pin D-Sub connector on the edge; CRT always ON supported

- **USB Interface**
 - Ten USB ports compliant with USB Spec. Rev. 2.0 (8 ports on PCI-761, 4 ports to SBC connector-C golden fingers)
- **Ethernet**
 - The LAN1/LAN2 are WG82578DM/WG82583V Ethernet controller support 10/100/1000 Mb/s
 - Dual PCI-Express x1 LAN
- **Serial ATA**
 - Support Serial ATA/Serial ATA II
 - Six Serial ATA-II ports, 3GB/s performance and SATA RAID 0/1/5/10 by Q57
- **Audio**
 - 10-pin 2.54 pin-header (Intel[®] HD Audio Digital Header)
- **Hardware Monitoring**
 - Monitoring temperatures, voltages, and cooling fan status
- **Watchdog Timer**
 - Reset Supported (1-255 level)
- **Dimensions**
 - 338mm x 126mm



All specifications and images are subject to change without notice.

8. Main Specifications

8.1. Electrical Specifications

Board Version	Type of the external PSU	Inputs via	
		PCI-761	ATX PSU
		On-board 12 V ATX power connector: CN5	+12V

8.2. Environmental Specifications

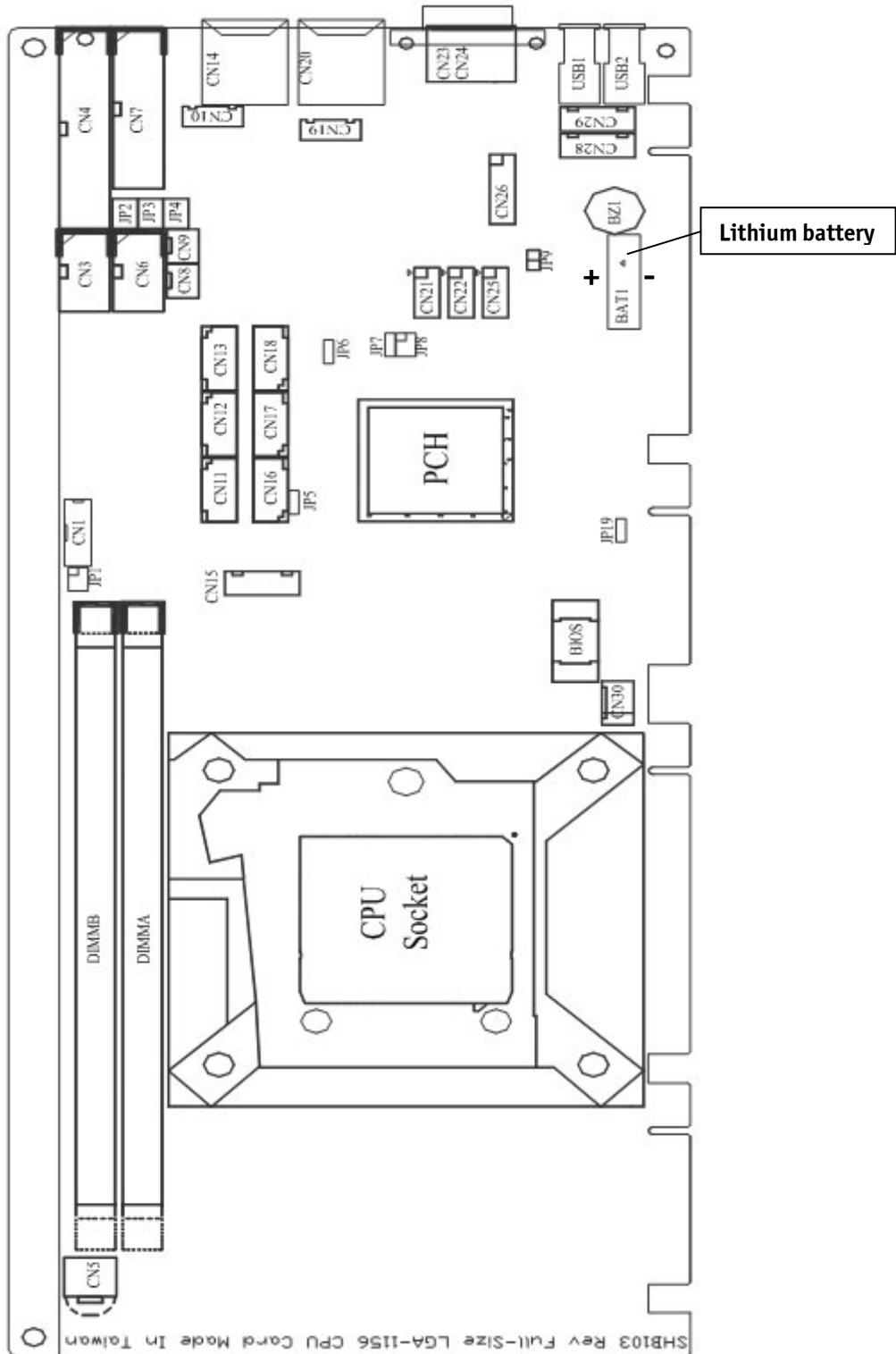
Operating Temperature	0 °C to 60 °C (32 °F to 140 °F)
Relative Humidity	10 % to 90 % (non-condensing)

8.3. CE Directives

CE Directives	
Electrical Safety	General Product Safety Directive (GPSD) 2001/95/EC Low Voltage Directive (LVD) 2006/95/EC
ElectroMagnetic Compatibility (EMC)	EMC Directive 2004/108/EC

9. Jumpers and Connectors

9.1. Board Layout



9.2. Tables with Connectors / Jumpers

Connector	Label		Connector	Label
Audio Connector	CN1		SATA 3	CN17
Case Open Setting	CN2		SATA 5	CN18
COM2	CN3		LAN1 External LED	CN19
FDD	CN4		Lan1 Output Port	CN20
CPU ATX 12V IN	CN5		USB Port 2/3	CN21
COM1	CN6		USB Port 4/5	CN22
Parallel Port	CN7		VGA Port	CN23
AUX FAN	CN8		Display Port (BOM Option)	CN24
SYS FAN	CN9		USB Port 6/7	CN25
LAN2 External LED	CN10		Axiomtek Front Panel	CN26
SATA 0	CN11		Mouse	CN28
SATA 2	CN12		Keyboard	CN29
SATA 4	CN13		CPU FAN	CN30
LAN2 Output Port	CN14		USB Port 1	USB1
SMBUS	CN15		USB Port 2	USB2
SATA 1	CN16		DDRIII CHA DIMMO	DIMMA
			DDRIII CHB DIMMO	DIMMB

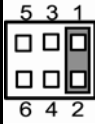


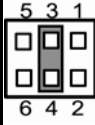


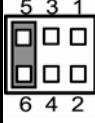
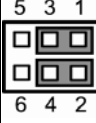
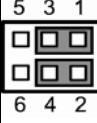
Jumper	Label		Jumper	Label
COM1 Mode Select	JP2,3,4		CMOS & RTC Clear	JP8
ATX Auto Power On/Off	JP9		CPU Clock	JP5
ME Disable	JP7		Audio Amplifier	JP1
TPM Enable	JP6,10			

9.3. Jumpers and Settings

Proper jumper settings configure the PCI-761 to meet your application purpose.

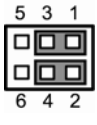
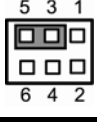
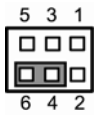
9.3.1. COM1 Mode Select Jumpers for RS-232/422/485 (JP2, JP3, JP4)

These jumpers select the COM1 port’s communication mode to operate RS-232 or RS-422/485.

Description	Function	Jumper Setting		
COM1	RS-232 (Default)	JP2 	JP3 	JP4 
	RS-422	JP2 	JP3 	JP4 
	RS-485	JP2 	JP3 	JP4 

9.3.2. CMOS & RTC Clear Jumper (JP8)

You may need to use this jumper is to clear the CMOS memory if incorrect BIOS settings.



Description	Function	Jumper Setting
CMOS & RTC Clear	Normal (Default)	
	Clear CMOS	
	Clear RTC	

9.3.3. ATX Auto Power On/Off (JP9)

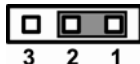
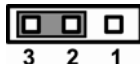
When Jumper JP9 is removed for AC power input, the system will be automatically powered ON without pressing soft power button; when JP9 is SHORT for AC power input, it is necessary to manually press soft power button to make the system power ON.



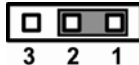
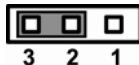
This function is similar to the feature of Power On after Power Failed, which is controlled by hardware circuitry instead of BIOS.

Description	Function	Jumper Setting
ATX Auto Power On/Off	Disable (Default)	
	Enable	

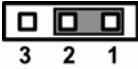
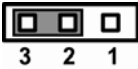
9.3.4. CPU Frequency Jumper (JP5)

Description	Function	Jumper Setting
CPU Clock	133MHz (Default)	
	100MHz	

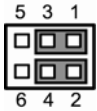
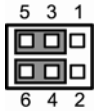
9.3.5. ME Disable/Enable Jumper (JP7)

Description	Function	Jumper Setting
ME Disable/Enable	Enable (Default)	
	Disable ME in Manufacturing Mode	

9.3.6. TPM Disable/Enable Jumper (JP6, JP10)

Description	Function	Jumper Setting
TPM Disable/ Enable	Enable (Default)	
	Disable	

9.3.7. Audio Amplifier Jumper (JP1)

Description	Function	Jumper Setting
Audio Amplifier	Disable (Default)	
	Enable	

9.4. Connectors

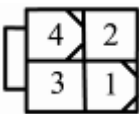
Connectors connect this board with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly and firmly connected.

Here is a summary table shows you all connectors on the board.

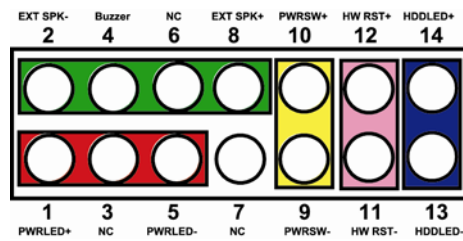
Connector	Label		Connector	Label
Audio Connector	CN1		SATA 3	CN17
Case Open Setting	CN2		SATA 5	CN18
COM2	CN3		LAN1 External LED	CN19
FDD	CN4		Lan1 Output Port	CN20
CPU ATX 12V IN	CN5		USB Port 2/3	CN21
COM1	CN6		USB Port 4/5	CN22
Parallel Port	CN7		VGA Port	CN23
AUX FAN	CN8		Display Port (BOM Option)	CN24
SYS FAN	CN9		USB Port 6/7	CN25
LAN2 External LED	CN10		Axiomtek Front Panel	CN26
SATA 0	CN11		Mouse	CN28
SATA 2	CN12		Keyboard	CN29
SATA 4	CN13		CPU FAN	CN30
LAN2 Output Port	CN14		USB Port 1	USB1
SMBUS	CN15		USB Port 2	USB2
SATA 1	CN16		DDRIII CHA DIMMO	DIMMA
			DDRIII CHB DIMMO	DIMMB

9.4.1. ATX 4 Pin 12V IN Connector (CN5)

You must connect it to the ATX12V power supply for CPU Core Voltage.

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

9.4.2. Front Panel Connector (CN26)



9.4.2.1. Power LED

This 3-pin connector denoted as Pin 1 and Pin 5 connects the system power LED indicator to such a switch on the case. Pin 1 is assigned as +, and Pin 5 as -. The Power LED lights up when the system is powered ON. Pin 3 is defined as GND.

9.4.2.2. External Speaker and Internal Buzzer Connector

Pin 2, 4, 6 and 8 can be connected to the case-mounted speaker unit or internal buzzer. While connecting the CPU card to an internal buzzer, please short pins 2-4; while connecting to an external speaker, you need to set pins 2-4 to Open and connect the speaker cable to pin 8 (+) and pin 2 (-).

9.4.2.3. ATX Power On/Off Button

This 2-pin connector denoted as Pin 9 and 10 connects the front panel's ATX power button to the CPU card, which allows users to control ATX power supply to be power on/off.

9.4.2.4. System Reset Switch

Pin 11 and 12 can be connected to the case-mounted reset switch that reboots your computer instead of turning OFF the power switch. It is a better way to reboot your system for a longer life of the system's power supply.

9.4.2.5. HDD Activity LED

This connection is linked to hard drive activity LED on the control panel. LED flashes when HDD is being accessed. Pin 13 and 14 connect the hard disk drive to the front panel HDD LED, Pin 13 assigned as -, and Pin 14 as +.

9.4.3. LAN1 LED Connectors (CN19)

Pin	Signal	
1	LINK_ACT LED (+)	
2	LINK_ACT LED (-)	
3	100, Low Active	
4	+ 3.3V	
5	1000, Low Active	

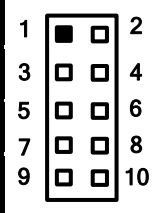
9.4.4. LAN2 LED Connectors (CN10)

Pin	Signal	
1	LINK_ACT LED (+)	
2	LINK_ACTLED (-)	
3	100, Low Active	
4	+ 3.3V	
5	1000, Low Active	

9.4.5. COM Port RS-232 Pin Assignment (CN3, CN6)

The serial interface for the board consists of CN3 port (COM2) support for RS-232, and CN6 (COM1) for RS-232/RS-422/RS-485.

Pin	Signal	Pin	Signal
1	Data Carrier Detect (DCD)	2	Data Set Ready (DSR)
3	Receive Data (RXD)	4	Request to Send (RTS)
5	Transmit Data (TXD)	6	Clear to Send (CTS)
7	Data Terminal Ready (DTR)	8	Ring Indicator (RI)
9	Ground (GND)	10	Disconnect(NI)



9.4.6. COM2 RS-422/485 Pin Assignment

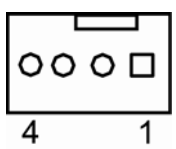
COM1 Serial Port 10-pin (Box-header) Connector Pin Assignment list

Pin #	Signal Name	
	RS-422	RS-485
1	TX-	DATA-
2	No connector	No connector
3	TX+	DATA+
4	No connector	No connector
5	RX+	No connector
6	No connector	No connector
7	RX-	No connector
8	No connector	No connector
9	GND	GND
10	NI	NI

9.4.7. CPU Fan Connector (CN30)

A CPU fan is always needed for cooling CPU heat. The CPU fan connector CN30 provides power to the CPU fan.

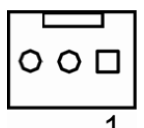
Pin	Signal
1	Ground
2	+12V
3	Rotation Detection
4	Speed Control



9.4.8. System & Auxiliary Fan Connectors (CN9, CN8)

You can connect the system cooling fan cable to CN9/CN8 for system cooling fan power.

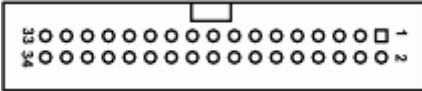
Pin	Signal
1	Ground
2	+12V
3	Rotation Detection



9.4.9. Floppy Disk Port Connector (CN4)

The board provides a 34-pin header type connector, CN4, supporting up to two floppy drives. The floppy drives may be any one of the following types: 5.25" 360KB/1.2MB and 3.5" 720KB/1.44MB/2.88MB.

Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	Drive Density Select	3	GND
4	No connector	5	GND	6	No connector
7	GND	8	Index#	9	GND
10	Motor enable A#	11	GND	12	No connector
13	GND	14	Drive select A#	15	GND
16	No connector	17	GND	18	Direction#
19	GND	20	STEP#	21	GND
22	Write data#	23	GND	24	Write gate#
25	GND	26	Track 0 #	27	GND
28	Write protect#	29	No connector	30	Read data#
31	GND	32	Head selection#	33	No connector
34	Disk change#				



9.4.10. Intel® HD Audio Digital Header (CN1)

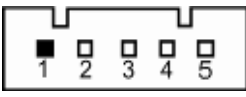
Pin	Signal	Pin	Signal
1	MTC IN	2	GND
3	LINE IN L	4	GND
5	LINE IN R	6	GND
7	LINE OUT L	8	GND
9	LINE OUT R	10	GND



9.4.11. PS/2 Keyboard, Mouse Connectors (CN28, CN29)

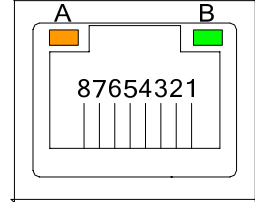
The board provides the Mouse (CN28)/ Keyboard (CN29) interface with a 5-pin connector.

Pin	Signal
1	Clock
2	DATA
3	No connector
4	GND
5	+5V



9.4.12. Ethernet RJ-45 Connectors (CN14, CN20)

The RJ-45 connectors LAN1 and LAN2 are for Ethernet. To connect the board to 100-Base-T or 1000-Base-T hub, just plug one end of the cable into LAN1 and connect the other end (phone jack) to a 100-Base-T hub or 1000-Base-T hub.

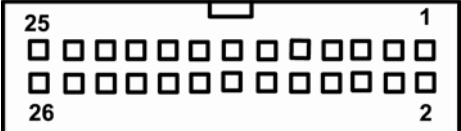
Pin	Signal	
1	Tx+ (Data transmission positive)	
2	Tx- (Data transmission negative)	
3	Rx+ (Data reception positive)	
4	RJ-1 (For 1000 base T-Only)	
5	RJ-1 (For 1000 base T-Only)	
6	Rx- (Data reception negative)	
7	RJ-1 (For 1000 base T-Only)	
8	RJ-1 (For 1000 base T-Only)	
A	Active LED	
B	Speed LED	

9.4.13. Parallel Port Connector (CN7)

This board has a multi-mode parallel port to support:

1. Standard Mode:
IBM PC/XT, PC/AT and PS/2™ are compatible with bi-directional parallel port.
2. Enhanced Mode:
Enhance parallel port (EPP) is compatible with EPP 1.7 and EPP 1.9 (IEEE 1284 compliant).
3. High Speed Mode:
Microsoft and Hewlett Packard extended capabilities port (ECP) is IEEE 1284 compliant.


Pin	Signal	Pin	Signal
1	Strobe#	2	Auto Form Feed#
3	Data 0	4	Error#
5	Data 1	6	Initialize#
7	Data 2	8	Printer Select In#
9	Data 3	10	GND
11	Data 4	12	GND
13	Data 5	14	GND
15	Data 6	16	GND
17	Data 7	18	GND
19	Acknowledge#	20	GND
21	Busy	22	GND
23	Paper Empty#	24	GND
25	Printer Select	26	GND



9.4.14. SATA Connectors (CN11, CN12, CN13, CN16, CN17, CN18)

These SATA connectors are for high-speed SATA interface ports and they can be connected to hard disk devices.

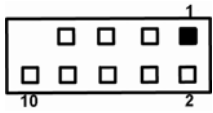
Pin	Signal
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND



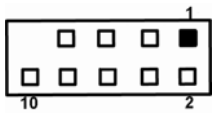
9.4.15. Internal USB Connectors (CN21, CN22, CN25)

The 10-pin standard Universal Serial Bus (USB) connectors, CN21/22/25, on this board are for installing versatile USB interface peripherals.

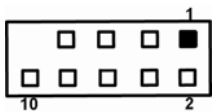
Pin	Signal	Pin	Signal
1	USB_PWR	2	USB_PWR
3	USB2-	4	USB3-
5	USB2+	6	USB3+
7	GND	8	GND
		10	GND



Pin	Signal	Pin	Signal
1	USB_PWR	2	USB_PWR
3	USB4-	4	USB5-
5	USB4+	6	USB5+
7	GND	8	GND
		10	GND





Pin	Signal	Pin	Signal
1	USB_PWR	2	USB_PWR
3	USB4-	4	USB5-
5	USB4+	6	USB5+
7	GND	8	GND
		10	GND



9.4.16. External USB Port Connectors (USB1, USB2)

The 4-pin standard Universal Serial Bus (USB) port connector on the board is for the installation of peripherals supporting the USB interface.

Pin	Signal
1	USB_POWER
2	USB -
3	USB +
4	GND

9.4.17. DB15 VGA Connector (CN23)

CN23 is a DB15 connector commonly used for the CRT Monitor.

Pin	Signal	Pin	Signal	Pin	Signal
1	Red	2	Green	3	Blue
4	NC	5	GND	6	DETECT
7	GND	8	GND	9	VCC
10	GND	11	NC	12	DDC DATA
13	Horizontal Sync	14	Vertical Sync	15	DDC CLK

10. Lithium Battery

PCI-76 is provided with a 3.0 V "coin cell" lithium battery for the RTC operation and CMOS Setup RAM. Please observe the chapter 3.1 "Safety Instructions for the Lithium Battery".

10.1. Replacing the Lithium Battery

To replace the battery please proceed as follows:

1. Turn the power off.
2. If your system is equipped with expansion cards, remove them first, if necessary.
3. Remove the battery by pressing outwards the ejector spring.
4. Insert the new battery into the socket.
5. Make sure that you insert the battery correctly. The minus pole must be positioned as marked in the picture included in the section 9.1 "Board Layout".

The lithium battery must be replaced with an identical battery or a battery type recommended by Kontron Embedded Computers (Lithium battery 3.0 V for RTC, type: CR2032).

**Caution!**

Danger of explosion when replaced with wrong type of battery. Replace the battery only with UL recognized Lithium battery that has the same or equivalent type recommended by Kontron.



Do not dispose of lithium batteries in domestic waste. Dispose of the battery according to the local regulations dealing with the disposal of these special materials (e.g. to the collecting points for the disposal of batteries).

11. Hardware Description

11.1. Processors

The PCI-761 Series supports Intel® Core™ 2 Quad / Core™ 2 Duo/Celeron® processors, which make your system operated under Windows® XP and Linux environments. The system performance depends on the processor. Make sure all correct settings are arranged for your installed processor to prevent the CPU from damages.

11.2. BIOS

The PCI-761 Series uses AMI Plug and Play BIOS with a single 32Mbit SPI Flash.

11.3. System Memory

The PCI-761 supports four 240-pin DDR3 DIMM sockets for a maximum memory of 8GB DDR3 SDRAMs. The memory module can come in sizes of 1GB, 2GB and 4GB.

11.4. Hardware Installation

Before installing the processor, please access Intel® website for more detailed information

Processor Integration Video (LGA1156):

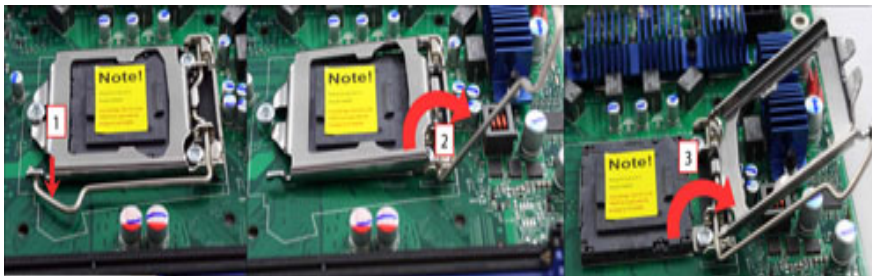
<http://www.intel.com/support/tw/processors/sb/CS-030860.htm> .

11.4.1. Installing the Processor

The LGA1156 processor socket comes with a cover to protect the processor. Please install the processor into the CPU socket step by step as below:

Step1: Opening the Socket

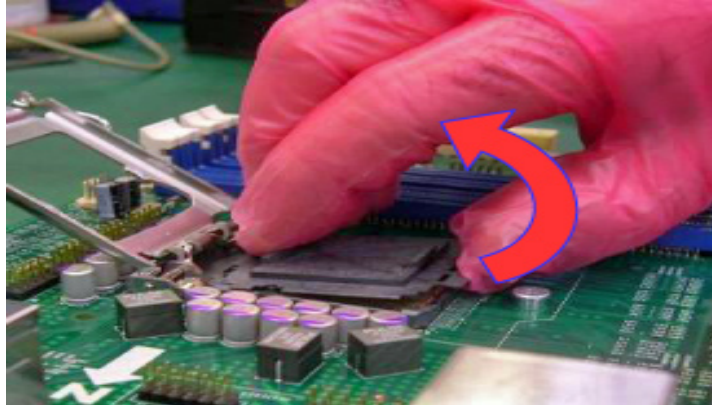
1. Disengage load lever by releasing down and out on the hook. This will clear retention tab.
2. Rotate load lever to open position at approximately 135°.
3. Rotate load plate to open position at approximately 150°.



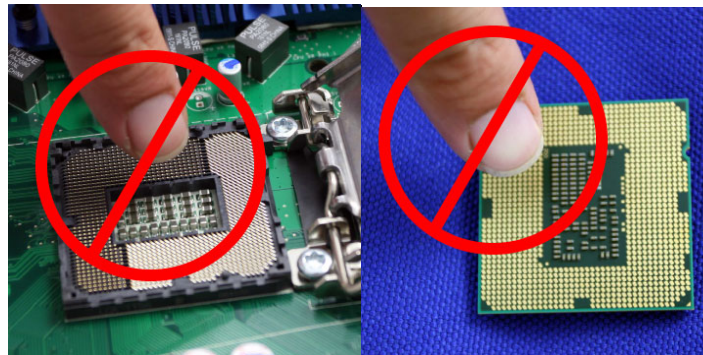
Apply pressure to corner with right-hand thumb when opening or closing load lever - otherwise lever will bounce back (as a mouse trap) causing bent contacts.

Step 2: Removing the socket protective cover

1. Place thumb against the front edge of the protective cover and rest index finger on the rear grip to maintain control of the cover.
2. Lift the front edge of the protective cover to disengage from the socket. Keep control of the cover by holding the rear grip with index finger.
3. Lift protective cover away from the socket, being careful not to touch the electrical contacts.



Vertical removal is NOT recommended, as it requires higher force and can lead to socket contact damage.



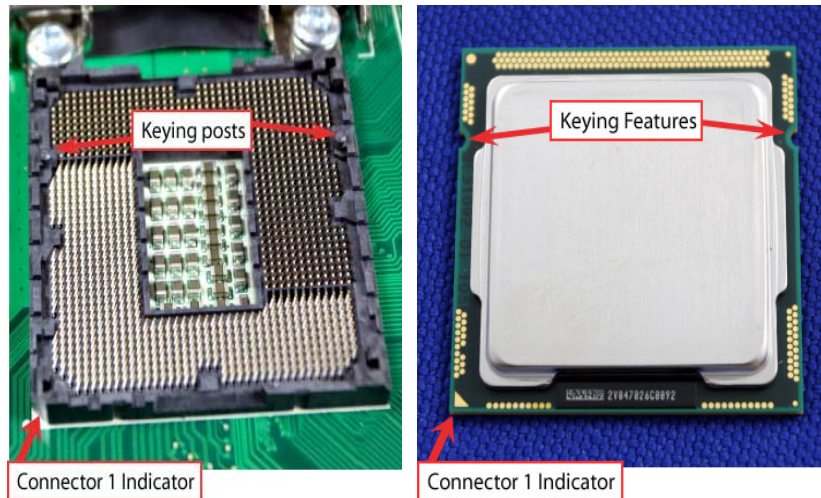
Never Touch Fragile Socket Contacts to Avoid Damage and DO NOT TOUCH PROCESSOR SENSITIVE CONTACTS AT ANY TIME DURING INSTALLATION.

Step 3: Processor installation



1. Lift processor package from shipping media by grasping the substrate edges. Scan the processor package gold pads for any presence of foreign material. If necessary, the gold pads can be wiped clean with a soft lint-free cloth and isopropyl alcohol.

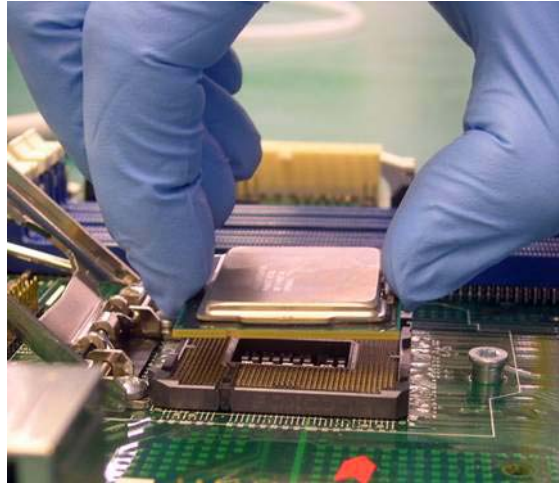


2. Scan the processor package gold pads for any presence of foreign material. If necessary, the gold pads can be wiped clean with a soft lint-free cloth and isopropyl alcohol.
3. Locate connection 1 indicator on the processor which aligns with connection 1 indicator chamfer on the socket, and notice processor keying features that line up with posts along socket walls.

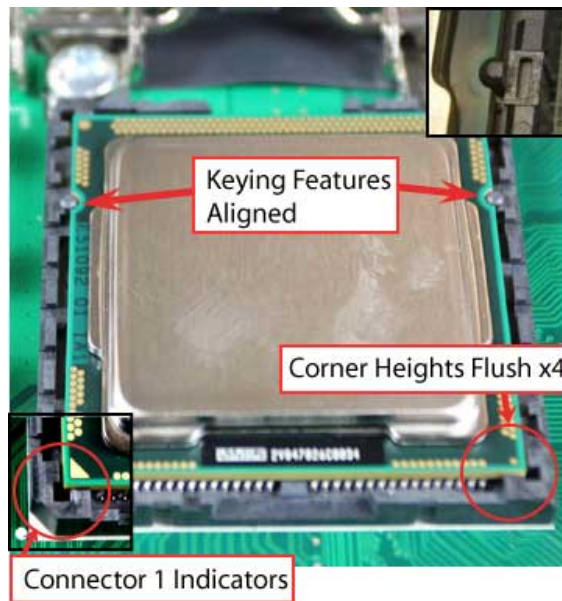


4. Grasp the processor with thumb and index finger along the top and bottom edges. (Do not touch the Orientation Notches.) The socket will have cutouts for your fingers to fit into (see image below).
5. Carefully place the processor into the socket body vertically (see image below).

	<p>Tilting or roughly shifting it into place can damage socket contacts.</p>
	<p>Do not use a vacuum pen for installation.</p>

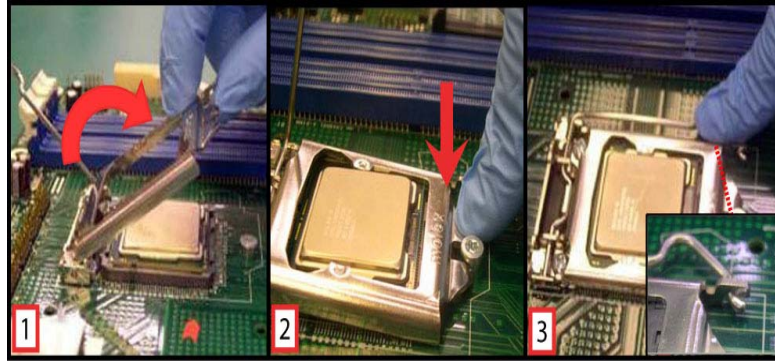


6. Verify that package is within the socket body and properly connected to orientation keys.



7. Close the socket (see image below):

- a. Gently lower the load plate.
- b. Make sure load plate's front edge slides under the shoulder screw cap as the lever is lowered.
- c. Latch the lever under the top plate's corner tab, being cautious not to damage the motherboard with the tip of the lever.

**Step 4: Fan heatsink handling**

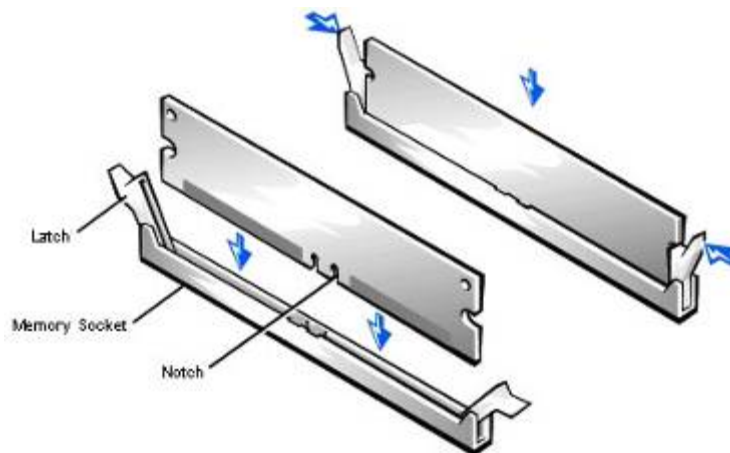
1. Orientate the CPU cooling fan to fixing holes on the board.
2. Screw the CPU cooling fan onto the board.
3. Make sure the CPU fan is plugged to the CPU fan connector.

11.5. Installing the Memory

The board supports four 240-pin DDR3 DIMM memory sockets with maximum memory capacity up to 8GB.

Please follow the steps below to install the memory modules:

1. Push down latches on each side of the DIMM socket.
2. Align the memory module with the socket that notches of memory module must match the socket keys for a correct installation.
3. Install the memory module into the socket and push it firmly down until it is fully seated. The socket latches are levered upwards and clipped on to the edges of the DIMM.
4. Install any remaining DIMM modules.



12. AMI BIOS Utility

This chapter provides users with detailed description how to set up basic system configuration through the AMIBIOS8 BIOS setup utility.

12.1. Starting

To enter the setup screens, follow the steps below:

1. Turn on the computer and press the key immediately.
2. After you press the <Delete> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Chipset and Power menus.

12.2. Navigation Keys

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.

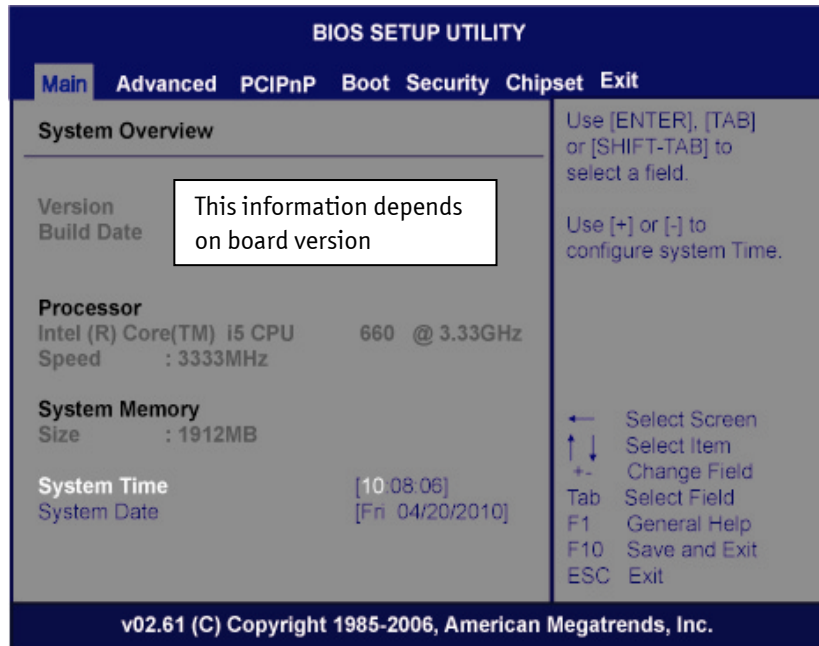


Some of navigation keys differ from one screen to another.

← Left/Right	The Left <Arrow> keys allow you to select a setup screen.
↑↓ Up/Down	The Up and Down <Arrow> keys allow you to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys allow you to change the field value of a particular setup item.
Tab	The <Tab> key allows you to select setup fields.
F1	The <F1> key allows you to display 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.

12.3. Main Menu

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.



12.3.1. System Time

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.

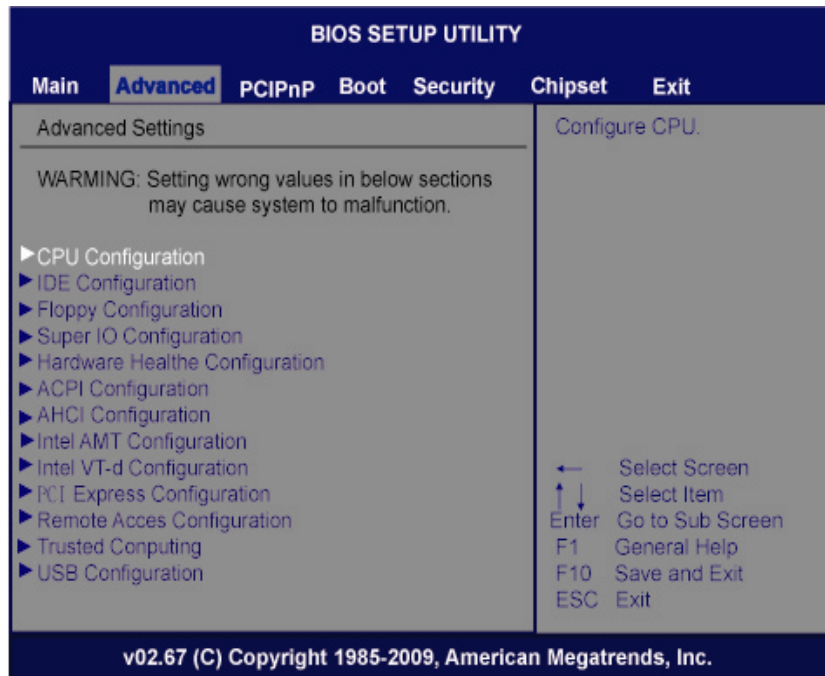
12.4. Advanced Menu

The Advanced menu allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus (refer to the picture below).



Important

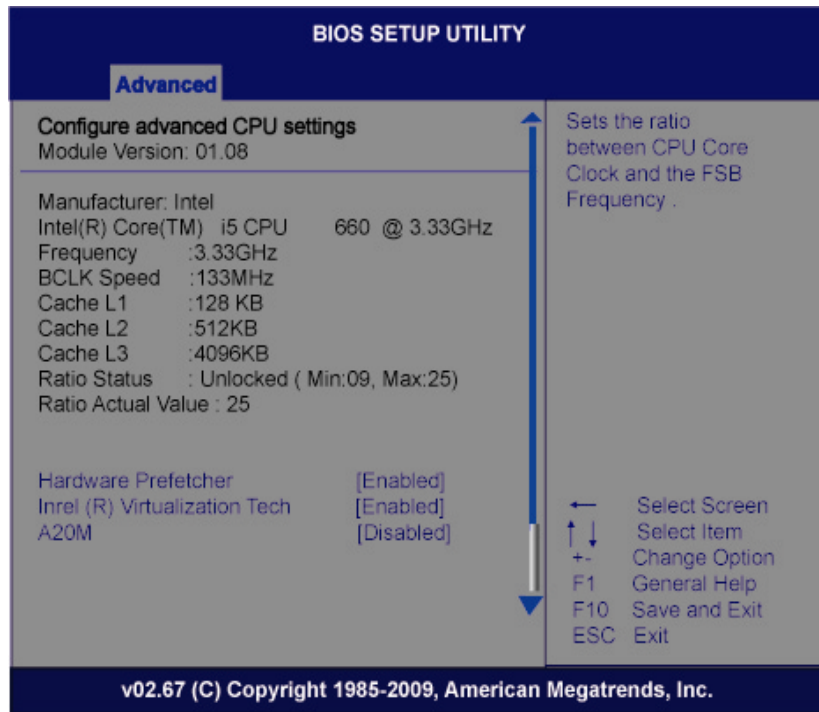
Setting incorrect field values may cause the system to malfunction.



For items marked with "▶", please press <Enter> for more options.

12.4.1. CPU Configuration

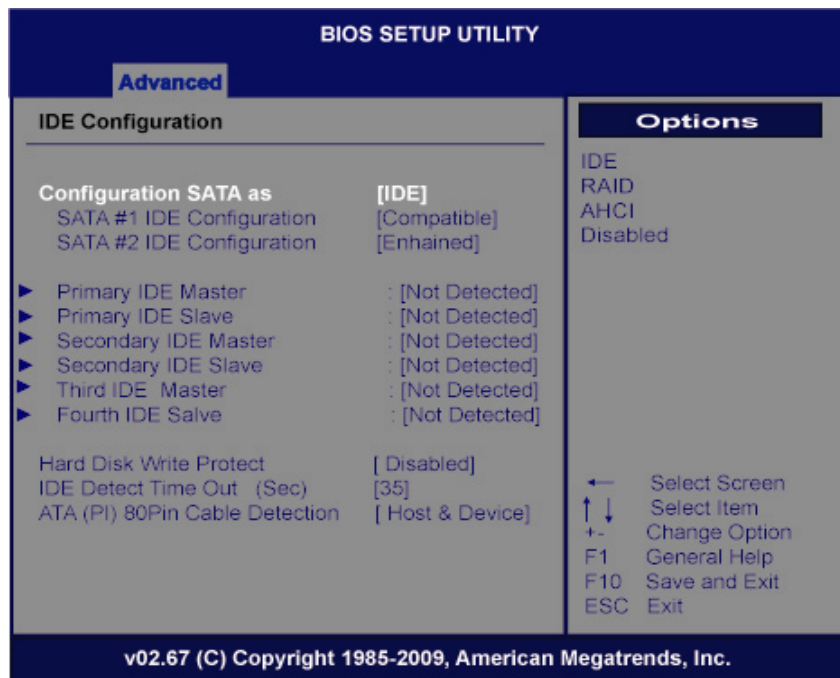
This screen shows the CPU Configuration, and you can change the value of the selected option.



- **Max CPUID Value Limit**
You can enable this item to let legacy operating systems boot even without support for CPUs with extended CPU ID functions.
- **Execute-Disable Bit Capability**
This item helps you enable or disable the No-Execution Page Protection Technology.
- **Core Multi-Processing**
This feature controls the functionality of the Core Multi-Processing to allow the processor to execute multitasking function.
- **PECI**
Use this item PECI (Platform Environment Control Interface) to execute the processor temperature monitoring and management.
- **Intel (R) C-STATE tech**
Use this item to enable or disable the C-State technology.

12.4.2. IDE Configuration

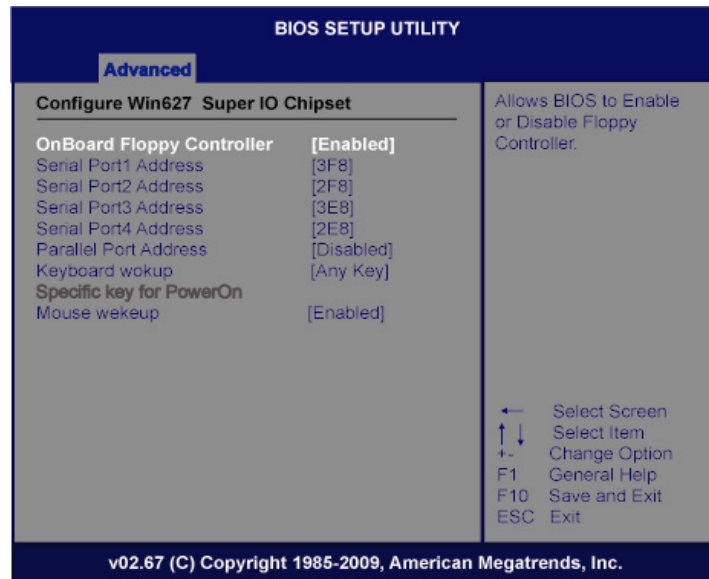
You can use this screen to select options for the IDE Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen. For items marked with "►", please press <Enter> for more options.



- **SATA#1 Configuration**
Use this item to control the onboard SATA controller. Here are the options for your selection, *Compatible*, *Disabled*, and *Enhanced*.
- **Configure SATA#1 as**
Use this item to choose the SATA operation mode. Here are the options for your selection, *IDE* and *AHCI*.
- **SATA#2 Configuration**
Use this item to control the onboard SATA controller. Here are the options for your selection, *Enhanced* and *Disabled*.
- **Primary/Secondary/Third IDE Master**
Select one of the hard disk drives to configure IDE devices installed in the system by pressing <Enter> for more options.
- **Fifth IDE Master**
Select one of the hard disk drives to configure IDE devices installed in the system by pressing <Enter> for more options.

12.4.3. SuperIO Configuration

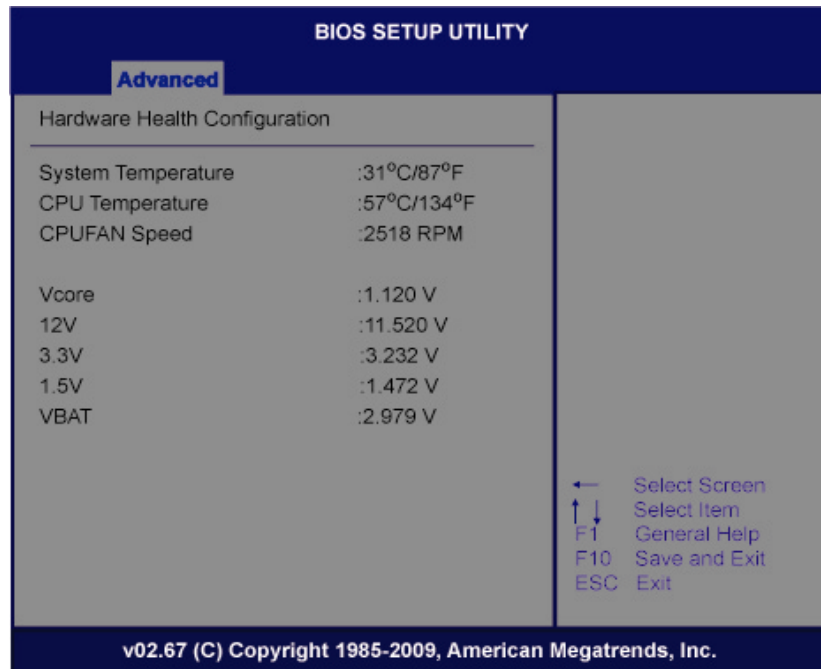
You can use this screen to select options for the SuperIO Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



- **Serial Port1 Address**
This option specifies the base I/O port address and Interrupt Request address of serial port 1. The Optimal setting is 3F8/IRQ4. The Fail-Safe default setting is *Disabled*.
- **Serial Port2 Address**
This option specifies the base I/O port address and Interrupt Request address of serial port 2. The Optimal setting is 2F8/IRQ3. The Fail-Safe setting is *Disabled*.
- **Parallel Port Address**
This item allows you to determine the I/O address for onboard parallel port. There are several options for your selection.
 - **Parallel Port Mode**
Select an operating mode for the onboard parallel (printer) port.
 - **Parallel Port IRQ**
Use this item to set up the IRQ for onboard parallel port.
- **Serial Port3 Address**
This item specifies the base I/O port address and Interrupt Request address of serial port 3. The Optimal setting is 3E8/IRQ11. The Fail-Safe default setting is *Disabled*.
- **Serial Port3 IRQ**
This item specifies the IRQ used by the serial port 3.
- **Serial Port4 Address**
This item specifies the base I/O port address and Interrupt Request address of serial port 4. The Optimal setting is 2E8/IRQ10. The Fail-Safe default setting is *Disabled*.
- **Serial Port4 IRQ**
This item specifies the IRQ used by the serial port 4.

12.4.4. Hardware Health Configuration

This screen shows the Hardware Health Configuration, and a description of the selected item appears on the right side of the screen.



➤ H/W Health Configuration

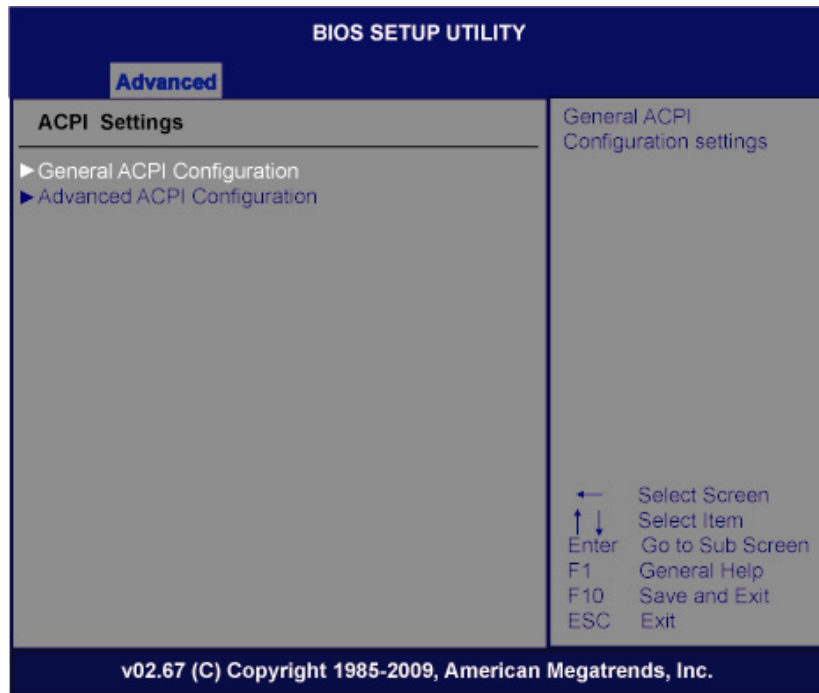
This screen displays the temperature of CPU and System, Fan Speed, Vcore, etc.



Only connected FANs are shown.

12.4.5. ACPI Configuration

You can use this screen to select options for the ACPI Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



➤ **General ACPI Configuration**

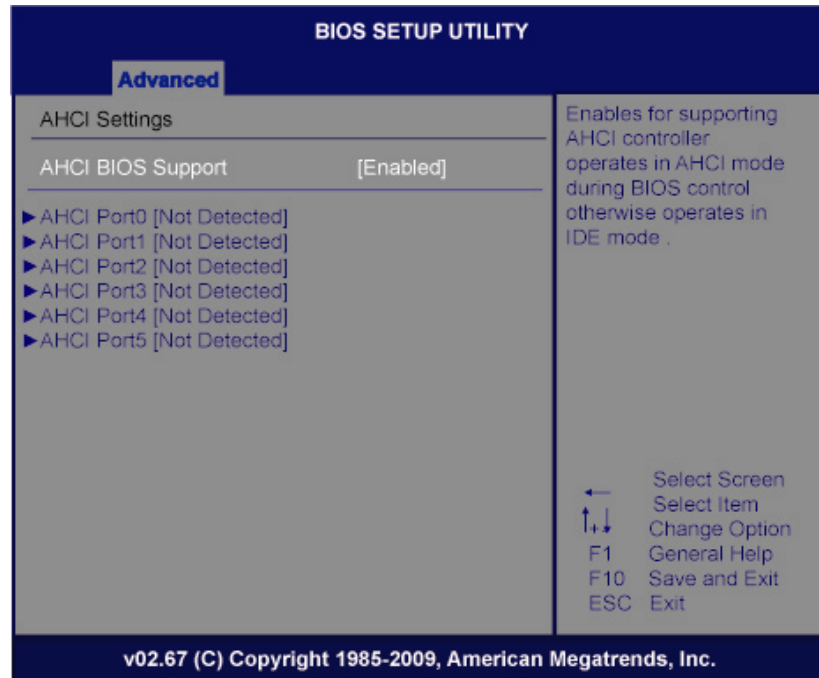
Scroll to this item and press <Enter> to view the General ACPI Configuration sub menu, which contains General ACPI (Advanced Configuration and Power Management Interface) options for your configuration.

➤ **Advanced ACPI Configuration**

Scroll to this item and press <Enter> to view the Advanced ACPI Configuration sub menu, which contains Advanced ACPI (Advanced Configuration and Power Management Interface) options for your configuration.

12.4.6. AHCI Configuration

You can use this screen to select options for the AHCI Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.

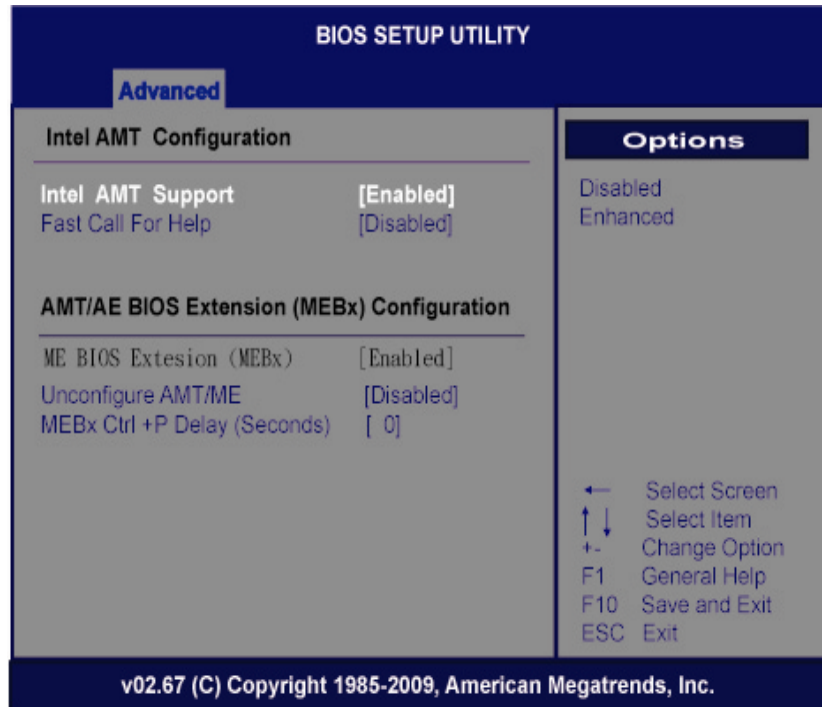


➤ **AHCI BIOS Support**

You can enable or disable this item to control the AHCI function of the SATA controller.

12.4.7. Intel AMT Configuration

You can use this screen to select options for the Intel AMT Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



➤ **Intel AMT Support**

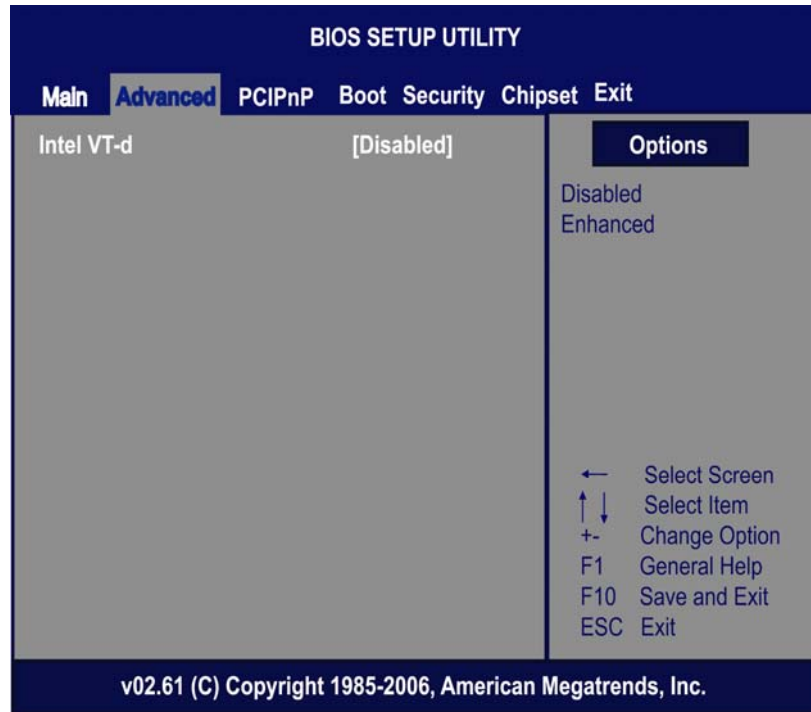
You can enable this item to support AMT (active management technology) function to follow up the procedure for the access to AMI program screen.

➤ **Unconfigure AMT/ME**

Use this item to unconfigure the AMT/ME settings.

12.4.8. Intel VT-d Configuration

You can use this screen to select options for the Intel VT-d Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



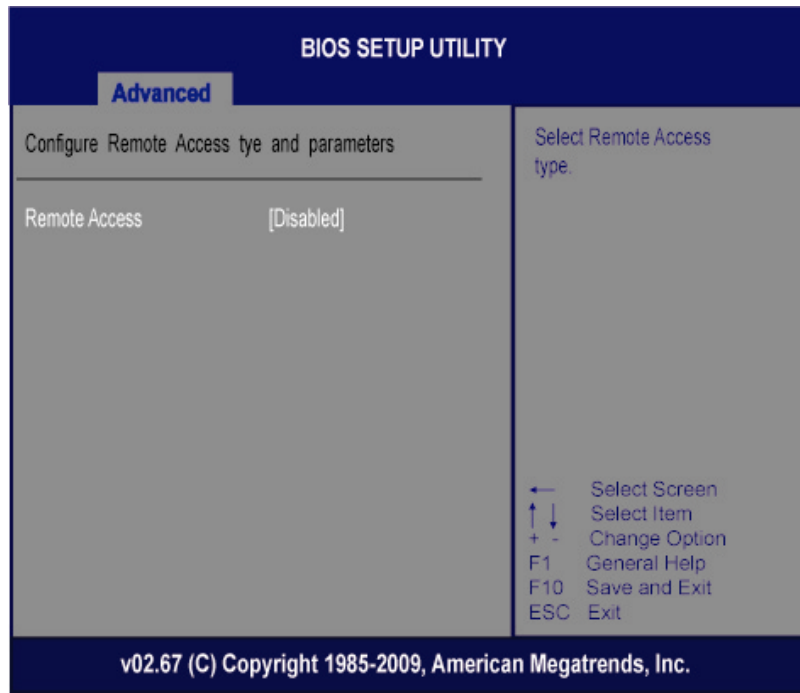
➤ Intel VT-d

Virtualization Technology for Directed I/O (VT-d) extends Virtualization Technology (VT) roadmap, by providing hardware assists for virtualization solution.

VT-d can help end users improve security and reliability of the systems and also improve performance of I/O devices in virtualized environment. Here are the options for your selection, *Disabled* and *Enabled*.

12.4.9. Remote Access Configuration

You can use this screen to select options for the Remote Access Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.

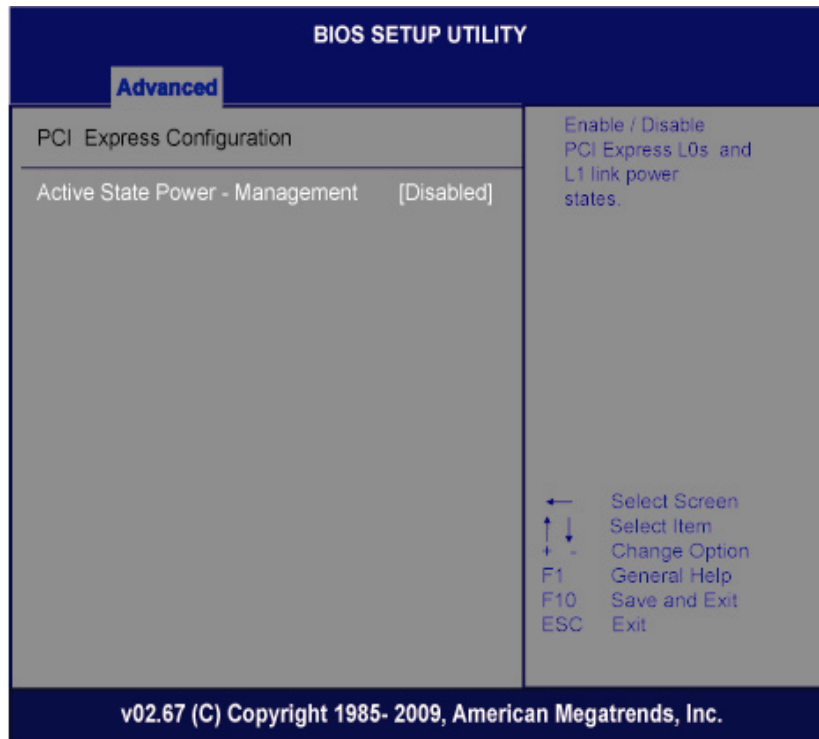


➤ Remote Access

Use this item to enable or disable the Remote Access function.

12.4.10. PCI Express Configuration

This screen shows the PCI Express Configuration, and you can change its value. A description of the selected item appears on the right side of the screen.

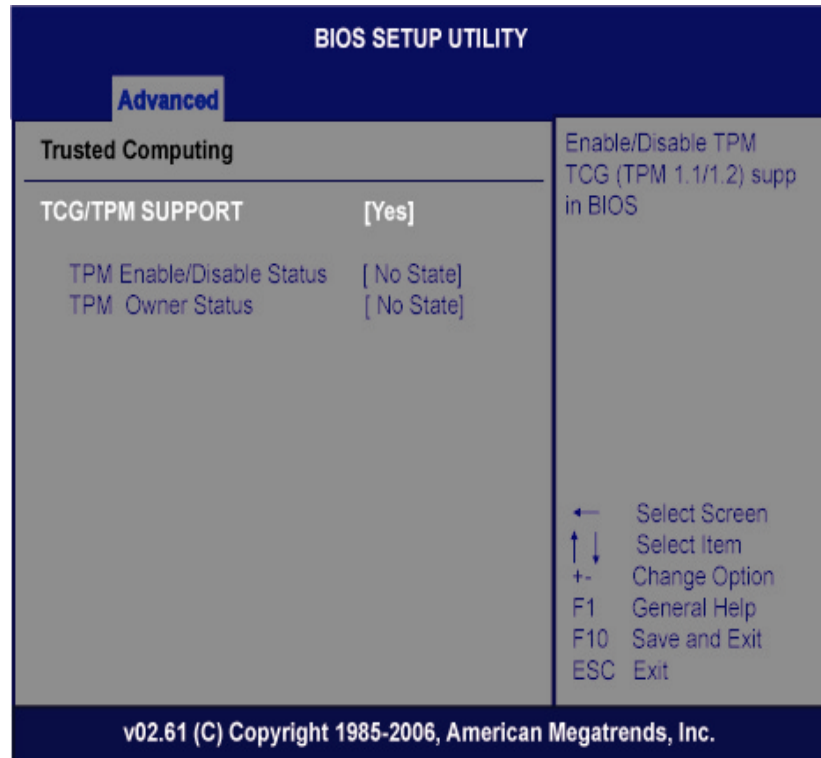


➤ **Active State Power-Management**

Use this item to enable or disable the function of Active State Power-Management to provide you with lower power consumption. The default setting is *Disabled*.

12.4.11. Trusted Computing

You can use this screen to select options for the Trusted Computing, and change the value of the selected option. A description of the selected item appears on the right side of the screen.

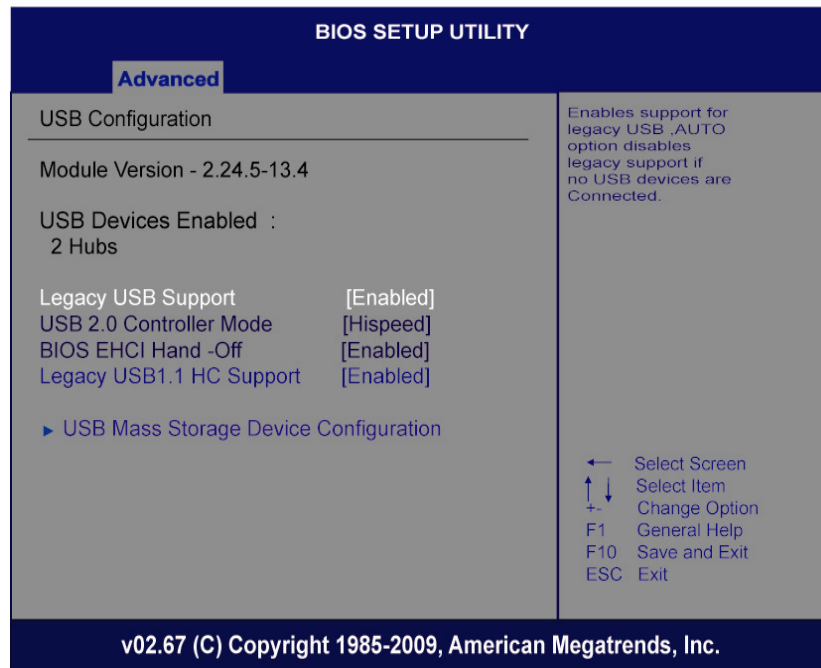


➤ TCG/TPM SUPPORT

Use this item to control the Trusted Platform Module (TPM) function.

12.4.12. USB Configuration

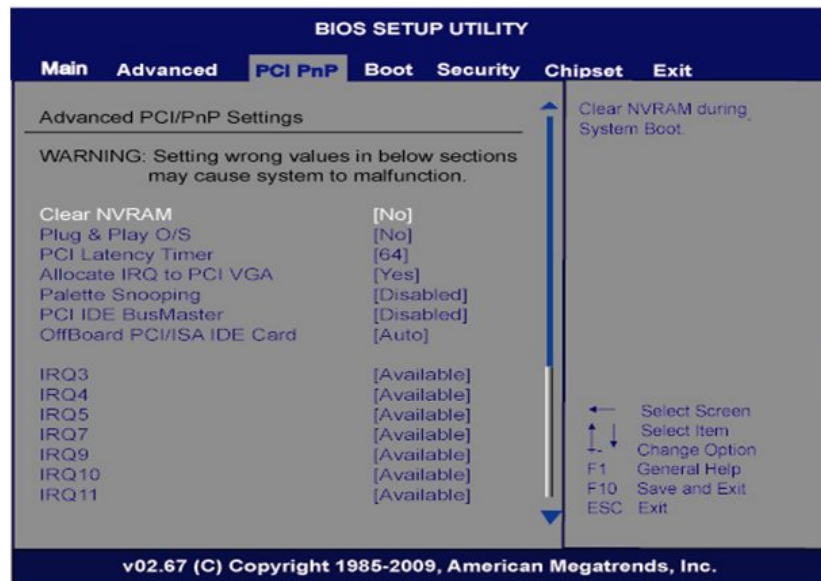
You can use this screen to select options for the USB Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



- **USB Functions**
This item allows you to enable or disable USB functions.
- **Legacy USB Support**
Use this item to enable or disable support for USB device on legacy operating system. The default setting is *Enabled*.
- **USB 2.0 Controller Mode**
Use this item to configure the USB 2.0 controller. The default setting is *HiSpeed*.
- **BIOS EHCI Hand-Off**
Enabling this item provide the support for operating systems without an EHCI hand-off feature. The default setting is *Enabled*.

12.5. PCI PnP Menu

The PCI PnP menu allows users to change the advanced settings for PCI/PnP devices.



➤ Clear NVRAM

Use this item to clear the data in the NVRAM (CMOS). Here are the options for your selection, *No* and *Yes*.

➤ Plug & Play O/S

When the setting is *No*, use this item to configure all the devices in the system. When the setting is *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 default setting is *No*.

➤ PCI Latency Timer

This item controls how long a PCI device can hold the PCI bus before another takes over. The longer the latency, the longer the PCI device can retain control of the bus before handing it over to another PCI device. There are several options for your selection.

➤ Allocate IRQ to PCI VGA

This item allows BIOS to choose an IRQ to assign for the PCI VGA card. Here are the options for your selection, *No* and *Yes*.

➤ Palette Snooping

Some old graphic controllers need to “snoop” on the VGA palette, and then map it to their display as a way to provide boot information and VGA compatibility. This item allows such snooping to take place. Here are the options for your selection, *Disabled* and *Enabled*.

➤ PCI IDE BusMaster

This item is a toggle for the built-in driver that allows the onboard IDE controller to perform DMA (Direct Memory Access) transfer. Here are the options for your selection, *Disabled* and *Enabled*.

➤ OffBoard PCI/ISA IDE Card

This item is for any other non-onboard PCI/ISA IDE controller adapter. There are several options for your selection.

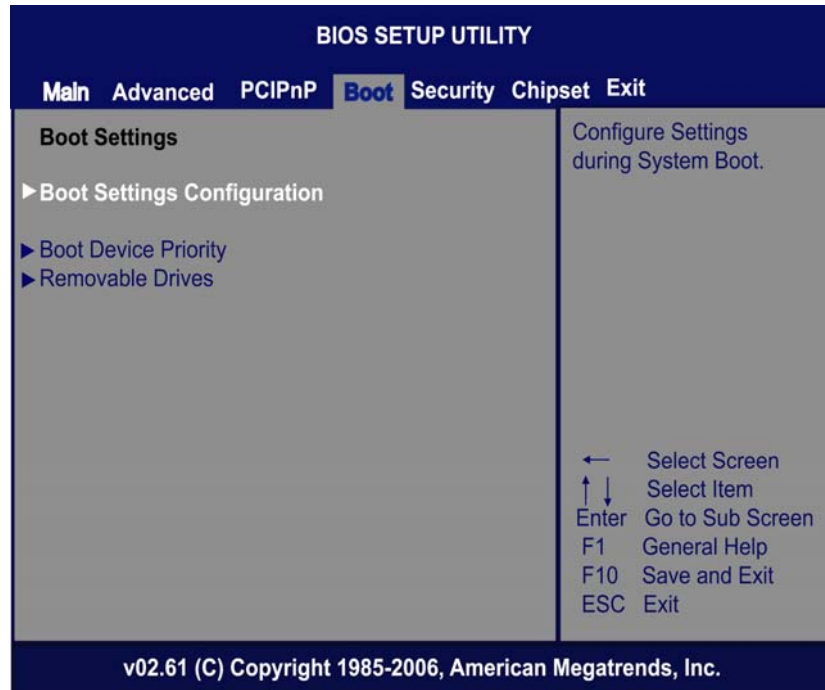
➤ IRQ3/4/5/7/9/10/11/

These items will allow you to assign each system interrupt a type, depending on the type of device using the interrupt. The option “*Available*” means the IRQ is going to assign automatically. Here are the options for your selection, *Available* and *Reserved*.

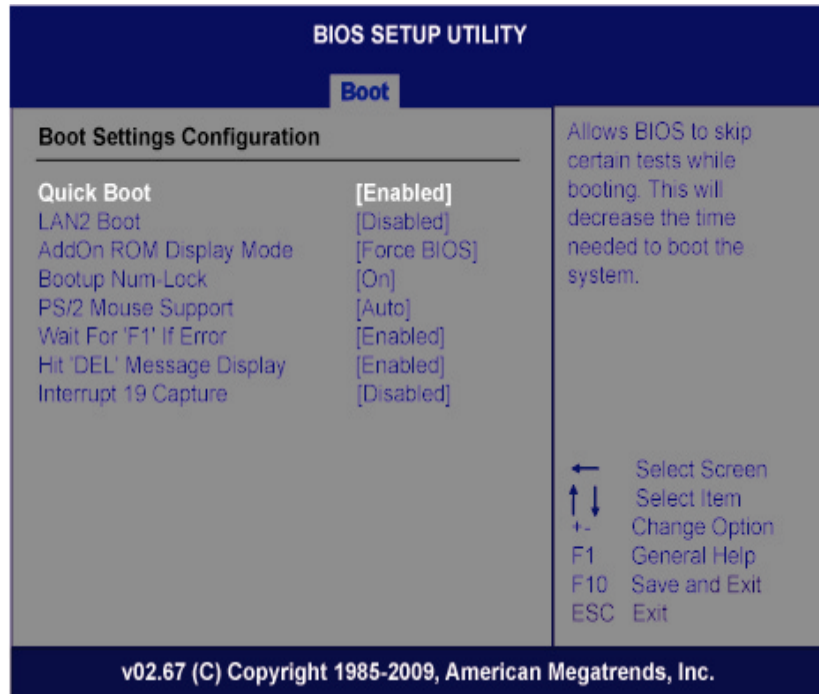
12.6. Boot Menu

The Boot menu allows users to change boot options of the system. You can select any of the items in the left frame of the screen to go to the sub menus (refer to the picture below).

For items marked with "▶", please press <Enter> for more options.



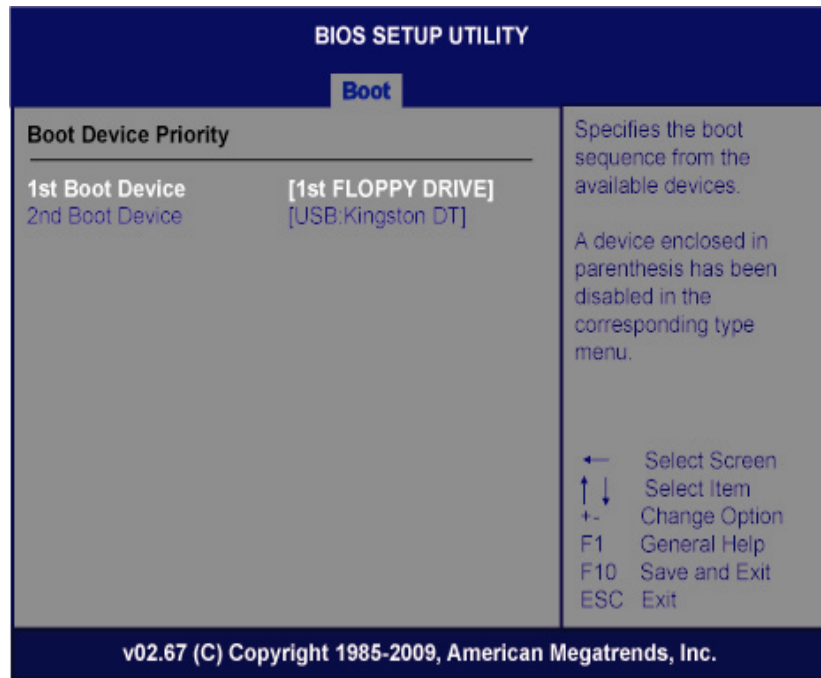
12.6.1. Boot Settings Configuration



- **Quick Boot**
Enabling this item lets the BIOS skip some power on self tests (POST). The default setting is *Enabled*.
- **AddOn ROM Display Mode**
This item selects the display mode for option ROM. The default setting is *Force BIOS*.
- **Boot Num-Lock**
Use this item to select the power-on state for the NumLock. The default setting is *On*.
- **PS/2 Mouse Support**
This item determines if the BIOS should reserve IRQ12 for the PS/2 mouse or allow other devices to make use of this IRQ. Here are the options for your selection, *Auto*, *Enabled* and *Disabled*.
- **Wait For 'F1' Of Error**
If this item is enabled, the system waits for the F1 key to be pressed when error occurs. The default setting is *Enabled*.
- **Hit 'DEL' Message Display**
If this item is enabled, the system displays the message "Press DEL to run Setup" during POST. The default setting is *Enabled*.
- **Interrupt 19 Capture**
If this item is enabled, this function makes the option ROMs to trap Interrupt 19. The default setting is *Disabled*.

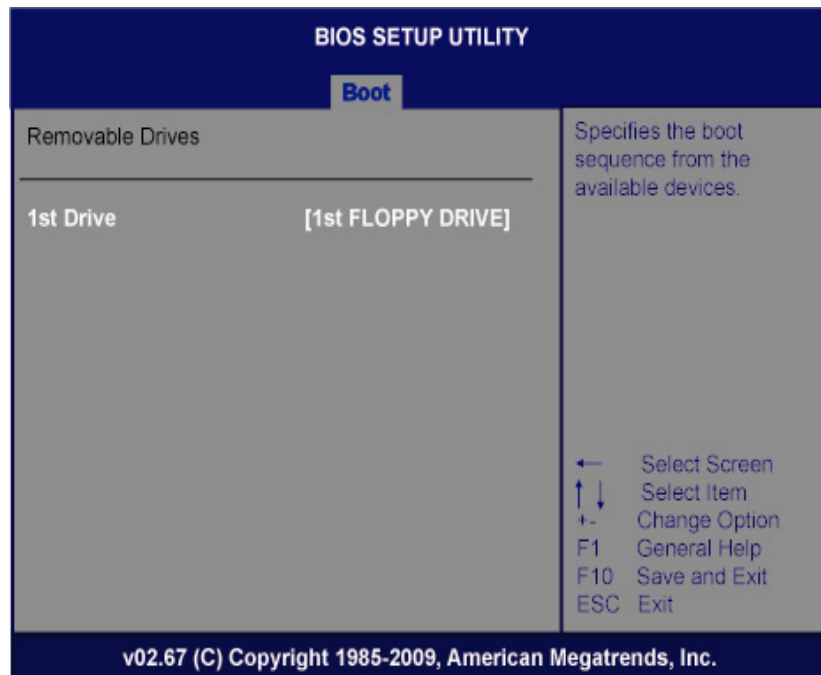
12.6.2. Boot Device Priority

The Boot Device Priority screen specifies the boot device priority sequence from the available devices.



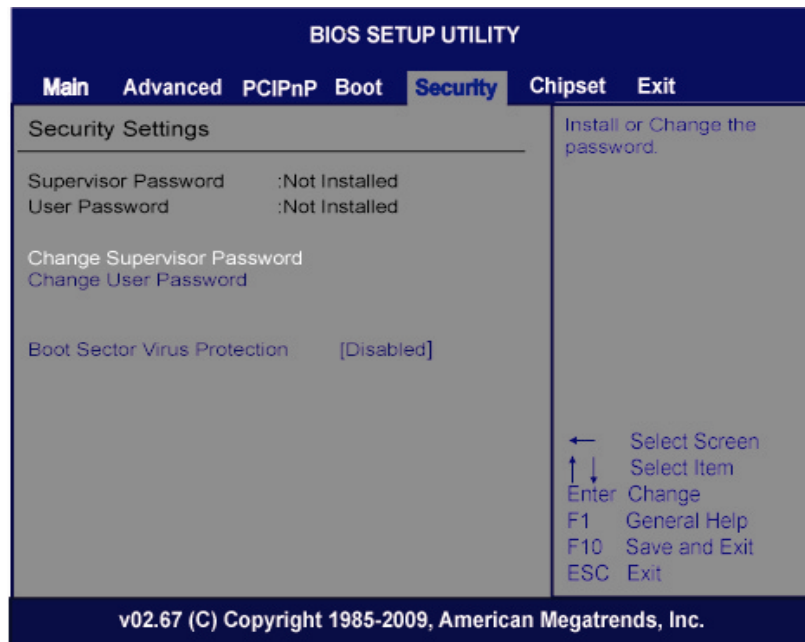
12.6.3. Removable Drives

Use this screen to view the removable drives in the system. The BIOS will attempt to arrange the removable drive boot sequence automatically. You can also change the booting sequence.



12.7. Security Menu

The Security menu allows users to change the security settings for the system.

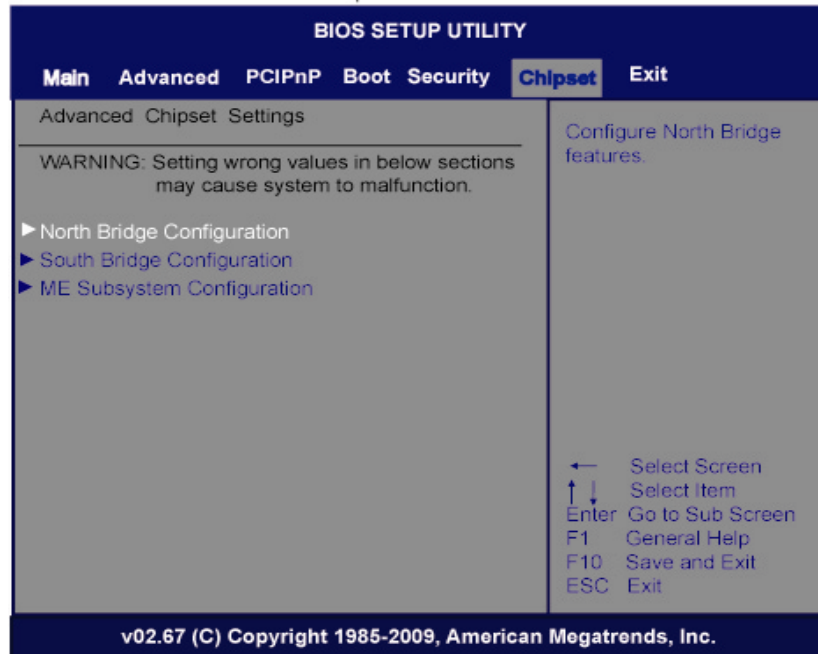


- **Supervisor Password**
This item indicates whether a supervisor password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.
- **User Password**
This item indicates whether a user password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.
- **Change Supervisor Password**
Select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.
- **Change User Password**
Select this option and press <Enter> to access the sub menu. You can use the sub menu to change the user password.

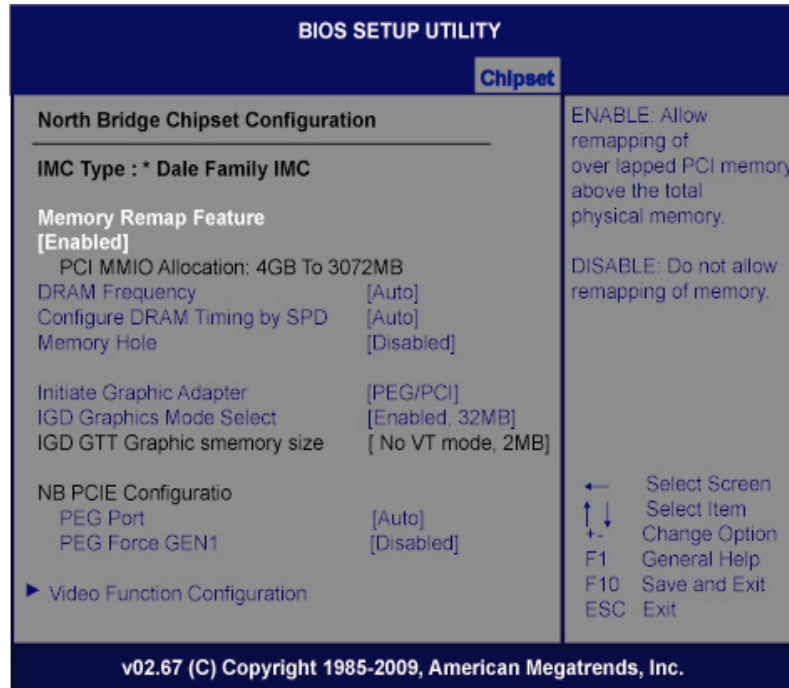
12.8. Chipset Menu

The Chipset menu allows users to change the advanced chipset settings. You can select any of the items in the left frame of the screen to go to the sub menus (refer to the pictures below).

For items marked with "▶", please press <Enter> for more options.



12.8.1. North Bridge Configuration



➤ **Memory Remap Feature**

Use this item to enable or disable the remapping of the overlapped PCI memory above the total physical memory. Only 64-bit OS supports this function.

➤ **DRAM Frequency**

This item allows you to control the Memory Clock.

➤ **Configure DRAM Timing by SPD**

This item can enable or disable DRAM timing by SPD (Serial Presence Detect) device, which is a small EEPROM chip on the memory module, containing important information about the module speed, size, addressing mode and various parameters.

➤ **Memory Hole**

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved it cannot be cached. Check the user information of peripherals that need to use this area of system memory for the memory requirements. Here are the options, *Disabled* and *15M-16M*.

➤ **Initiate Graphic Adapter**

When using multiple graphics cards, this item can select which graphics controller to be the primary display device during boot.

➤ **IGD Graphics Mode Select**

This item allows you to select the amount of system memory used by the internal graphics device.

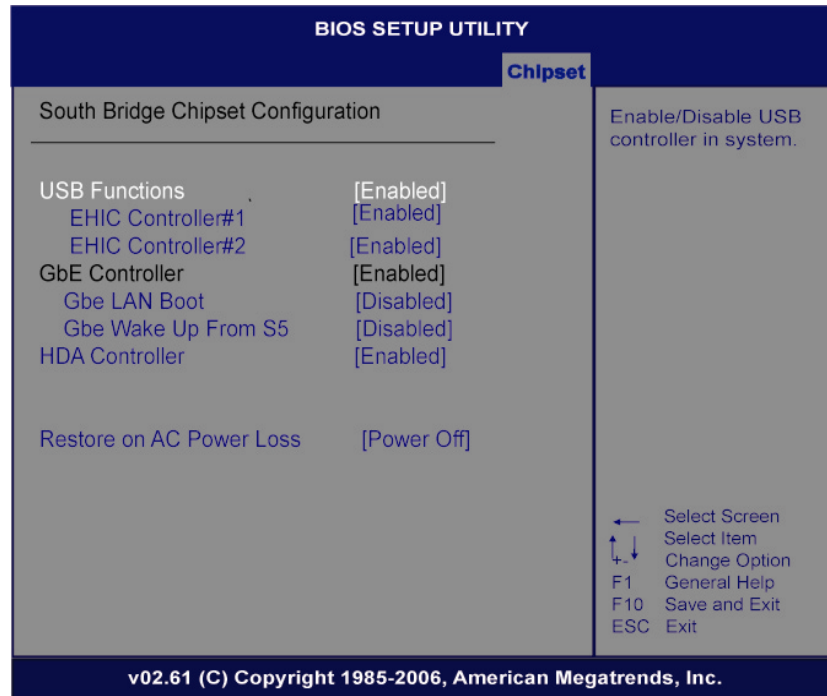
➤ **PEG Port Configuration/PEG Port**

This item is a toggle to enable or disable the PCI Express port. Here are the options for your selection, *Auto* and *Disabled*.

➤ **Video Function Configuration**

Press <Enter> for the sub-menu for setting up video function.

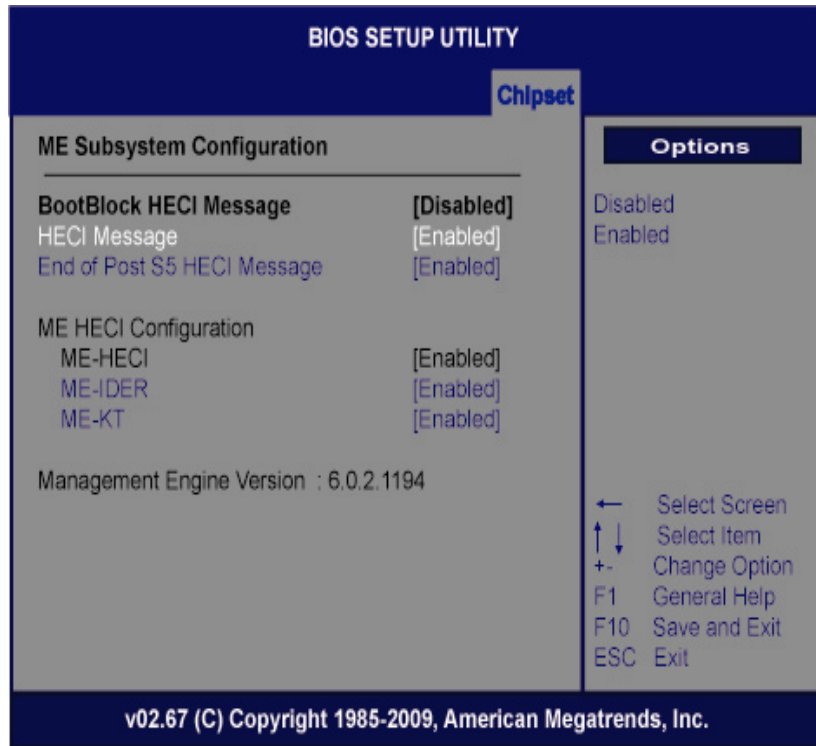
12.8.2. South Bridge Configuration



- **GbE Wake Up From S5**
This item specifies whether the system will be awakened from the S5 power.
- **HDA Controller**
This item allows you to enable or disable the HD audio support.
- **Restore on AC Power Loss**
This item can control how the PC will behave once power is restored following a power outage, or other unexpected shutdown.
- **PCIE Port Configuration**
This item allows you to set or disable the PCI Express Ports.

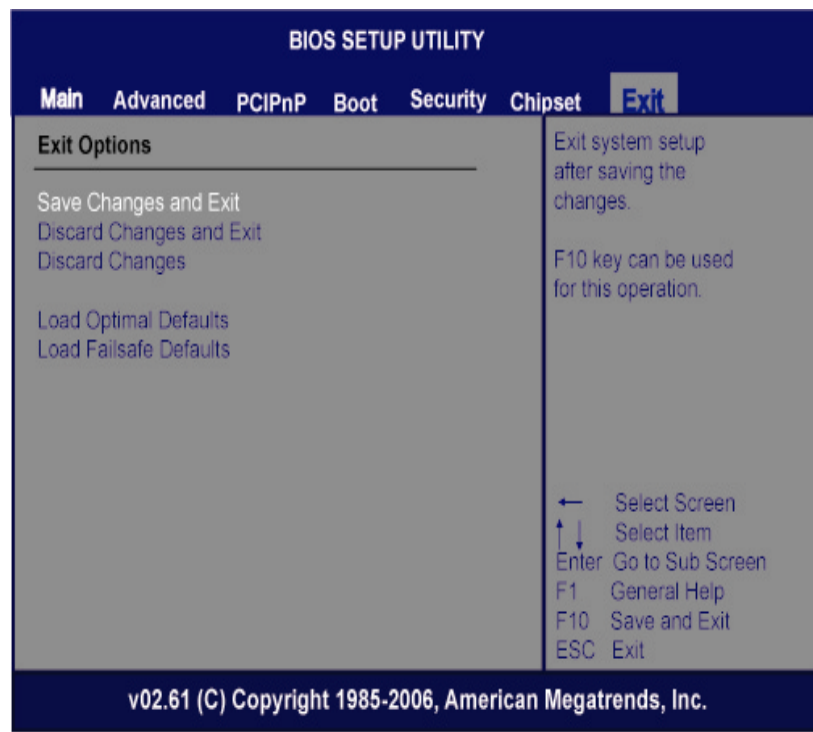
12.8.3. ME Subsystem Configuration

It is strongly recommended that you do not modify these options unless you are an advanced user.



12.9. Exit Menu

The Exit menu allows users to load your system configuration with optimal or failsafe default values.



- **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 *Save Changes and Exit* from the Exit menu and press <Enter>. 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 *Discard Changes and Exit* from the Exit menu and press <Enter>. Select *Ok* to discard changes and exit.
- **Load Optimal Defaults**
It 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 Optimal Defaults* from the Exit menu and press <Enter>.
- **Load Fail-Safe Defaults**
It automatically sets all Setup options to a complete set of default settings when you select this option. The Fail-Safe settings are designed for maximum system stability, but not maximum performance. Select the Fail-Safe Setup options if your computer is experiencing system configuration problems.

Select *Load Fail-Safe Defaults* from the Exit menu and press <Enter>. Select *Ok* to load Fail-Safe defaults.

13. PCI IRQ Routing

13.1. PICMG PCI IRQ Routing

Device	ID	Slot	Int
PCI Slot 0	31	0	BCDA
PCI Slot 1	30	1	CDAB
PCI Slot 2	29	2	DABC
PCI Slot 3	28	3	ABCD

14. Configuring SATA for RAID

14.1. Configuring SATA Hard Drive(s) for RAID Function (Controller: Intel® Q57)

Please follow up the steps below to configure SATA hard drive(s):

- (1) Install SATA hard drive(s) in your system.
- (2) Enter the BIOS Setup to configure SATA controller mode and boot sequence.
- (3) Configure RAID by the RAID BIOS.
- (4) Create a floppy disk for the SATA controller driver.
- (5) Install the SATA controller driver during the OS installation.

Before you begin the SATA configuration, please prepare:

- (a) Two SATA hard drives (to ensure optimal performance, it is recommended that you use two hard drives with identical model and capacity). If you do not want to create RAID with the SATA controller, you may prepare only one hard drive.
- (b) An empty formatted floppy disk
- (c) Windows XP setup disk

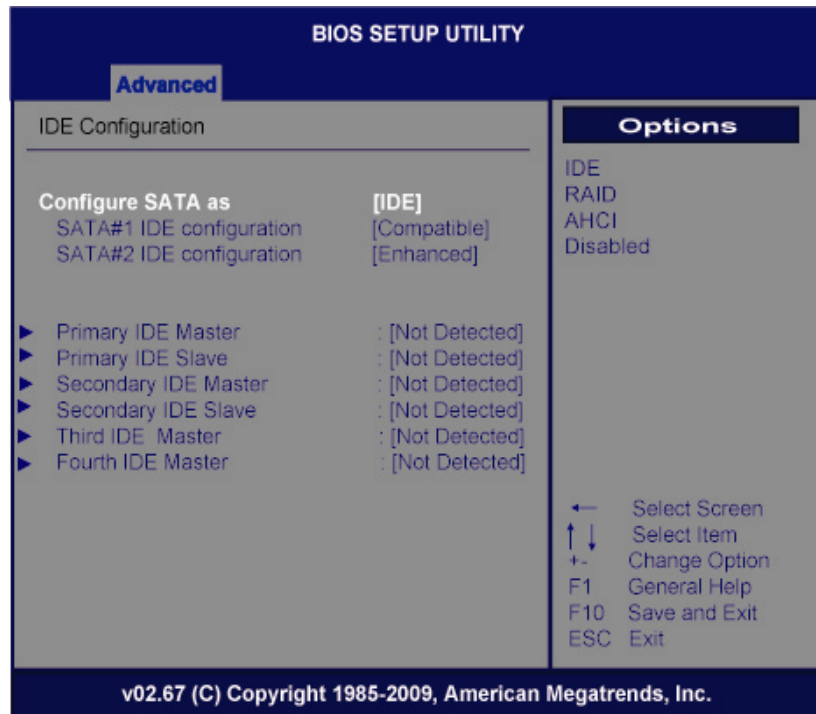
(1) Installing SATA hard drive(s) in your system

Connect one end of the SATA signal cable to the rear of the SATA hard drive, and the other end to available SATA port(s) on the board. Then, connect the power connector of power supply to the hard drive.

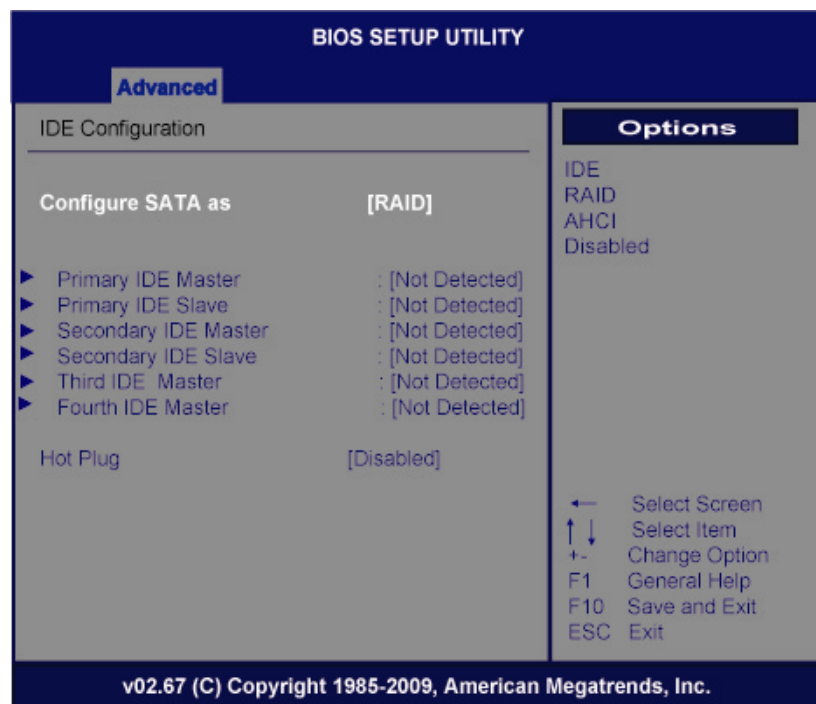
(2) Configuring SATA controller mode and boot sequence by the BIOS Setup

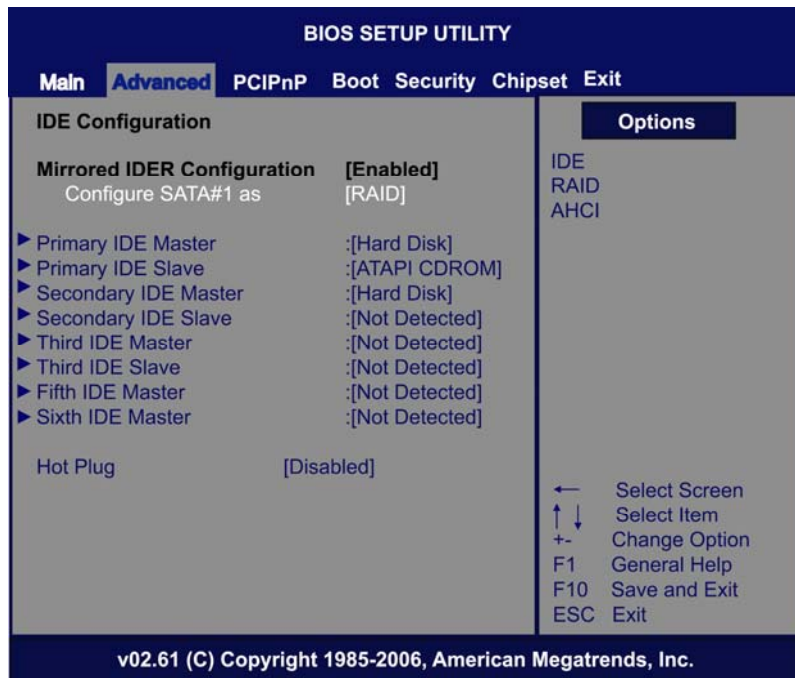
You have to make sure whether the SATA controller is configured correctly by system BIOS Setup and set up BIOS boot sequence for the SATA hard drive(s).

- (2)-1-1 Turn on your system, and then press the Del button to enter BIOS Setup during running POST (Power-On Self Test). If you want to create RAID, just go to the Advanced Settings menu/IDE configuration, select the **Configure SATA#1 as**, and press <Enter> for more options.

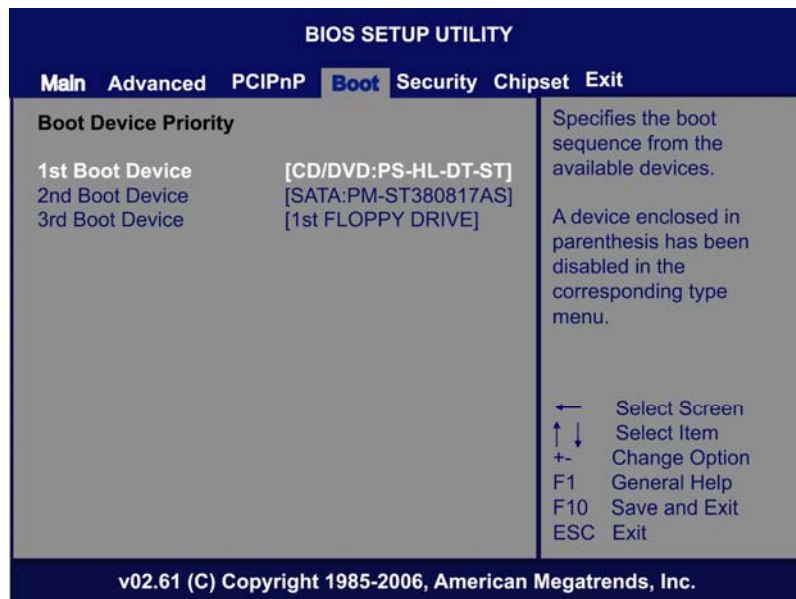
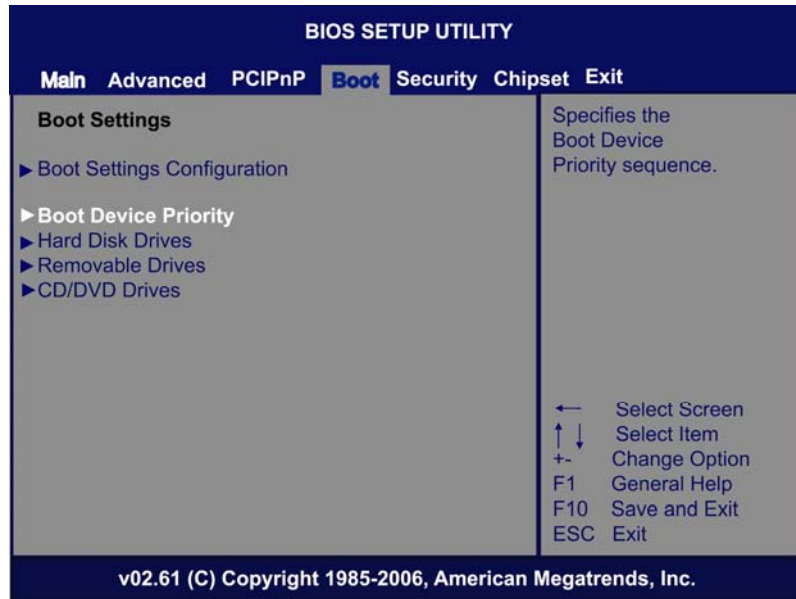


- (2)-1-2 A list of options appears, please select **RAID**.





(2)-2 Set **CDROM** for **First Boot Device** under the **Boot Settings** menu to boot CD-ROM after system restarts.



(2)-3 Save and exit the BIOS Setup.

(3) Configuring RAID by the RAID BIOS

Enter the RAID BIOS setup utility to configure a RAID array. Skip this step and proceed to Section 4 if you do not want to create a RAID.

- (3)-1** After the POST memory testing and before the operating system booting, a message "Press <Ctrl-I> to enter Configuration Utility" shows up, accordingly, press <CTRL+ I> to enter the RAID BIOS setup utility.

```
Intel (R) Matrix Storage Manager option ROM v7.5.0.1017 ICH9R
Copyright (C) 2003-07 Intel Corporation. All Rights Reserved.

RAID Volumes:
None defined

Physical Disks:
Port Drive Model      Serial #              Size      Type/Status(Vol ID)
0    ST380817AS         4MR0J889             74.5GB   Non-RAID Disk
1    WDC WD1200JD-00G  WD-WMAES1505323     111.8GB  Non-RAID Disk
Press <CTRL-I> to enter Configuration Utility...
```

- (3)-2** After you press <CTRL+ I>, the **Create RAID Volume** screen will appear. If you want to create a RAID array, select the **Create RAID Volume** option in the Main Menu and press ENTER.

```
Intel (R) Matrix Storage Manager option ROM v7.5.0.1017 ICH9R
Copyright (C) 2003-07 Intel Corporation. All Rights Reserved.

[MAIN MENU]

1. Create RAID Volume      3. Reset Disks to NON-RAID
2. Delete RAID Volume     4. Recovery Volume Options
5. Exit

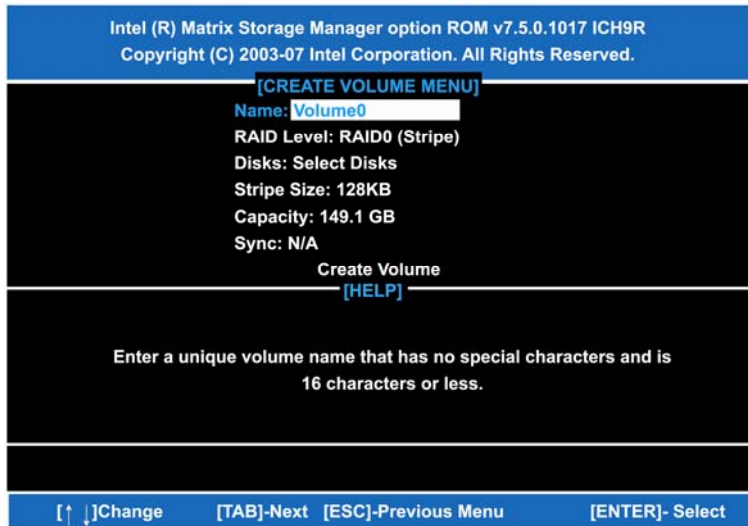
[DISK/VOLUME INFORMATION]

RAID Volumes:
None defined

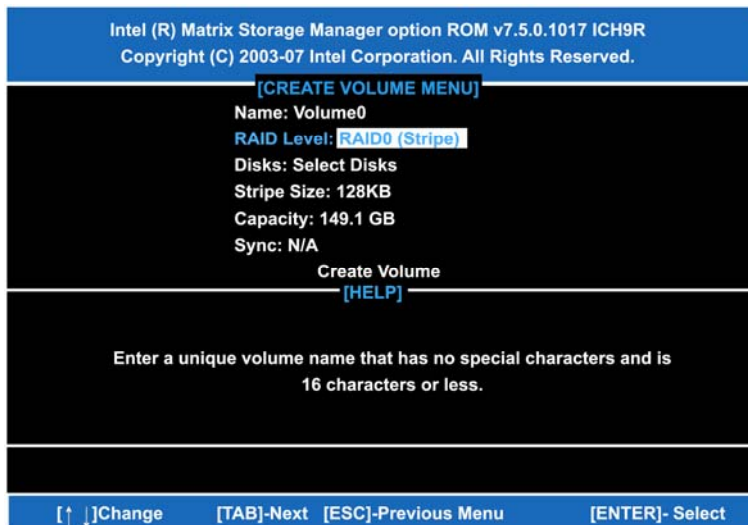
Physical Disks:
Port Drive Model      Serial #              Size      Type/Status(Vol ID)
0    ST380817AS         4MR0J889             74.5GB   Non-RAID Disk
1    WDC WD1200JD-00G  WD-WMAES1505323     111.8GB  Non-RAID Disk

[↑ ↓]-Select  [ESC]-Exit  [ENTER]- Select Menu
```

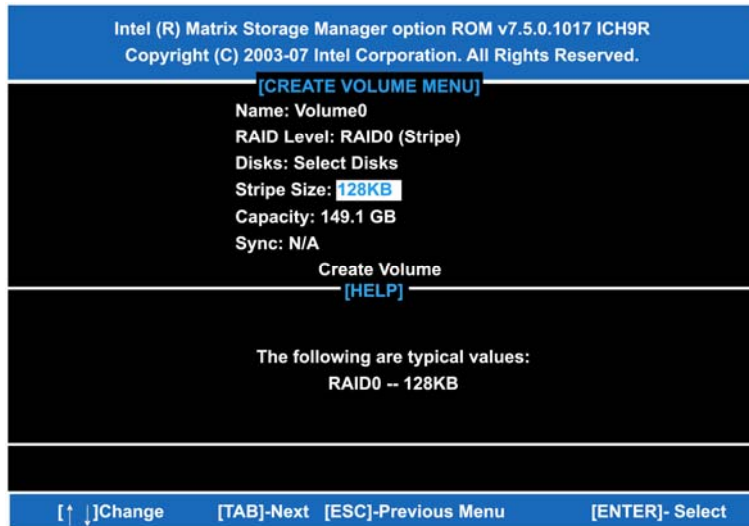
- (3)-3-1 After entering the **CREATE VOLUME MENU** screen, you can type the disk array name with 1~16 letters (letters cannot be special characters) in the item "Name".



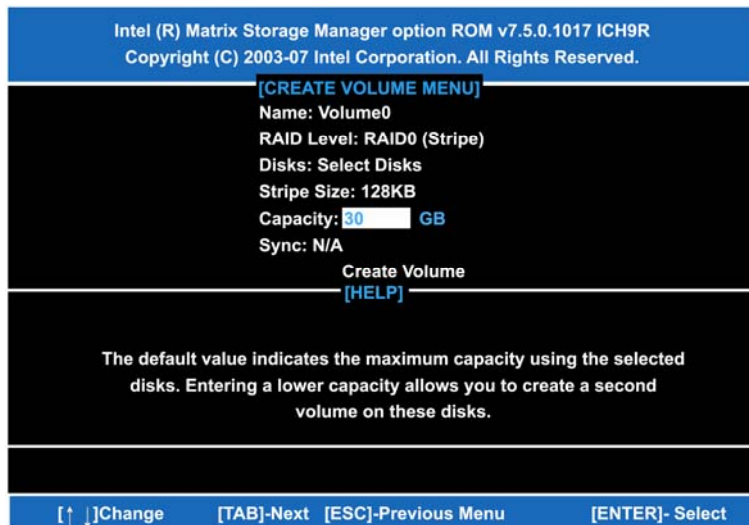
- (3)-3-2 When finished, press ENTER to select a RAID level. There are three RAID levels, RAID0, RAID1 and RAID5 & RAID10. Select a RAID level and press ENTER.



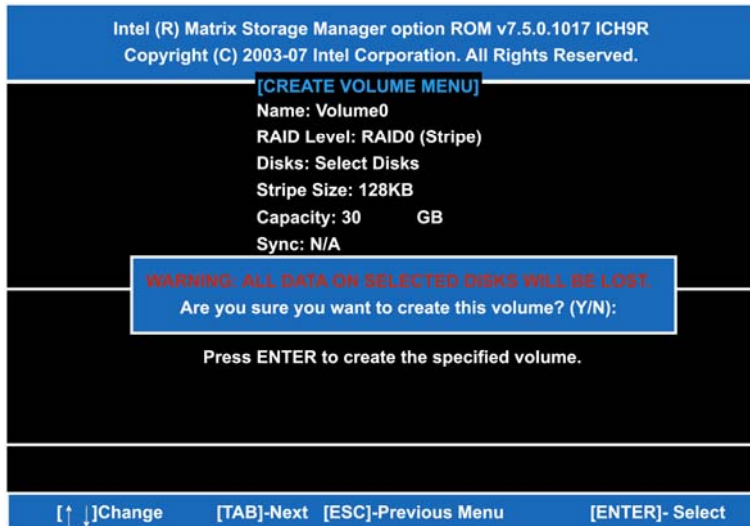
- (3)-4 Set the stripe block size. The KB is the standard unit of stripe block size. The stripe block size can be 4KB to 128KB. After the setting, press ENTER for the array capacity.



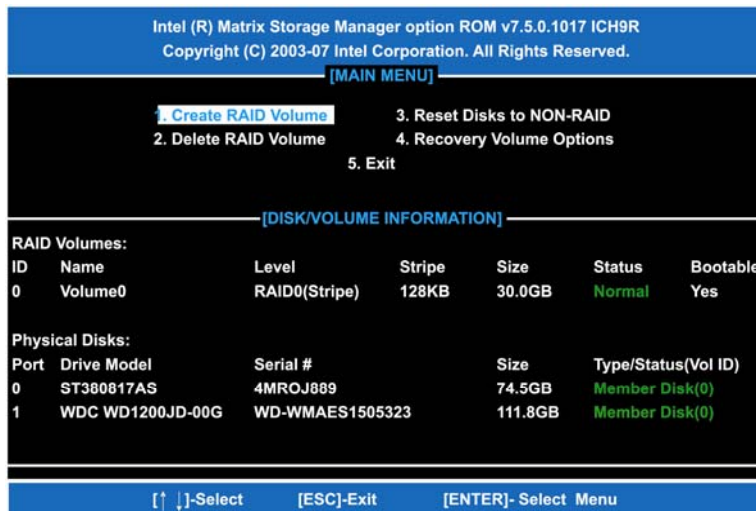
- (3)-5 After setting all the items on the menu, select **Create Volume** and press ENTER to start creating the RAID array.



(3)-6 When prompting the confirmation, press “Y” to create this volume, or “N” to cancel the creation.

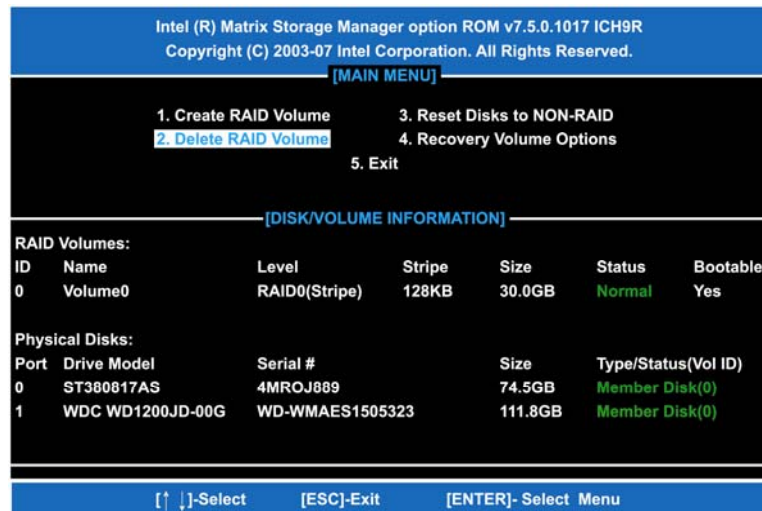


After the creation is completed, you can see detailed information about the RAID Array in the DISK/VOLUME INFORMATION section, including RAID mode, disk block size, disk name, and disk capacity, etc.



Delete RAID Volume

If you want to delete a RAID volume, select the **Delete RAID Volume** option in Main Menu. Press ENTER and follow on-screen instructions.



Please press [ESC] to exit the RAID BIOS utility.

Now, you can proceed to install a SATA driver controller and the operating system.

(4) Making a SATA Driver Disk

To install the operating system onto a serial ATA hard disk successfully, you need to install the SATA controller driver during the OS installation. Without the driver, the hard disk may not be recognized during the Windows setup process. First of all, please format a blank floppy disk. Secondly, follow up these steps below to produce a SATA driver disk.

Users can insert the Driver CD and the formatted blank floppy disk in another system. And then, please copy all of file of the f6flpy32 folder in the Driver CD to a floppy disk.



Please copy all of file of the f6flpy64 folder, if installing 64-bit Windows Operating System.

(5) Installing the SATA controller driver during the OS installation

Now, the SATA driver disk is ready, and BIOS settings configured, you can proceed to install Windows 2000/XP onto your SATA hard drive using the SATA driver. Here is an example for Windows XP installation.

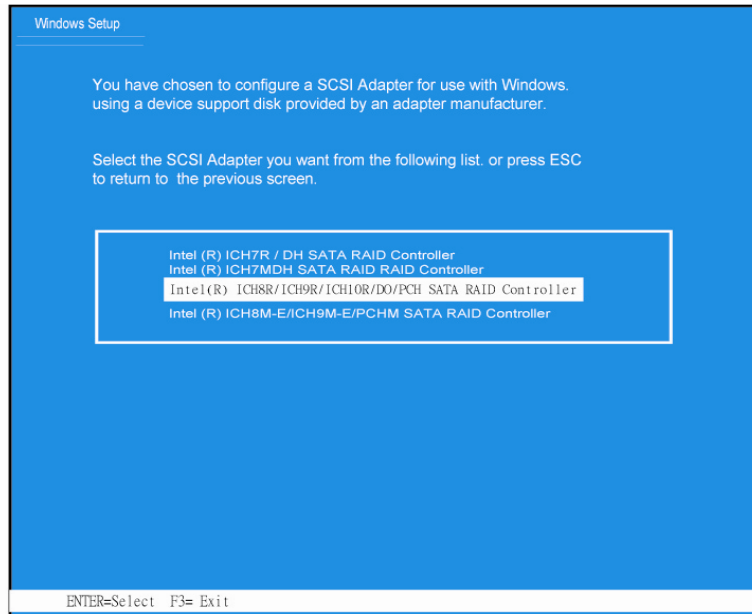
- (5)-1** Restart your system to boot the Windows 2000/XP Setup disk, and press F6 button as soon as you see the message "*Press F6 if you need to install a 3rd party SCSI or RAID driver*". After pressing the F6 button, there will be a few moments for some files being loaded before next screen appears.



- (5)-2** When you see the screen below, insert the floppy disk containing the SATA driver and press "S".



- (5)-3 If the Setup correctly recognizes the driver of the floppy disk, a controller menu will appear below. Use the ARROW keys to select **Intel® ICH8R/ICH9R/ICH10R/DO/PCH SATA RAID Controller** and press ENTER. Then it will begin to load the SATA driver from the floppy disk.



If a message on the screen saying that one or some file(s) cannot be found, please check the floppy disk or copy the correct SATA driver again from the driver CD.

15. iAMT Settings

The Intel® Active Management Technology (Intel® iAMT) has decreased a major barrier to IT efficiency that uses built-in platform capabilities and popular third-party management and security applications to allow IT a better discovering, healing, and protection their networked computing assets.

In order to utilize Intel iAMT you must enter the ME BIOS (CTRL + P during system startup), change the ME BIOS password, and then select "Intel® iAMT" as the manageability feature.

15.1. D.1 Entering MEBx

1. You must go to BIOS TO start iAMT function.
2. Exit from BIOS after starting iAMT, and press Ctrl+P to enter MEBx Setting.



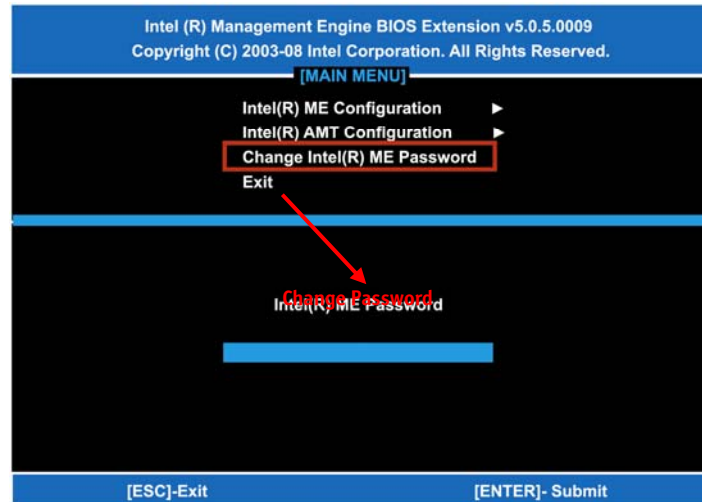
It is better to press Ctrl+P before the screen popping out.

```
Intel (R) Management Engine BIOS Extension v5.0.5.0009
Copyright (C) 2003-08 Intel Corporation. All Rights Reserved.

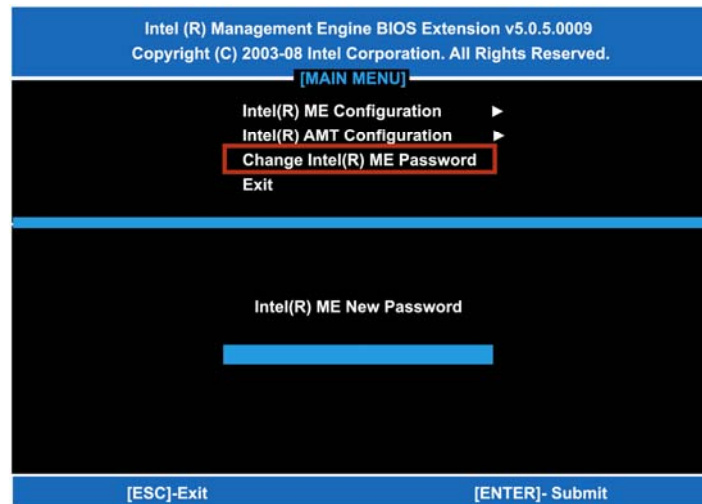
Intel(R) ME Firmware version 5.0.2.1121
Press <CTRL-P> to enter Intel(R) ME Setup
```

15.2. D.2 Set & Change Password

1. You will be asked to set a password when first log in. The default password is 'admin'.



2. You will be asked to change the password before setting ME.



3. You must confirm your new password while revising. as **Remark 1**:

For a new password ensure following:

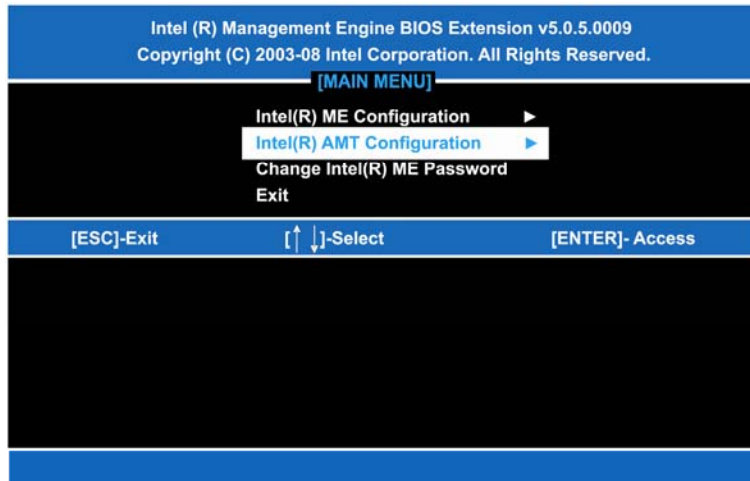
- The password string length is limited to 32 characters.
- The password length must comprise of at least 8 characters.
- The password must be strong 7-bit ASCII characters excluding ':', ',', and "" characters.
- The password must include at least one Digit character ('0', '1', ..., '9').
- The password must include at least one 7-bit ASCII non alpha-numeric character, above 0x20, (e.g. '!', '\$', ';').
- The password must include both lower case Latin ('a', 'b', ..., 'z') and upper case Latin ('A', 'B', ..., 'Z') characters.

Note:

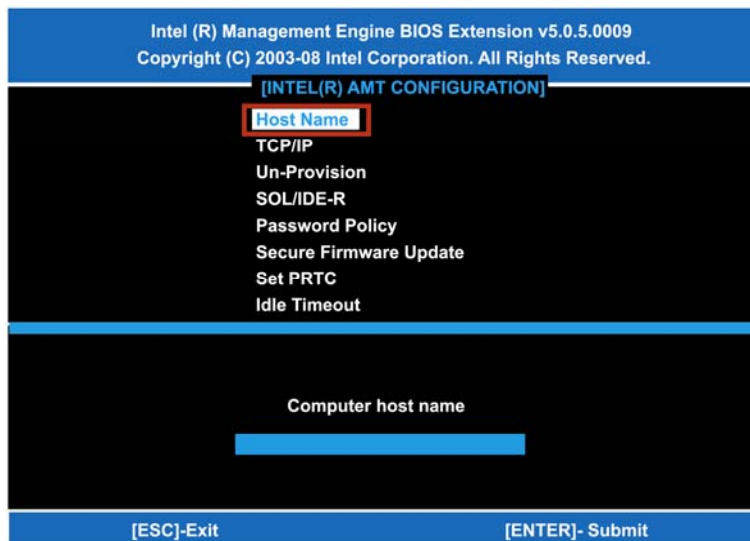
'_' (underscore) and ' ' (space) are valid password characters but are not used in the determination of complexity.

15.3. D.3 Intel® iAMT Settings

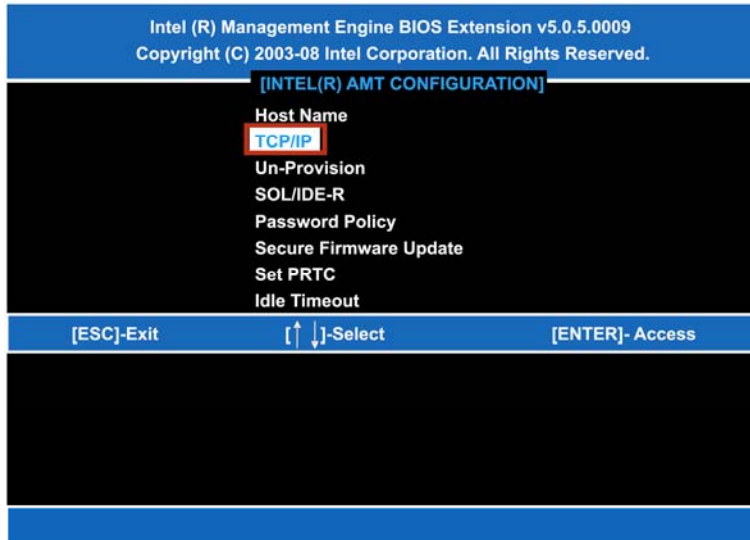
1. Select Intel® iAMT Configuration and press <ENTER>.



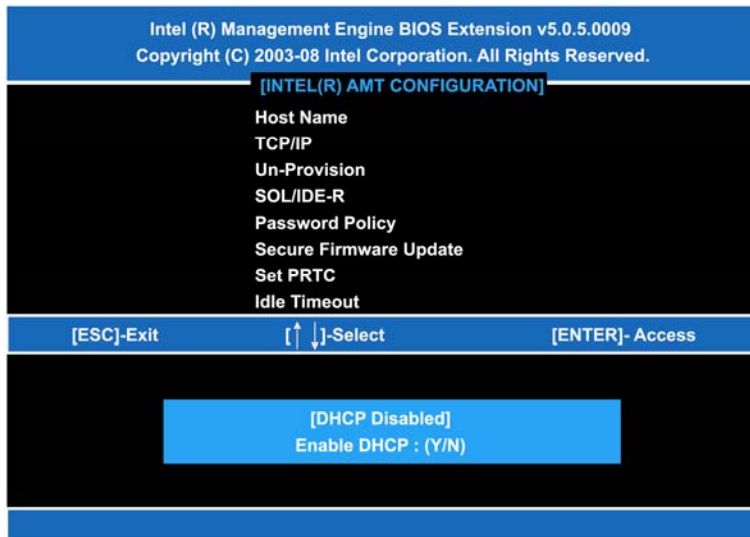
2. Key in the Host Name. If Intel® iAMT set to 'DHCP', the Host name must be identical to the operating system mechanic.



3. Select TCP/IP to get into Network interface, and set it to '**ENABLED**'; into DHCP Mode, and set it to '**DISABLED**' (as **Remark 2**) ; into Domain name, and set the Intel Management Engine domain name, such as '**AMT.intel.com**'.



(3-1)



(3-2)

Remark 2 DHCP Mode '**DISABLED**': if DHCP Mode is disabled, you can make the following settings:

IP address

Intel (R) Management Engine BIOS Extension v5.0.5.0009
Copyright (C) 2003-08 Intel Corporation. All Rights Reserved.

[INTEL(R) AMT CONFIGURATION]

Host Name
TCP/IP
Un-Provision
SOL/IDE-R
Password Policy
Secure Firmware Update
Set PRTC
Idle Timeout

IP address (e.g. 123. 123. 123. 100)

[ESC]-Exit [ENTER]- Submit

Subnet mask

Intel (R) Management Engine BIOS Extension v5.0.5.0009
Copyright (C) 2003-08 Intel Corporation. All Rights Reserved.

[INTEL(R) AMT CONFIGURATION]

Host Name
TCP/IP
Un-Provision
SOL/IDE-R
Password Policy
Secure Firmware Update
Set PRTC
Idle Timeout

Subnet mask (e.g. 255. 255. 255. 0)

[ESC]-Exit [ENTER]- Submit

Default Gateway address

Intel (R) Management Engine BIOS Extension v5.0.5.0009
Copyright (C) 2003-08 Intel Corporation. All Rights Reserved.

[INTEL(R) AMT CONFIGURATION]

Host Name
TCP/IP
Un-Provision
SOL/IDE-R
Password Policy
Secure Firmware Update
Set PRTC
Idle Timeout

Default Gateway address

0.0.0.0

[ESC]-Exit [ENTER]- Submit

Preferred DNS address

Intel (R) Management Engine BIOS Extension v5.0.5.0009
Copyright (C) 2003-08 Intel Corporation. All Rights Reserved.

[INTEL(R) AMT CONFIGURATION]

Host Name
TCP/IP
Un-Provision
SOL/IDE-R
Password Policy
Secure Firmware Update
Set PRTC
Idle Timeout

Preferred DNS address

0.0.0.0

[ESC]-Exit [ENTER]- Submit

Alternate DNS address

Intel (R) Management Engine BIOS Extension v5.0.5.0009
Copyright (C) 2003-08 Intel Corporation. All Rights Reserved.

[INTEL(R) AMT CONFIGURATION]

Host Name
TCP/IP
Un-Provision
SOL/IDE-R
Password Policy
Secure Firmware Update
Set PRTC
Idle Timeout

Alternate DNS address

0.0.0.0

[ESC]-Exit [ENTER]- Submit

Domain name

Intel (R) Management Engine BIOS Extension v5.0.5.0009
Copyright (C) 2003-08 Intel Corporation. All Rights Reserved.

[INTEL(R) AMT CONFIGURATION]

Host Name
TCP/IP
Un-Provision
SOL/IDE-R
Password Policy
Secure Firmware Update
Set PRTC
Idle Timeout

Domain name

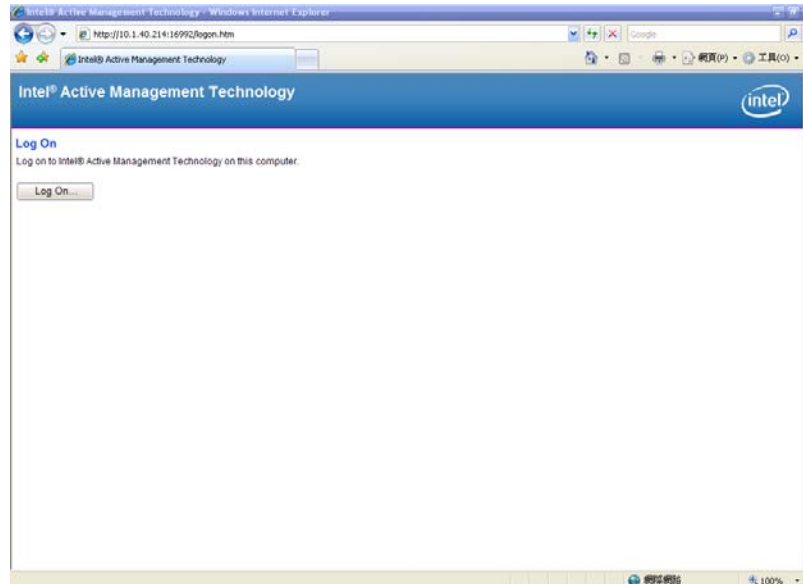
amt.com.tw

[ESC]-Exit [ENTER]- Submit

- Exit from MEBx after completing the iAMT settings.

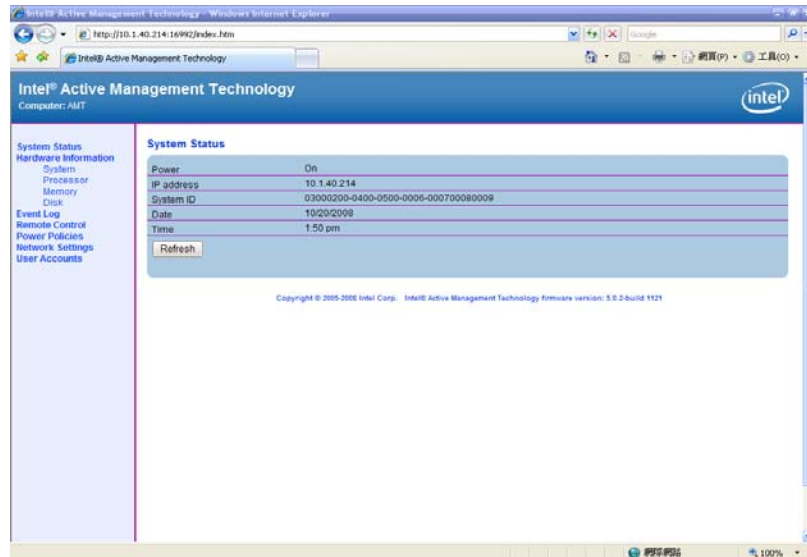
15.4. D.4 iAMT Web Console

1. From a web browser, please type [http://\(IP ADDRESS\):16992](http://(IP ADDRESS):16992), which connects to iAMT Web.
Example: <http://10.1.40.214:16992>

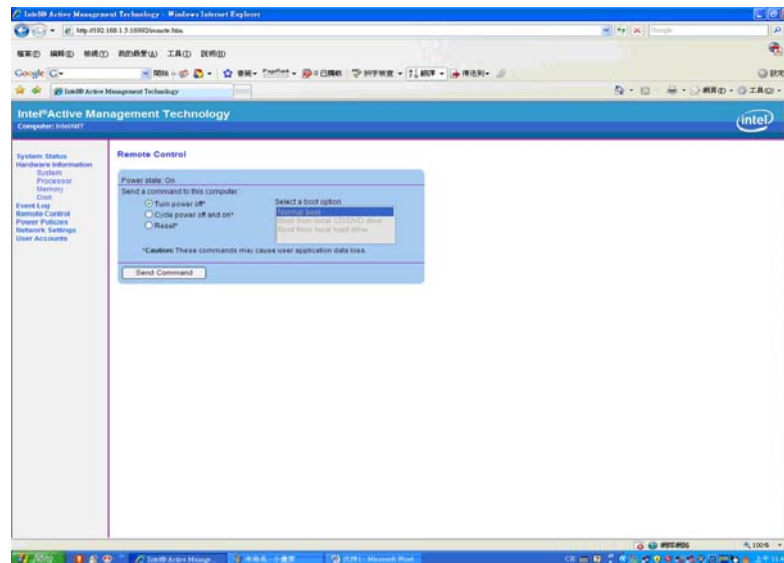


2. To log on, you will be required to type in username and password for access to the Web.
USER: admin (default value)
PASS: (MEBx password)

3. Enter the iAMT Web.



4. Click Remote Control, and select commands on the right side.



5. When you have finished using the iAMT Web console, close the Web browser.

16. Technical Support

For technical support, please contact our Technical Support department.

German headquarter Hotline:

TEL: (+49) 8165-77 112

FAX: (+49) 8165-77 110

E-mail: support@kontron.com

Make sure you have the following on hand when you call:

- the unit part id number (P/No #),
- and the serial number (S/No #) of the unit (provide the serial number found on the label, placed on the rear side of the board).

Be ready to explain the nature of your problem to the service technician.

If you have any questions about Kontron Embedded Computers or our products and services, you may reach us at the aforementioned numbers, or at: www.kontron.com or by writing to:

Kontron Embedded Computers GmbH

Oskar von Miller-Str. 1

85386 Eching

Germany

16.1. Returning Defective Merchandise

Before returning any merchandise please:

1. Download the form for returning a device with an RMA No. [RMA (Return of Material Authorization)] from our website www.kontron.com / Support / RMA Information; contact our Customer Service department to obtain an RMA No.:
Fax: (+49) 8165-77 412
e-Mail: service@kontron.com
2. Ensure that you have received an RMA No. from Kontron Customer Services before returning any device. Write this number clearly on the outside of the package that you are sending to us.
3. Describe the fault that has occurred.
4. Please provide the name and telephone number of a person we can contact to obtain more information, where necessary. Where possible, please enclose all the necessary customs documents and invoices.
5. When returning a device:
 - Pack it securely in its original box.
 - Enclose a copy of the RMA form with the consignment.

Corporate Offices

Europe, Middle East & Africa

Oskar-von-Miller-Str. 1
85386 Eching/Munich
Germany
Tel.: +49 (0)8165/ 77 777
Fax: +49 (0)8165/ 77 219
info@kontron.com

North America

14118 Stowe Drive
Poway, CA 92064-7147
USA
Tel.: +1 888 294 4558
Fax: +1 858 677 0898
info@us.kontron.com

Asia Pacific

17 Building, Block #1, ABP.
188 Southern West 4th Ring
Beijing 100070, P.R.China
Tel.: +86 10 63751188
Fax: +86 10 83682438
info@kontron.cn

