Intel® Core™ 2 Duo/ Pentium® D/ Pentium® 4/ Pentium® Dual-Core/ Celeron™ D LGA 775 Motherboard

BC945G

User's Manual v1.1

http://www.bcmcom.com

Declaration

USER'S NOTICE

THIS MANUAL CONTAINS INFORMATION NECESSARY TO USE OF BC945G MOTHER-BOARD AND WE HAVE TRY TO INCLUDE IN THIS MANUAL AS MANY INFORMATION AS POSSIBLE, BUT WE RESERVE RIGHT TO CHANGE, UPDATE ANYTIME WITHOUT PRIOR NOTICE. MANUFACTURER PROVIDES THIS MANUAL "AS IS " WITHOUT WARRANTY OF ANY KIND, AND WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTIAL OR CONSEQUENTIAL DAMAGES (INCLUDING DAMANGES FOR LOSS OF PROFIT, LOSS OF BUSINESS, LOSS OF USE OF DATA, INTERRUPTION OF BUSINESS OF ANY KIND ALIKE).

PRODUCTS AND CORPORATE NAMES APPEARING IN THIS MANUAL MAY OR MAY NOT BE REGISTERED TRADEMARKS OR COPYRIGHTS OF THEIR RESPECTIVE COMPANIES, AND THEY ARE USED ONLY FOR IDENTIFICATION OR EXPLANATION AND TO THE OWNER'S BENEFIT, WITHOUT INTENT TO INFRINGEMENT.

- Intel, Core™ 2 Duo, Pentium® D, Pentium® 4, Pentium® Dual-Core, Celeron™ D are registered trademarks of Intel ® Corporation.
- Microsoft ® and Windows® are registered trademarks of Microsoft ® Corporation.
- AwardBIOS® are registered trademarks of Phoenix Technologies.

WARNING:

Replace your system's CMOS RAM battery only with the identical CR-2032 3V Lithium-Ion coin cell (or equivalent) battery type to avoid risk of personal injury or physical damage to your equipment. Always dispose of used batteries according to the manufacturer's instructions, or as required by the local ordinance (where applicable).

This manual is created and written by BCM Technical Dept., with the information from the BC945G External Production Specifications, and Intel® 82945G Specifications. BCM provides this manual "AS IS" without warranty of any kind, and will not be liable for any indirect, special, incidental or consequential damage (Including damages for loss or profit, loss of business, loss of use of data, interruption of business and the like). BCM reserve the right to change, correct at any time without notice. If any comments, suggestions, or errors for this manual, please write an e-mail to support@bcmcom.com.

Compliance & Certificate

ISO 9001 Certificate:

This device was produced in our plant with advanced quality system certified by DNV QA Ltd. in according to ISO 9001. The Certificate is valid for:
DESIGN & MANUFACTURE OF MOTHERBOARD AND PERSONAL COMPUTERS.

CE Declaration:

CE marking is a visible declaration by the manufacturer or his authorized representatives that the electrical equipment to which it relates satisfies all the provisions of the 1994 Regulations.

FCC Compliance:

FCC stands for **F**ederal **C**ommunications **C**ommission.
This product complies with FCC Rules Part 15 and has been tested, and complied with the EMI rules by a certified body. In normal operation, there shall be no harmful interference caused by this device nor shall this device accept any interference received, including interference that may cause undesired operation of this product.

Easy Installation

The following “Easy Installation” steps are for users accustomed to the assembly of a computer system. For those individuals requiring more specific information, please refer to the more detailed descriptions located within the latter chapters of this manual.

Note: You must keep your power cable unplugged until the following installation steps are completed.

Getting Started

Touch a grounded metal surface to discharge static electricity stored in your body before unpacking your motherboard. For details please refer to Precaution.

Install the CPU by correctly aligning the CPU with the socket LGA775 (refer to CPU Installation Section). Next, install the 1.8 volt un-buffered DDRII SDRAM into the 240 pin DIMM slots.

Plug in any peripheral card(s) that you want to be included in the system (**Warning** : The PCIe-16 slot can only support Video Adaptor Card, Do not plug in any other device into the PCIe-16 slot).

Plug in all cables included in the package except for the power cord.

Please recheck all steps to ensure no mistakes have been made and then plug in the power cord and turn on the power to enter the BIOS setup, Chapter 3.

TABLE OF CONTENT

Manual Revision Information

Reversion	Revision History	Date
1.1	Updated CPU support, H/W changes	Dec. 2007
1.0	First Release	May. 2006

Item Checklist

- ☑ 1 x BC945GV Mainboard
- ☑ 1 x Cable for IDE/Floppy
- ☑ 2 x Serial ATA cable
- ☑ 2 x COM cable with one PCI bracket
- ☑ 1 x CD/ DVD for motherboard utilities
- ☑ 1 x BC945G Quick Reference Guide
- ☑ 1 x BC945G User's Manual Digital Format on CD
- ☑ 1 x BC945G Standard I/O Shield
- □ Cable for USB Port 3/4 (Optional)

Intel Pentium 4® Processor Family Cooling Solutions

As processor technology pushes to faster speeds and higher performance, thermal management becomes increasingly crucial when building computer systems. Maintaining the proper thermal environment is key to reliable, long-term system operation. The overall goal in providing the proper thermal environment is keeping the processor below its specified maximum case temperature. Heatsinks induce improved processor heat dissipation through increased surface area and concentrated airflow from attached fans. In addition, interface materials allow effective transfers of heat from the processor to the heatsink. For optimum heat transfer, Intel recommends the use of thermal grease and locking mechanism to attach the heatsink to the processor.

When selecting a thermal solution for your system, please utilize an Intel recommend heatsink for use with Intel processors. Note, those heatsinks are recommended for maintaining the specified Maximum T case requirement. In addition, this collection is not intended to be a comprehensive listing of all heatsinks that support Intel processors.

Please visit Intel website below for CPU installation video :

http://www.intel.com/cd/channel/reseller/asmo-na/eng/100617.htm

Chapter 1

Introduction of BC945G Motherboard

1-1 Feature of motherboard

The BC945G motherboard is design to use with Intel latest Core™ 2 Duo, Pentium® D, Pentium® 4, Pentium® Dual-Core, Celeron™ D LGA775 Processor, with Hyper-Threading Technology supported, the Intel 945G® Chipset delivers a high performance long life professional computing platform solution utilize the Socket LGA775 design.

BC945G motherboard use the Intel 945G® Chipset Supports 533/800/1066 MHz System Bus data transfer rate.

* Up to 4GB Dual Channel DDR2 Memories. DDR2 is the next generation memory technology to replace the current DDR. With speeds of 400, 533 and 667 MHz, DDR2 memory provides bandwidth up to 5.3GB/s. Doubled by the dual-channel architecture, the widest memory bus bandwidth 10.7GB/s is achieved on this motherboard.

The ICH7R offers 4 SATA II ports to provide speedier HDD throughout that boost overall system performance, support RAID 0 (data striping), RAID 1 (mirroring), RAID 0+1 (mirroring stripes), and RAID 5 (byte-level stripping with distributed parity), one PIDE connection support UDMA33/ATA 66/ATA 100, allows 2 IDE devices connection.

With integrated Intel Graphics Media Accelerator 950 2D/3D supports 400MHz graphics core, and supports hardware motion compensation assist for software MPEG/DVD decode, by using a PCIE x16 connector, the BC945G support ADD2 DVI add on card or PCIE x16 graphics adaptor for direct digital output onboard or upgradeable high performance graphics solution .

The BC945G motherboard include 2 LAN onboard, a 82573 PCI Express Gigabit Ethernet and one Intel PCI Gigabit 82541 LAN Controller.

Its also has integrated onboard an AC'97 7.1 Realtek ALC883 Audio CODEC, which is fully compatible with Sound Blaster Pro® that gives you the high definition sound with back AC97 compatibility.

With USB control as well as capability of expanding to 8 USB2.0 function ports to meet faster data transfer, built-in hardware monitor function. This enable system monitor and protect your computer. These motherboards provided design in hardware to protect BIOS from virus crash BIOS data.

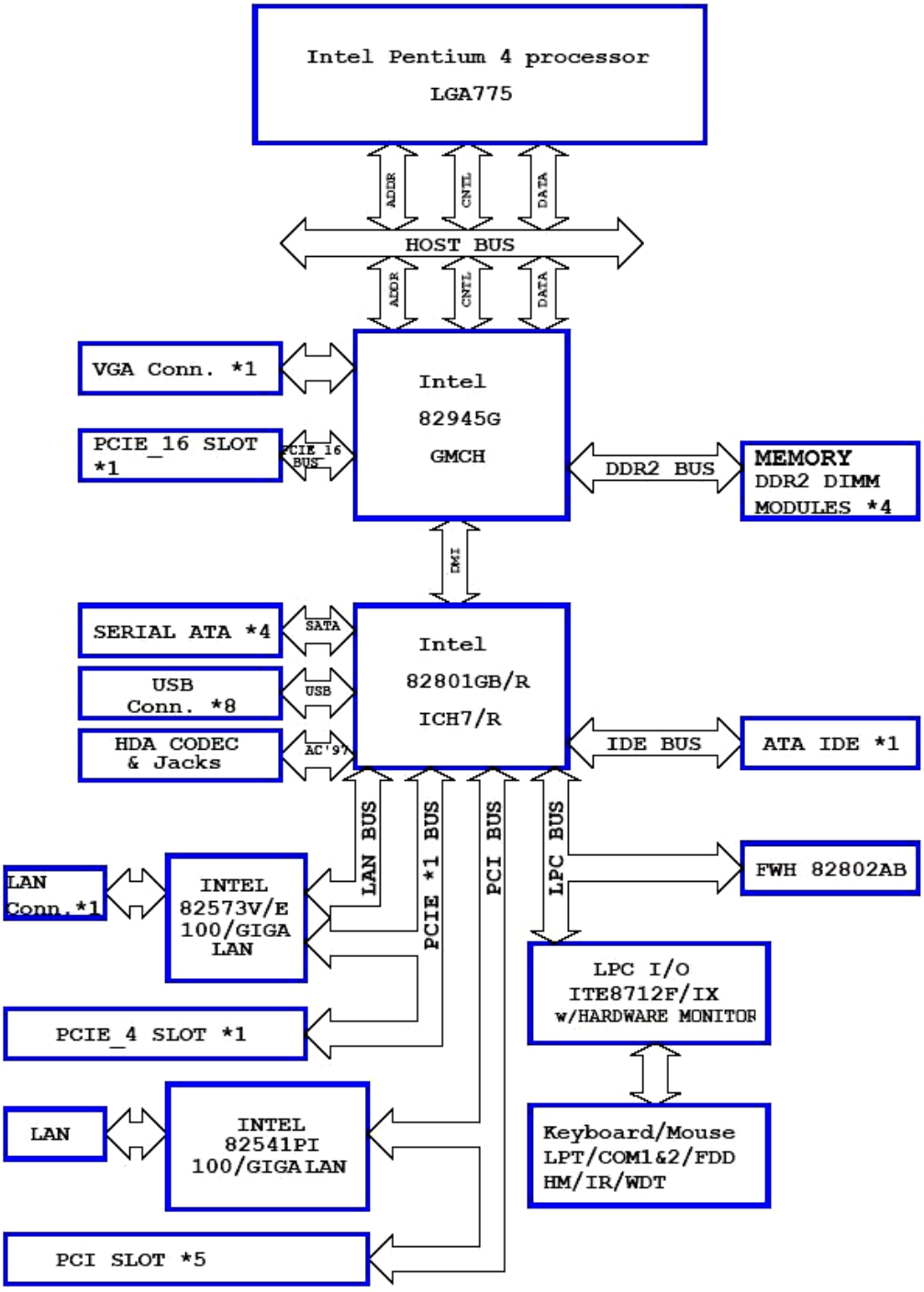
BC945G is really one of the best solution providing high performance & Longevity for Industrial, Medical Computing Applications.

1-2 Specification

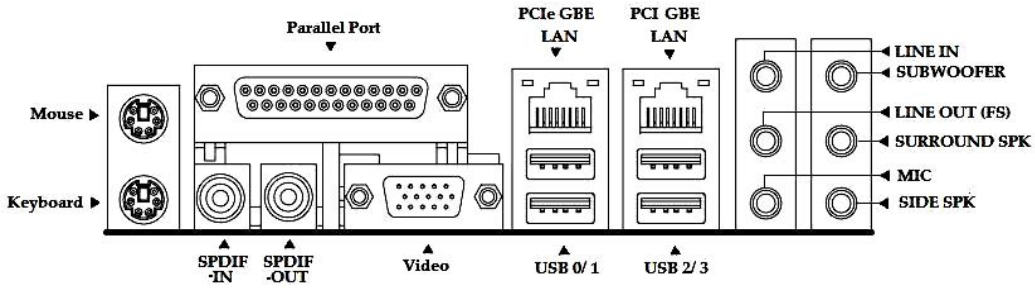
Spec	Description
Design	* ATX form factor 4 layers PCB size: 11.6”(W) x 9.6”(D) (295 x 244 mm)
Chipset	* Intel® 945G Graphics Memory Controller Hub (GMCH) Chipset 34mm x 34mm, 1202 balls. * Intel ®82801GR I/O Controller Hub (ICH7R) Chipset 3mm x31mm, 652 balls.
CPU Socket (PLGA 775 Socket)	* Support Intel Core™ 2 Duo, Pentium® D, Pentium® 4, Pentium® Dual-Core, Celeron™ D LGA775 processor * Support CPU Frequency 533/800/1066 MT/s FSB
Video Display	* Integrated Intel High Performance Graphics Media Accelerator 950 2D/3D, Graphics Core at 400MHz. * Support VGA output up to 2048x1536 @ 75 Hz * Support ADD2/ADD2+ card uses PCI Express graphics x16 slots
Memory Socket	* 240-pin DDR2 SDRAM module socket x4 * Support Memory Type 256Mbit, 512Mbit and 1Gbit Technology * Support Only 8x and 16x SDRAM device with 4 banks and also supports 8 bank, 1-Gbit DDR2 Devices. * Support 1.8V DDR2 400 / DDR2 533 / DDR2 667 * Expandable up to 4GB
Expansion Slot	* 1x PCI Express x16 slot (for PCI Express Graphics Card or ADD2) * 5x 32-bit PCI slots * 1x PCI Express x4 slot
Integrate IDE	* One PCI IDE controllers support PCI Bus Mastering, ATA PIO/DMA and the ULTRA DMA 33/66/100 functions that deliver the data transfer rate up to 100 MB/s * Four Serial ATA II host controller Data transfer up to 3.0Gb/s Raid Level 0, 1 , 5, 10 support (with ICH7R)
LAN On Board	* Intel ®82541 PI 10/100/1000 PCI Gbe LAN * Intel ® 82573E PCI Express Gbe LAN
Audio	* AC’97 Digital Audio controller integrated * AC’97 7.1 Audio CODEC on board * Sound Blaster Pro compliant * Audio driver and utility included
BIOS	* Award® 4MB Flash ROM
Multi I/O	* PS/2 keyboard and PS/2 mouse connectors * Floppy disk drive connector x1 * Parallel port x1, Serial port x2 on header * USB 2.0 connector x8, (4 on header) * Audio connector: Line-in, Line-out, MIC, S/PDIF-IN, S/PDIF-OUT

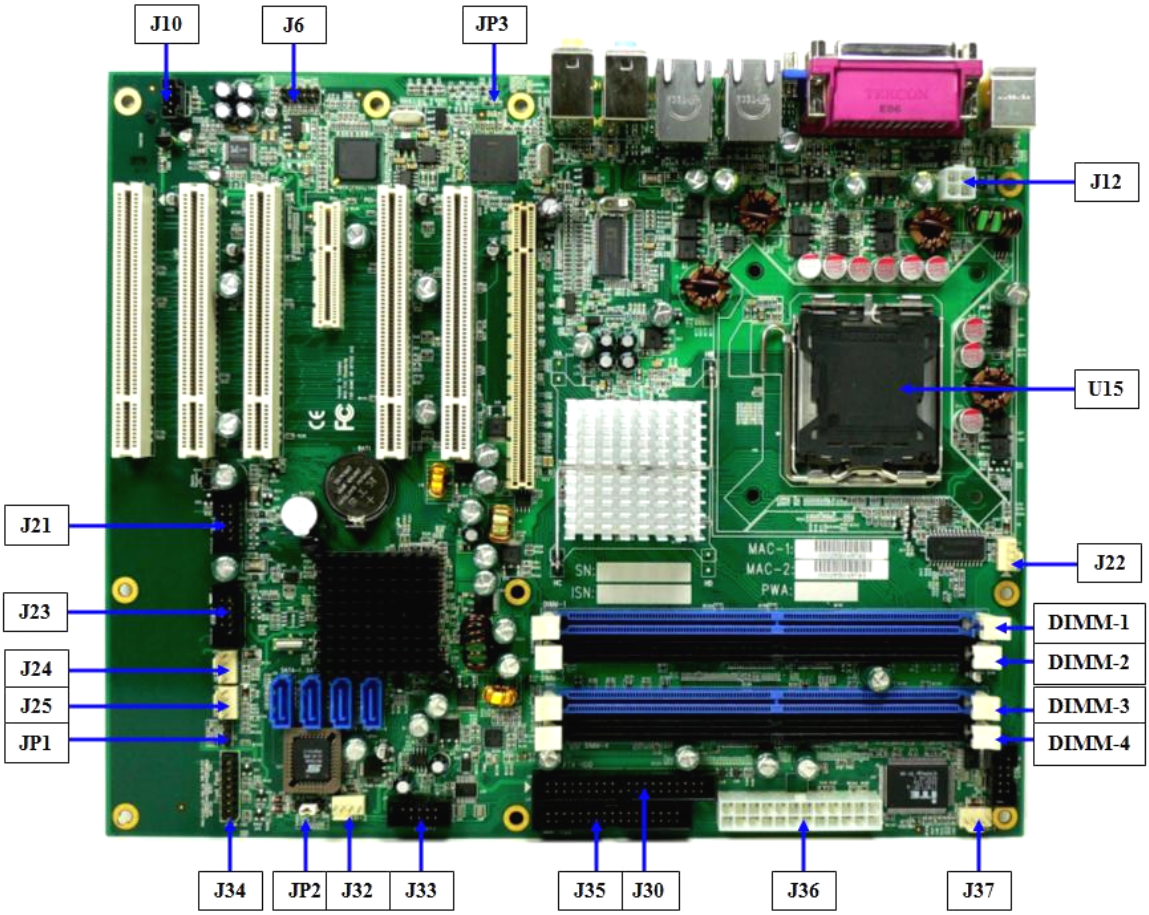
1-3 System Diagram

BC945G Mainboard Diagram



1-4 Jumper & Connector





Jumpers

Jumper	Description	Note
JP1	Clear CMOS	
JP2	Boot Block WP	
JP3	LAN EEPROM WP	

Connector	Description	Note
J1	Audio Jack	
J2	Audio Jack	
J3	CRT VGA	DB15
J4	SPDIF-IN	RCA (Yel)
J5	KB/MS	Mini DIN
J6	Front Audio Header	2x5 2.54 Pitch
J7	SPDIF-OUT	RCA (Red)
J10	CD-In	4 Pin
J11	LPT Port	DB25
J12	ATX 12 Connector	4 Pin Block
J13	PCI Slot 5	
J14	PCI Slot 4	
J15	PCI Slot 3	
J16	PCI Slot 2	
J17	PCI Slot 1	
J18	PCI Express x4 Slot	
J19	PCI Express x16 slot (Video/ADD2)	
J20	Chassis Intrusion	2 Pin Header
J21	Front USB Header 1	2x5 2.54 Pitch
J22	CPU FAN Header	4 Pin
J23	Front USB Header 2	2x5 2.54 Pitch
J24	System FAN Header 3	4 Pin
J25	System FAN Header 4	4 Pin
J26	SATA-1	
J27	SATA-3	
J28	SATA-2	
J29	SATA-4	
J30	PATA IDE	40 Pin
J31	COM2 Header	2x5 Pin Header
J32	System FAN 2	4 Pin
J33	COM1	2X5 Pin
J34	Front Panel Connector	20 Pin Block
J35	Floppy Connector	34 Pin Header
J36	ATX Power Connector	24 Pin Block
J37	System Fan Header 1	4 Pin

Chapter 2
Hardware installation

2-1 Hardware installation Steps

Before using your computer, you had better complete the following steps:

1. Check motherboard jumper setting
2. Install CPU and Fan
3. Install System Memory (DDR2 DIMM)
4. Install Expansion cards
5. Connect HDD and Floppy cables, Front Panel /Back Panel cable
6. Connect ATX Power cable
7. Power-On and Load Standard Default
8. Reboot
9. Install Operating System
10. Install Driver and Utility

2-2 Checking Motherboard's Jumper Setting

(1) CMOS RAM Clear (3-pin) : JP1

A battery must be used to retain the motherboard configuration in CMOS RAM short 1-2 pins of JP1 to retain the CMOS data.

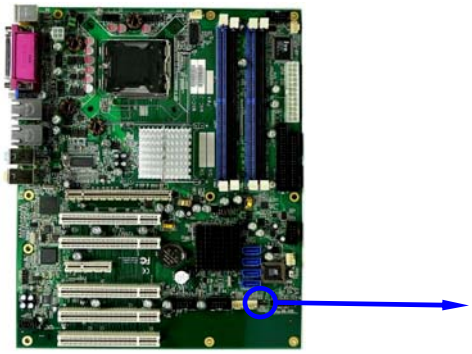
To clear the CMOS, follow the procedure below:

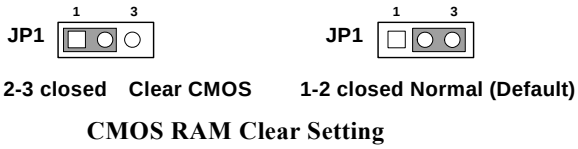
1. Turn off the system and unplug the AC power
2. Remove ATX power cable from ATX power connector
3. Remove JP1 jumper and short pins 2-3 for a few seconds
4. Return JP1 jumper to its normal setting by shorting pins 1-2
5. Connect ATX power cable back to ATX power connector

Note: When should clear CMOS

1. Troubleshooting

2. Forget password





CMOS RAM Clear Setting

2-3 Installation

2-3-1 Glossary

Chipset (or core logic) – An highly integrated circuits which control the interfaces between the system processor, RAM, I/O devises, and adapter cards.
Processor slot/socket - the slot or socket used to mount the system processor on the motherboard.
Slot - (PCI Express, PCI, ISA, DIMM) - the slots used to mount adapter cards and system RAM.
PCI Express – A latest Serial Point to Point Protocol PCI Interconnect, PCIE devices does not share bandwidth.
PCI - **P**eripheral **C**omponent **I**nterconnect - a high speed interface for video cards, sound cards, network interface cards, and modems; runs at 33MHz.
ISA - **I**ndustry **S**tandard **A**rchitecture - a relatively low speed interface primarily used for sound cards and modems; runs at approx. 8MHz.
Serial Port - a low speed interface typically used for mouse and external modems.
Parallel Port - a low speed interface typically used for printers.
PS/2 - a low speed interface used for mouse and keyboards.
USB - **U**niversal **S**erial **B**us - a medium speed interface typically used for mouse, keyboards, scanners, and some digital cameras.
Sound (interface) - the interface between the sound card or integrated sound connectors and speakers, MIC, game controllers, and MIDI sound devices.
LAN (interface) - **L**ocal **A**rea **N**etwork - the interface to your local area network.
BIOS (**B**asic **I**nput/**O**utput **S**ystem) - the program logic used to boot up a computer and establish the relationship between the various components.
Driver - software, which defines the characteristics of a device for use by another device or other software.
Processor - the "**C**entral **P**rocessing **U**nit" (CPU); the principal integrated circuit used for doing the "computing" in "personal computer"
Front Side Bus Frequency - the working frequency of the motherboard, which is generated by the clock generator for CPU, DRAM and PCI BUS.
CPU L2 Cache - the flash memory inside the CPU, normally Intel P4 CPU has 512K or above, while Celeron will have 256K.

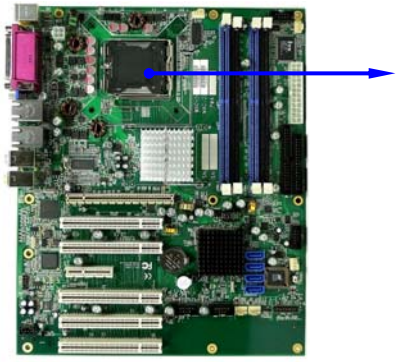
2-3-2 About Intel LGA 775-pin CPU

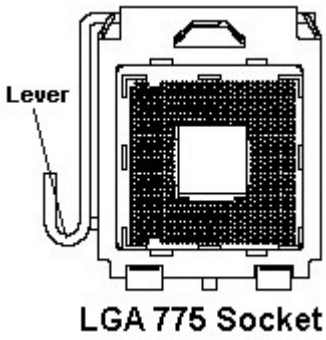
This motherboard provides a 775-pin surface mount ZIF socket (**Z**ero **I**nsertion **F**orce), referred to as the LGA 775 socket supports Intel processor in the 775-land package utilizes Flip-Chip Pin Land Grid Array (FC-LGA4) package technology.

The CPU should have a cooling FAN attached to prevent overheating. If this is not the case, then make sure the CPU has a sufficient cooling to dissipate heat generate from the CPU (Please check with Intel specification).

WARNING!	Be sure that there is sufficient air circulation across the processor's heatsink and CPU cooling FAN is working correctly, otherwise it may cause the processor and motherboard overheat and damage, you may install an auxiliary cooling FAN, if necessary.

To install a CPU, first turn off your system and remove its cover. Locate the LGA775 socket and open it by first pulling the level sideways away from the socket then upward to a 90-degree angle. Insert the CPU with the correct orientation as shown below. The notched corner should point toward the end of the level. Because the CPU has a corner pin for two of the four corners, the CPU will only fit in the orientation as shown.





LGA 775 Socket

When you put the CPU into the ZIF socket. No force require to insert of the CPU, do not touch the socket leads, touching the socket leads may result in damage to the leads. Do not slide or twist the processor during installation.

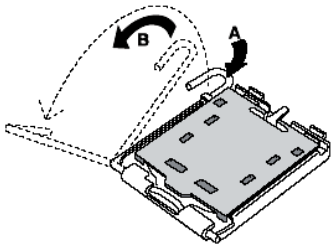
Save The Processor Socket Cover

After removing the processor cover during processor installation, please save the processor socket cover. In the event that the desktop board needs to be returned for service or any time the processor is removed, the cover should be replaced on the processor socket.

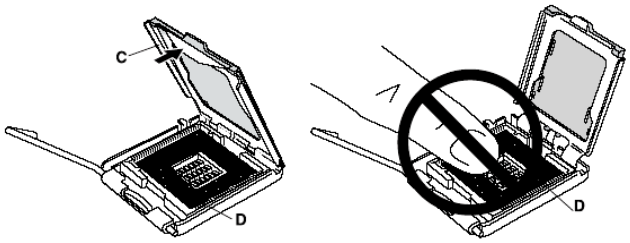
CPU Installation

This processor is intended to be professionally installed. Before installing the processor, please review the additional notes available at http://www.intel.com/go/integration. Take proper electrostatics discharge (ESD) precautions such as using appropriate ground strips, gloves, and ESD mats.

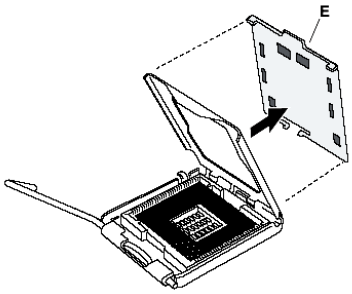
1) Open socket lever by pushing lever down and away from socket (A). Lift lever (B).



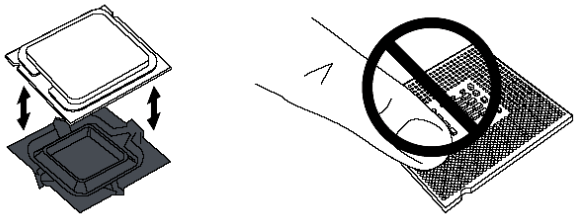
2) Open load plate (C). **DO NOT TOUCH SOCKET CONTACTS (D)**



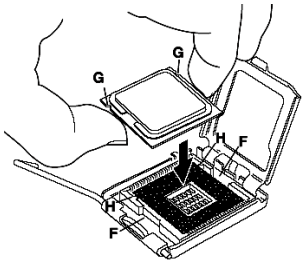
3) Remove protective cover (E) from load plate. Do not discard the protective cover. Always replace the socket cover if the processor is removed from the socket.



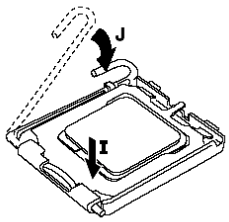
4) Remove processor from protective cover. (HOLD PROCESSOR ONLY AT EDGES, BEING CAREFUL NOT TO TOUCH BOTTOM OF PROCESSOR) Do not discard the protective cover. Always replace the socket cover if the processor is removed from the socket.



5) Hold processor with thumb and index fingers oriented as shown. {Ensure fingers align to socket cutouts (F)}. Align notches (G) with socket (H). Lower the processor straight down without tilting or sliding the processor in the socket.



6) Close load plate. Pressing down on load plate (I) close and engage socket lever (J).



2-4 Install Memory

The BC945G support Dual Channel Technology, operating with Dual Channel Technology, the bandwidth of Memory Bus will double up to 10.7GB/s.

BC945G includes 4x DDR2 DIMM (**D**ouble **D**ata **R**ate) memory socket allow up to a maximum memory size of 4.0GB. Due to chipset resource allocation, the system may detect less than 4 GB of system memory when four 1 GB DDR2 memory modules is installed.

- Support 256Mb, 512Mb and 1Gb technologies implemented as x8, x16 devices.
- Non-ECC un-buffered only.

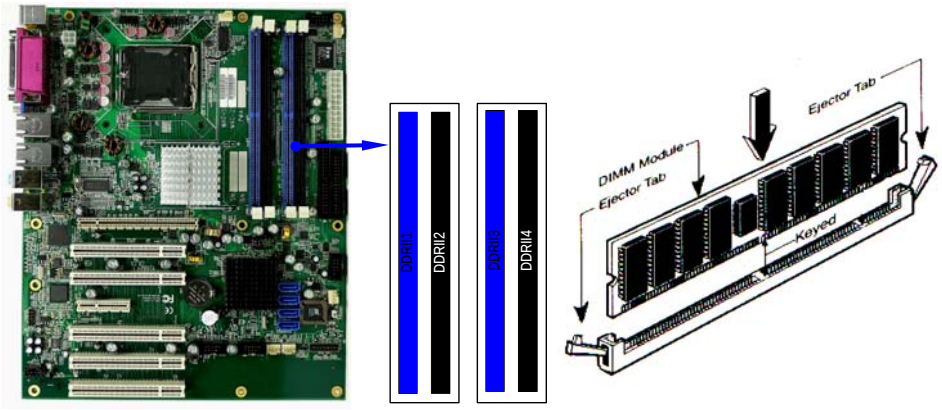
Use of two DDR2 memory modules in to same color DIMMs slots is strongly recommended, for optimal performance for Dual Channel Technology to work. Always install DIMMs with same CAS latency to avoid memory timing compatibility problem. It is also recommended to use memory modules from the same vendor.

Valid Memory Configurations

Bank	DDR2	Single Channel						Dual Channel				Total Memory
DDRII 1	DS/SS DDRII	X				X		X			X	256MB~1.0GB
DDRII 2	DS/SS DDRII		X			X			X	X	X	256MB~1.0GB
DDRII 3	DS/SS DDRII			X			X	X	X		X	256MB~1.0GB
DDRII 4	DS/SS DDRII				X		X			X	X	256MB~1.0GB
Total	System Memory(Max. 4.0GB)											256MB~4.0GB

* DS Double Side, SS Single Side

Generally, installing DDRII SDRAM modules to your motherboard is very easy, refer to figure below to see what a 240-Pin DDRII 533/DDRII 400 SDRAM module looks like.



NOTE! When you install DIMM module fully into the DIMM socket the eject tab should be locked into the DIMM module very firmly and fit into its indention on both sides.

2-5 Expansion Cards

WARNING! Turn off your power when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards.

2-5-1 Procedure For Expansion Card Installation

1. Read the documentation for your expansion card and make any necessary hardware or software setting for your expansion card such as jumpers.
2. Remove your computer's cover and the bracket plate on the slot you intend to use.
3. Align the card's connectors and press firmly.
4. Secure the card on the slot with the screen you remove above.
5. Replace the computer system's cover.
6. Set up the BIOS if necessary.
7. Install the necessary software driver for your expansion card.

2-5-2 Assigning IRQs For Expansion Card

Some expansion cards need an IRQ to operate. Generally, an IRQ must exclusively assign to one use. In a standard design, there are 16 IRQs available but most of them are already in use.

Standard Interrupt Assignments

IRQ	Priority	Standard function
0	N/A	System Timer
1	N/A	Keyboard Controller
2	N/A	Programmable Interrupt
3 *	8	Communications Port (COM2)
4 *	9	Communications Port (COM1)
5 *	6	LPt2 or COM5
6 *	11	Floppy Disk Controller
7 *	7	Printer Port (LPT1)
8	N/A	System CMOS/Real Time Clock
9 *	10	ACPI Mode when enabled
10 *	3	IRQ Holder for PCI Steering
11 *	2	IRQ Holder for PCI Steering
12 *	4	PS/2 Compatible Mouse Port
13	N/A	Numeric Data Processor
14 *	5	Primary IDE Channel
15 *	1	Secondary IDE Channel

* These IRQs are usually available for ISA or PCI devices.

2-5-3 Interrupt Request Table For This Motherboard

Interrupt request are shared as shown the table below:

	INT A	INT B	INT C	INT D	INT E	INT F	INT G	INT H
PCI Slot 1		√						
PCI Slot 2				√				
PCI Slot 3					√			
PCI Slot 4						√		
PCI Slot 5							√	
Onboard 82541PI LAN	√							
Onboard PCIE GbE LAN								

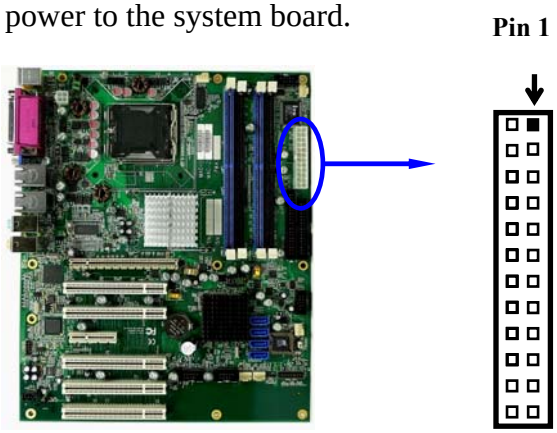
IMPORTANT! If using PCI cards on shared slots, make sure that the drivers support "Shared IRQ" or that the cards don't need IRQ assignments. Conflicts will arise between the two PCI groups that will make the system unstable or cards inoperable.

2-6 Connectors, Headers

2-6-1 Connectors

(1) Power Connector (24-pin block) : (J36)

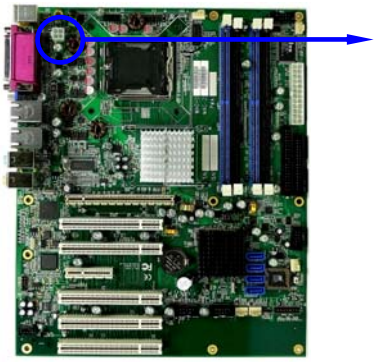
ATX Power Supply connector. This is a newly defined 24-pin connector that usually comes with newer ATX power supplies. The ATX Power Supply allows the use a soft power on momentary switch that connect from the front panel switch to a 2-pin Power-On jumper pole on the motherboard. When the power switch on the back of the ATX power supply is turned on, the full power will not come into the system board until the front panel switch is momentarily pressed. Press this switch again will turn off the power to the system board.

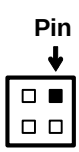


PIN	ROW2	ROW1	PIN
13	3.3V	3.3V	1
14	-12V	3.3V	2
15	GND	GND	3
16	Soft Power On	5V	4
17	GND	GND	5
18	GND	5V	6
19	GND	GND	7
20	-5V	Power OK	8
21	+5V	+5V (for Soft Logic)	9
22	+5V	+12V	10
23	+5V	+12V	11
24	GND	+3.3V	12

(2) ATX 12V Power Connector (4-pin block) : (J12)

This is a newly defined 4-pin connector that usually comes with ATX Power supplies. The ATX Power supplies that fully support Pentium 4 processor must include this connector for supporting a stable 12V power consumption. Without this connector, the system may become unstable due to insufficient current to the system.





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

(3) PS/2 Mouse & PS/2 Keyboard Connector: (J5)

The connectors for PS/2 keyboard and PS/2 Mouse.

(4) USB Port connector: USB 0/ 1(J9), USB 2/3 (J8)

The connectors are 4-pin connector that connect USB devices to the system board.

(5) LAN Port connector: PCIE (J9), PCI (J8)

This connector is standard RJ45 connector for Network connector.

(6) Parallel Port Connector (25-pin female): (J11)

Parallel Port connector is a 25-pin D-Subminiature Receptacle connector. The On-board Parallel Port can be disabled through the BIOS SETUP. Please refer to Chapter 3's "INTEGRATED PERIPHERALS SETUP" section for more detail information.

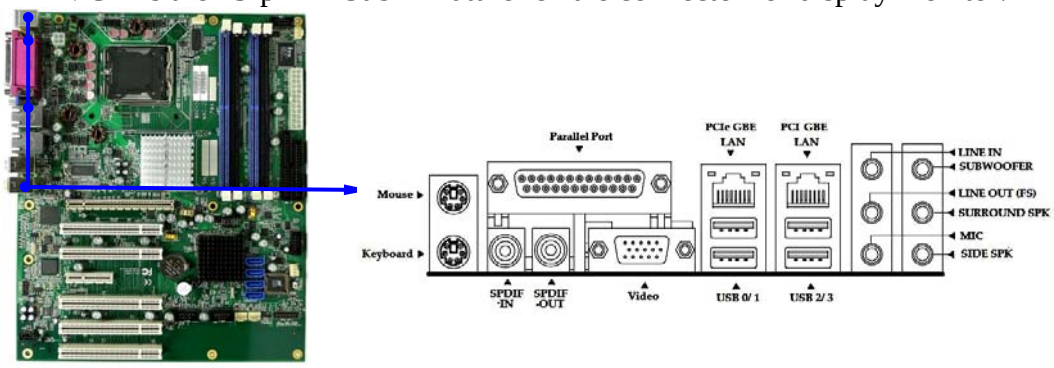
(7) Audio Connector : (J1, J2)

This connector has 3 phone jacks for LINE-OUT, LINE-IN, MIC and the another connector with 3 phone jacks for .

Line-out :	Audio output to speaker
Line-in :	Audio input to sound chip
MIC :	Microphone Connector
Center/ Subwoofer :	Center and Subwoofer speaker out
Rear:	Rear speaker out
Side:	Side speaker out

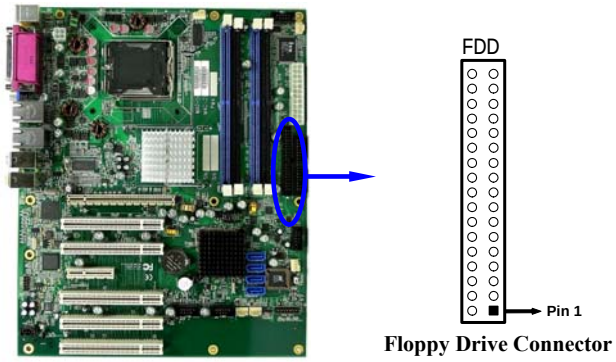
(8) VGA Connector (15-pin D-Sub) Connector: VGA

VGA is the 15-pin D-Subminiature female connector for display monitor.



(9) Floppy drive Connector (34-pin block): FDD

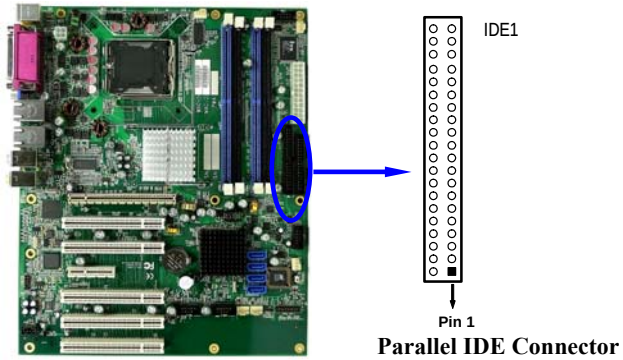
This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to the motherboard, connect the two plugs at other end to floppy drives.



Floppy Drive Connector

(10) Primary IDE Connector (40-pin block): IDE1

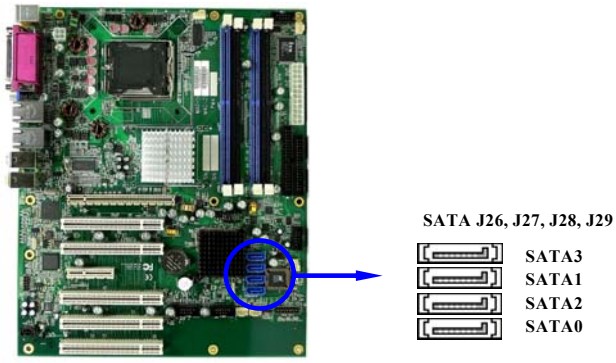
This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers accordingly. Please refer to the documentation of your hard disk for the jumper settings.



Parallel IDE Connector

(12) Serial ATA J26, J27, J28, J29

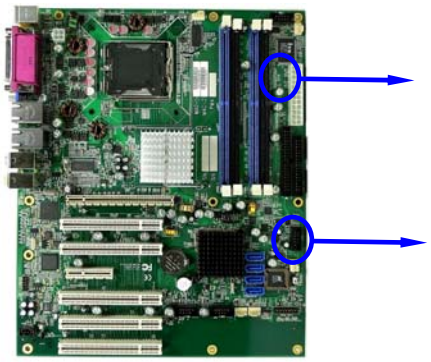
This connector supports Serial ATA devices. After connecting the single plug end to motherboard, connect the plug at other end to the SATA device.

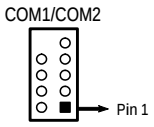


2-6-2 Headers

(1) Serial Port : COM1 (J33), COM2 (J31)

COM1 & COM2 are onboard 9-pin headers. The On-board serial port can be disabled through BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more detail information.



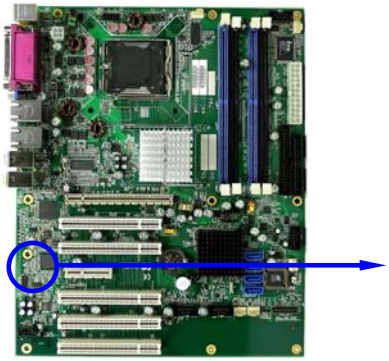


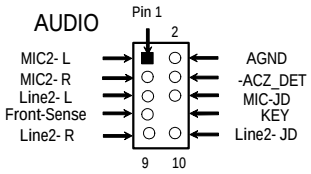
Signal	Pin		Signal
KEY	10	5	GND
RI	9	4	DTR
CTS	8	3	TxD
RTS	7	2	RxD
DSR	6	1	DCD

Serial Port COM1/ COM2 Header

2) Line-Out, MIC Header (9-pin): (J6)

This header connect to the Front Panel Line-out, MIC connector with use of a cable.

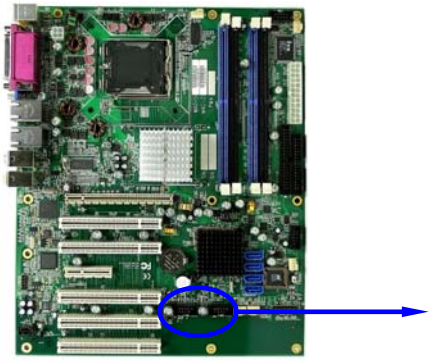


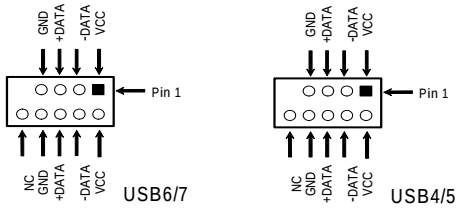


Front Audio Headers J6

(3) Front USB 1/ 2 Headers (9-pin) : (J21, J23)

These headers are used for connecting the additional USB port plugs. By attaching an option USB cable, your can be provided with two additional USB plugs affixed to the back panel.





USB Port Headers

(4) IDE Activity LED: IDE LED (J34)

This connector connects to the hard disk activity indicator light on the case.

(5) Reset switch lead: RESET (J34)

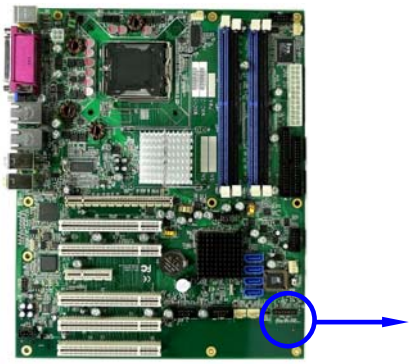
This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply. See the figure below.

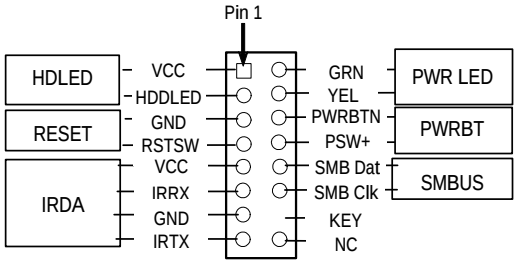
(6) Power LED (J34)

The Power LED is light on while the system power is on. Connect the Power LED from the system case to this pin.

(8) Power switch: PWR BTN (J34)

This 2-pin connector connects to the case-mounted power switch to power ON/OFF the system.

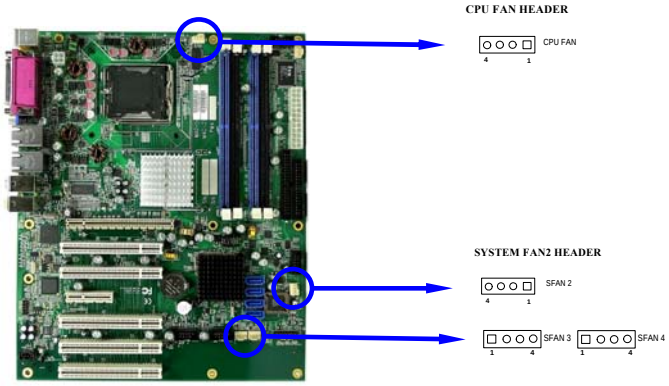




System Front Panel J34

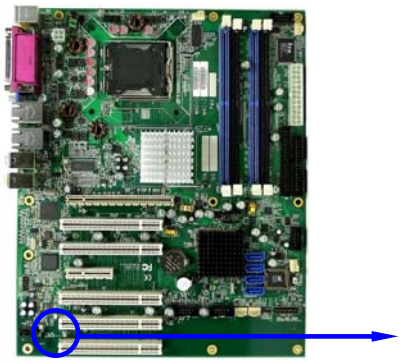
(9) FAN Speed Headers (3-pin) : Chassis FAN, SYSFAN, CPUFAN

These connectors support cooling fans, depending on the fan manufacturer, the wire and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of the connector.



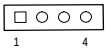
(10) CD Audio-In Headers (4-pin) : (J10)

CDIN is the connector for the CD-Audio Input signal. Please connect it to CD-ROM CD-Audio output connector.



CD Audio Header J10

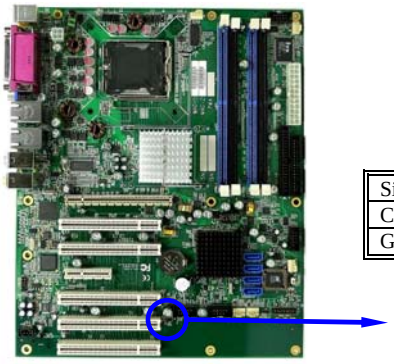
CD-IN



J10	
Pin	Signal
1	CD-L
2	CD-GND
3	CD-GND
4	CD-R

(11) Chassis Intrusion (J20)

Intrusion detection is triggered when these two pins are shorted. A message will show during POST after the next reboot..



Signal	Pin
Chassis#	1
GND	2

2-7 Starting Up Your Computer

1. After all connection are made, close your computer case cover.
2. Be sure all the switches are off, and check that the power supply input voltage is set to the local voltage, usually input voltage is 220V~240V or 110V~120V depending on the voltage used in your country.
3. Connect the power supply cord into the power supply located on the back of your system case according to your system user's manual.
4. Turn on your peripheral in the following order:
   a. Your monitor.
   b. Other external peripheral (Printer, Scanner, External Modem etc…)
   c. Your system power. For ATX power supplies, you need to turn on the power supply and then press the ATX power switch on the front side of the case.
5. The power LED on the front panel of the system case will light. The LED on the monitor may light up or switch from orange to green after the system is on, if it complies with green standards or if it is has a power standby feature. The system will then run power-on test. While the self-test is running, the BIOS will alarm beeps or additional message will appear on the screen.

   If you do not see any thing within 30 seconds from the time you turn on the power. The system may have failed the power-on test. Recheck your jumper settings and connections or call your retailer for assistance.

Beep	**Meaning**
One short beep when displaying logo	No error during POST
Long beeps in an endless loop	No DRAM install or detected
One long beep followed by three short beeps	Video card not found or video card memory bad
High frequency beeps when system is working	CPU overheated System running at a lower frequency

6. During power-on, press <Del> key to enter BIOS setup. Follow the instructions in BIOS SETUP.
7. **Power off your computer:** You must first exit or shut down your operating system before switching off the power switch. For ATX power supplies, you can press the ATX power switch to shut down your operating system. If you use Windows 2K, XP, click **"Start"** button, click **"Shut down"** and then click **"Shut down the computer?"** The power supply should turn off after windows shut down.

Chapter 3

Introducing BIOS

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between the motherboard and the operating system. When starting the computer, the BIOS program has control of the system. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. After these tasks are completed, the BIOS gives up control of the computer over to the operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and ensuring optimal system performance.

In the BIOS Setup main menu of Figure 3-1, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press <Esc> to quit the BIOS Setup.
- Press ↑↓←→ (up, down, left, right) to choose, in the main menu, the option you want to confirm or to modify.
- Press <F10> when you have completed the setup of BIOS parameters to save these parameters and to exit the BIOS Setup menu.
- Press Page Up/Page Down or +/– keys when you want to modify the BIOS parameters for the active option.

3-1 Entering Setup

Power on the computer and keep pressing <Del> immediately until you enter Setup.

If the “Enter Setup” message disappears before you had a chance to respond, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys.

3-2 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the right side of the screen.

3-3 The Main Menu

Once you enter the Award® BIOS CMOS Setup Utility, the Main Menu (Figure 3-1) will appear on the screen. The Main Menu allows you to select from fourteen setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

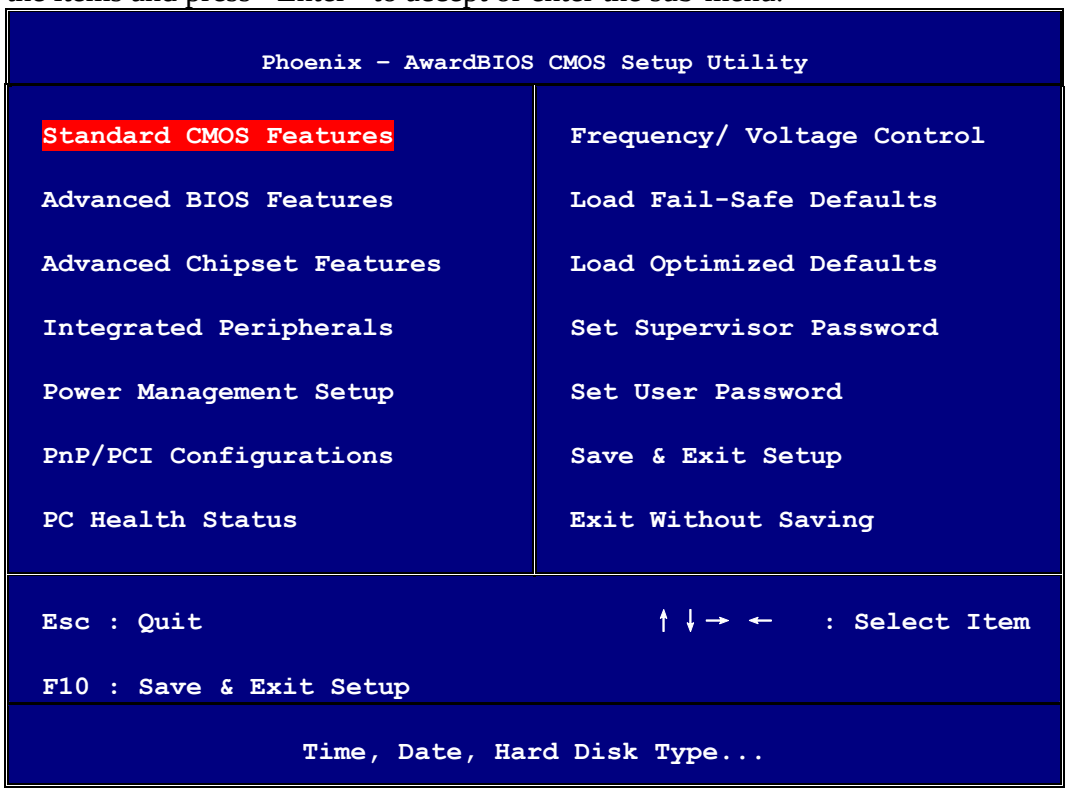
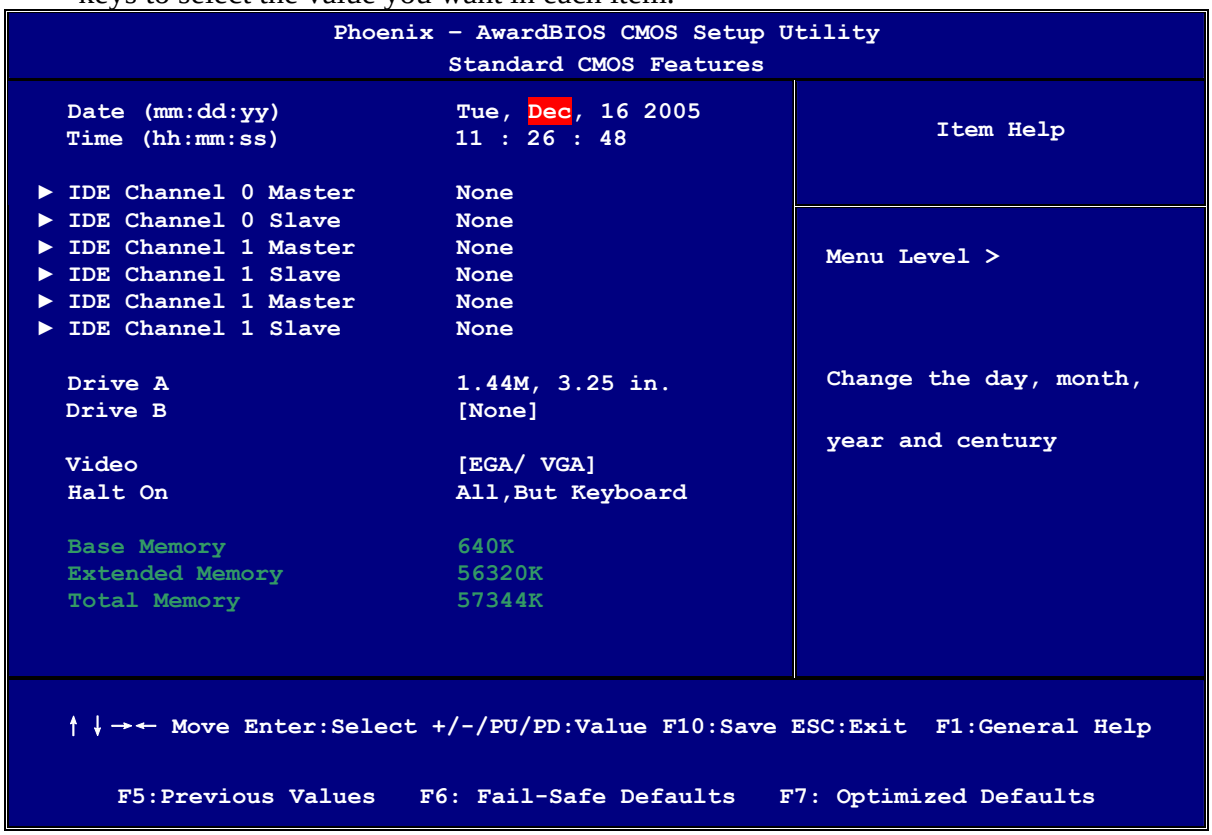


Figure 3-1

3-4 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into several categories. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



Date

The date format is <day><month><date><year>.

Day Day of the week, from Sun to Sat, determined by BIOS. Read-only.

Month The month from Jan. through Dec.

Date The date from 1 to 31 can be keyed by numeric function keys.

Year The year depends on the year of the BIOS.

Time The time format is <hour><minute><second>.

Primary Master/Primary Slave

Secondary Master/Secondary Slave

Press PgUp/<+> or PgDn/<–> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your

hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

Access Mode	The settings are Auto, CHS, Large, and LBA.
Cylinder	number of cylinders
Head	number of heads
Precomp	write precomp
Landing Zone	landing zone
Sector	number of sectors

Video

Select the type of primary video subsystem in your computer. The BIOS usually detects the correct video type automatically. The BIOS supports a secondary video subsystem, but you do not select it in Setup.

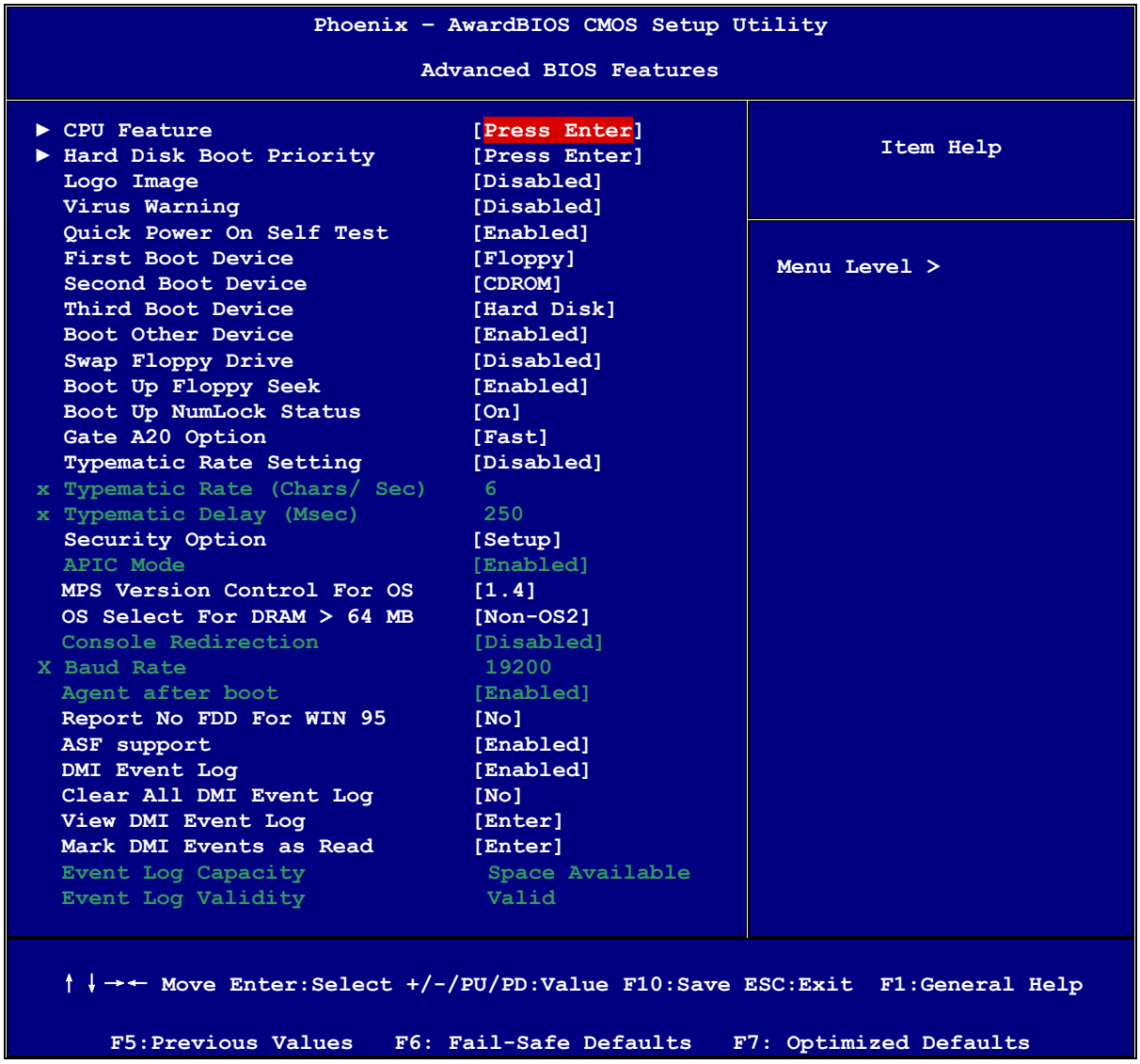
EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode
CGA 80	Color Graphics Adapter, power up in 80 column mode
MONO	Monochrome adapter, includes high resolution monochrome adapters

Halt On

During the power-on self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process.

All Errors	If the BIOS detects any error, POST stops and prompts you to continue or enter BIOS setup.
No Errors	POST does not stop for any errors.
All, But Keyboard	POST stops for all errors except keyboard errors.
All, But Diskette	POST stops for all errors except diskette drive errors.
All, But Disk/Key	POST stops for all errors except keyboard or disk errors.

3-5 Advanced BIOS Features



CPU Feature

See 3-5-1.

Hard Disk Boot Priority

See 3-5-2.

Logo Image

Select a logo to be shown during bootup.

Virus Warning

Allow you to enabled or disabled boot sector overwrite protection

Quick Power On Self Test

Select Enabled to reduce the amount of test ran during power-on self-test (POST).

First/Second/Third Boot Device

Selects order for boot devices

Boot Other Device

If enabled, the BIOS will check for unlisted boot devices after it has failed to boot from the three listed boot devices.

Swap Floppy Drive

This field is effective only in systems with two floppy drives. Selecting Enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.

Boot Up Floppy Seek

When Enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks.

Boot Up NumLock Status

Controls the state of the NumLock key when the system boots.

Gate A20 Option

Refers to the way the system addresses memory above 1 MB (extended memory). When set to Fast, the system chipset controls Gate A20. When set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.

Typematic Rate Setting

When Enabled, you can select a typematic rate and typematic delay.

Security Option

If you have set a password, select whether the password is required every time the System boots, or only when you enter Setup.

APIC Mode

The Advanced Programmable Interrupt Controller (APIC) prioritizes interrupts.

MPS Version Control For OS

Allows the operating system to work with multiple CPUs. Select “1.1” for compatibility with older OS.

OS Select For DRAM > 64MB

Enable only if you are running OS/2 operating system with greater than 64 MB of RAM on your system.

Console Redirection

"Enabled" redirects console to COM port; "Disabled" redirects when keyboard is absent.

Agent after boot

If enabled, this keeps agent running after OS boots.

Report No FDD For WIN 95

If no floppy drive is used for Win95, select "Yes" for compatibility reasons.

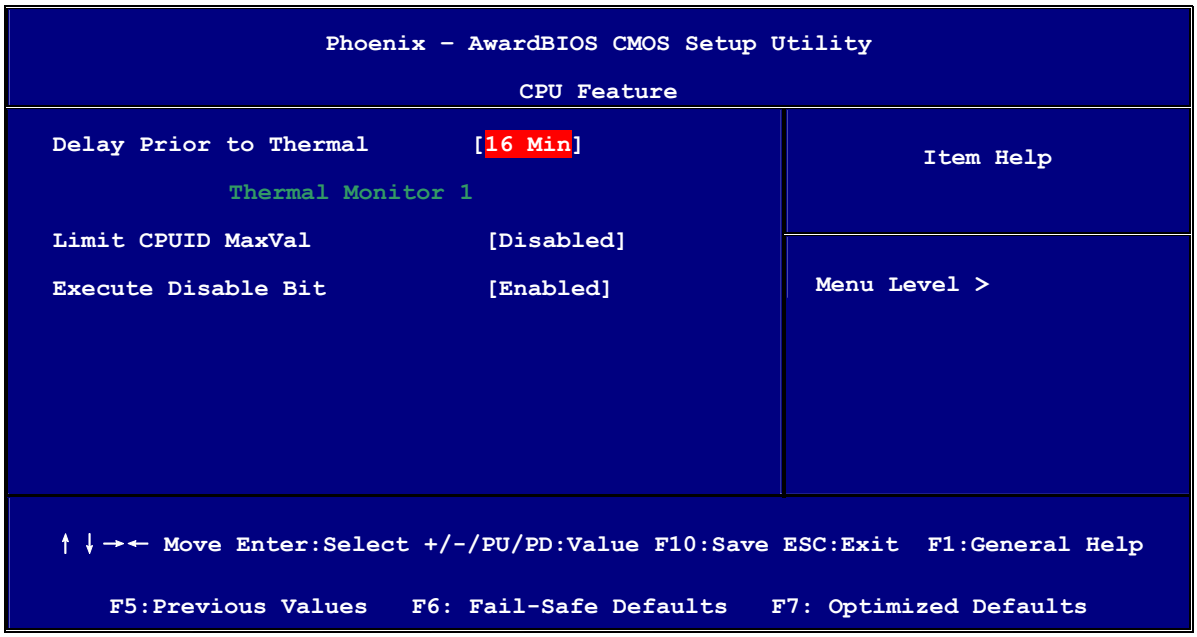
ASF support

Enable Alert Standard Format (ASF) provides advance warning and system failure, and should be enabled for remote system management.

DMI Event Log

Enables logging of Desktop Management Interface (DMI) events.

3-5-1 CPU Feature



Delay Prior to Thermal

Some Intel processors have a function called Thermal Control Circuit (TCC) to prevent overheating of the CPU. When TCC is activated, the CPU idles about 50-70% of the time to cool down the processor. During bootup, the CPU will typically heat up during heavy load, and it is not desired to trigger the TCC too early because it will reduce performance. Settings are 4, 8, 16, and 32 minutes.

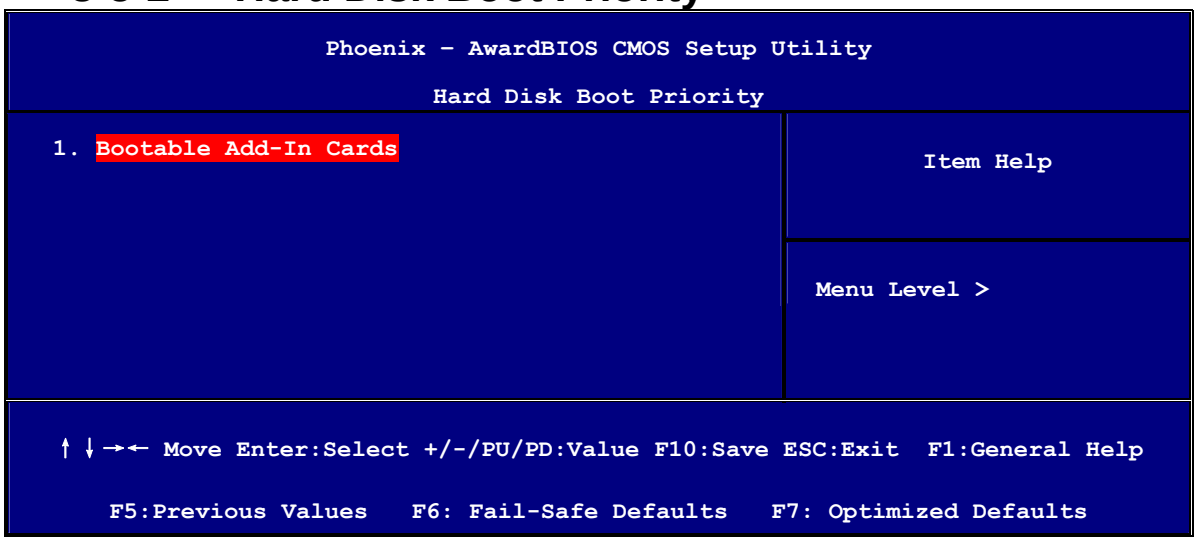
Limit CPUID MaxVal

Intel Penitum 4 with Hyper-Threading Technology processors report a higher CPUID than "3". Older operating systems are not able to recognize this, so this setting should be enabled if using such OS.

Execute Disable Bit

When enabled, this feature protects areas of memory from malicious code.

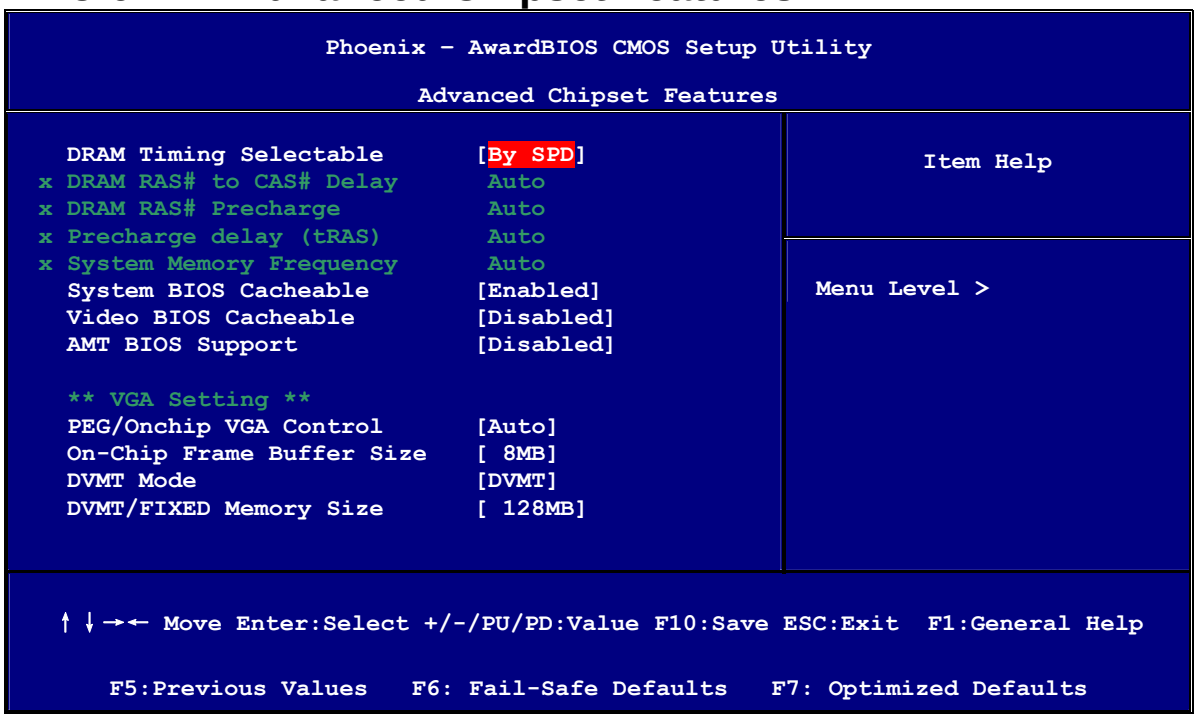
3-5-2 Hard Disk Boot Priority



Hard Disk Boot Priority

Use arrow key to select a device, and <Pg Up>/<Pg Down> to change .

3-6 Advanced Chipset Features



DRAM Timing Selectable

Control the DRAM timing manually by the SPD (EEPROM on the RAM module).

DRAM RAS# To CAS# Delay

This field allow you to insert a timing delay between the CAS and RAS strobe. Avalable choices: 2 or 3.

DRAM RAS# Precharge

Select the number of CPU clocks allocated for the RAS# signal to accumulate its charge before the DRAM is refreshed. Available choice : 2 or 3.

Precharge delay (tRAS)

Select the delay between active and precharge command.

System Memory Frequency

Sets the frequency of the RAM module.

System BIOS Cacheable

This option allow you to Enable or Disable the system BIOS to be cache to DRAM. Available choice: Enabled or Disabled.

Video BIOS Cacheable:

This Option Allow you to Enable or Disable the video BIOS to be cache to DRAM. Available choice: Enabled or Disabled.

AMT BIOS Support

Enables AMT; After reboot, hit Ctrl+P to enter AMT setup.

PEG/Onchip VGA Control

Select between Onchip VGA or PCIe graphics card.

On-Chip Frame Buffer Size

This item allows you to set the on-chip frame buffer size. Available choice: 1M, 8M.

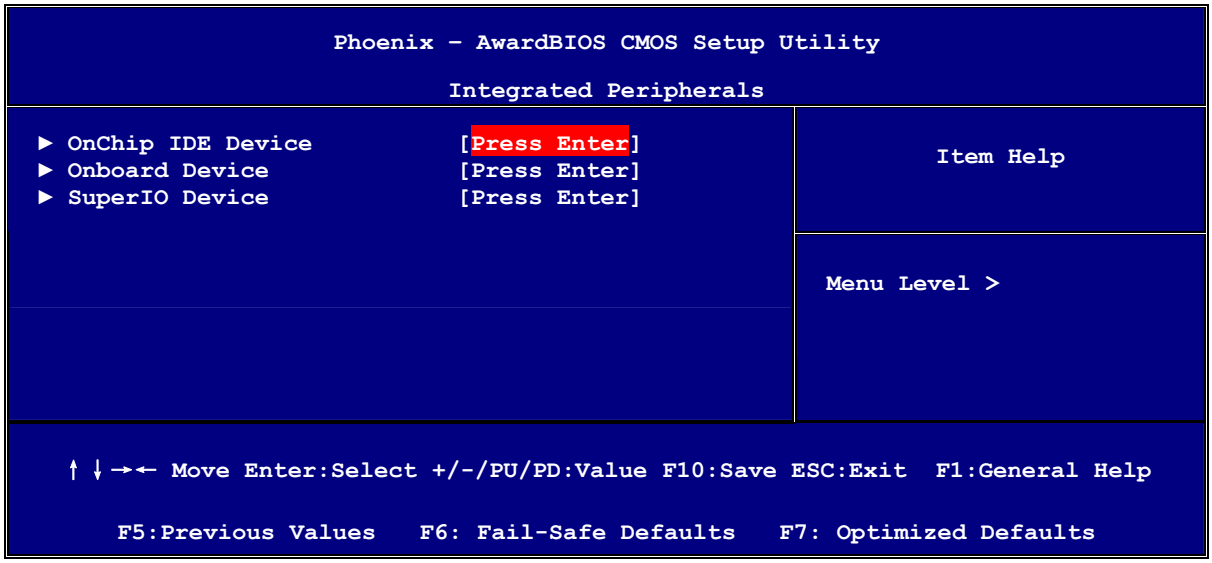
DVMT Mode

This item allows you to select the Dynamic Video Memory Technology (DVMT) to a Fixed (constant), DVMT (dynamic) or Both (minimum is constant, but allows it to dynamically increase).

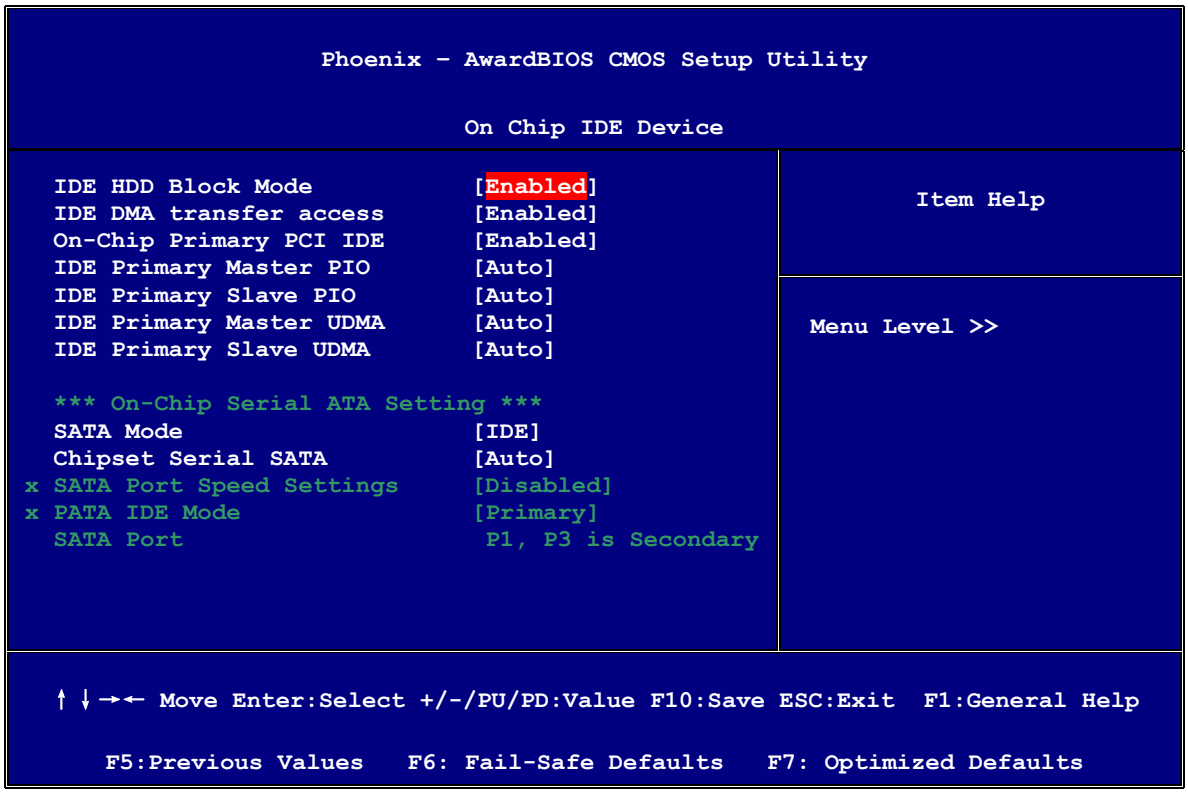
DVMT/FIXED Memory Size

This item allows you to select the DVMT/ Fixed Memory Size. Available choice: 64MB or 128MB.

3-7 Integrated Peripherals



3-7-1 Chipset IDE Devices



IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

IDE DMA transfer access

On-Chip Primary PCI IDE

Enables the Primary IDE channel.

IDE Primary Master PIO

Selects the PIO mode for Primary IDE Master. Avalable options are: Auto, Mode 0, Mode 1, Mode 2, Mode 3 or Mode 4.

IDE Primary Slave PIO

Selects the PIO mode for Primary IDE Slave. Avalable options are: Auto, Mode 0, Mode 1, Mode 2, Mode 3 or Mode 4.

IDE Primary Master UDMA

Enables UDMA detection for Primary IDE Master. Available options are: Auto or Disabled.

IDE Primary Slave UDMA

Enables UDMA detection for Primary IDE Slave. Available options are: Auto or Disabled.

SATA Mode

Selects mode of operation for SATA function.

IDE - no AHCI, no RAID; SATA drives operate as standard IDE drives.

RAID - AHCI enabled, RAID enabled; Redundant Array of Independent Disks (RAID) provides features for fault tolerance and/or performance.

AHCI - AHCI enabled, no RAID; Advanced Host Controller Interface (AHCI) enables advanced Serial ATA features such as Native Command Queuing and hot plug.

On-Chip Serial ATA

Selects the different modes for the SATA controller.

Disabled: Disables SATA controller

Auto: Auto arrange by BIOS

Combined Mode: PATA and SATA are combined. Max of 2 IDE drives in each channel.

Enhanced Mode: Enable both SATA and PATA. Max of 6 IDE drives are supported.

SATA Only: SATA is operating in legacy mode.

SATA PORT Speed Settings

This item allows you to select the speed of SATA ports.

[Disabled] Disable this function.

[Force GEN I] Force the data transfer rates to 1.5Gb/s(150 MB/s)

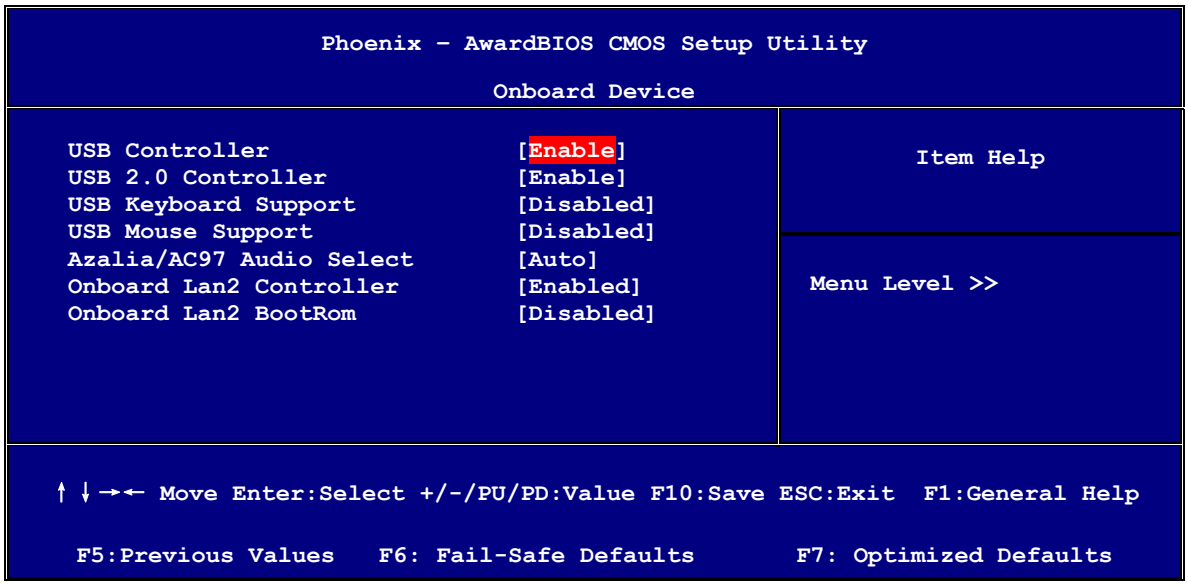
[Force GEN II] Force the data transfer rates to 3.0Gb/s(300 MB/s)

PATA IDE Mode

Changes mode for SATA Port.

Primary: P1, P3 is Secondary
Secondary: P0, P2 is Primary

3-7-2 Onboard Device



USB Controller

This option allows you to Enabled or Disabled the onboard USB controller. Available choices: Enabled or Disabled.

USB 2.0 Controller

This option allows you to Enabled or Disabled onboard USB 2.0 or 1.1 only. Available choice: Enabled or Disabled.

USB Keyboard Support

This option allows you to Enabled or Disabled the USB keyboard legacy supports. Available choice: Enabled or Disabled.

USB Mouse Support

This option allows you to Enabled or Disabled USB mouse legacy support. Available choice: Enabled or Disabled.

Azalia/ AC97 Audio Select

This option allows you to use the HD audio (Azalia). Available choice: Auto or Disabled.

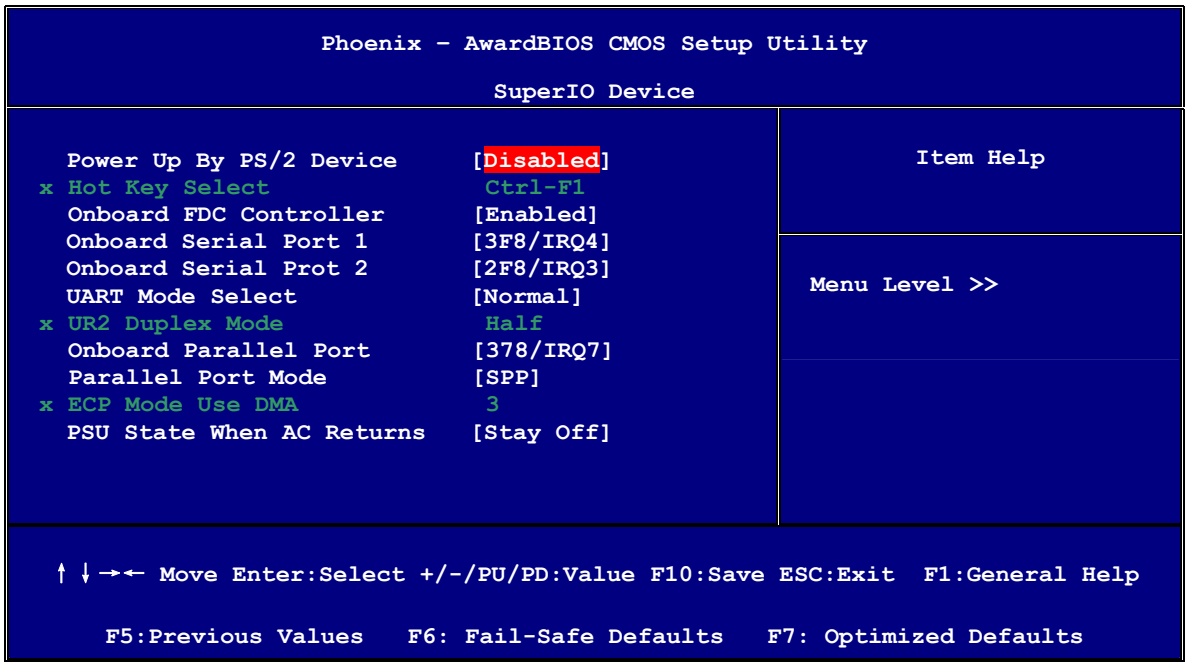
Onboard Lan2 Controller

This option allows you to enable or disable the onboard LAN2 (82541PI).

Onboard Lan2 BootRom

This option allows you to enable or disable the PXE ROM for LAN2.

3-7-3 SuperIO Device



Power Up By PS/2 Device

Enables the system to be turned on through PS/2 keyboard or mouse.

Hot Key Select

Sets the Hot Key to turn on the system.

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field. The settings are: Enabled and Disabled.

Onboard Serial Port 1/2

Select an address and corresponding interrupt for the first and the second serial ports.

Available settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

UART Mode Select

Selects the mode the UART operates under. Aavailble settings are: Normal, IrDA, ASKIR, or SCR.

Onboard Parallel Port:

There is a built-in parallel port on the on-board Super I/O chipset that provides Standard, ECP, and EPP features. It has the following option:

Disabled

(3BCH/IRQ7)/ Line Printer port 0

(278H/IRQ5)/ Line Printer port 2

(378H/IRQ7) Line Printer port 1

Parallel Port Mode

SPP : Standard Parallel Port

EPP : Enhanced Parallel Port

ECP : Extended Capability Port

SPP/EPP/ECP/ECP+EPP

To operate the onboard parallel port as Standard Parallel Port only, choose “SPP.” To operate the onboard parallel port in the EPP modes simultaneously, choose “EPP.” By choosing “ECP”, the onboard parallel port will operate in ECP mode only. Choosing “ECP+EPP” will allow the onboard parallel port to support both the ECP and EPP modes simultaneously.

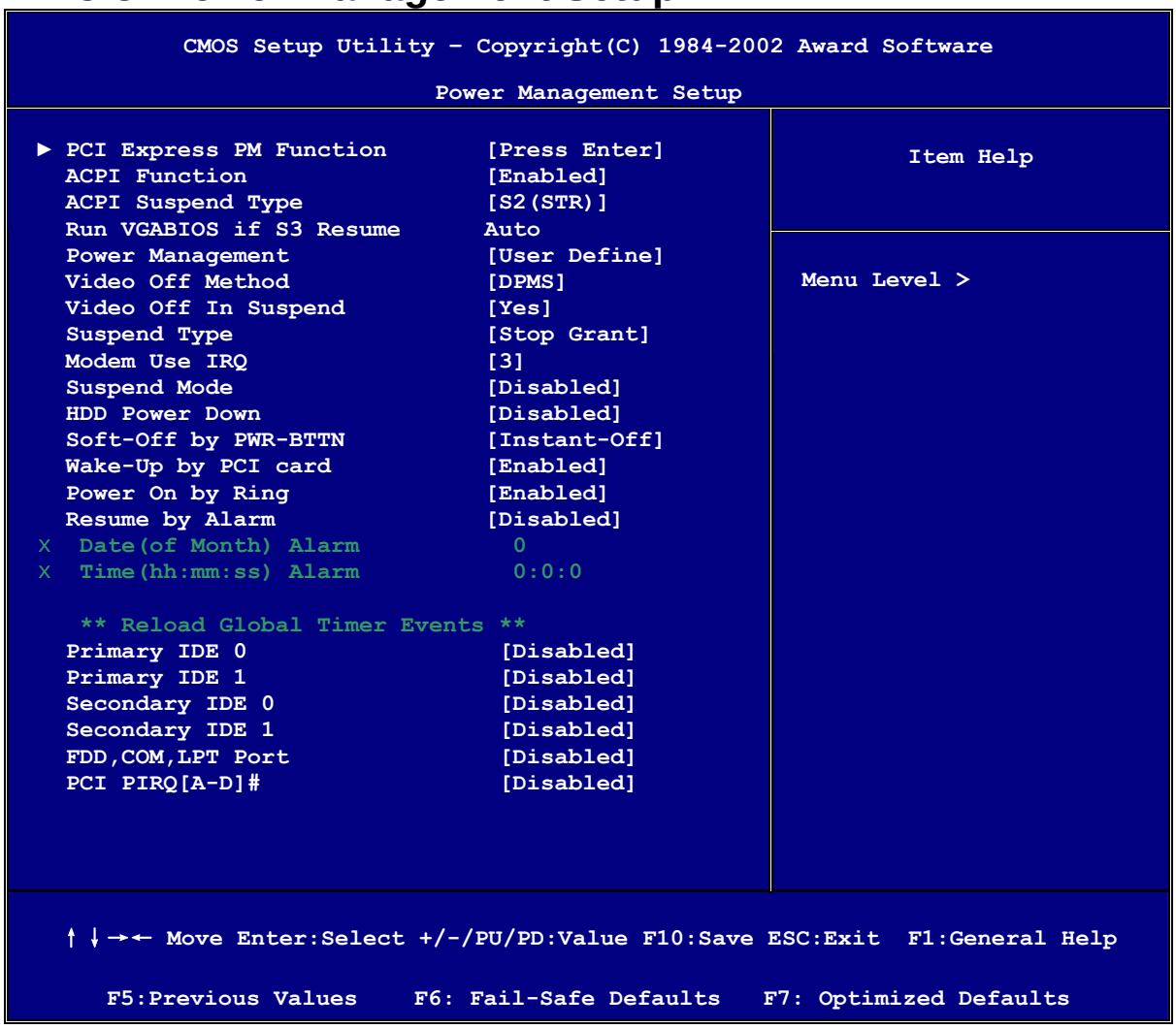
ECP Mode Use DMA

If ECP is selected, DMA channel 1 or 3 must be chosen.

PWRON After PWR-Fail

This item allows you to select system power status after power is lost. Available choice: Off, On, Former-Sts.

3-8 Power Management Setup



PCI Express PM Function

See Section 3-8-1

ACPI Function

Enables or disables the Advanced Configuration and Power Interface (ACPI).

ACPI Suspend Type

This option allows you to select ACPI suspend mode. Available choice: S1, S3 or S1 & S3.

Power Management

This option allows you to select the type (or degree) of power saving for the Suspend mode.

Video Off Method

Determines the manner in which the monitor is blanked.

Blank Screen System: only writes blanks to the video buffer.

V/H SYNC+Blank: System turns off vertical and horizontal synchronization ports and writes blanks to the video buffer.

DPMS: Display Power Management Signaling (DPMS) mode uses the software supplied for your video subsystem to select video power management values.

Video Off In Suspend

Determines whether the video is turned off under Suspend Mode.

Suspend Type

Selects the behavior of the CPU after it enters Suspend Mode.

Stop Grant: CPU goes into idle mode during power saving mode

PwrOn Suspend: CPU and system remain powered on in suspend mode

MODEM Use IRQ

Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

Suspend Mode

After the selected period of system inactivity, all devices except the CPU shut off.

HDD Power Down

After the selected period of drive inactivity, the hard disk drive powers down while all other devices remain active.

Soft-Off by PWR-BTTN

When Enabled, turning the system off with the on/off button places the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity.

Wake-Up by PCI card

When Disabled is selected, the system will ignore any incoming call from the PCI card/modem. When Enabled is selected, the system will boot up if there's an incoming call from the PCI card /modem.

Power On by Ring

An input signal on the Ring Indicator (RI) line (such as a modem) that awakens the system from the off state.

Resume by Alarm

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

Date(of month) Alarm

You can choose which month the system will boot up. Set to 0, to boot every day.

Time(hh:mm:ss) Alarm

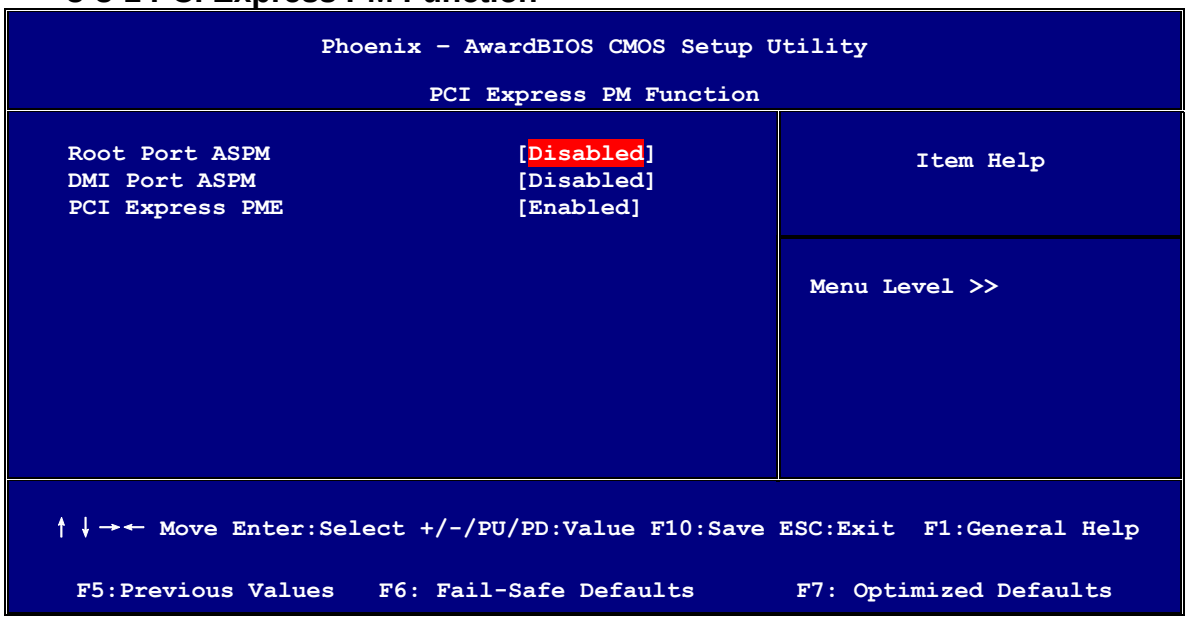
You can choose what hour, minute and second the system will boot up.

Note: If you have change the setting, you must let the system boot up to the operating system before this function will work

Reload Global Timer Events

When Enabled, an event occurring on each listed device restarts the global timer for Standby mode

3-8-1 PCI Express PM Function



Root Port ASPM

Controls the Active State Power Management (ASPM) support.

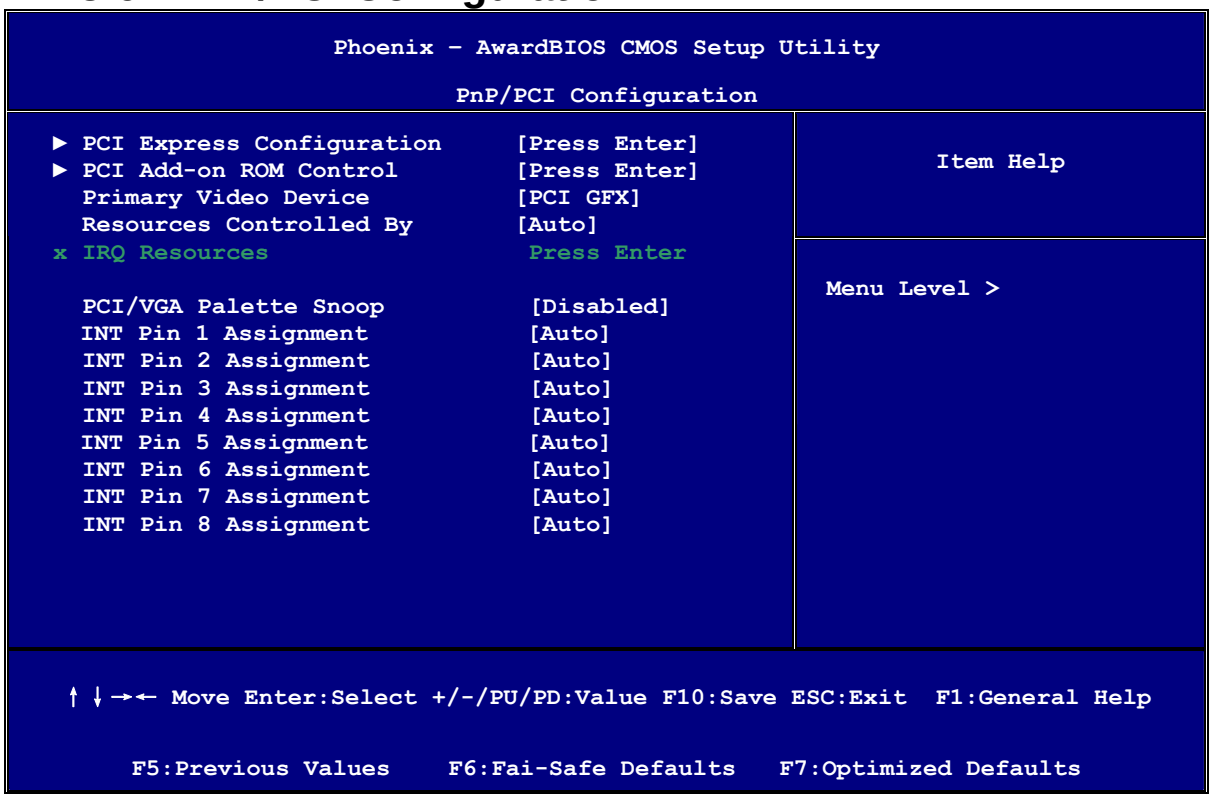
DMI Port ASPM

Controls the ASPM for the Direct Media Support (DMI).

PCI Express PME

Enables the monitoring of PCIe Power Management Events (PME).

3-9 PnP/PCI Configuration



PCI Express Configuration

See Section 3-9-1.

Primary Video Device

This item allows you to select which display will have priority. To use a PCI video card as the primary display, select "PCI GFX". Available choice: PCI GFX, i945G or PCIe GFX.

Resource Controlled By:

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95/98. If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a ">").

The settings are: Auto(ESCD), Manual.

IRQ Resources:

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

Please refer to section 3-9-2

PCI/VGA Palette Snoop:

Leave this field at *Disabled.* The settings are Enabled, Disabled.

Maximum Payload Size:

This item allows you to select the PCIE data packet payload size.

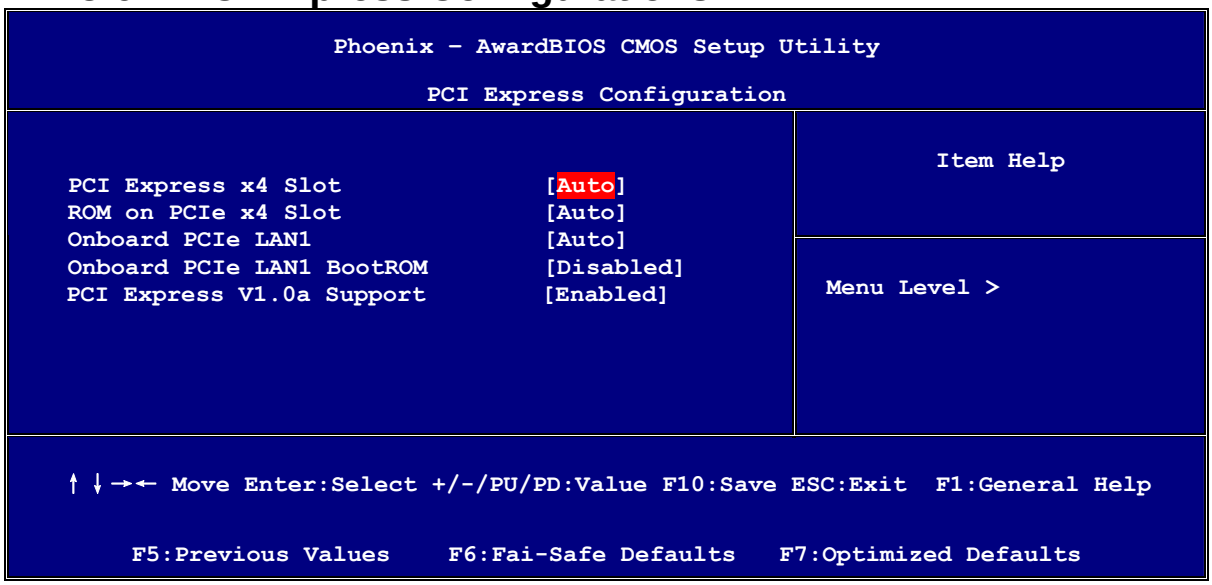
Available choice: 128, 256, 512, 1024, 2048 or 4096.

Leave this field at *Disabled* unless there is a compatibility problem with the video card. The settings are Enabled, Disabled.

INT Pin 1-8 Assignment

This setting allows the manual assignment of IRQs to the Interrupt pins.

3-9-1 PCI Express Configurations



PCI Express x4 Slot

Controls whether the PCIe x4 slot is Enabled, Disabled, or Auto-detected.

ROM on PCIe x4 Slot

Enables or disables the device's ROM on the PCIe x4 slot.

Onboard PCIe Lan1

Enables or disables PCIe LAN device (82573E).

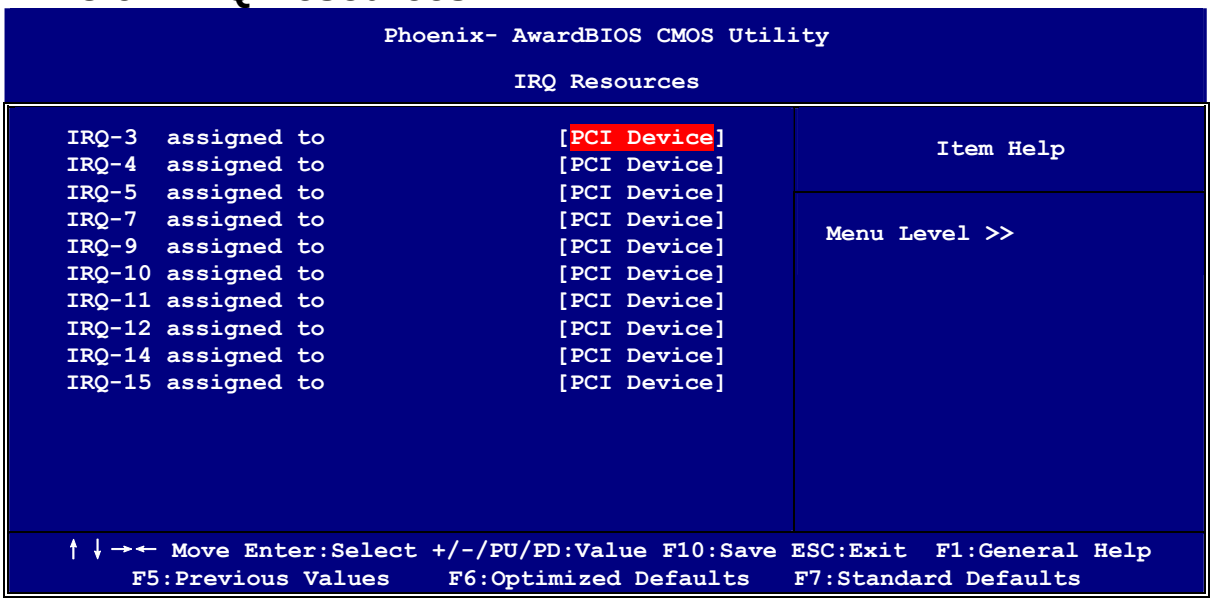
Onboard PCIe Lan1 BootROM

Enables or disables the BootROM (PXE) from the PCIe LAN device (82573E).

PCI Express V1.0a Support

Enables compatibility for PCIe v1.0a.

3-9-2 IRQ Resources

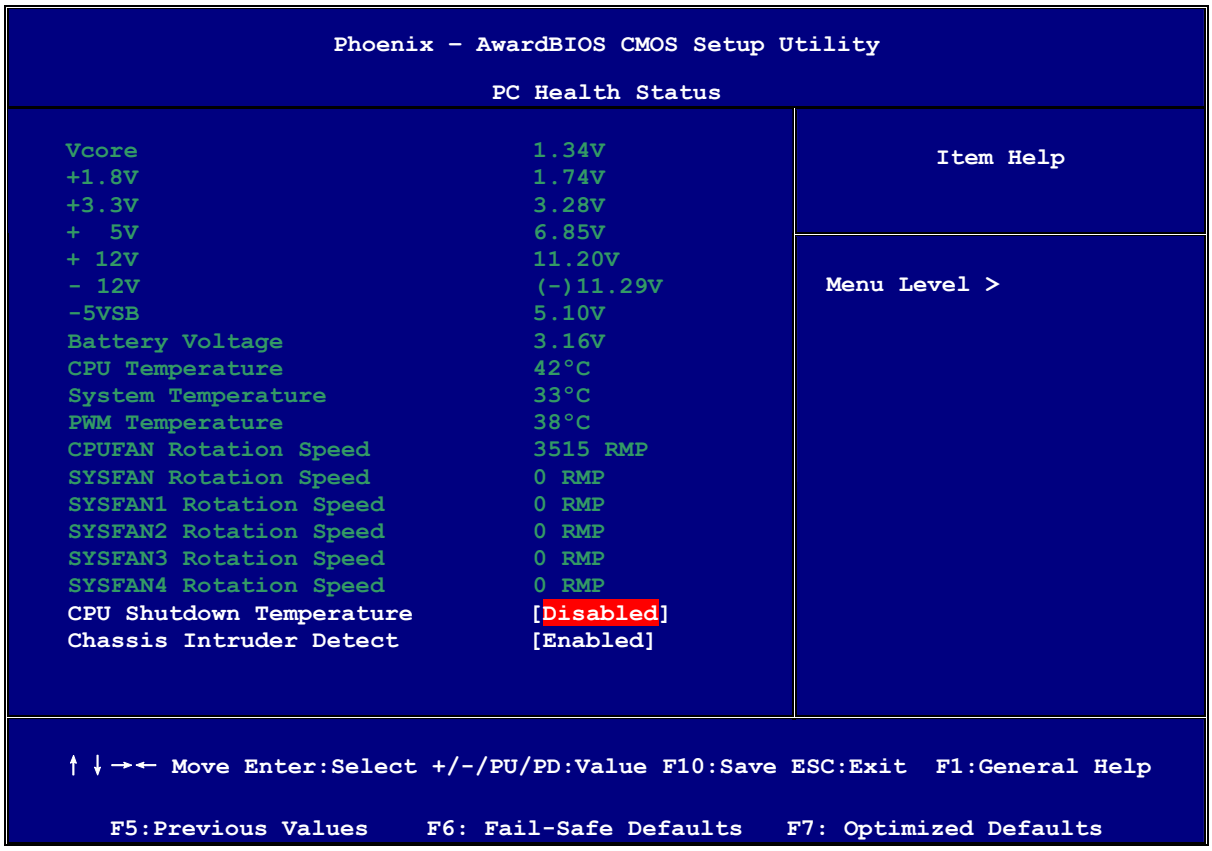


IRQ 3-15 assigned to

Change setting to “Reserved” so the specific IRQ does not get auto-assigned to a PCI device.

3-10 PC Health Status

This section shows the status of your CPU, Fan, Warning for overall system status. This is only available if there is Hardware Monitor onboard.



3-10-1 SmartFan

CPU Fan PWM Control Mode

Select a fixed duty cycle for the fan speed, or "SmartFan" for customized control

SmartFan PWM Start

Select fixed duty cycle for temperatures less "Lo-Limit"

SmartFan PWM Gradient

Select the increment for each degree between "Lo-Limit" and "Hi-Limit"

Tcpu (SmartFan Lo-Limit)

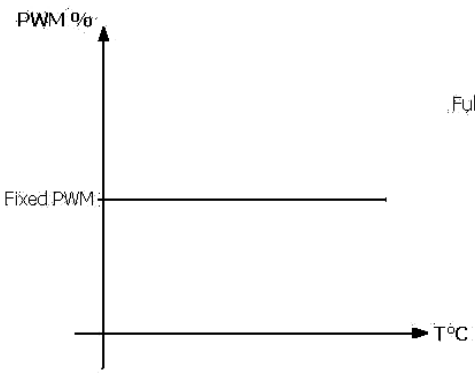
Select the low boundary for SmartFan to override fixed duty cycle

Tcpu (SmartFan Hi-Limit)

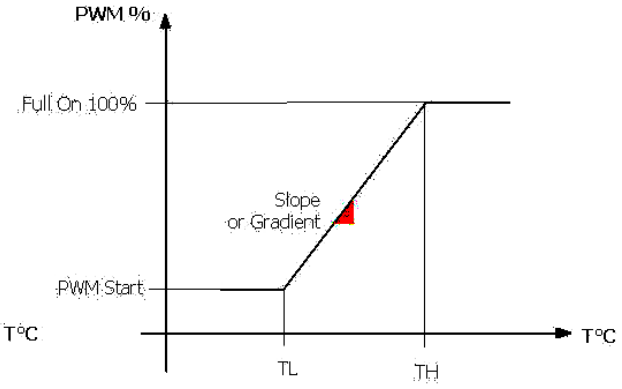
Select the minimum temperature before fan operates at 100% speed

The SmartFan function allows the user to increase or decrease the speed of the fan. This, in turn, provides control over the cooling and noise that is generated. To enable this function, **CPU Fan PWM Control Mode** should be selected as **SmartFan**. The **Tcpu (SmartFan Lo-Limit)** setting sets when the SmartFan function will be triggered, and **SmartFan PWM Start** would indicate the starting speed of the fan. Next choose a **SmartFan PWM Gradient** that will describe the incrementing step for each increase of temperature. (See image below.) Lastly, the **Tcpu (SmartFan Hi-Limit)** will determine when the fan should be adjusted to max speed when the CPU gets too hot.

For example, if the "lo-limit" was set at 35ºC, "PWM start" at 30%, "PWM gradient" at 1.56%, and "hi-limit" at 65ºC, then the fan will initially be at 30% duty cycle. At each degree of temperature increase, the fan will increase 1.56% duty cycle. Therefore at 36ºC, the fan will operate at 31.56%, at 37%, it will be at 33.12%, and so on. At 65ºC, the fan will jump to 100%, and decrease when the temperature lowers.



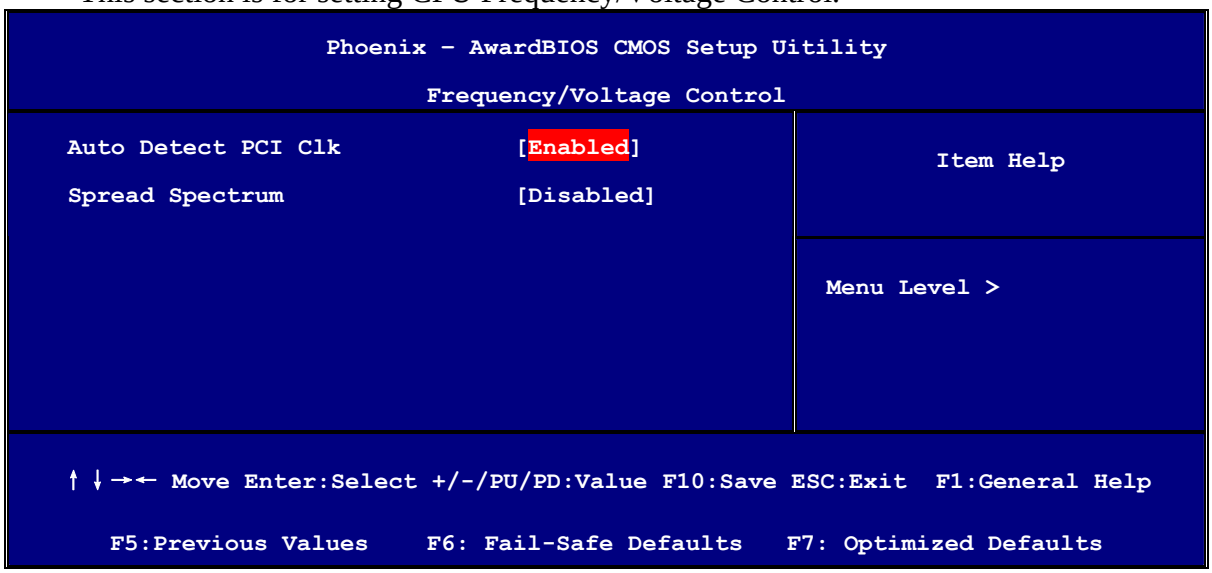
PWM Control in Fixed Mode



PWM control in SmartFan Mode

3-11 Frequency/ Voltage Control

This section is for setting CPU Frequency/Voltage Control.



Auto Detect PCI Clk

When Enabled, this feature turns off the PCI clock when there is no activity on the PCI device. This is commonly used to reduce EMI.

Spread Spectrum

Spreads the energy of a single frequency over a wide band of frequencies to remove spikes. This is commonly used to reduce EMI.

3-12 Load Manufacture Settings

Load Fail-Safe Defaults:

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Restore Fail-Safe Settings (Y/N)? N

Pressing <Y> loads the default values that are factory settings for optimal performance system operations.

Load Optimized Defaults:

When you press <Enter> on this item, you get confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? N

Pressing <Y> loads the BIOS default values for the most stable, minimal-performance system operations.

3-13 Set Supervisor/ User Password

You can set either supervisor or user password, or both of them. The differences are:

User password: Can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm that the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

3-14 Exit

Leave Setup program, System will restart after saving setting to CMOS when “Save Change and Exit” is selected. If “Discard change and Exit” is selected, system will restart without saving any changes.

Chapter 4

Configuring BIOS and setting the Onboard SATA RAID BIOS

1. BIOS Setting:

Step1. Enter BIOS, and set "RAID/SCSI/Add-on" as one of the boot sequence.

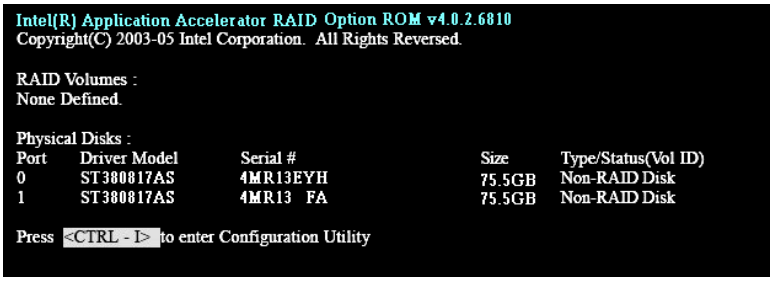
Step2. Under the option of "Peripherals", make sure the option "Onboard Intel SATA RAID" is set as "Enabled".

Step3. Save settings and exit the BIOS.

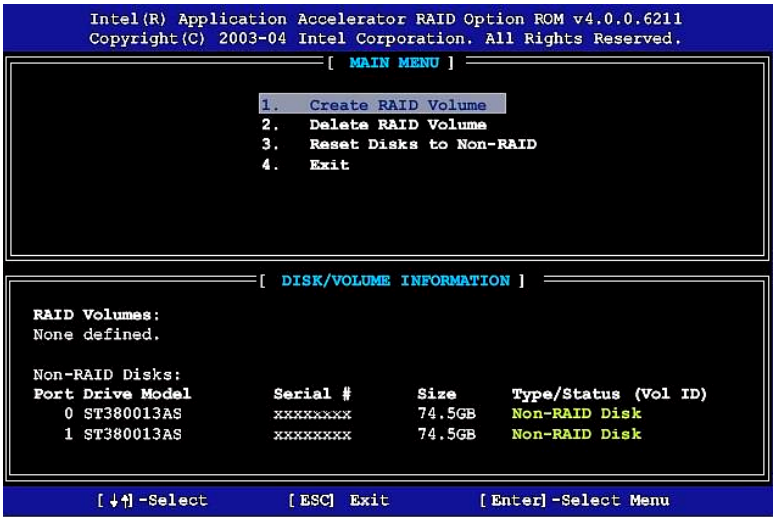
2. Intel RAID Utility setting:

• RAID 0

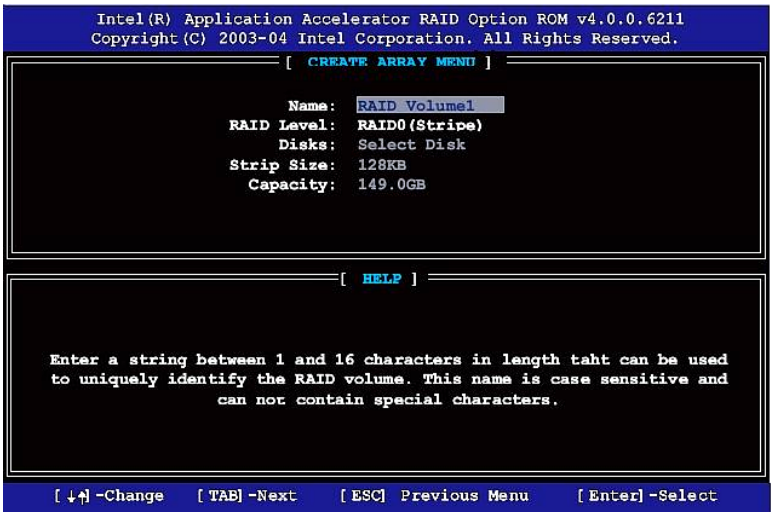
Step1. During post, after the system has displayed the IDE information, the Intel RAID utility shall appear. Press "CRTL + I" to enter the Intel RAID BIOS setup utility.



Step2. If you want to create RAID array, select **Create RAID Volume** in main menu and press ENTER.



Step3. "Create Volume Menu" will be prompted.



Step4. Setup the name for RAID.

Step5. Set RAID Level to "RAID 0 (Stripe).

Step6. Set Strip size as 128KB (Default).

Step7. The Capacity option will identify the built RAID-0 drive size.

Step8. Pick the option of "Create Volume".

Step9. The system will prompt with the message "Are you sure you want to create this volume (Y/N):"

Step10. Press "Y" to confirm the volume creation process.

Step11. Back to main menu, pick the last option to exit the utility.

RAID 1, 1+0, and 5 can be installed in the same way by selecting a different option for Step5.

2. <u>WinXP/2k installation</u>:

Step1. At the beginning of Windows installation, when the blue background installation prompt appeared, press F6 several times. This will prompt WinXP/2k to add the specific mass storage driver.

Step2. When asked for the specific mass storage driver, press “S”.

Step3. Insert the prepared “Intel ICH7R RAID driver disk” into the floppy drive.

Step4. The screen will display a series of drivers available to install, pick the option “Intel 82801GR/GH SATA RAID Controller (Desktop ICH7R)”.

Step5. The Windows will prompted with the following message: “Setup will load support for the following mass storage device(s): Intel® 82801GR/GH SATA RAID controller (Desktop ICH7R)”. Press “ENT” to continue Windows installation process.

Mechanical Draw

BC945G Mechanical Drawing