BC45Q

Intel® Q45 LGA775 socket for Intel® Core™ 2 Quad Micro ATX Motherboard

User's Manual

Ver. 1.0

BCM Advanced Research, An Industrial Leader Since 1990 in Industrial Motherboards & Systems
7 Marconi, Irvine, CA 92618 USA | www.bcmcom.com | (PH)949.470.1888 | (FAX)949.470.0971
For Tech Support, please visit http://www.bcmcom.com/bcm_support_legacyProductSupport.htm or contact BCMTechSupport@bcmcom.com

Contents

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area.
- If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

The symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This manual contains the following parts:

- **Chapter 1: Product introduction**

  This chapter describes the features of the motherboard and the new technology it supports. This chapter also lists the hardware setup procedures that you have to perform when installing system components. It includes description of the jumpers and connectors on the motherboard.

- **Chapter 2: BIOS setup**

  This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. Advansus websites

The Advansus website provides updated information on Advansus hardware and software products. Refer to the Advansus contact information.

2. Optional documentation

Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Conventions used in this guide

To make sure that you perform certain tasks properly, take note of the following symbols used throughout this manual.

DANGER/WARNING: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task.

IMPORTANT: Instructions that you MUST follow to complete a task.

NOTE: Tips and additional information to help you complete a task.

BC45Q specifications summary

Specifications	
System	
CPU	Intel® Q45 LGA775 socket for Intel® Core™ 2 Quad/Core™ 2 Duo Processors. Support Intel® next generation 45nm Multi-Core CPU
FSB	1333/1066/800 MHz
BIOS	Award 32 Mb SPI BIOS
System Chipset	Intel Q45 GMCH/ICH10DO
I/O Chipset	Winbond W83627DHG-A
Memory	Four 240-pin DIMM sockets support up to 8 GB, DDR3 800 / 1066/1333
Watchdog Timer	Reset: 1 sec.~255 min. and 1 sec. or 1 min./step
H/W Status Monitor	Monitoring temperatures, voltages, and cooling fan status. Auto throttling control when CPU overheats
Expansion Slots	1 PCI-E x16, 1 PCI-E x4 (Physical with PCI-E x 16 slot), 1 PCI-E x1, 4 PCI 2.3
DIO	16-bit (8-in/ 8-out)
TPM	Integrated iTPM 1.2
Wake up on LAN or Ring	LAN (PXE / RPL)
Smart Fan Control	Yes
Display	
Chipset	Intel® Graphics Media Accelerator 4500 integrated
Display Memory	Intel® DVMT 4.0 supports up to 352 MB video memory
Max Resolution	2048 x 1536 bpp(@ 75Hz)
Dual Display	Winbond W83627DHG-A
VGA/ DVI	onboard
Networking	
LAN1	Intel® 82567-LM Gigabit LAN support iAMT 5.0
LAN2	Intel® 82574L PCI-E Gb LAN controller
Audio	
Audio Codec	Realtek® ALC888, 5.1 +2-CH with two independent Streaming
Audio Interface	Line-out, Line-in, Mic-in
I/O Port	
Back Panel I/O Port	2 x PS/2 (Keyboard/Mouse) 1 x VGA + DVI-D Double Stack 2 x RJ45 port 6 x USB 2.0 ports1 x eSATA connector Audio I/O (3 jacks)

Internal I/O	1 FDD connector 1 IDE connector 5 SATAII connectors 3 USB connectors support additional 6 USB ports 2 COM header (w/ 5V or 12V power) 1 x CPU Fan connector(4pin PWM) 1 x Chassis Fan connector (3pin,Tacho sensor) 1 x System Fan connector (3pin,Tacho sensor) 1 x 16bit Digital I/O pin 1 x 4-pin Audio Amp. 1 x Front panel header 1 x S/PDIF Out Header 1 x AT./ATX mode jumper 1 x Chassis Intrusion header 1 x 24-pin ATX Power connector 1 x 4-pin ATX 12V Power connector
Mechanical & Environment	
Power Type	AT/ATX mode
Operating Temperature	0~60°C (32~140°F)
Operating Humidity	0%~90% relative humidity, non-condensing
Size (L x W)	12" x 9.6" (304.8 mm x 243.84 mm)

* Specifications are subject to change without notice.

1.1 Welcome!

Thank you for using ® BC45Q motherboard!

The BC45Q delivers a host of new features and high performance, making it another standout in the long line of quality motherboards!
Before you start installing the motherboard, and hardware devices on it, check the items in your package with the list below.

1.2 Package contents

Check your motherboard package for the following items.
Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x BC45Q ATX Main board
- 1 x CD-ROM contains the followings:
  - User's Manual in PDF file
  - Drivers
- 1 x SATA cable (SATA/Power)
- 1 x I/O Shield
- 1 x Startup Manual

If any of the above items is damaged or missing, contact your retailer.

This chapter describes the motherboard features and the new technologies it supports.

1 Product Introduction

1.3 Special features

1.3.1 Product highlights

Processor technology

The motherboard comes with a 775-pin surface mount Land Grid Array (LGA) socket designed for the Intel® Core 2 Duo, Intel® Core 2 Quad in the 775-land package. The motherboard supports the Intel® Core™ 2 Quad or Intel® Core™ 2 Duo processor with 1333/1066/800MHz Front Side Bus (FSB). The motherboard also supports the Intel® Hyper‑Threading Technology and is fully compatible with Intel® PCG 04B/04A and 05B/05A processors.

Intel® Core™ 2 Quad/ Intel® Core™ 2 Duo Processor

The Intel® Core™2 processor family delivers unrivaled performance and breakthrough energy efficiency. The Intel® Core™2 processor families are Intel's newest processors, built using 45nm technology with hafnium-infused circuitry which improves performance even further. Just imagine the possibilities.

Multimedia enthusiasts, prepare to enthuse. Bring quad-core performance to your desktop with the Intel® Core™2 Quad processor. It's the ideal engine for highly threaded entertainment applications and highly productive multitasking.

With power-optimized enabled dual-core technology and exceptional energy efficiency, the Intel® Core™2 Duo processor excels running the most intense applications.

Intel® Q45 Chipset

The Intel® Q45 Express Chipset, when combined with the Intel® Core™2 processor family, delivers innovative capabilities and energy-efficient performance for business platforms.

Delivering industry-leading advancements in both, security and manageability, this chipset is designed to support Intel® Core™2 processor with vPro™ technology.

The new technologies featured in the Intel Q45 Express chipset are an Intel® Trusted Platform Module (Intel® TPM) and enhancements to Intel® Active Management Technology release 5.0 which include: Remote Alerts, secured access in Microsoft* NAP* environments, Access Monitor, Fast Call for Help, and Remote Scheduled Maintenance.

Intel Graphics Media Accelerator 4500 (Intel GMA 4500)

The Intel Q45 Express Chipsets with Intel GMA 4500 deliver an excellent blend of graphics performance and features to meet business needs. With integrated dual display support, performance and support for Microsoft DirectX* 10, Shader Model 4.0 and

OpenGL* 2.0, Intel GMA 4500 delivers excellent video and 3D graphics with outstanding graphics responsiveness. These enhancements deliver the performance and compatibility needed for today's and tomorrow's business applications. The Intel Q45 Express Chipsets include support for the latest PC operating systems, including Windows Vista*.

Intel® Stable Image Platform Program

Reducing the variety of supported hardware greatly simplifies enterprise and small medium business PC management, which is reflected in a lower total cost of ownership. One critical element in reducing PC hardware variations involves deploying standardized desktop and laptop PC configurations. The Intel® Stable Image Platform Program (Intel® SIPP) can help companies to identify and deploy standardized, stable image PC platforms for at least 15 months. Both the Intel Q45 and Q43 Express Chipsets support Intel SIPP.

Faster System Performance

The Intel Q45 Graphics Memory Controller Hubs (GMCH) incorporates an updated GMCH backbone architecture that significantly increases overall system performance through the optimization of available bandwidth with the new 1333 MHz system bus and reduction of memory access latency with Intel Fast Memory Access. The updated GMCH also includes support for the next-generation 45 nm Intel® Core™ processor family and wider internal data buses that support dual-channel DDR3 memory technology at 1066 MHz (up to 17 GB/s of peak memory bandwidth in dual-channel interleaved mode).

Intel® I/O Controller Hub 10 (Intel® ICH10DO)

The Intel® ICH10 I/O controller hub as part of the Intel Q45 Express Chipset integrates several capabilities to provide flexibility for connecting I/O devices.

• Intel® Matrix Storage Technology2:

Native support of external SATA ports (eSATA), combined with Intel Matrix Storage Technology (Intel® MST), provides the flexibility to add an external drive for increased data storage with up to 6 times faster performance than USB* 2.0 or IEEE 1394. Support for eSATA enables the full SATA interface speed of up to 1.5 Gb/s outside the chassis. The Advanced Host Controller Interface (AHCI) provides easier expandability with support for eSATA devices and native hot plug, while boosting boot and multi-tasking performance with Native Command Queuing (NCQ). In addition, the Intel ICH10DO provides support for RAID levels 0, 1, 5, and 10, enabling greater reliability for data or improved storage performance for intensive applications.

• Intel® Rapid Recover Technology (when configured with ICH10DO I/O controller):

With the ability to boot off a clone, Intel Rapid Recover Technology (part of Intel Matrix Storage Technology) provides a fast, easy-to-use method for the end user to recover

their data and return their system to an operational status.

• Intel® Trusted Platform Module 1.2:

Integrated as part of the chipset; customer may choose to replace the discrete TPM with Intel® TPM providing a higher level of integration and simplifying board layouts.

Dual-channel DDR3 memory support

Dual-channel DDR3 delivers up to 17 GB/s (DDR3 1066 dual 8.5 GB/s) of bandwidth and 16 GB maximum supported memory size for faster system responsiveness and support of 64-bit computing.

5.1+2-CH high definition audio

The onboard Realtek® ALC888 5.1+2-CH high-definition audio CODEC provides 192 KHz/ 24‑bit audio output, jack-sensing and re-stacking functions. With the 8‑channel audio ports and S/PDIF interfaces, you can connect your computer to home theater decoders to produce crystal‑clear digital audio.

Serial ATA technology

The motherboard supports the Serial ATA technology through the Serial ATA interfaces. The SATA specification allows for thinner, more flexible cables with lower pin count, reduced voltage requirement, and up to 300 MB/s data transfer rate.

Temperature, fan, and voltage monitoring

The CPU temperature is monitored by the ASIC (integrated in the Winbond Super I/O) to prevent overheating and damage. The system fan rotations per minute (RPM) is monitored for timely failure detection. The ASIC monitors the voltage levels to ensure stable supply of current for critical components.

1.4 Before you proceed

Take note of the following precautions before you install motherboard components or change any motherboard settings.

- Unplug the power cord from the wall socket before touching any component.
- Use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity
- Hold components by the edges to avoid touching the ICs on them.
- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
- **Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply.** Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

1.5 Motherboard overview

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage motherboard components.

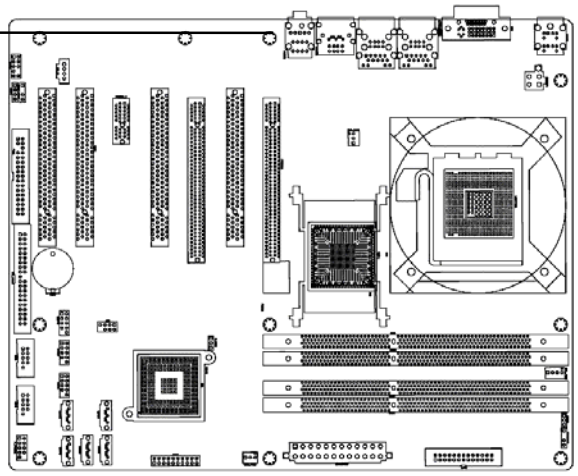
1.5.1 Placement Direction

When installing the motherboard, make sure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis as indicated in the image below.

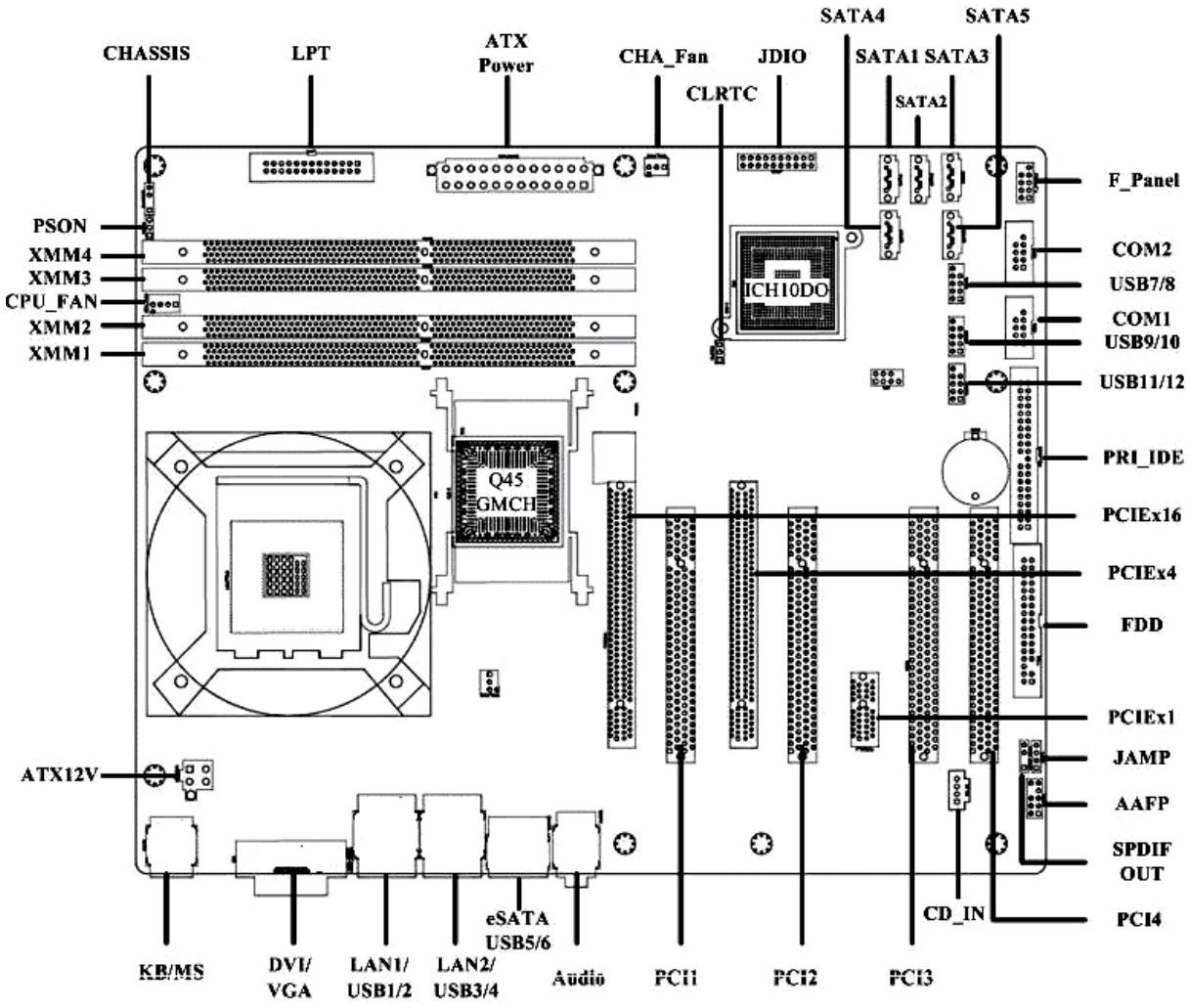
1.5.2 Screw Holes

Place ten (10) screws into the holes indicated by circles to secure the motherboard to the chassis.

Place this side towards the rear of the chassis



1.5.3 Motherboard Layout



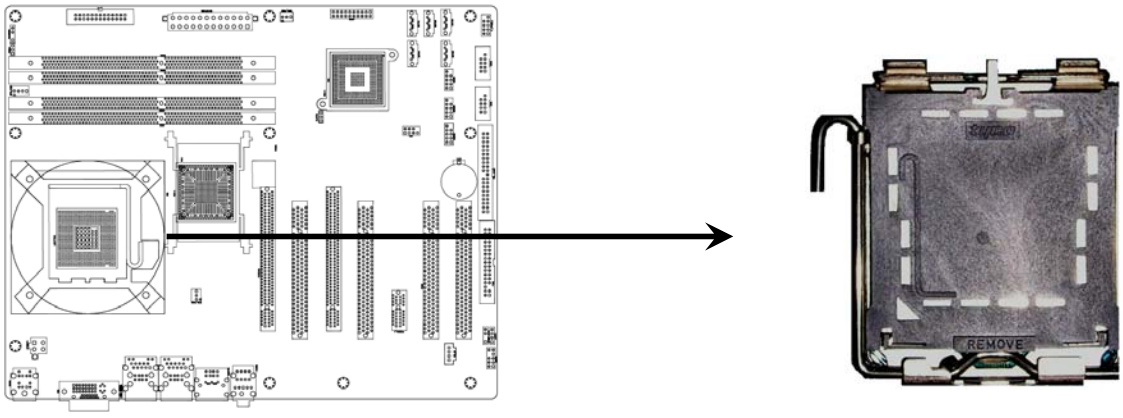
1.6 Central Processing Unit (CPU)

The motherboard comes with a surface mount LGA775 socket designed for the Intel® Core™ 2 Quad/ Intel® Core™ 2 Duo processor in the 775-land package.

- Your boxed Intel® Core™ 2 Quad/ Intel® Core™ 2 Duo LGA775 processor package should come with installation instructions for the CPU, fan and heatsink assembly. If the instructions in this section do not match the CPU documentation, follow the latter.
- Upon purchase of the motherboard, make sure that the PnP cap is on the socket and the socket pins are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket pins/motherboard components. ADVANSUS will shoulder the cost of repair only if the damage is shipment/transit-related.
- Keep the cap after installing the motherboard. ADVANSUS will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the LGA775 socket.
- The product warranty does not cover damage to the socket pins resulting from incorrect CPU installation/removal, or misplacement/loss/incorrect removal of the PnP cap.

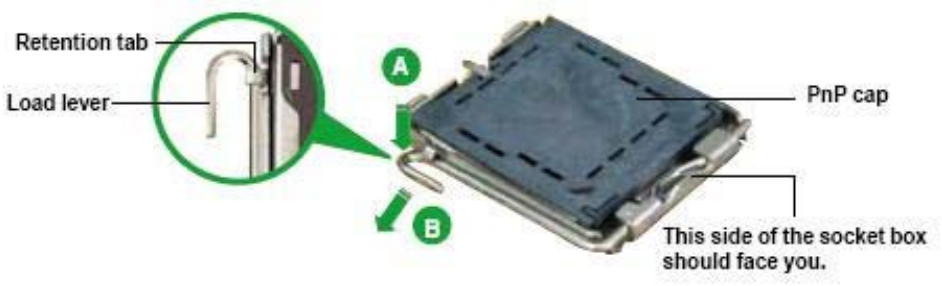
1.6.1 Installing the CPU

1. Locate the CPU socket on the motherboard.



Before installing the CPU, make sure that the socket box is facing towards you and the load lever is on your left.

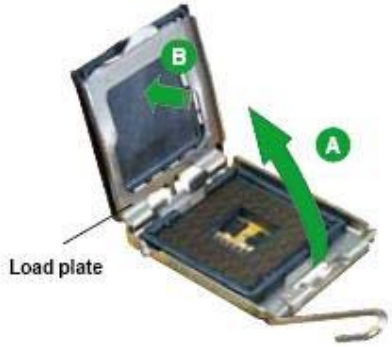
2. Press the load lever with your thumb (A), then move it to the left (B) until it is released from the retention tab.



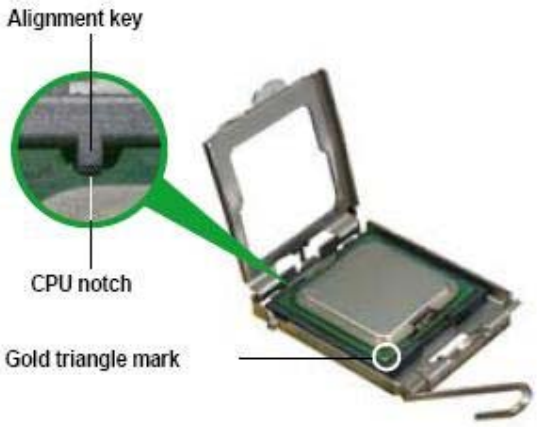
To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU.

3. Lift the load lever in the direction of the arrow to a 135º angle.

4. Lift the load plate with your thumb and forefinger to a 100º angle (A), then push the PnP cap from the load plate window to remove (B).



5. Position the CPU over the socket, making sure that the gold triangle is on the bottom-left corner of the socket then fit the socket alignment key into the CPU notch.



6. Close the load plate (A), then push the load lever (B) until it snaps into the retention tab.

The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

The motherboard supports Intel® LGA775 processors with the Intel® Enhanced Memory 64 Technology (EM64T), Enhanced Intel SpeedStep® Technology (EIST), and Hyper-Threading Technology.

1.6.2 Installing the CPU Heatsink and Fan

The Intel® Core™ 2 Quad/ Intel® Core™ 2 Duo LGA775 processor requires a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.

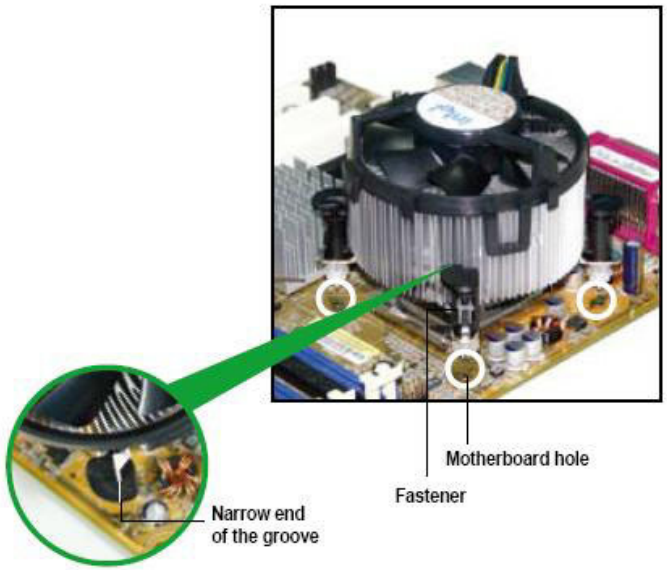
- Install the motherboard to the chassis before you install the CPU fan and heatsink assembly.
- When you buy a boxed Intel® Core™ 2 Quad/ Intel® Core™ 2 Duo processor, package includes the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel®-certified multi-directional heatsink and fan.
- Intel® Core™ 2 Quad/ Intel® Core™ 2 Duo LGA775 heatsink and fan assembly comes in a push-pin design and requires no tool to install.

If you purchased a separate CPU heatsink and fan assembly, make sure that you have properly applied Thermal Interface Material to the CPU heatsink or CPU before you install the heatsink and fan assembly.

To install the CPU heatsink and fan:

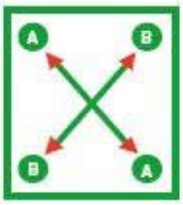
1. Place the heatsink on top of the installed CPU, making sure that the four fasteners match the holes on the motherboard.

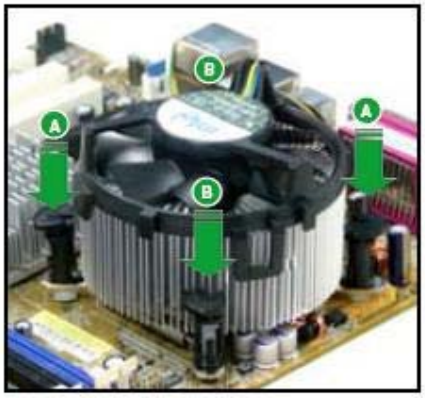
Orient the heatsink and fan assembly such that the CPU fan cable is closest to the CPU fan connector.



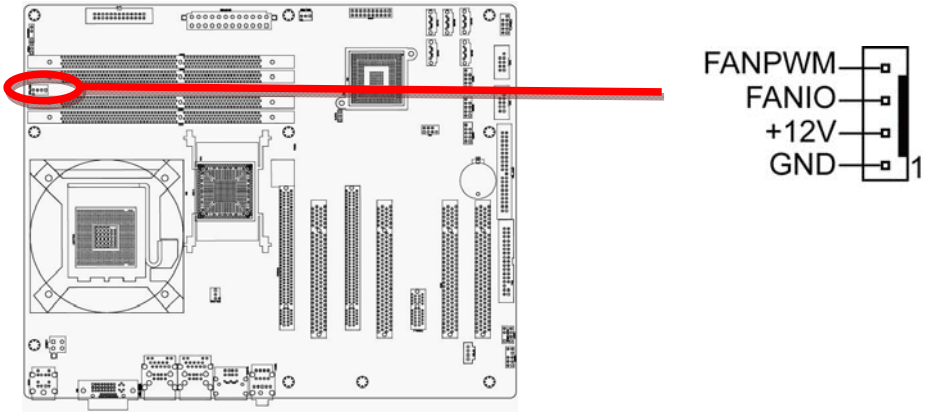
Make sure each fastener is oriented as shown, with the narrow groove directed outward.

2. Push down two fasteners at a time in a diagonal sequence to secure the heatsink and fan assembly in place.





3. Connect the CPU fan cable to the connector on the motherboard labeled CPU_FAN.



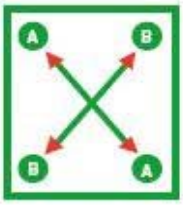
Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector.

1.6.3 Uninstalling the CPU Heatsink and Fan

To uninstall the CPU heatsink and fan:

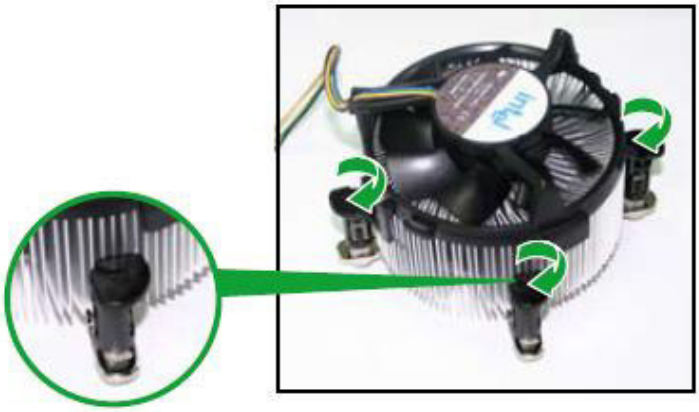
1. Disconnect the CPU fan cable from the connector on the motherboard.
2. Rotate each fastener counterclockwise.

3. Pull up two fasteners at a time in a diagonal sequence to disengage the heatsink and fan assembly from the motherboard



4. Carefully remove the heatsink and fan assembly from the motherboard.

5. Rotate each fastener clockwise to ensure correct orientation when reinstalling.



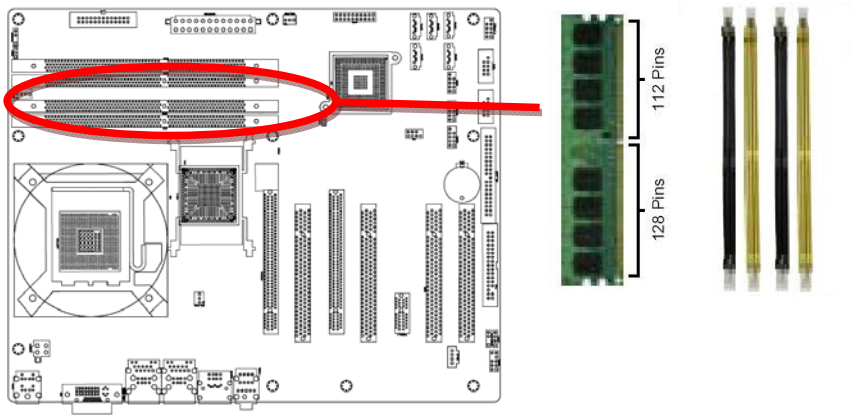
The narrow end of the groove should point outward after resetting. (The photo shows the groove shaded for emphasis.)

1.7 System memory

1.7.1 Overview

The motherboard comes with two 240-pin Double Data Rate 3 (DDR3) Dual Inline Memory Modules (DIMM) sockets.

A DDR3 module has the same physical dimensions as a DDR2 DIMM. DDR3 DIMMs are notched differently to prevent installation on a DDR2 DIMM socket. The following figure illustrates the location of the sockets:



240-Pin DDR3 DIMM sockets

Channel	Socket
Channel A	XMM1 and XMM2
Channel B	XMM3 and XMM4

1.7.2 Memory Configurations

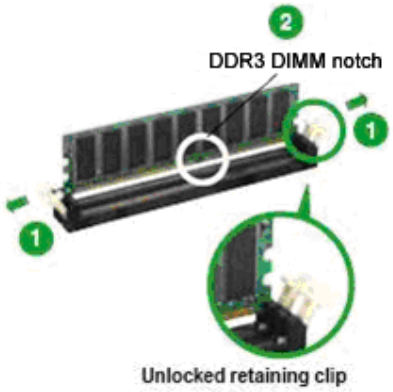
You may install 64 MB, 128 MB, 256 MB, 512 MB and 1 GB unbuffered ECC or non-ECC DDR DIMMs into the DIMM sockets using the memory configurations in this section.

- IF you installed four 1GB memory modules, the system may detect less than 3GB of total memory because of address space allocation for other critical functions. This limitation applies to Windows XP 32-bit version operating system since it does not support PAE (Physical Address Extension) mode.
- IF you install Windows XP 32-bit version operating system, we recommend that you install less than 3GB of total memory.
- For dual-channel configuration, the total size of memory module(s) installed per channel must be the same for better performance (DIMM_A1 +DIMM_A2=DIMM_B1+DIMM_B2).
- When using one DDR DIMM module, install into DIMM_B1 slot only.
- When using two DDR DIMM modules, install into DIMM_A1 and DIMM_B1 slots only.
- Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor. Refer to the memory Qualified Vendors List on the next page for details.
- Due to CPU limitation, DIMM modules with 128 Mb memory chips or double-sided x16 memory chips are not supported in this motherboard.

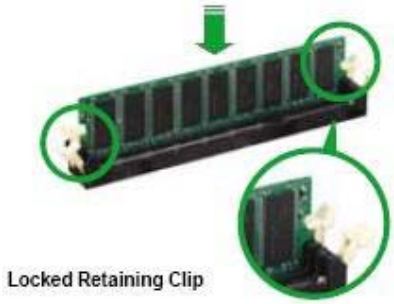
1.7.3 Installing a DIMM

Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

1. Unlock a DIMM socket by pressing the retaining clips outward
2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.



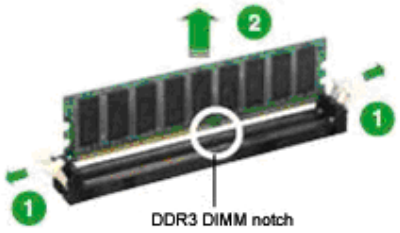
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.



- A DDR3 DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.
- The DDR3 DIMM sockets do not support DDR DIMMs. DO NOT install DDR2 DIMMs to the DDR3 DIMM socket.

1.7.4 Removing a DIMM

1. Simultaneously press the retaining clips outward to unlock the DIMM.



Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force.

2. Remove the DIMM from the socket.

1.8 Expansion slots

In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support.

Make sure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.

1.8.1 Installing an Expansion Card

1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.
2. Remove the system unit cover (if your motherboard is already installed in a chassis).
3. Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.
4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
5. Secure the card to the chassis with the screw you removed earlier.
6. Replace the system cover.

1.8.2 Configuring an Expansion Card

After installing the expansion card, configure it by adjusting the software settings.

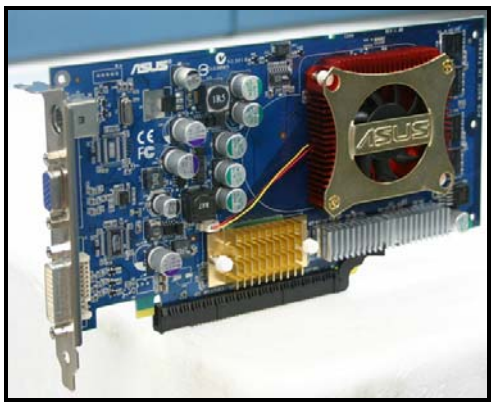
1. Turn on the system and change the necessary BIOS settings, if any. See Chapter 2 for information on BIOS setup.
2. Assign an IRQ to the card if needed. Refer to the tables on the next page.
3. Install the software drivers for the expansion card.

1.8.3 PCI slots

The PCI slots support cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications. The figure shows the type of LAN card that can be installed on a PCI slot.

1.8.4 PCI Express x16

This motherboard supports PCI Express x16 graphic cards that comply with the PCI Express specifications. The figure shows a graphics card installed on the PCI Express x16 slot.



1.8.5 PCI Express x1

This motherboard supports PCI Express x1 network cards, SCSI cards and other cards that comply with the PCI Express specifications. The figure shows the type of network card that can be installed on the PCI Express x1 slot.

1.9 Jumpers

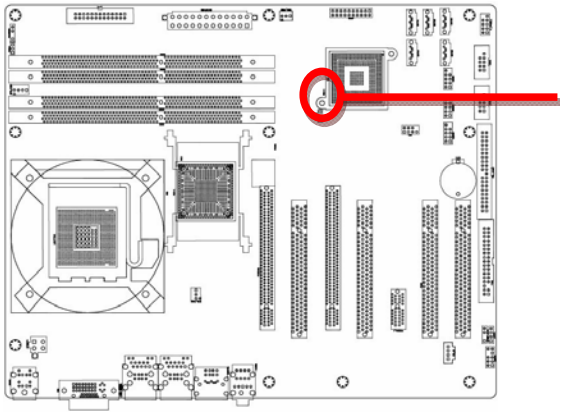
1.9.1 Clear RTC RAM (CLRTC)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Remove the onboard battery.
3. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.
4. Re-install the battery.
5. Plug the power cord and turn ON the computer.
6. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!



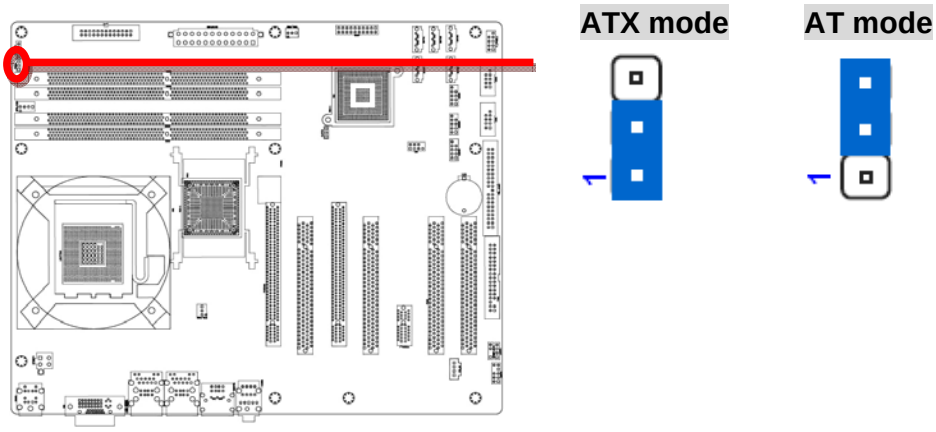
Normal (Pin1-2)*

Clear CMOS(Pin 2-3)

You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the C.P.R. (CPU Parameter Recall) feature. Shut down and reboot the system so the BIOS can automatically reset parameter settings to default values.

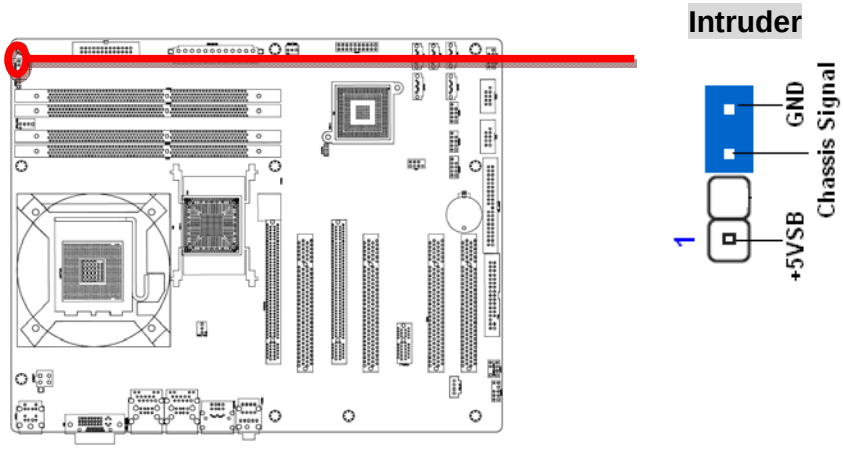
1.9.2 Power mode selection (PSON)

This jumper allows you to select power mode by AT mode or ATX mode



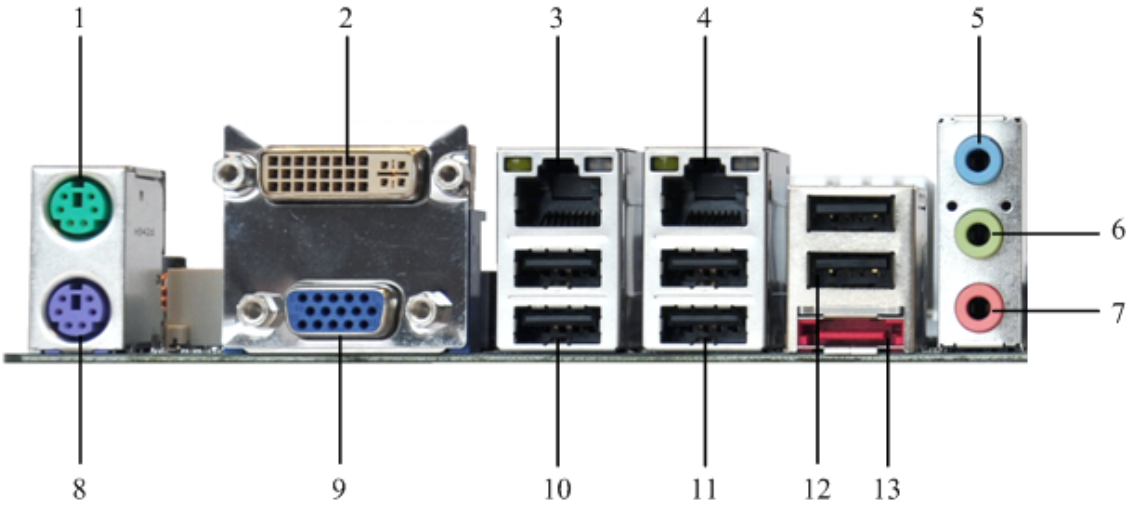
1.9.3 Intruder Select (CHASSIS1)

This jumper allows you to select Intruder.



1.10 Connectors

1.10.1 Rear panel connectors



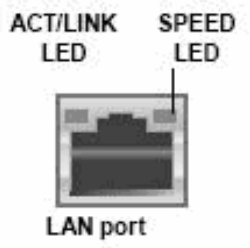
1. PS/2 mouse port (green). This port is for a PS/2 mouse.

2. DVI connector. DVI-I output

3 & 4. LAN (RJ-45) port. This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.

LAN port LED indications

ACT/ LINK LED		SPEED LED	
Status	**Description**	**Status**	**Description**
OFF	No link	OFF	10Mbps connection
Orange	Linked	Orange	100Mbps connection
Blinking	Data activity	Green	1Gbps connection



5. Line In port (light blue). This port connects a tape, CD, DVD player, or other audio sources.

6. Line Out port (lime). This port connects a headphone or a speaker. In 4-channel, 6-channel, and 8-channel configuration, the function of this port becomes Front Speaker Out.

7. Microphone port (pink). This port connects a microphone.

8. PS/2 keyboard port (purple). This port is for a PS/2 keyboard.

9. VGA port. This 15-pin VGA port connects to a VGA monitor.

10. USB 2.0 ports 1 and 2. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

11. USB 2.0 ports 3 and 4. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

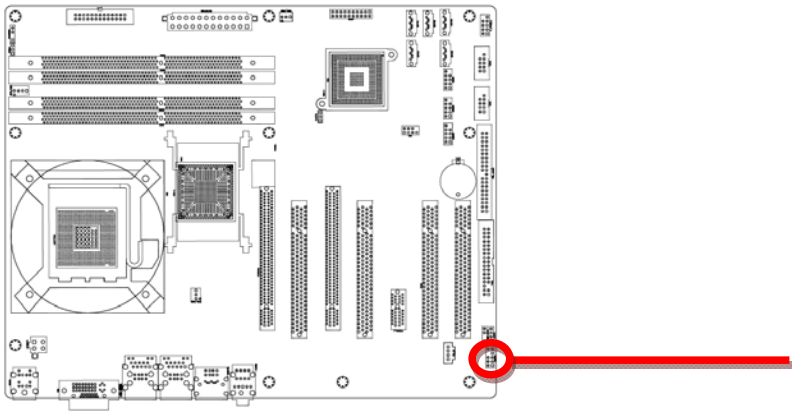
12. USB 2.0 ports 5 and 6. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

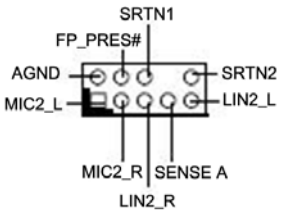
13. eSATA port (red). This port connects a SATA HDD.

1.10.2 Internal connectors

1. Front panel audio connector (10-pin AAFP1)

This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy AC'97 audio standard.



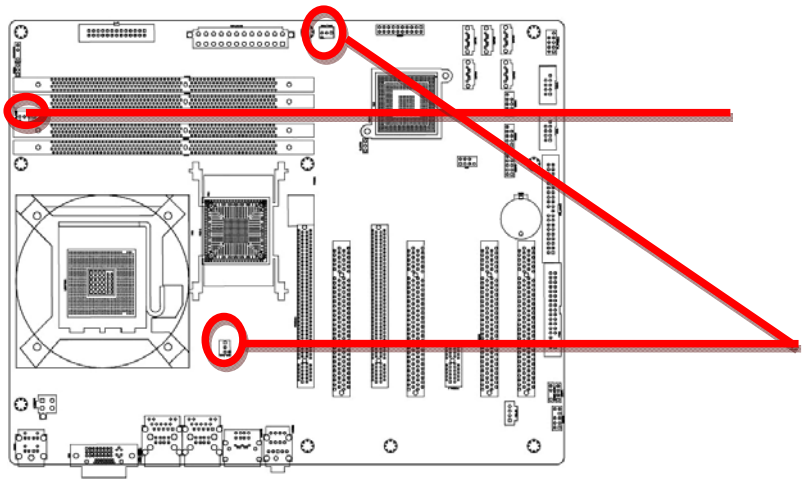


It is recommended that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.

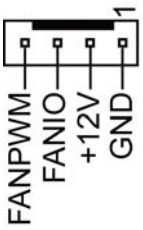
2. Fan Connectors (3-pin SYS_FAN, 3-pin CHA_FAN, 4-pin CPU_FAN)

The fan connectors support cooling fans of 350mA~740mA (8.88W max.) or a total of 1A~2.22A (26.64W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, making sure that the black wire of each cable matches the ground pin of the connector.

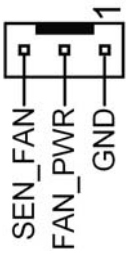
Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! DO NOT place jumper caps on the fan connectors.



CPU_FAN

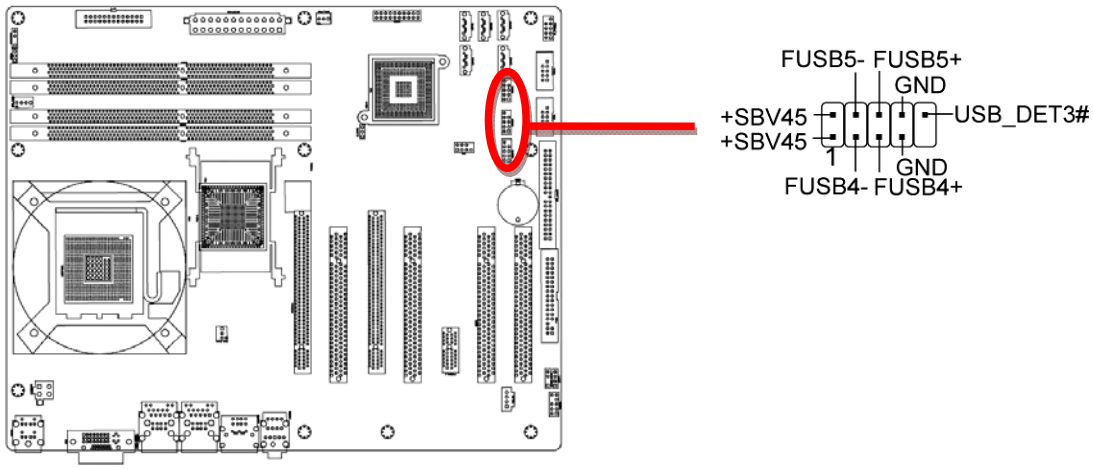


SYS_FAN & CHA_FAN



3. USB connector (10-1 pin USB45, USB7/8, USB9/10, USB11/12)

These connectors are for USB 2.0 ports. Connect the optional USB module cable to any of these connectors and then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.

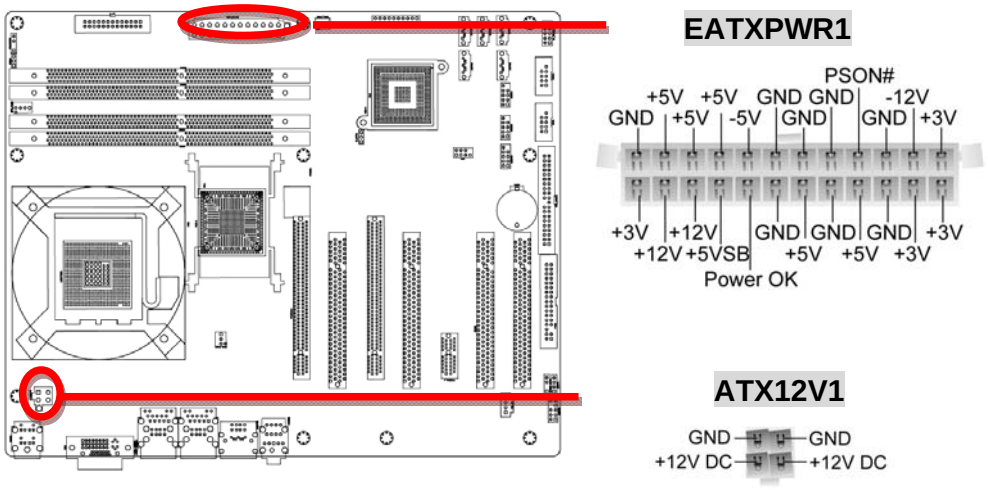


4. ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)

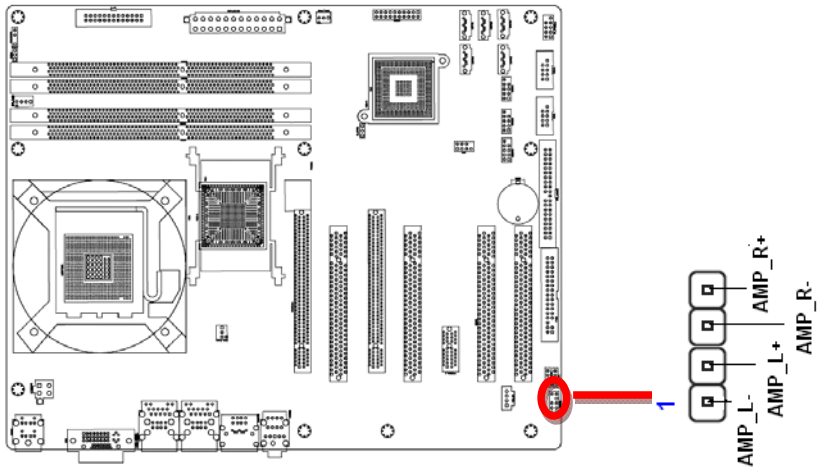
These connectors are for ATX power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

- Do not forget to connect the 4-pin ATX +12 V power plug; otherwise, the system will not boot.
- Use of a PSU with a higher power output is recommended when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.
- Make sure that your power supply unit (PSU) can provide at least the minimum power required by your system. See the table below for details.

BC45Q

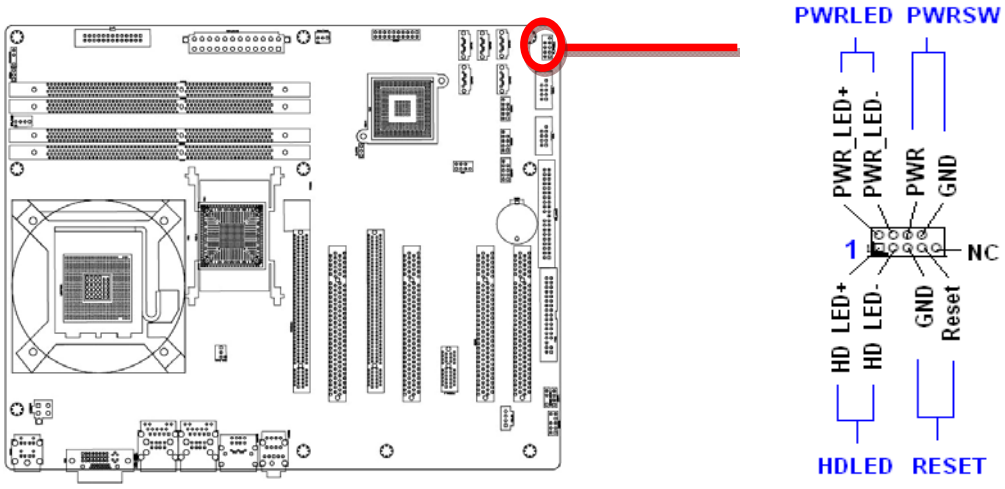


5. Amplifier Connector (JAMP1)



6. System panel connector (10-1 pin F_PANEL1)

This connector supports several chassis-mounted functions.



The system panel connector is color-coded for easy connection. Refer to the connector description below for details.

- **Power/Soft-off button (Black 2-pin PWRSW)**

This connector is for the system power button. Pressing the power button turns the system ON or puts the system in SLEEP or SOFT-OFF mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

- **System Power LED connector (2-pin PWRLED)**

This 2-pin connector is for the system power LED. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **Reset button (Blue 2-pin RESET)**

This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

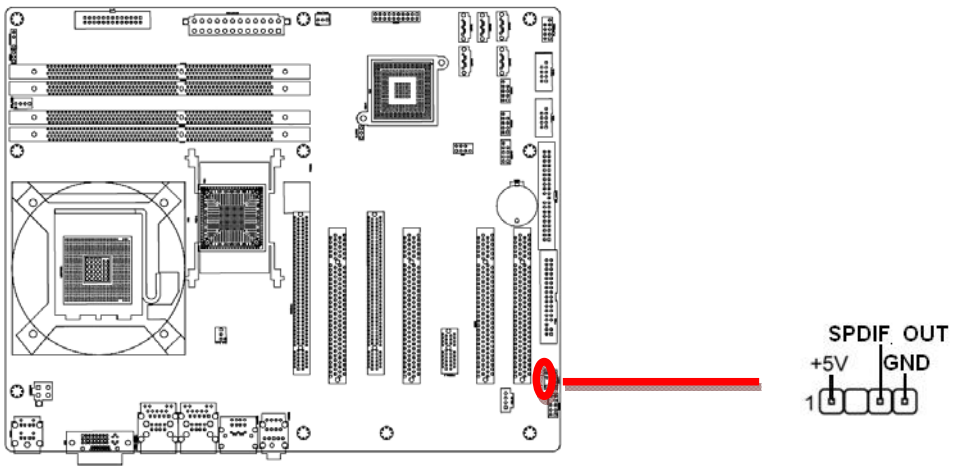
- **Hard disk drive activity (Red 2-pin IDELED)**

This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.

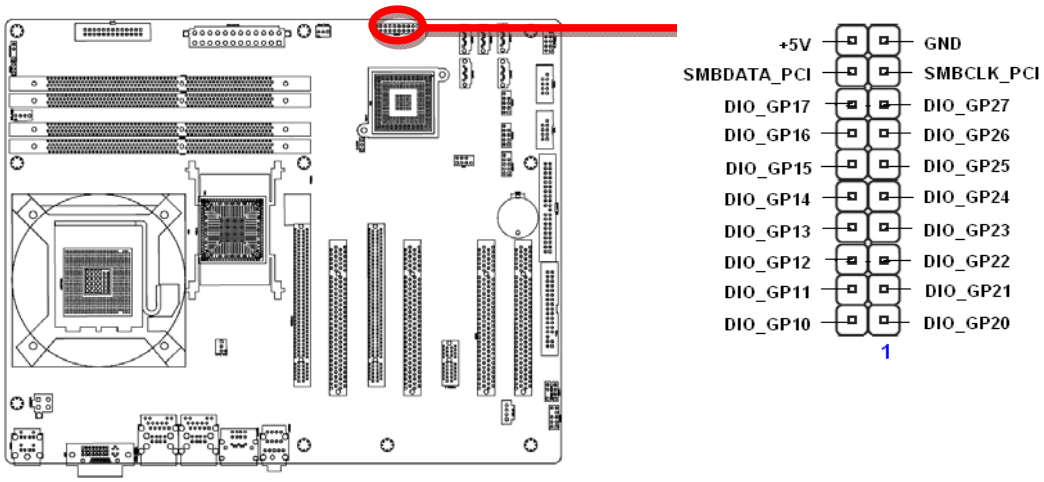
7. Digital Audio connector (4-pin SPDIF_OUT)

This connector is for the S/PDIF audio module to allow digital sound output.
Connect one end of the S/PDIF audio cable to this connector and the other end to the S/PDIF module.

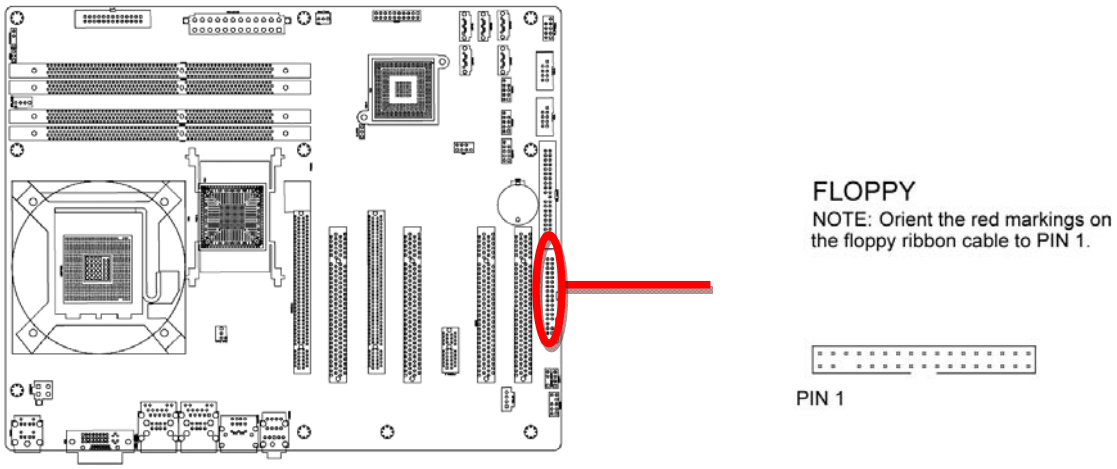
The S/PDIF out module is purchased separately.



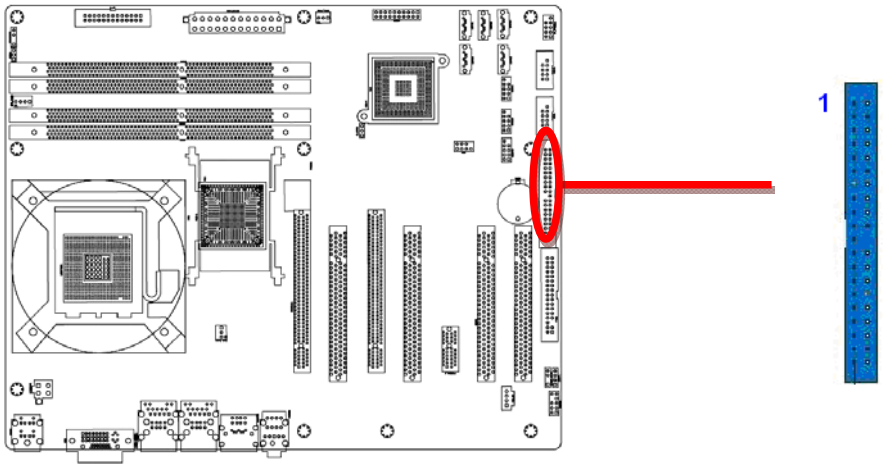
8. Digital IO Connector (20-pin JDIO)



9. FDD Connector



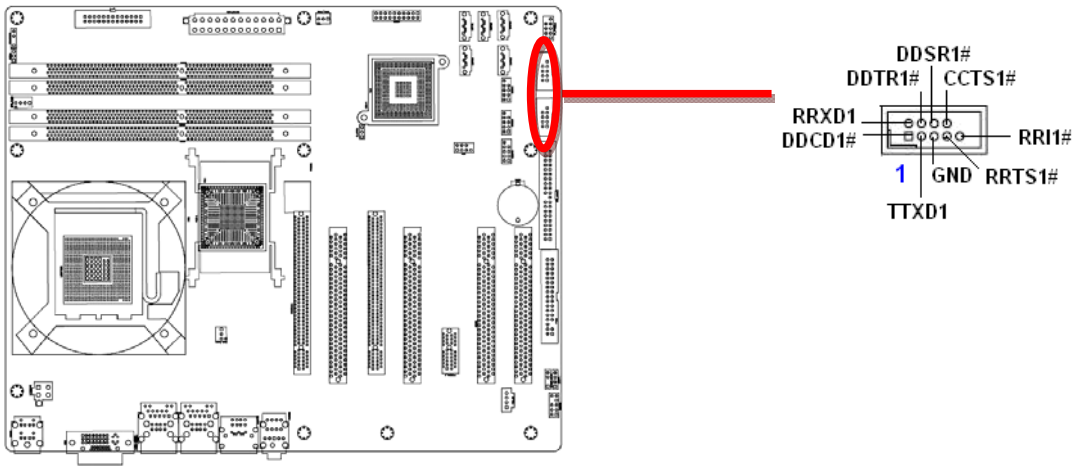
10. Primary IDE Connector (PRI_EIDE1)



Note: HDD connect to IDE must be the primary, and CD-ROM connect to IDE should be slave if two devices connect to IDE at same time.

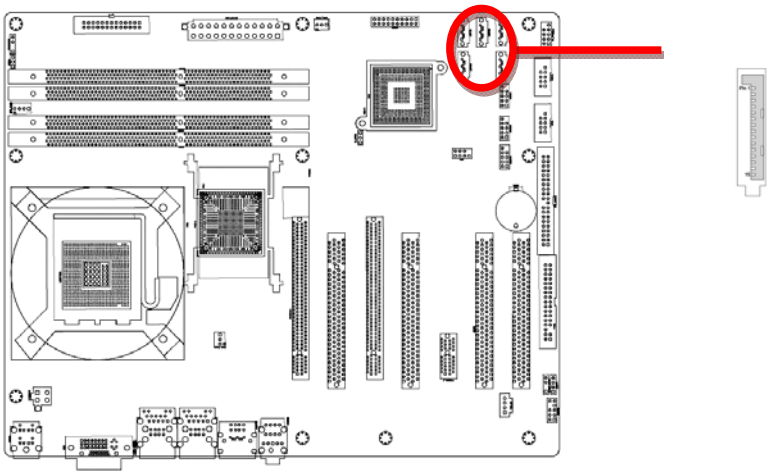
11. COM

This connector is for a serial (COM) port. Connect the serial port module cable to this connector and then install the module to a slot opening at the back of the system chassis.

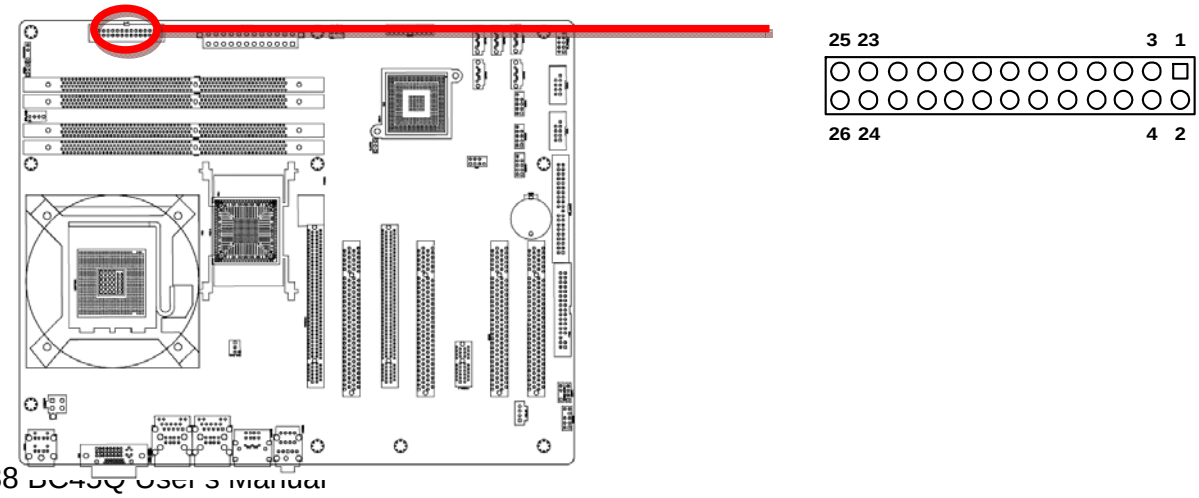


12. Serial ATA connector (7-pin SATA1, SATA2, SATA3, SATA4, SATA5)

These connectors are for the Serial ATA signal cables for Serial ATA hard disk drives.

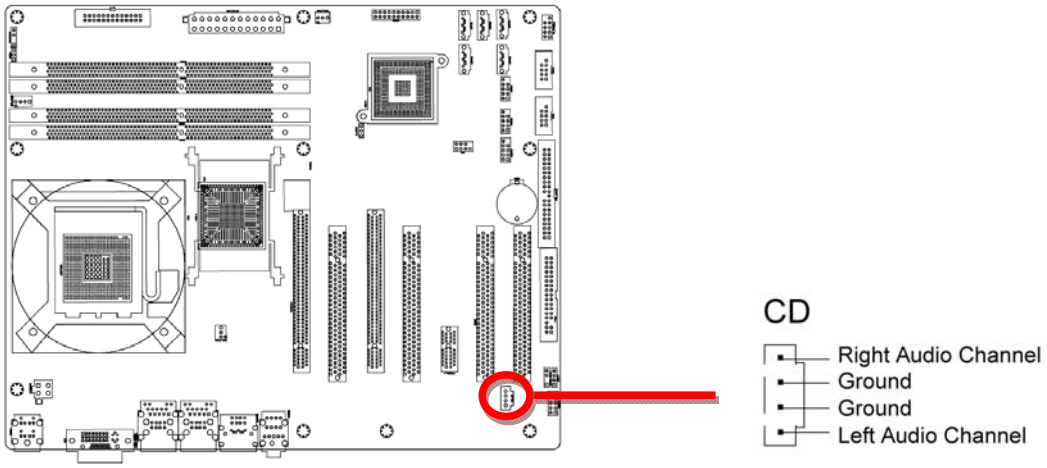


13. Printer Port (LPT)



13. Optical drive audio connector (4-pin CD)

This connector is for the 4-pin audio cable that connects to the audio connector at the back of the optical drive.



This chapter tells how to change the system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

2 BIOS Setup

2.1 Managing and updating your BIOS

2.1.1 Creating a bootable floppy disk

1. Do either one of the following to create a bootable floppy disk.

   DOS environment

   a. Insert a 1.44MB floppy disk into the drive.
   b. At the DOS prompt, type format **A:/S** then press <Enter>.

   Windows® XP environment

   a. Insert a 1.44 MB floppy disk to the floppy disk drive.
   b. Click **Start** from the Windows® desktop, then select **My Computer**.
   c. Select the 3 1/2 Floppy Drive icon.
   d. Click **File** from the menu, then select **Format**. A **Format 3 1/2 Floppy Disk** window appears.
   e. Select **Create an MS-DOS startup disk** from the format options field, then click **Start**.

   Windows® 2000 environment

   To create a set of boot disks for Windows® 2000:

   a. Insert a formatted, high density 1.44 MB floppy disk into the drive.
   b. Insert the Windows® 2000 CD to the optical drive.
   c. Click **Start**, then select **Run**. d. From the Open field, type **D:\bootdisk\makeboot a:** assuming that D: is your optical drive.
   d. Press <Enter>, then follow screen instructions to continue.

2. Copy the original or the latest motherboard BIOS file to the bootable floppy disk.

2.2 BIOS setup program

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

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

- The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the **Load Default Settings** item under the Exit Menu. See section "2.9 Exit Menu."
- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
- Visit the Advansus website to download the latest BIOS file for this motherboard.

2.2.1 Legend Box

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.
The keys in the legend bar allow you to navigate through the various setup menus.

Key(s)	Function Description
←, → Left/Right	The *Left and Right* <Arrow> keys allow you to select an setup screen. For example: Main screen, Advanced screen, Chipset screen, and so on.
↑, ↓ Up/Down	The *Up and Down* <Arrow> keys allow you to select an setup item or sub-screen.
+, - Plus/Minus	The *Plus and Minus* <Arrow> keys allow you to change the field value of a particular setup item. For example: Date and Time.
Tab	The <Tab> key allows you to select setup fields.

F1	The <F1> key allows you to display the *General Help screen*. Press the <F1> key to open the *General Help screen*.
F10	The <F10> key allows you to save any changes you have made and exit Setup. Press the <F10> key to save your changes.
ESC	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

2.2.2 List Box

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

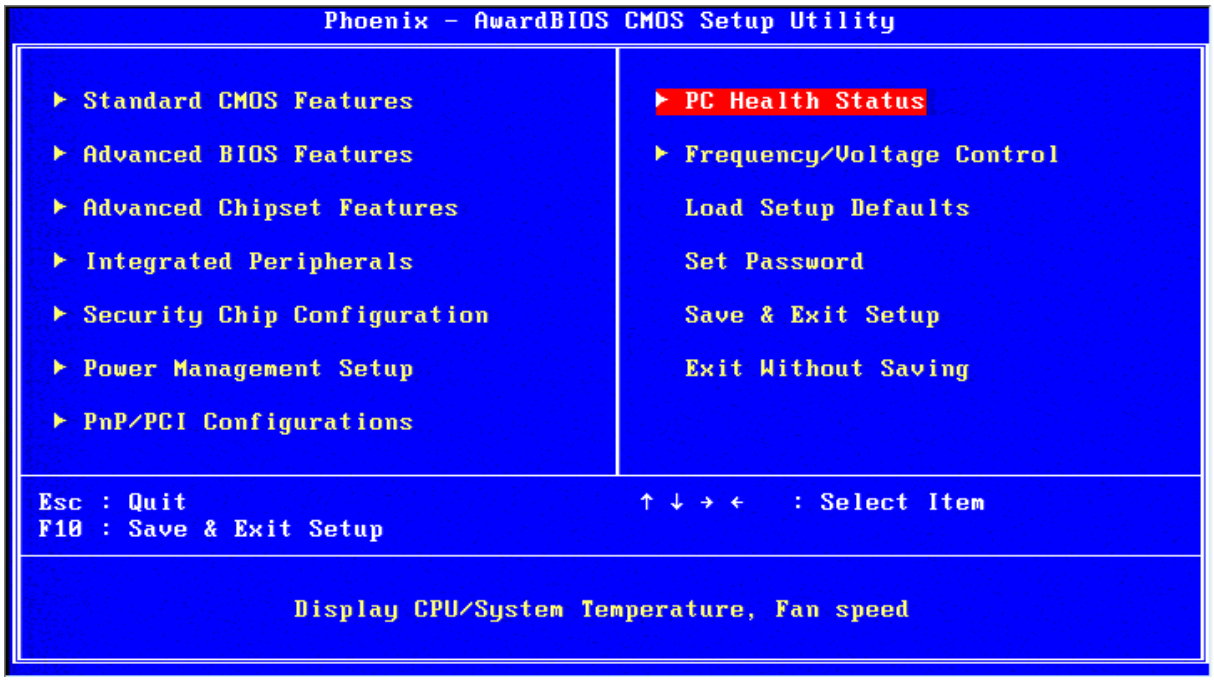
2.2.3 Sub-menu

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

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

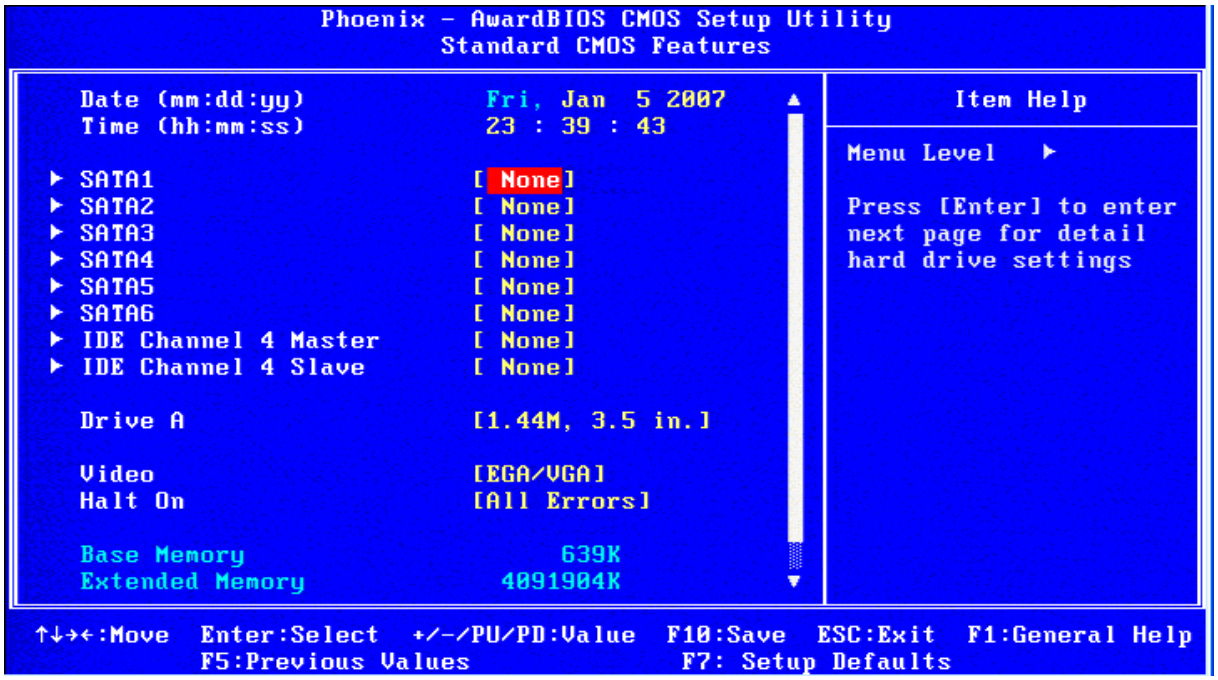
2.3 Main Setup

When you enter the BIOS, the following screen appears. The BIOS menu screen displays the items that allow you to make changes to the system configuration. To access the menu items, press the up/down/right/left arrow key on the keyboard until the desired item is highlighted, then press [Enter] to open the specific menu.



2.3.1 Standard CMOS Features

The Standard CMOS Features screen gives you an overview of the basic system



2.3.1.1 Date [Day, xx/xx/xxxx]

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

2.3.1.2 Time [xx:xx:xx]

The time format is <hour> <minute> <second>, based on the 24-hour clock.

2.3.1.3 SATA1~6; IDE Channel 4 Master / Slave

- **IDE HDD Auto-Detection**

  [Press Enter] to select this option for automatic device detection.

- **IDE Device Setup**

  [Auto]: Automatically detects IDE devices during POST
  [None]: Select this when no IDE device is used. The system will skip the auto-detection setup to make system start up faster.
  [Manual]: User can manually input the correct settings.
  - ✓ Access Mode: The options are CHS/LBA/Large/Auto
  - ✓ Capacity: Capacity of currently installed hard disk
  - ✓ Cylinder: Number of cylinders
  - ✓ Head: Number of heads
  - ✓ Precomp: Write precomp
  - ✓ Landing Zone: Landing zone
  - ✓ Sector: Number of sectors

2.3.1.4 Driver A/B

Specifies the capacity and physic al size of diskette drive A/B. Do not select [None] if you are using a floppy disk drive. Configuration options: [None] [360K, 5.25 in.] [1.2M, 5.25 in.] [720K, 3.5 in.] [1.44M, 3.5 in.] [2.88M, 3.5 in.]

2.3.1.5 Video

This category detects the type of adapter used for the primary monitor that must match your video display card and monitor.

- EGA / VGA: Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, 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.

2.3.1.6 Halt On

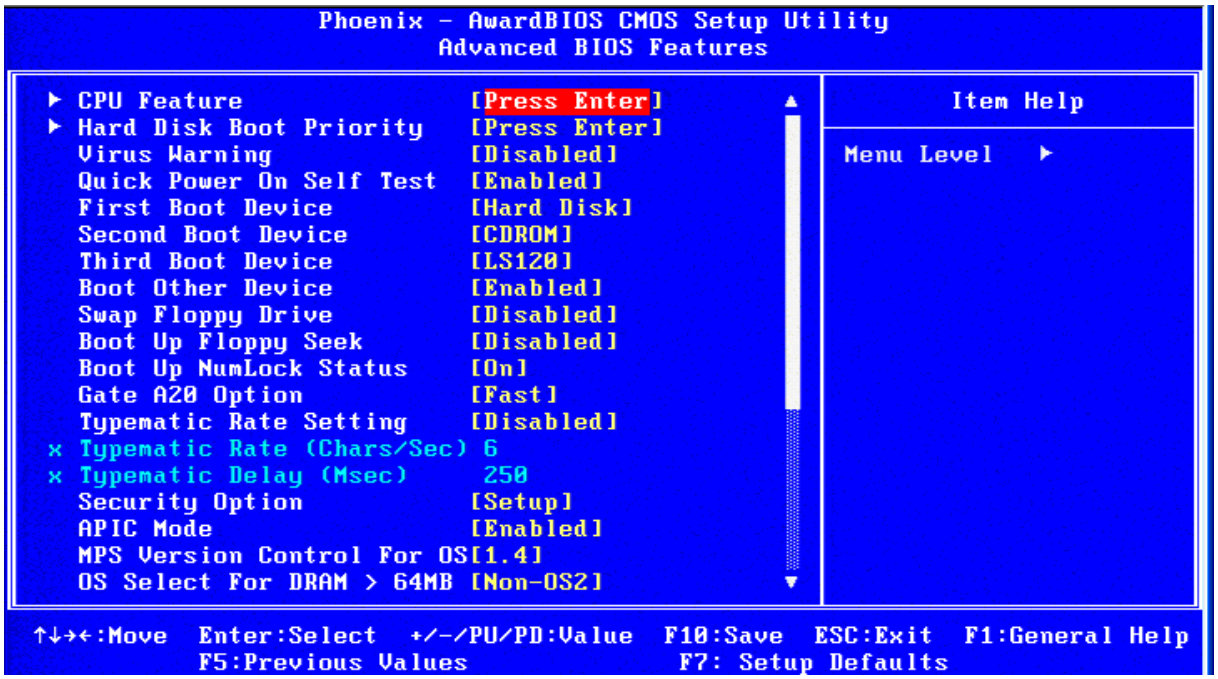
Set the system to halt on errors according to the system functions specified in each option. Configuration options: [All Errors] [No Errors] [All, But Keyboard].

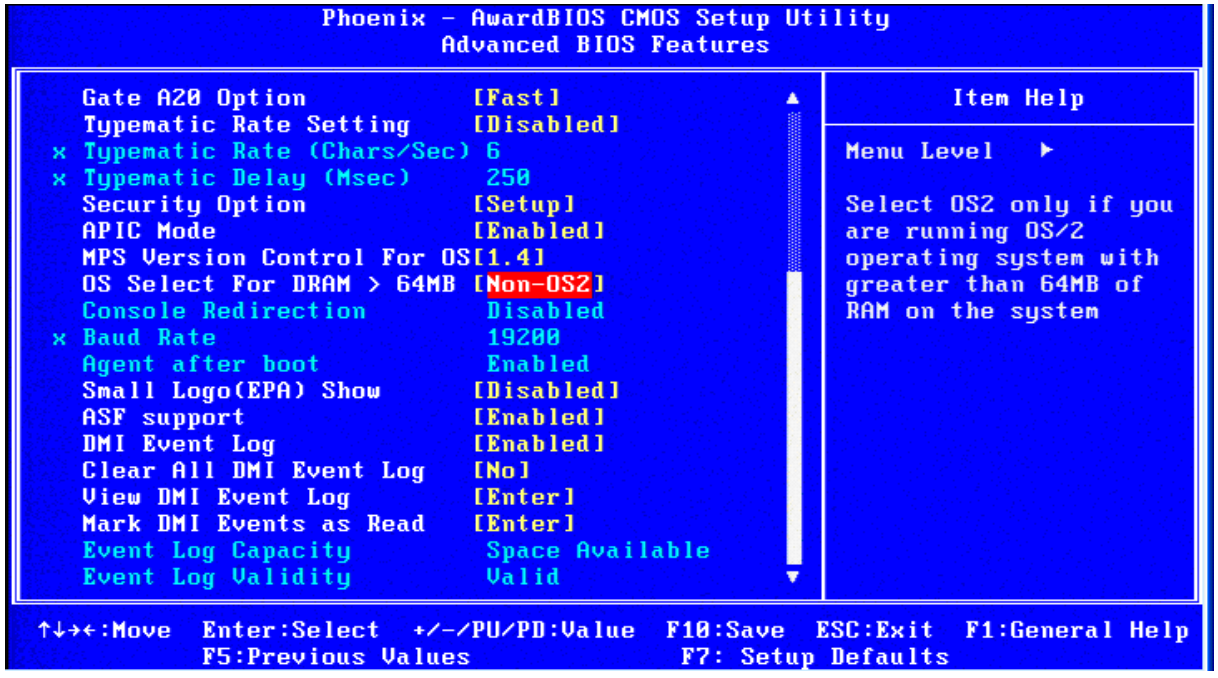
2.3.1.7 Memory

This category displays base memory, extended memory, and total memory detected during POST (Power On Self Test).

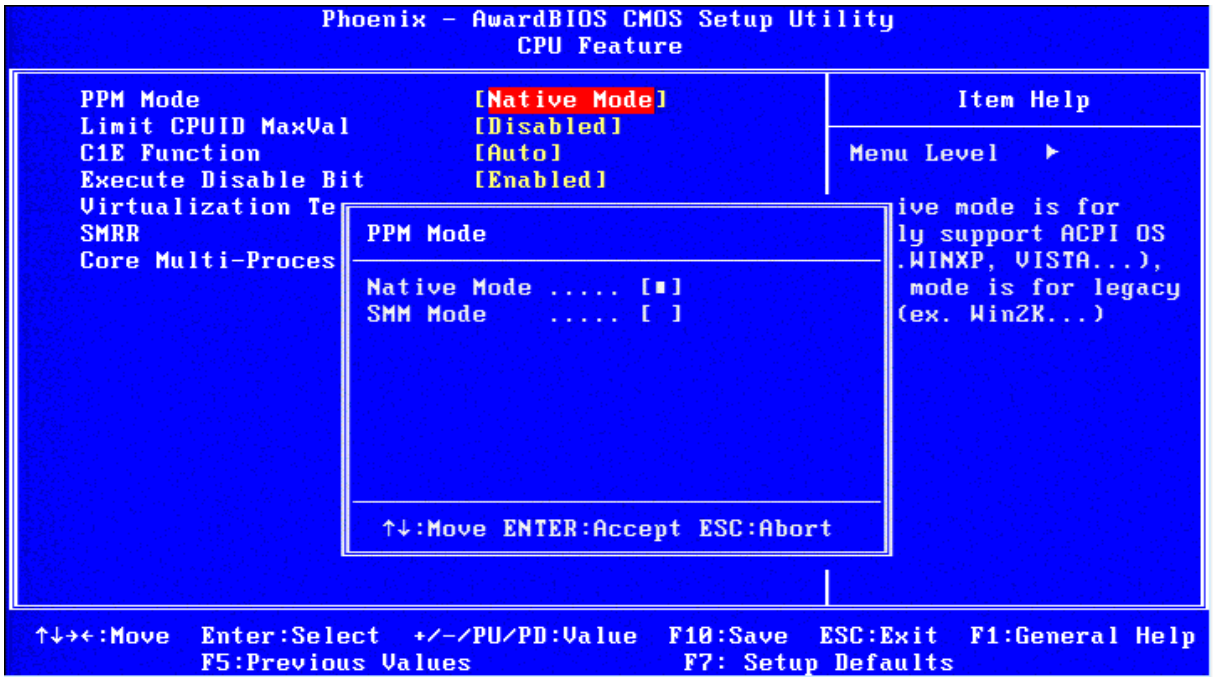
2.3.2 Advanced BIOS Features

The "Advanced BIOS Features" screen appears when choosing the "Advanced BIOS Features" item from the "Initial Setup Screen" menu. It allows the user to configure according to particular requirements. Below are some major items that are provided in the Advanced BIOS Features screen. A quick booting function is provided for your convenience. Simply enable the Quick Booting item to save yourself valuable time.





2.3.2.1 CPU Features



- PPM Mode

Configuration options: [Native Mode], [SMM Mode]

Native Mode - For Fully support ACPI OS (WinXP, VISTA)

SMM Mode - For Legacy OS (Win2K, Win9x)

- Limit CPUID MaxVal

Sets Limit CPUID MaxVa1 to 3. This should be disabled for WinXP.

The options: Enabled, Disabled

- C1E Function

CPU C1E function select.

The options: Auto, Disabled

- Execute Disable Bit

When disabled, forces the XD feature flag to always return 0

- Virtualization Technology

The options: Enabled, Disabled

- SWMRR

The options: Enabled, Disabled

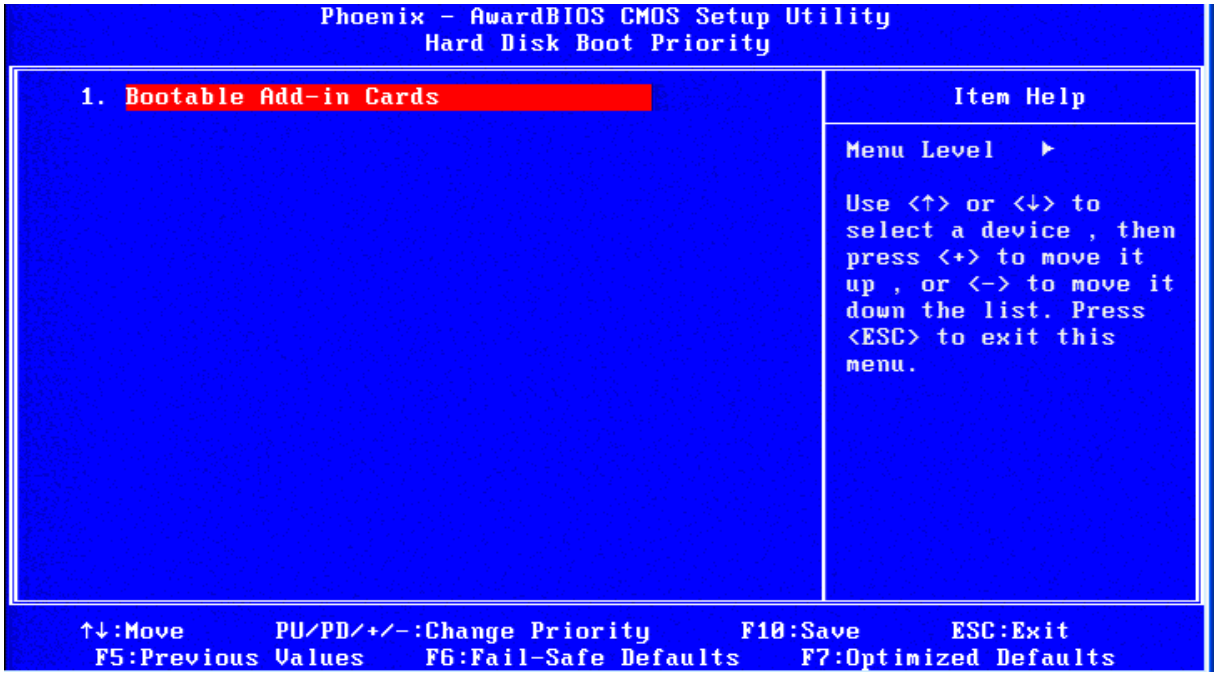
- Core Multi-Processing

The options: Enabled, Disabled

These items might be appeared or hidden by different type of CPU installed.

2.3.2.2 Hard Disk Boot Priority

Set hard disk boot device priority.



2.3.2.3 Virus Warning

Enables or disables the virus warning.

Item	Description
Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

2.3.2.4 Quick Power On Self Test

This allows the system to skip certain tests to speed up the boot-up procedure.

Item	Description
Enabled	Enable quick POST
Disabled	Normal POST

2.3.2.5 First / Second / Third Boot Device

The BIOS tries to load the OS from the devices in the sequence set here. The options are:

Item	Description
Floppy	Floppy Device
LS120	LS120 Device
HDD	Hard Disk Device
CDROM	CDROM Device
ZIP100	ZIP-100 Device
USB-FDD	USB Floppy Device
USB-ZIP	USB ZIP Device
USB-CDROM	USB CDROM Device
IBA GE Slot 011	IBA GE Slot 011 Device
Legacy LAN	Network Device
Disabled	Disabled any boot device

2.3.2.6 Boot Other Device

Use this to boot another device. The options are “Enabled” and “Disabled”.

2.3.2.7 Swap Floppy Drive

A useful feature for those machines that use two floppy drives, when enabled this swaps the A: and B: drives. This enables you to change the bootable floppy without having to open the case and switch the cable.

2.3.2.8 Boot Up Floppy Seek

Selection of the command “Disabled” will speed the boot up.

Item	Description
Enabled	Enable Floppy Seek
Disabled	Disable Floppy Seek

2.3.2.9 Boot Up NumLock Status

Set the boot up Num Lock status. The options are “On” and “Off”.

Item	Description
On	Enable NumLock
Off	Disable NumLock

2.3.2.10 Gate A20 Option

Item	Description
Normal	A pin in the keyboard controller controls GateA20
Fast	Lets chipset control GateA20 (Default)

2.3.2.11 Typematic Rate Setting

The typematic rate is the rate key strokes repeat as determined by the keyboard controller. The commands are "Enabled" or "Disabled". Enabling allows the typematic rate and delay to be selected.

2.3.2.12 Typematic Rate (Chars/Sec)

The BIOS accepts the following input values (characters/second) for typematic rate: 6, 8, 10, 12, 15, 20, 24, and 30.

2.3.2.13 Typematic Delay (Msec)

Typematic delay is the time interval between the appearances of two consecutive characters, when the key is continuously depressed. The input values for this category are: 250, 500, 750, and 1000 (ms).

2.3.2.14 Security Option

This category determines whether the password is required when the sys- tem boots up or only when entering setup. The options are:

Item	Description
System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

2.3.2.15 APIC Mode

This setting allows you to enable the APIC mode. The choices are "Disabled" or "Enabled."

2.3.2.16 MPS Version Control for OS

This option is only valid for multiprocessor motherboards as it specifies the version of the Multiprocessor Specification (MPS) that the motherboard will use. The MPS is a specification by which PC manufacturers design and build Intel architecture systems with two or more processors.

MPS 1.1 was the original specification. MPS version 1.4 adds extended configuration tables for improved support of multiple PCI bus configurations and greater expandability in the future. In addition, MPS 1.4 introduces support for a secondary PCI bus without requiring a PCI bridge.

2.3.2.17 OS Select for DRAM > 64MB

Select the operating system that is running with greater than 64MB of RAM on the system. The choice: Non-OS2, OS2.

2.3.2.18 Console Redirection

The options: Disabled, Enabled.

2.3.2.19 Baud Rate

The default is 19200.

2.3.2.20 Agent after Boot

The options: Enabled, Disabled.

2.3.2.21 Small Logo (EPA) Show

This item allows you enabled/disabled the small EPA logo show on screen at the POST step.

Item	Description
Enabled	EPA Logo shows is enabled
Disabled	EPA Logo show is disabled

2.3.2.22 ASF Support

The default is [Enabled].

2.3.2.23 DMI Event Log

The options: Enabled, Disabled.

2.3.2.24 Clear All DMT Event Log

The options: Yes, No.

2.3.2.25 View DMI Event Log

Show the Event Log history.
The options: Yes, No.

2.3.2.26 Mark DMI Events as Read

The options: Yes, No.

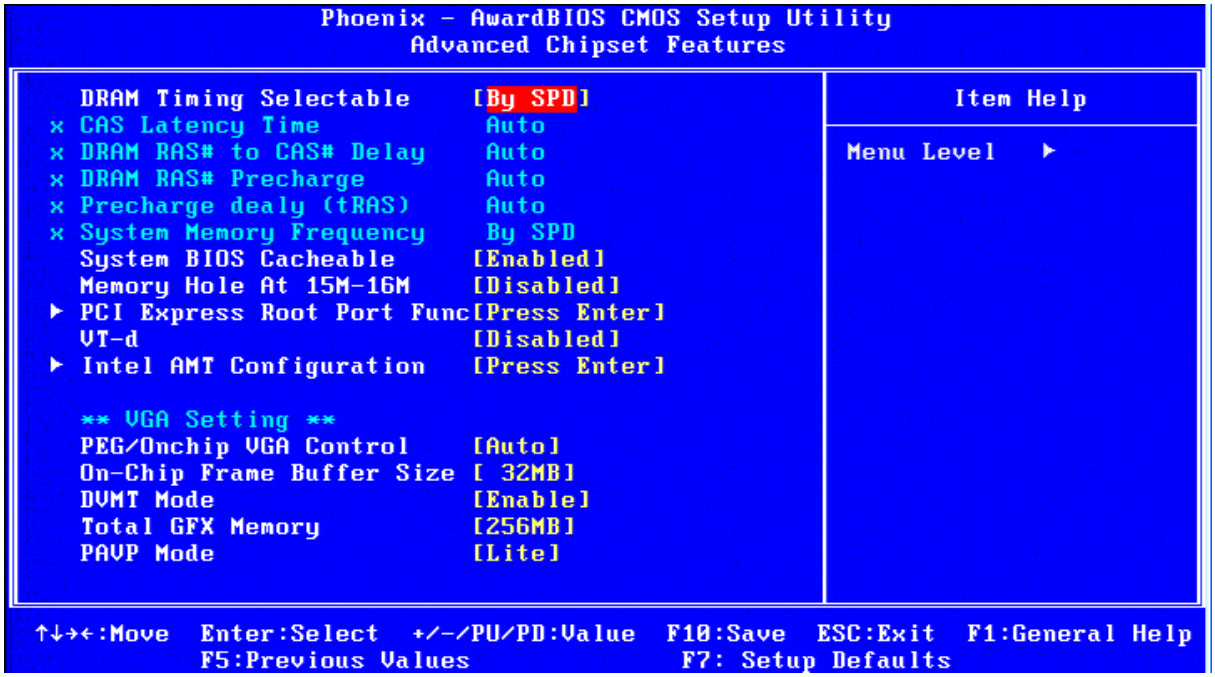
2.3.2.27 Event Log Capacity

Shows the Capacity of the Event Log.
The default is [Space available].

2.3.2.28 Event Log Validity

The default is [Validity].

2.3.3 Advanced Chipset Features



DRAM default timings have been carefully chosen and should ONLY be changed if data is being lost. Please first contact technical support

2.3.3.1 DRAM Timing Selectable

The options: Manual, by SPD

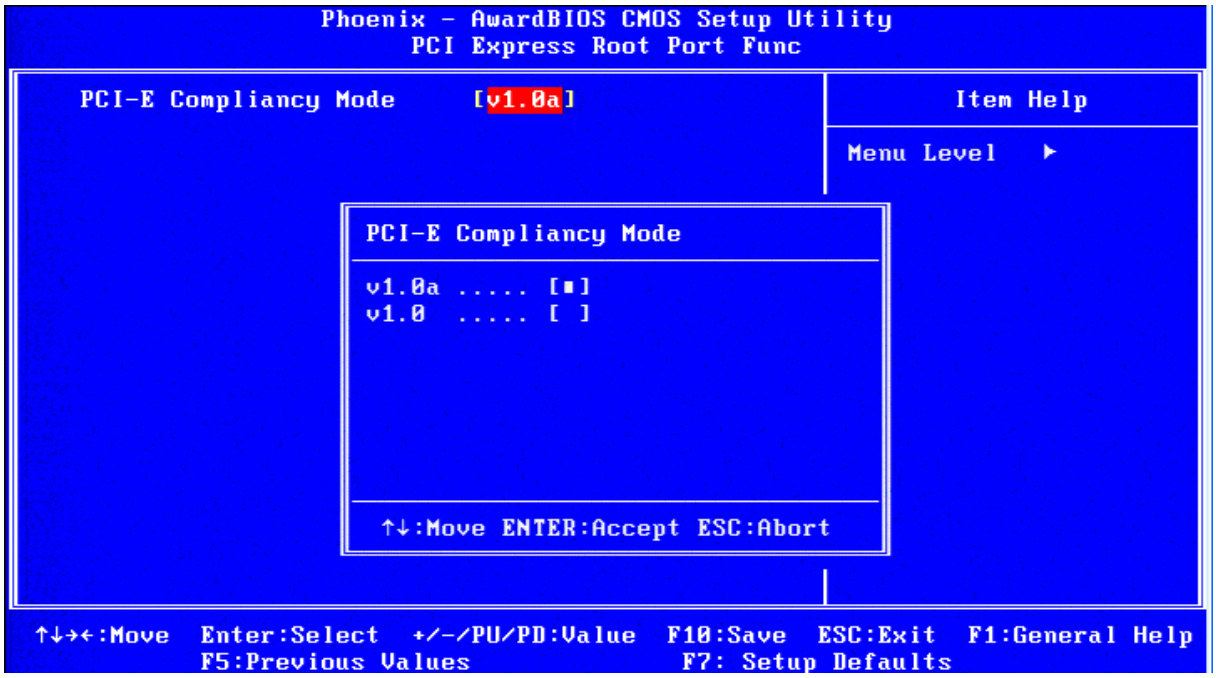
2.3.3.2 System BIOS Cacheable

Selecting “Enabled” allows caching of the system BIOS ROM at F0000h- FFFFFh, resulting in better system performance. However, if any pro- gram writes data to this memory area, a system error may occur. The Choices are “Enabled”, and “Disabled”.

3.3.3.3 Memory Hole at 15M-16M

Enabling this feature reserves 15 MB to 16 MB memory address space for ISA expansion cards that specifically require this setting. This makes memory from 15 MB and up unavailable to the system. Expansion cards can only access memory up to 16 MB. The default setting is “Disabled”.

2.3.3.4 PCI Express Root Port Function



- PCI-E Compliancy Mode

The options: V1.0a, V1.0.

2.3.3.5 VT-d

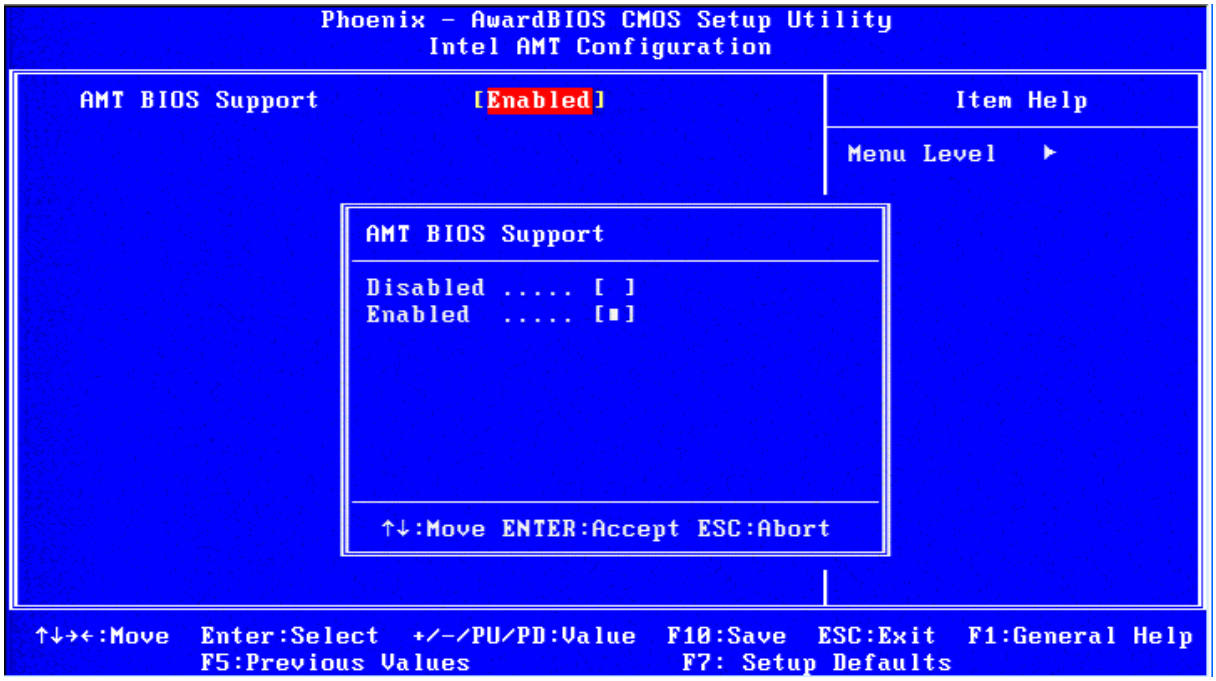
The options: Disabled, Enabled

2.3.3.6 Intel AMT Configuration

- AMT BIOS Support

The options: Disabled,

Enabled



2.3.3.7 PEG/Onchip VGA Control

The selections are “Auto”, “Onchip VGA” or “PEG Port”.

2.3.3.8 On-Chip Frame Buffer Size

The On-Chip Frame Buffer Size can be set to 32MB, 64MB, 128MB. This memory is shared with the system memory.

2.3.3.9 DVMT Mode

Use this field to select the memory to allocate for video memory. The choices are “Enabled”, “Disabled”.

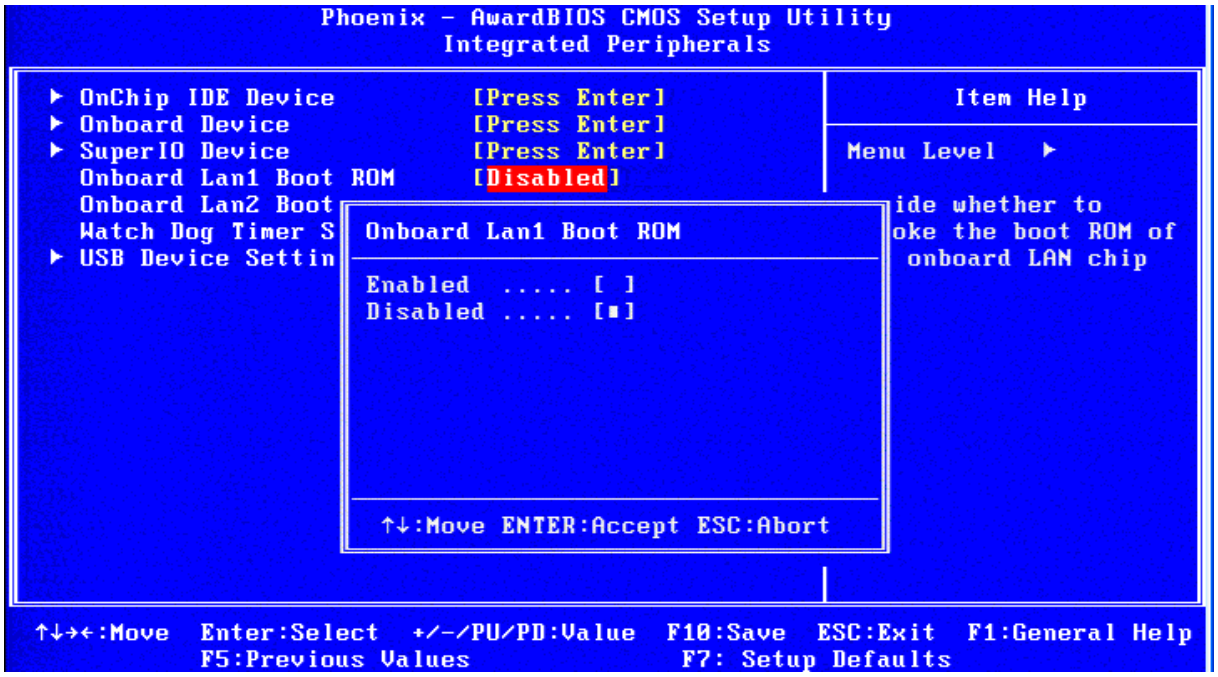
2.3.3.10 Total GFX Memory Precharge Delay (tRAS)

The options: 256MB

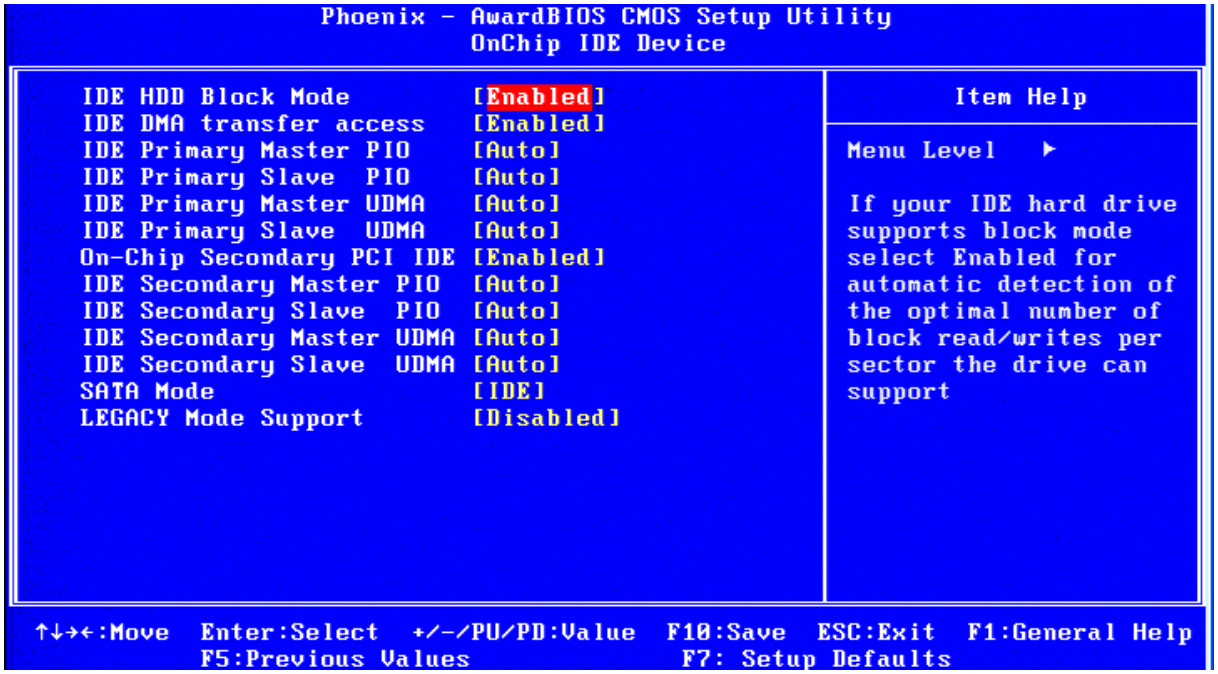
2.3.3.11 PAVP Mode

The options: Disabled, Lite, Paranoid

2.3.4 Integrated Peripherals



2.3.4.1 OnChip IDE Device



- IDE HDD Block Model

If IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

- IDE DMA Transfer Access

Use this field to enable or disable IDE DMA transfer access.

- IDE Primary/Secondary Master/Slave PIO/UDMA Mode

The channel has both a master and a slave, making four IDE devices possible. Because two IDE devices may have a different Mode timing (0, 1, 2, 3, 4), it is necessary for these to be independent. The default setting “Auto” will allow auto detection to ensure optimal performance.

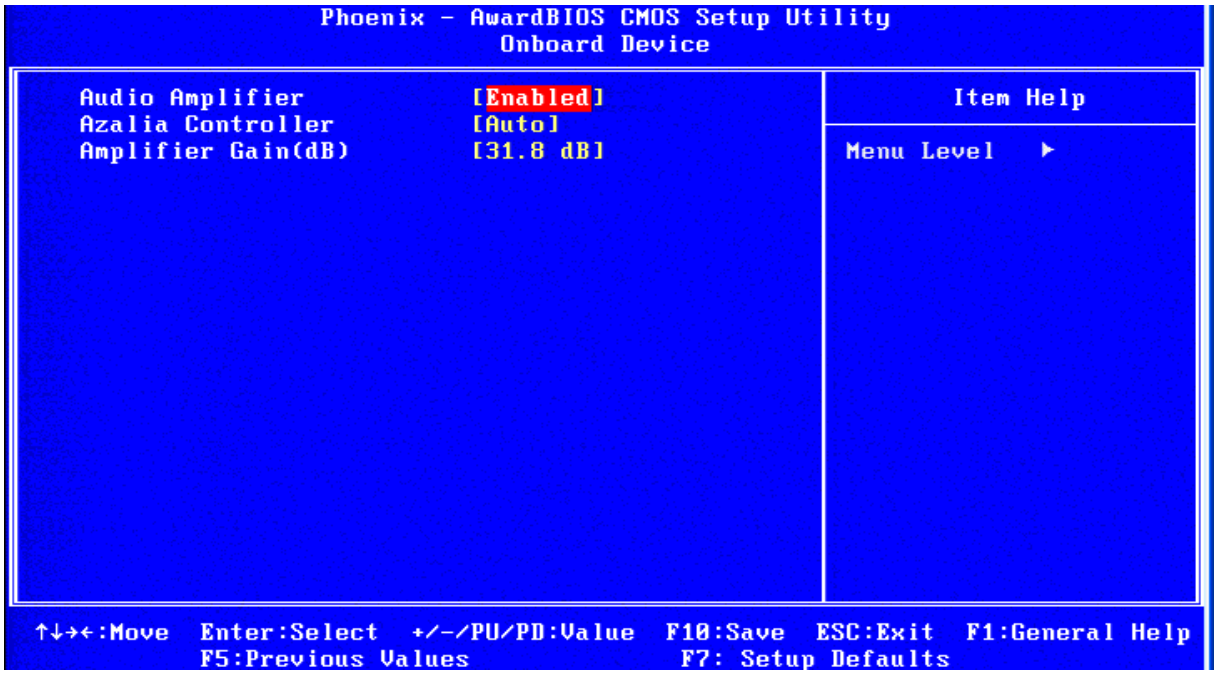
- SATA Mode

Choose the interface of SATA controller. The default setting is “IDE” which let SATA like parallel ATA controller. The “RAID” setting let SATA controller to support RAID.
The Advanced Host Controller Interface (AHCI) is a hardware mechanism that allows software to communicate with SATA devices, such as hot-plugging and Native Command Queuing (NCQ).

- LEGACY Mode Support

The choices: Disabled, Enabled.

2.3.4.2 Onboard Device



- Azalia Controller

The choices: Auto, Disabled.

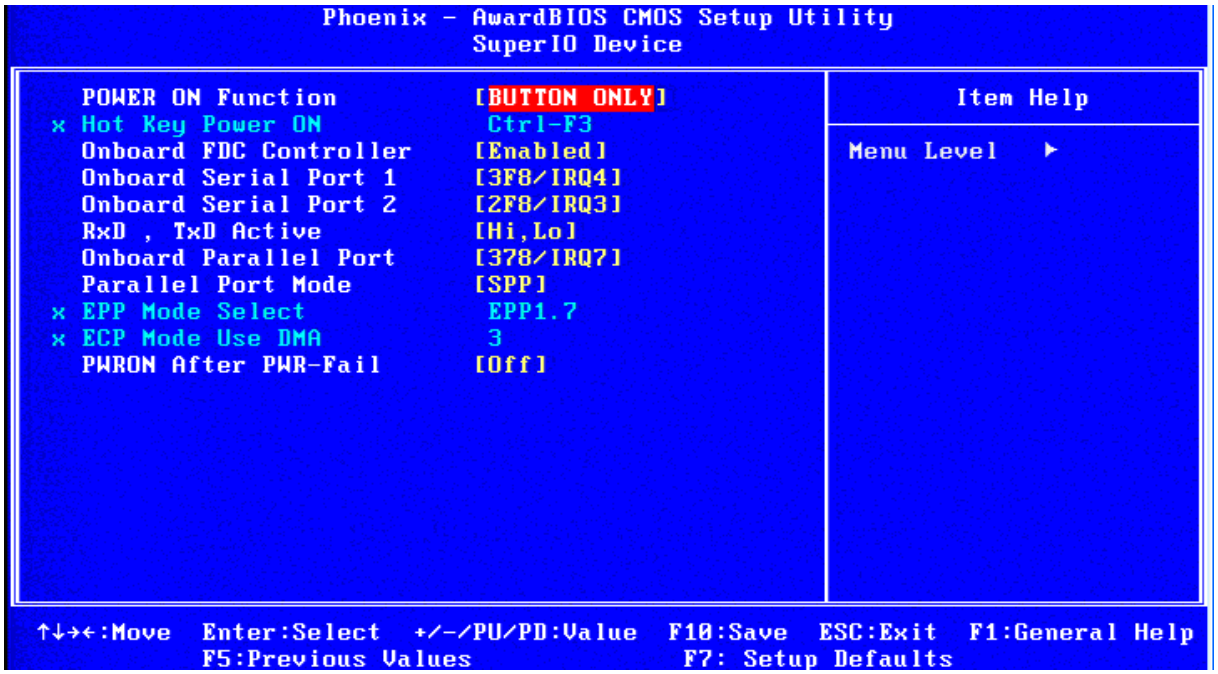
- Audio Amplifier

The choices: Enabled, Disabled.

- Amplifier Gain (dB)

The choices: 31.8dB, 27.2dB, 21.2dB, 15.3dB

2.3.4.3 Super I/O Device



- Power ON Function

This feature allows you to wake up the system using any of the listed options. The selections are "Hot KEY", "Mouse Left", "Mouse Right", "Any KEY" and "BUTTON ONLY".

- KB Power ON Password

Select this item to set or change the KB power on password.

- Hot Key Power ON

Awaken the system by pressing the hot key button. The choices are "Ctrl-F1", "Ctrl-F2", "Ctrl-F3" to "Ctrl-F8".

- Onboard FDC Controller

When enabled, this field allows you to connect your floppy disk drives to the onboard floppy disk drive connector instead of a separate controller card. If you want to use a different controller card to connect the floppy disk drives, set this field to Disabled.

- Onboard Serial Port

The settings are "3F8/IRQ4", "2F8/IRQ3", "3E8/IRQ4", "2E8/IRQ3", "Disabled" and "Auto" for the on-board serial connector.

- RxD, TxD Active

The options: [Hi, Hi,], [Hi, Lo], [Lo, Hi], [Lo, Lo]

- Power After PWR-Fail

Use this to set up the system after power failure. The "Off" setting keeps the system powered off after power failure, the "On" setting boots up the system after failure, and the "Former-Sts" returns the system to the status before power failure.

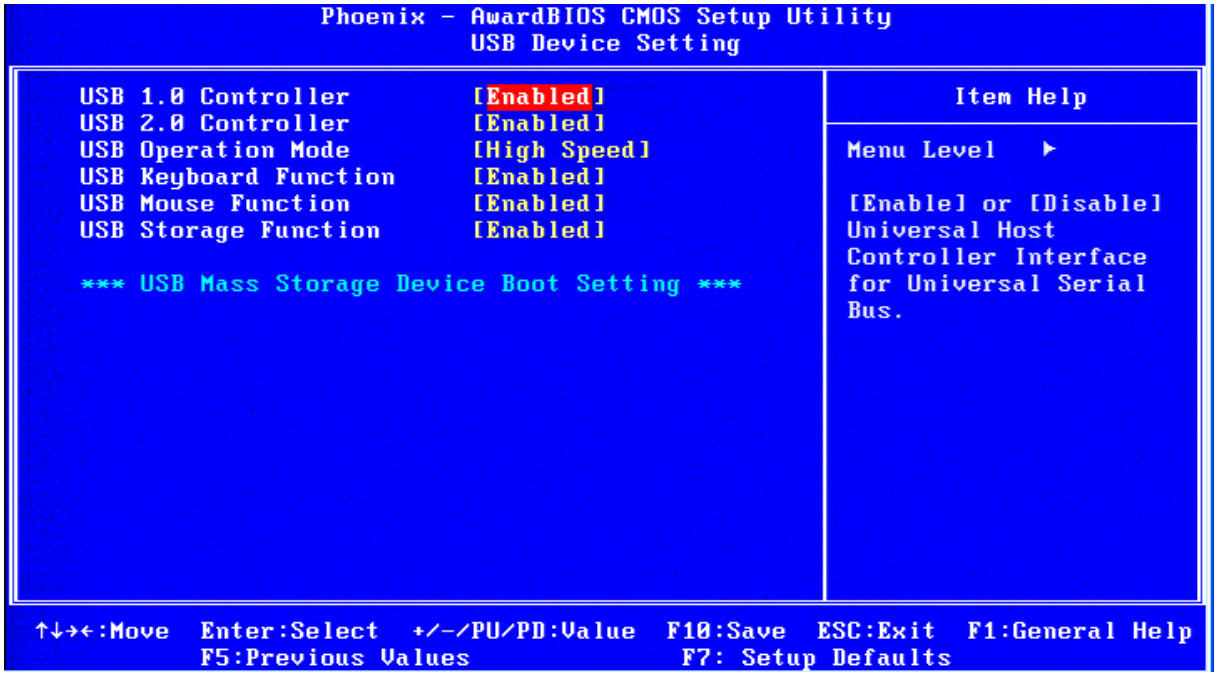
2.3.4.4 Onboard LAN Boot ROM

The options: Enabled, Disabled.

2.3.4.5 Watch Dog Timer Selection

The options: 0 ~ 255

2.3.4.6 USB Device Setting



- USB 1.0 / 2.0 Controller

The choices: Disabled, Enabled.

- USB Operation Mode

Allows you to configure the USB 2.0 controller in HiSpeed (480 Mbps) or Full Speed (12 Mbps). Configuration options: [Full/Low Speed] [HiSpeed]

- USB Keyboard Function

The choices: Disabled, Enabled.

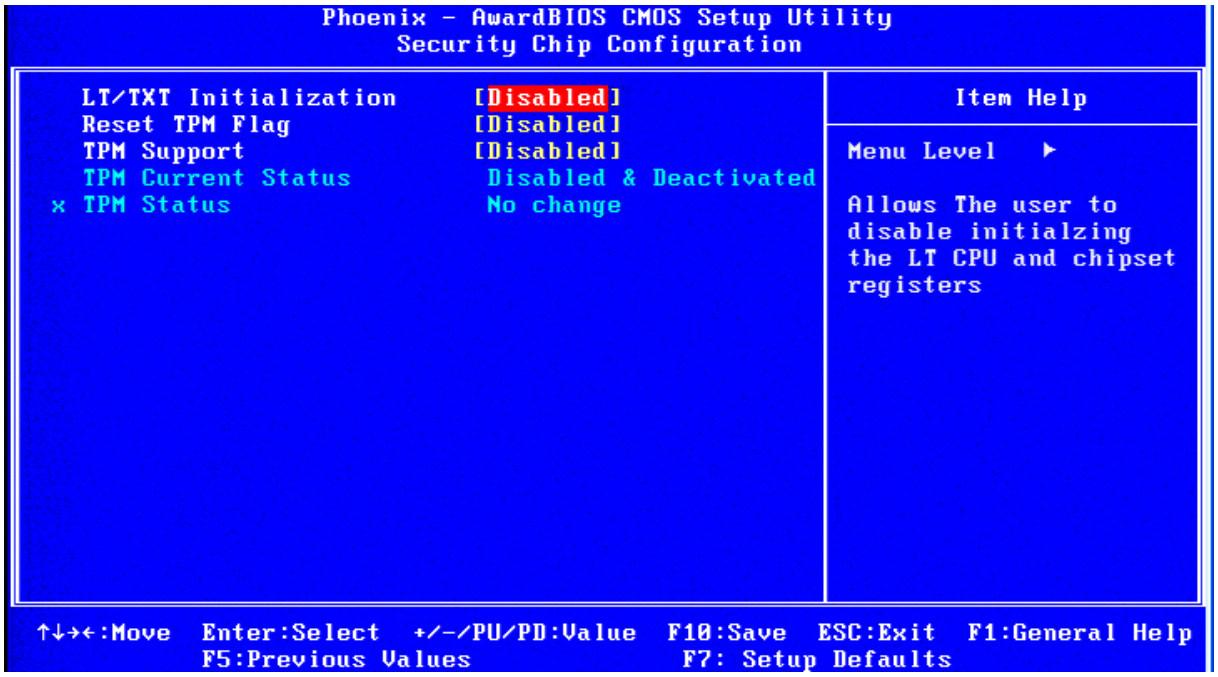
- USB Mouse Function

The choices: Disabled, Enabled.

- USB Storage Function

The choices: Disabled, Enabled.

2.3.5 Security Chip Configuration



2.3.5.1 LT/TXT Initialization

The options: Disabled, Enabled.

2.3.5.2 Reset TPM Flag

The options: Disabled, Enabled.

2.3.5.3 TPM Support

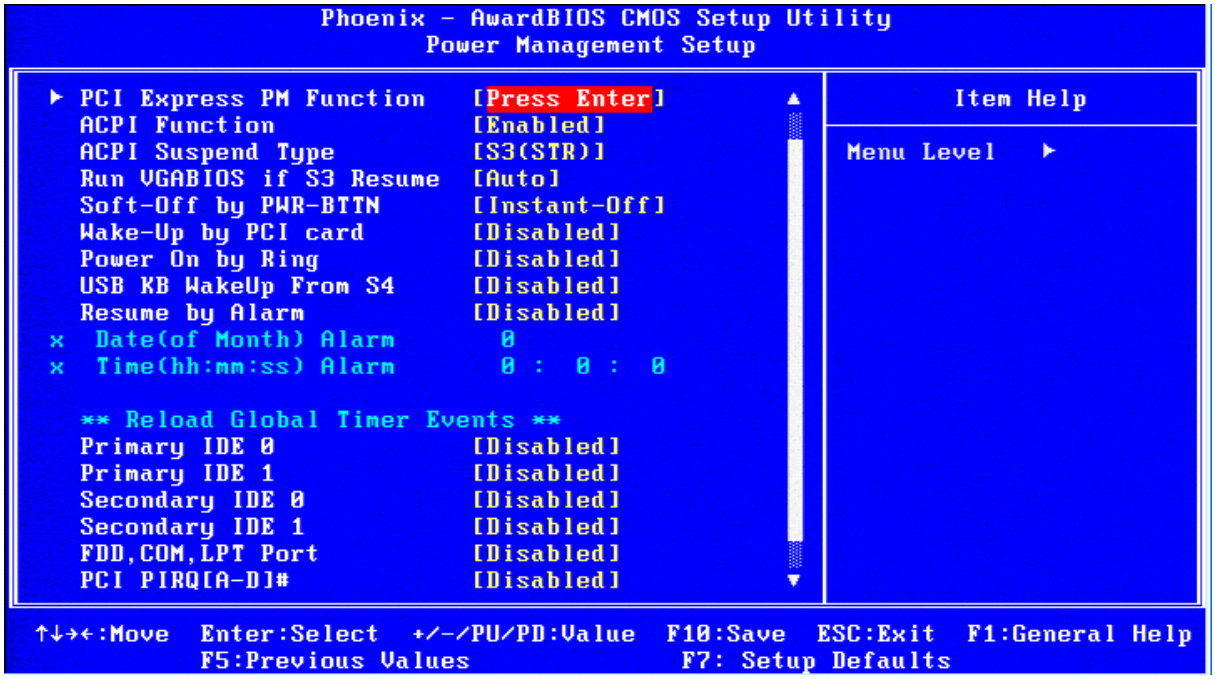
The options: Disabled, Enabled.

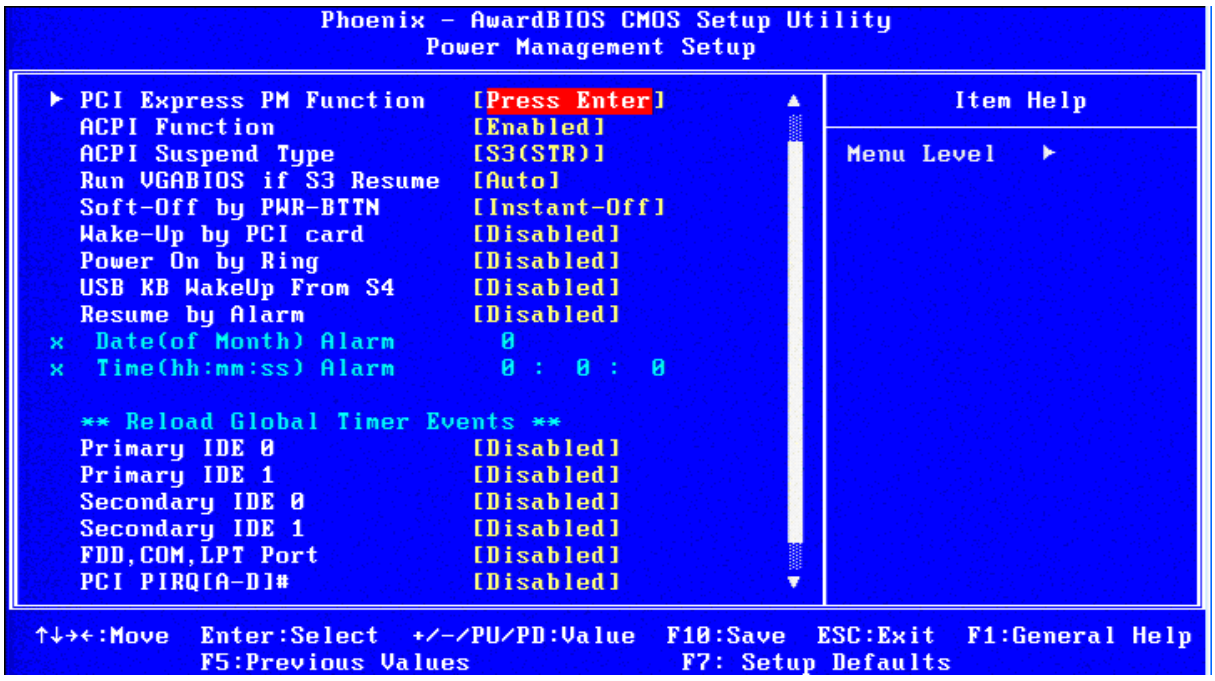
2.3.5.4 TPM Status

The options: No change, Clear, Enable & Activate, Deactivate & Disable.

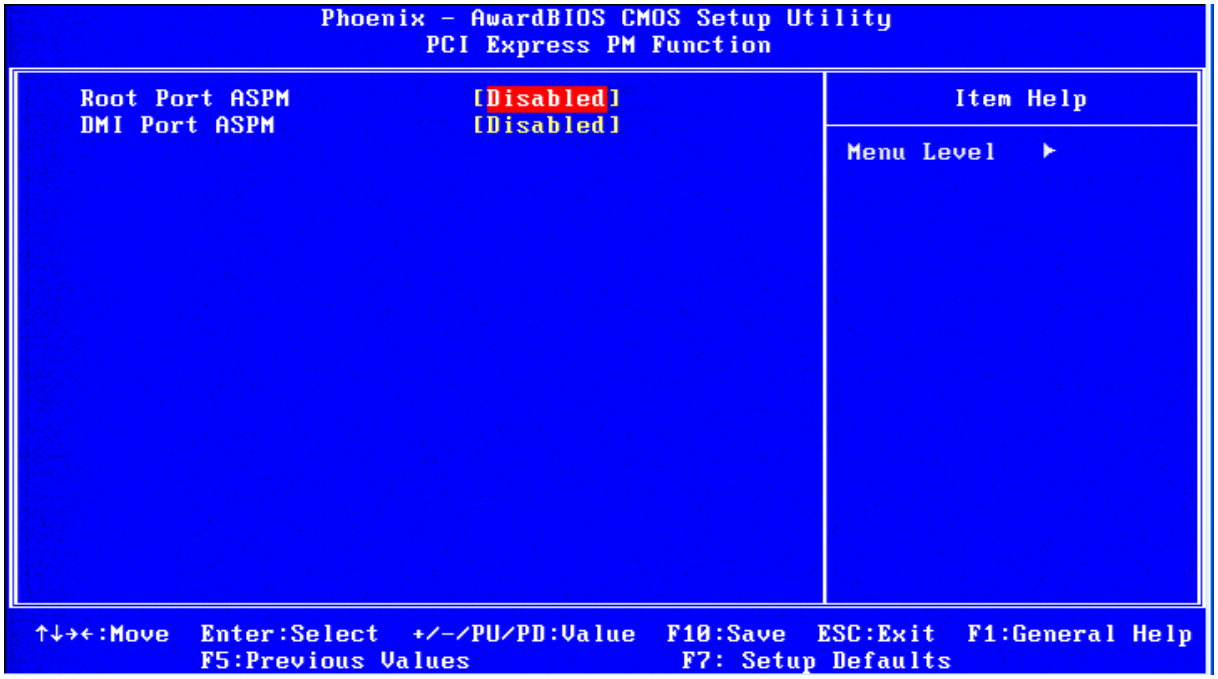
2.3.6 Power Management Setup

The power management setup controls the single board computer's “green” features to save power. The following screen shows the manufacturer’s defaults.





2.3.6.1 PCI Express PM Function



- DMI Port ASPM

The choices: Disabled, L1

2.3.6.2 ACPI Function

The choices are "Enabled" and "Disabled".

2.3.6.3 ACPI Suspend Type

This item allows you to set ACPI suspend type to S1/POS(Power On Suspend) or S3/STR(Suspend To RAM).

2.3.6.4 Run VGABIOS if S3 Resume

Select "Auto" to run VGA BIOS if S3 resume automatically. The "Yes" enables running VGA BIOS if S3 resume. The "No" disables this function.

2.3.6.5 Power Management

There are three selections for Power Management, and each of them has fixed mode settings.

Item	Description
Min. Power Saving	Minimum power management, HDD Power Down = 15 Min,
Max. Power Saving	Maximum power management, HDD Power Down =1 Min

User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

2.3.6.6 Video Off Method

Use this to select the method to turn off the video. The choices are “Blank Screen”, “V/H SYNC+ Blank”, and “DPMS”.

2.3.6.7 Video Off In Suspend

When the system is in suspend mode, the video will turn off. The choices are “No” and “Yes”.

2.3.6.8 Suspend Type

Select the suspend type. The choice: Stop Grant, Pwron suspend.

2.3.6.9 MODEM Use IRQ

This determines the IRQ in which the MODEM can use. The choices: NA, 3, 4, 5, 7, 9, 10, 11.

2.3.6.10 Suspend Mode

Item	Description
Min. Power Saving	Minimum power management, HDD Power Down = 15 Min,
Max. Power Saving	Maximum power management, HDD Power Down =1 Min
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

2.3.6.11 HDD Power Down

Select “1-15 mins” to enable HDD Power Down mode between 1 to 15 mins. Select “Disabled” to disable HDD Power Down function.

2.3.6.12 Soft-off by PWR-BTTN

If you choose “Instant-Off”, then pushing the ATX soft power switch but- ton once will switch the system to “system off” power mode. You can choose “Delay 4 sec”. If you do, then pushing the button for more than 4 seconds will turn off the system, whereas pushing the button momentarily (for less than 4 seconds) will switch the system to “suspend” mode.

2.3.6.13 Wake-Up by PCI card

The choices are "Enabled" and "Disabled".

2.3.6.14 Power On by Ring

Select "Enabled" to power on the system from a soft off state by an input signal on the serial Ring Indicator (RI) line. The choices are "Enabled" and "Disabled".

2.3.6.15 USB KB Wake-Up from S4

When "Enabled", enter any key to wake up the system from S4 state. The choices are "Enabled" and "Disabled".

2.3.6.16 Resume by Alarm

When "Enabled", set the date and time at which the RTC (real-time clock) alarm awakens the system from suspend mode. The choices are "Enabled" and "Disabled".

2.3.6.17 Primary / Secondary IDE

The options: Disabled, Enabled.

2.3.6.18 FDD, COM, LPT Port

The options: Disabled, Enabled.

2.3.6.19 PCI PIRQ [A-D]

The options: Disabled, Enabled.

2.3.6.20 Power Type

The options: AT, ATX.

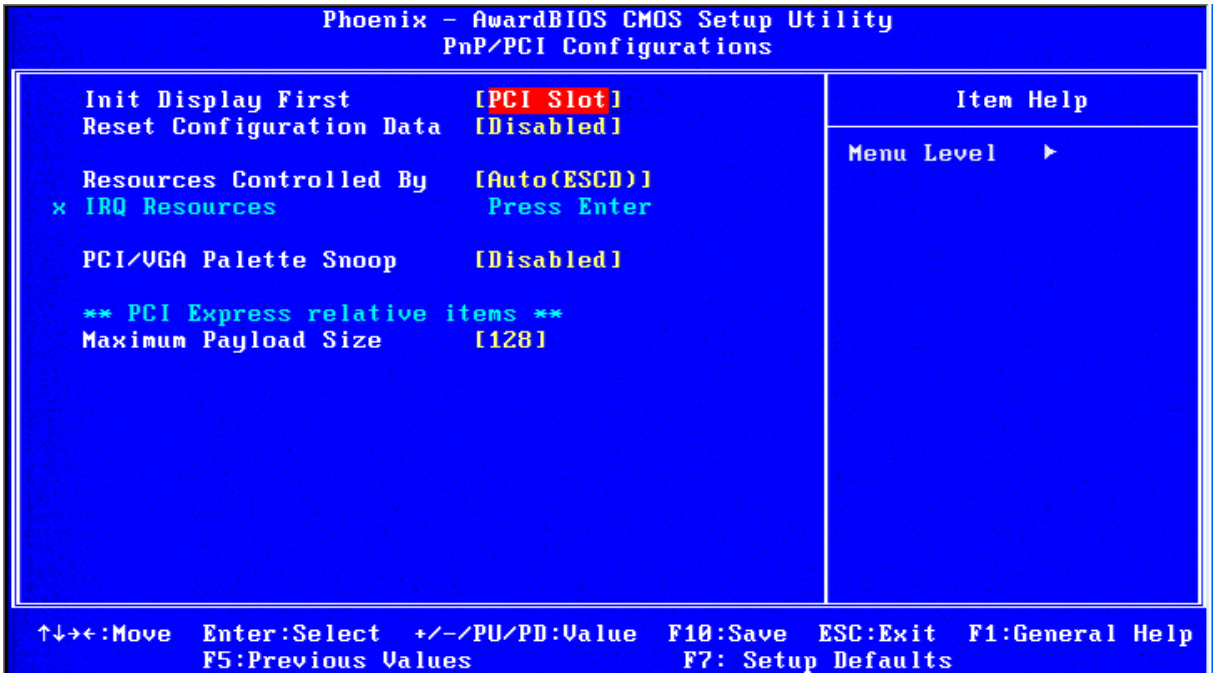
2.3.6.21 HPET Support

The options: Disabled, Enabled.

2.3.6.22 HPET Mode

The default is 32-bit mode.

2.3.7 PnP/PCI Configurations



2.3.7.1 Init Display First

This item allows you to choose the first display interface to initiate while booting. The options: PCI Slot, Onboard, PCIEx.

2.3.7.2 Rest Configuration Data

The default is “Disabled”. Select Enabled to reset Extended System Configuration Data (ESCD) if you have installed a new add-on card, and system configuration is in such a state that the OS cannot boot.

2.3.7.3 Resource Controlled By

The commands here are “Auto(ESCD)” or “Manual”. Choosing “Manual” requires you to choose resources from the following sub-menu.
“Auto(ESCD)” automatically configures all of the boot and Plug and Play devices, but you must be using Windows 95 or above.

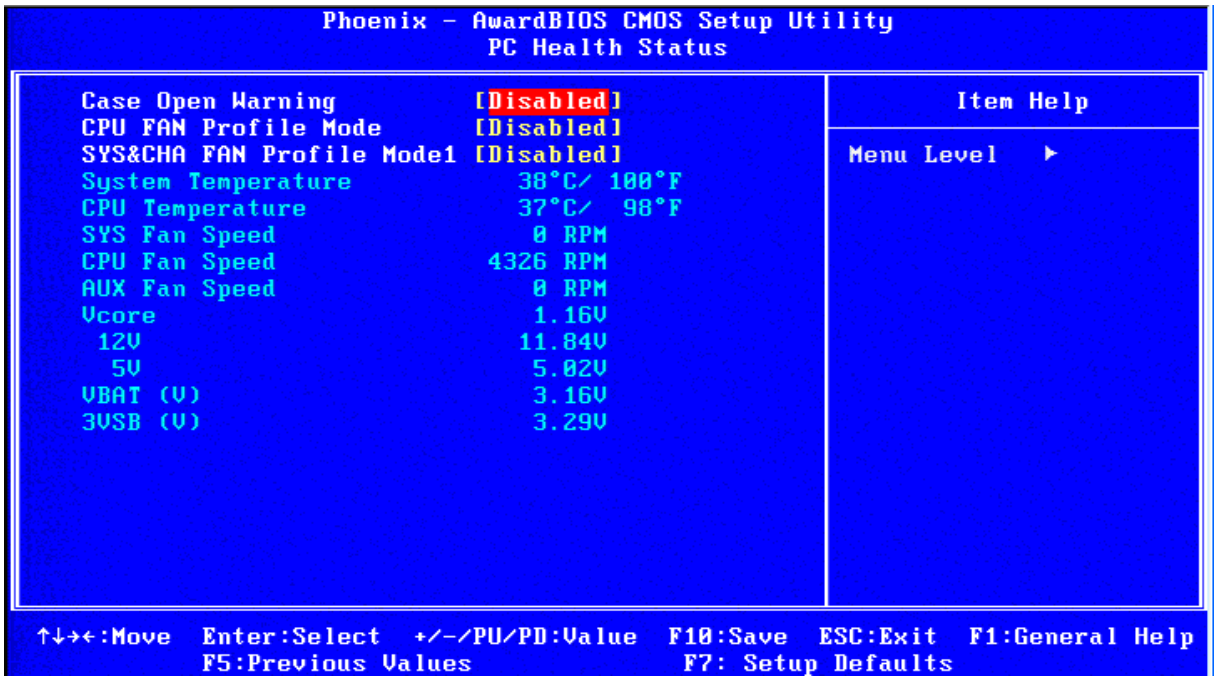
2.3.7.4 PCI/VGA Palette Snoop

This is set to “Disabled” by default.

2.3.7.5 Maximum Payload Size

This allows you to set the maximum TLP payload size for PCI Express devices.
The options: [128 bytes], [256 bytes], [512 bytes], [1024 bytes], [2048 bytes], and [4096 bytes].

2.3.8 PC Health Status



2.3.8.1 Case Open Warning

The options: Disabled, Enabled.

2.3.8.2 SYS&CHA Fan Profile

The options: Disabled, Optimal Mode, Silent Mode, and Performance Mode.

2.3.8.3 System Temperature

This shows you the current temperature of system.

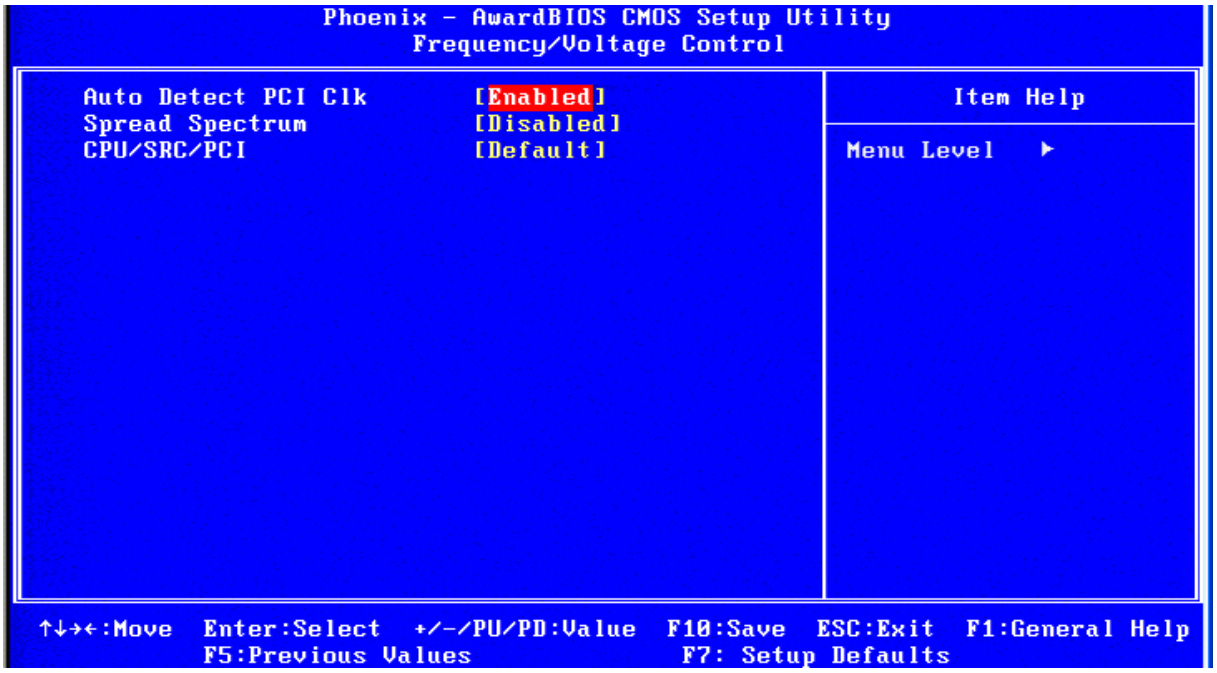
2.3.8.4 SYS / AUX FAN Speed

This shows the current fan operating speed.

2.3.8.5 Vcore and Others Voltage

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

2.3.9 Frequency/Voltage Control



2.3.9.1 Auto Detect PCI Clk

The options: Enabled, Disabled.

2.3.9.2 Spread Spectrum

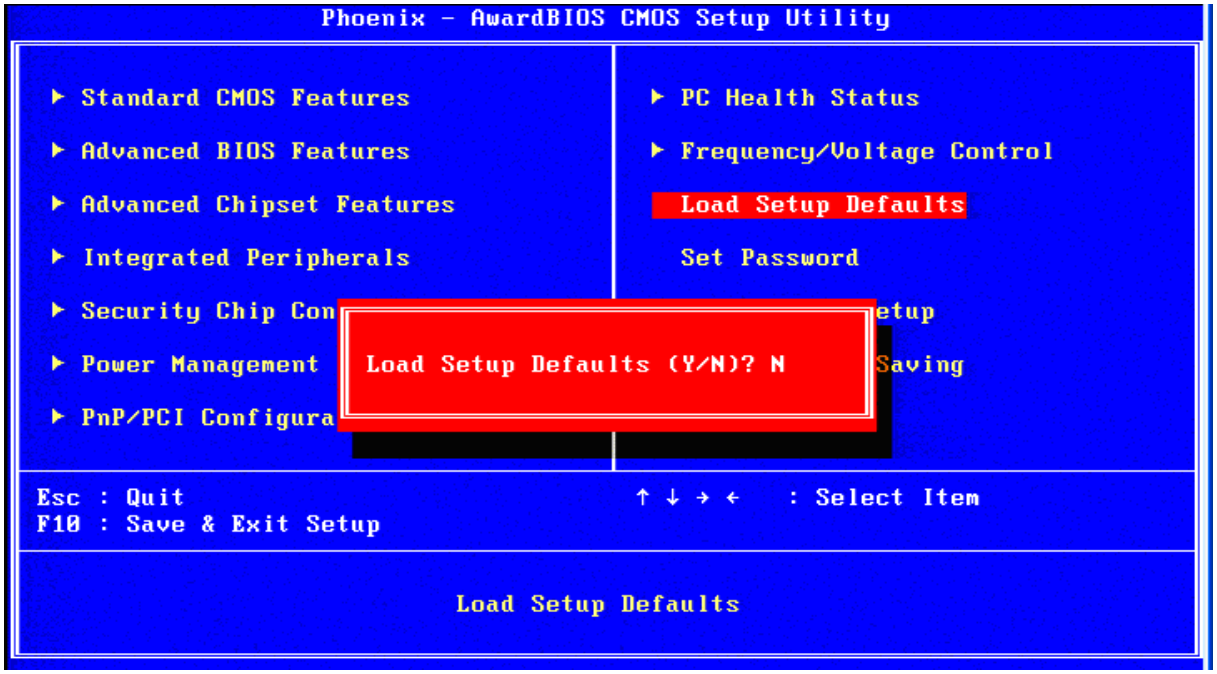
This setting allows you to reduce EMI by modulating the signals the CPU generates so that the spikes are reduced to flatter curves. This is achieved by varying the frequency slightly so that the signal does not use any particular frequency for more than a moment. The options: Disabled, N+0.3333, N+0.6666.

2.3.9.3 CPU/SRC/PCI

The options: Default, 100/100/33MHz, 133/100/33MHz, 200/100/33MHz, 266/100/33MHz, 333/100/33MHz.

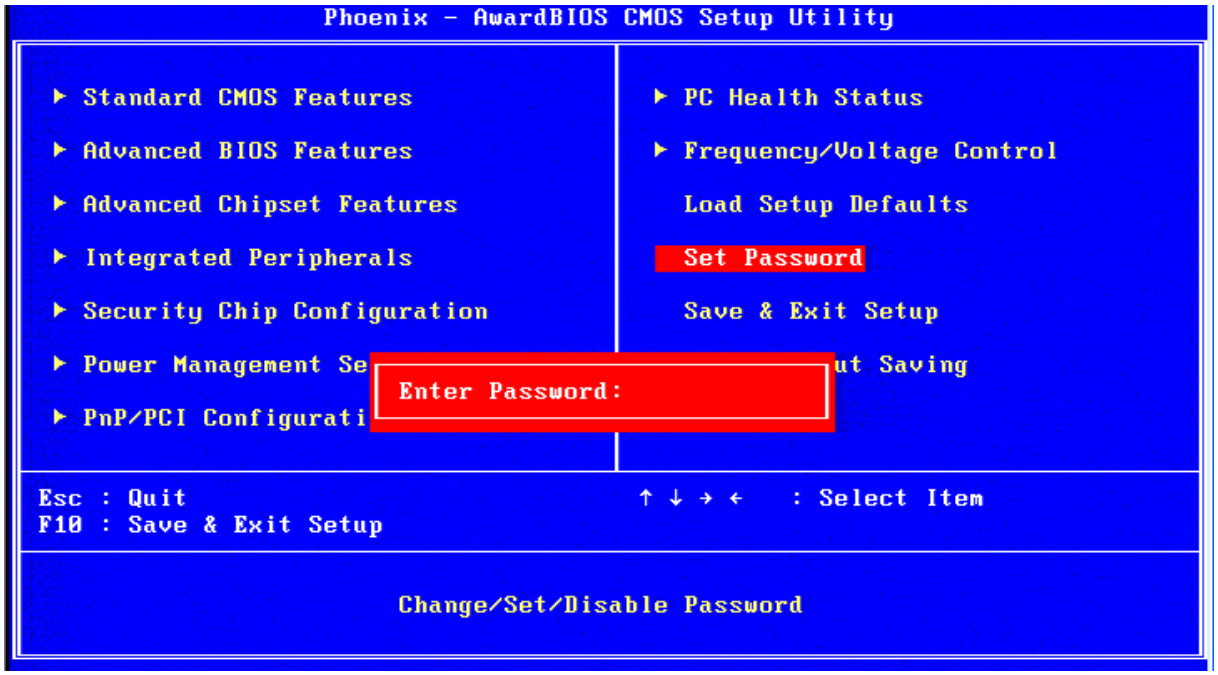
2.3.10 Load Setup Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate. Press <Y> to load the BIOS default values for the most stable, minimal-performance system operations.



2.3.11 Set Password

You can set password. Supervisor Password: able to enter/change the options of setup menus.



Follow these steps to change the password.

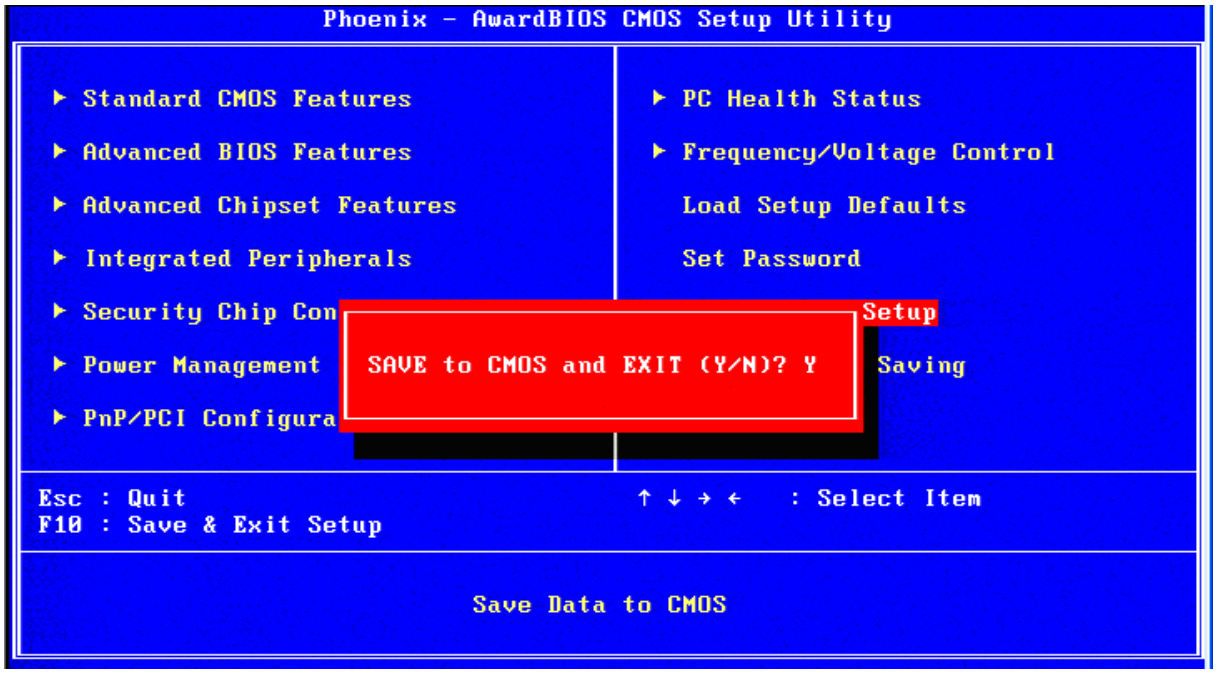
- Choose the "Set Password" option from the "Initial Setup Screen" menu and press <Enter>. The screen displays the following message:
- Please Enter Your Password
- Press <Enter>.
- If the CMOS is good and this option has been used to change the default password, the user is asked for the password stored in the CMOS. The screen displays the following message:

Please Confirm Your Password

- Type the current password and press <Enter>.
- After pressing <Enter> (ROM password) or the current password (user-defined), you can change the password stored in the CMOS. The password must be no longer than eight (8) characters. Remember, to enable the password setting feature, you must first select either "Setup" or "System" from the "Advanced BIOS Features" menu.

2.3.12 Save and Exit Setup

If you select this and press <Enter>, the values entered in the setup utilities will be recorded in the CMOS memory of the chipset. The processor will check this every time you turn your system on and compare this to what it finds as it checks the system. This record is required for the system to operate.



2.3.13 Exit Without Saving

Selecting this option and pressing <Enter> lets you exit the setup program without recording any new values or changing old ones.