Intel PM945GC-478 Mainboard

User's Manual

Rev: EG1.0

Date: 2008.1

CONTENTS

Chapter 1 Introduction

1.1 Chipset Introduction

Intel 945GC Chipset

The Intel 945GC chipset supports the latest PC technologies such as Socket 478 CPU, dual-channel DDRII memory architecture and PCI Express x16 graphics card interface. Intel Graphics Media Accelerator 950 provides a significant increase in graphics performance. 6 high-speed USB 2.0 ports.

Dual-channel DDRII

This Intel 945GC chipset motherboard supports TWO DDRII DIMM interfaces that can make you have more use room. Dual-channel can give you the fastest frequency.

1.2 Specification

INTEL 945GC

- **Intel 945GC + ICH6;**
- **Supports Socket 478 CPU**
- **Supports 533/800 MHz HOST BUS Frequency;**
- **Intel Graphics Media Accelerator 950 VGA;**
- **Dual channel Mode DDRII 400/533MHz;**
- **Supports 1 PCI Express x16 Slot;**
- **Supports 2 PCI Slots;**
- **Supports 6 channel sound input;**
- **Supports 6 USB2.0 ports;**

1.3 Mainboard Introduction

Key Features:

-Chipset:

Intel 945GC + ICH6

-CPU:

Supports Intel Socket 478 CPU

- Supports 533/800MHz HOST BUS Frequency

-Memory:

Supports DDRII 400/533MHz Memory

-Built-in Powerful Integrated Graphics
Integrated display function technologies without extend VGA card
Integrated 2D/3D Graphics Controller

-Provides one channel connecting two IDE drives
Supports Ultra ATA66/100/133synchronous DMA modes
-Provides 2 channel connecting 2 SATA drives with speed up to 150MB/S

-I/O:
1 floppy port support format 360K/720K/1.2M/1.44M/2.88M disk
1 serial port
1 parallel port supports EPP/ECP/SPP transfers
6 USB2.0 ports
1 PS/2 port
2 SATA ports
1 10/100M Network Adapter

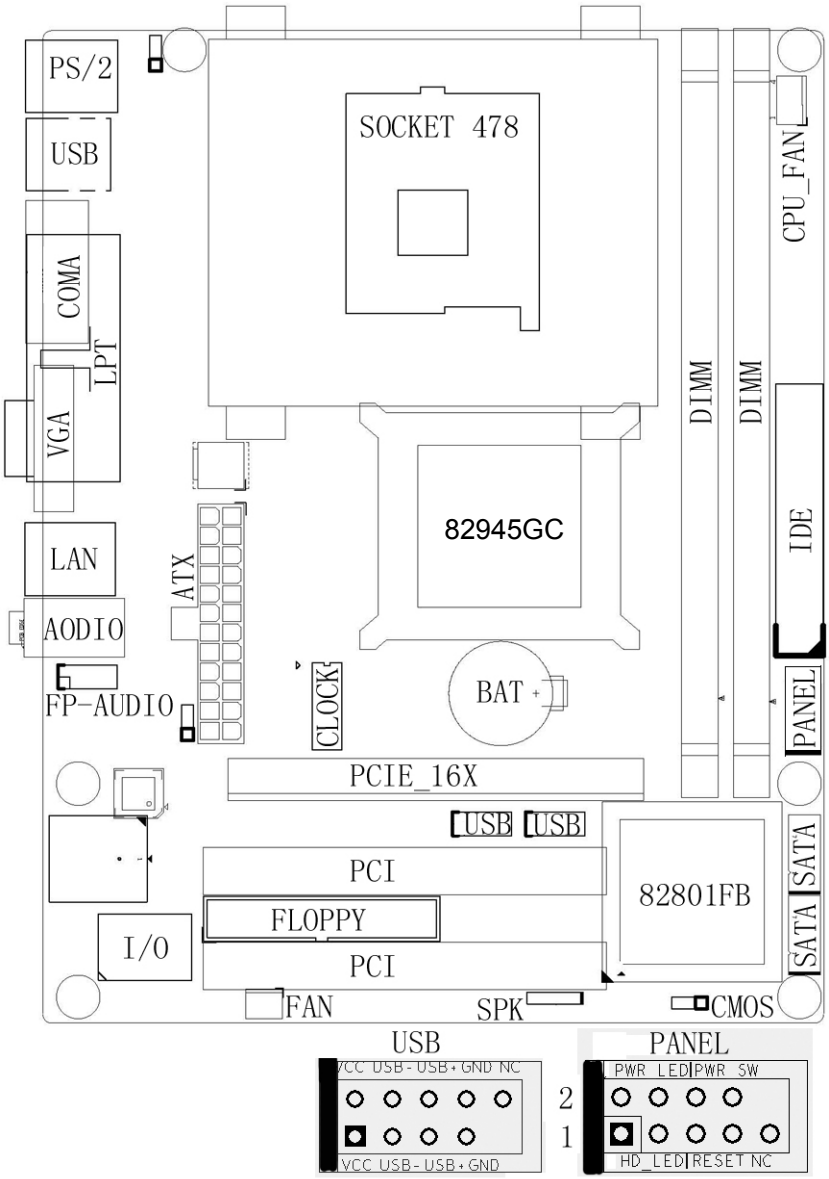
-Onboard AC'97 2.3 specification compliant
Supports six channel sound input (example Realtek ALC653)

-Expansion slot:
One PCIE_X16 slot
Two 32-bit PCI slots 2.2 specification compliant

-Dimension
MICROATX

Chapter 2 Package Contents
Your mainboard package contains the following items:
1 x Intel 945GC mainboard
1 x 40-pin Ultra DMA 66/100/133 IDE ribbon cable
1 x SATA cable
1 x Driver installed CD
1 x 0ne user's manual
1 x bracket

Chapter 3 Mainboard Locations



Chapter 4 Installations

4.1 Jumper Setting and Slot

Clear CMOS Jumper setting

1-2 (Default)	Normal
2-3	Clear CMOS

Audio: Front panel Jumper setting

PIN	Function	PIN	Function
1	MIC+	2	Ground
3	Vbias	4	AuD_Vcc(AVCC)
5	AuD_R_Out	6	R_Out Back
7	N.C.	8	Key
9	AuD_L_Out	10	L_Out Back

SATA: PIN Jumper setting

PIN	SATA1 Function	PIN	SATA2 Function
1	Ground	1	Ground
2	RSATA_RXP1	2	RSATA_RXP2
3	RSATA_RXN1	3	RSATA_RXN2
4	Ground	4	Ground
5	RSATA_TXN1	5	RSATA_TXN2
6	RSATA_TXP1	6	RSATA_TXP2
7	Ground	7	Ground

Expansion slot

DIMM1/DIMM2	240 PIN DDRII MEMORY SLOT
PCI1/PCI2	120 PIN PCI BUS expansion slots
PCIE_X16	Intel PCI Express X16 expansion slots

USB: Expansion Connector

PIN	Function	PIN	Function
1	VCC: Power	2	VCC: Power
3	D-:Data- Signal	4	D-: Data- Signal
5	D+: Data- Signal	6	D+: Data- Signal
7	GND: Ground	8	GND: Ground
9	KEY	10	NC

Connectors

PS/2(Bottom)	**PS/2 Keyboard(Purple)**
PS/2(TOP)	**PS/2 Mouse Header(Green)**
R_USB1	**USB1/2 Connector Port**
F_USB2	**USB3/4 Connector Port**
F_USB3	**USB5/6 Connector Port**
LPT	**Printer Connector Port**
COM1	**Serial Port COM1 Connector port**
VGA	**On-board VGA connector**
LINE OUT/ LINE IN/MIC	**Audio Output/Audio Input/Microphone**
IDE	**Primary/Secondary IDE port**
SATA1/SATA2	**SATA Port**
FDD	**Floppy Disk Drive Connector Port**
ATX/ATX_12V	**ATX/ATX_12V Power Supply Connector port**
CPU_FAN/PWR_FAN	**CPU/System FAN Port**

Function Port Panel

Power Supply LED	**Pin2: Power Supply Anode; Pin4: Ground**
HHD LED	**Pin1: Power supply Anode Pin3: LED Signal**
Power Supply Switch	**Pin6、8:Switch Signal**
Reset Switch	**Pin5、7:Reset Switch**

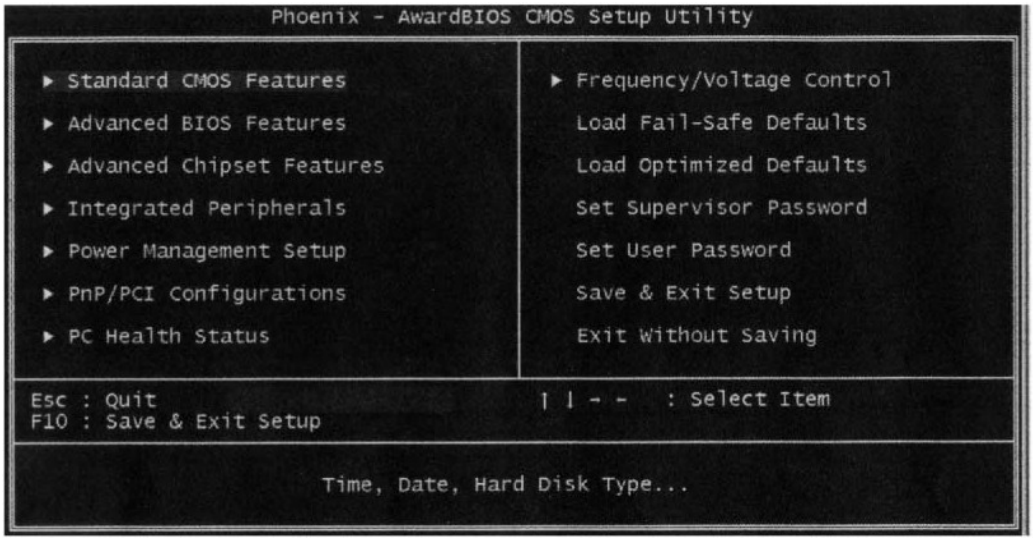
Chapter 5 BIOS Setup

The BIOS setup Utility record settings and information of your computer, such as date and time, the type of hardware installed, and various configuration settings. Your computer applies those information to initialize all the components when booting up and basic function of coordination between system components.

If the Setup Utility configuration is incorrect, it may cause the system to malfunction. It can even stop you computer booting properly. If it happens, you can use the clear CMOS jumper to clear the CMOS memory which has stored the configuration information; or you can hold down the Page

Up Key while rebooting your computer. Holding down the Page Up key also clears the setup information.

5.1 Main menu



You can use cursor arrow keys to highlight anyone of options on the main menu page. Press Enter to select the highlighted option. Press the Escape key to leave the setup utility. Press the F9 key to go back to menu in BIOS. Some options on the main menu page lead to tables of items with installed value that you can use cursor arrow keys to highlight on item, and press page

Up and page Down keys to cycle through alternative values of that item. The other options on the main menu page lead to dialog boxes that require your answer Yes or No by hitting the Y or N keys. If you have already changed the setup utility, press F10 to save those changes and exit the utility.

- ✧ **Standard CMOS Features**
  Setup date、time、floppy type
- ✧ **Advanced BIOS Features**
  Setup BIOS provides function, for example virus、boot-strap induct
- ✧ **Advanced Chipset Features**
  Setup mainboard chipset parameter, for example DRAM Timing
- ✧ **Integrated Peripherals**
  Setup include mainboard all peripherals drive
- ✧ **Power Management Setup**
  Setup CPU、Hard disk、Monitor drive power save mode
- ✧ **PnP/PCI Configurations**
  Setup PnP and PCI interface parameter
- ✧ **PC Health Status**
  Frequency/Voltage Control
- ✧ **Load Fail-Safe Defaults**
  Setup the default values in system
- ✧ **Load Optimized Defaults**

Setup the best performance values in system

- ✧ **Set Supervisor Password**

  Setup supervisor password in system

- ✧ **Set User Password**

  Setup user password in system

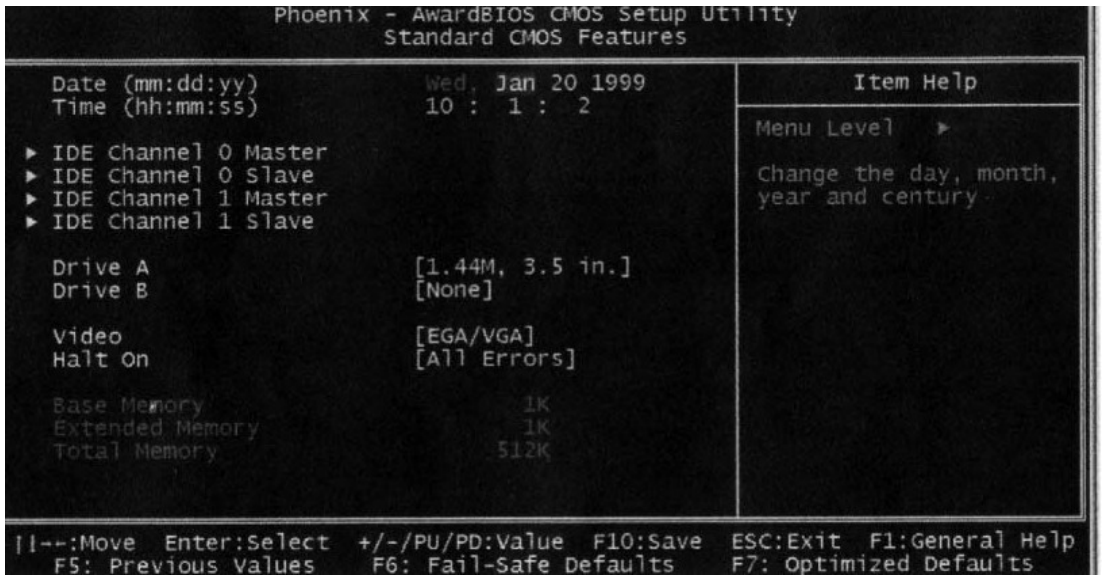
- ✧ **Save & Exit Setup**

  Setup save and exit, press Y to save and exit

- ✧ **Exit Without Save Setup**

  Exit without Save and exit, press N to without save and exit

5.2 Standard CMOS Features



- ✧ **Date(mm:dd:yyyy)**

  These items set up system date

- ✧ **Time(hh:mm:ss)**

  These items set up system time

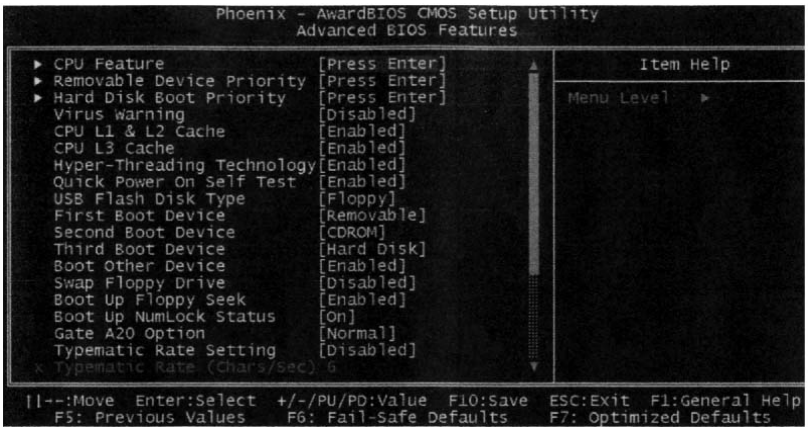
- ✧ **Primary/Secondary Master/Slave**

  These items configure devices connected to the Primary and Secondary IDE channels. To configure an IDE hard disk drive, Choose Auto. If the Auto setting fails to find a hard disk drive, set it to User , and then fill in the hard disk characteristics manually. If you have a CD-ROM drive, select the setting CD-ROM. If you have an ATAPI device with removable media, select Floptical.

- ✧ **Drive A/B**
- ✧ **Video**
- ✧ **Halt on**
- ✧ **Base Memory**
- ✧ **Expanded Memory**

✧ **Total Memory**

5.3 Advanced BIOS Features



✧ **CPU Feature** **Default: Press Enter**

Delay Prior to Thermal **Default: 16Min**

Thermal Management **Default: Thermal Monitor1**

Limit CPUID MaxVal **Default: Disabled**

C1E Function **Default: Auto**

Execute Disable Bit **Default: Enabled**

✧ **Removable Device Priority** **Default: Press Enter**

Floppy Disks

✧ **Hard Disk Boot Priority** **Default: Press Enter**

✧ **Virus Warning** **Default: Disabled**

✧ **CPU L1&L2 Cache** **Default: Enabled**

Leave these items enabled since all the processors that can be installed on this board have internal L2 cache memory.

Hyper–Threading Technology **Default: Enabled**

✧ **Quick Power On Self Test** **Default: Enabled**

✧ **USB Flash Disk Type** **Default: Floppy**

✧ **First Boot Device** **Default: Removable**

When system boot-strap first time detect device.

✧ **Second Boot Device** **Default: CDROM**

When system boot-strap first time detect device.

✧ **Third Boot Device** **Default: Hard Disk**

When system boot-strap first time detect device.

✧ **Boot Other Device** **Default: Enabled**

If you enable this item, the system will also search for other boot devices if it fails an operating system from the first two locations.

✧ **Swap Floppy Drive** **Default: Disabled**

If you have two diskette drives installed and you enable this item, drive A

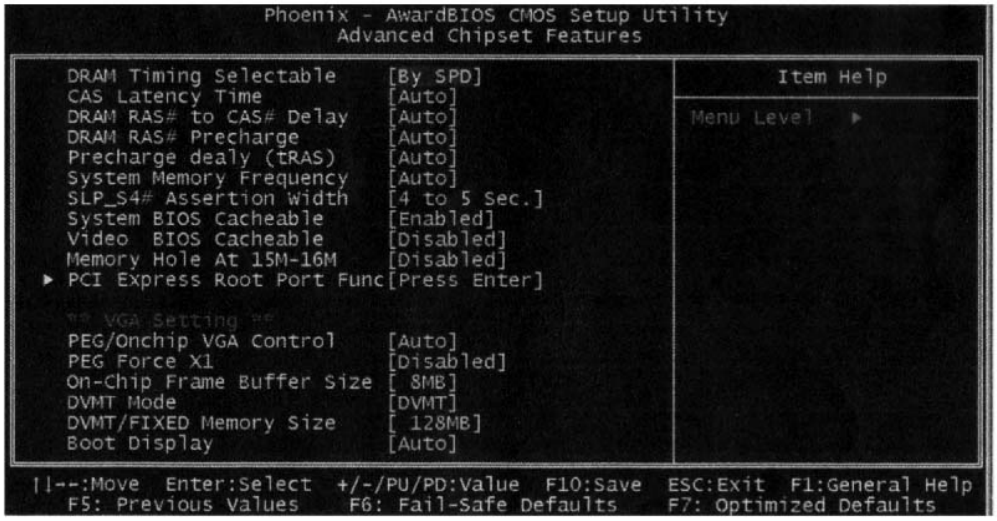
becomes drive B and drive B becomes drive A.

- ✧ **Boot Up Floppy Seek** — **Default: Enabled**
- ✧ **Boot Up NumLock Status** — **Default: On**
- ✧ **Gate A20 Option** — **Default: Normal**
- ✧ **Typematic Rate Setting** — **Default: Disabled**

  Typematic Rate (chars/sec) — **Default: 6**

  Typematic Delay (Msec) — **Default: 250**
- ✧ **Security Option** — **Default: Setup**
- ✧ **ACPI Mode** — **Default: Enabled**
- ✧ **MPS Version Control For OS** — **Default: 1.4**
- ✧ **OS Select For DRAM>64MB** — **Default: NON-OS2**
- ✧ **Report No FDD For WIN 95** — **Default: No**
- ✧ **Full screen Logo show** — **Default: Enabled**
- ✧ **Small Logo (EPA) show** — **Default: Enabled**

5.4 Advanced Chipset Features



- ✧ **DRAM Timing Selectable** — **Default: By SPD**

  X CAS Latency Time — **Default: Auto**

  X DRAM RAS# to CAS# Delay — **Default: Auto**

  X DRAM RAS# Precharge — **Default: Auto**

  X Precharge dealy (tRAS) — **Default: Auto**

  X System Memory Frequency — **Default: Auto**
- ✧ **SLP-S4# Assertion Width** — **Default: 4 to 5 sec**
- ✧ **System BIOS Cacheable** — **Default: Enabled**
- ✧ **Video BIOS Cacheable** — **Default: Disabled**
- ✧ **Memory Hole At 15M-16M** — **Default: Disabled**
- ✧ **PCI Express port 1** — **Default: Auto**

  PCI Express port 2 — **Default: Auto**

PCI Express port 3 **Default: Auto**

PCI Express port 4 **Default: Auto**

PCI Express port 5 **Default: Auto**

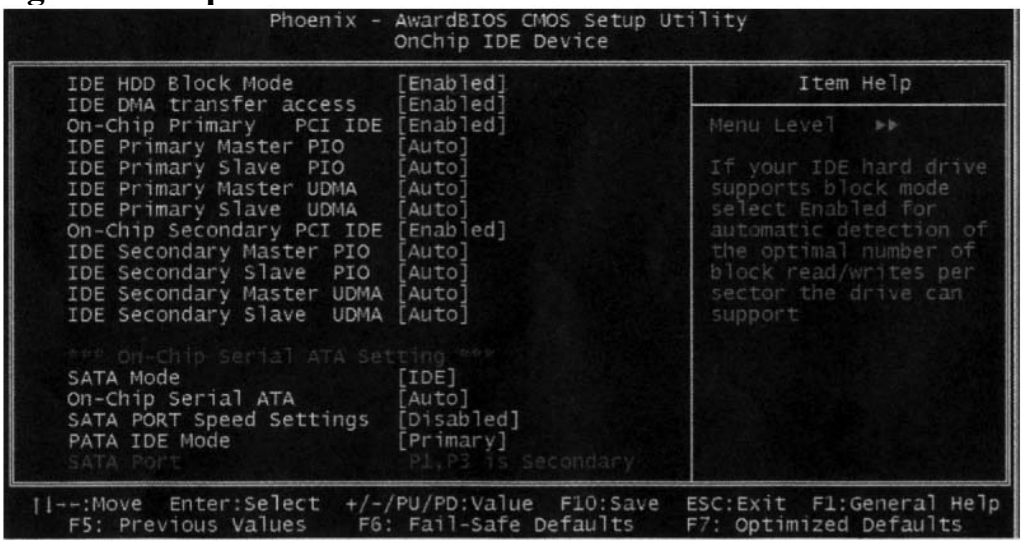
PCI Express port 6 **Default: Auto**

PCI-E Compliancy Mose **Default: vl.oa**

****VGA Setting****

- ✧ **PEG/Onchip VGA Contro1** **Default: Auto**
- ✧ **On-chip Frame Buffer Size** **Default: 8MB**
- ✧ **DVMT Mode** **Default: DVMT**
- ✧ **FIXED Memory Size** **Default: 128MB**
- ✧ **DVMT Memory Size** **Default: 128MB**
- ✧ **Boot Display** **Default: Auto**

5. 5 Integrated Peripherals



- ✧ **OnChip IDE Device** **Default: Press Enter**
- ✧ **IDE HDD Block Mode** **Default: Enabled**
- ✧ **IDE DMA Transfer access** **Default: Enabled**
- ✧ **On-Chip Primary/ Secondary PCI IDE** **Default: Enabled**

Chipset inside the first/second channel of PCI IDE interface

- ✧ **IDE Primary/ Secondary Master/Slave PIO** **Default: Auto**

The first/second IDE Primary Master/ Primary slave control PIO mode

- ✧ **IDE Primary/ Secondary Master/Slave UDMA** **Default: Auto**

*****On-Chip Serial ATA Setting*****

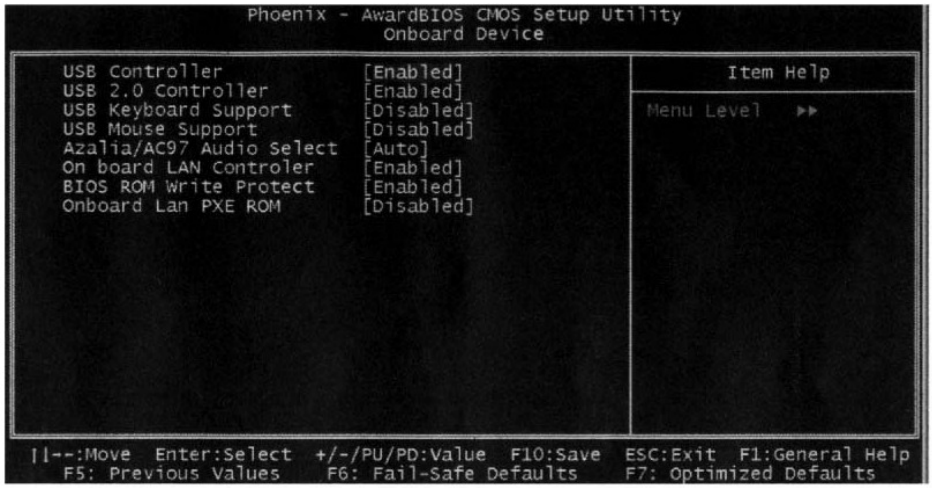
X SATA Mode **Default: IDE**

- ✧ **On-Chip Serial ATA** **Default: Auto**

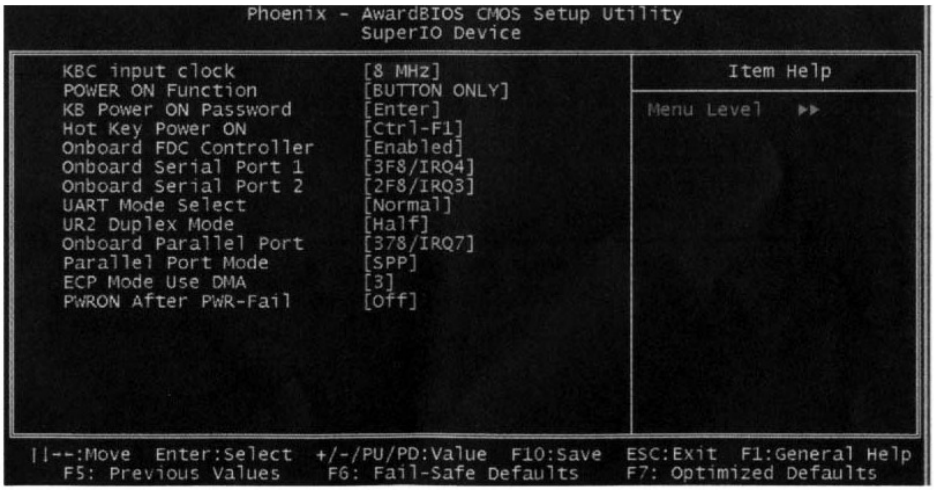
X SATA PORT Speed Settings **Default: Disabled**

PATA IDE Mode **Default: Primary**

SATA Port **Default: pl,p3 IS Secondary**



- ✧ **Onboard Device** **Default: Press Enter**
- ✧ **USB Controller** **Default: Enabled**
- ✧ **USB 2.0 Controller** **Default: Enabled**
- ✧ **USB Keyboard Support** **Default: Disabled**
- ✧ **USB Mouse Support** **Default: Disabled**
- ✧ **Azalia/AC97 Audio select** **Default: Auto**
- ✧ **Onboard LAN controller** **Default: Enabled**
- ✧ **BIOS ROM Write Protect** **Default: Enabled**
- ✧ **Onboard Lan PXE ROM** **Default: Enabled**



- ✧ **Super IO Device** **Default: Press Enter**
- ✧ **KBC input clock** **Default: 8 MHz**
- ✧ **POWER ON Function** **Default: BUTTON ONLY**

  X KB Power ON Password **Default: Enter**

  X Hot Key Power ON **Default: Ctrl-F1**
- ✧ **Onboard FDC Controller** **Default: Enabled**

  Setup onboard FDC controller
- ✧ **Onboard Serial port1/2** **Default: 3F8/IRQ4; 2F8/IRQ4**

  Setup onboard serial port1/2
- ✧ **UART Mode Select** **Default: Normal**

Setup UART mode select

- ✧ **UR2 Duplex Mode** — **Default: Half**
- ✧ **Onboard Parallel port** — **Default: 378/IRQ7**

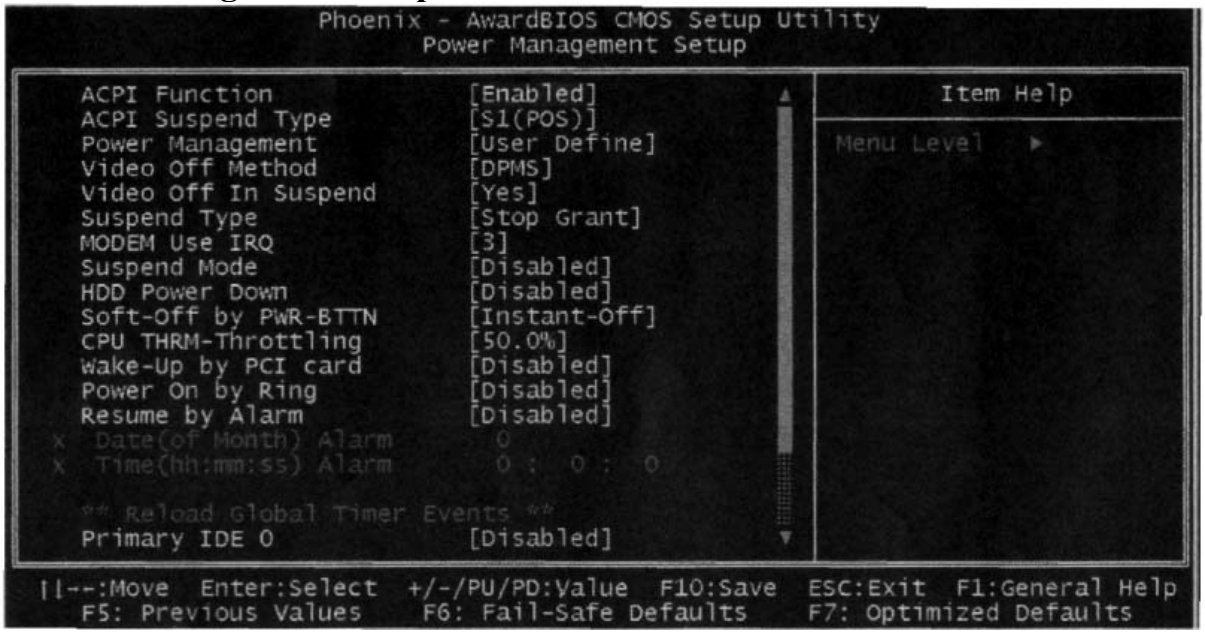
Setup select parallel port

- ✧ **Parallel Port Mode** — **Default: SPP**

Setup parallel port mode

- ✧ **ECP Mode USE DMA** — **Default: 3**
- ✧ **PWRON After PWR=Fail** — **Default: off**

5.6 Power Management Setup



- ✧ **ACPI Function** — **Default: Enabled**

Setup if use ACPI function

- ✧ **ACPI Suspend Type** — **Default: S1 (POS)**
- ✧ **Power Management** — **Default: User Define**
- ✧ **Video off Method** — **Default: DPMS**
- ✧ **Video off In Suspend** — **Default: Yes**
- ✧ **Suspend Type** — **Default: Stop Grant**
- ✧ **MODEM Use IRQ** — **Default: 3**
- ✧ **Suspend Mode** — **Default: Disabled**
- ✧ **HDD Power Down** — **Default: Disabled**
- ✧ **Soft-Off by PWR-BTTN** — **Default: Instant-Off**
- ✧ **Wake-up by PCI card** — **Default: Disabled**
- ✧ **Power On by Ring** — **Default: Disabled**
- ✧ **Resume by Alarm** — **Default: Disabled**

Date (of Month) Alarm — **Default: 0**

- ✧ **Time (hh:mm:ss) Alarm** — **Default: 0**

**** Reload Global Timer Events ****

- ✧ **Primary/Secondary IDE 0/1** — **Default: Disabled**

✧ **FDD,COM,LPT Port** **Default: Disabled**

✧ **PCI PIRQ[A-D]#** **Default: Disabled**

5.7 Set Supervisor Password & Set User Password

If you highlight this item and press Enter, a dialog box appears that you can enter a supervisor password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. There will be the second dialog box asking you to retype the password for confirmation. Press Enter after you have retyped it correctly. Then the password is required for the access to the setup utility or for it at start-up ,depending on the setting of the password check item in advanced setup.

5.8 Save Exit & Without Save Exit Setup

Highlight this item and press Enter to save the changes that you have made in the setup utility configuration and exit the program. When the save and exit dialog box appears. Press Y to save and exit; or press N to exit without saving.