WMBX-1212-9453

User Manual

Rev.01, Sep. 2011

Statement

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All product specifications are subject to change without prior notice.

Packing List

- ☐ WMBX-1212-9453 x 1
- ☐ Power cord (US) x 1
- ☐ Food pad x 4
- ☐ Wall mount bracket x 1
- ☐ Screws pack x 1
- ☐ RJ50 to COM cable x 1
- ☐ Y cable x 1
- ☐ Driver CD (Include user's manual) x 1

Ordering Information

STANDARD:

☐ WMBX-1212-9453

Micro Box System with Intel® LGA775 socket processor and 945GC+ICH7 chipset, with 1xVGA, 6xCOM, 1xLAN, 6xUSB, 1xPS2(KB/MS), 1xCash Drawer, 1xAudio, 1x LPT, 2xPCI Expansion slot, Smart Fan design.

OPTIONAL:

☐ RISER CRAD

2xPCI Slot Riser card

Contents

Chapter 1 Product Information

This chapter introduces the product features, jumper and connector information.

1.1 General Description

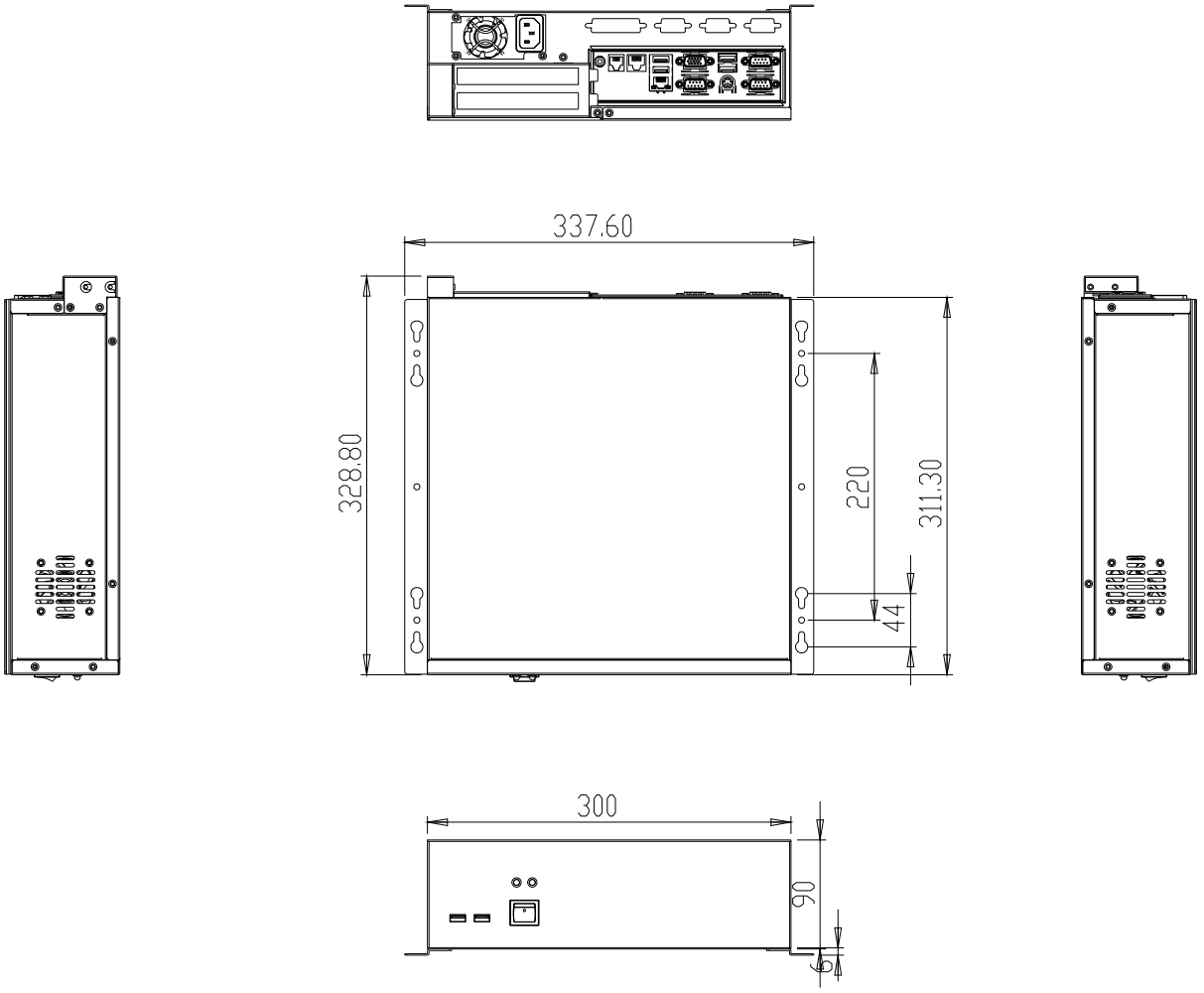
WMBX-1212-9453 is a Mini BOX PC system that can support Intel LGA775 Socket processor. **WMBX-1212-9453** supports Windows® 2000, Windows® XP, Windows® XP embedded, Windows® 7, which is suitable for the most endurable operation.

1.2 Features

Construction	Heave duty steel
CPU	Supports Intel® LGA775 Core 2 Duo processor/ Pentium Dual-Core processor/Celeron 400 sequence processor
System memory	2 x 240-pin DDR2 533/667 DIMM SDRAM, max. up to 2GB
Chipset	Intel 945GC + ICH7
BIOS	Award 16MB SPI
System I/O	Front I/O: 2 x USB Rear I/O: 4xUSB, 6xCOM(1 x RJ50, 4 x RS-232,1 x RS-232/422/485; All support 12V/5V/RI by jumper selector), 1xVGA, 1xLAN, 1xLPT, 1xAudio-out, 1xPS2
Watch dog timer	Interval: Programmable 1~255 sec.
Storage support	1 x CF and 2 x 3.5" HDD
Expansion slot	2 x PCI
System Indicators	1 x Power LED, 1 x HDD LED
System controls	1 x Power on switch
Mounting Kit	Wall mount bracket
Power Supply	Flex-ATX 250W power supply
Operating Temperature	0°C~40°C (32°F~104°F)
Storage temperature	-20°C~80°C (-68°F~176°F)
Relative Humidity	0%~90% (non-condensing)
Dimensions	230mm(W) x 215mm(D) x 65mm(H) 9.1"(W) x 8.5"(D) x 2.6"(H)
Weight	Gross: 2.7Kg/5.94Lb Net: 2.4Kg/5.28Lb
Standard Color	Black

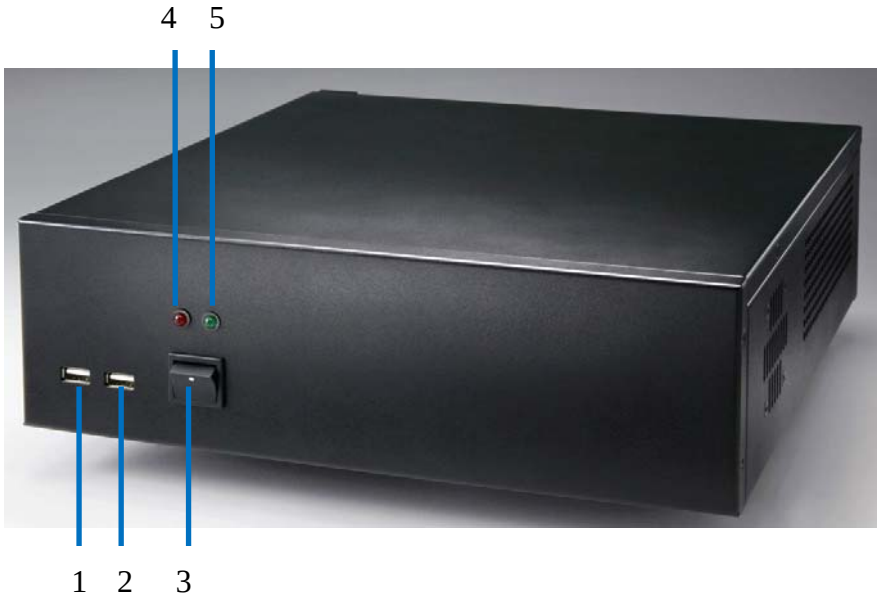
1.3 Dimensions

The following diagrams show you dimensions and outlines of **WMBX-1212-9453**.



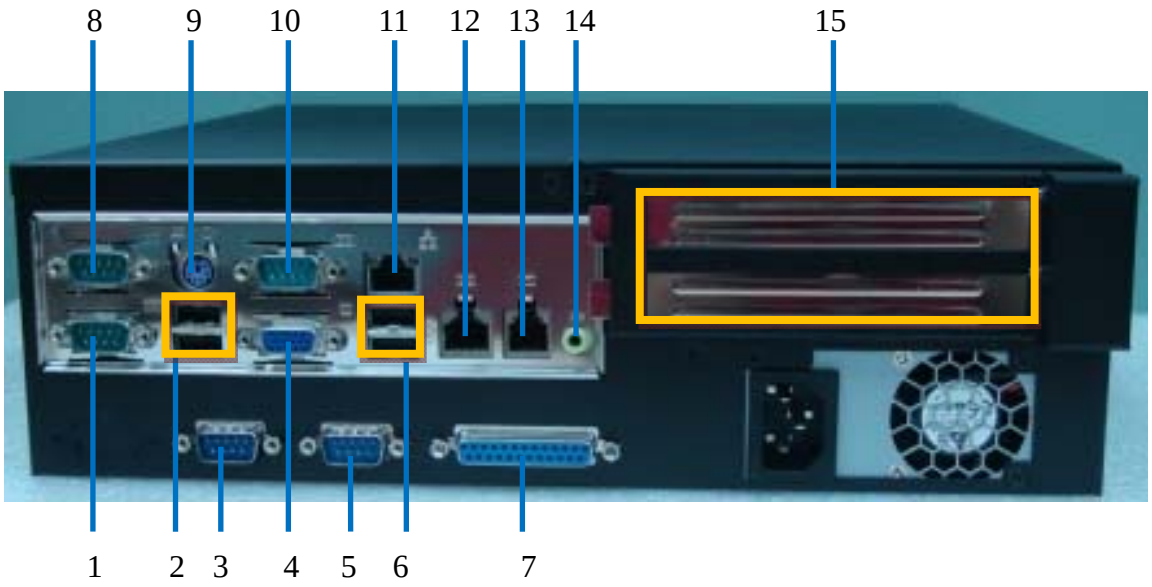
1.4 I/O Outlets

FRONT



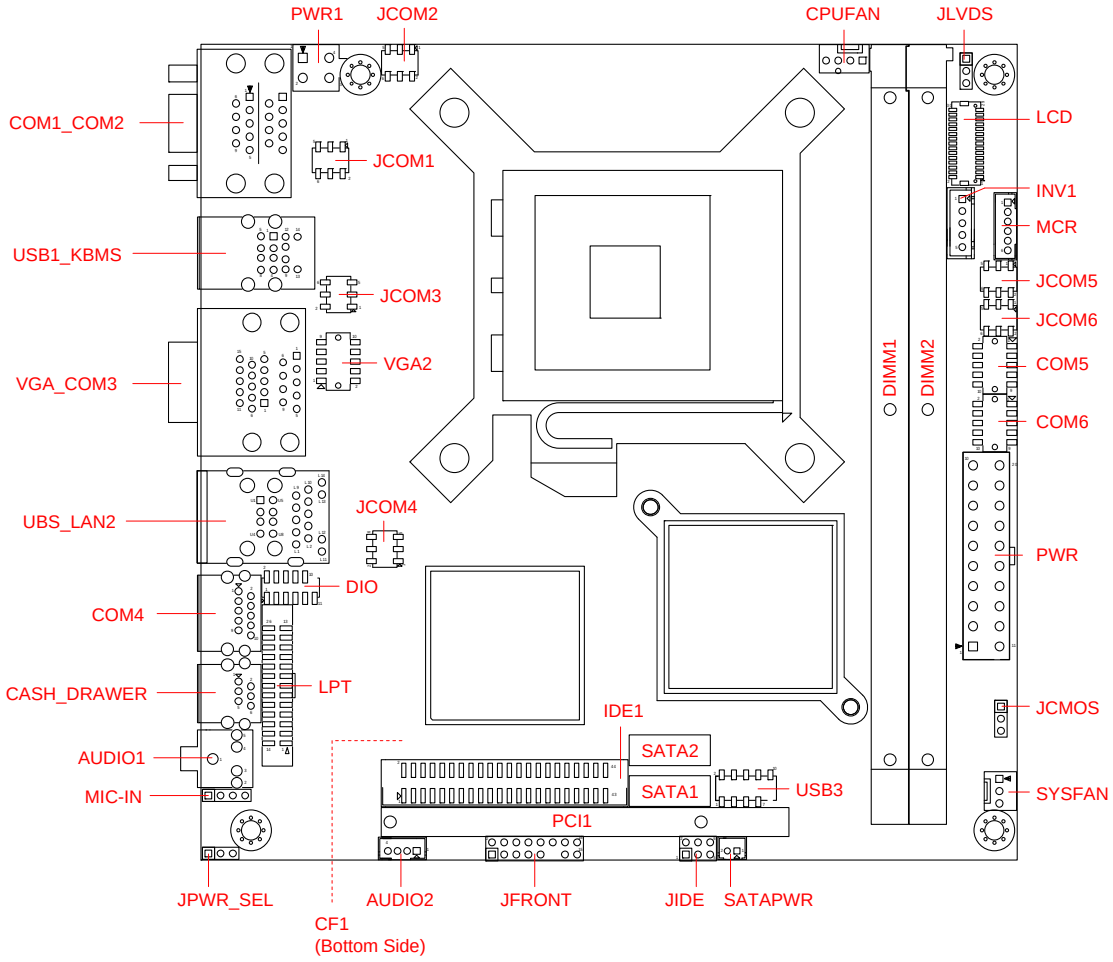
1. USB
2. USB
3. Power button
4. HDD status LED
5. Power status LED

BACK



1. COM1
2. USB (2 PORT)
3. COM5
4. VGA
5. COM6
6. USB (2 PORT)
7. LPT
8. COM2
9. PS2
10. COM3
11. LAN
12. COM4 (RJ50 TYPE)
13. Cash Drawer
14. Audio out
15. 2xPCI Expansion slot

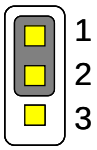
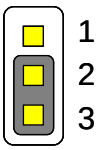
1.5 M/B PCB Layout



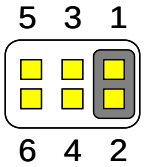
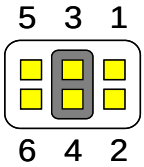
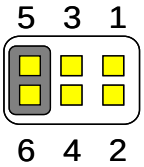
1.6 Jumper Setting

WMBX-1212-9453 has a number of jumpers inside the chassis that allows you to configure the system to suit the application. The table below lists the functions of various jumpers.

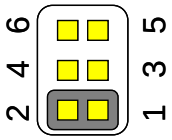
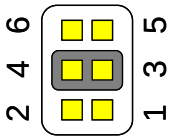
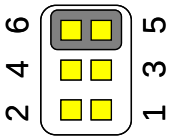
JCOMS：CMOS Clear

Pin No.	1-2	2-3
Function	Normal Operation (Default)	Clear CMOS Contents
Jumper Setting		

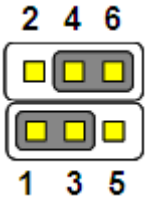
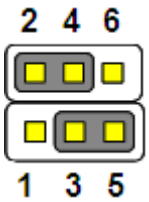
JCOM1/JCOM2/JCOM5/JCOM6：COM1/COM2/COM5/COM6 (5V/12V/RI) Select

Pin No.	1-2	3-4	5-6
Function	+5V	Modem Ring In (Default)	+12V
Jumper Setting			

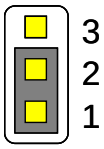
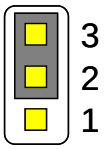
JCOM3/JCOM4：COM3/COM4 (5V/12V/RI) Select

Pin No.	1-2	3-4	5-6
Function	+5V	Modem Ring In (Default)	+12V
Jumper Setting			

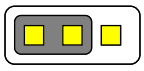
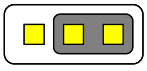
JIDE：IDE ATA Mode & Compact Flash (Master / Slave) Select

Pin No.	1-3, 4-6	3-5, 2-4
Function	Auto detect UDMA Mode Compact Flash Slave mode (Default)	IDE Work mini. UDMA2 Mode Compact Flash Master Mode
Jumper Setting		

JLVDS：LCD Voltage Select

Pin No.	1-2	2-3
Function	LCD Power +3.3V (Default)	LCD Power +5V
Jumper Setting		

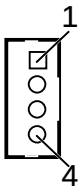
JPWR_SEL：Power Mode Select

Pin No.	1-2	2-3
Function	ATX Mode (Default)	AT Mode
Jumper Setting		

1.7 Connector Function List

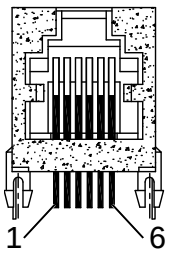
Connector	Function	Note
Audio1	Line-Out Phone Jack	
Audio2	Audio Amplifier Out Connector	
Cash Drawer	Digital I/O RJ-11-6P6C Connector	
CF	Compact Flash Connector	
COM1,2,3	Serial port with D-sub 9Pin Connector	
COM4	Serial port with RJ50-10P10C Connector	
COM5,6	Serial port with Wafer Connector	
CPUFAN	CPU Fan 4Pin Connector	
DIO	Digital I/O with Pin-header	
IDE	HDD IDE Connector	
INV	Inverter Connector	
JFRONT	Front Panel Connector	
LPT	Parallel Port Connectors	
LCD	LVDS LCD Panel Connector	
MCR	External Keyboard Connector	
MIC-IN	MIC-In Connector	
PWR	ATX Power 20 Pin Connector	
PWR1	ATX 12V Power 4 Pin Connector	
SATA1,2	SATA Connector	
SYSFAN	System Fan 3Pin Connector	
USB3	USB x2 with Pin-header	
USB1_KBMS	USB x2 and PS2 Keyboard and Mouse	
USB2_LAN	USB x2 and LAN x1	
VGA	VGA port with D-Sub 15Pin Connector	
VGA2	VGA port with Wafer Connector	

1.8 Internal Connector Pin Define



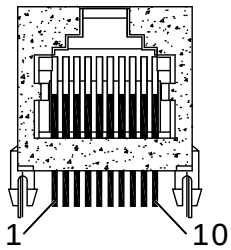
AUDIO2：Audio Amplifier Output with Wafer connector (2.0 mm)

Pin No.	Signal
1	Audio Amplifier Out Right
2	Ground
3	Ground
4	Audio Amplifier Out Left



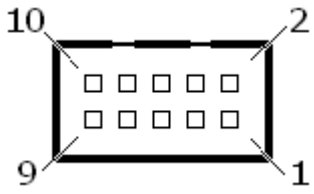
CASH_DRAWER：Digital IO with RJ-11-6P6C connector

Pin No.	Signal
1	Ground
2	DIO_Out1 (bit1)
3	12V
4	DIO_IN0 (bit2)
5	DIO_Out0 (bit0)
6	Ground



COM4：Serial Port with RJ50-10P10C connector

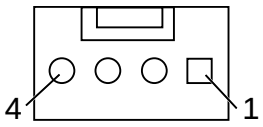
Pin No.	Signal	Pin No.	Signal
1	NC	2	DCD
3	DSR	4	RXD
5	RTS	6	TXD
7	CTS	8	DTR
9	Ground	10	RI/+5V/+12V



COM5, COM6：Serial Port with Box-header (2.0 mm)

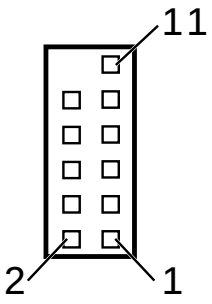
Pin No.	Signal	Pin No.	Signal
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8,10	RI/+5V/+12V
9	Ground		

CPUFAN：4Pin FAN connector



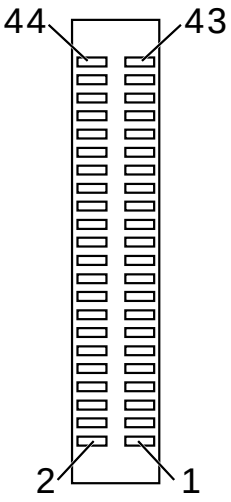
Pin No.	Signal
1	Ground
2	Fan Power (+12V)
3	Speed Sense
4	Control

DIO1：Digital I/O with Pin-header (2.54mm)



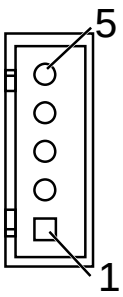
Pin No.	Signal	Pin No.	Signal
1	DIO-Out0 bit0	2	DIO-In0 bit2
3	DIO-Out1 bit1	4	DIO-In1 bit3
5	DIO-Out2 bit6	6	DIO-In2 bit4
7	DIO-Out3 bit7	8	DIO-In3 bit5
9	+12V	10	+5V
11	Ground	12	NC

IDE： IDE with Box-header (2.0mm)



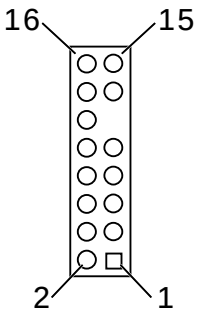
Pin No.	Signa	P n No.	Signal
1	RESET#	2	Ground
3	Data 7	4	Data 8
5	Data 6	6	Data 9
7	Data 5	8	Data 10
9	Data 4	10	Data 11
11	Data 3	12	Data 12
13	Data 2	14	Data 13
15	Data 1	16	Data 14
17	Data 0	18	Data 15
19	Ground	20	NC
21	DMA REQ	22	Ground
23	IOW#	24	Ground
25	IOR#	26	Ground
27	IOCHRDY	28	Pull-down
29	DMA ACK#	30	Ground
31	INT REQ	32	NC
33	SA1	34	UDMA DETECT
35	SA0	36	SA2
37	HDC CS1#	38	HDC CS3#
39	HDD Active#	40	Ground
41	+5V	42	+5V
43	Ground	44	NC

INV：Inverter with Box-header (2.50 mm)



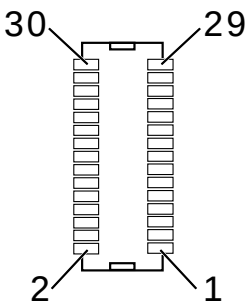
Pin No.	Signal
1	+12V
2	+12V
3	Ground
4	Inverter Brightness Abject
5	Inverter Enable

JFRONT：Front Panel with Pin-header (2.54mm)



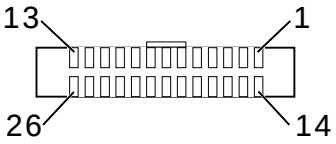
Pin No.	Signal	Pin No.	Signal
1	+5V (470 Ohm), (Power LED+)	2	+5V (470 Ohm), (HDD LED+)
3	NC	4	HDD LED#, (HDD LED-)
5	Ground, (Power LED-)	6	5VSB (470 Ohm), (Suspend LED+)
7	RESET#, (Reset Button Pin1)	8	Suspend LED#, (Suspend LED-)
9	Ground, (Reset Button Pin2)	10	FSPK# (Beep), (Speaker-)
11	NC	12	NC
13	SW_PWR#, (Power ON Button Pin1)	14	NC
15	Ground, (Power ON Button Pin2)	16	+5V, (Speaker+)

LCD：LVDS Panel Signal with Box-header (1.0 mm)



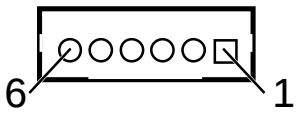
Pin No.	Signal	Pin No.	Signal
1	Ground	2	Ground
3	Data A3+	4	Data A3-
5	Clock A+	6	Clock A-
7	Data A2+	8	Data A2-
9	Data A1+	10	Data A1-
11	Data A0+	12	Data A0-
13	Ground	14	Ground
15	Data B3+	16	Data B -
17	Clock B+	18	Clock B-
19	Data B2+	20	Data B2-
21	Data B1+	22	Data B1-
23	Data B0+	24	Data B0-
25	Ground	26	Ground
27	LVDS Power	28	LVDS Power
29	LVDS Power	30	LVDS Power

Note1：LVDS Power = +5V or +3.3V (Default)



LPT：Parallel Port with Box-header (2.0 mm)

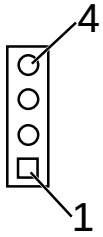
Pin No.	Signal	Pin No.	Signal
1	Strobe#	14	Auto Form Feed#
2	Data 0	15	Error#
3	Data 1	16	Initialization#
4	Data 2	17	Printer Select IN#
5	Data 3	18	Ground
6	Data 4	19	Ground
7	Data 5	20	Ground
8	Data 6	21	Ground
9	Data 7	22	Gro nd
10	Acknowledge#	23	Ground
11	Busy	24	Ground
12	Paper Empty	25	Ground
13	Printer Select	26	Ground



MCR：Internal Keyboard with Box-header (2.0 mm)

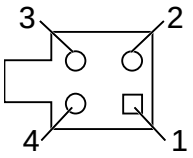
Pin No.	Signal
1	+5V
2	KCLK_CON
3	KCLK_KBC
4	KDAT_CON
5	KDAT_KBC
6	Ground

Note：If not use MCR need short (Pin2 to Pin3) and (Pin4 to Pin5) to enable PS2 Keyboard.



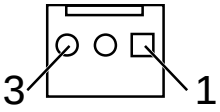
MIC-IN：Micro phone input with Pin-header

Pin No.	Signal
1	MIC Input Left
2	MIC Jack Detection
3	Audio Ground
4	MIC Input Right



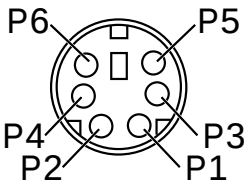
PWR1：ATX 2x2 +12V Input

Pin No.	Signal	Pin No.	Signal
1	Ground	2	Ground
3	+12V	4	+12V



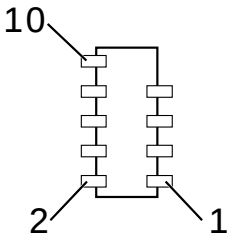
SYSFAN：System FAN 3 Pin connector

Pin No.	Signal
1	Gr und
2	Fan Power (+12V)
3	Speed Sense



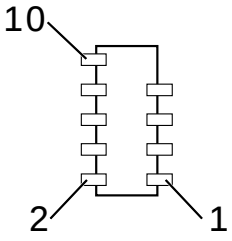
USB1_KBMS: USBx2, PS2 Keyboard and PS2 Mouse connector (PS2 Y-Cable)

Pin No.	Signal
U1	USB Power (+5V)
U2	USB Data0N
U3	USB Data0P
U4	USB_Ground
U5	USB Power (+5V)
U6	USB Data1N
U7	USB Data1P
U8	USB_Ground
P1	PS2_Ground
P2	PS2 Keyboard Data
P3	PS2 Mouse Data
P4	PS2 Power (+5V)
P5	PS2 Keyboard Clock
P6	PS2 Mouse Clock



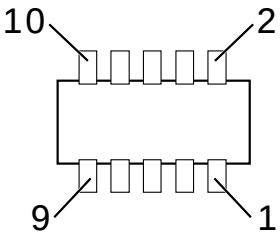
USB3: USB3/4 Port with Pin-header (2.54mm)

Pin No.	Signal	Pin No.	Signal
1	USB Power (+5V)	2	USB Power (+5V)
3	USB DATA4N	4	USB DATA5N
5	USB DATA4P	6	USB DATA5P
7	USB Ground	8	USB Ground
9	NC	10	Shield Ground



USB4：USB6/7 Port with Pin-header (2.54mm)

Pin No.	Signal	Pin No.	Signal
1	USB Power (+5V)	2	USB Power (+5V)
3	USB DATA6N	4	USB DATA7N
5	USB DATA6P	6	USB DATA7P
7	USB Ground	8	USB Ground
9	NC	10	Shield Ground



VGA2：VGA with Box-header (2.0 mm)

Pin No.	Signal	Pin No.	Signal
1	VGA_RED	2	VGA_DDC_DATA
3	VGA_GREEN	4	VGA_DDC_CLK
5	VGA_BLUE	6	Ground
7	VGA_ HSYNC	8	Ground
9	VGA_ VSYNC	10	Ground

Chapter 2 Hardware Installation

WMBX-1212-9453 is convenient for various hardware configurations, such as Memory Module, HDD, Compact Flash. Chapter 2 will show you how to install the hardware. The information is shown as bellow.

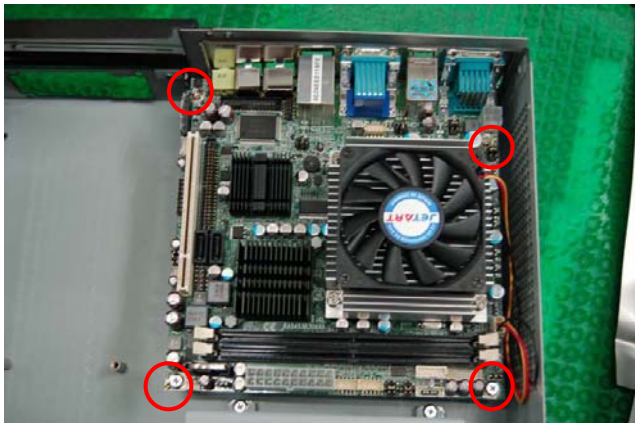
2.1 Open the cover

Step 1: Remove the cover screws at the bottom (5pcs).

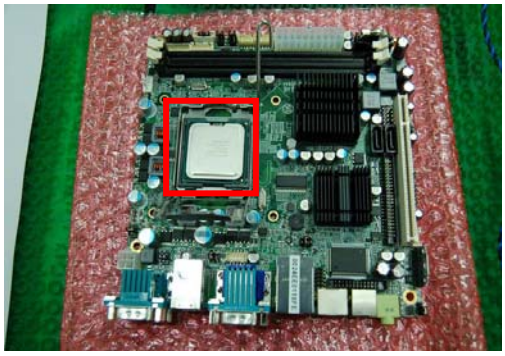
2.2 Install the CPU (If no CPU installation)

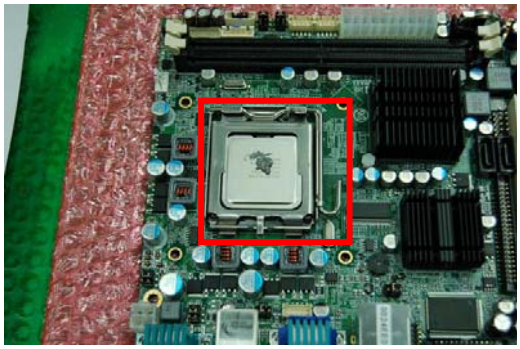
Step 1: Remove the cable on the board (20PIN power cable, 4PIN power cable, Front panel cable, USB cable, COM5/6 cable, System FAN cable. Please remember all locations).

Step 2: Remove the Mother Board.

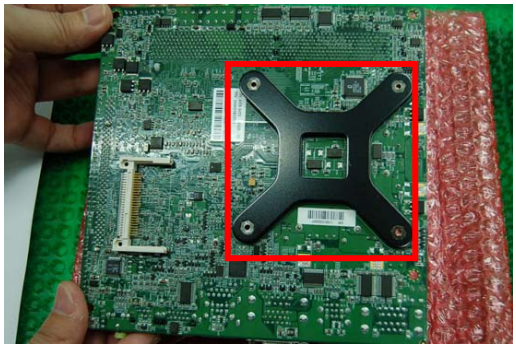


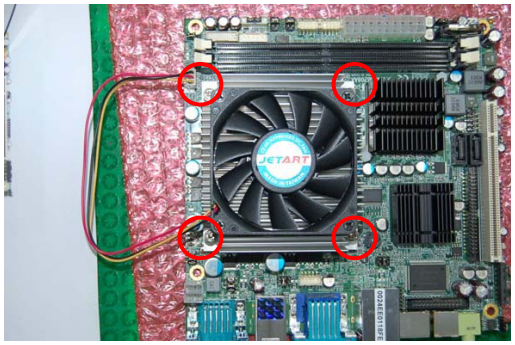
Step 3: Install the CPU.





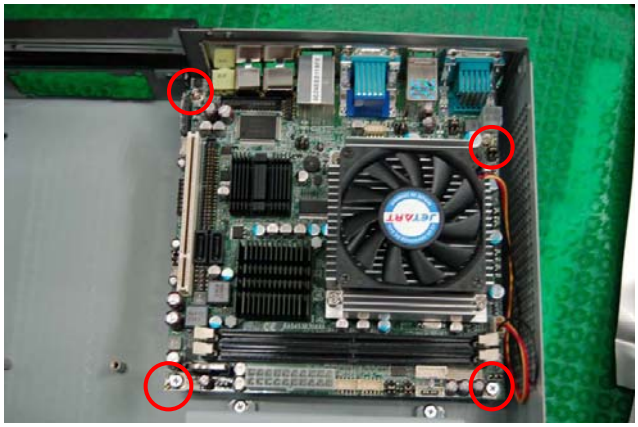
Step 4: Install the CPU Heatsink (for customer option).





Step 5: Connecters install the CPU Heatsink (for customer option).

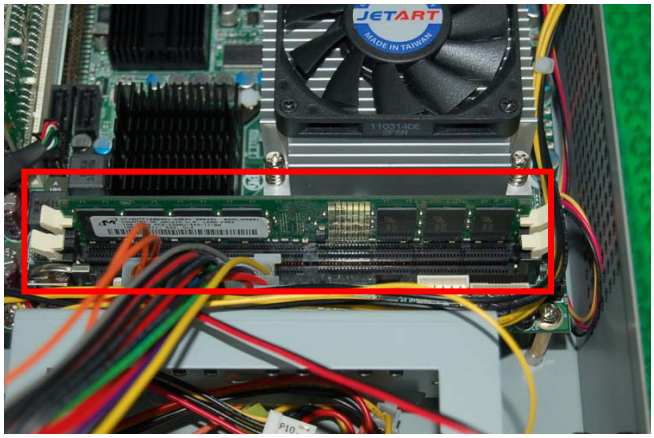
Step 6: Install the Mother Board.



Step 7: Connect all cables on the board.

2.2 Install the Memory Module

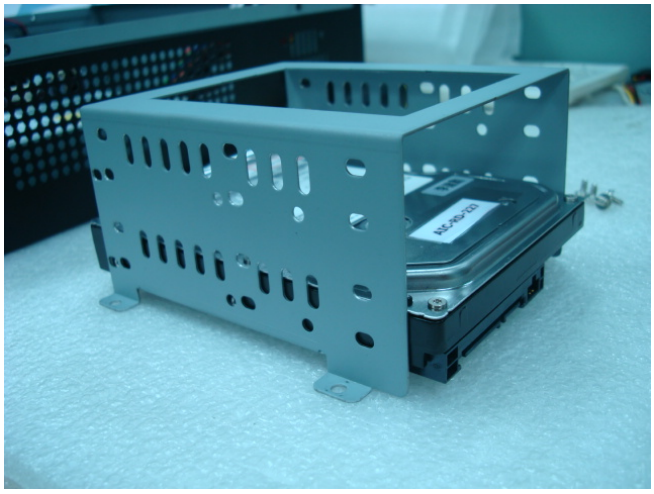
Insert the memory module.



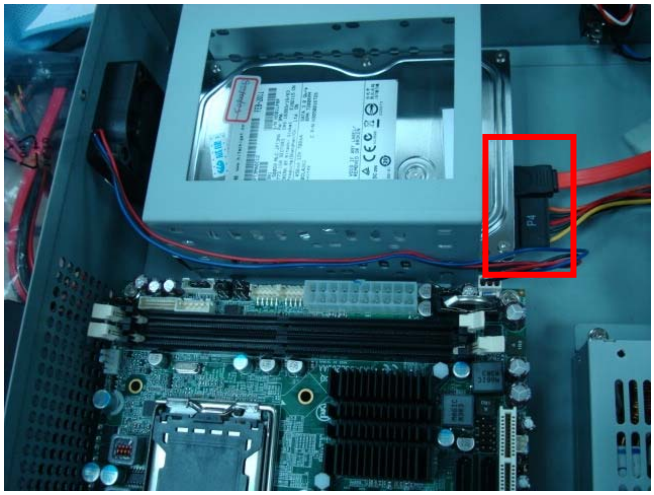
2.3 Install the HDD

Step 1: Remove the HDD holder screws (4pcs).

Step 2: Put the HDD on holder and slide screws (4pcs).

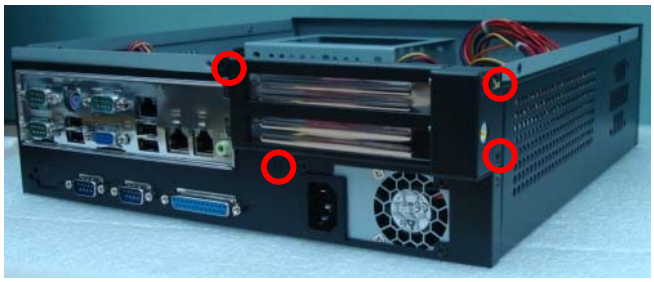


Step 3: Put back screws the holder (4pcs) and connect SATA cable and Power cable.

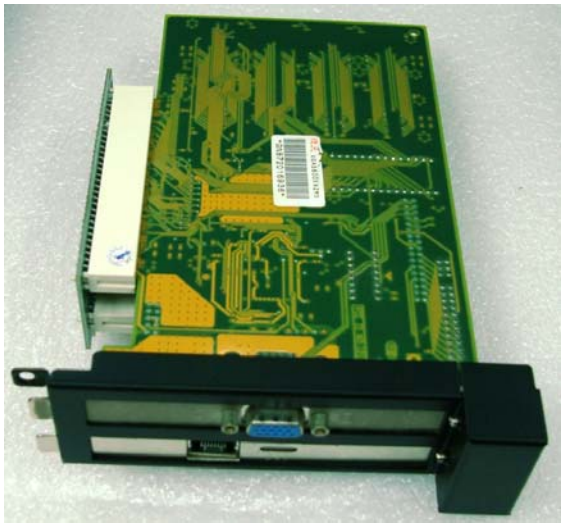


2.4 Install the PCI Expansion Module (optional)

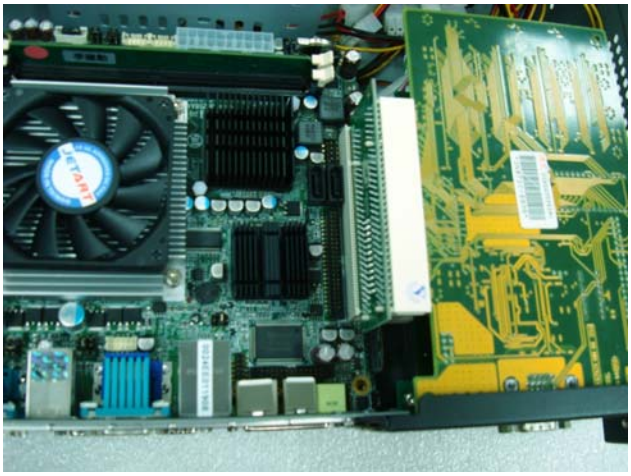
Step1: Remove the Expansion slot bracket.



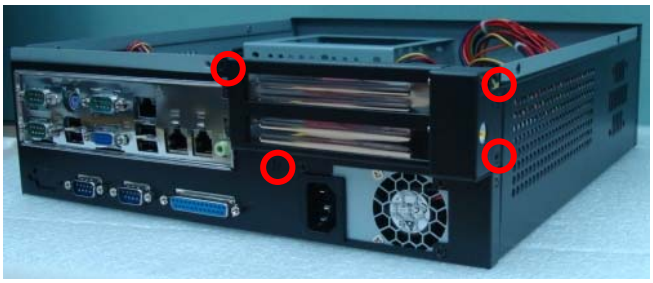
Step2: Install PCI Expansion card on bracket (one or two cards) and connect PCI riser card.



Step3: Install Expansion module on Mother Board.

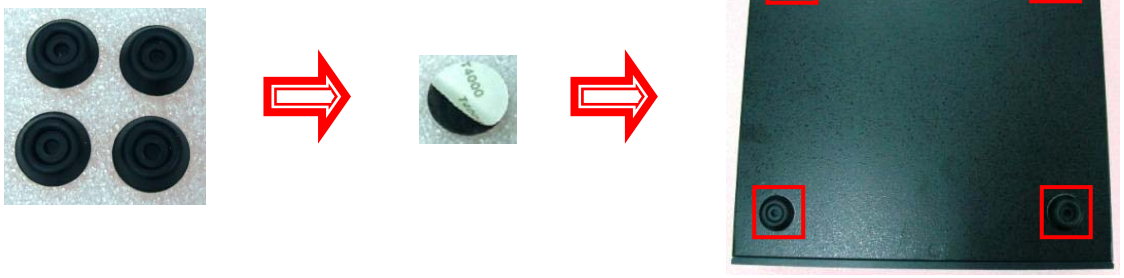


Step4: Put back the screws (4pcs).



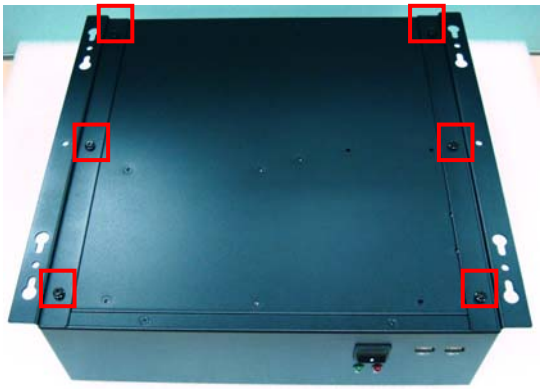
2.5 Install the Foot Pad

Connect the foot pad (4pcs).



2.6 Install the Wall Mount bracket

Connect the wall mount kit screws (6pcs).



Chapter 3 BIOS Setup

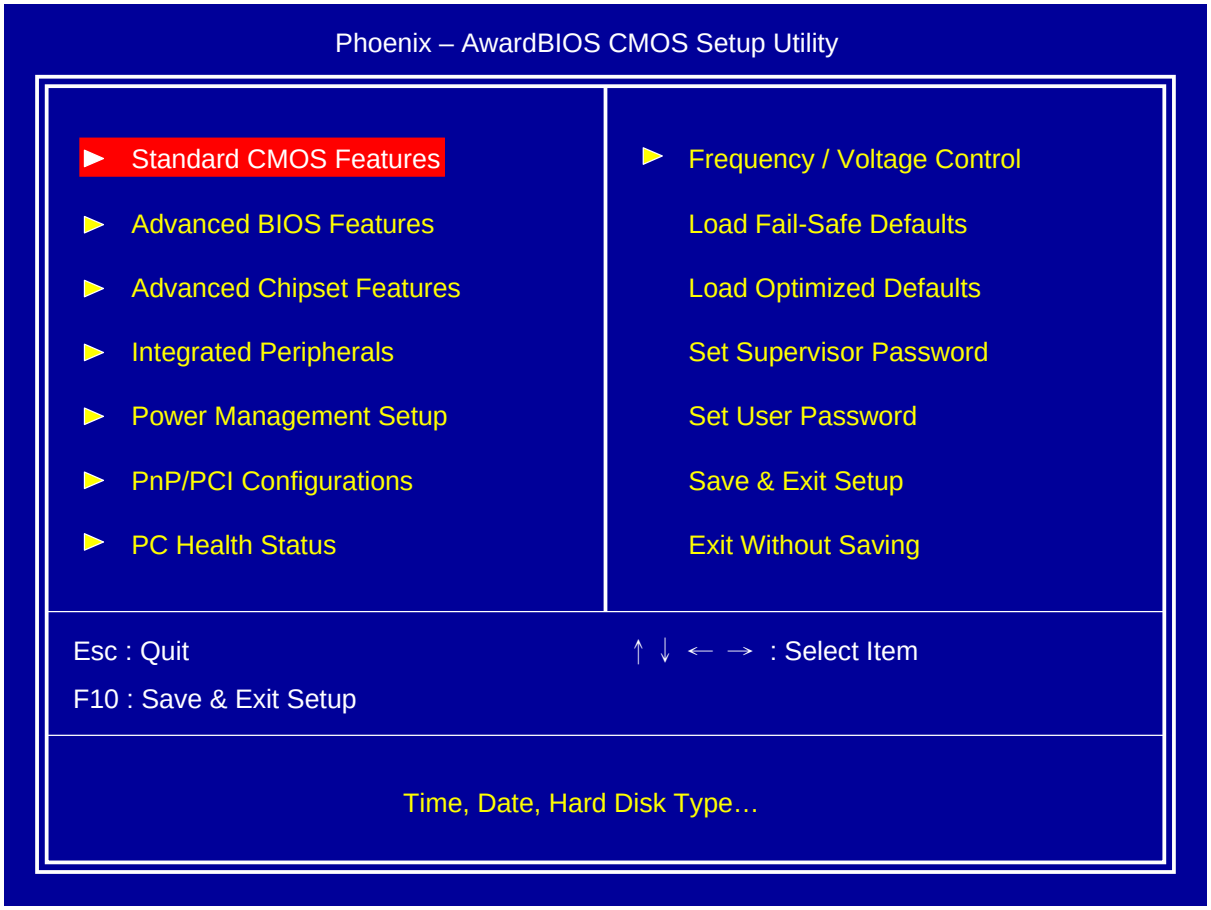
This chapter introduces BIOS setup information.

Power on or reboot the system board, when screen appears message as “Press DEL to enter SETUP“. Press <DEL> key to run BIOS SETUP Utility.

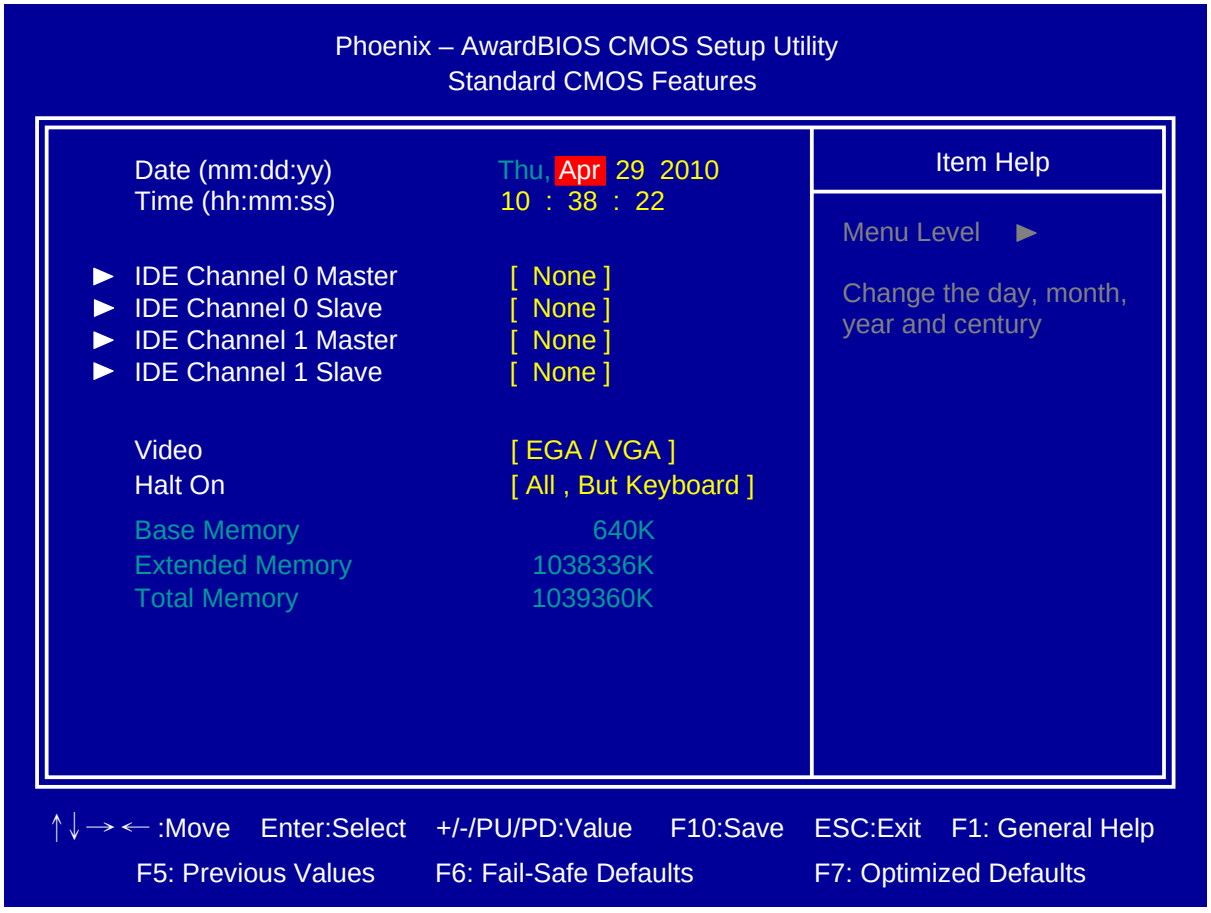
Note: The BIOS configuration for reference only, it may subject to change without prior notice.

3.1 Main Menu

Please use arrow keys to select item, then press <Enter> key to accept or enter the sub-menu.



3.2 Standard CMOS Features



☐ **Date**

Set system date.

☐ **Time**

Set system time.

☐ **IDE Channel 0 Master/Slave**

Press <Enter> for IDE device automatic detection.

☐ **IDE Channel 1 Master/Slave**

Press <Enter> for IDE device automatic detection.

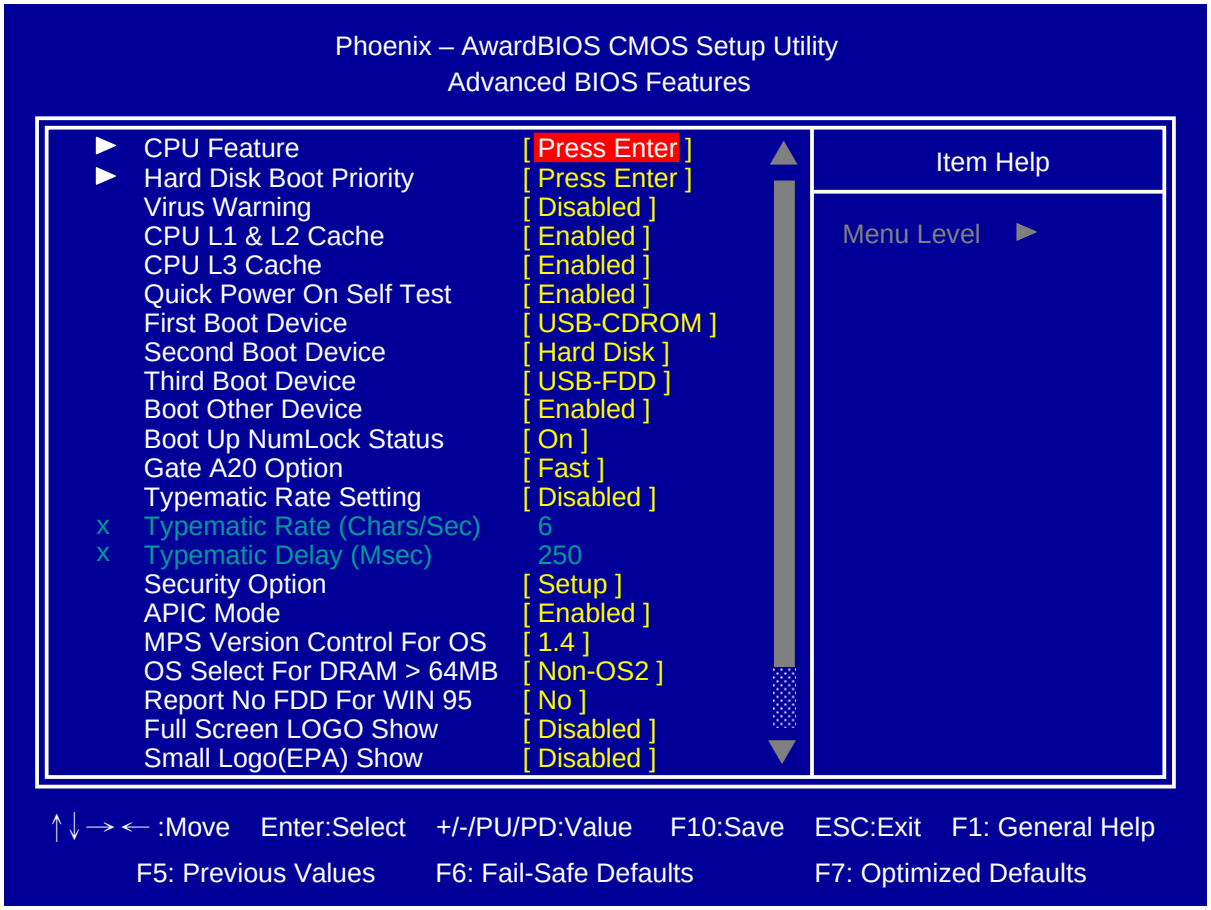
☐ **Video**

Select Video device type.

☐ **Halt on**

Select stop procedure or ignore when error detected during POST (Power On Self Test).

3.3 Advanced BIOS Features



☐ **CPU Feature**

Press <Enter> to select CPU parameter.

☐ **Hard Disk Boot Priority**

Press <Enter> to select Hard Disk boot device priority.

☐ **Virus Warning**

Select “Virus Warning” Enabled/Disabled.

☐ **CPU L1 & L2 Cache**

Select “CPU L1 & L2 Cache” Enabled/Disabled.

☐ **CPU L3 Cache**

Select “CPU L3 Cache” Enabled/Disabled.

☐ **Quick Power On Self Test**

Select “Quick Power On Self Test” Enabled/Disabled.

☐ **First/Second/Third Boot Device**

Select boot device priority.

☐ **Boot Other Device**

Select “Boot Other Device” Enabled/Disabled.

☐ **Boot Up NumLock Status**

Select <NumLock> key ON/Off when system boot up.

☐ **Gate A20 Option**

Select Gate A20 controlled by Keyboard controller (Normal) or Port 92 (Fast).

☐ **Typematic Rate Setting**

Select “Typematic Rate Setting” Enabled to set,

Typematic Rate (Chars/Sec): Number of characters repeated in one second.

Typematic Delay (Msec): When holding one key, set the time between the first and second character displayed.

☐ **Security Option**

Select security mode,

Setup: Require password to permit BIOS setup utility.

System: Require password to permit boot-up and BIOS setup utility.

☐ **APIC Mode**

Select APIC (Advanced Programmable Interrupt Controller) Enabled/Disabled.

☐ **MPS Version Control For OS**

Select MPS (Multiprocessor Specification) Version 1.4 to added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability. It is also required for a secondary PCI bus to work without the need for a bridge. Select Version 1.1 for older Operating Systems.

☐ **OS Select for DRAM > 64M**

Select “OS2” only if you are running older version of IBM OS/2 Operating System with greater than 64MB of RAM on the system. Otherwise select “Non-OS/2” setting.

☐ **Report No FDD for WIN 95**

If running Windows 95/98 without floppy disk drive, select “Enabled” to release IRQ6. This is required to pass Windows 95/98's SCT test, if select “Disabled”, BIOS will not report missing floppy drive to Win95/98.

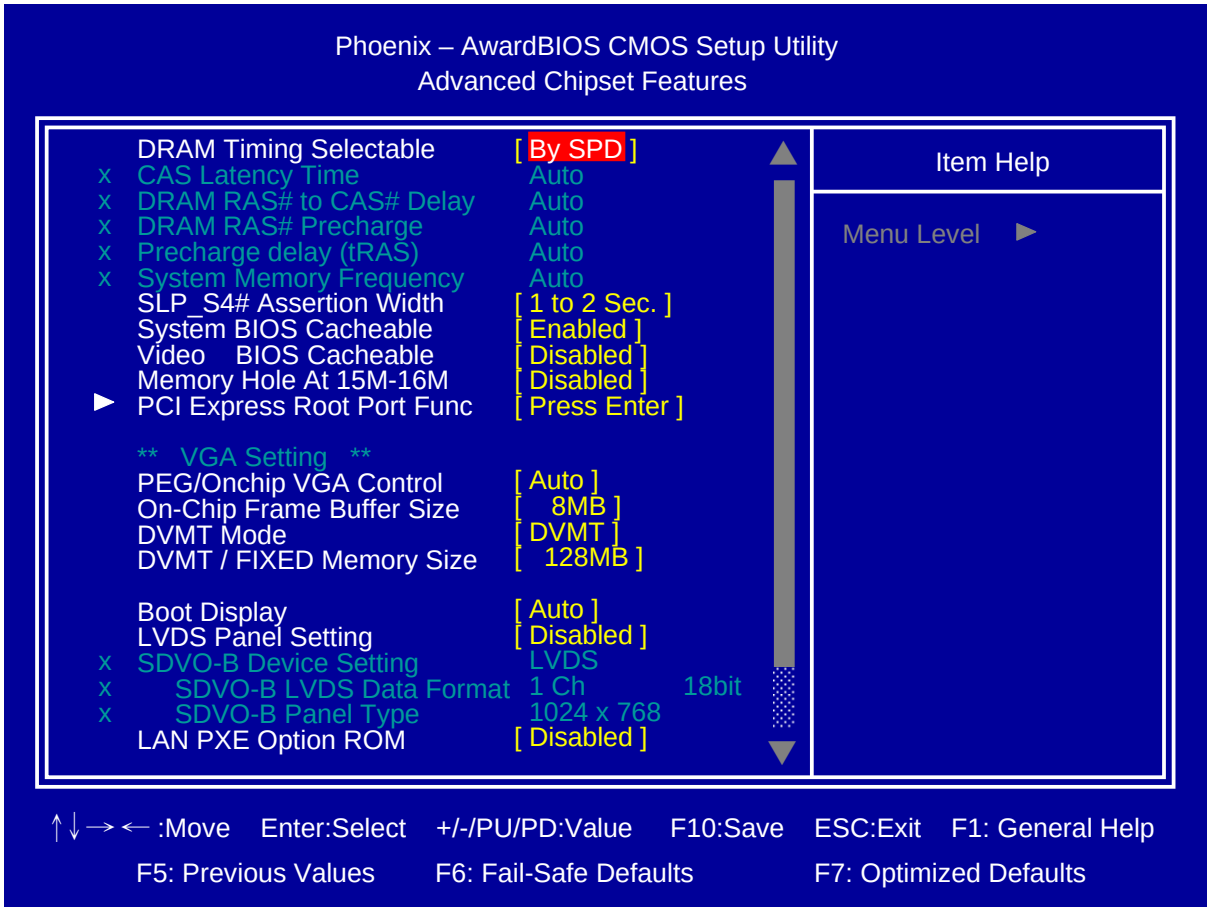
☐ **Full Screen LOGO Show**

Select the full screen logo appears during the system boot-up process.

☐ **Small Logo(EPA) Show**

Select EPA (Environmental Protection Agency) Energy Star logo appears during the system boot-up process.

3.4 Advanced Chipset Features



☐ DRAM Timing Selectable

Select DRAM timing by SPD (Serial Presence Detect) or manual.

☐ SLP_S4# Assertion Width

Select the minimum assertion width of the SLP-S4# signal to guarantee the DRAM has been safely power-cycled.

☐ System BIOS Cacheable

Select Enabled to caching of the system BIOS at F0000h-FFFFFh, resulting in better system performance. However, if any program is written to this memory area, the system error may result.

☐ Video BIOS Cacheable

Select Enabled to caching of the video BIOS at C0000h-F7FFFh, resulting in better video performance. However, if any program is written to this memory area, the system error may result.

☐ **Memory Hole At 15M-16M**

Select Enabled to improve performance, certain space in memory can be reserved for ISA cards. The memory must be mapped into the memory space below 16 MB.

☐ **PCI Express Root Port Func**

Press <Enter> to setting PCI Express function.

☐ **PEG/Onchip VGA Control**

Select VGA control by onboard chipset, PEG (PCI-Express Graphic) or Auto.

☐ **On-Chip Frame Buffer Size**

Select share system memory 1MB or 8MB.

☐ **DVMT Mode**

DVMT (Dynamic Video Memory Technology) allowing the system to dynamically allocate memory resources according to the demands of the system at any point in time, that improve efficiency of the memory allocated to either system or graphics processor.

☐ **DVMT/FIXED Memory Size**

Select DVMT/Fixed Memory Size 64MB/128MB/224MB.

☐ **Boot Display**

Select boot display device type.

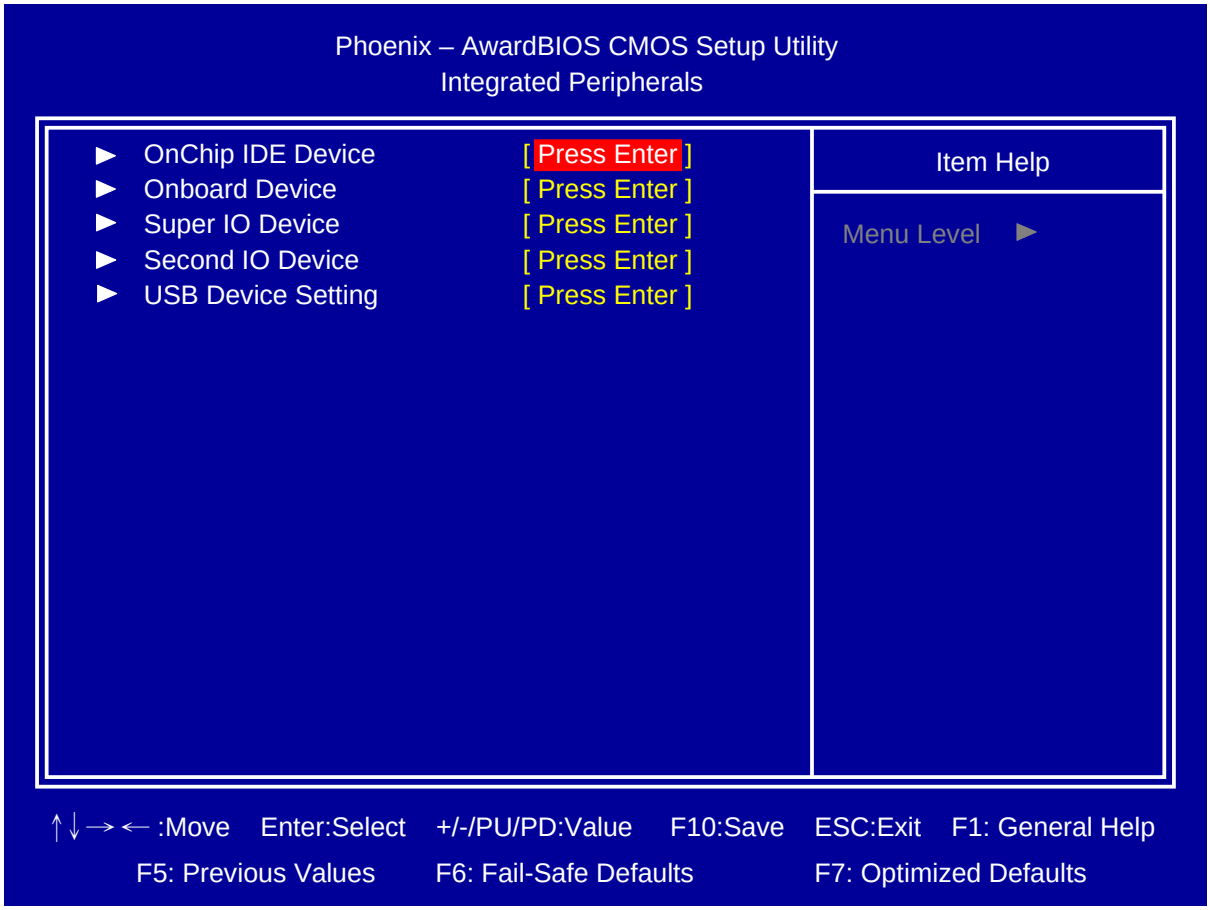
☐ **LVDS Panel Setting**

Select LVDS Panel Disabled or SDVO-B LVDS.

☐ **LAN PXE Option ROM**

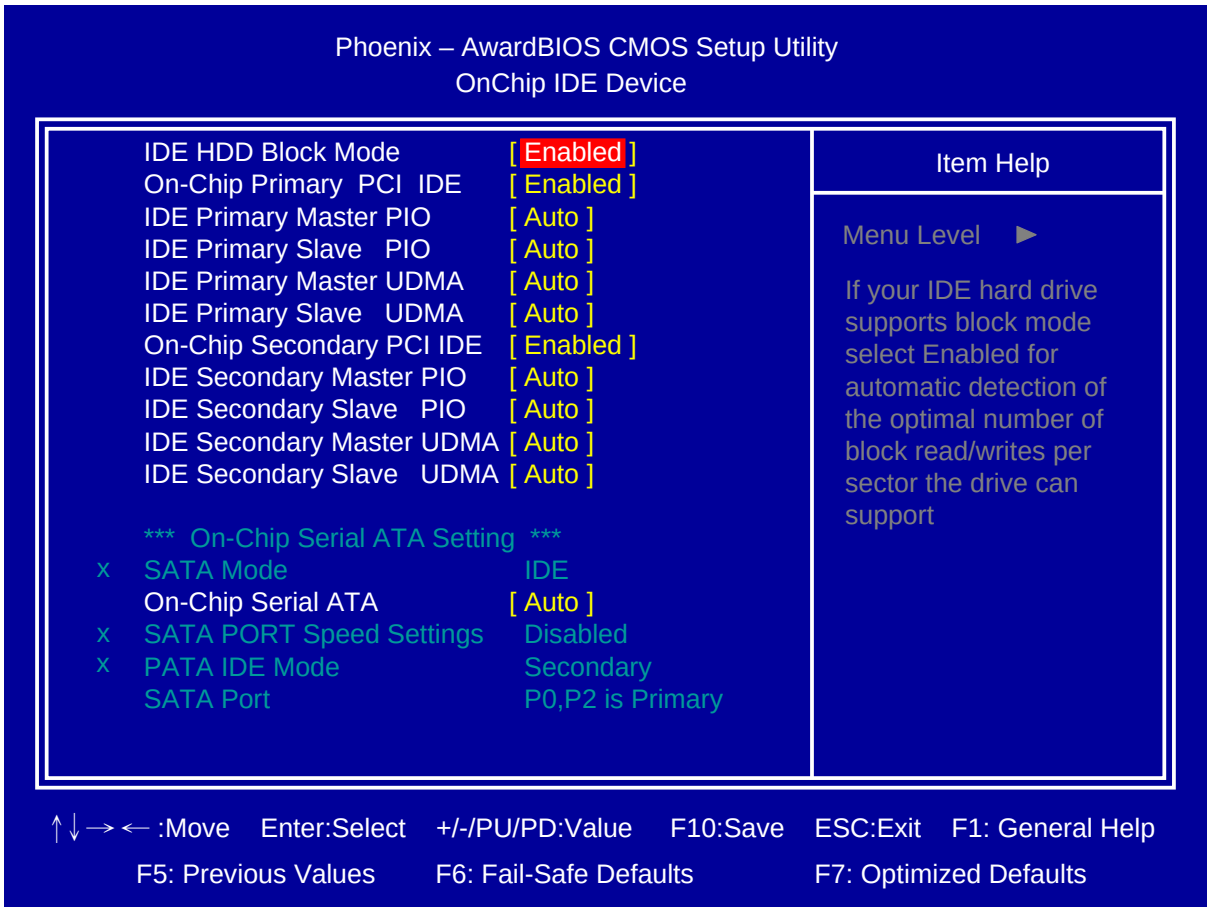
Select PXE (Preboot Execution Environment) Option ROM “PCIe 8111C Lan”/Disabled.

3.5 Integrated Peripherals

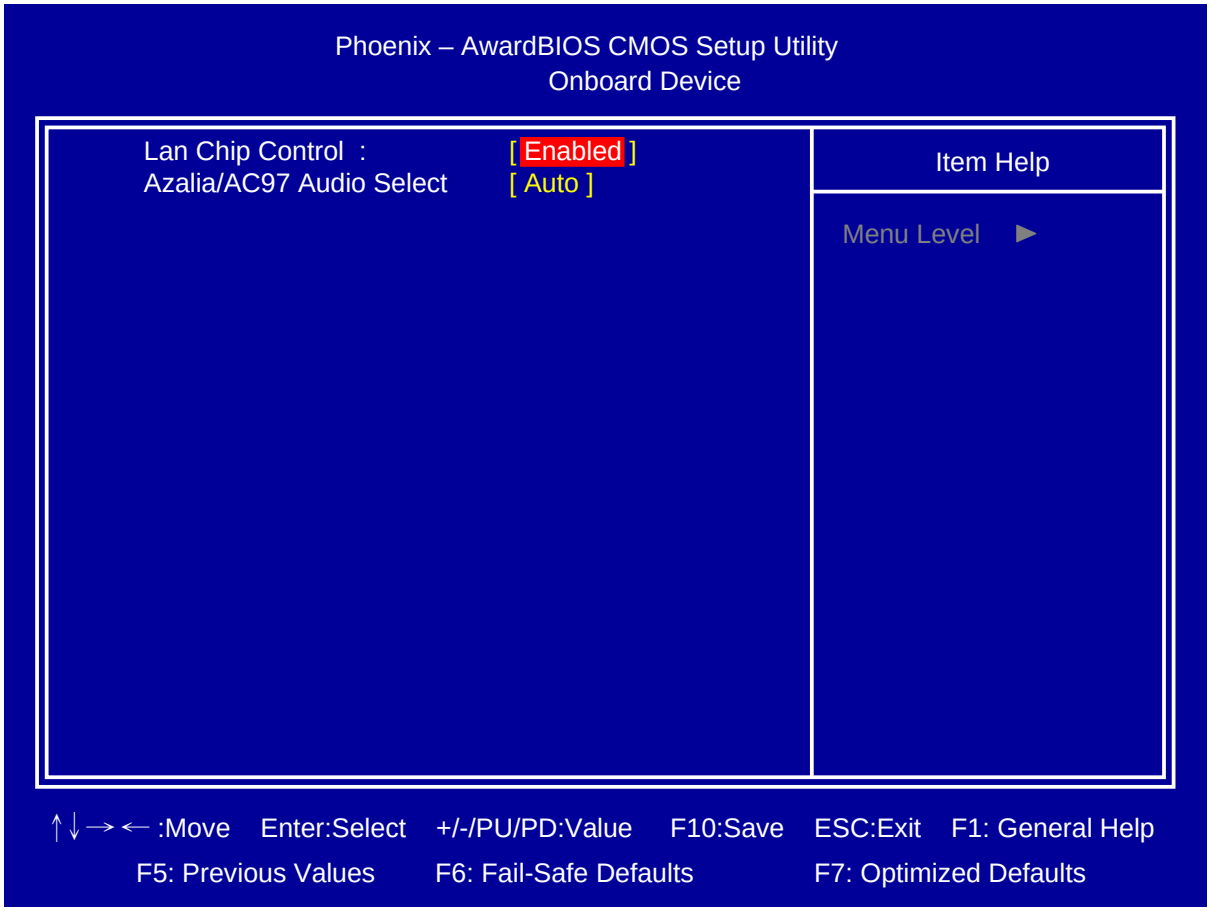


☐ OnChip IDE Device

Press <Enter> to set IDE and SATA device configuration.



☐ Onboard Device



☐ Lan Chip Control

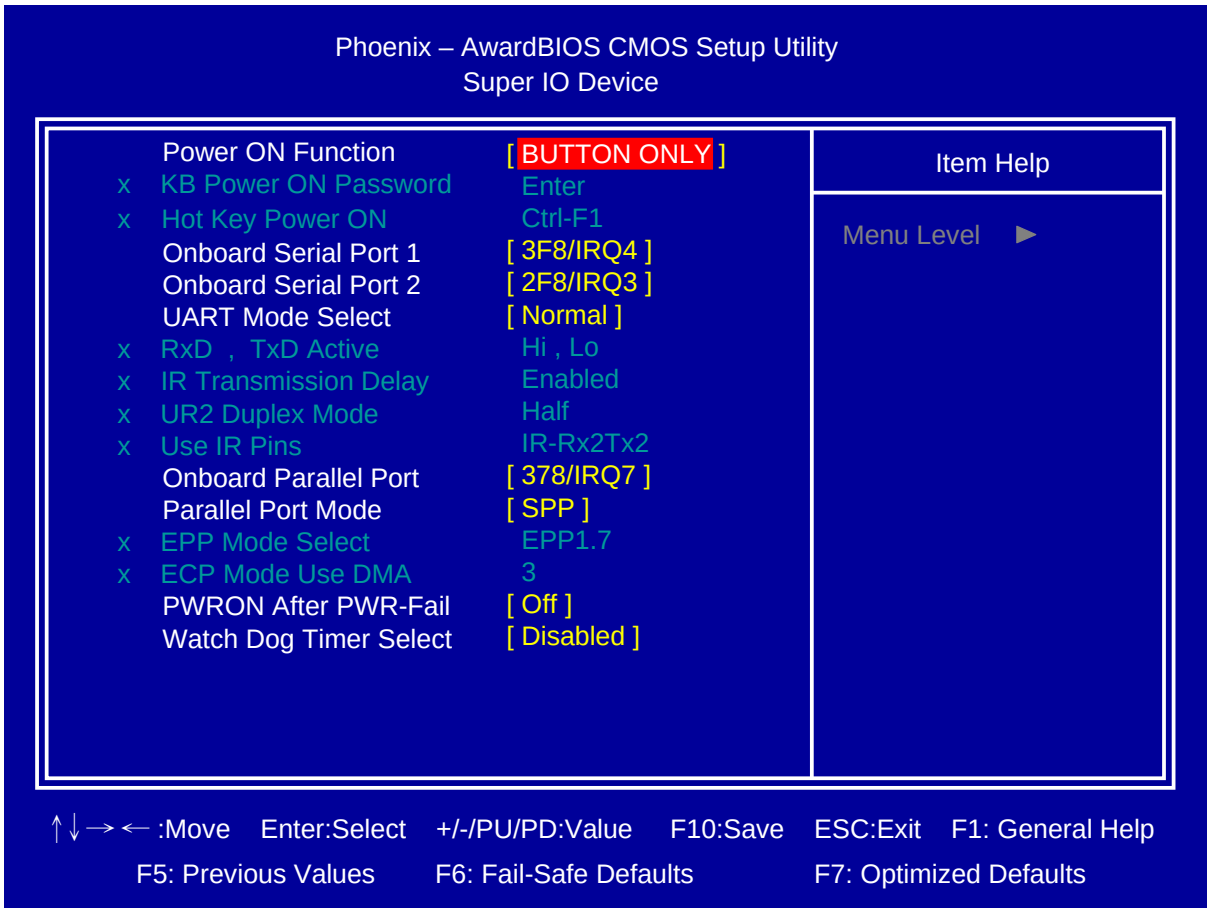
Select Onboard Lan Enabled/Disabled.

☐ Azalia/AC97 Audio Select

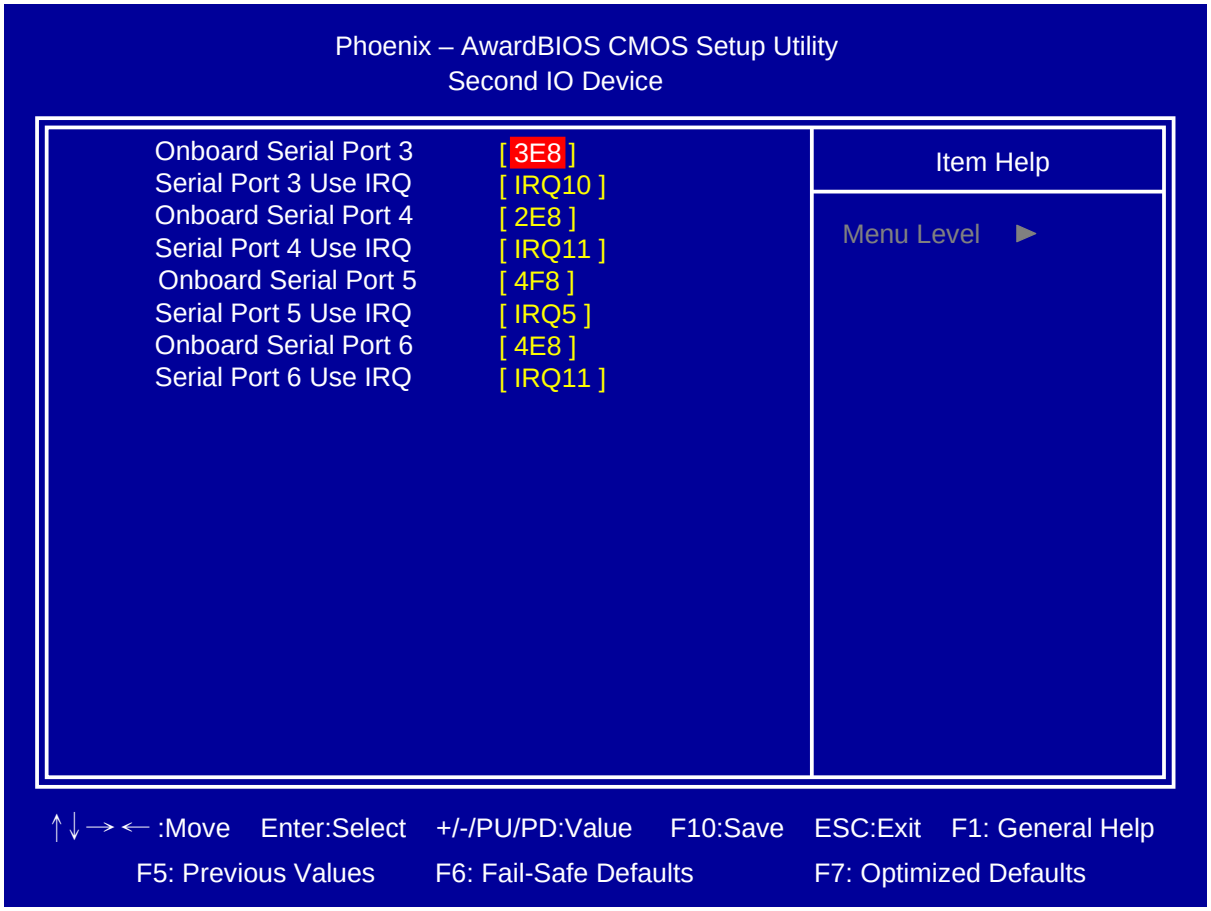
Press <Enter> to select Azalia/AC97 mode.

☐ Super IO Device

Press <Enter> to select Power ON, Serial, Parallel, “PWRON After PWR-Fail” and Watch dog configuration.



☐ Second IO Device



☐ Onboard Serial Port 3/4/5/6

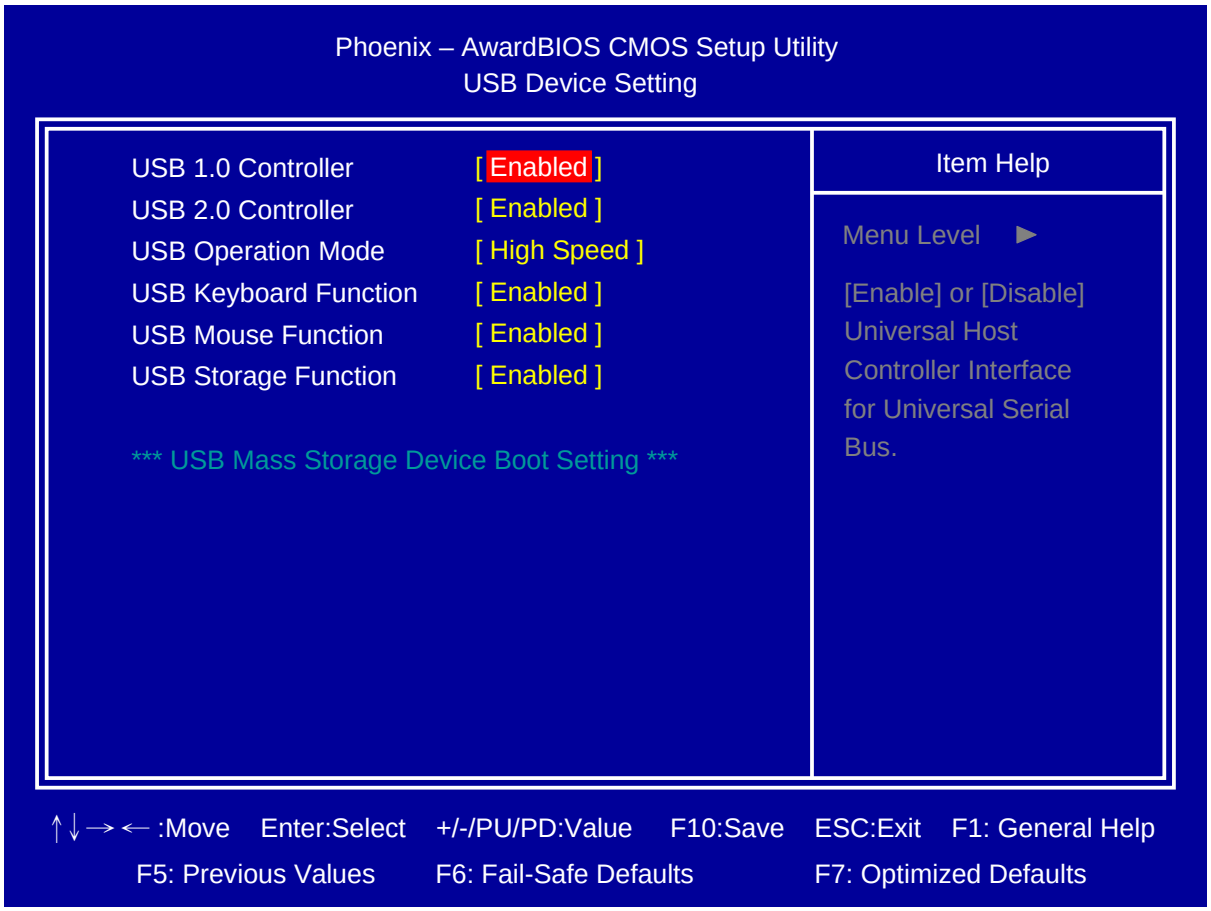
Select serial port address.

☐ Serial Port 3/4/5/6 Use IRQ

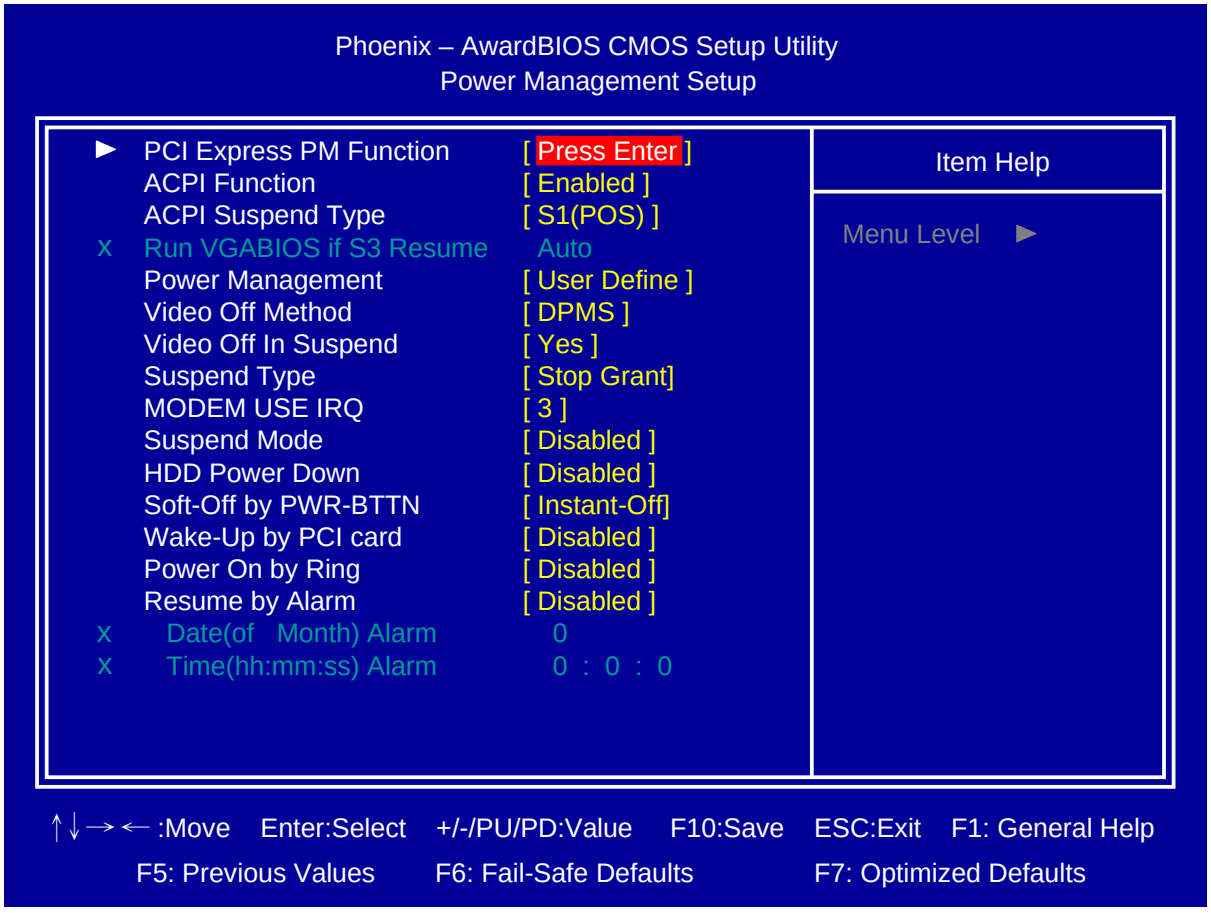
Select serial port IRQ.

☐ USB Device Setting

Press <Enter> to select USB device configuration.

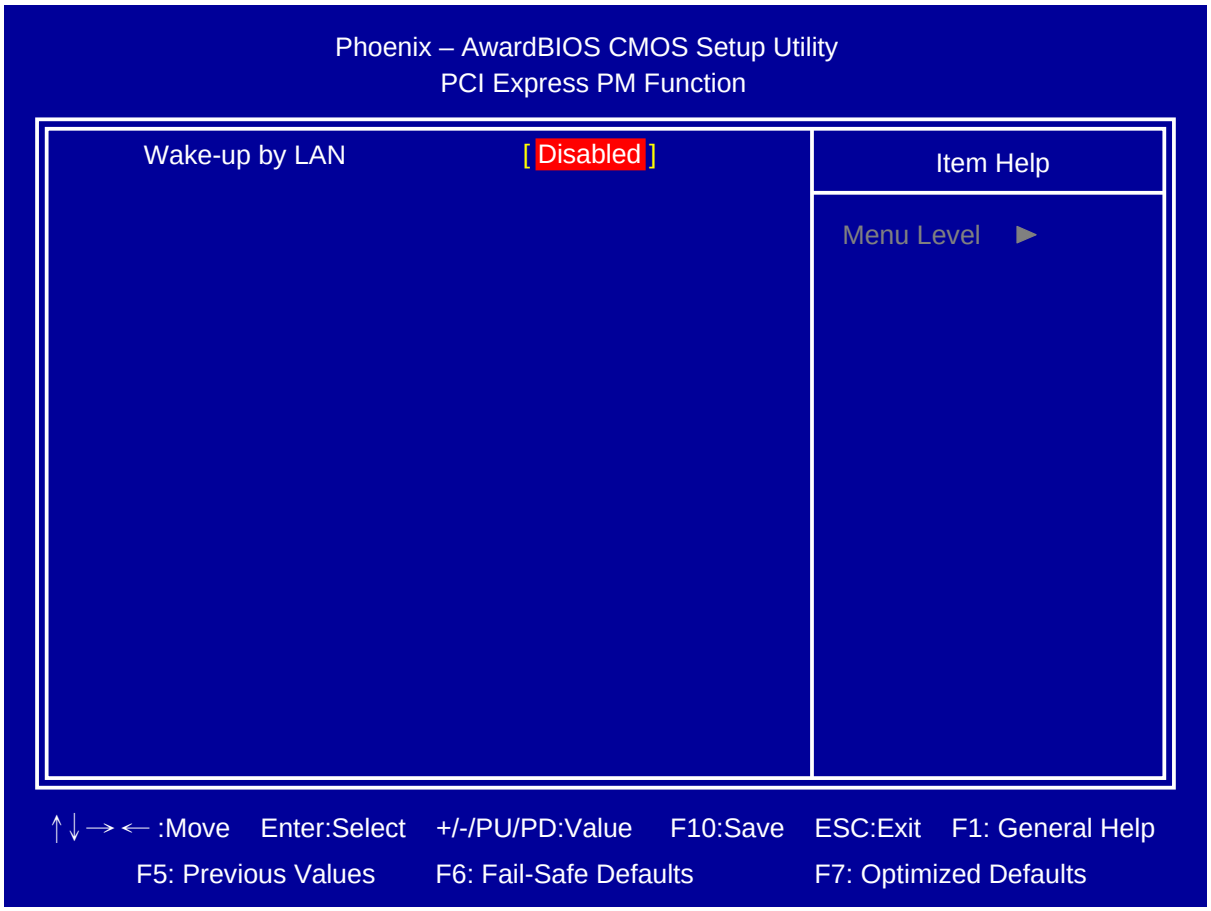


3.6 Power Management Setup



☐ PCI Express PM Function

Press <Enter> to select “Wake-up by LAN” Enabled/Disabled.



☐ ACPI Function

Select ACPI (Advanced Configuration and Power Management) Enabled/Disabled.

☐ ACPI Suspend Type

Select S1 (POS)/S3(STR)/S1&S3

☐ Power Management

Select power saving type.

☐ Video Off Method

There are three methods,

Blank Screen: Writes blanks to the video buffer.

V/H SYNC + Blank: Turn off the vertical and horizontal sync; ports and write blanks to the video buffer.

DPMS: The DPMS (Display Power Management Signaling) allows BIOS control the

video display.

☐ **Video Off In Suspend**

Select Video On/Off during suspend state.

☐ **Suspend Type**

There are two types,
Stop Grant: CPU goes into idle mode during suspend state.
PwrOn Suspend: CPU and system remain powered on during suspend state.

☐ **MODEM USE IRQ**

Select MODEM IRQ.

☐ **Suspend Mode**

Select time of system inactivity, all devices except the CPU will be shut off.

☐ **HDD Power Down**

Select time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

☐ **Soft-Off by PWR_BTTN**

Select power button function,
Instant-off: Press power button will power off instantly.
Delay 4 Sec: Press power button 4 second to power off.

☐ **Wake-UP by PCI card**

Select Wake-UP by PCI device Enabled/Disabled.

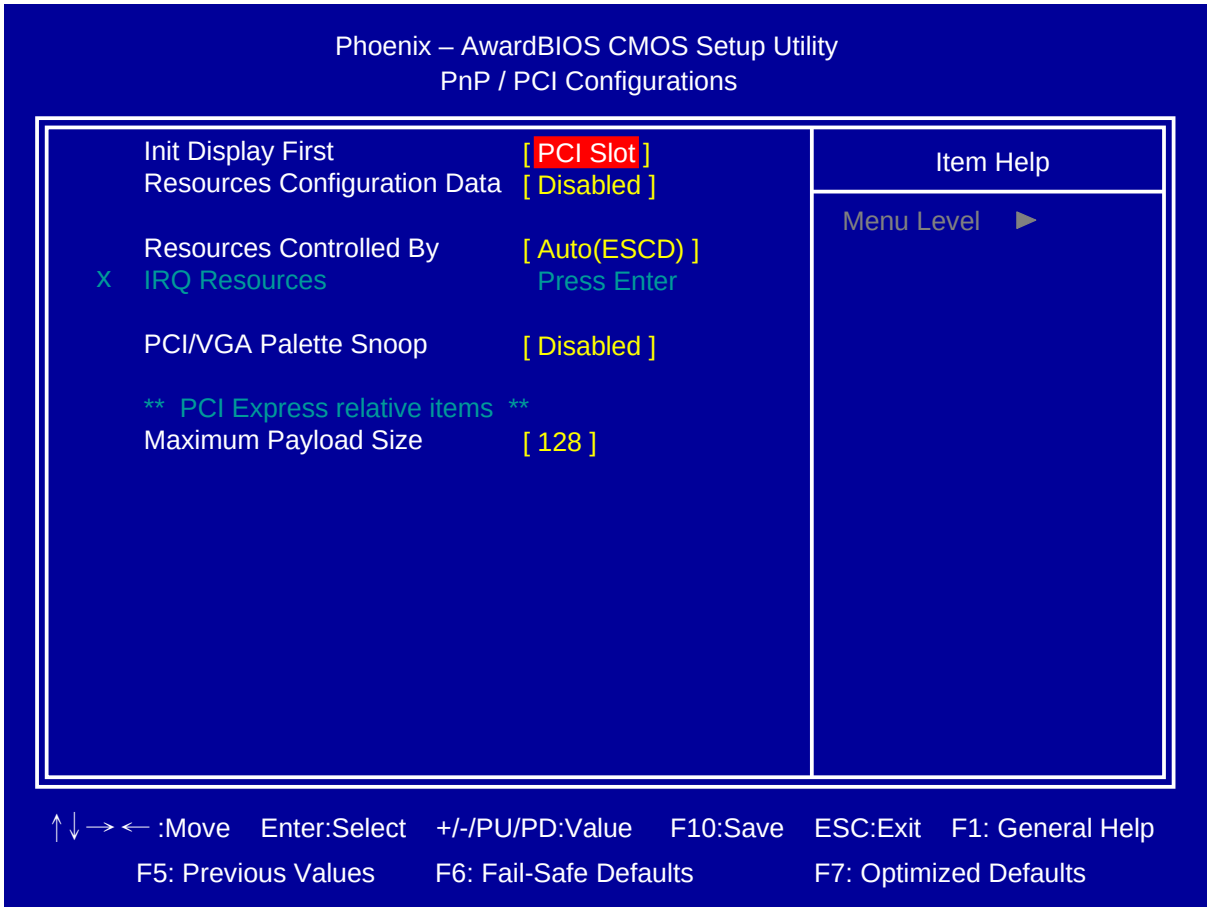
☐ **Power On by Ring**

Select Power on by Ring Indicator signal from Modem.

☐ **Resume by Alarm**

Set date and time to power on system from soft-off state.

3.7 PnP/PCI Configurations



☐ **Init Display First**

Select initial display by PCI or Onboard device.

☐ **Reset Configuration Data**

Select Enabled to reset Extended System Configuration Data (ESCD) when you exit BIOS setup utility, if you have installed new add-on card and the system reconfiguration has caused such a serious conflict that the OS cannot boot.

☐ **Resources Controlled By**

BIOS can automatically configure all the boot and Plug and Play compatible devices. If you choose Auto, you cannot select IRQ DMA and memory base address fields, since BIOS automatically assigns them.

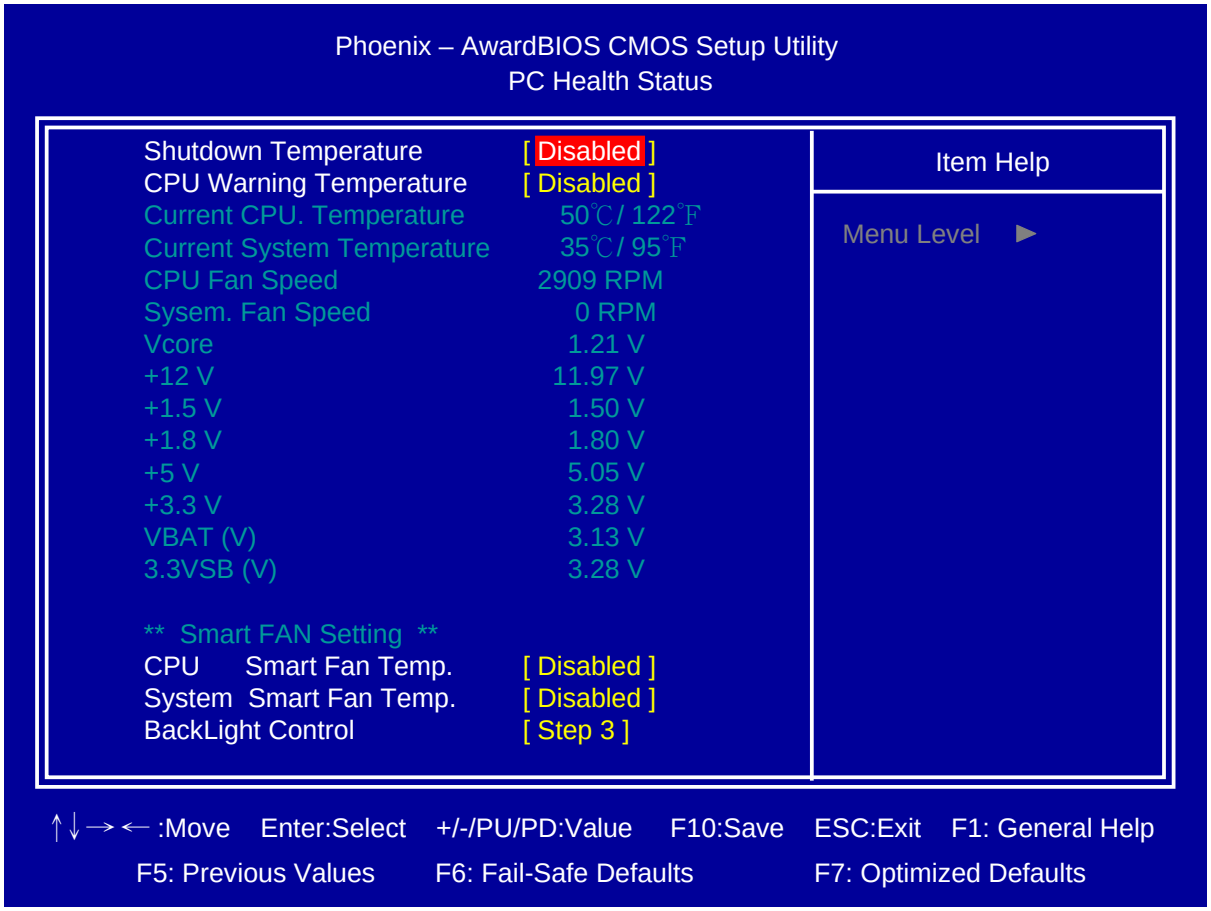
☐ **PCI/VGA Palette Snoop**

Select PCI/VGA Palette Snoop Enabled/Disabled.

☐ **Maximum Payload Size**

Set maximum TLP payload size for the PCI Express devices, the unit is byte.

3.8 PC Health Status



☐ **Shutdown Temperature**

If CPU temperature reaches the setting value will automatic shutdown system.

☐ **CPU Warning Temperature**

If CPU temperature reaches the setting value will beep in DOS mode.

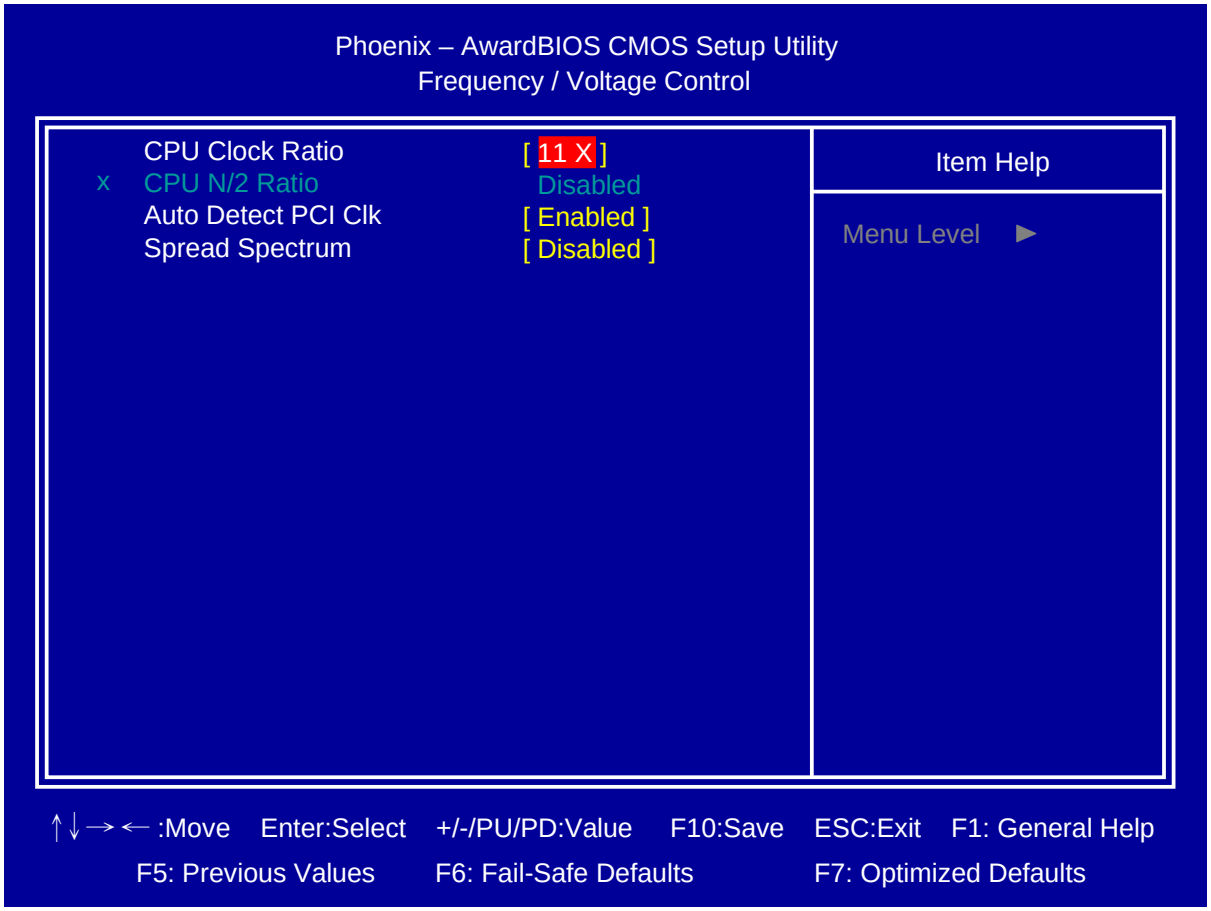
☐ **CPU/System Fan Temp.**

Setup CPU/System Smart FAN temperature.

☐ **BackLight Control**

Select backlight brightness.

3.9 Frequency/Voltage Control



☐ **CPU Clock Ratio**

Select “CPU Clock Ratio” (From 6 to 11).

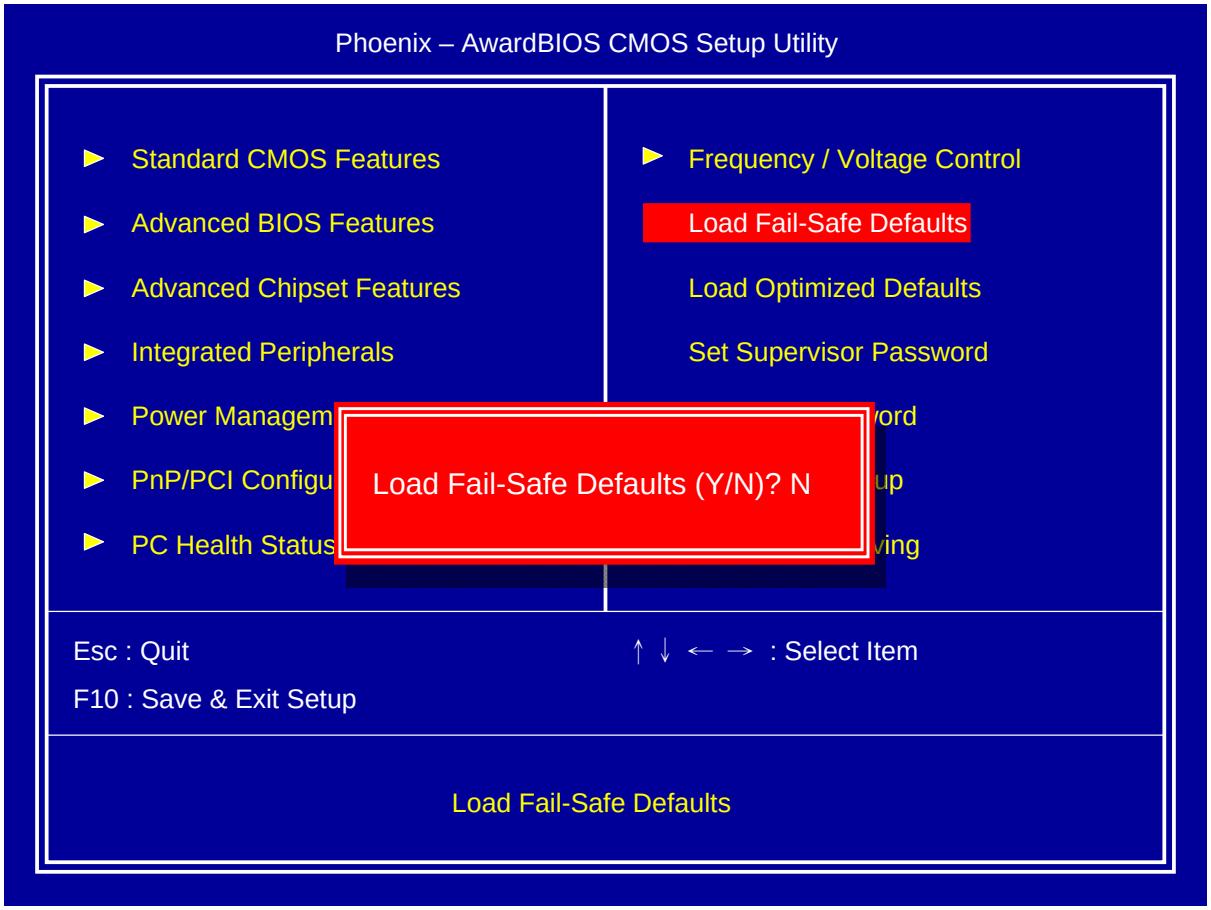
☐ **Auto Detect PCI Clk**

Select “Auto Detect PCI Clk” Enabled/Disabled.

☐ **Spread Spectrum**

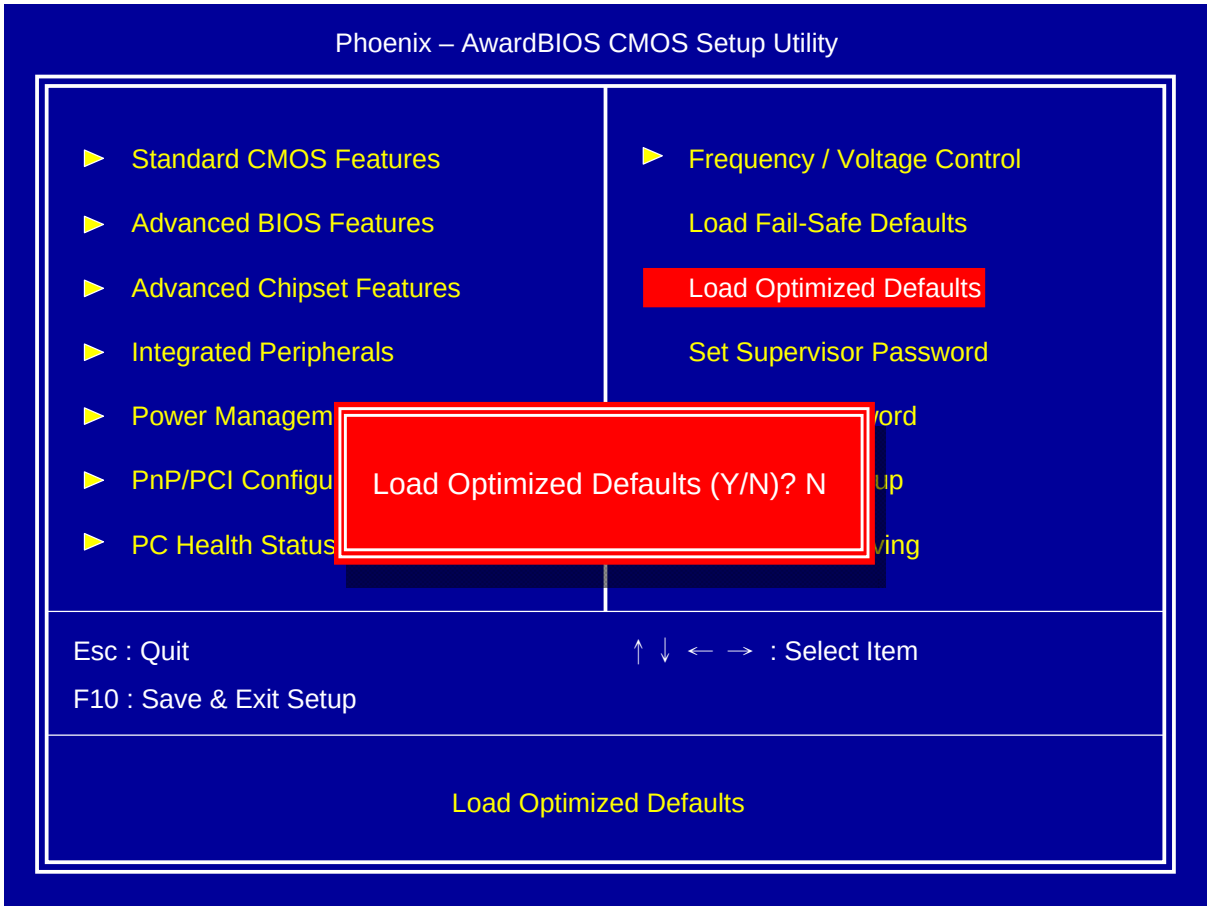
Select “Spread Spectrum” Enabled/Disabled.

3.10 Load Fail-Safe Defaults



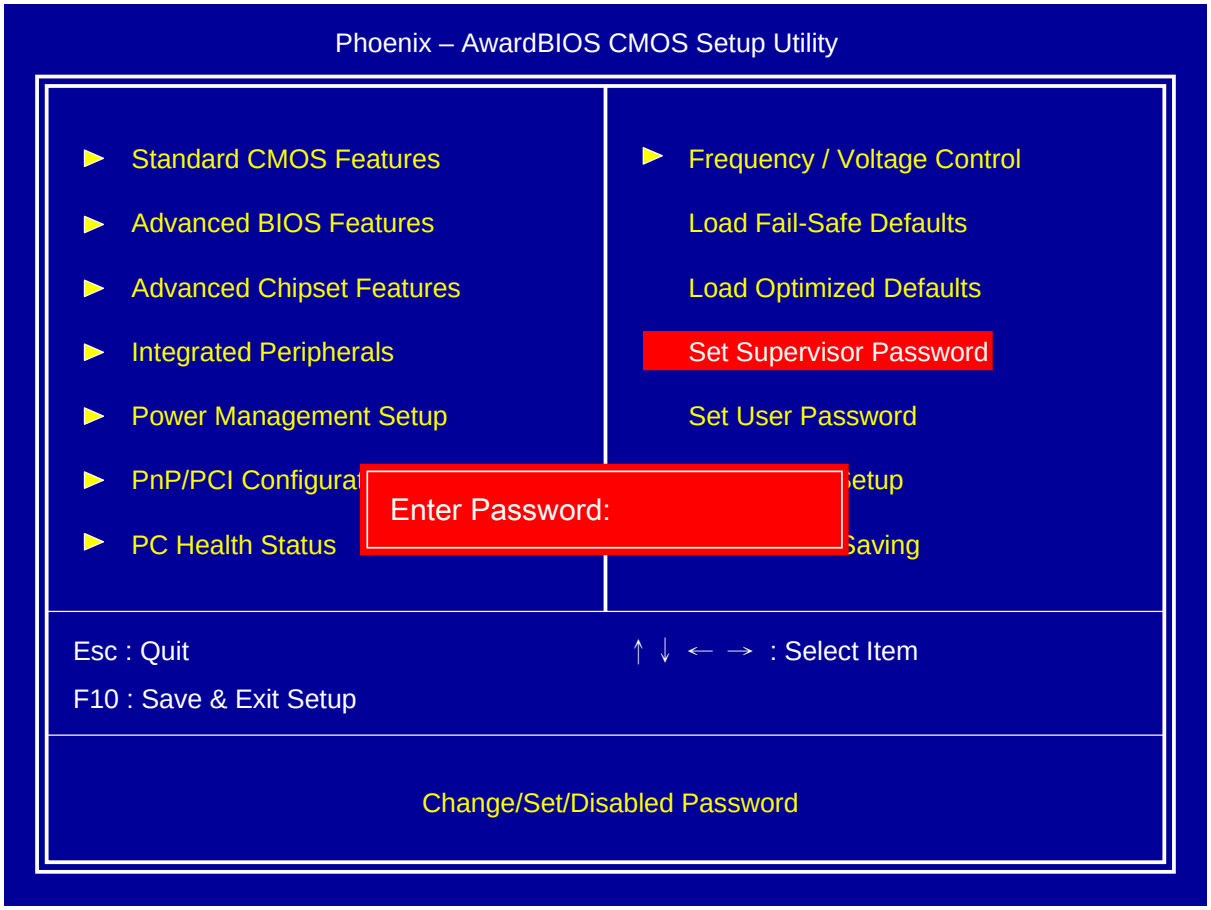
This item will set configuration for non optimized system operation.

3.11 Load Optimized Defaults



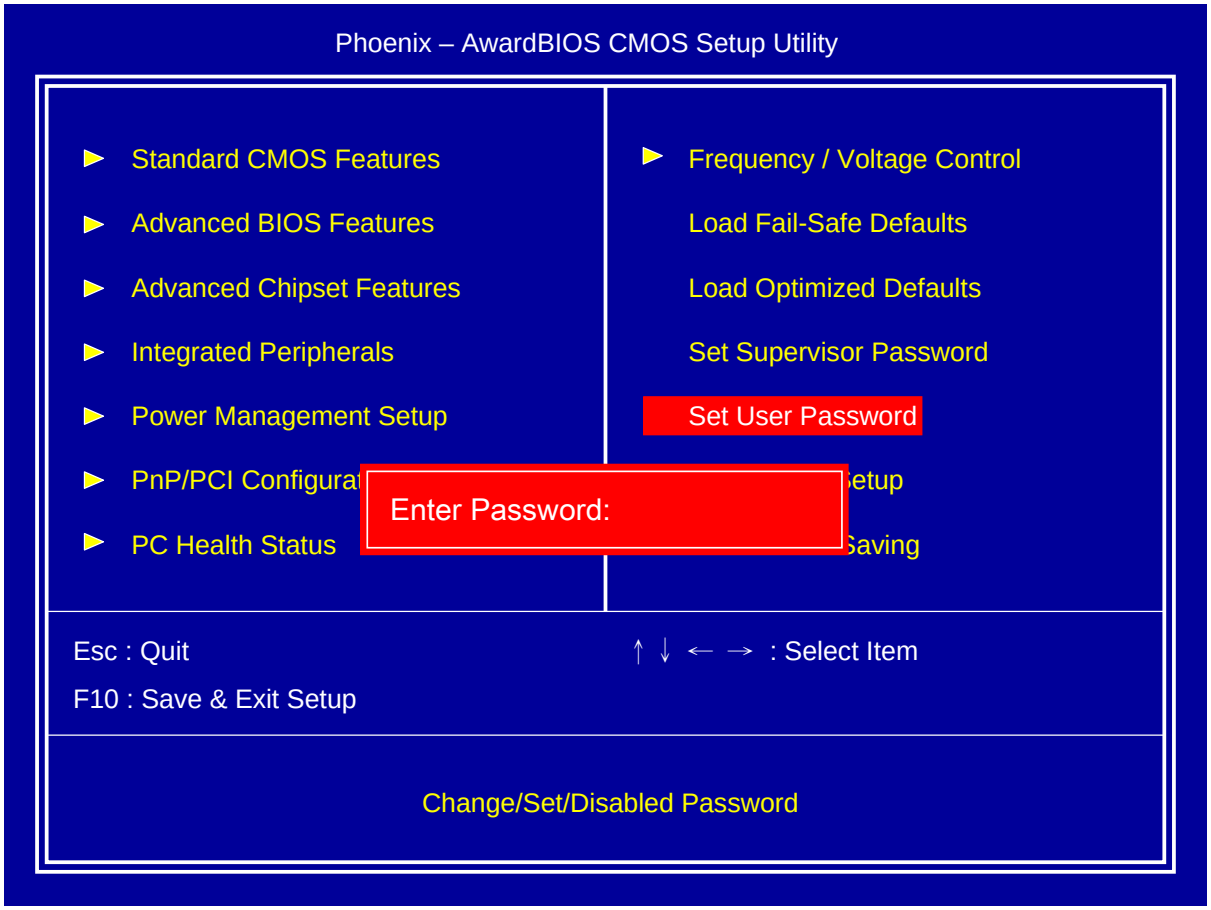
This item will restore factory default setting for optimized system operation.

3.12 Set Supervisor Password



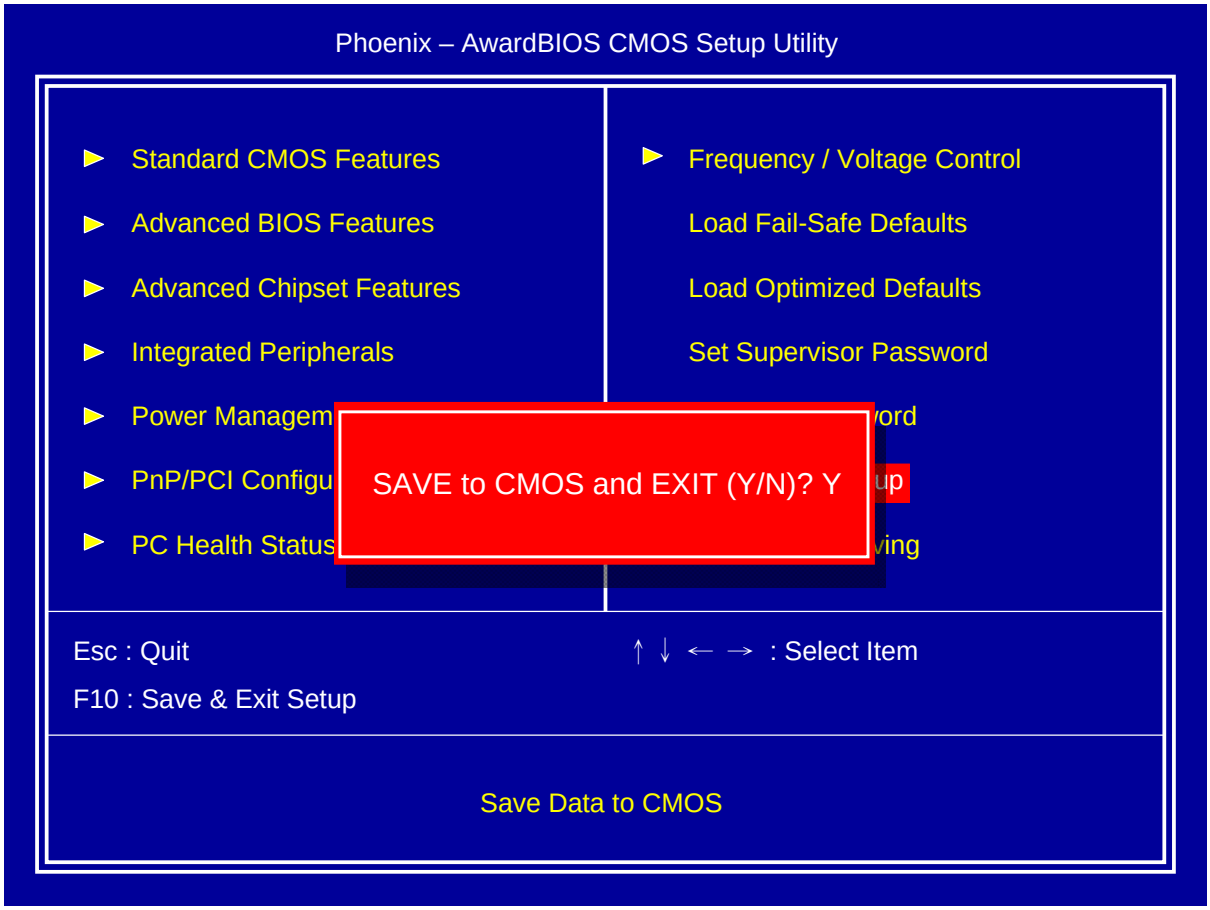
If set supervisor password, it will request typing password to enter BIOS setup utility.

3.13 Set User Password



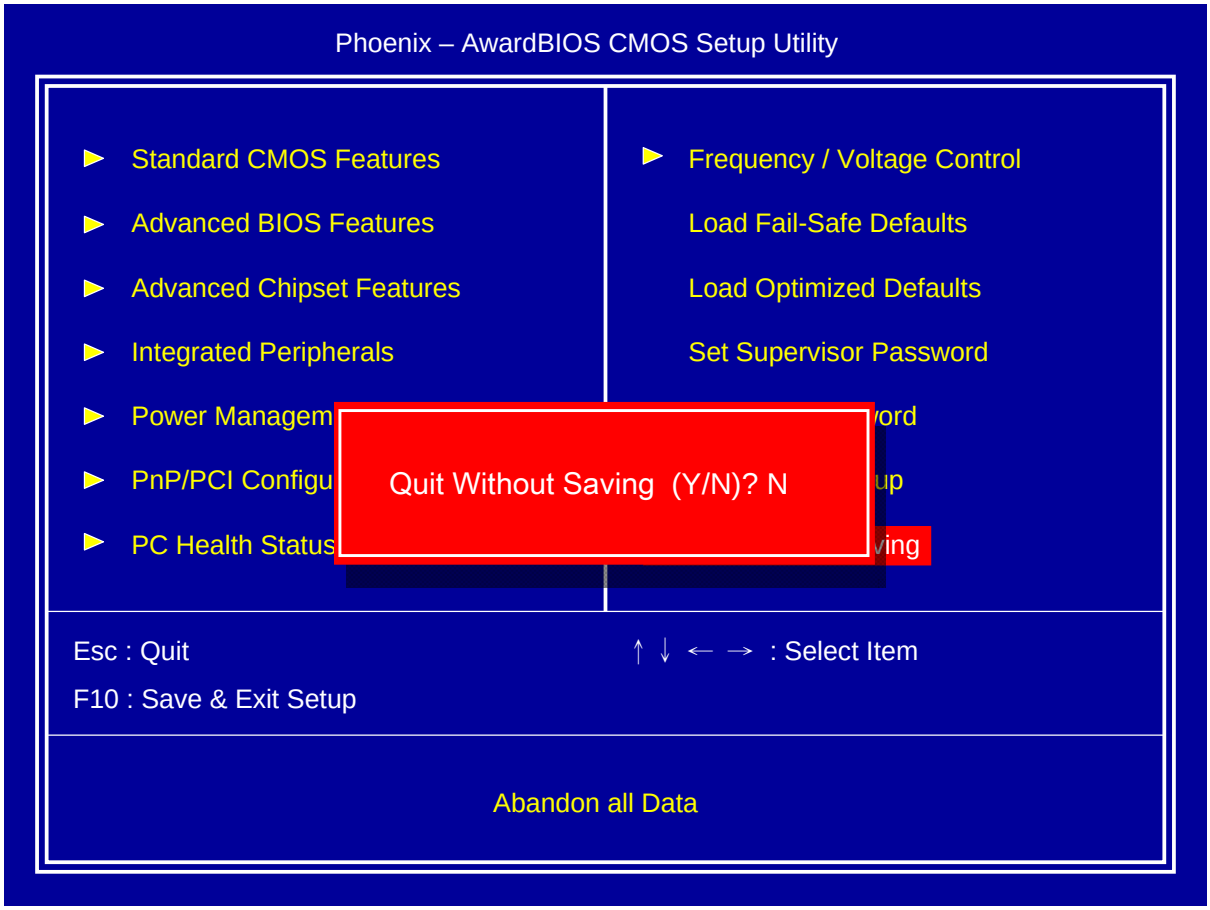
If set user password will request typing password to enter BIOS setup utility, and does not allow modifying configuration.

3.14 Save & Exit Setup



This item confirm save configuration or not before exit BIOS setup utility,
Press <Y> and <Enter> to save configuration, then reboot system.
Press <N> and <Enter> will back to BIOS setup utility.

3.15 Exit Without Saving



This item confirm save configuration or not before quit BIOS setup utility,
Press <Y> and <Enter> will not save configuration, then reboot system.
Press <N> and <Enter> will back to BIOS setup utility.

Chapter 4 Drivers Installation

This chapter introduces driver installation information.

Please insert the utility CD to CD-ROM drive, the install menu will appear automatically, if the install menu did not list suitable driver of Operate System or did not appear automatically, please select corresponding driver of utility CD to install.

The Windows XP driver installation steps are as below.

4.1 Intel Chipset Device Software

Step 1. Click “Next” to continue.

Step 2. Read the License Agreement and click “Yes” to continue.

Step 3. Click “Next” to continue.

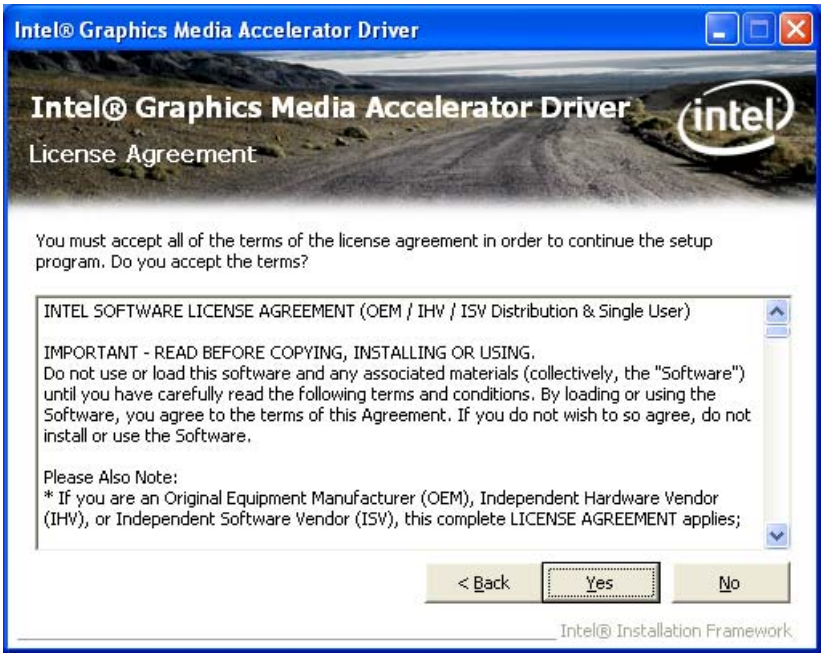
Step 4. Click “Next” to continue.

Step 5. Click “Finish” to complete setup.

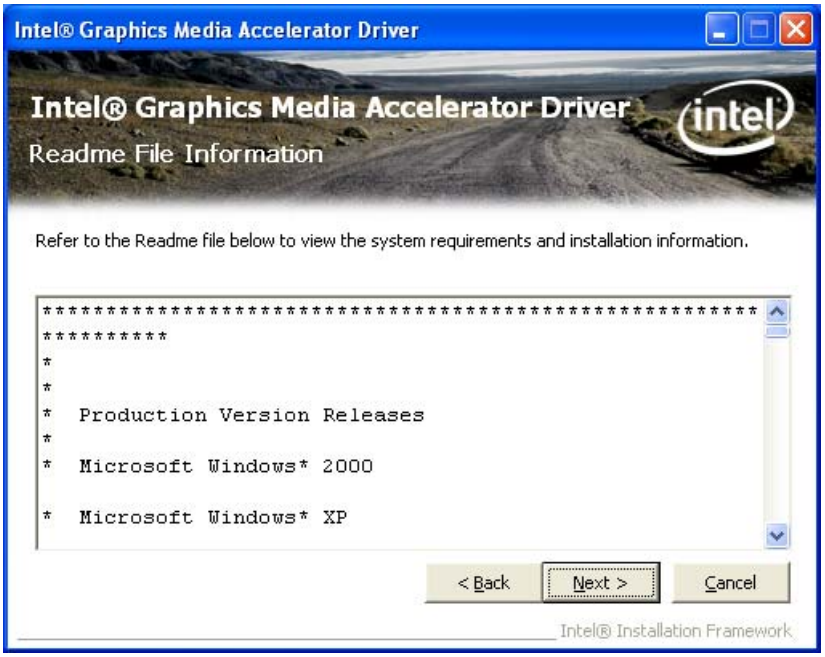
4.2 Intel Graphic Media Accelerator Driver

Step 1. Click “Next” to continue.

Step 2. Read the License Agreement and click “Yes” to continue.

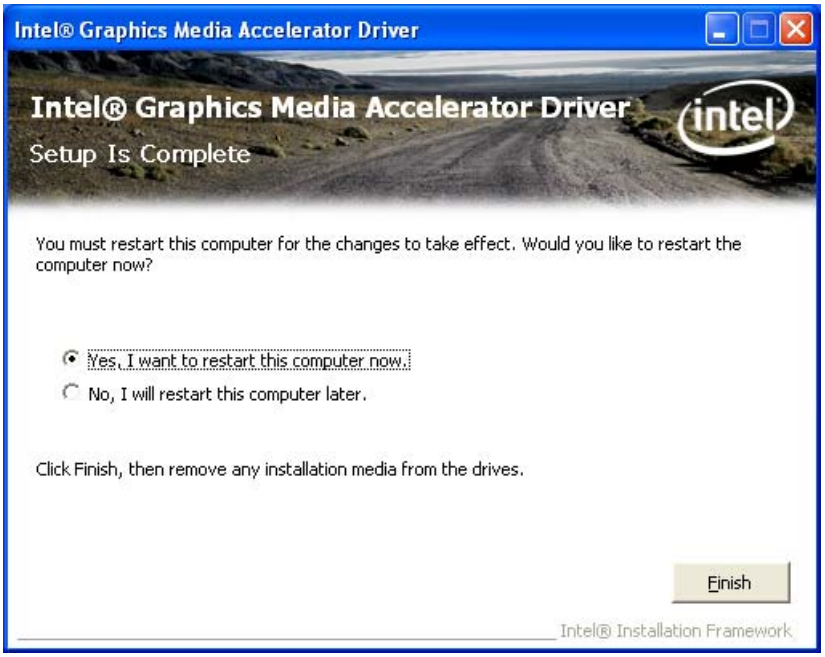


Step 3. Click “Next” to continue.



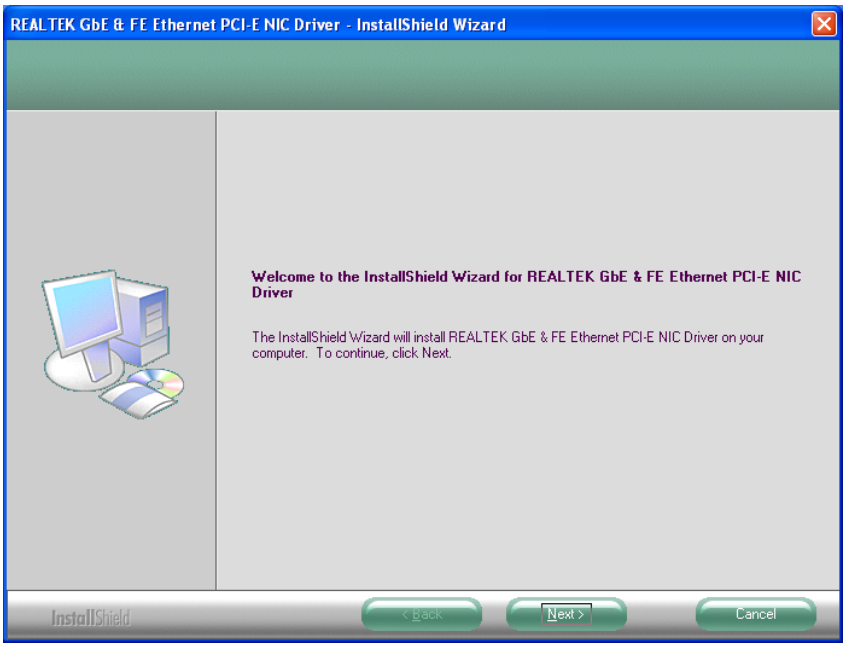
Step 4. Click “Next” to continue.

Step 5. Click “Finish” to complete setup.

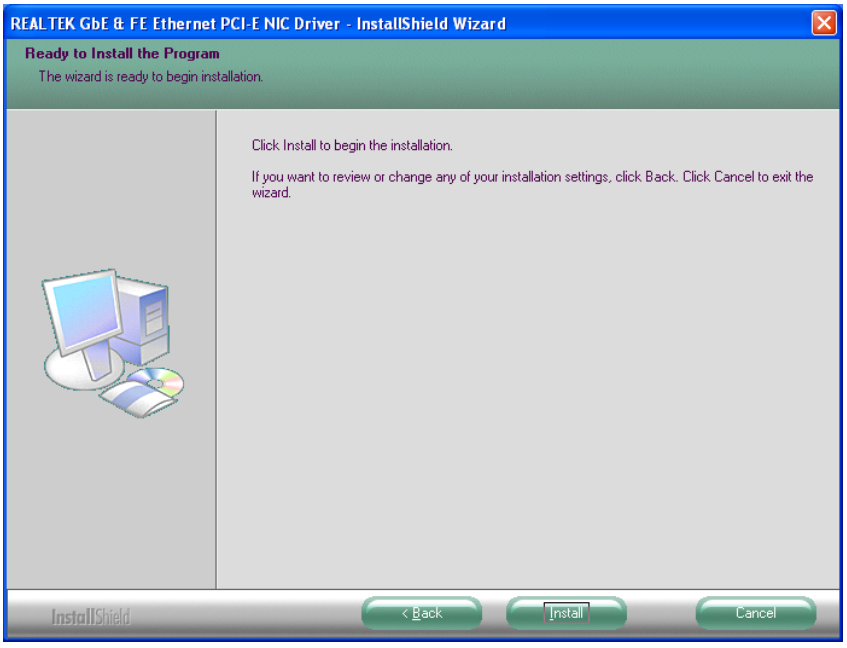


4.3 LAN Driver

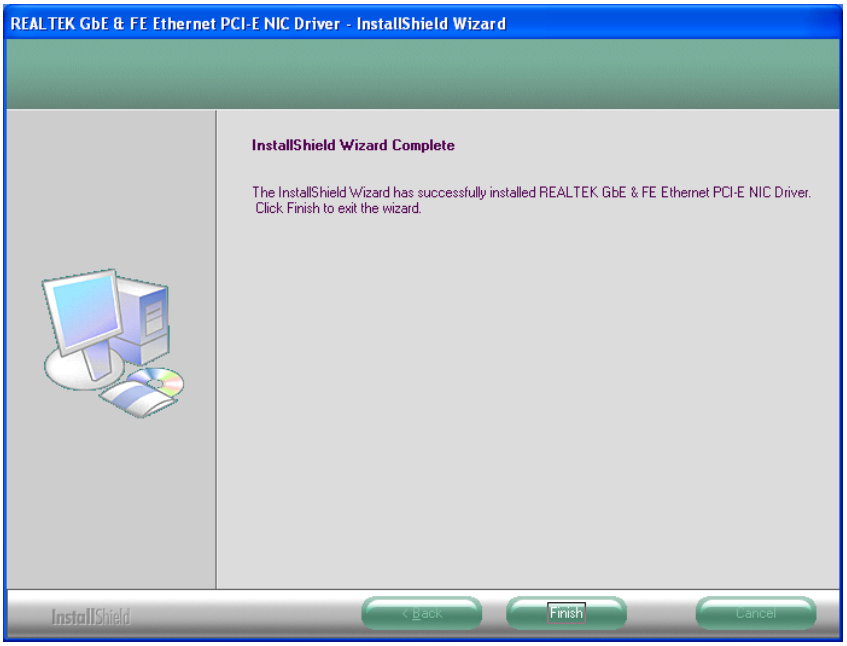
Step 1. Click “Next” to continue.



Step 2. Click “Install” to continue.

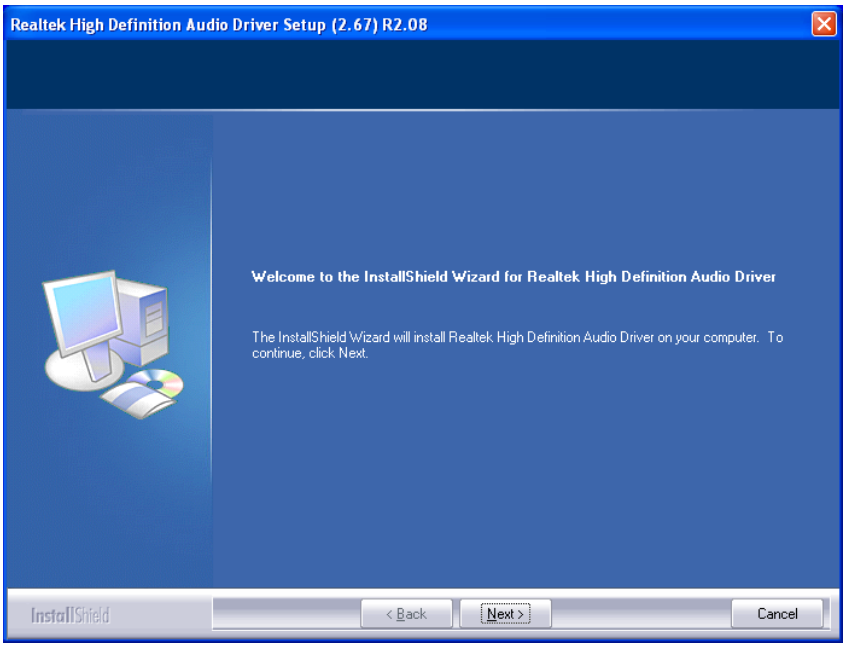


Step 3. Click “Finish” to complete setup.

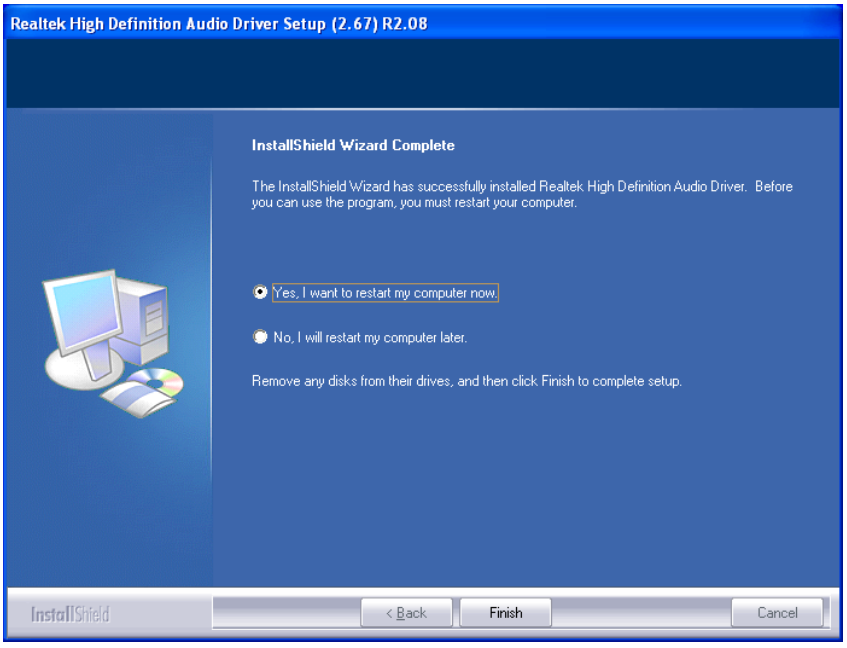


4.4 Audio Driver

Step 1. Click “Next” to continue.



Step 2. Click “Finish” to complete setup.



Appendix-A Watchdog

The working algorithm of the WDT function can be simply described as a counting process. The Time-Out Interval can be set through software programming. The availability of the time-out interval is set by software.

The System Board allows users control WDT through dynamic software programming. The WDT starts counting when it is activated. It sends out a signal to system reset, when time-out interval ends. To prevent the time-out interval from running out, a re-trigger signal will need to be sent before the counting reaches its end. This action will restart the counting process.

WDT program should keep the counting process running under normal condition. WDT should never generate a system reset unless the system runs into troubles.

The related Control Registers of WDT are all included in the following sample program that is written in C language. User can fill a non-zero value into the Time-out Value Register to enable/refresh WDT. System will be reset after the Time-out Value to be counted down to zero. Or user can directly fill a zero value into Time-out Value Register to disable WDT immediately.

To ensure a successful accessing to the content of desired Control Register, the sequence of following program codes should be step-by-step run again when each register is accessed.

For more information about WDT, please refer to Winbond W83627EHF data sheet.

There are two PnP I/O port addresses that can be used to configure WDT,

1) 0x2E:EFIR (Extended Function Index Register, for identifying CR index number)

2) 0x2F:EFDR (Extended Function Data Register, for accessing desired CR)

Below are some example codes, which demonstrate the use of WDT.

```
// Enter Extended Function Mode
outp(0x002E, 0x87);
outp(0x002E, 0x87);

// Assign Pin 77 to be a WDTO# Signal
outp(0x002E, 0x2D);
outp(0x002F, inp(0x002F) & 0xFE);

// Select Logic Device 8
outp(0x002E, 0x07);
outp(0x002F, 0x08);

// Active Logic Device 8
outp(0x002E, 0x30);
outp(0x002F, 0x01);

//Clear WDTO# Status
outp(0x002E, 0xF7);
outp(0x002F, inp(0x2F) & 0xEF);

// Select Count Mode (Second / Minute)
outp(0x002E, 0xF5);
outp(0x002F, (inp(0x002F) & 0xF7) | ( Count-mode Register  & 0x08));

// Set Time-out Value
outp(0x002E, 0xF6);
outp(0x002F,  Time-out Value Register );

// Exit Extended Function Mode
outp(0x002E, 0xAA);
```

Definitions of Variables:

Value of Count-mode Register:

1) 0x00 -- Count down in seconds (Bit3=0)
2) 0x08 -- Count down in minutes (Bit3=1)

Value of Time-out Value Register:

1) 0x00 -- Time-out Disable
2) 0x01~0xFF -- Value for counting down

Appendix-B GPIO

The System Board provides 4 dedicated output ports and 4 programmable I/O ports that can be individually configured to perform a simple I/O function. Users can configure 4 programmable I/O ports to become an input or output port by programming register bit of I/O Selection .*To invert port value, the setting of Inversion Register has to be made* (Note). Port values can be set to read or write through Data Register.

Note: Only 4 programmable I/O ports support.

Additionally, 4 Digital Output ports amplified signals from GPIO ports. There are open-drain buffers, which can offer greater driving capacity up to 100mA.

For more information about GPIO, please refer to Winbond W83627EHF data sheet.

The related Control Registers of GPIO are all included in the following sample program that is written in C language. To ensure a successful accessing to the content of desired Control Register, the sequence of following program codes should be step-by-step run again when each register is accessed.

There are two PnP I/O port addresses that can be used to configure GPIO ports,

1) 0x2E - EFER (Extended Function Enable Register, for entering Extended Function Mode)
   - EFIR (Extended Function Index Register, for identifying CR index number)

2) 0x2F - EFDR (Extended Function Data Register, for accessing desired CR)

Below are some example codes, which demonstrate the use of GPIOs.

```
// Enter Extended Function Mode
outp(0x002E, 0x87);
outp(0x002E, 0x87);

// Assign Pin121-128 to be GPIO port
outp(0x002E, 0x29);
outp(0x002F, inp(0x002F) | 0x01);
```

```
// Select Logic Device 7
outp(0x002E, 0x07);
outp(0x002F, 0x07);

// Active Logic Device 7
outp(0x002E, 0x30);
outp(0x002F, 0x01);

// Select Inversion Mode
outp(0x002E, 0xF2);
outp(0x002F, (inp(0x002F) & 0x3C) | ( Inversion Register  & 0xC3));

// Select I/O Mode
outp(0x002E, 0xF0);
outp(0x002F, (inp(0x002F) & 0x3C) | ( I/O Selection Register  & 0xC3));

// Access GPIO ports
outp(0x002E, 0xF1);
outp(0x002F, (inp(0x002F) & 0x3C) | ( Output Data  & 0xC3));
or
 Input Data  = inp(0x002F);

// Exit Extended Function Mode
outp(0x002E, 0xAA);
```

Definitions of Variables:

Each bit in the lower nibble of each Register represents the setting of a GPIO port.

Super IO Pin	Bit	GPIO DIO
128	0	GPIO DIO-Out0
127	1	GPIO DIO-Out1
126	2	GPIO DIO-In0
125	3	GPIO DIO-In1
124	4	GPIO DIO-In2
123	5	GPIO DIO-In3
122	6	GPIO DIO-Out2
121	7	GPIO DIO-Out3

Value of Inversion Register:
When set to a '1', the incoming/outgoing port value is inverted.
When set to a '0', the incoming/outgoing port value is the same as in Data Register.

Value of I/O Selection Register:
When set to a '1', respective GPIO port is programmed as an input port.
When set to a '0', respective GPIO port is programmed as an output port.

Value of Output Data / Input Data:
If a port is assigned to be an output port, then its respective bit can be read/written.
If a port is assigned to be an input port, then its respective bit can be read only.

Note :
DIO_IN0/DIO_IN1/DIO_IN2/DIO_IN3 are programmed as **Inputs** by BIOS default.

Parameter	Conditions
VinH	min +1.857V
VinL	max +0.525V
Rated Vin	-8V ~ +12V
NC Status	High by Default

** Attention : If **DIO_IN0/DIO_IN1/DIO_IN2/DIO_IN3 are programmed as Output signal, they can only offer a normal signal transfer.(NOT amplified signals.)**

Parameter	Conditions
VoutH	3.3V thru 10k
VoutL	0V thru 1k

DIO_OUT0/DIO_OUT1/DIO_OUT2/DIO_OUT3 are fixed as **Outputs** by BIOS.

Parameter	Conditions
Open-drain buffer	Power-on default = Open
Driving Capacity	max 100mA continue