WFBX-1011-5256

User Manual

Rev.01, May. 2012

Statement

All product specifications are subject to change without prior notice

Packing List

1. WFBX-1011-5256 x 1
2. 60W DC12V Screw type adapter x 1
3. Y-cable x 1
4. Power cord x 1
5. Foot pad x 4
6. Screws pack x 1
7. Wall mount kit x 1
8. Driver CD (Include user's manual) x 1

Ordering Information

STANDARD:

☐ WFBX-1011-5256

Fanless-BOX PC with Atom D525 CPU with 1xVGA, 6xCOM, 1xLPT, 2xLAN, 8xUSB, 1xPS2, 1xAudio(Mic-in, Audio out), 1xDDR3 204PIN SODIMM max up to 4GB, CF and 2.5" HDD support, wall mount kit, 60W DC12V Screw type adapter.

Contents

Chapter 1 Product Information

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

1.1 General Description

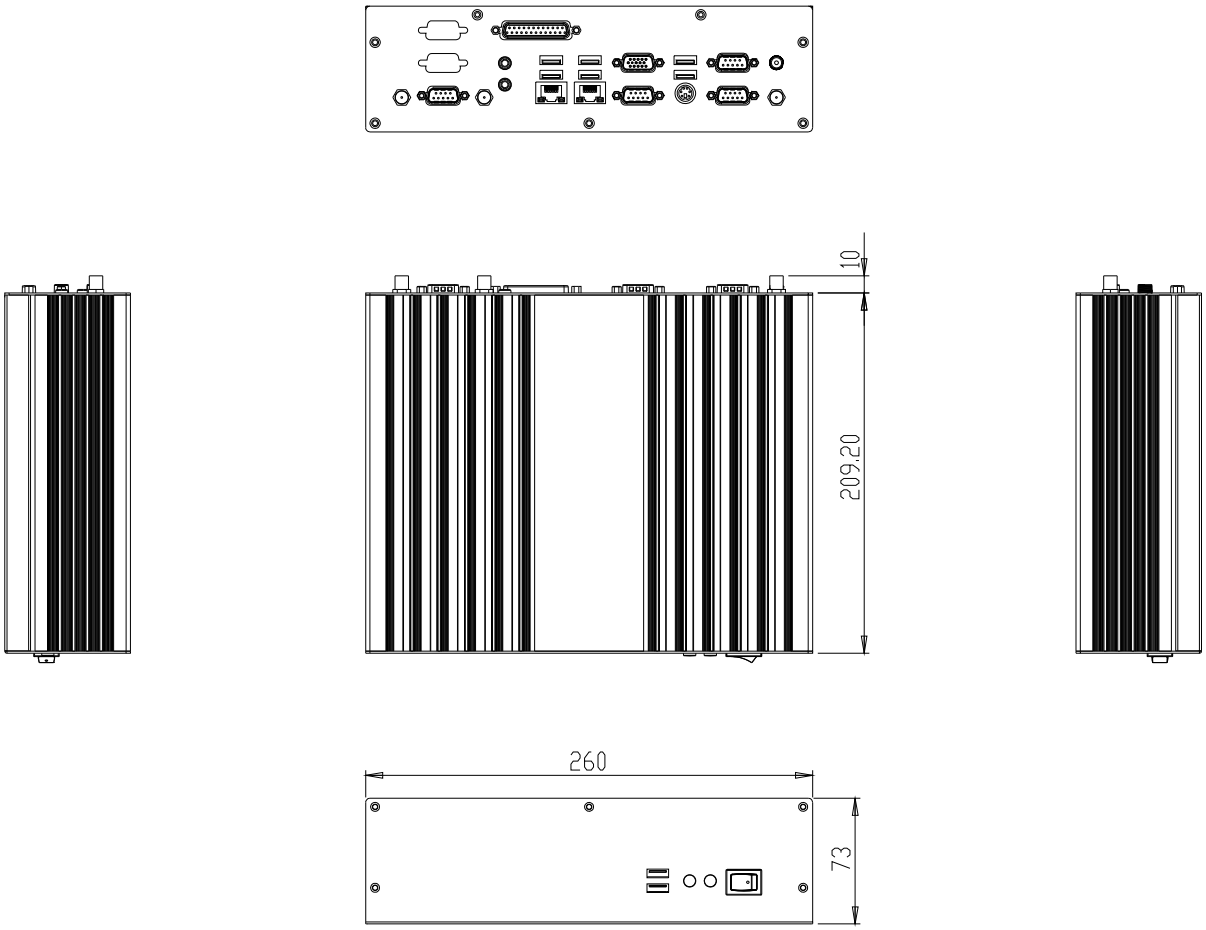
WFBX-1011-5256 is Fanless BOX PC system that can support Atom D525 dual core processor. The **WFBX-1011-5256** support Windows® 2000, Windows® XP, Windows® XP embedded, Windows® 7, suitable for the most endurable operation.

1.2 Features

Construction	Heave duty steel
CPU	Intel Atom D525 Dual core 1.8GHz processor onboard
System memory	1 x 204-pin DDR3 800 SO DIMM SDRAM, max. up to 4GB
Chipset	Intel D525 + ICH8M
BIOS	Award 16MB SPI
System I/O	Front I/O: 2 x USB Rear I/O: 6 x USB, 2 x LAN, 1 x VGA, 1 x PS2, 1 x LPT 6 x COM(5 x RS-232, 1 x RS-232/422/485); All COM with +5V/+12V/RI support by jumper selector 1 x Audio(Mic-in, Audio-out),
Watch dog timer	Interval: Programmable 1~255 sec.
Storage support	1 x CF and 1 x 2.5" HDD
Expansion slot	1 x mini-PCIe
System Indicators	1 x Power LED, 1 x HDD LED
System controls	1 x Power on switch
Mounting Kit	Wall mount kit
Power Supply	AC 60W Screw type adapter, Input: AC 100~240V/50-60Hz, Output: DC12V@5A
Operating Temperature	0°C~50°C (32°F~122°F)
Storage temperature	-20°C~80°C (-68°F~176°F)
Relative Humidity	0%~90% (non-condensing)
Dimensions	260mm(W) x 209.2mm(D) x 73mm(H) 10.2"(W) x 8.23"(D) x 2.87"(H)
Weight	Gross: 4.96Kg/10.93Lb Net: 4.35Kg/9.59Lb
Standard Color	Sliver

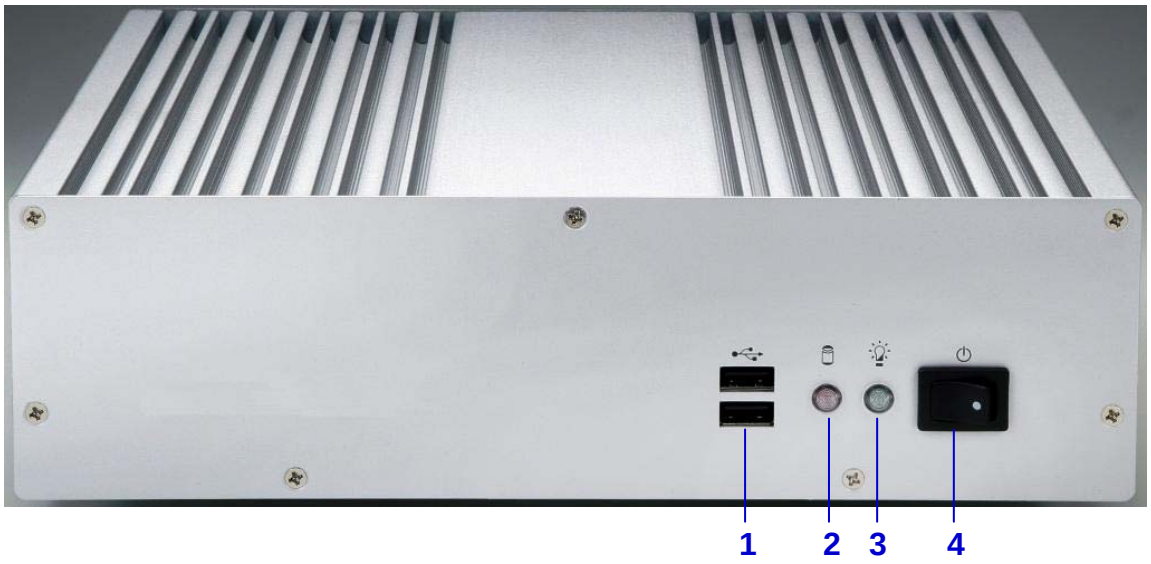
1.3 Dimensions

The following diagrams show you dimensions and outlines of **WFBX-1011-5256**.



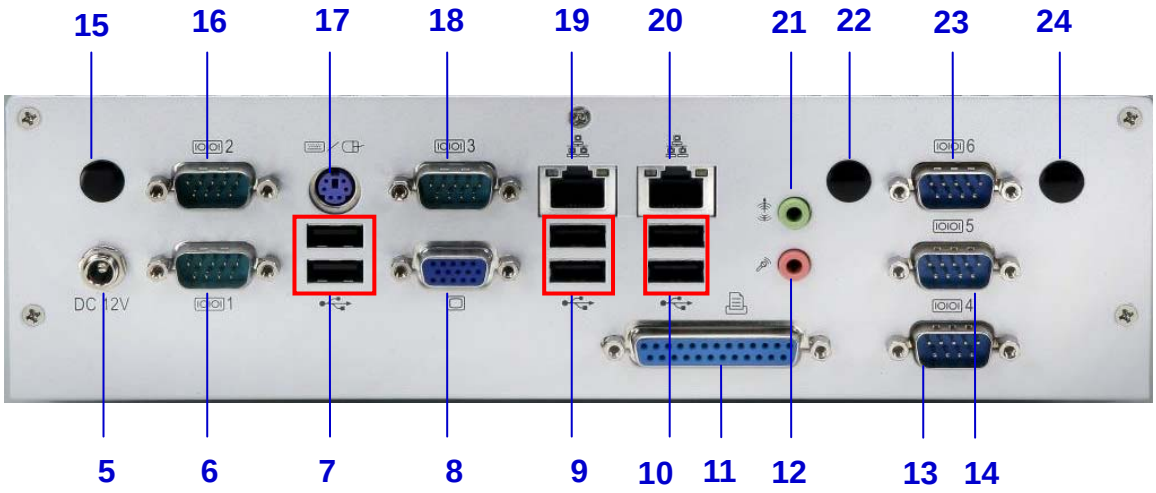
1.4 I/O Outlets

FRONT



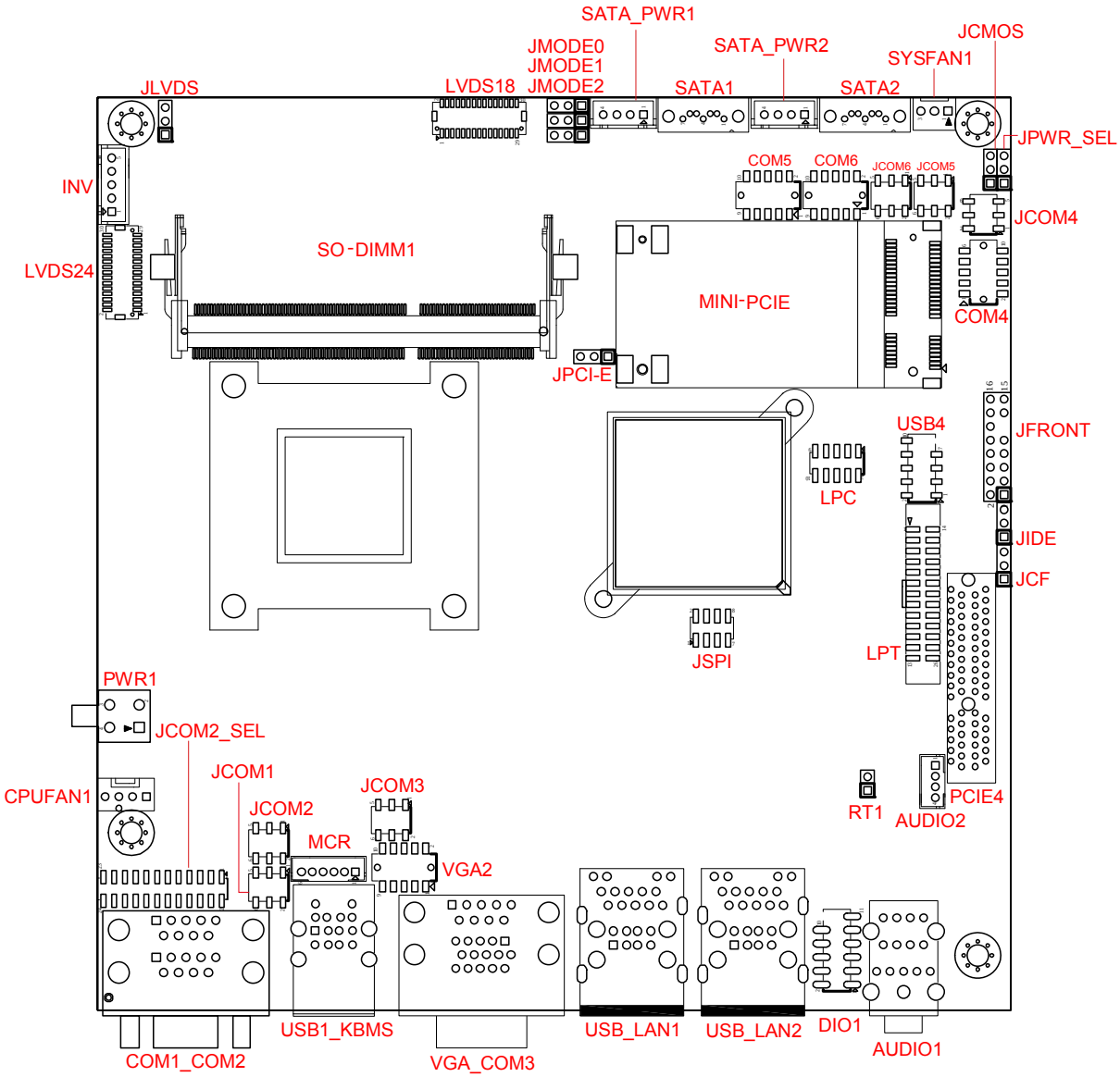
1. USB (2 PORTS)
2. HDD status LED
3. Power status LED
4. Power on button

BACK



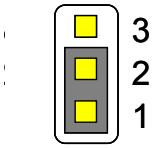
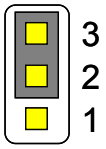
5. DC12V input
6. COM Port (COM1)
7. USB Port (2 port)
8. VGA Port
9. USB Port (2 port)
10. USB Port (2 port)
11. Print Port
12. Audio (Mic-in)
13. COM Port (COM4)
14. COM Port (COM5)
15. SMA hole
16. COM Port (COM2)
17. PS2 (Keyboard/Mouse)
18. COM Port (COM3)
19. LAN1
20. LAN2
21. Audio (Line-out)
22. SMA hole
23. COM Port (COM6)
24. SMA hole

1.5 M/B PCB Layout

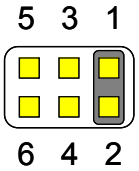
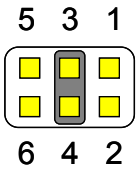
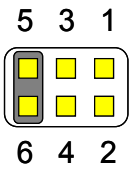


1.6 Jumper Setting

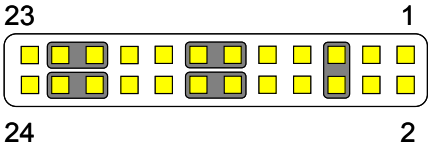
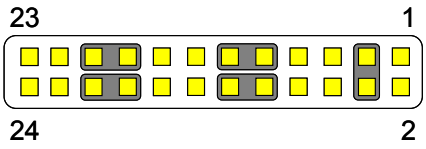
JCMOS: CMOS Clear

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

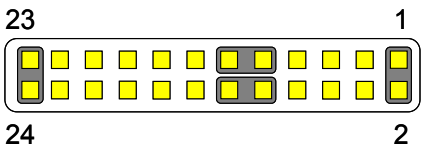
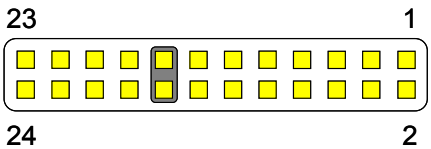
JCOM1/JCOM2/JCOM3/JCOM4/JCOM5/JCOM6: (5V/12V/RI) Select

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

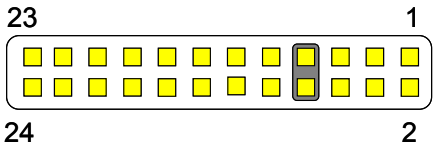
JCOM2_SEL：COM2 (RS-232/RS-422/RS-485) Select (1/3)

Pin No.	5-6, 11-13, 12-14, 19-21, 20-22	3-4, 9-11, 10-12, 17-19, 18-20
Function	RS-232 (Default)	RS-422
Jumper Setting		

JCOM2_SEL: COM2 (RS-232/RS-422/RS-485) Select (2/3)

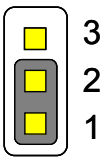
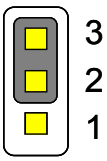
Pin No.	1-2, 9-11, 10-12, 23-24	15-16
Function	RS-485	RS-422 RX 100Ω Termination
Jumper Setting		

JCOM2_SEL: COM2 (RS-232/RS-422/RS-485) Select (3/3)

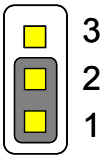
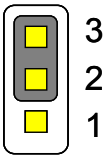
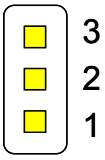
Pin No.	7-8	
Function	RS-422 TX 100Ω/RS-485 Termination	
Jumper Setting		

Note: Not Recommended for RS-422 TX 100Ω Termination

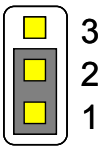
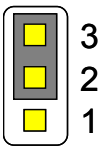
JCF: Compact Flash (Master/Slave) Select

Pin No.	1-2	2-3
Function	Master	Slave (Default)
Jumper Setting		

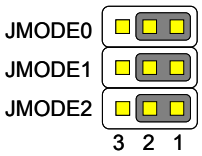
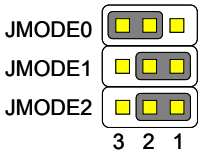
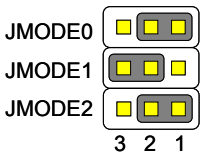
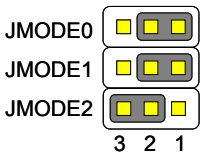
JIDE: IDE ATA Mode Select

Pin No.	1-2	2-3	All Open
Function	Max. UDMA Mode 1 (33M)	Auto Detect UDMA Mode (Default)	Min. UDMA Mode 2 (66M)
Jumper Setting			

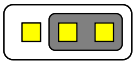
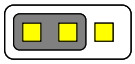
JLVDS: LCD Power (+3.3V/+5V) Select

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

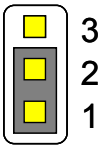
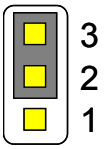
JMODE2, JMODE1, JMODE0: LVDS24 24bit Panel signal mode select

Pin No.		ATOM D525 Output to XC3S200AM	LVDS24 Output
JMODE0: 1 **JMODE1: 1** **JMODE2: 1**		Single channel (18 bit)	* Default setting, bypass. Support one 48bit dual channel panel (resolution by VBIOS) (48bit: odd 24bit + even 24bit)
JMODE0: 0 **JMODE1: 1** **JMODE2: 1**		Single channel (18 bit) (resolution: 1280 x 800)	Scalar. Support one 48bit dual channel panel (resolution: 1280 x 1024) (48bit: odd 24bit + even 24bit)
JMODE0: 1 **JMODE1: 0** **JMODE2: 1**		Single channel (18 bit)	Bypass. Support two 24 bit single channel panel (resolution by VBIOS)
JMODE0: 1 **JMODE1: 1** **JMODE2: 0**		Single channel (18 bit)	Bypass. Support two 18 bit single channel panel (resolution by VBIOS)
Pin No.		**ATOM D525 Output to XC3S200AM**	**LVDS Output**
Don't care		Single channel (18 bit) (resolution: 1366 x 768)	** Specific firmware, scalar. Support one 48bit dual channel panel (resolution: 1920 x 1080) (48bit: odd 24bit + even 24bit)

JPCI-E: PCI-E Port1 to Port4 configuration Select

Pin No.		Configuration	PCI-E x4 Slot	Mini-PCI-E (share Port4)
1-2		Port1 ~ Port4: (x4)	PCI-E x1: OK	NG
			PCI-E x4: OK	NG
2-3		Port1: (x1) Port2: (x1) Port3: (x1) Port4: (x1)	PCI-E x1: OK	OK

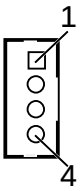
JPWR_SEL: AT/ATX Mode Select

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

1.7 Connector Function List

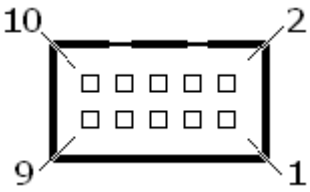
Connector	Function	Note
AUDIO1	Line-In/MIC-In/Line-Out Connectors	
AUDIO2	Audio Amplifier Output Connector	
CF	Compact Flash Connector	
COM1_COM2	Serial Port Connector	
COM4, COM5,	Serial port with Box-header	
CPUFAN1	CPU Fan 4Pin Connector	
DIO1	Digital I/O Connector	
INV	LCD inverter connector	
JSPI	Reserved for debug	
LPC	Reserved for debug	
LPT	Parallel Port Connector	
LVDS18	LVDS 18 bit Connector	
LVDS24	LVDS 24 bit Connector	
MCR	MCR with Box-header	
MINI-PCIE	Mini PCI Express connector	
PCIE4	PCI-E x4 Connector	
PWR1	ATX 2x2 connector	For DC12V In
RT1	Reserved for external thermistor	
SATA1,SATA2	SATA Connector	
SATA_PWR1,	SATA Power Connector	
SO-DIMM1	DDR3 SO-DIMM connector	
SYSFAN1	System FAN connector	
USB_LAN1,	USBx2 and RI45-LAN Conenctor	
USB1_KBMS	USB and PS2 Keyboard, Mouse Connector	
USB4	USBx2 Pin Header	
VGA_COM3	VGA and Serial Port Connector	
VGA2	VGA Pin Header	

1.8 Internal Connector Pin Define



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

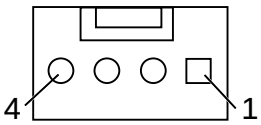
Pin No.	Signal
1	Audio Amplifier Out Right
2	Ground
3	Ground
4	Audio Amplifier Out Left



COM4, COM5, COM6：Serial Port with Box-header (2.0mm)

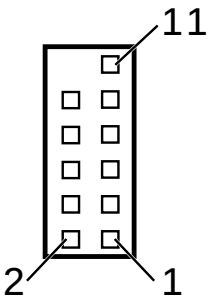
Pin No.	Signal	Pin No.	Signal
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8,10	RI/+5V/+12V
9	Ground		

CPUFAN1：4Pin FAN connector



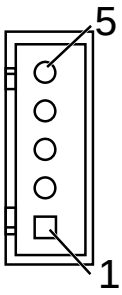
Pin No.	Signal
1	Ground
2	Fan Power (+12V)
3	Speed Sense
4	Control

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



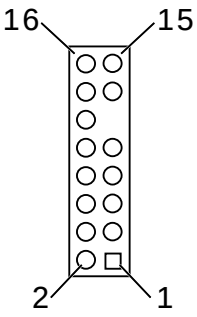
Pin No.	Signal	Pin No.	Signal
1	DIO-Out0 bit0	2	DIO-In0 bit2
3	DIO-Out1 bit1	4	DIO-In1 bit3
5	DIO-Out2 bit6	6	DIO-In2 bit4
7	DIO-Out3 bit7	8	DIO-In3 bit5
9	+12V	10	+5V
11	Ground	12	NC

INV：Inverter with Box-header (2.50mm)

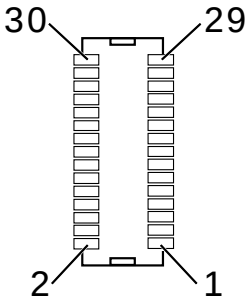


Pin No.	Signal
1	+12V
2	+12V
3	Ground
4	Inverter Bright ess Abject
5	Inverter Enable

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



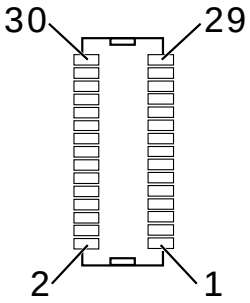
Pin No.	Signal	Pin No.	Signal
1	+5V (470 Ohm), (Power LED+)	2	+5V (470 Ohm), (HDD LED+)
3	NC	4	HDD LED#, (HDD LED-)
5	Ground, (Power LED-)	6	5VSB (470 Ohm), (Suspend LED+)
7	RESET#, (Reset Button Pin1)	8	Suspend LED#, (Suspend LED-)
9	Ground, (Reset Button Pin2)	10	FSPK# (Beep), (Speaker-)
11	NC	12	NC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



LVDS18：LVDS 18 bit Panel Signal with Box-header (1.0mm)

Pin No.	Signal	Pin No.	Signal
1	Ground	2	Ground
3	NC	4	NC
5	LA_CLKP	6	LA_CLKN
7	LA_DC2P	8	LA_DC2N
9	LA_DC1P	10	LA_DC1N
11	LA_DC0P	12	LA_DC0N
13	Ground	14	Ground
15	NC	16	NC
17	NC	18	NC
19	NC	20	NC
21	NC	22	NC
23	NC	24	NC
25	Ground	26	Ground
27	LVDS Power	28	LVDS Power
29	LVDS Power	30	LVDS Power

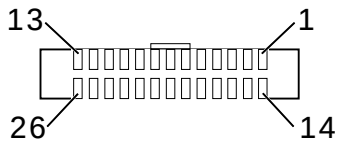
Note1：LVDS Power = +5V or +3.3V (Default)



LVDS24：LVDS 24 bit Panel Signal with Box-header (1.0mm)

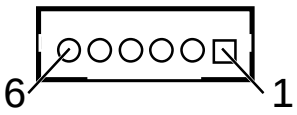
Pin No.	Signal	Pin No.	Signal
1	Ground	2	Ground
3	LVDS_P_CH0_TX3	4	LVDS_N_CH0_TX3
5	LVDS_P_CH0_TX_CLK	6	LVDS_N_CH0_TX_CLK
7	LVDS_P_CH0_TX2	8	LVDS_N_CH0_TX2
9	LVDS_P_CH0_TX1	10	LVDS_N_CH0_TX1
11	LVDS_P_CH0_TX0	12	LVDS_N_CH0_TX0
13	Ground	14	Ground
15	LVDS_P_CH1_TX3	16	LVDS_N_CH1_TX3
17	LVDS_P_CH1_TX_CLK	18	LVDS_N_CH1_TX_CLK
19	LVDS_P_CH1_TX2	20	LVDS_N_CH1_TX2
21	LVDS_P_CH1_TX1	22	LVDS_N_CH1_TX1
23	LVDS_P_CH1_TX0	24	LVDS_N_CH1_TX0
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 (2.0mm)

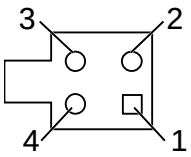
Pin No.	Signal	Pin No.	Signal
1	Strobe#	14	Auto Form Feed#
2	Data 0	15	Error#
3	Data 1	16	Initialization#
4	Data 2	17	Printer Select IN#
5	Data 3	18	Ground
6	Data 4	19	Ground
7	Data 5	20	Ground
8	Data 6	21	Ground
9	Data 7	22	Ground
10	Acknowledge#	23	Ground
11	Busy	24	Ground
12	Paper Empty	25	Ground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



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

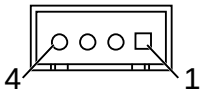
Pin No.	Signal
1	+5V
2	KCLK_CON
3	KCLK_KBC
4	KDAT_CON
5	KDAT_KBC
6	Ground

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



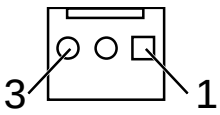
PWR1：ATX 2x2 +12V Input

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



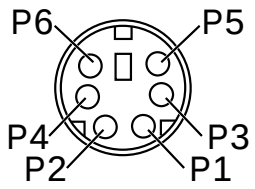
SATA_PWR1, SATA_PWR2：SATA Power with Box-header (2.50mm)

Pin No.	Signal
1	+5V
2	Ground
3	Ground
4	+12V



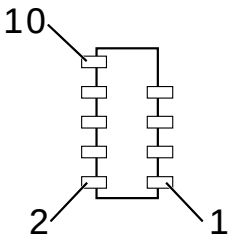
SYSFAN：System FAN 3 Pin connector

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



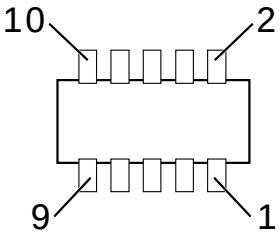
USB1_KBMS: USBx2, PS2 Keyboard and PS2 Mouse connector (PS2 Y-Cable)

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



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



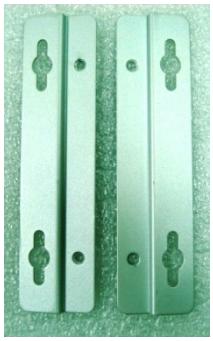
VGA2：VGA with Box-header (2.0 mm)

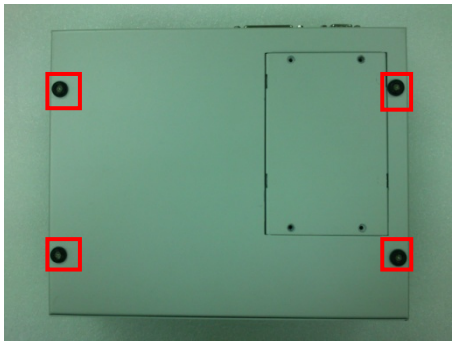
Pin No.	Signal	Pin No.	Signal
1	VGA_RED	2	VGA_DDC_DATA
3	VGA_GREEN	4	VGA_DDC_CLK
5	VGA_BLUE	6	Ground
7	VGA_ HSYNC	8	Ground
9	VGA_ VSYNC	10	Ground

Chapter 2 Hardware installation

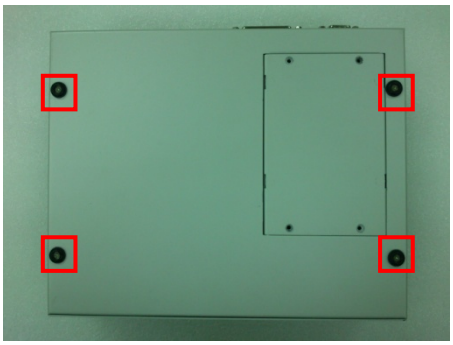
WFBX-1011-5256 is convenient for various hardware configurations, such as Memory Module, HDD, Compact Flash. Chapter 2 will show you how to install the hardware. It includes:

2.1 Install the Wall mount kit



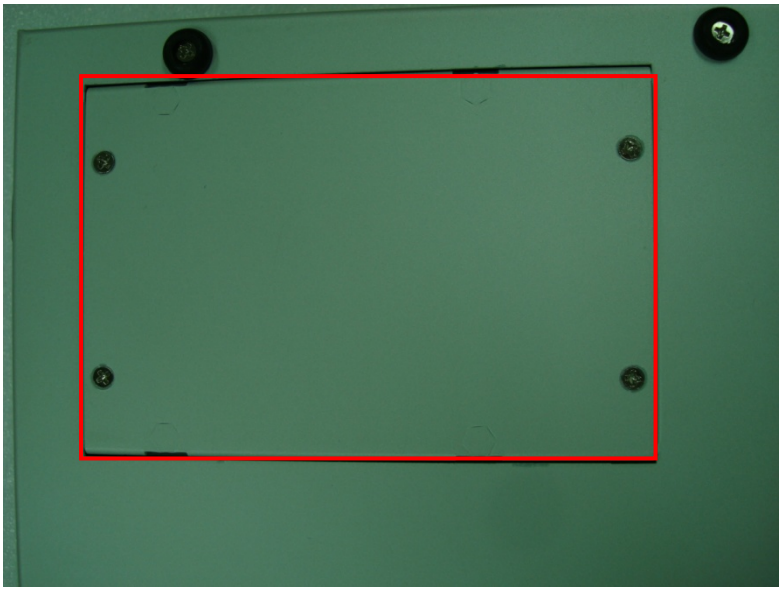


2.2 Install the Foot pad

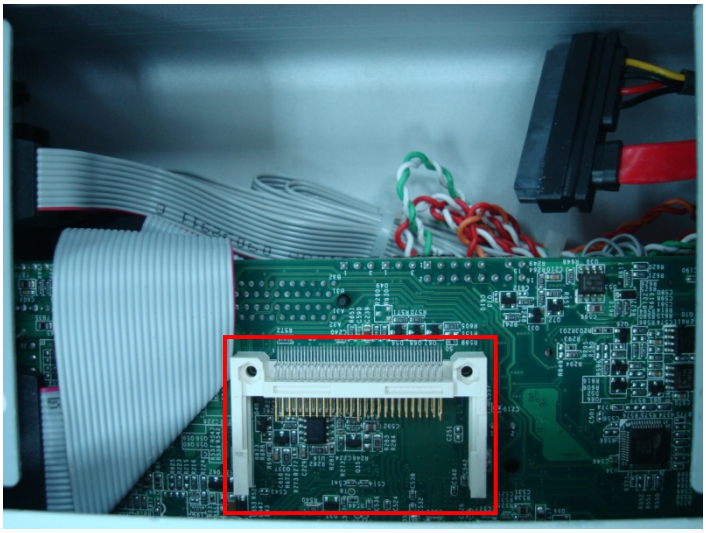


2.3 Install 2.5” HDD and CF module

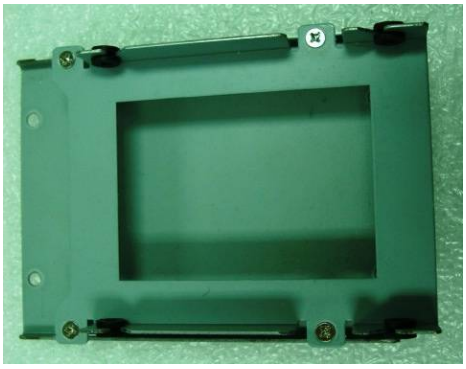
Step 1: Remove the bottom cover screws (4pcs).



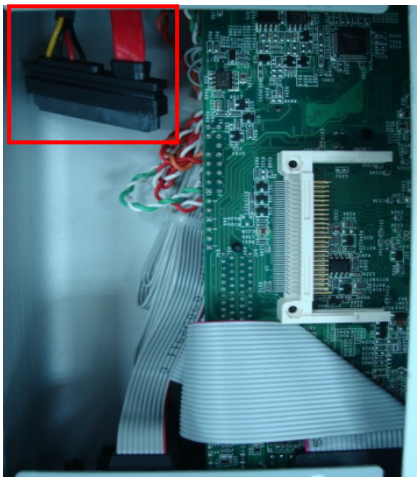
Step 2: Insert CF module here.



Step 3: Install the Hard Disk on this kit.

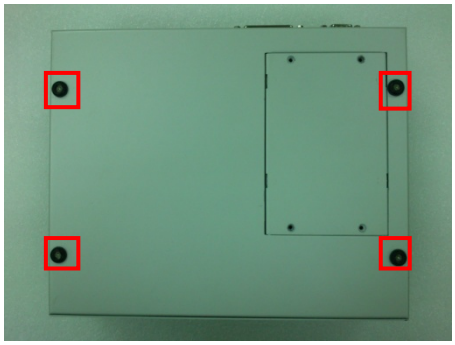


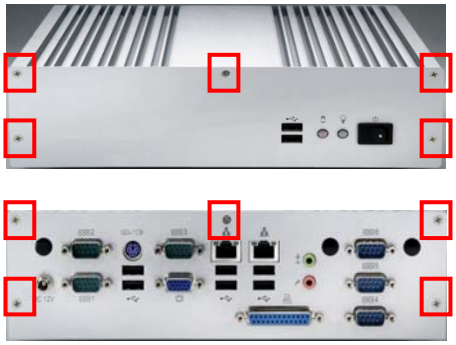
Step 3: Connect the SATA + Power cable.



2.4 Install the memory and miniPCIe module

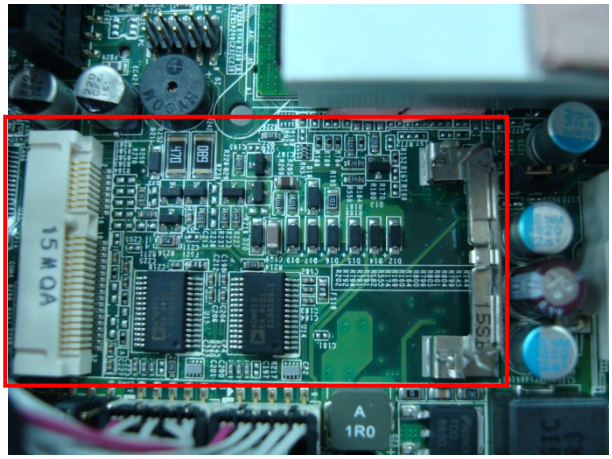
Step 1: Remove the top cover screws (14pcs).





Step 2: Insert the memory module here.

Step3: Insert the mini-PCIe module (full size only).



Chapter 3 BIOS Setup

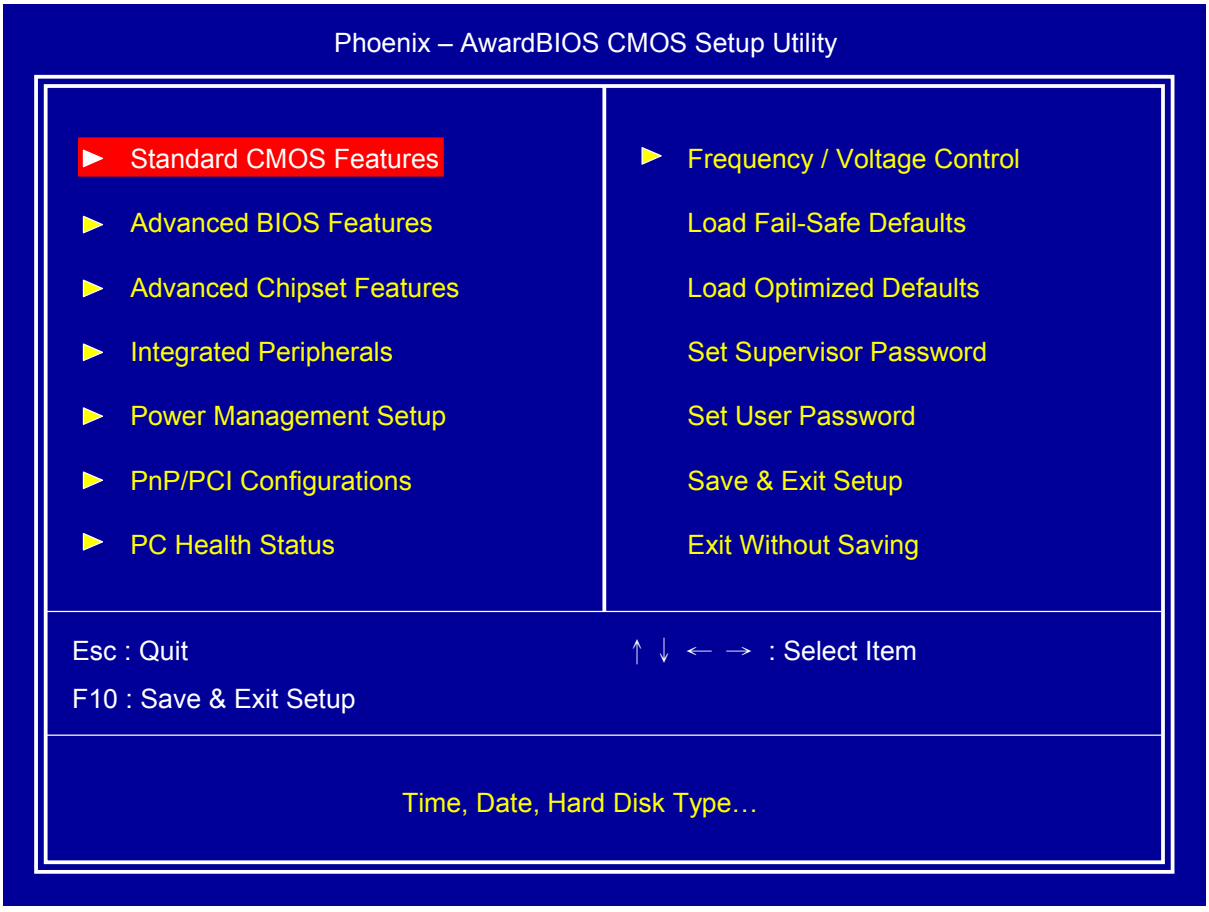
This chapter introduces BIOS setup information.

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.

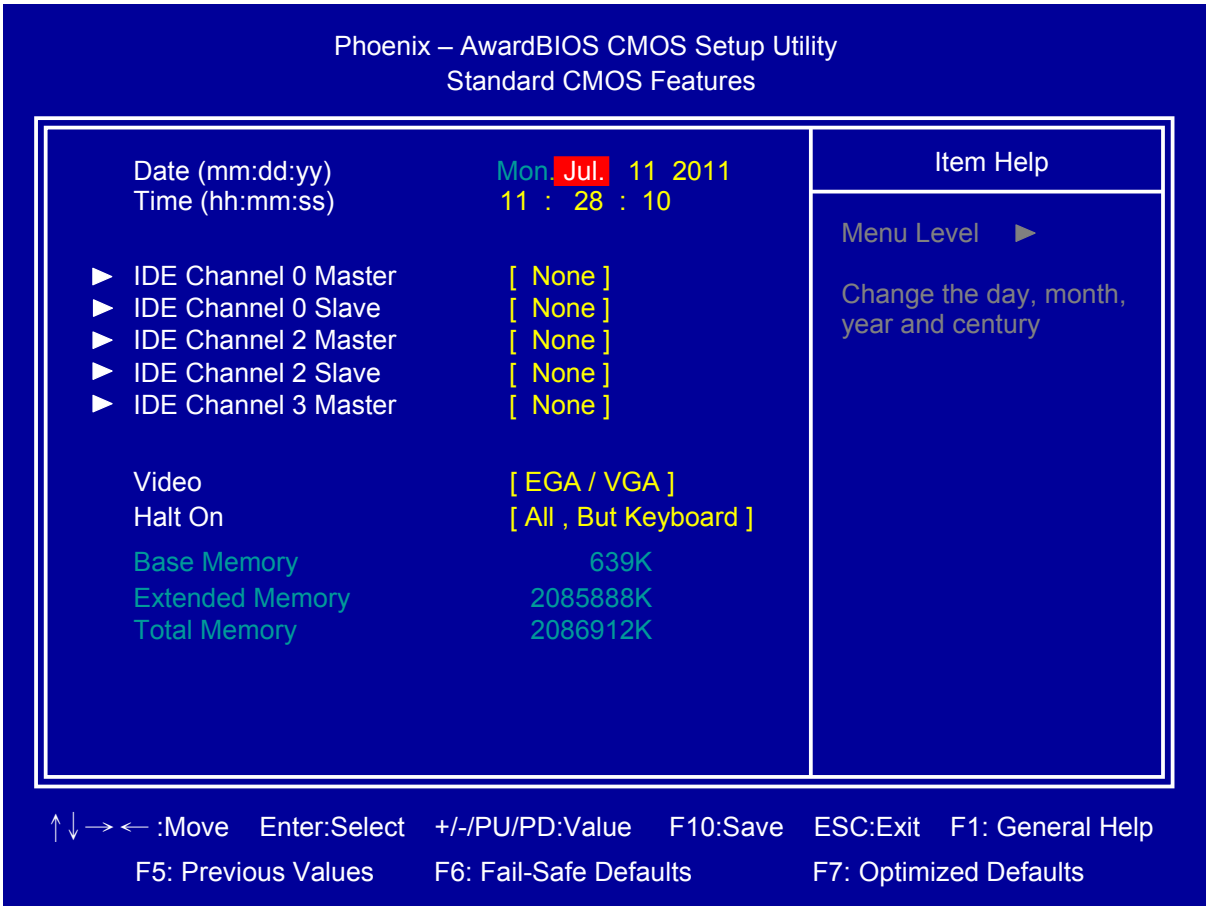
Note: The BIOS configuration for reference only, it may subject to change without prior notice.

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 2 Master/Slave**

Press <Enter> for IDE device automatic detection.

☐ **IDE Channel 3 Master**

Press <Enter> for IDE device automatic detection.

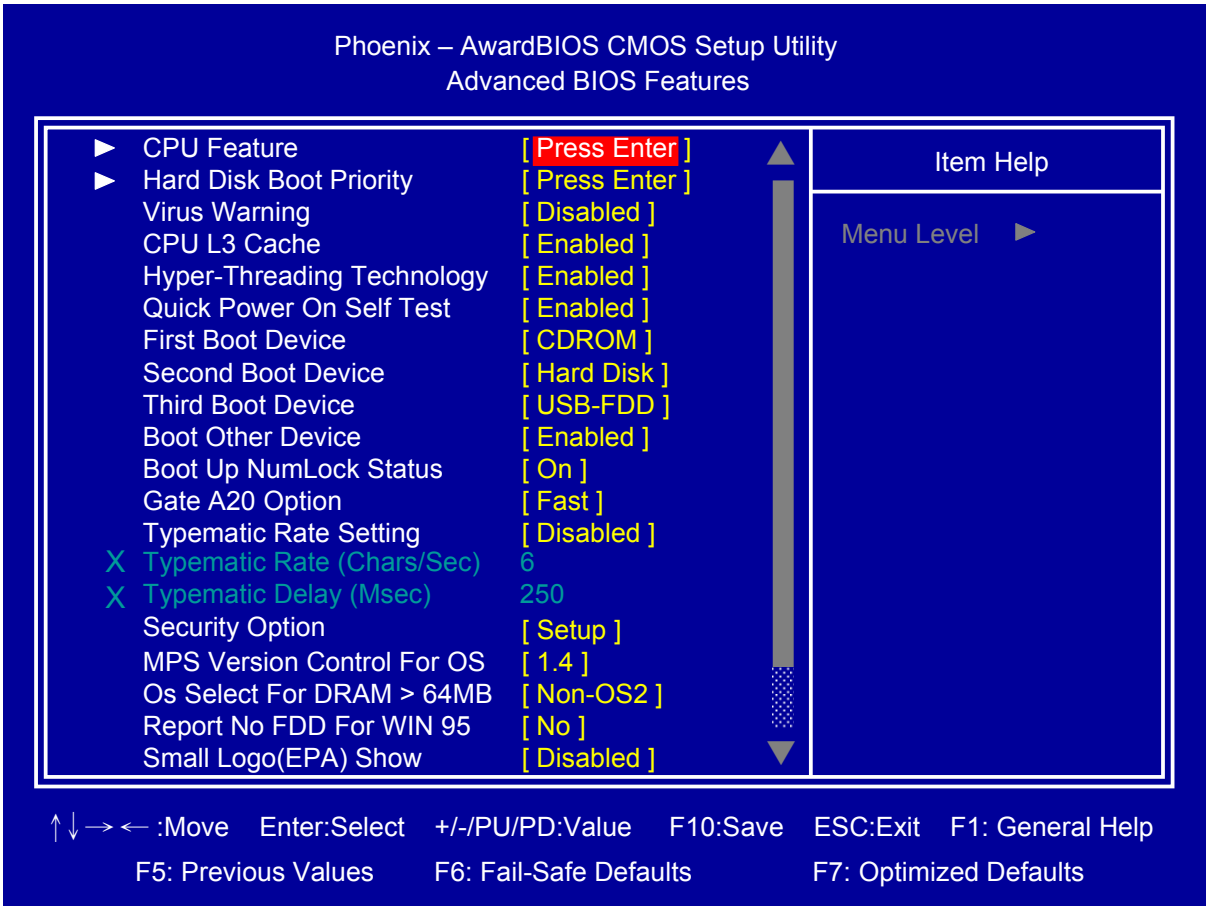
☐ **Video**

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 L3 Cache**

Select “CPU L3 Cache” Enabled/Disabled.

☐ **Hyper-Threading Technology**

Select “Hyper-Threading Technology” 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.

☐ **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.

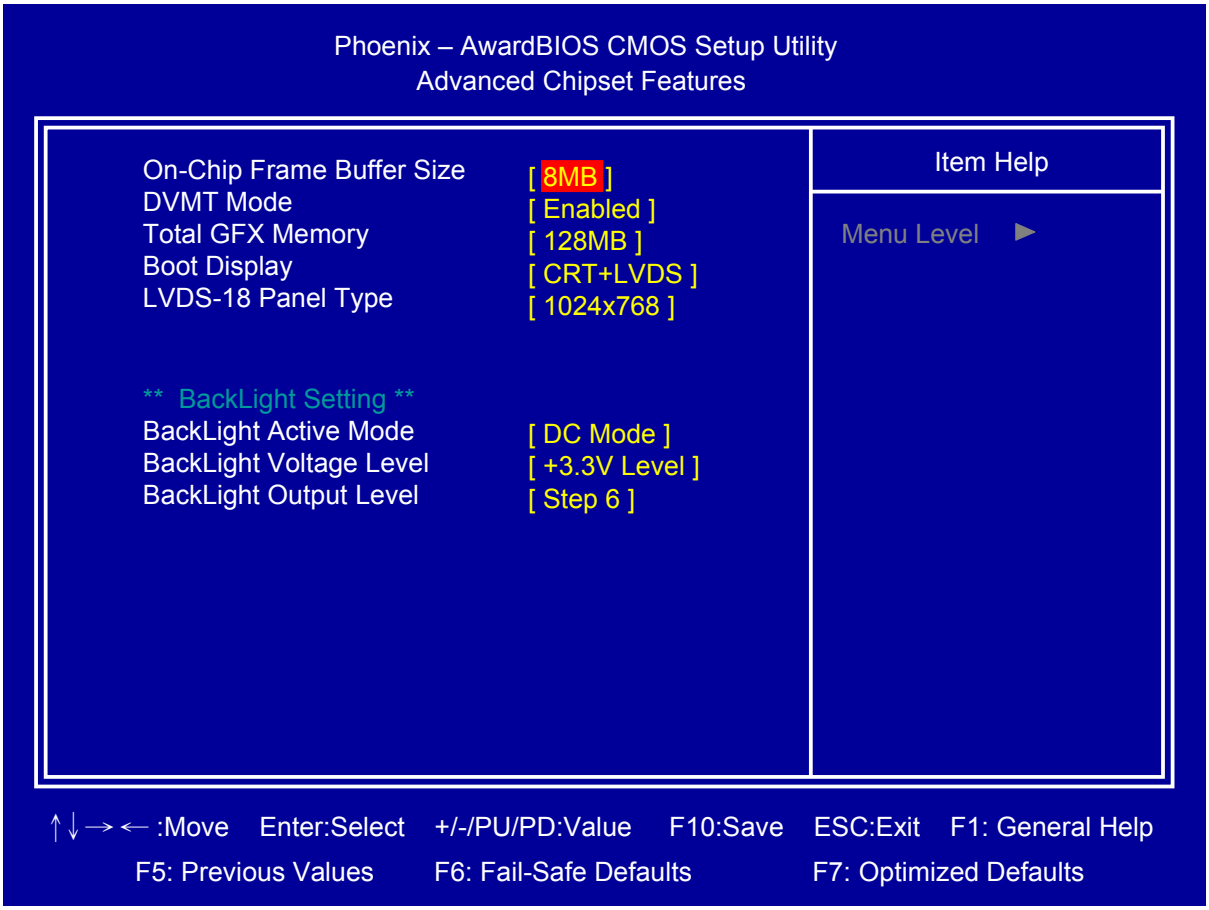
☐ **Report No FDD For WIN 95**

If running Windows 95/98 without floppy diskdrive, 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.

☐ **Small Logo(EPA) Show**

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

3.4 Advanced Chipset Features



☐ **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.

☐ **Total GFX Memory**

Select Total GFX Memory: 128MB, 256MB, or MAX. (For Win XP, the MAX Value is base on system memory size, 512MB for 1GB DRAM, 768MB for 1.5GB to 2GB, 1GB fro above 2GB.)

☐ **Boot Display**

Select boot display device type: CRT, LVDS, or CRT+LVDS.

☐ **LVDS-18 Panel Type**

Select LCD 18 bit resolution

☐ **BackLight Active Mode**

Select BackLight Active Mode: PWN Mode or DC Mode.

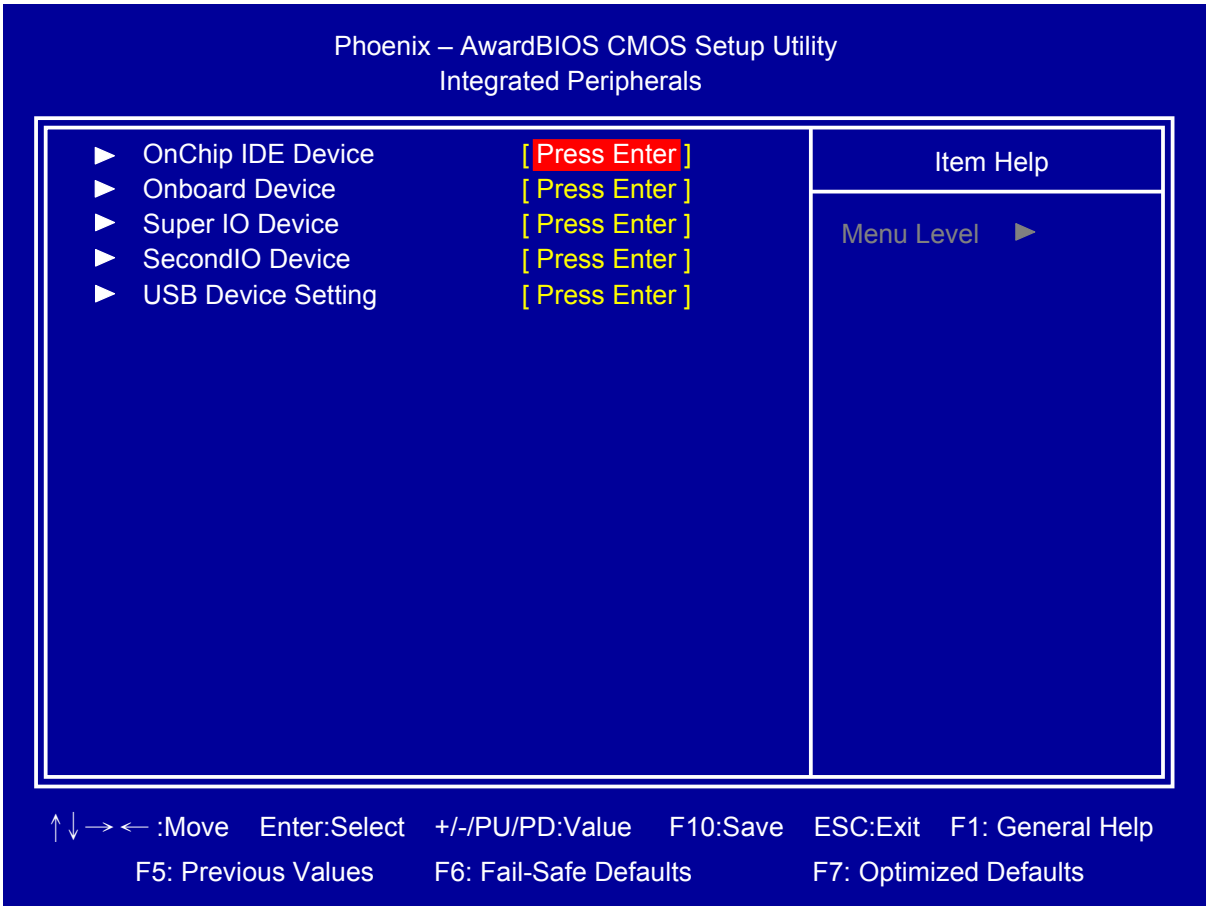
☐ **BackLight Voltage Mode**

Select BackLight Voltage Mode: +5.0V Level or +3.3V Level.

☐ **BackLight Output Mode**

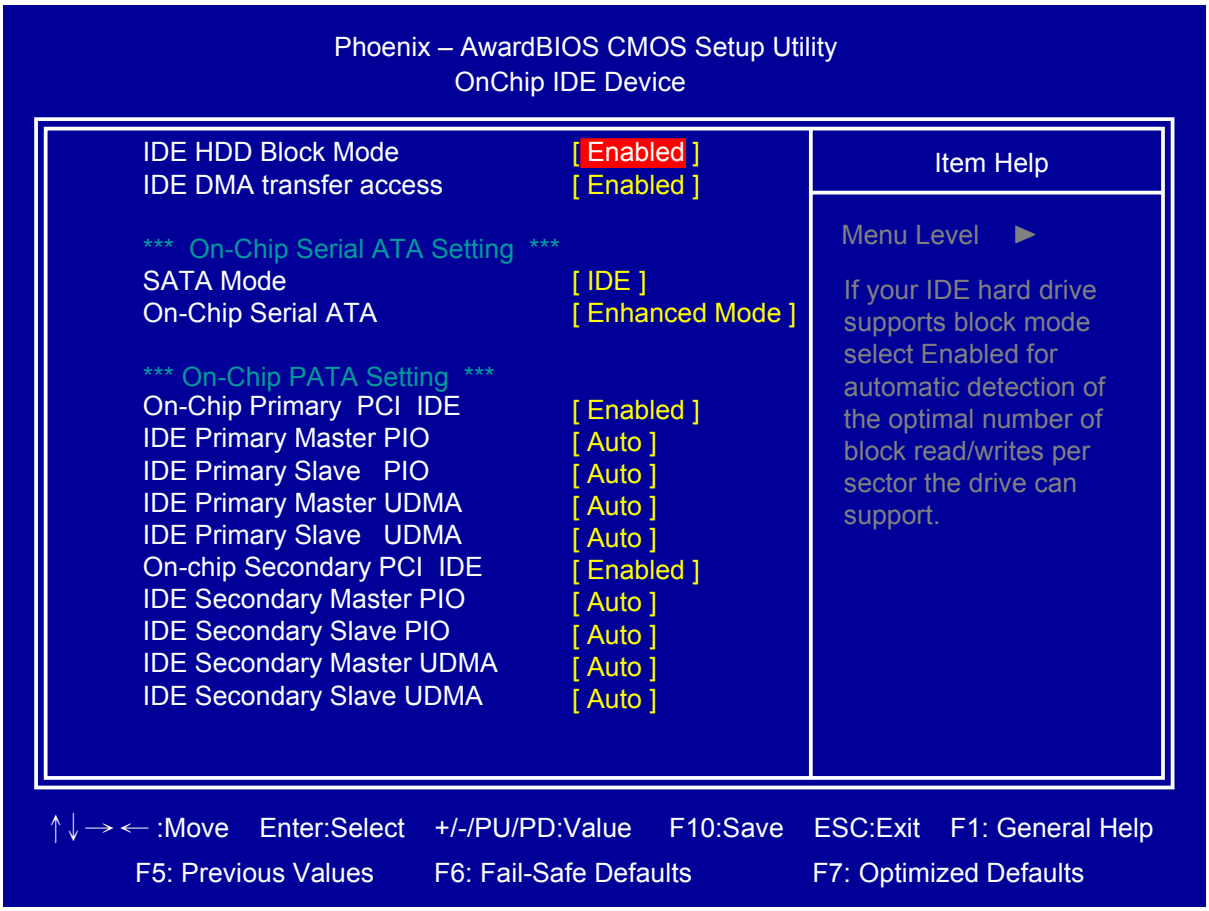
Select BackLight Output Mode: Step1 to Step 10.

3.5 Integrated Peripherals



☐ OnChip IDE Device

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



☐ IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write.

☐ IDE DMA transfer access

UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s.

☐ On-Chip Serial ATA Setting

There are three selections in “SATA mode”:

- IDE: Default
- RAID: Set this item to enable SATA AHCI function for WinXP-SPI+IAA driver support AHCI mode.
- AHCI: Enable SATA RAID function

If you select IDE, there will show “On chip Serial ATA” for you to set. There are five selections in “On chip Serial ATA”:

- Disabled: Disable on-board serial ATA function.
- Auto: Auto detect Serial ATA device.
- Combined Mode: SATA and PATA drives are auto-detected and placed in Legacy mode.
- Enhanced Mode: Default, SATA and PATA drives are auto-detected and placed in Native mode.
- SATA Only: Serial ATA function only.

☐ **On-Chip Primary PCI IDE**
☐ **On-Chip Secondary PCI IDE**

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface.

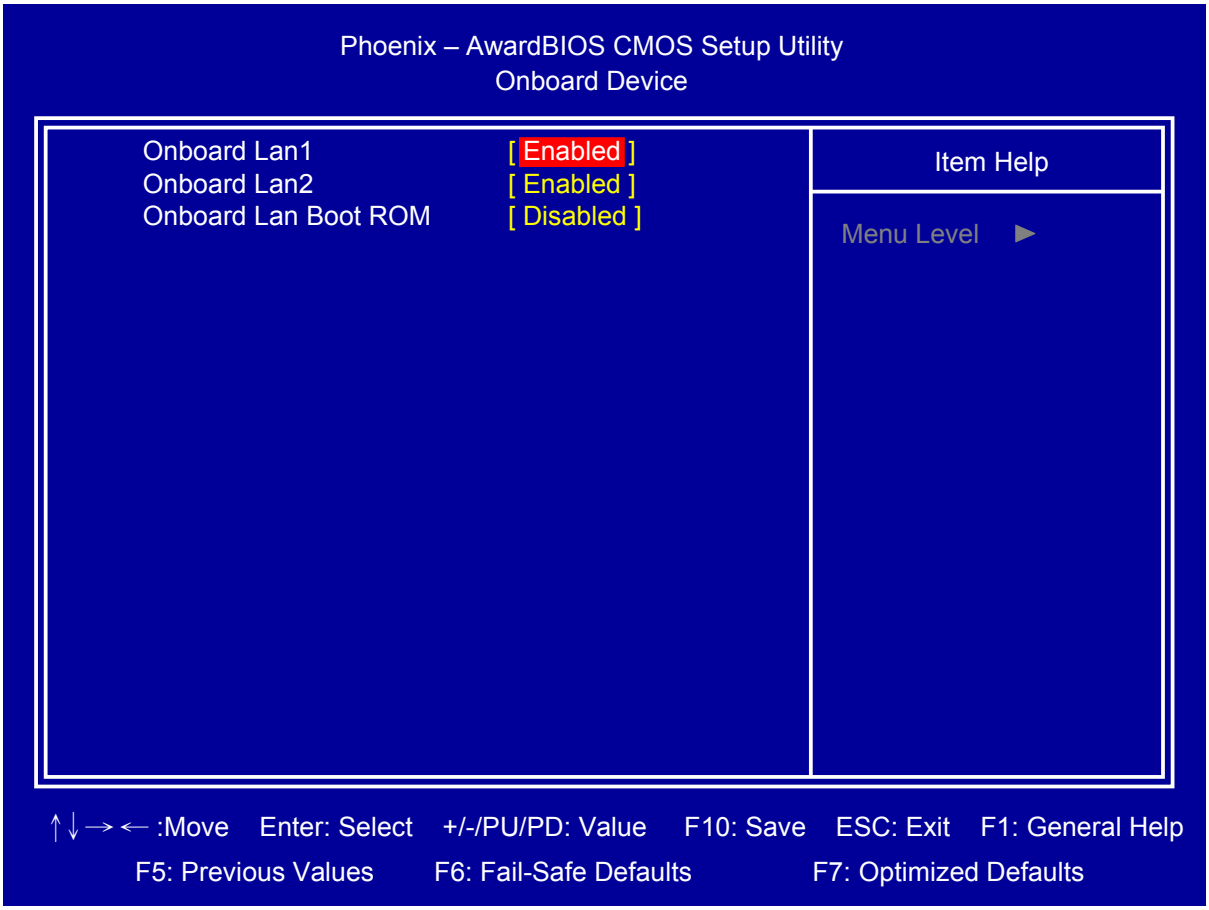
☐ **IDE Primary Master PIO**
☐ **IDE Primary Slave PIO**
☐ **Secondary Master PIO**
☐ **Secondary Slave PIO**

The four IDE PIO (Programmed Input/Output) fields let you set a PIOmode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

☐ **IDE Primary Master UDMA**
☐ **IDE Primary Slave UDMA**
☐ **IDE Secondary Master UDMA**
☐ **IDE Secondary Slave UDMA**

UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s. When you select Auto in the four IDE UDMA fields (for each of up to four IDE devices that the internal PCI IDE interface supports), the system automatically determines the optimal data transfer rate for each IDE device.

☐ Onboard Device



☐ Onboard Lan1

Enable/Disable onboard Lan1.

☐ Onboard Lan2

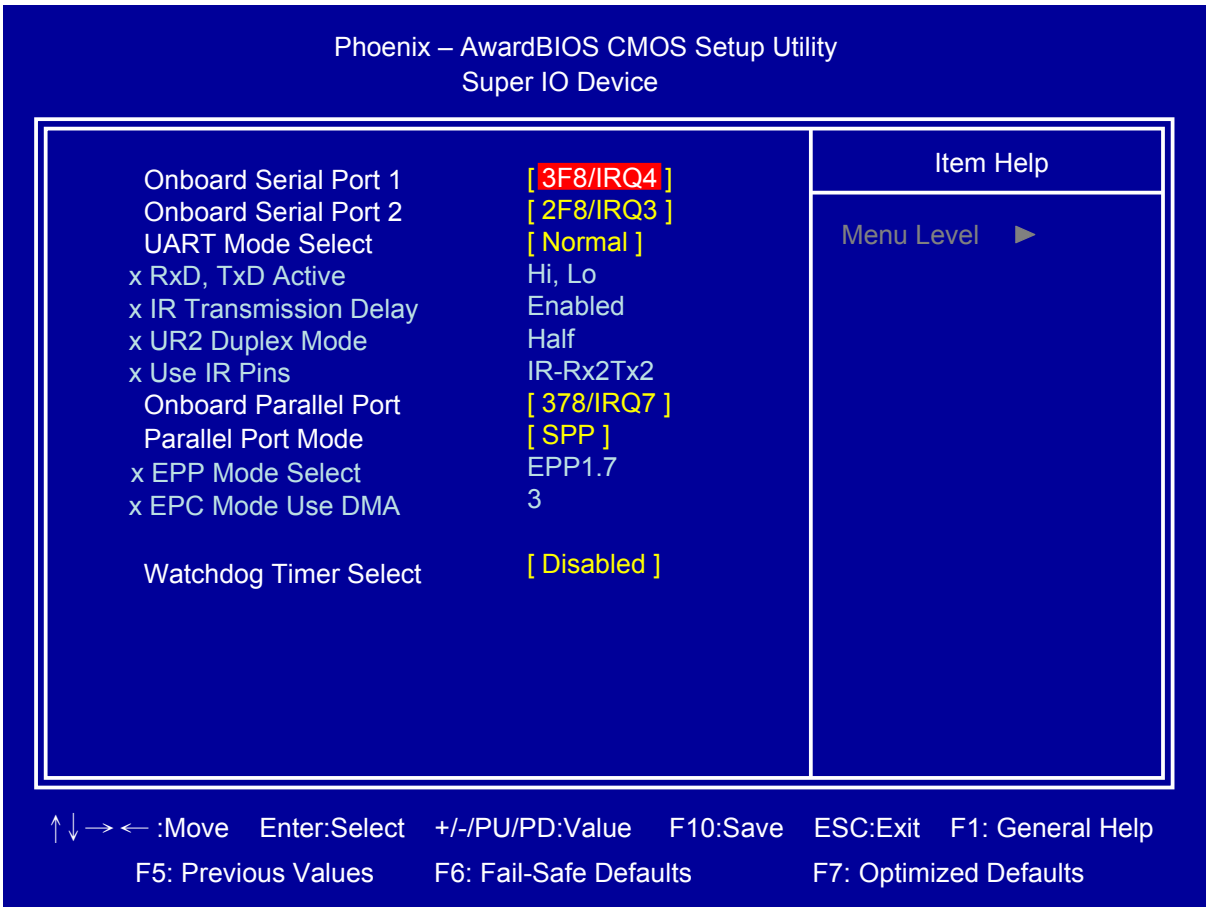
Enable/Disable onboard Lan2.

☐ Onboard Lan Boot ROM

Decide whether to invoke the boot ROM of the onboard LAN chip

☐ Super IO Device

Press <Enter> to select Serial, Parallel and “I” configuration.



☐ Onboard Serial Port 1

Select serial port 1 address: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Auto.

☐ Onboard Serial Port 2

Select serial port 2 address: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Auto.

☐ UART Mode Select

Select UART Mode: IrDA, ASKIR, or Normal.

☐ Onboard Parallel Port

Select onboard parallel port: Disabled, 378/IRQ7, 278/IRQ5, or 3BC/IRQ7.

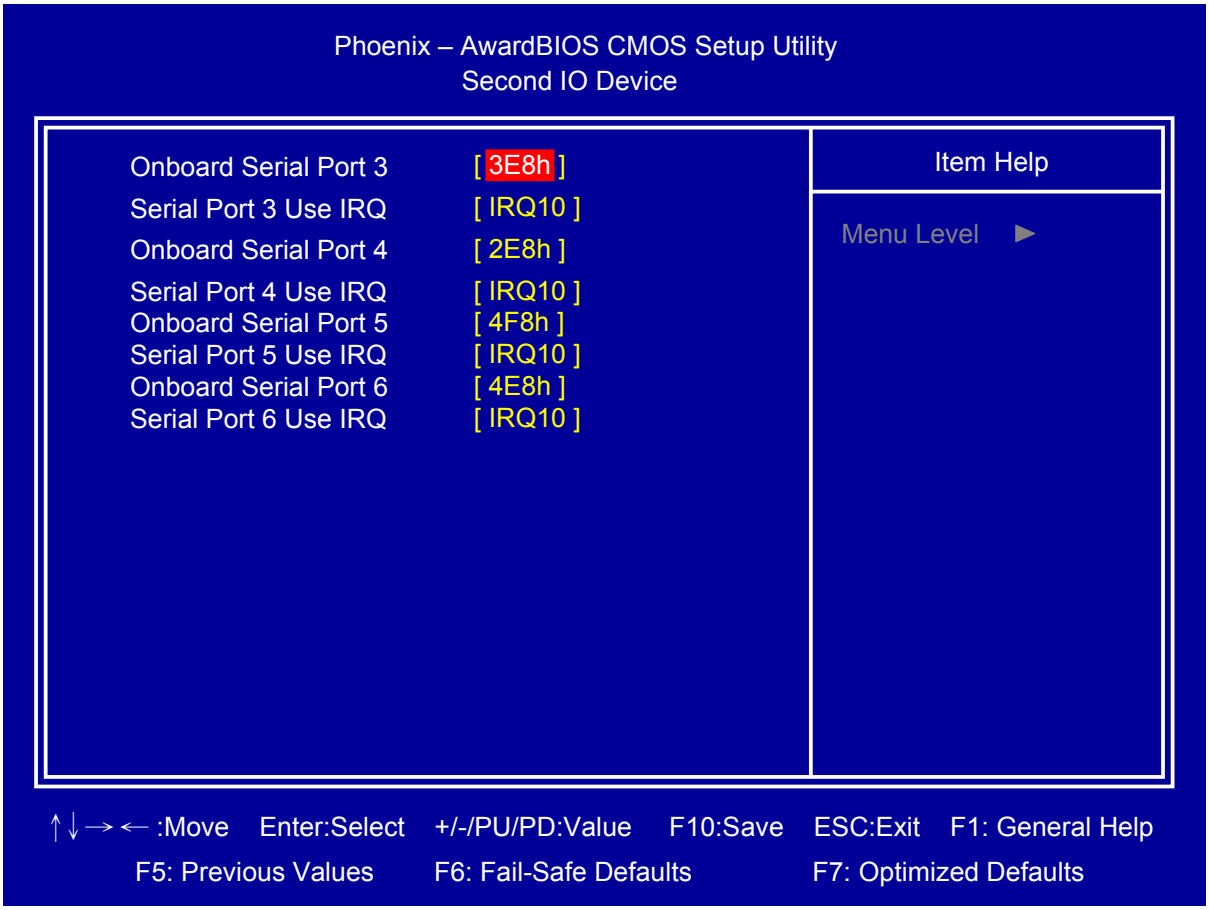
☐ **Parallel Port Mode**

Select Parellel Port Mode: SPP, EPP, ECP, ECP+EPP, or Normal.

☐ **Watchdog Timer Select**

Select Watch dog Disabled or set timer value: 10sec, 20sec, 30sec, 40sec, 1 min, 2min, or 4min.

☐ Second IO Device



☐ Onboard Serial Port 3/4/5/6

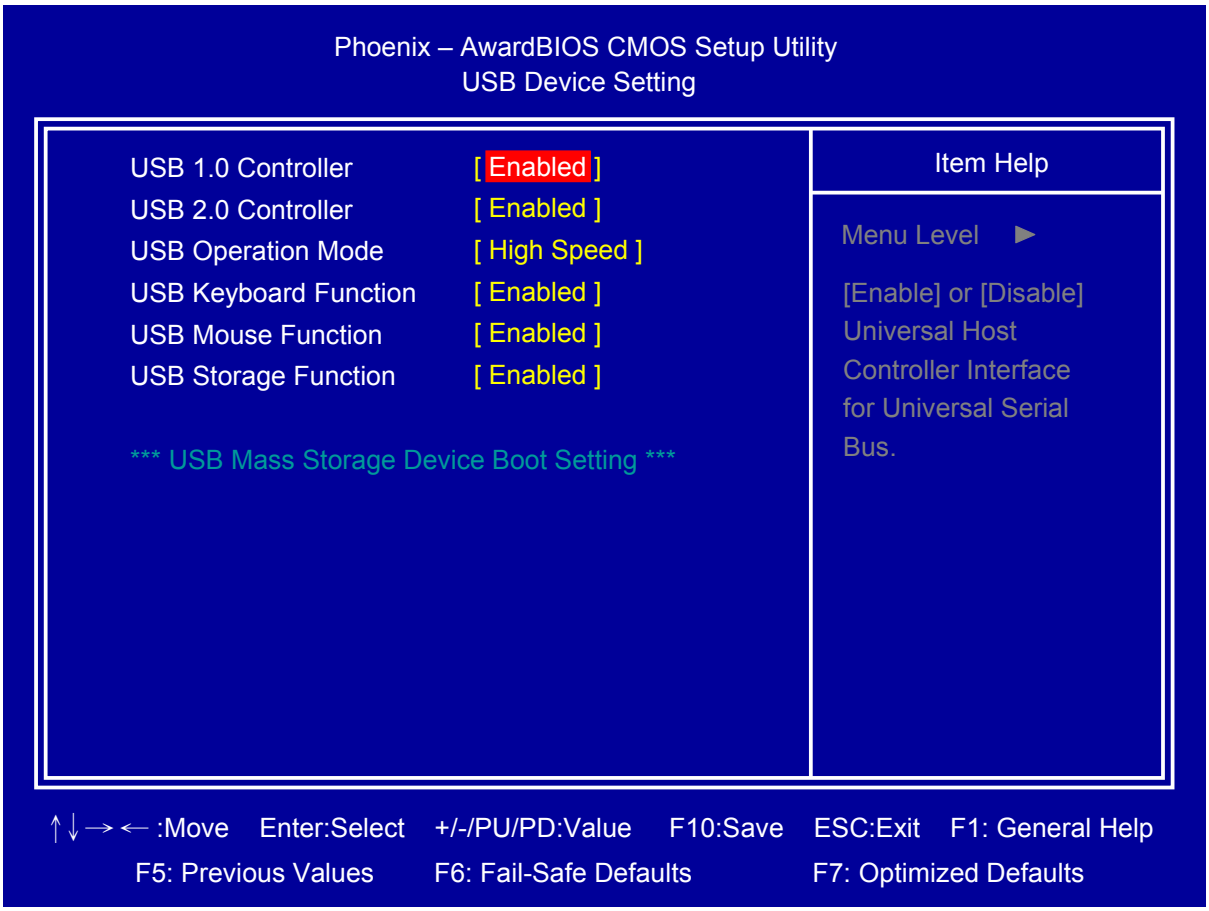
Select serial port address.

☐ Serial Port 3/4/5/6 Use IRQ

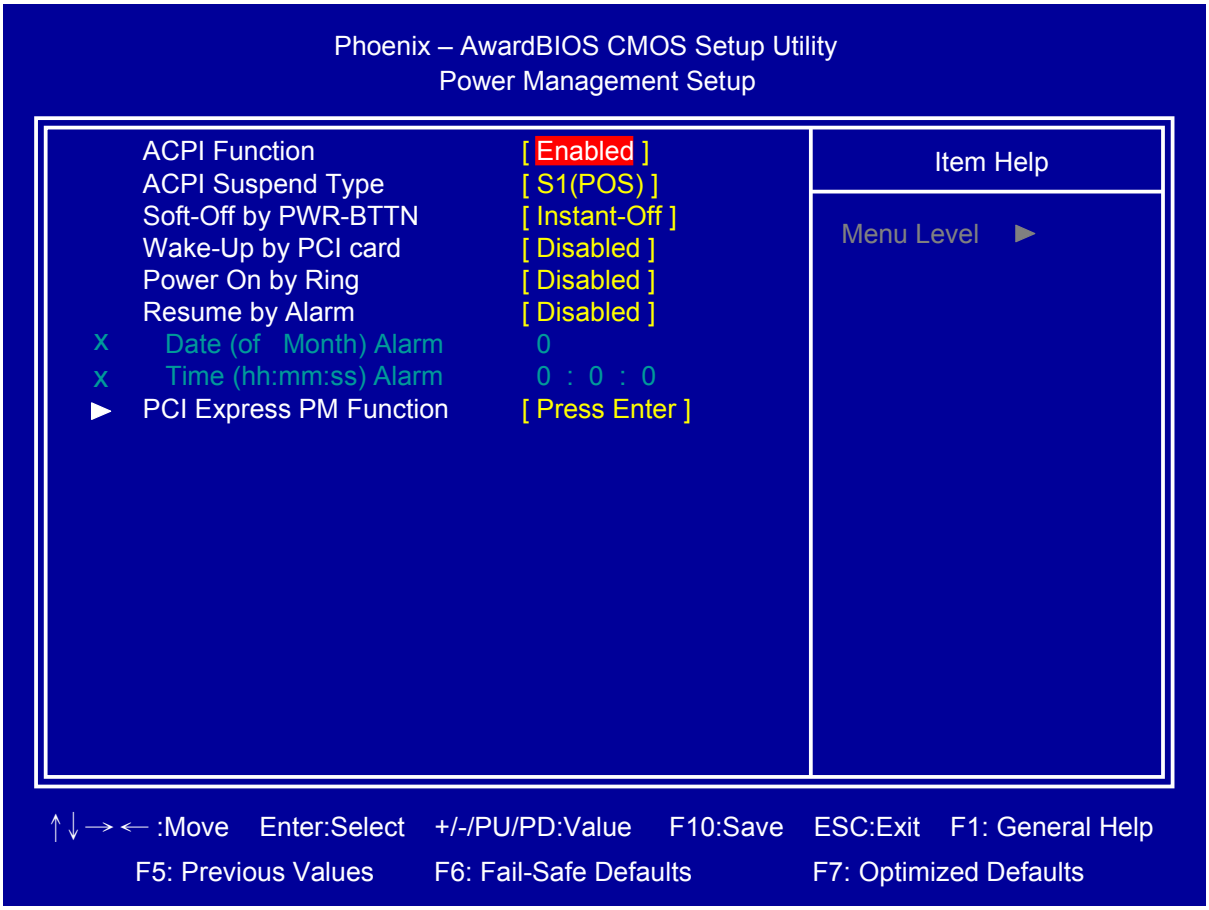
Select serial port IRQ. Support IRQ sharing mode.

☐ USB Device Setting

Press <Enter> to select USB device configuration.



3.6 Power Management Setup



☐ **ACPI Function**

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

☐ **ACPI Suspend Type**

Select S1(POS) type.

☐ **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**

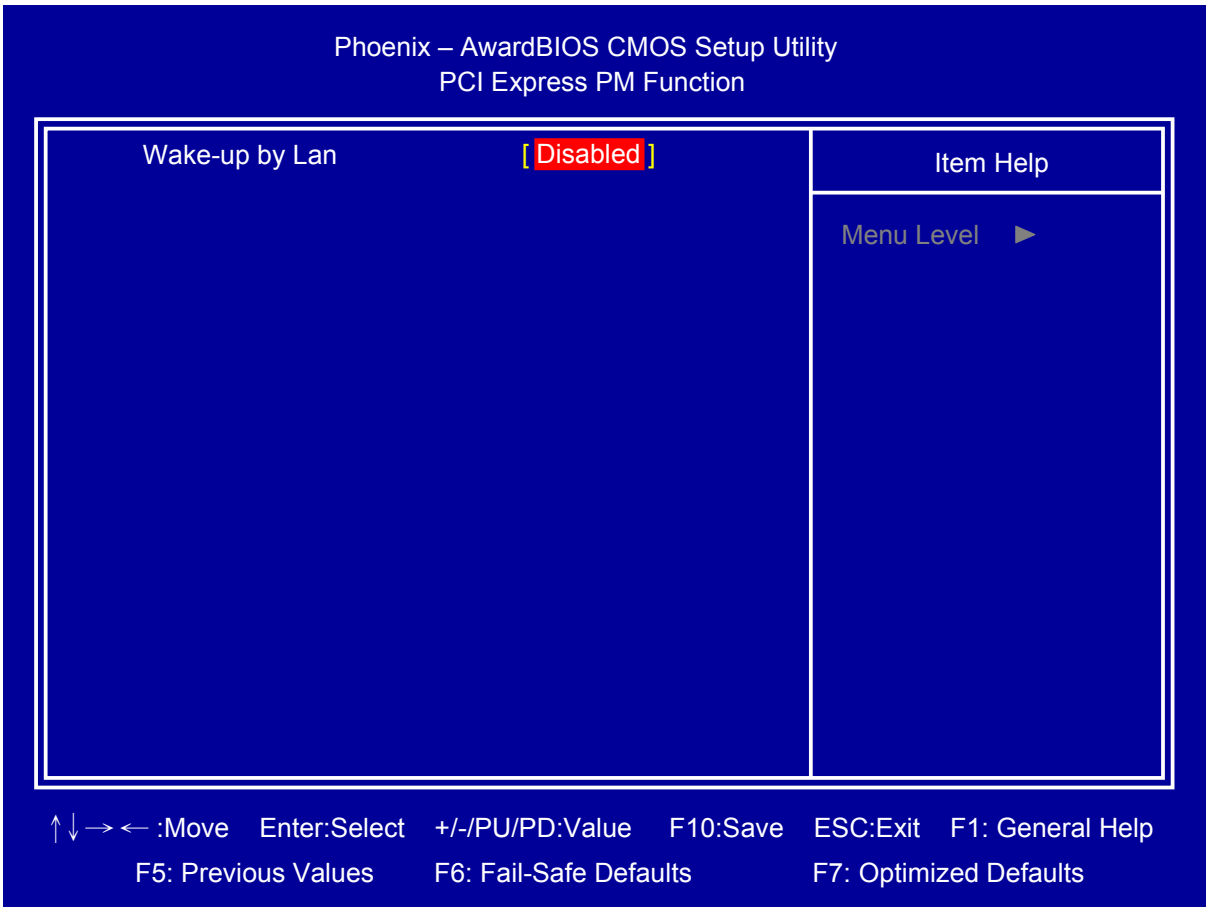
Select Power on by Ring Indicator signal from Modem.

☐ **Resume by Alarm**

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

☐ PCI Express PM Function

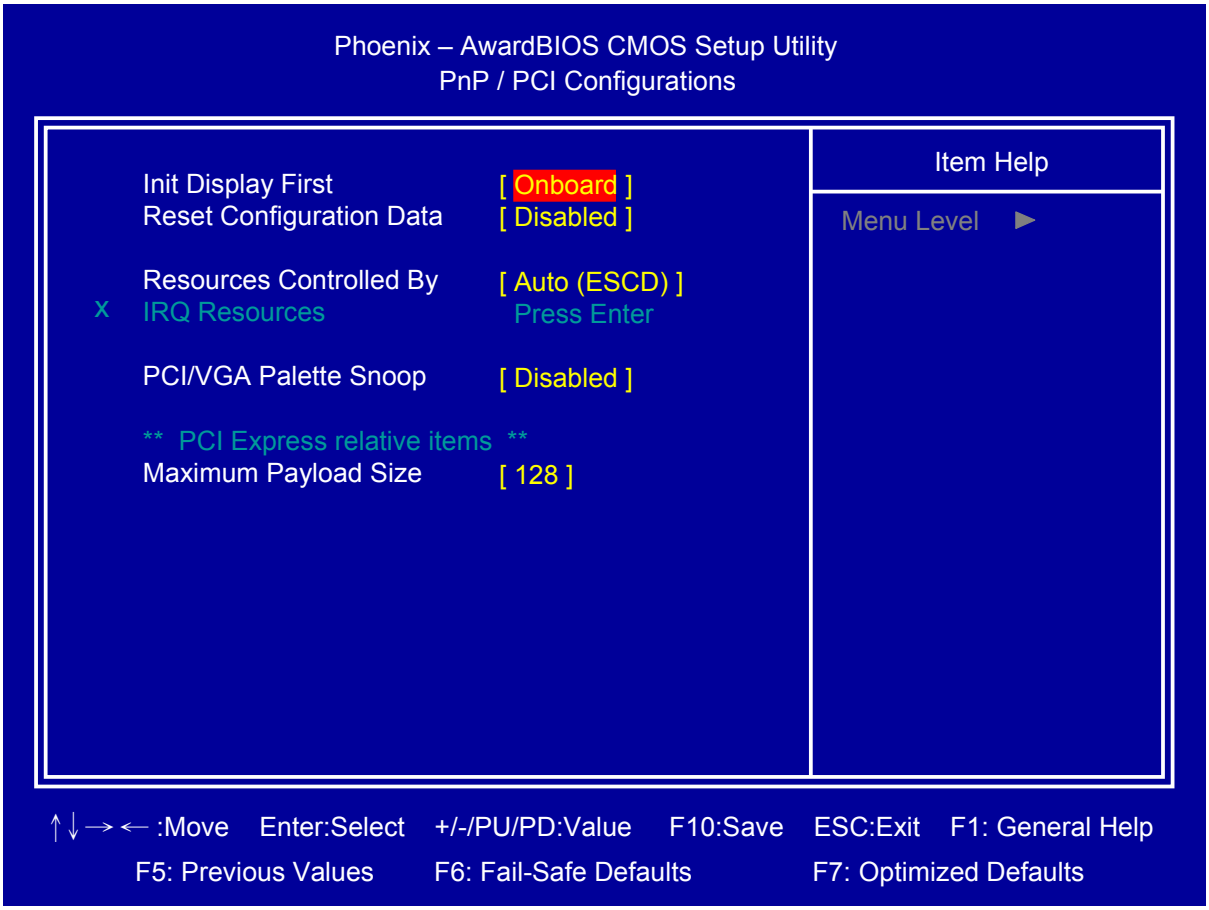
Press <Enter> to select “Wake-up by LAN” Enabled/Disabled.



☐ Wake-up by Lan

Select wake-up by Lan Enabled/Disabled.

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.

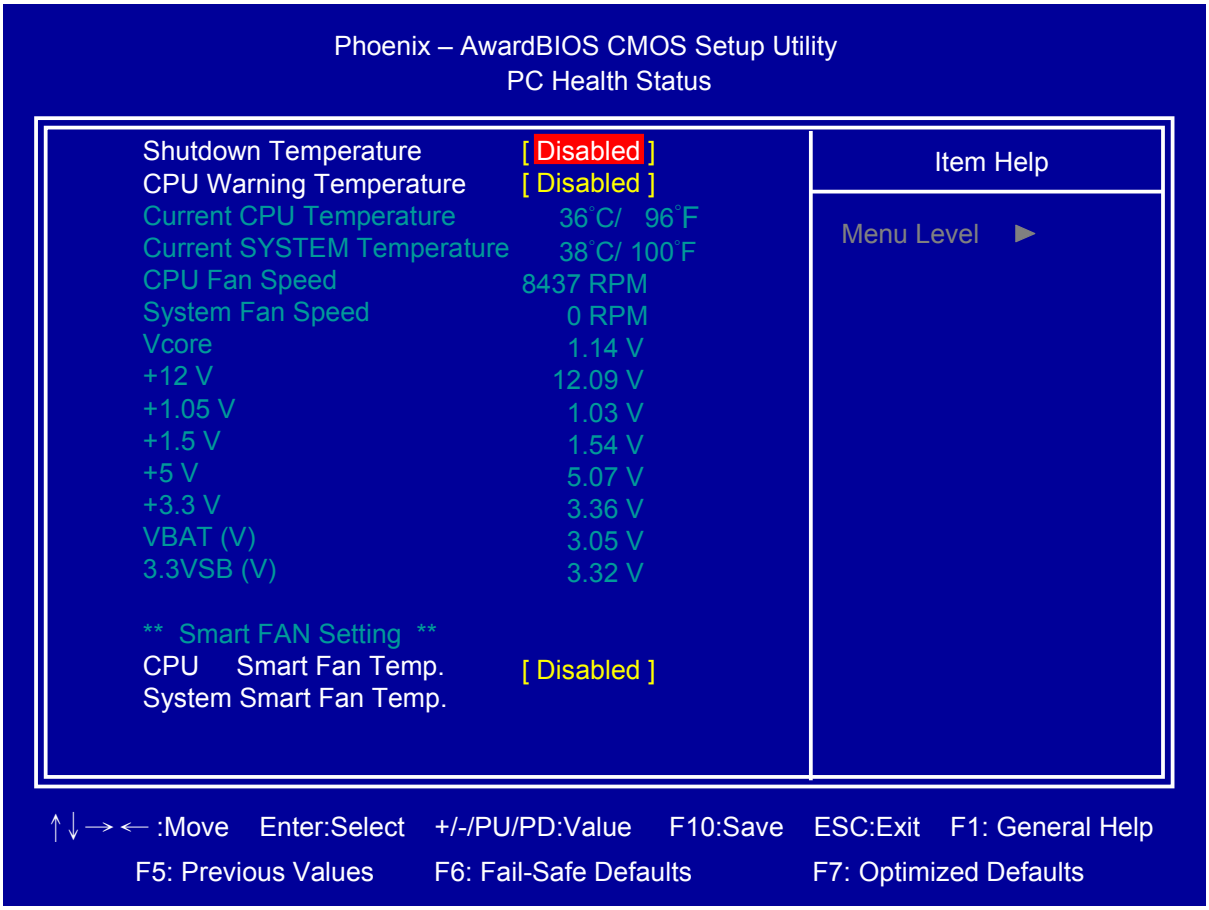
☐ **PCI/VGA Palette Snoop**

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.

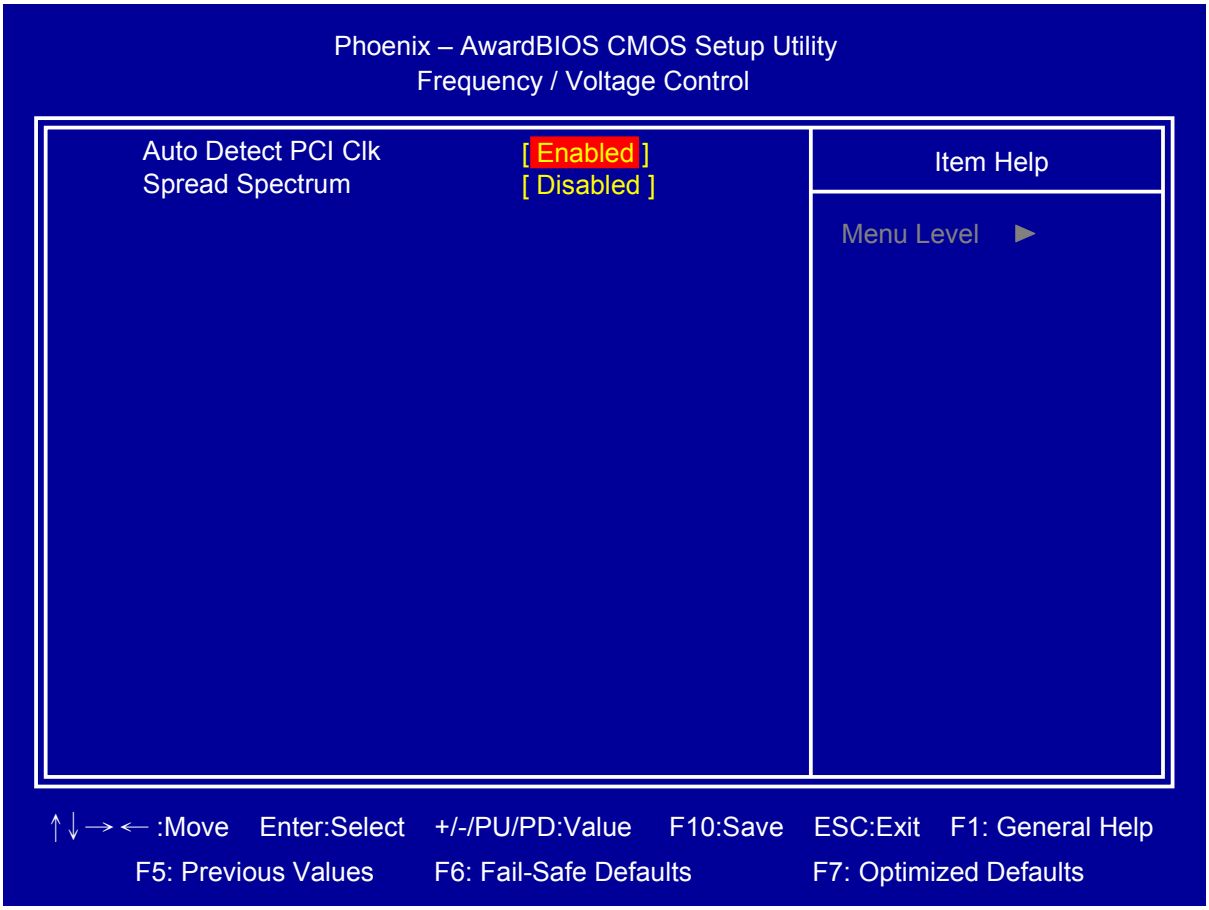
☐ **CPU Smart Fan Temperature**

Setup CPU Smart FAN temperature.

☐ **System Smart Fan Temp.**

Setup System Smart FAN temperature.

3.9 Frequency/Voltage Control



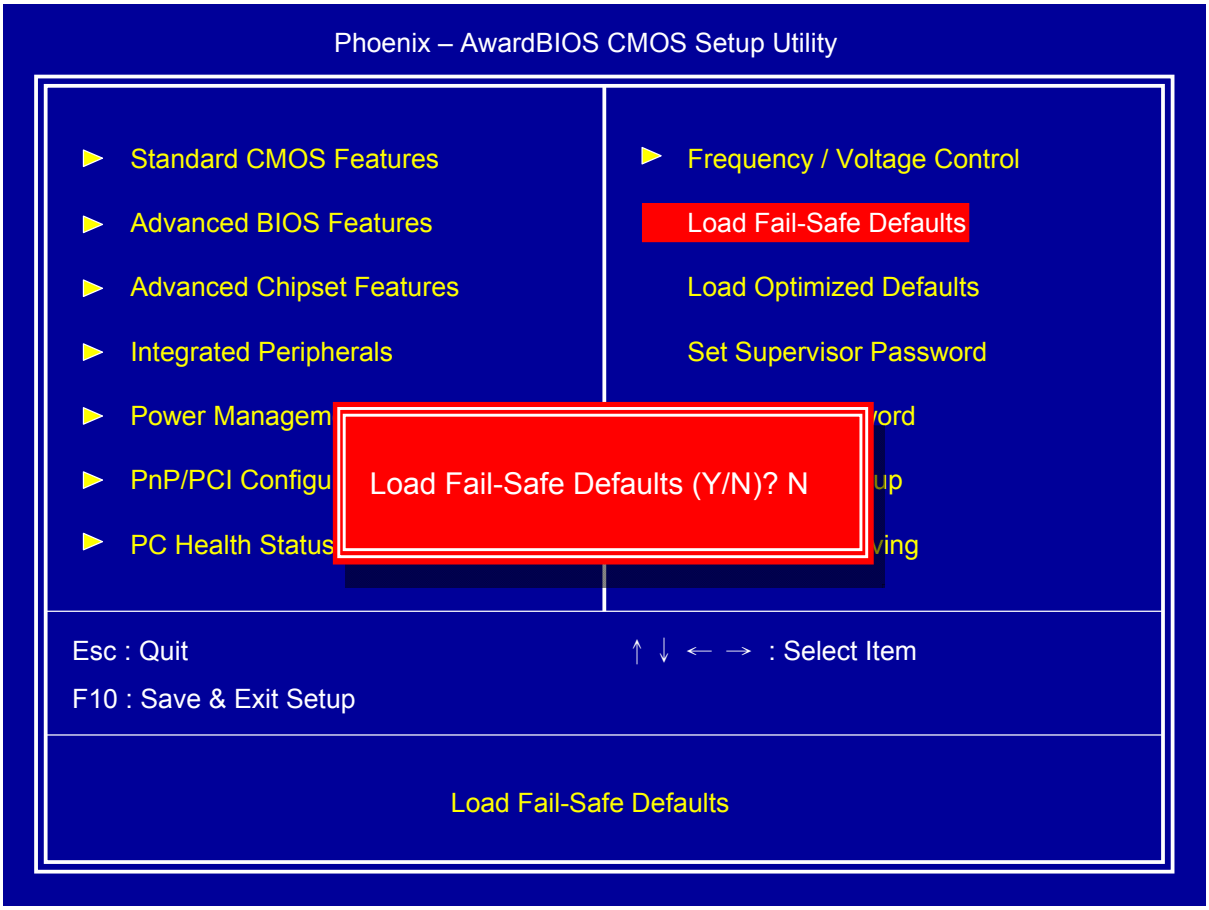
☐ **Auto Detect PCI Clk**

Select “Auto Detect PCI Clk” Enabled/Disabled

☐ **Spread Spectrum**

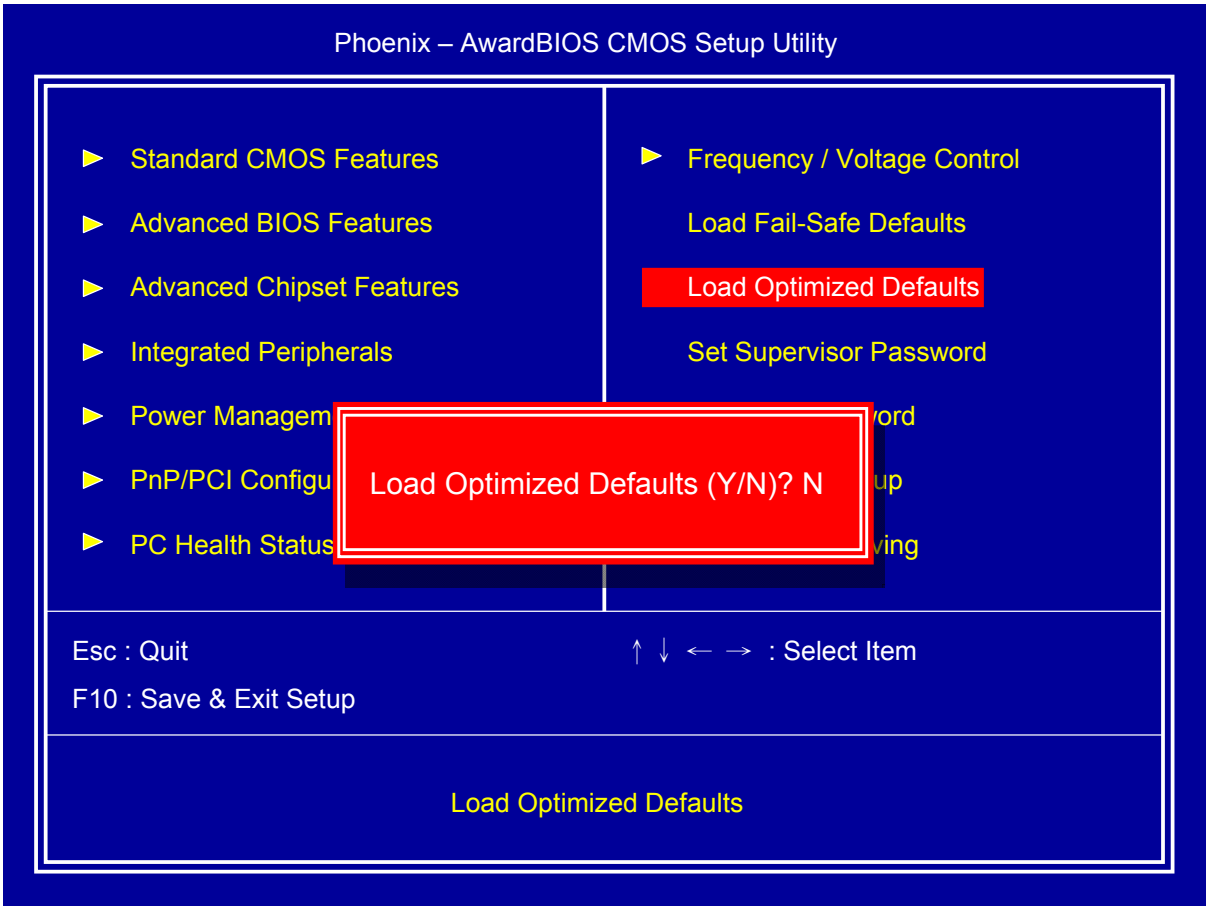
Select “Spread Spectrum” Enabled/Disabled.

3.10 Load Fail-Safe Defaults



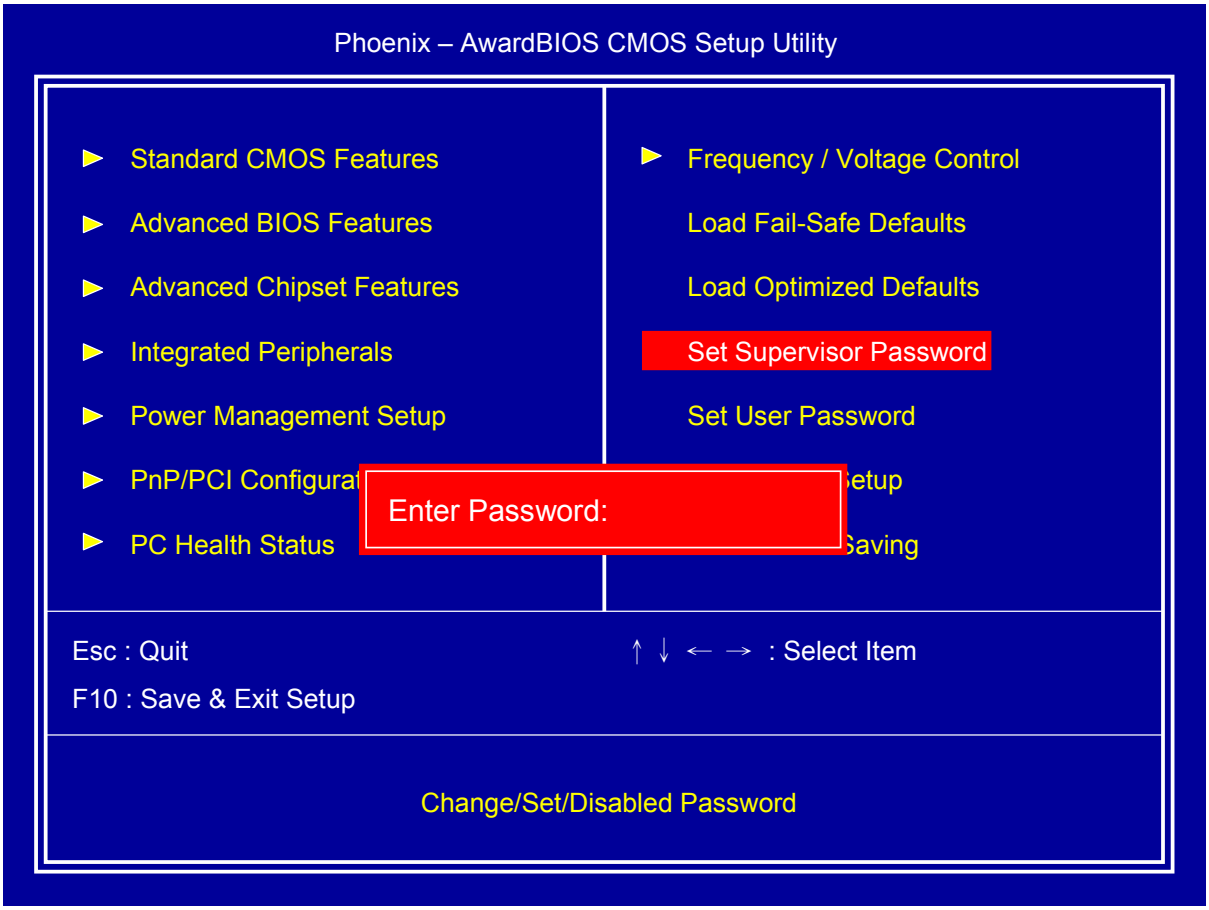
This item will set configuration for non-optimized system operation.

3.11 Load Optimized Defaults



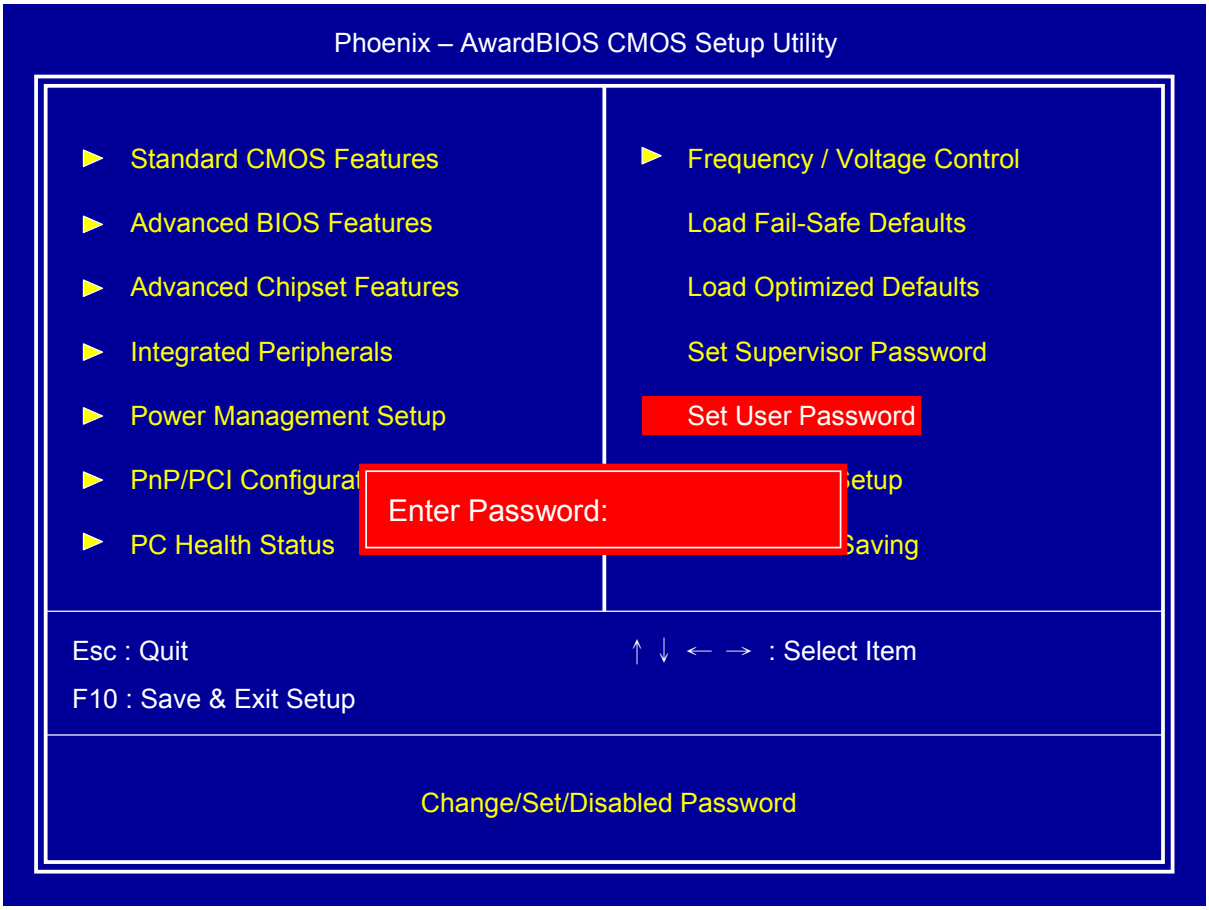
This item will restore factory default setting for optimized system operation.

3.12 Set Supervisor Password



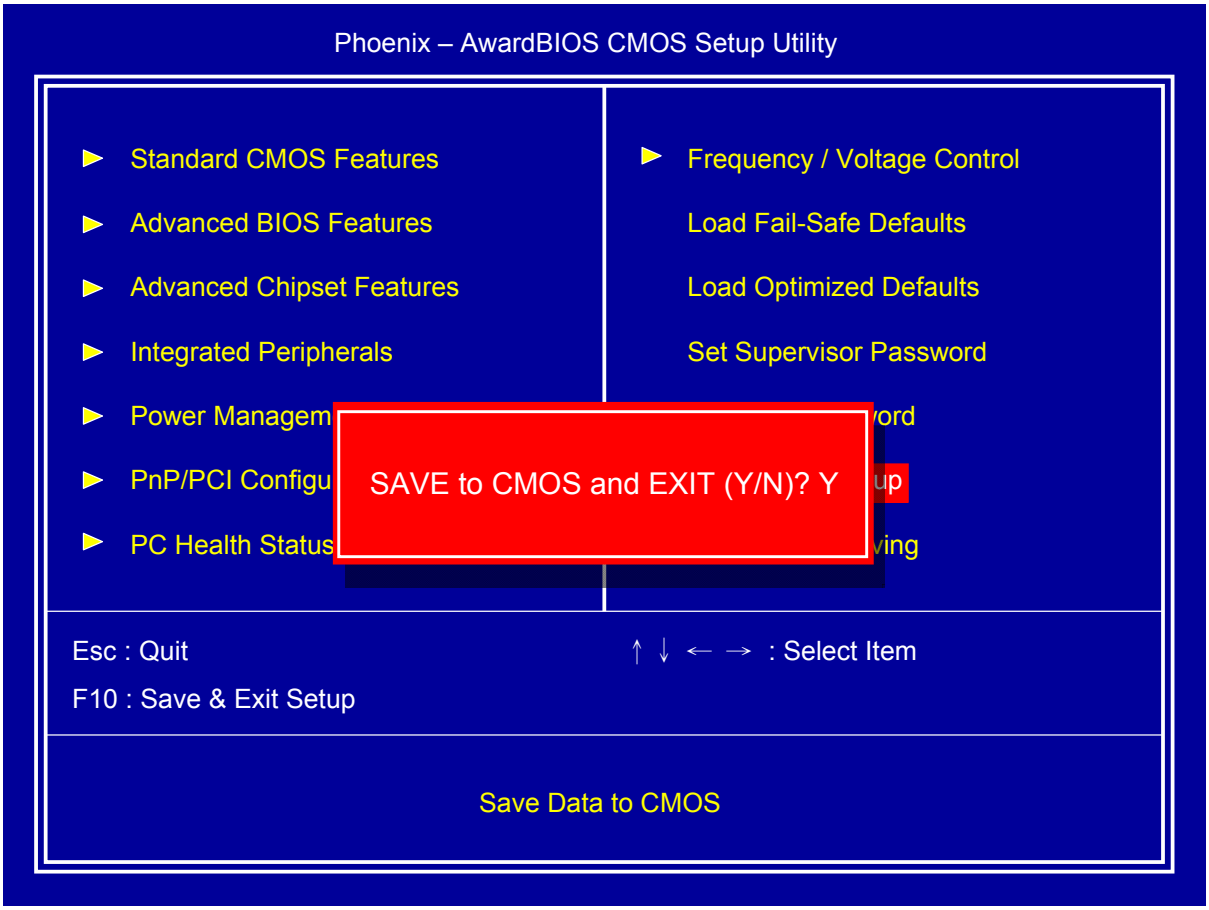
If set supervisor password, it will request typing password to enter BIOS setup utility.

3.13 Set User Password



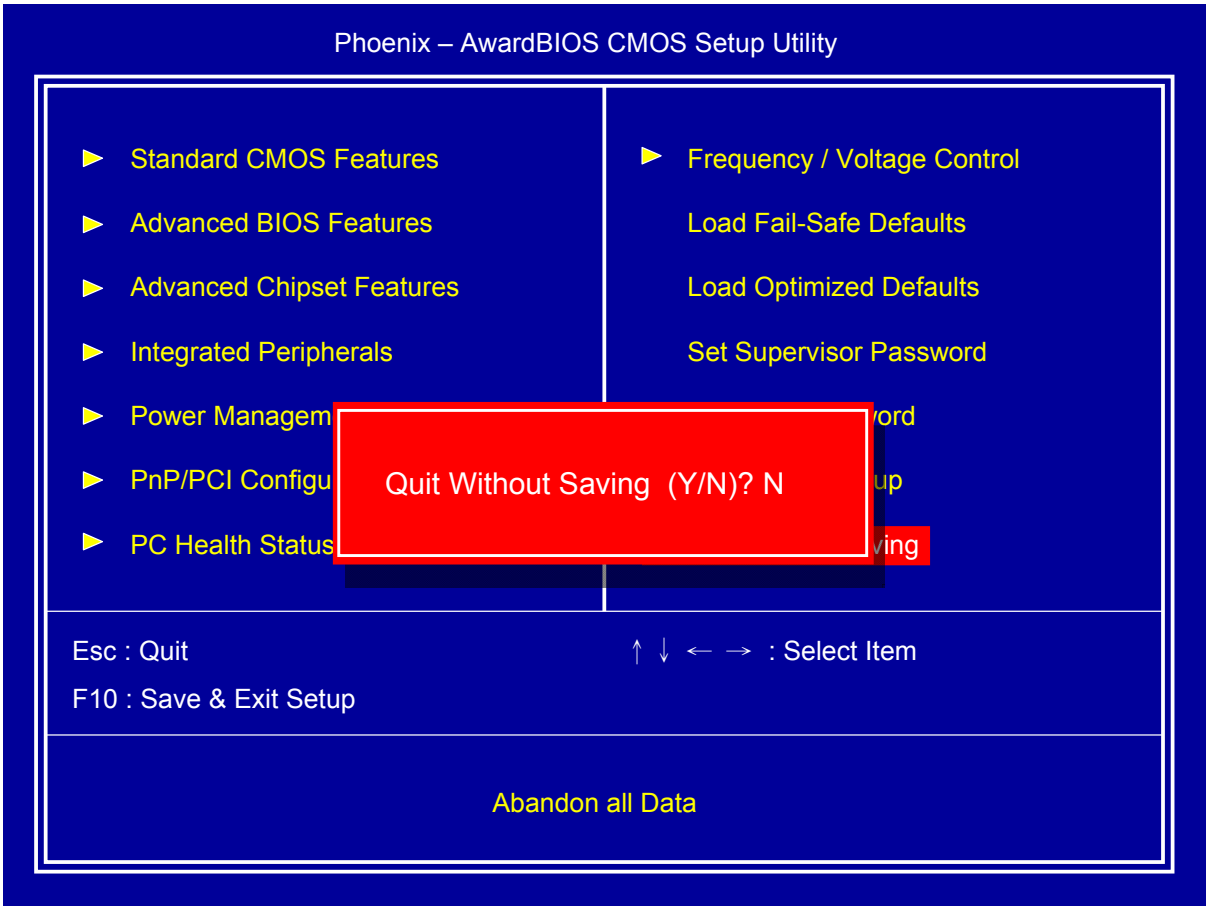
If set user password will request typing password to enter BIOS setup utility, and does not allow modifying configuration.

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.

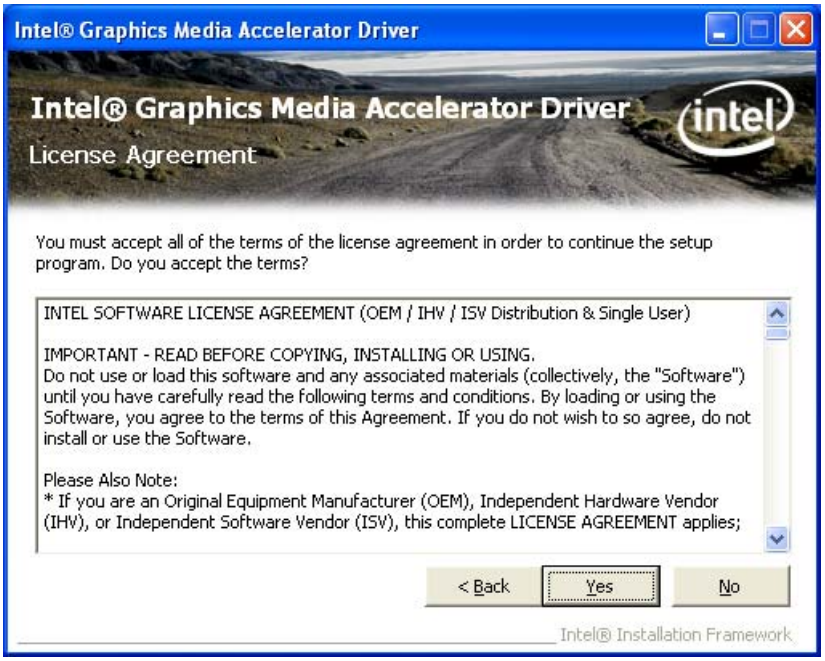
Step 3. Click “Next” to continue.

Step 4. Click “Finish” to complete setup.

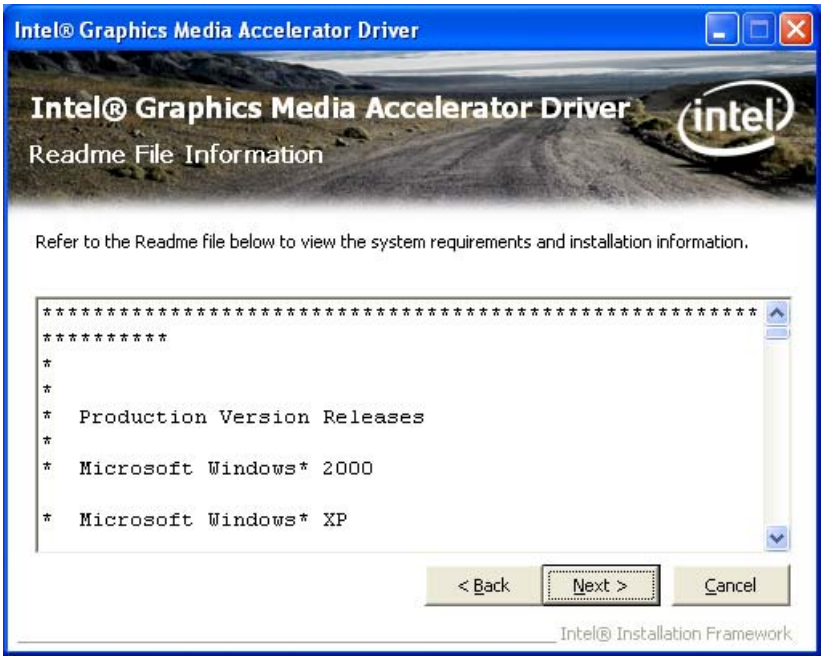
4.2 Intel Graphic Media Accelerator Driver

Step 1. Click “Next” to continue.

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



Step 3. Click “Next” to continue.

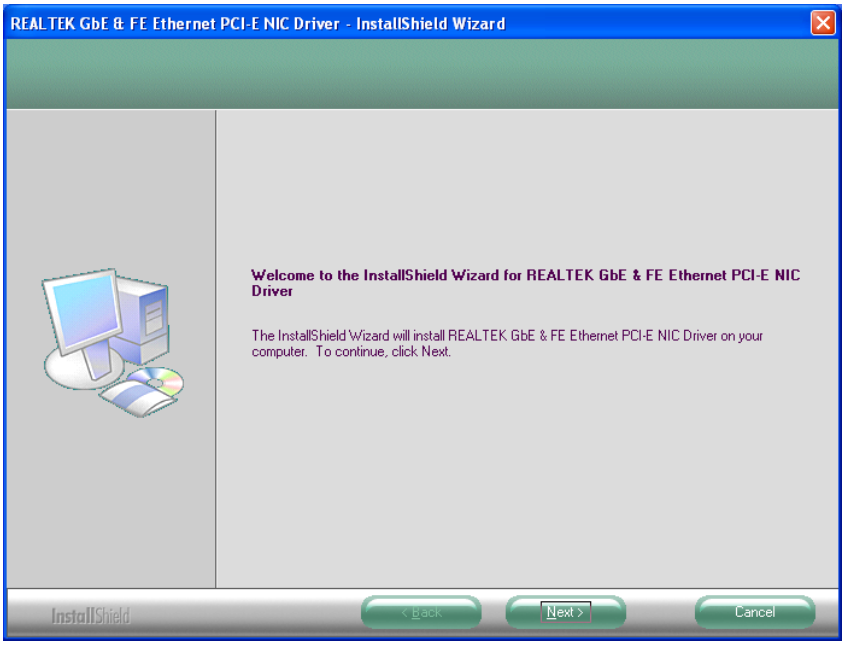


Step 4. Click “Next” to continue.

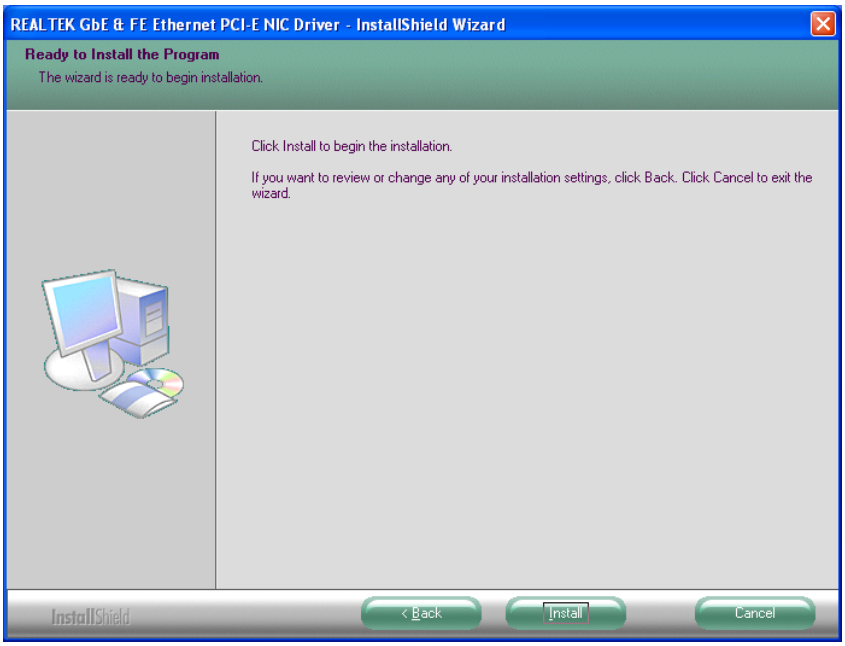
Step 5. Click “Finish” to complete setup.

4.3 LAN Driver

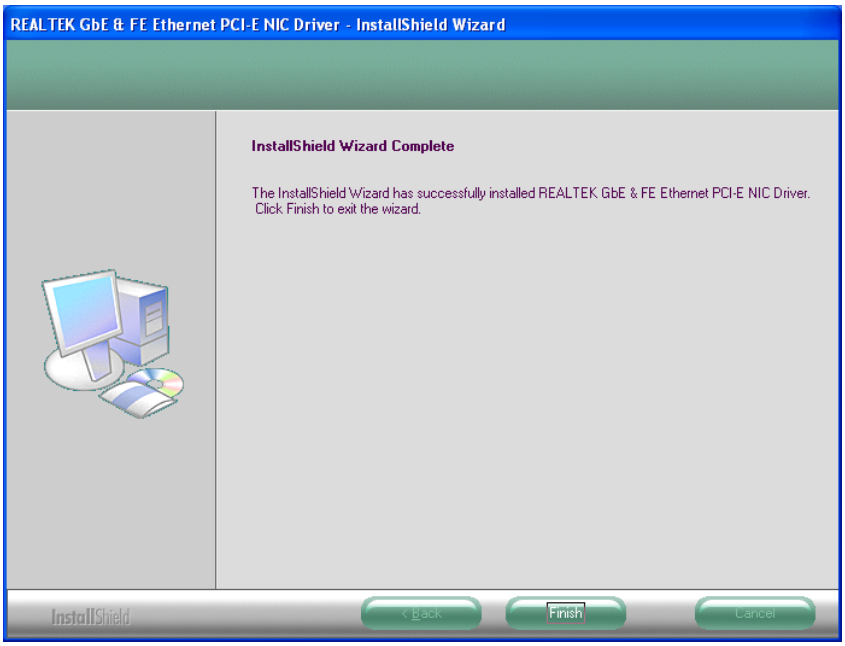
Step 1. Click “Next” to continue.



Step 2. Click “Install” to continue.

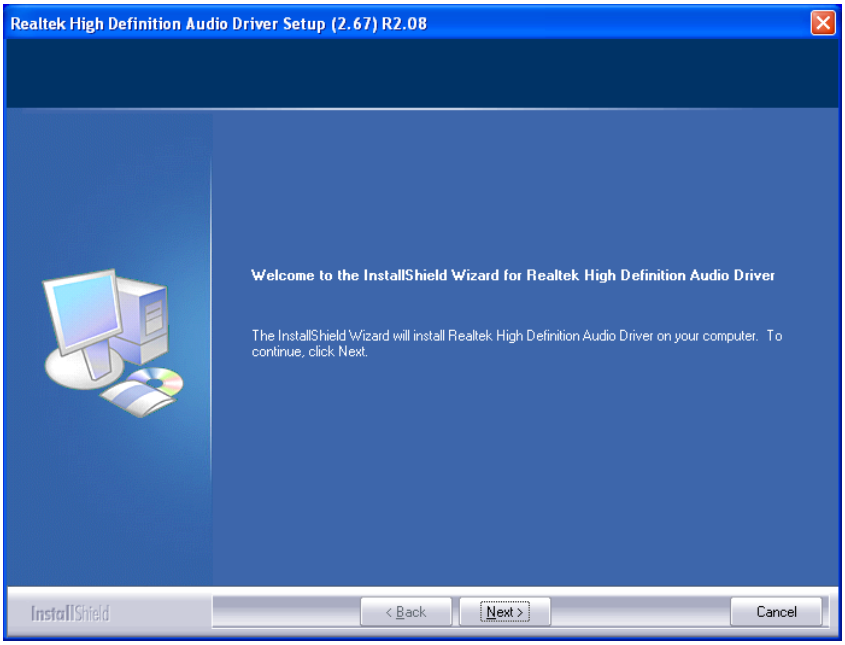


Step 3. Click “Finish” to complete setup.

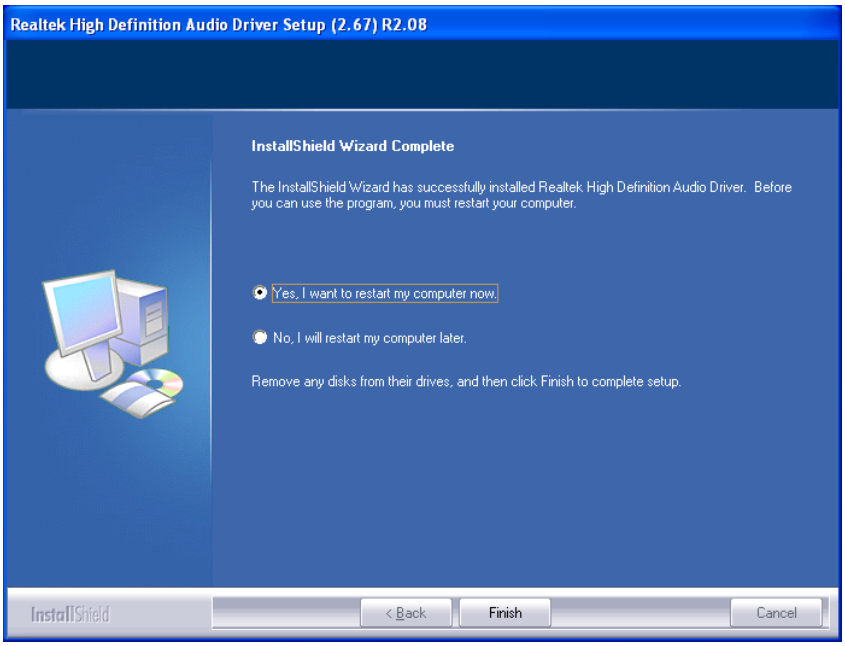


4.4 Audio Driver

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 settings 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 is 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