

R-181 SBC

Intel Atom D / N Series Embedded SBC

User' s Manual
Version 1.0

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Chapter 1 General Information

1.1 Introduction

The R-181 embedded board is based on Intel architecture with ICH8M chipset supporting the Intel D425, D525, and N450 processor. The memory supports DDR2 SO-DIMM socket up to 4GB. The R-181 supports CRT and LVDS panel interface. Other features include a Compact Flash socket, one PCI Slot for future expansion capabilities, eight USB2.0 ports, six Serial ports, AC97 audio, watchdog timer and hardware system monitoring, etc.

1.2 Specification

CPU

- Pineview-D / M (Atom D425 / D525 / N450) processor

System Memory

- 2 x 200-pin SO-DIMM Socket Support DDR2 667 SDRAM up to 4GB (D425 / D525)
- 2 x 200-pin SO-DIMM Socket Support DDR2 667 SDRAM up to 2GB (N450)

Chipset

- Intel Pineview + ICH8M

BIOS

- Award MB BIOS

Ethernet

- Two Realtek PCI-E Gigabit LAN (Second Ethernet is Option)

Audio

- Built-in Intel® High Definition Audio
- Audio Codec : VIA VT1708A HDA Codec
- Audio Interface : Mic-in, Line-in, Line-out

Display

- VGA
- One Channel 18bit LVDS

I/O Interface

- Chipset : Winbond W83627HG
- Serial Port (RS232 / 422 / 485) : 2 x External D-SUB 9-pin Connectors for COM1 / COM2
Serial Port (RS232) : 1 x External D-SUB 9-pin Connectors for COM3 (Option)
3 x Internal Box Header for COM4 / COM5 / COM6 (Option)
- Universal Serial Bus 2.0 : 8 (4 x Rear, 4 x Internal)
- PS/2 : One 2L Mini-Din Connector for Keyboard and Mouse
- Compact Flash : 1 x Compact Flash Connector
- SATA : 3 x SATA II connector
- GPIO : 4 in / 4 out
- IDE : One 40pin Box Header for IDE Device

Watchdog Timer

- Support Watchdog Function

H/W Status Monitor

- Monitoring CPU temperature, and voltage status

Expansion Slot

- 1 x PCI Slot (Can Support 4 x PCI Device)
- 1 x Mini PCI-E Connector (Option)

Dimensions

- 170 mm (L) x 170 mm (W)

1.3 Package

Please make sure that the following items have been included in the package before installation.

- 1、R-181 Embedded SBC
- 2、CD-ROM that contains the following folders :
 - (1) Manual
 - (2) System Driver

If any item of above is missing or damaged, please contact your dealer or retailer from whom you purchased the R-181. Keep the box and carton when you probably ship or store R-181 in near future. After you unpack the goods, inspect and make sure the packaging is intact. Do not plug the power adapter to the main board of R-181 if you already find it appears damaged.

1.4 Precautions

Please make sure you properly ground yourself before handling the R-181 board or other system components. Electrostatic discharge can be easily damage the R-181 board. Do not remove the anti-static packing until you are ready to install the R-181 board. Ground yourself before removing any system component from it protective anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis. Handle the R-181 board by its edges and avoid touching the components on it.

Chapter 2 Connector / Jumper Configuration

2.1 Connector / Jumper Definition

List of Connectors

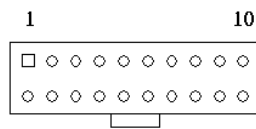
Connectors	Description	Remark
ATXPWR1	ATX Connector	
ATXPWR2	ATX Connector	DC Power Board is Option
DC_IN1	+12V Adaptor Connector	DC Power Board is Option
CN1	VGA & Serial Port Connector	COM3 is Option
LVDS1	LVDS Connector	
INV1	Inverter Connector	
COM1_2_1	Serial Port Connector	COM2 RS422/485 is Option
COM4_1、COM5_1、COM6_1	Serial Port Pin Header	COM4 / 5 / 6 Port is Option
TS1	Touch Screen Connector	
SATA1、SATA2、SATA3	Serial ATA Connector	
SATA_PWR1	Internal SATA Power Connector	
CF1	Compact Flash Socket	
IDE1	IDE Connector	
LPT1	Print Port Connector	
SODIMM1、SODIMM2	DDR2 SO-DIMM	
AUDIO1	Audio Connector	
PS2_1	PS/2 Connector	
PCI1	PCI Slot	
FP1	Front Panel Pin Header	
FAN2、FAN3	Fan Connector	
CN2	LAN1 & USB Connector	
CN3	LAN2 & USB Connector	LAN2 is Option
USB4_5_2、USB6_7_2	USB Pin Header	
POWER2、POWER4、POWER5	3.5" HDD Power Connector	DC Power Board is Option
POWER1、POWER3、POWER6	2.5" HDD Power Connector	DC Power Board is Option
VR1	LCD Backlight Adjustment.	
GPIO1	General Purpose Input / Output Pin-Header	

List of Jumpers

Jumper	Description	Remark
JP1、JP2、JP3、JP4	COM1 Mode Select : RS-232/RS422/RS485	
JP5、JP6、JP7、JP8	COM2 Mode Select : RS-232/RS422/RS485	COM2 RS422/485 is Option
JP9、JP12、JP15	PCI Slot / PCI Riser Card Select	
LCD_PWR1	LCD Panel Power Selection For Inverter	
CLR_CMOS1	CMOS Jumper	
JP10、JP11	LAN Enable/Disable Control	LAN2 is Option

2.2 Connector and Jumper Setting

ATXPWR1 (ATXPWR2) : ATX Power Connector



Pin	Signal	Pin	Signal
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PSON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	PWROK	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V

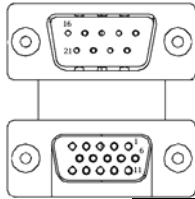
DC12V_IN1 : +12V Adaptor Connector (DC Power Board is Option)

The R-181 can support +12V power input by DC power board.



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

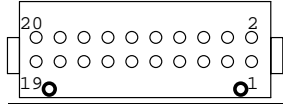
CN1 : VGA & Serial Port Connector (COM3 is Option)



Pin	Signal
1	RED
2	GREEN
3	BLUE
4	N.C.
5	GND
6	GND
7	GND
8	GND
9	VCC
10	GND
11	N.C.
12	DDC Data
13	H-SYNC
14	V-SYNC
15	DDC Clock
16	DCD
17	RXD
18	TXD
19	DTR
20	GND
21	DSR
22	RTS
23	CTS
24	RI

LVDS1 : LVDS Connector

The R-181 supports LVDS output via a 20 pin connector for LVDS panel.



Pin	Description	Pin	Description
1	+3.3V/+5V	2	+3.3V/+5V
3	GND	4	GND
5	TO0-	6	GND
7	TO0+	8	GND
9	GND	10	N.C.
11	TO1-	12	N.C.
13	TO1+	14	GND
15	GND	16	TOCLK-
17	TO2-	18	TOCLK+
19	TO2+	20	GND

INV1 : Inverter Connector

The R-181 can provide the power +12V for backlight inverter and brightness control through the inverter connector INV1.

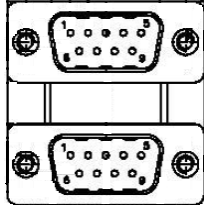
5 4 3 2 1



Pin	Description
1	+12V
2	Backlight Adjustment.
3	+12V
4	Backlight Enable
5	GND

COM1_2_1 : COM1 & COM2 Connector

The R-181 supports two D-Sub 9 connector for RS232/422/485(COM2 is Option), that allow user to connect serial devices such as mouse, keyboard or others.

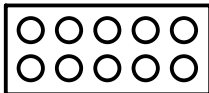


Pin	Signal
1	DCD1
2	RXD1
3	TXD1
4	DTR1
5	Ground
6	DSR1
7	RTS1
8	CTS1
9	RI1

COM4_1、COM5_1、COM6_1 : COM4、COM5、COM6 Pin Header

The R-181 supports three Pin Header for RS232, that allow user to connect serial devices such as mouse, keyboard or others.

2 4 6 8 10



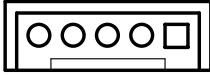
1 3 5 7 9

Pin	Signal
1	DCD2
2	DSR2
3	RXD2
4	RTS2
5	TXD2
6	CTS2
7	DTR2
8	RI2
9	GND
10	N.C.

TS1 : Touch Screen Connector

The R-181 supports one touch screen connector.

5 4 3 2 1



Pin	Description
1	GND
2	5V
3	GND
4	TXD
5	RXD

SATA1、SATA2、SATA3 : Serial ATA Connector

The R-181 is equipped with a 7 pin SATA connector.

1 2 3 4 5 6 7



Pin	Signal
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

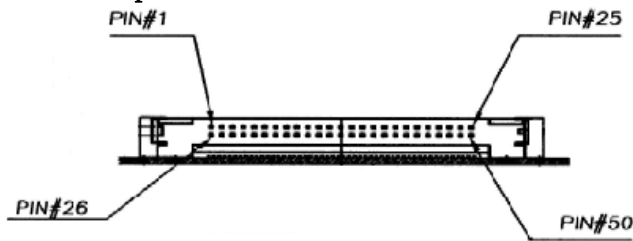
SATA_PWR1 : Internal SATA Device Power Connector



1 2 3 4 5

Pin	Signal
1	+5V
2	+5V
3	GND
4	GND
5	+12V

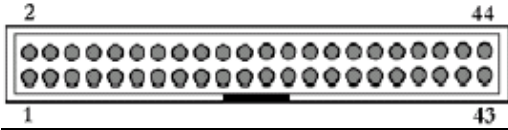
CF1 : Compact Flash Socket



PIN	Description	PIN	Description	PIN	Description
1	GND	2	Data 3	3	Data 4
4	Data 5	5	Data 6	6	Data 7
7	HDC CS0 #	8	GND	9	GND
10	GND	11	GND	12	GND
13	VCC	14	GND	15	GND
16	GND	17	GND	18	SA2
19	SA1	20	SA0	21	Data 0
22	Data 1	23	Data 2	24	N.C.
25	N.C.	26	N.C.	27	Data 11
28	Data 12	29	Data 13	30	Data 14
31	Data 15	32	HDC CSI #	33	GND
34	IOR #	35	IOW #	36	VCC
37	Interrupt	38	VCC	39	N.C.
40	GND	41	Reset #	42	IOCHRDY
43	N.C.	44	N.C.	45	HDD Active #
46	N.C.	47	Data 8	48	Data 9
49	Data 10	50	GND		

IDE1 : IDE Connector

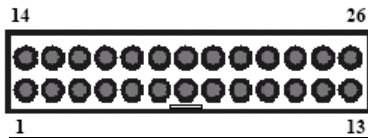
The R-181 is equipped with a 44 pin IDE connector. It can configure two hard disks via IDE cable, one can be Master mode on the primary IDE connector and the other can be Slave mode on the secondary IDE connector.



Pin	Signal	Pin	Signal
1	RSTPIDE#	2	GND
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	GND	20	+5V
21	PDDREQ	22	GND
23	PDIOW#	24	GND
25	PDIOR#	26	GND
27	PDIORDY	28	GND
29	PDDACK#	30	GND
31	IRQ14	32	+5V
33	PDA1	34	PD66#
35	PDA0	36	PDA2
37	PDCS#1	38	PDCS#3
39	PIDELED	40	GND
41	+5V	42	+5V
43	GND	44	NC

LPT1 : LPT Connector

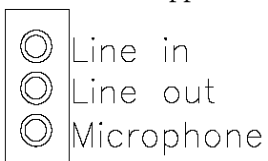
The DT-M1100S supports one parallel port accessed through LPT1. It needs a 26 pin cable to connect the DB-25 connector. You can also select the ECP/EPP mode via Integrated Peripherals Setup function in BIOS setting.



Pin	Signal	Pin	Signal
1	STB#	14	AFD#
2	DATA 0	15	ERROR#
3	DATA 1	16	INT#
4	DATA 2	17	SLIN#
5	DATA 3	18	GND
6	DATA 4	19	GND
7	DATA 5	20	GND
8	DATA 6	21	GND
9	DATA 7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	GND

AUDIO1 : AC97 Connector

This R-181 supports AC97 function.



Microphone :

Pin	Signal
1	MIC IN
2	GND

Line out :

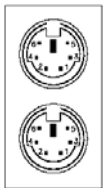
Pin	Signal
1	Line In R
2	GND
3	GND
4	Line In L

Line in :

Pin	Signal
1	Line Out R
2	GND
3	GND
4	Line Out L

PS2_1 : PS/2 Connector

The R-181 can support PS/2 connector for keyboard and mouse use.



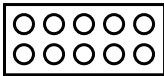
Mouse (top)

Keyboard (bottom)

Signal	Pin	Signal
Keyboard data	1	Mouse data
N.C.	2	N.C.
Ground	3	Ground
5V	4	5V
Keyboard clock	5	Mouse clock
N.C.	6	N.C.

FP1 (FP2) : Front Panel Connector

2 4 6 8 10



1 3 5 7 9

Pin	Signal
1	Power On Switch+
2	Power On Switch-
3	Reset Switch+
4	Reset Switch- (GND)
5	Power LED+
6	Power LED- (GND)
7	IDE LED+
8	IDE LED- (ACTIVE)
9	External Buzzer +
10	External Buzzer -

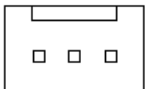
Pin 1-2 : Connector to ATX power button.

Pin 3-4 : Connector to reset switch for reboot function.

Pin 5-6 : Connector to power LED.

Pin 7-8 : Connector to HDD LED & HDD active.

FAN2、FAN3 : Fan Connector

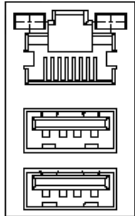


3 2 1

Pin	Signal
1	GND
2	+12V-
3	SENSE

CN1 (CN2) : RJ45 & USB Connector (LAN2 is Option)

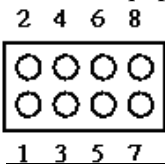
The R-181 is equipped with two RJ-45 connectors. They can let the device to support 10/100/1000Mbps Ethernet.



Pin	CN1 (CN2) Signal	Pin	CN1 (CN2) Signal
1	5V	5	5V
2	USBDT3-	6	USBDT4-
3	USBDT3+	7	USBDT4+
4	GND	8	GND
Pin	RJ45 Description	Pin	RJ45 Description
1	TX1+	2	TX1-
3	TX2+	4	TX3+
5	TX3-	6	TX2-
7	TX4+	8	TX4-

USB4_5_2、USB6_7_2 : Internal USB2.0 Pin Header

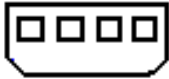
R-181 is equipped with USB2.0 pin header; it can support four more USB2.0 devices.



Pin	USB4_5_2、USB6_7_2		
1	+5V	2	+5V
3	USB DATA-	4	USB DATA-
5	USB DATA+	6	USB DATA+
7	GND	8	GND

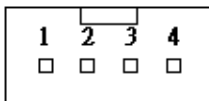
POWER2、POWER4、POWER5 : 3.5" HDD Power Connector

1 2 3 4



Pin	Signal
1	+12V
2	GND
3	GND
4	+5V

POWER1、POWER3、POWER6 : 2.5" HDD Power Connector



Pin	Signal
1	+5V
2	GND
3	GND
4	+12V

VR1 :

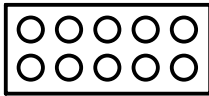


The R-181 is equipped with one variable resistor. it can let the device to support LCD backlight adjustment.

VR1	Turn Right	Bright
	Turn Left	Dark

GPIO1 : General Purpose Input / Output Connector

2 4 6 8 10



1 3 5 7 9

Pin	Signal	Pin	Signal
1	+3.3V	2	GND
3	GPI1	4	GPO1
5	GPI2	6	GPO2
7	GPI3	8	GPO3
9	GPI4	10	GPO4

JP1、JP2、JP3、JP4 : COM1 Mode Select

COM1	JP3	JP1	JP2
RS-232 (Default)	1-2	3-5, 4-6	3-5, 4-6
RS-422	3-4, 7-8	1-3, 2-4	1-3, 2-4
RS-485	5-6, 7-8	1-3, 2-4	1-3, 2-4

COM1	JP4
DCD = +5V	Short 1-3
DCD = +12V	Short 3-5 or 5-7
DCD = DCD1	Short 7-9 (Default)
RI = +5V	Short 2-4
RI = +12V	Short 4-6 or 6-8
RI = RI1	Short 8-10 (Default)

JP5、JP6、JP7、JP8 : COM2 Mode Select

COM2	JP7	JP5	JP6
RS-232 (Default)	1-2	3-5, 4-6	3-5, 4-6
RS-422	3-4, 7-8	1-3, 2-4	1-3, 2-4
RS-485	5-6, 7-8	1-3, 2-4	1-3, 2-4

COM2	JP8
DCD = +5V	Short 1-3
DCD = +12V	Short 3-5 or 5-7
DCD = DCD2	Short 7-9 (Default)
RI = +5V	Short 2-4
RI = +12V	Short 4-6 or 6-8
RI = RI2	Short 8-10 (Default)

JP9、JP12、JP15 : PCI Slot / PCI Riser Card Select

Description	JP12	JP15	JP9
Support only one PCI slot	1-2	1-2	N.C.
Support two PCI slot	2-3	2-3	N.C.
Support three PCI slot	2-3	2-3	3-4 & 7-8
Support four PCI slot	2-3	2-3	1-2 & 3-4 & 5-6 & 7-8

LCD_PWR1 : LCD Panel Voltage Select

Pin	Description
1-2	3.3V (Default)
2-3	5V

CLR_CMOS1 : CMOS Clear

Pin	Description
1-2	Normal Status (Default)
2-3	Clear CMOS

JP5 : LAN Enable/Disable Select

Pin	Description
1-2	Normal Status (Default)
N.C.	LAN1 Disable

JP17 : LAN2 Enable/Disable Select

Pin	Description
1-2	Normal Status (Default)
N.C.	LAN2 Disable

Chapter 3 BIOS Setup

The ROM chip of your R-181 board is configured with a customized Basic Input/Output System (BIOS) from Phoenix-Award BIOS. The BIOS is a set of permanently recorded program routines that give the system its fundamental operational characteristics. It also tests the computer and determines how the computer reacts to instructions that are part of programs.

The BIOS is made up of code and programs that provide the device-level control for the major I/O devices in the system. It contains a set of routines (called POST, for Power-On Self Test) that check out the system when you turn it on. The BIOS also includes CMOS Setup program, so no disk-based setup program is required. CMOS RAM stores information for :

- Date and time
- Memory capacity of the main board
- Type of display adapter installed
- Number and type of disk drives

The CMOS memory is maintained by battery installed on the R-181 board. By using the battery, all memory in CMOS can be retained when the system power switch is turned off. The system BIOS also supports easy way to reload the CMOS data when you replace the battery of the battery power lose.

3.1 Control Keys

Up arrow	Moves cursor to the previous item
Down arrow	Moves cursor to the next item
Left arrow	Moves cursor to the item on the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quits and deletes changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exits current page and returns to Main Menu
PgUp/ "+" key	Increases the numeric value or makes changes
PgDn/ "-" key	Decreases the numeric value or makes changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift) F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Reserved
F4 key	Reserved
F5 key	Restores the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Loads the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Loads the Setup default, only for Option Page Setup Menu
F8 key	Reserved
F9 key	Reserved
F10 key	Saves all the CMOS changes, only for Main Menu

3.2 Quick Setup

In most cases, you can quickly configure the system by choosing the following main menu options :

1. Choose “Load Optimized Defaults” from the main menu. This loads the setup default values from the BIOS Features Setup and Chipset Features Setup screens.
2. Choose “Standard CMOS Features” from the main menu. This option lets you configure the date and time, hard disk type, floppy disk drive type, primary display and more.
3. In the main menu, press F10 (“Save & Exit Setup”) to save your changes and reboot the system.

3.3 Entering the CMOS Setup Program

Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customize your system. For example, you should run the Setup program after you :

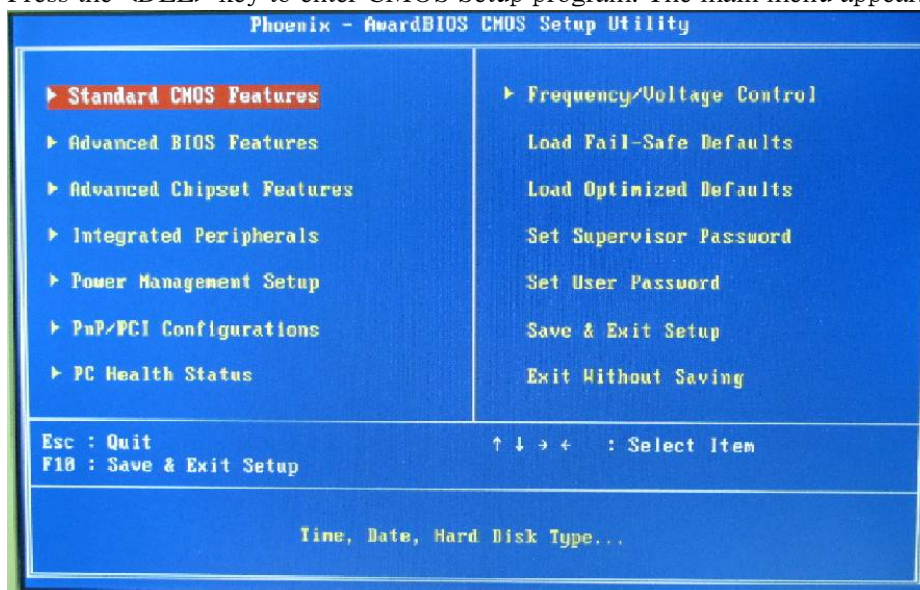
Received an error code at startup

- Install another disk drive
- Use your system after not having used it for a long time
- Find the original setup missing
- Replace the battery
- Change to a different type of CPU
- Run the Phoenix-Award Flash program to update the system BIOS

Run the CMOS Setup program after you turn on the system. On-screen instructions explain how to use the program.

Enter the CMOS Setup program’ s main menu as follows :

1. Turn on or reboot the system. After the BIOS performs a series of diagnostic checks, the following message appears : “Press DEL to enter SETUP”
2. Press the key to enter CMOS Setup program. The main menu appears :



3. Choose a setup option with the arrow keys and press <Enter>. See the following sections for a brief description of each setup option.

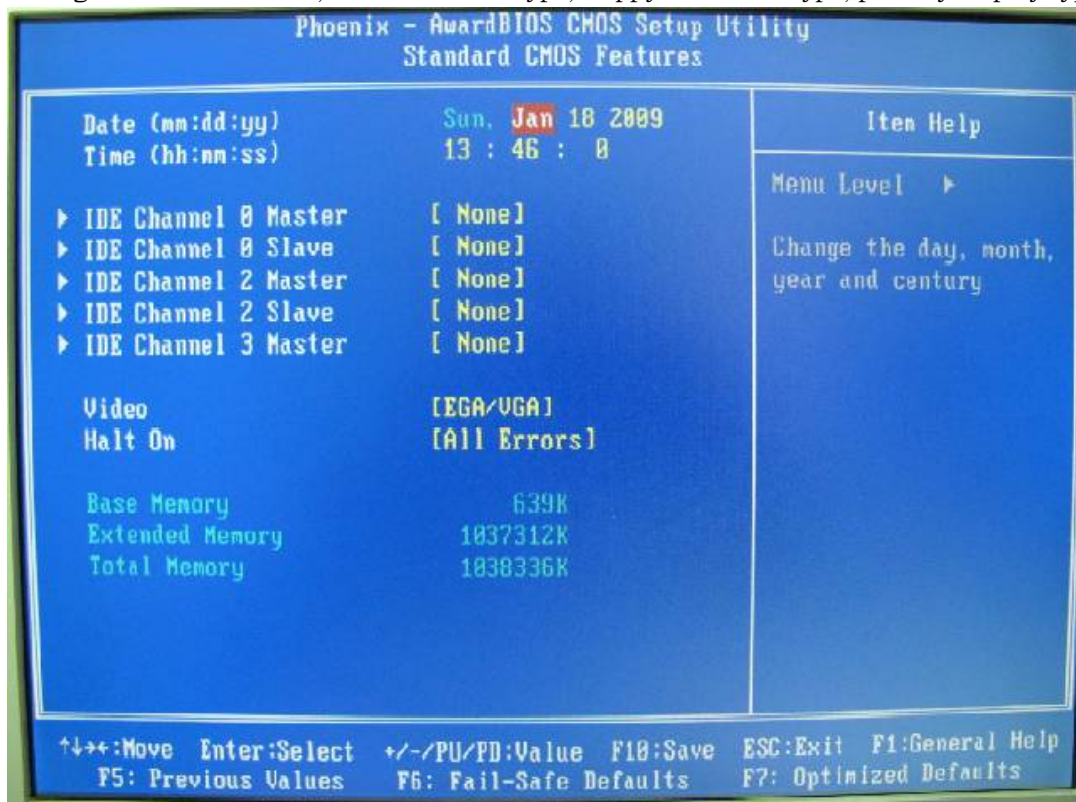
In the main menu, press F10 ("Save & Exit Setup) to save your changes and reboot the system. Choosing "EXIT WITHOUT SAVING" ignores your changes and exits the program. Pressing <ESC> anywhere in the program returns you to the main menu.

3.4 Menu Options

The main menu options of the CMOS Setup program are described in the following and the following sections of this chapter.

Standard CMOS Features :

Configure the date & time, hard disk drive type, floppy disk drive type, primary display type and more.



Date

The date format is <day>, <date> <month> <year>. Press <F3> to show the calendar.

Day	The day of week, from Sun to Sat, determined by the BIOS, is read only
Date	The date, from 1 to 31 (or the maximum allowed in the month), can key in the numerical / function key
Month	The month, Jan through Dec.
Year	The year, depends on the year of BIOS

Time

The time format is <hour> <minute> <second> accepting either functions key or numerical key. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

IDE Primary Master/Primary Slave

These items identify the types of each IDE channel installed in the computer. If there is no hard disk drive installed, select NONE and press <Enter>.

Video

Video allows you to select the type of displaying standard you are using. Available options are EGA/VGA, CGA 40, CGA 80 and MONO.

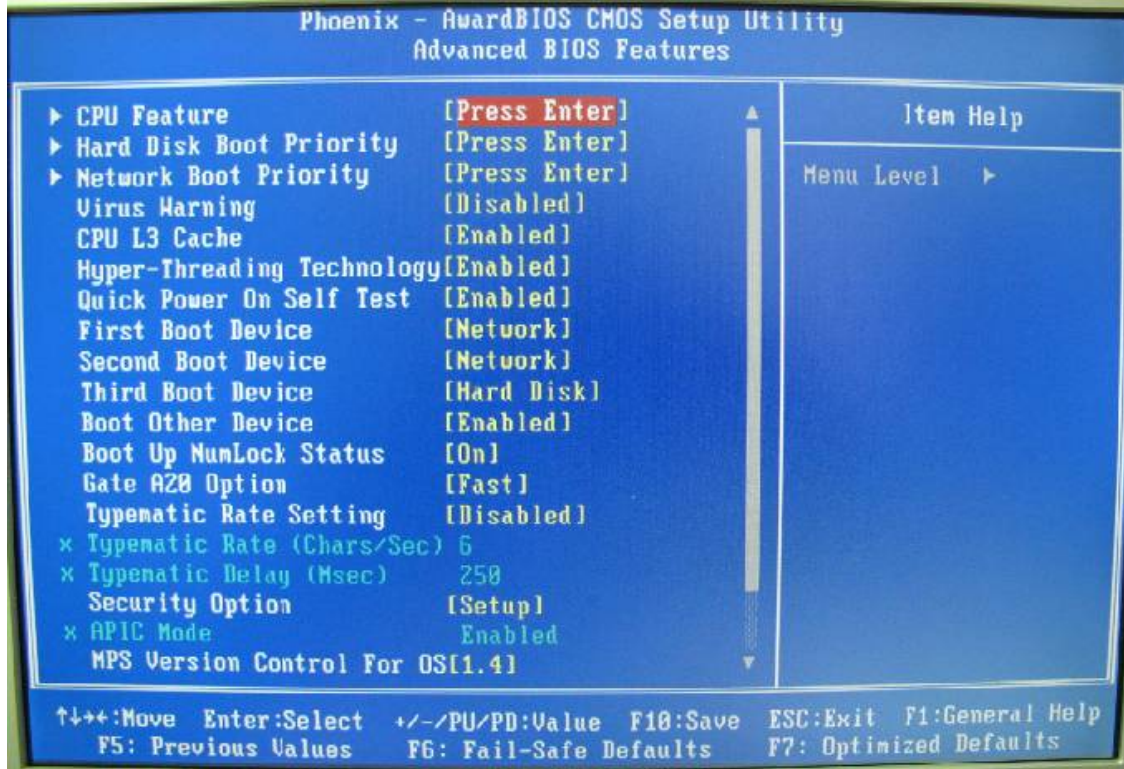
Halt On

This field determines whether the system will halt if an error is detected during power up.

No errors	The system boot will halt on any error detected.(default)
All errors	Whenever the BIOS detect a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

3.5 Advanced BIOS Features

Configure advanced system options such as enabling/disabling cache memory and shadow RAM.



CPU Features

This option is auto to detect the CPU frequency.

Hard Disk Boot Priority

This item can select boot device priority.

Network Boot Priority

Press [Enter] to enter the sub menu to select network boot device priority.

Virus Warning

This option flashes on the screen. During and after the system boot up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system with the following message. You can run an anti-virus program to locate the problem. The default setting is "Disabled" .

```
! WARNING !  
Disk boot sector is to be modified  
Type "Y" to accept write or "N" to abort write  
Award Software, Inc.
```

Enabled	Activates automatically when the system boots up causing a warning message to appear when there is an attempt to access the boot sector or hard disk partition table
Disabled	No warning message will appear when attempts to access the boot sector or hard disk partition table are made.

NOTE : This function is only available with DOS and other operating systems that do not trap INT13.

CPU L3 Cache

This BIOS feature controls the functionality of the processor's Level 3 cache. When enabled, the processor's Level 3 cache will be allowed to function. This allows the best possible performance from the processor. When disabled, the processor's Level 3 cache will be disabled. The processor will bypass the Level 3 cache and rely only on the Level 1 and Level 2 caches. This reduces the performance of the processor.

Hyper-Threading Technology

This option allows you to enable or disabled Hyper-Threading Technology. "Enabled" for Windows XP and Linux 2.4.x (OS optimized for Hyper-Threading Technology). "Disable" for other OS (OS not optimized for Hyper-Threading Technology).

Quick Power On Self Test

This option speeds up Power on Self Test (POST) after you turn on the system power. If set as Enabled, BIOS will shorten or skip some check items during POST. The default setting is "Enabled" .

Enabled	Enable Quick POST
Disabled	Normal POST

First/Second/Third Boot Device

These items allow the selection of the 1st, 2nd, and 3rd devices that the system will search for during its boot-up sequence. The wide range of selection includes Floppy, LS120, ZIP100, HDD0~3, SCSI, and CDROM.

Boot Other Device

This item allows the user to enable/disable the boot device not listed on the First/Second/Third boot devices option above. The default setting is *Enabled*.

Boot Up NumLock Status

This option enables and disables the number lock function of the keypad. The default value is *On* .

On	Keypad functions confine with numbers
Off	Keypad functions convert to special functions (i.e., left/right arrow keys)

Gate A20 Option

Select if chipset or keyboard controller should control Gate A20.

Typematic Rate Setting

This item determines the typematic rate of the keyboard. The default value is *“Disabled”*.

Enabled	Enable typematic rate and typematic delay programming.
Disabled	Disable typematic rate and typematic delay programming. The system BIOS will use default value

Security Option

This item allows you to limit access to the system and Setup, or just to Setup. The default value is *“Setup”*.

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

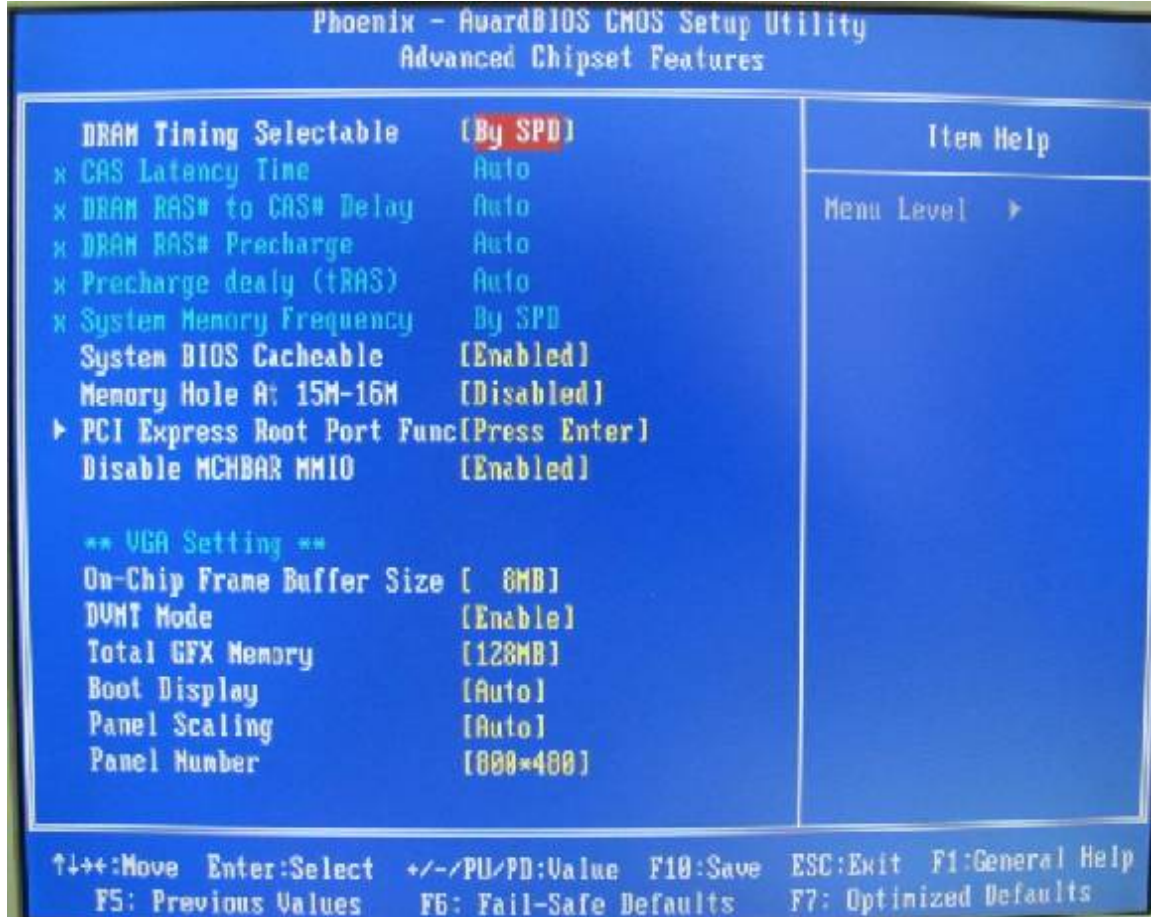
NOTE : To disable security, select **PASSWORD SETTING** at Main Menu and then you will be asked to enter password. Do not type anything, just press <Enter> and it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

MPS Version Control For OS [1.4]

This item specifies the version of the Multiprocessor Specification(MPS). Version 1.4 has extended configuration tables to improve support for multiple PCI bus configurations and provide future expandability.

3.6 Advanced Chipset Features

Configure advanced chipset register options such DRAM timing. Integrated Peripherals :
Configure onboard I/O functions.



DRAM Timing Selectable

This option refers to the method by which the DRAM timing is selected.
The default is By SPD.

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.
The default value is "Disabled" .

Memory Hole

In order to improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory space below 16MB.

PCI Express Root Port Func

Press [Enter] to enter the sub menu to select PCI Express Root Port Function

Disable MCHBAR MMIO

By default, this feature is enabled.

On-Chip Frame Buffer Size

The default setting is 32MB. The options available include 1MB, 4MB, 8MB and 16MB.

DVMT Mode

This item allows you to select the UVMT mode.

Boot Display

The default setting is CRT. The options available include CRT and LVDS.

Panel Scaling

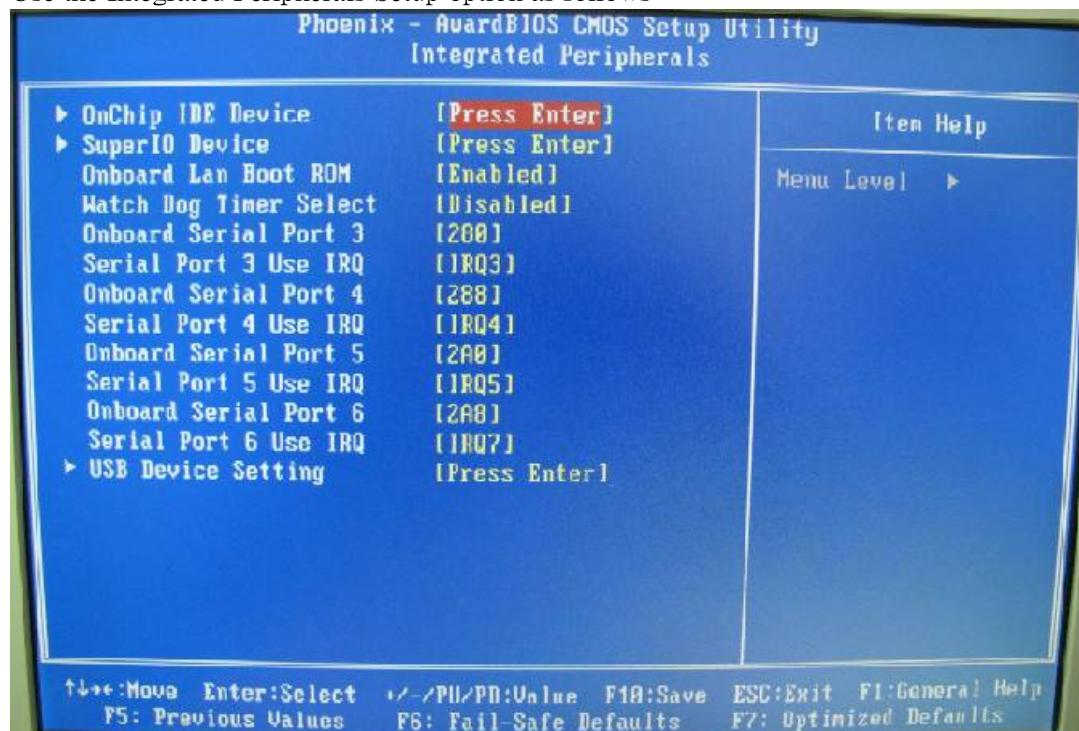
The default setting is Auto. The options available include On and Off.

Panel Number

These fields allow you to select the LCD Panel type.

3.7 Integrated Peripherals

Use the Integrated Peripherals Setup option as follows :



OnChip IDE Device

The options for these items are found in its sub menu. Descriptions on each item above are as follows :

1 、 OnChip IDE Channel 0 / 1

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the secondary IDE interface. Select Disabled to deactivate this interface.

2 、 IDE Prefetch Mode

The onboard IDE drive interfaces supports IDE pre-fetching for faster drive accesses. If you install a primary and or secondary add-in IDE interface, set this field to *Disabled* if the interface does not support prefetching.

3 、 Primary Master/Slave PIO

Secondary Master/Slave PIO

The four IDE PIO fields allow you to set a PIO mode (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.

4 、 Primary Master/Slave UDMA

Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If you hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

5 、 IDE HDD Block Mode

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

Super IO Device

The options for these items are found in its sub menu. Descriptions on each item above are as follows :

1 、 Onboard FDC Controller

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

2 、 Onboard Serial Port 1/2

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

3 、 UART Mode Select

This item allows you to select UART mode.

4 、 Rx/D, Tx/D Active

This item allows you to determine the active of Rx/D, Tx/D.

5 、 IR Transmission Delay

This item allows you to enable/disable IR transmission delay.

6 、 UR2 Duplex Mode

This item allows you to select the IR half/full duplex function.

7 、 Use IR Pins

This item allows you to select IR transmission routes, one is RxD2m, TxD2 (COM Port) and the other is IR-Rx2Tx2

8 、 board Parallel Port

This item allows you to determine access onboard parallel port controller with which I/O address.

Onboard Lan Boot ROM

This item allows you to select the Onboard LAN Boot ROM.

Watch Dog Timer Select

This BIOS feature controls the operation of the chipset's Watchdog Timer. Disable / 1 Min / 2 Min / 4 Min / 8 Min / 15 Min / 30 Min / 1 Hour

USB Device Setting

1 、 USB 1.0 Controller

Allows you to enable or disable the USB 1.0 controller support.

2 、 USB 2.0 Controller

Allows you to enable or disable the USB 2.0 controller support.

3 、 USB Operation Mode

This option is active only if the USB 2.0 controller is enabled. It allows to choose USB device operation mode. *Full/Low speed*: All USB devices operate on a full/low speed mode. *High Speed*: If the USB device is a high speed device, it operates on high speed mode. If the USB device is a full/low speed device, it operates on a full/low speed mode.

4 、 USB Keyboard Function

Allows you to enable or disable the support of USB keyboards.

5 、 USB Mouse Function

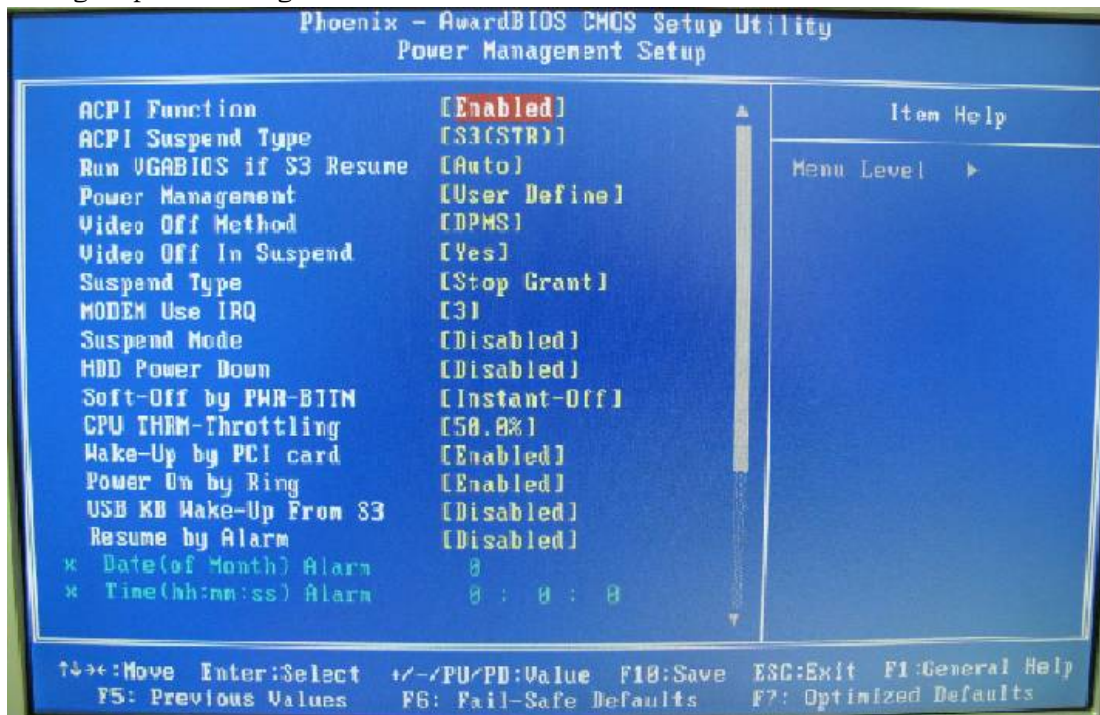
Allows you to enable or disable the support of USB mice.

6 、 USB Storage Function

Allows you to enable or disable the support of USB mass storage devices.

3.8 Power Management Setup

Configure power management features such as timer select.



ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). The options available are Enabled, Disabled.

ACPI Suspend Type

This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 98SE, Windows ME and Windows 2000, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field. Options are :

[S1 (POS)] : The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system contexts.

[S3 (STR)] : The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a “wake up” event occurs.

Run VGABIOS if S3 Resume

Select whether to run VGA BIOS if resuming from S3 state. This is only necessary for older VGA drivers.

Auto	
Yes	This setting allows the video BIOS to be initialized when coming out of the S3 state.

No	This setting prevents the video BIOS to be initialized when coming out of the S3 state.
----	---

Power Management

This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes. The table below describes each power management mode:

Max Saving	Maximum power savings. Only Available for SL CPUs. Inactivity period is 1 minute in each mode.
User Define	Sets each mode individually. Select time-out periods in the PM Timers section, following.
Min Saving	Minimum power savings. Inactivity period is 1 hour in each mode (except the hard drive).

Video Off Method

Determines the manner in which the monitor is blanked.

V/H SYNC+Blank	Turns OFF vertical and horizontal synchronization ports and writes blanks to the video buffer
DPMS	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards Association (VESA). Use the software supplied for your video subsystem to select video power management values.
Blank Screen	System only writes blanks to the video buffer.

Video Off In Suspend

This item determines the monitor status when the system is in Suspend mode.

Suspend Type

Select the Suspend Type.

Modem Use IRQ

3, 4, 5, 7, 9, 10, 11, NA	For external modem, 3 or 4 will be used for card type modem. It is up to card definition. Default is 3.
---------------------------	---

Suspend Mode

After the selected period of system inactivity (1 minute to 1 hour), all devices except the CPU shut off. The default value is "Disabled" .

Disabled	System will never enter SUSPEND mode
1/2/4/6/8/10/20/30/40 Min/1Hr	Defines the continuous idle time before the system entering SUSPEND mode. If any item defined in (J) is enabled & active, SUSPEND timer will be reloaded

HDD Power Down

After the selected period of drive inactivity (1 to 15 minutes), the hard disk drive powers down while all other devices remain active. The default value is *“Disabled”* .

Disabled	HDD' s motor will not power OFF.
1/2/3/4/5/6/7/8/9/10/11/12/13/14/15 Min	Defines the continuous HDD idle time before the HDD enters power saving mode (motor OFF)

Soft-Off by PWR-BTTN

This option only works with systems using an ATX power supply. It also allows the user to define which type of soft power OFF sequence the system will follow. The default value is *“Instant-Off”* .

Instant-Off	This option follows the conventional manner systems perform when power is turned OFF. Instant-Off is a soft power OFF sequence requiring only the switching of the power supply button to OFF
Delay 4 Sec.	Upon turning OFF system from the power switch, this option will delay the complete system power OFF sequence by approximately 4 seconds. Within this delay period, system will temporarily enter into Suspend Mode enabling you to restart the system at once.

CPU THRM-Throttling

This BIOS feature determines the clock speed of the processor when it is in the Suspend To RAM (STR) power saving mode. It has no effect when the processor is in normal active mode. Available opinions for this BIOS feature are set value of the processor' s power consumption. They range from 1 low of 12.5% to a high of 87.5%.

Wake-Up by PCI card

When you select *“Enable”* , a PME signal from PCI card returns the system to Full On state.

Power On by Ring

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

USB KB Wake-Up From S3

This item allows you to enable or disabled the USB keyboard wake up from S3 function.

Resume by Alarm

This function is for setting date and time for your computer to boot up. When enabled, you can choose the date and time of system resume.

Date (of Month) Alarm

You can choose which month the system will boot up.

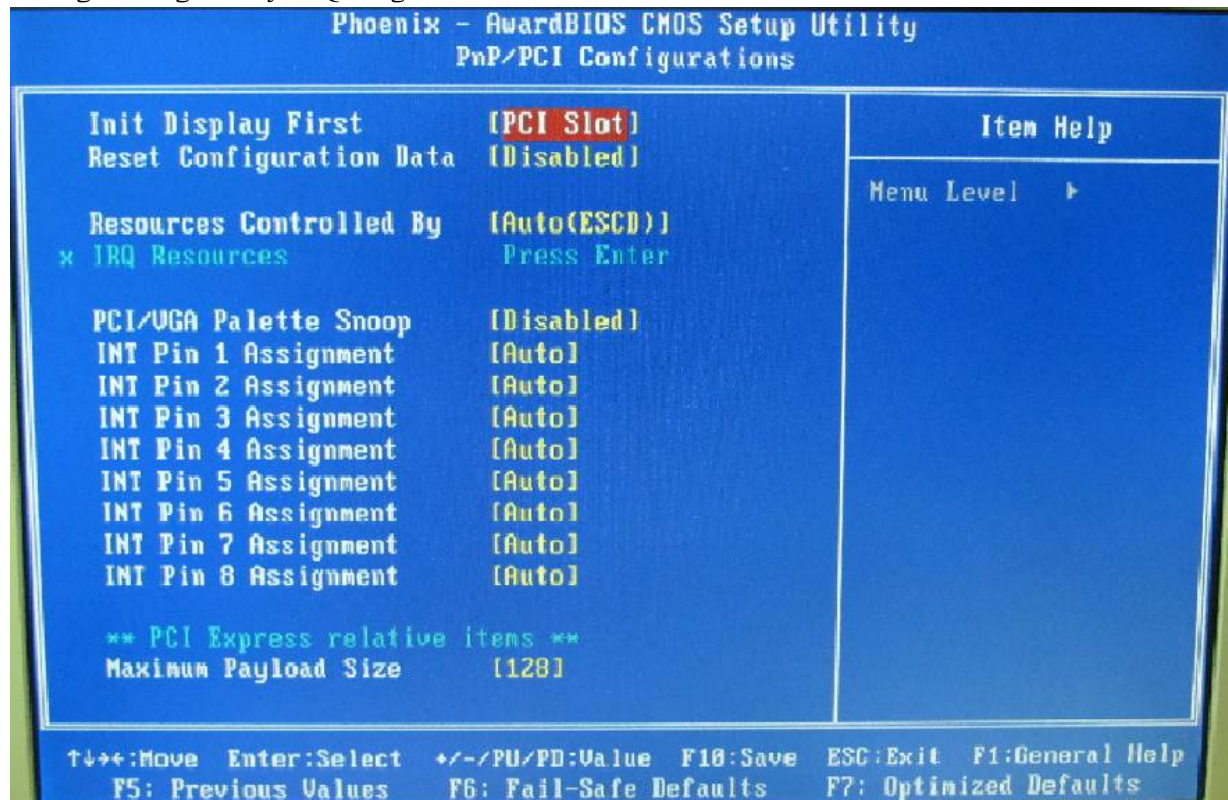
Time (hh:mm:ss) Alarm

You can choose the system boot up time, input hour, minute and second to specify.

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

3.9 PnP/PCI Configurations

Configure Plug & Play IRQ assignments and PCI slots.



Init Display First

This item allows you to decide to active whether PCI Slot/onboard/PCI slot first.

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup or if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The options available are Enabled and Disabled.

Resources Controlled By

The Award Plug and Play BIOS can automatically configure all the boot and Plug and Play-compatible devices. If you select Auto, all the interrupt request (IRQ), DMA assignment, and Used DMA fields disappear, as the BIOS automatically assigns them. The default value is "Manual" .

PCI/VGA Palette Snoop

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. When enabled, a PCI/VGA can work with a MPEG ISA/VESA VGA card. When disabled, a PCI/VGA cannot work with a MPEG ISA/VESA Card.

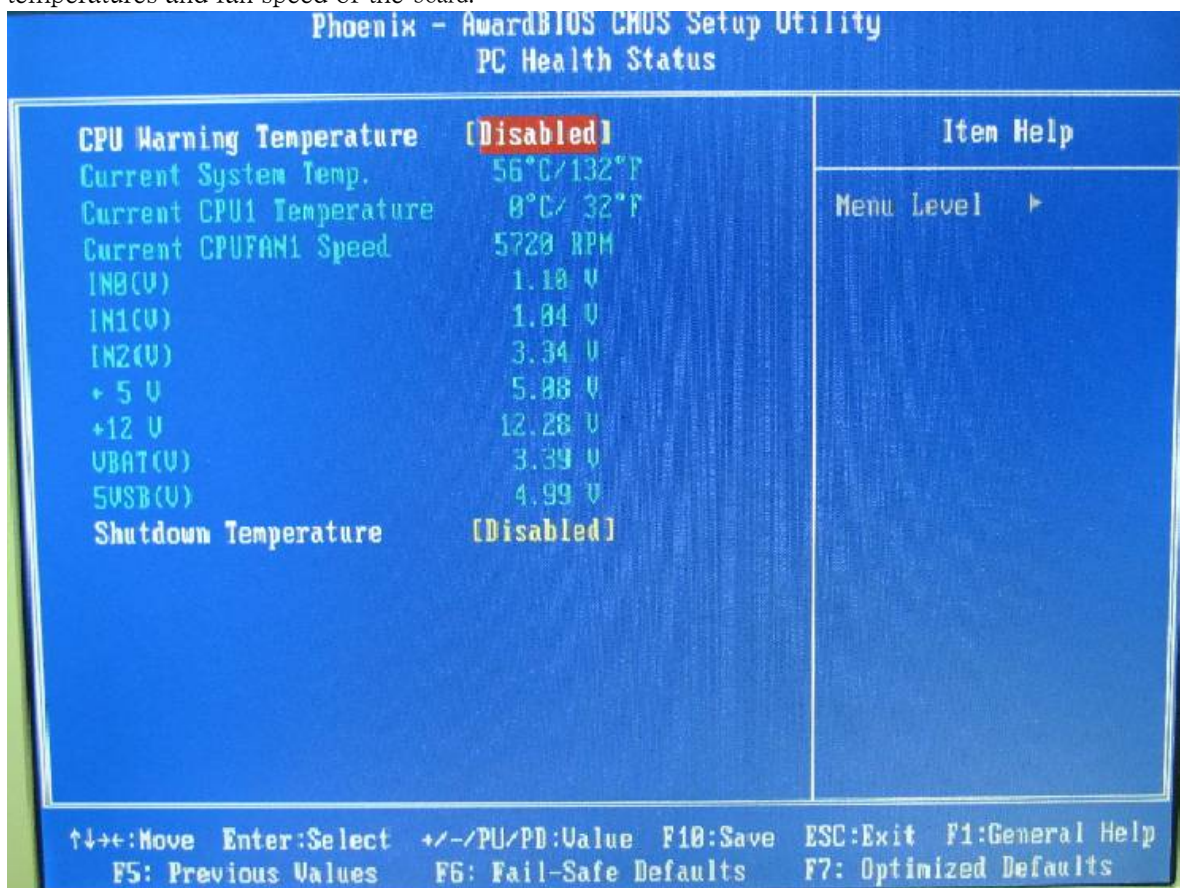
Maximum Payload Size

When using DDR SDRAM and Buffer size selection, another consideration in designing a payload memory is the size of the buffer for data storage. Maximum Payload Size defines the maximum TLP (Transaction Layer Packet) data payload size for the device.

Press <Esc> to return to the Main Menu page.

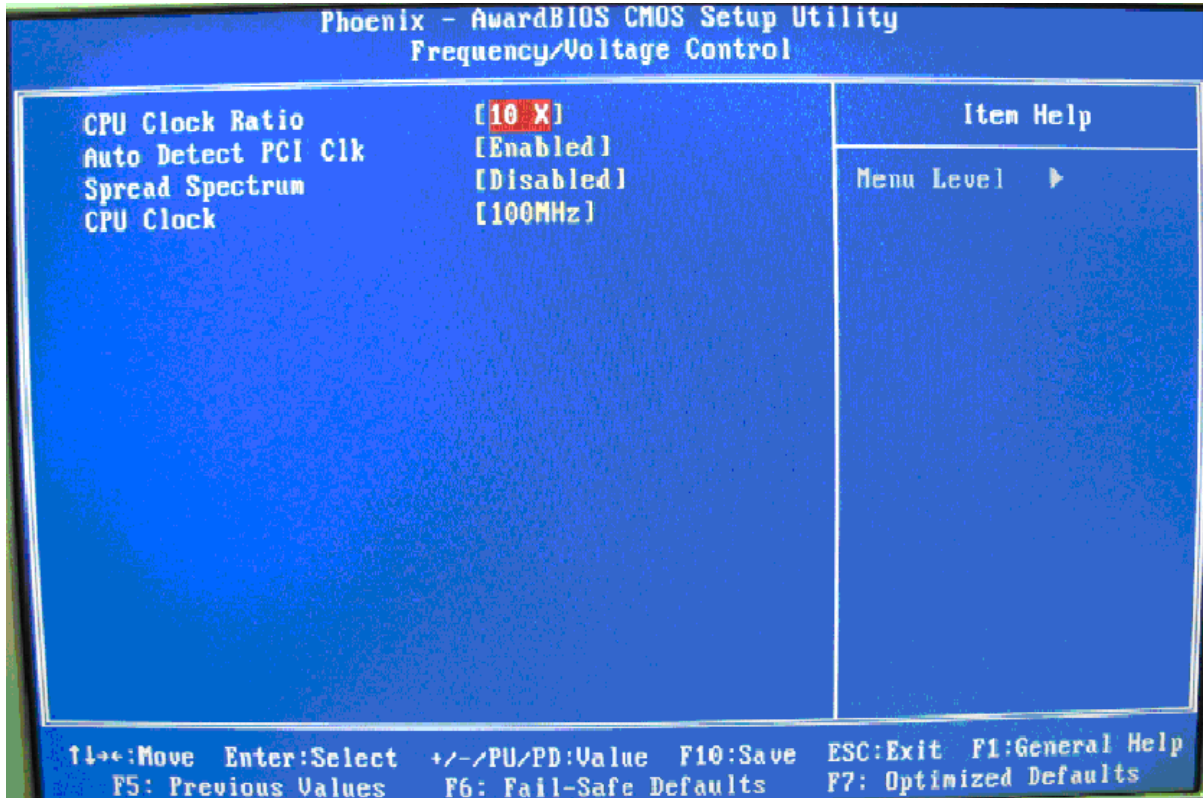
3.10 PC Health Status

This section supports hardware monitoring that lets you monitor those parameters for critical voltages, temperatures and fan speed of the board.



3.11 Frequency/Voltage Control

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.



CPU Clock Ratio

Use this item to select the CPU's clock ratio.

Auto Detect PCI Clk

This item automatically detects the clock speeds of the system memory installed as well as the PCI interface. The options available are Enabled and Disabled. The default setting is Enabled.

Speed Spectrum

This item directly relates to the EMI performance of the whole system. When enabled, all system clocks run at slower speeds thereby decreasing the electromagnetic interference to the surrounding environment. Disabling this item improves the system performance but simultaneously increase the EMI. The default setting is Disabled.

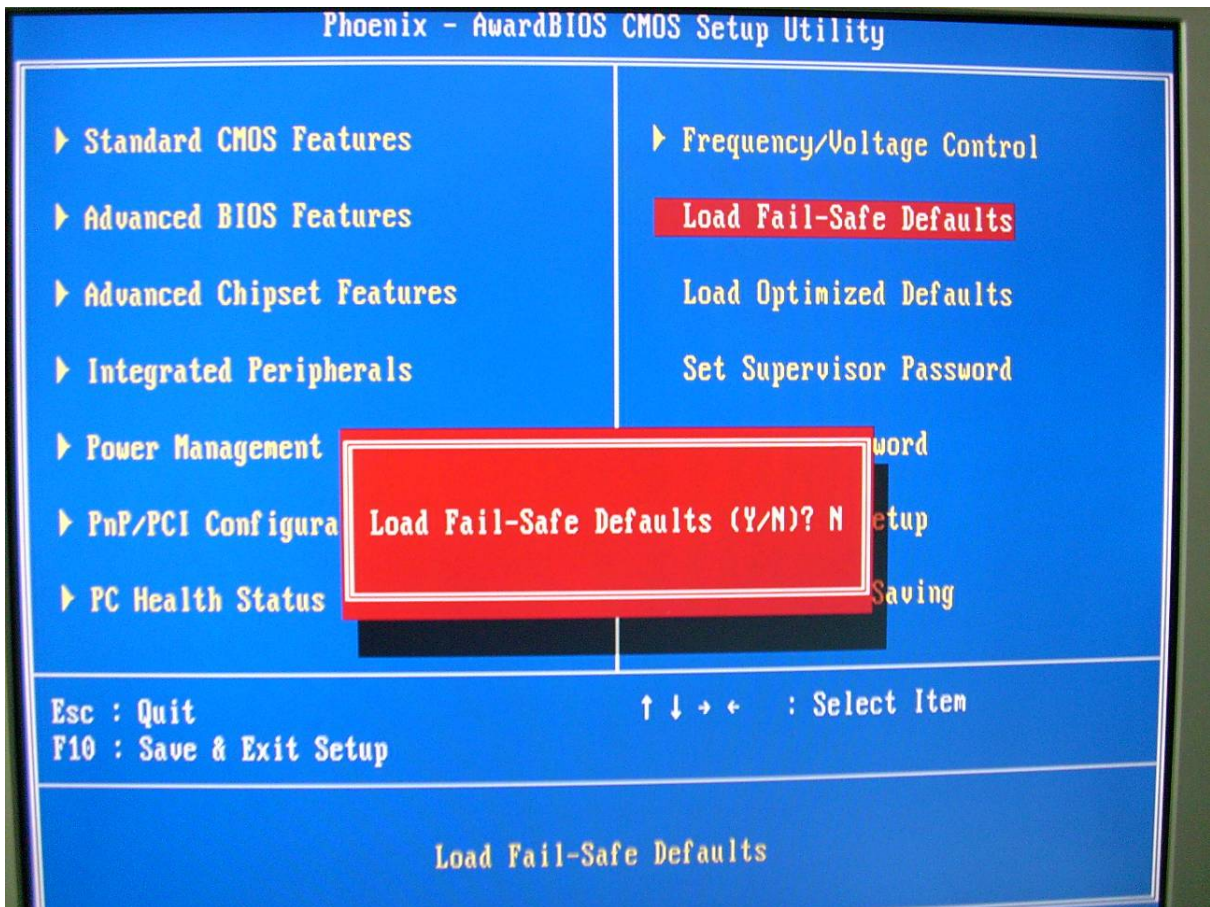
CPU Clock

Use this item to select the CPU's frequency.

3.12 Load Fail-Safe Defaults

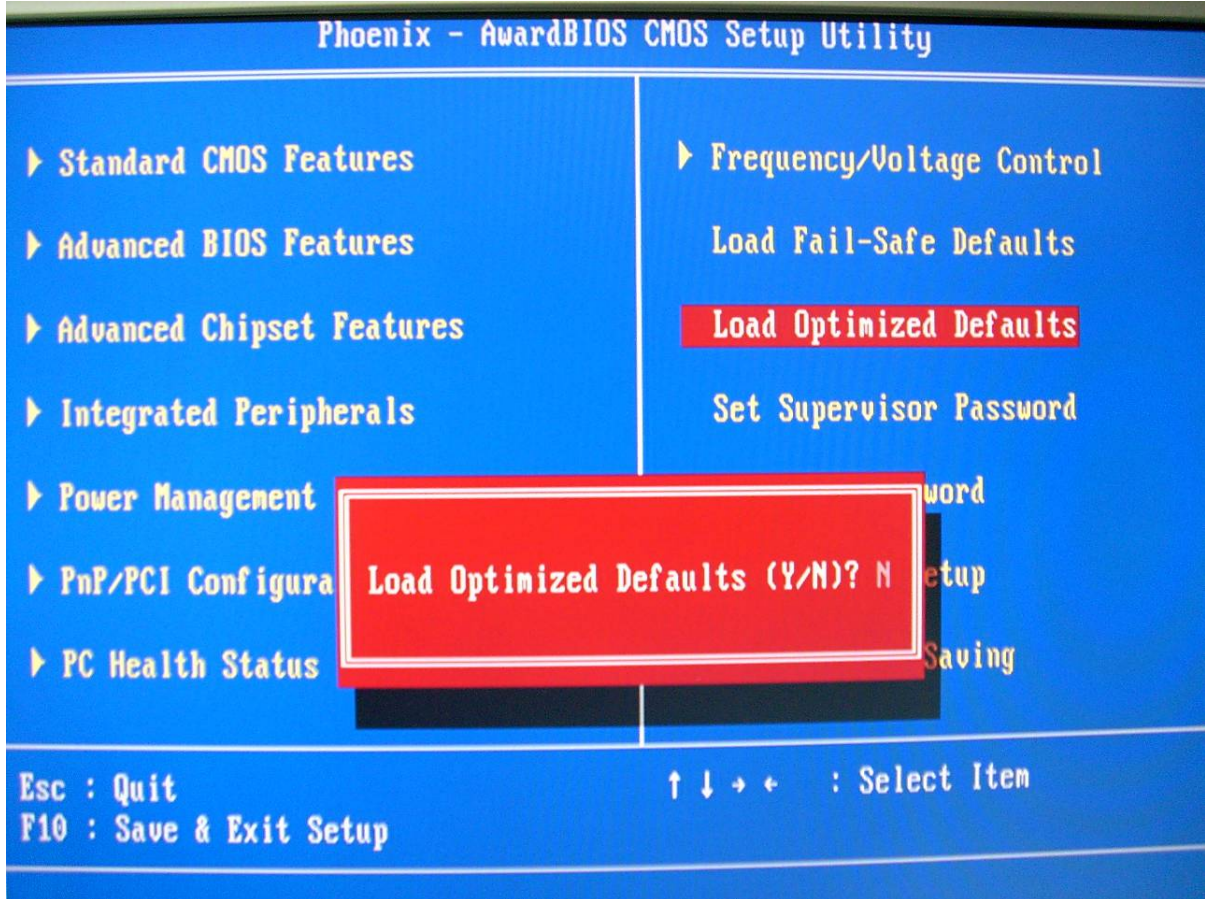
Loads BIOS default values. Use this option as diagnostic aid if your system behaves erratically. This option loads the troubleshooting default values permanently stored in the BIOS ROM. This is useful if you are having problems with the main board and need to debug or troubleshoot the system. The loaded default settings do not affect the Standard CMOS Setup screen.

To use this feature, highlight it on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the BIOS default values. Press the <Y> key and then press <Enter> if you want to load the BIOS default.



3.13 Load Optimized Defaults

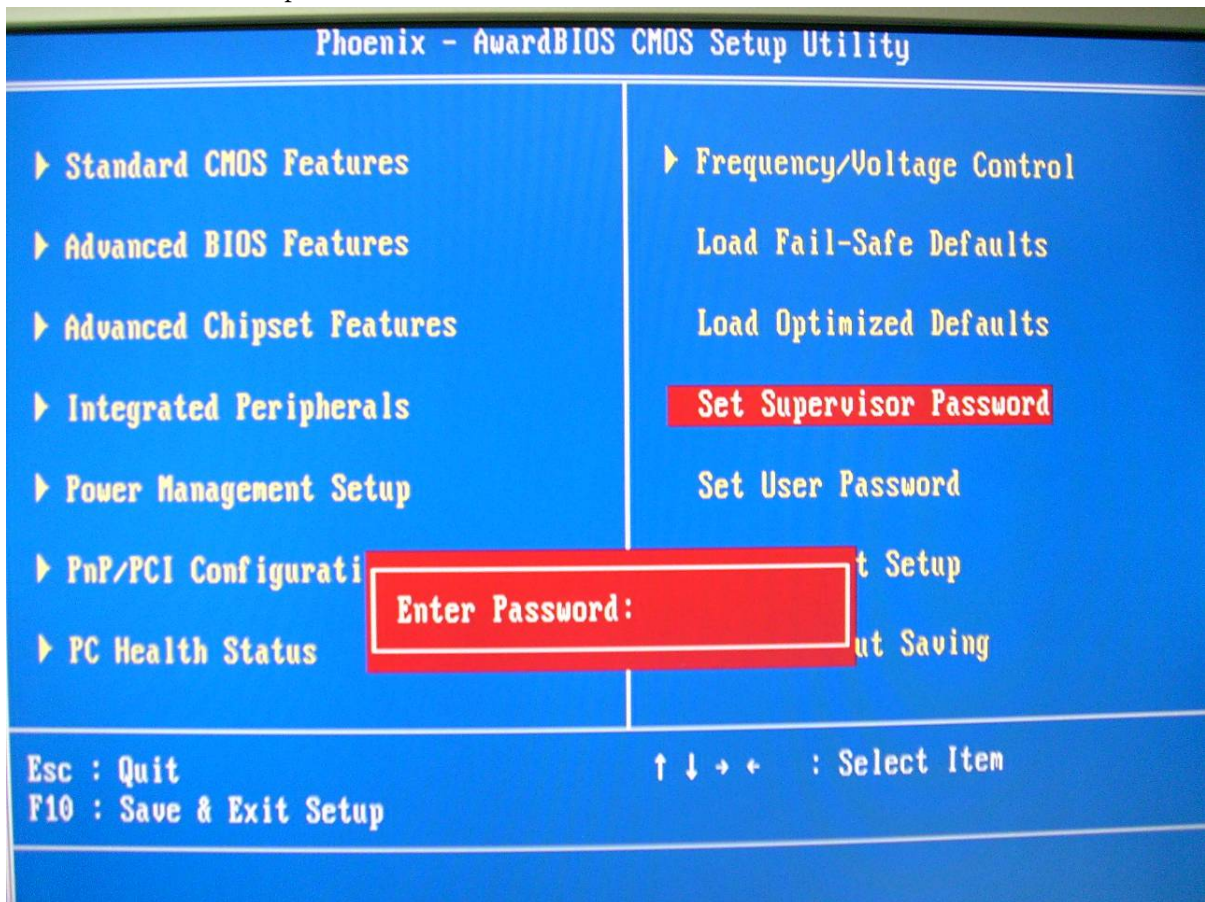
Loads optimized BIOS settings. This option loads optimized settings stored in the BIOS ROM. The auto-configured settings do not affect the Standard CMOS Setup screen.



To use this feature, highlight it on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the Optimized Default Values. Press the <Y> key and then press <Enter> if you want to load the SETUP default.

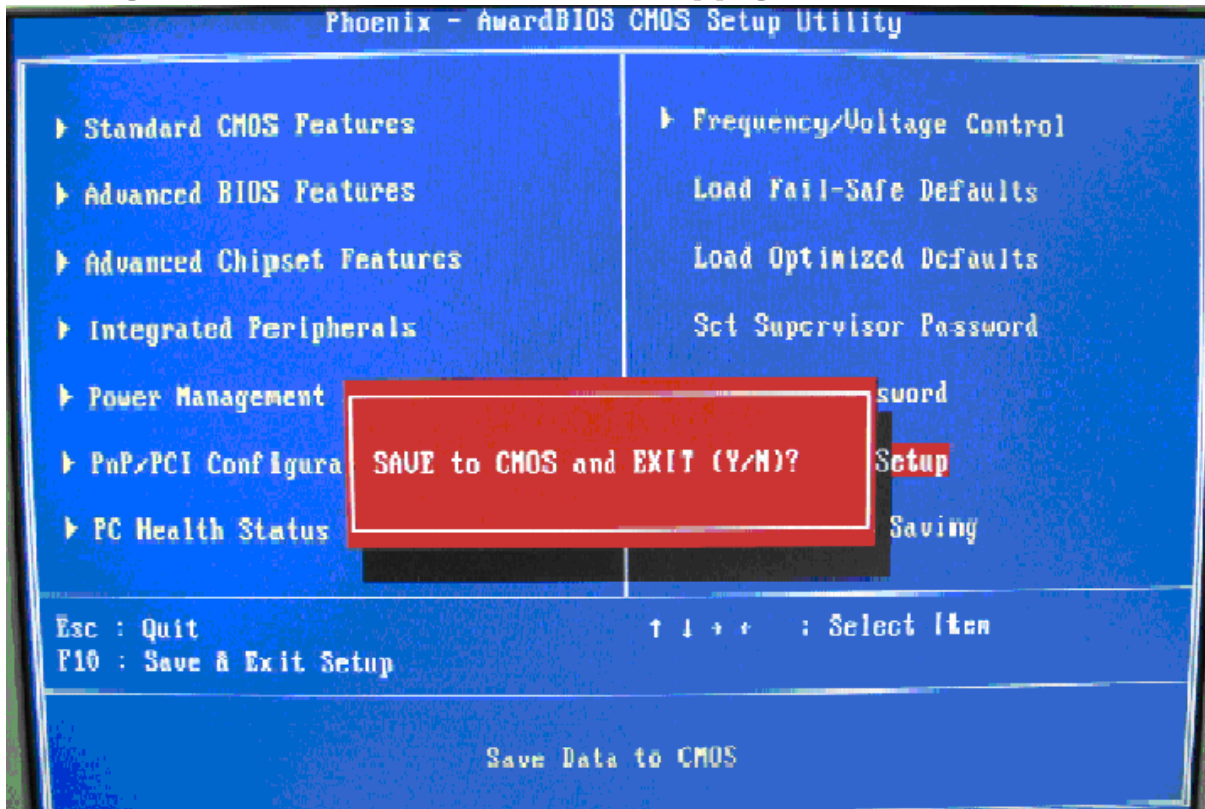
3.14 Set Supervisor Password

Use this menu to set Supervisor Passwords.



3.16 Save & Exit Setup

Save changes of values to CMOS and exit the CMOS setup program.



3.17 Exit Without Saving

Abandon all CMOS changes and exit the CMOS setup program.

