TRANSDUCTION

USER'S MANUAL

Version 1.0

03/12/09

TR-995 INDUSTRIAL PICMG 1.3 SINGLE BOARD COMPUTER FOR INTEL CORE 2 DUO AND CORE 2 QUAD Q35 PROCESSORS

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Introduction

This manual is designed to give you information on the TR-995 Single Board Computer card.
The topics covered in this manual are as follows:

- ✓ **Features**
- ✓ **Specification**
- ✓ **Jumper setting and Connectors**
- ✓ **BIOS Setup**
- ✓ **Appendix**

Chapter 1
Features & Specifications

FEATURES 3
SPECIFICATIONS 4

Features

- Support Intel® Core 2 Quad, Core 2 Duo, Celeron D processor in LGA775 package.
- Two DDR2-800 DIMM sockets support up to 4GB system memory in Dual Channel Mode.
- Dual GbE LANs maximize communication bandwidth.
- Multiple I/O functions: 6 x USB2.0, 2x COM ports, 6x SATA, 1x IRDA, 1x PIDE, 1x LPT, 1x FDD, 1x DIO.
- Six SATA-II ports support RAID0, RAID 1, RAID 5, RAID10 and Legacy IDE mode.
- Standard PICMG 1.3 Form Factor.

Specifications

Processor Support

- Intel® Core 2 Quad, Core 2 Duo, Celeron D processor.
- Supports Front Side Bus speed 800, 1066 or 1333MHz.
- LGA775 socket.

BIOS

- Award Standard PnP Flash BIOS 6.0.
- 8Mbit FlashROM with BootBlock for Fail-safe.

System Memory

- Two DDR2 DIMM Sockets with Dual Channel Mode support.
- Supports DDR2 667/800 non-ECC memory up to 4.0 GB.

Chipset

- Intel Q35 and ICH9DO chipset.

Video

- Intel Q35 Integrated GMA3100 Graphic Engine.
- Support DVMT 4.0 for memory allocation up to 256MB.
- One D-Sub connector on rear panel for CRT display.

10/100M/1000M Ethernet

- Two Realtek RT8111C on board for Dual GbE LAN support.
- Support Wake-on-LAN, Remote Boot with PXE and RTL.

On Board I/O

- Winbond 83627HF LPC I/F Super I/O chip.
- Two serial ports as COM1~COM2. COM2 is RS232/422/485 selectable by jumper.
- One Parallel port supports SPP/ECP/EPP mode.
- One IrDA port, One Floppy connector for up to two drives.

PIDE and SATA

- Six SATA-II ports support RAID0, RAID 1, RAID 5, and RAID10.
- One PIDE 40-pins connector support single device and up to ATA133 speed.

Watchdog Timer

- Programmable watchdog timer for 1~255 seconds.

CMOS

- On-board RTC with 242 bytes of Battery-back CMOS RAM.

Audio

- RealTek ALC888 High-Definition Audio chip on-board.
- Support Line-OUT, Line-IN, MIC, SPDIF, CD-IN and Surrounding sounds with pin-headers.

Power

- One ATX-12V 4-pins connector for CPU power.
- Support both AT and ATX mode.

Software Compatibility

- Microsoft windows: Win2K, Win XP 32/64-bits, Vista 32/64-bits.
- Linux 32-bits/64-bits and DOS 6.22.

Cooling

- One CPU cooling FAN connector nearby CPU socket
- One system cooling FAN connectors for chassis or power supply cooling.

Dimensions

- PICMG 1.3 Full-Size SBC form factor.
- 4.98”(W) x 13.33” (L); or 126.4mm (W) x 338.6mm (L).

Operating Temperature

- 0 to 60 °C operating Range.
- -40~70 °C storage
- Relative Humility: 5~95%, non-condensing.

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Chapter 2
Jumper setting & Connectors

2.1 JUMPERS ON THE TR-995 8
2.2 CONNECTORS ON THE TR-995 13

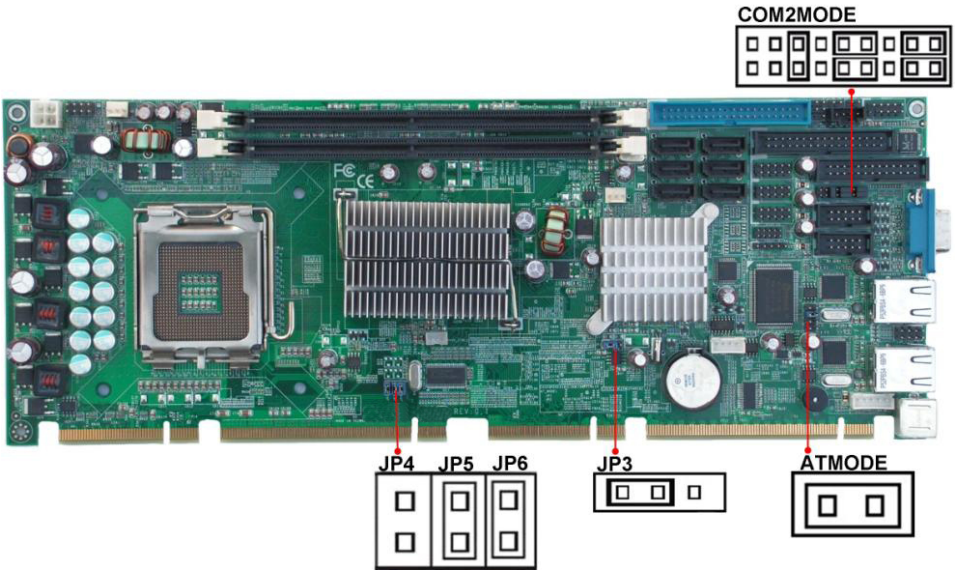
2.1 Jumpers on the TR-995

The jumpers on the TR-995 allow you to configure your Single Board Computer card according to the needs of your applications. If you have doubts about the best jumper configuration for your needs, contact your dealer or sales representative.

The following table lists the jumpers on TR-995 and their respective functions.

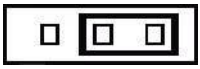
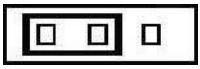
Jumper Locations on the TR-995 ..... *9*
JP3: Clear CMOS RAM Data *10*
AT_MODE: Power Supply Mode Selection *10*
JP4, 5, 6: Front Side Bus Selection *11*
COM2MODE: RS232/RS422/RS485 ..... *12*

Jumper Locations on the TR-995

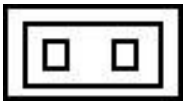
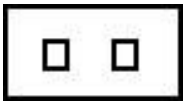


JP3: Clear CMOS RAM Data

This 3-pin Jumper allows the user to disconnect the built-in 3V battery power to clear the information stored in the CMOS RAM.
To clear the CMOS data:
(1) Turn off the system power.
(2) Remove Jumper cap from pin1&2.
(3) Short the pin2 and pin3 for three seconds.
(4) Put Jumper cap back to pin1 & 2.
(5) Turn on your computer.
(6) Hold Down <Delete> during boot up and enter BIOS setup to enter your preferences.

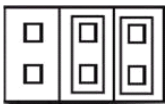
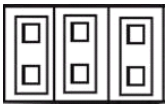
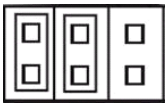
Clear CMOS Content	Normal Operation (default)
 1	 1

AT_MODE: Power Supply Mode Selection

AT mode (default)	ATX mode
1  AT_MODE	1  AT_MODE

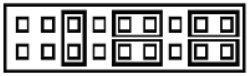
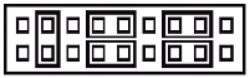
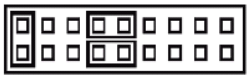
JP4, 5, 6: Front Side Bus Selection

JP4 and JP5 and JP6 allow users to select the FSB speed. It can be 800 MHz, 1066 MHz or 1333MHz.
User should select the correct FSB speed to make their CPU run on correct speed and ensure the system runs stably.

JP4~JP6	Setting	Speed
1 1 1  JP4 JP5 JP6	JP5: Pin 1-2 short JP6: Pin 1-2 short	800Mhz FSB (default)
1 1 1  JP4 JP5 JP6	JP4: Pin 1-2 short JP5: Pin 1-2 short JP6: Pin 1-2 short	1066Mhz FSB
1 1 1  JP4 JP5 JP6	JP4: Pin 1-2 short JP5: Pin 1-2 short	1333Mhz FSB

COM2MODE: RS232/RS422/RS485

COM2 support multi-protocols include RS232, RS422 and RS485.
The Protocols of COM2 can be set up through jumpers.
COM2MODE: COM2 Protocols selection.
The pin-out for each mode is illustrated on next chapter.

COM2MODE	I/F TYPE
1 17  2 18	**RS-232** (default)
1 17  2 18	**RS-422**
1 17  2 18	**RS-485**

2.2 Connectors on the TR-995

The connectors on the TR-995 allow you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers and etc. The following table lists the connectors on

Connector Locations on the TR-995 ..... *14*
ATX_12V Connector *15*
ATX_PWR *15*
AT_KB Connector *16*
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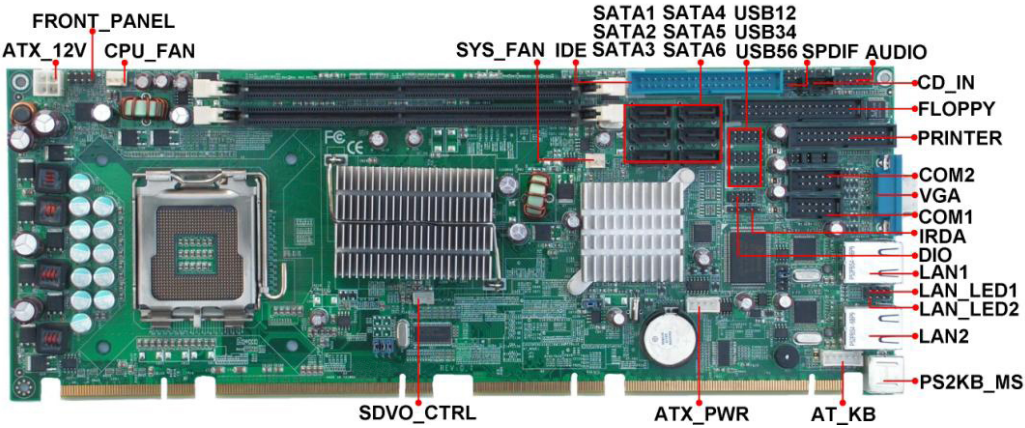
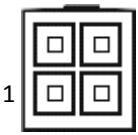
LAN_LED2 Connector *24*
PS/2 Keyboard & Mouse Connector *25*
PRINTER Connector *25*
SATA1~6 Connectors *26*
System FAN Connector *26*
SPDIF Connector *26*
SDVO_CTRL *27*
USB12, 34, 56 Connectors *27*
VGA Connector *28*

Connector Locations on the TR-995



ATX_12V Connector

The ATX_12V power connector mainly supplies power to the CPU.
Caution!
If the ATX_12V power connector is not connected, the system will not start.



ATX_12V

Pin #	Signal Name
1	GND
2	GND
3	+12V
4	+12V

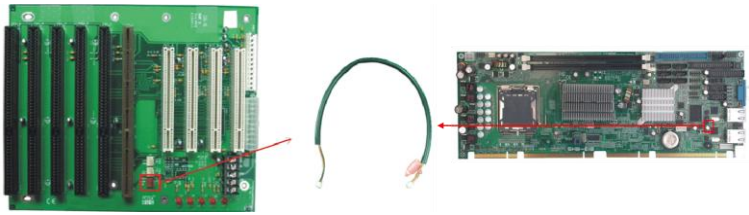
ATX_PWR

This is a four-pin connector to supports the ATX power and corresponding back-plane. When your back-plane is configured to perform ATX power supply Soft-on/off function, you have to connect the control signals and stand-by power on this connector to your back-plane by a corresponding cable.

1

Pin #	Signal Name
1	PWOK
2	5VSB
3	PS_ON-
4	GND

When using ATX power supply soft-on/off function, please make sure remove AT_MODE jumper.
The setting is illustrated as below:

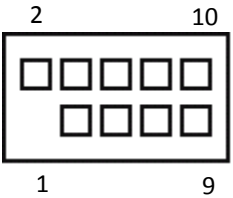


BACKPLANE CABLE TR-995

AT_KB Connector

Pin #	Signal Name
1	KBCLK
2	KBDAT
3	PWOK
4	GND
5	KBVCC

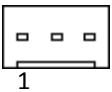
AUDIO Connector



Pin #	Signal Name
1	KEY
2	NC
3	MIC1-IN-L
4	MIC1-IN-R
5	AGND
6	AGND
7	LINEOUT-L
8	LINE-IN-L
9	LINEOUT-R
10	LINE-IN-R

CPU FAN Connector

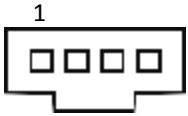
This is a 3-pin header for the CPU fan.



Pin #	Signal Name
1	Ground
2	+12V
3	CPUPWM

CD_IN Connector

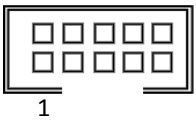
CD_IN connector is designed for wire the CD_ROM audio signals to the on-board Audio CODEC.



Pin #	Signal Name
1	CD_Left
2	GND
3	GND
4	CD_Right

COM1 Serial Port

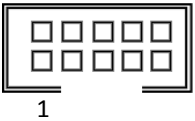
COM1, a 10-pins box-header connector, is the onboard COM1 serial port of the E18. The following table shows its pin assignments.



Pin #	Signal Name
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND, ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	+5V,Ring-IN or +12V
10	NC

COM2 Serial Port

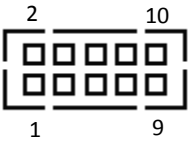
COM2, a 10-pins box-header connector, is the onboard COM2 serial port of the E18. The following table shows its pin assignments.



Pin #	RS232 Mode Signal Name	RS422/RS485 Mode Signal Name
1	DCD, Data carrier detect	TX- (422/485)
2	RXD, Receive data	TX+ (422/485)
3	TXD, Transmit data	RX+ (422)
4	DTR, Data terminal ready	RX- (422)
5	GND, ground	GND
6	DSR, Data set ready	N.C.
7	RTS, Request to send	N.C.
8	CTS, Clear to send	N.C.
9	+5V,Ring-IN or +12V	N.C.
10	N.C.	N.C.

DIO Connector

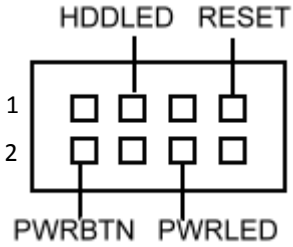
DIO ports support 8 digital I/O bits. Each bit can be configured as Input or output individually. All bits are 5V tolerant.



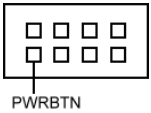
Signal Name	Pin #	Pin #	Signal Name
GND	1	2	+5V
DIO_0	3	4	DIO_4
DIO_1	5	6	DIO_5
DIO_2	7	8	DIO_6
DIO_3	9	10	DIO_7

FRONT_PANEL Connector

The front panel of the case has a control panel, which provides light indication of the computer activities and switches to change the computer status.

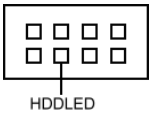


- **PWRBTN (ATX Power ON/OFF Button)**
  This 2-pin connector acts as the "Power Supply On/Off Switch" on the SHB-E18 main board. When pressed, the switch will force the Main board to power on. When pressed again, it will force the main board to power off.



PWRBTN Pin #	Signal Name
1	5VSB
2	PWRBTN

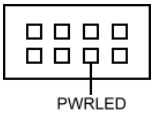
- **HDDLED (IDE Hard Disk LED Connector)**
  This connector connects to the hard drive activity LED on control panel. This LED will flash when the HDD is being accessed.



HDDLED Pin #	Signal Name
3	VCC
4	HDDLED

- **PWRLED (Power-On LED)**

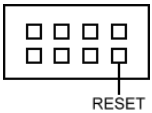
  This connector allows users to connect to Front Panel Power indicator.



PWR LED Pin #	Signal Name
5	PWRLED
6	Ground

- **RESET**

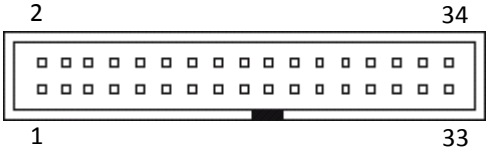
  The reset switch allows the user to reset the system without turning the main power switch off and then on. Orientation is not required when making a connection to this header.



RESET1 Pin #	Signal Name
7	SYS_RST
8	Ground

Floppy Drive Connector

Floppy connector is a 34-pin header and will support up to 2.88MB floppy drives.



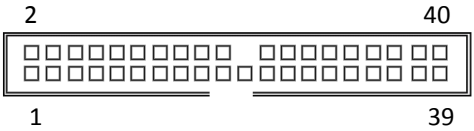
Signal Name	Pin #	Pin #	Signal Name
Ground	1	2	RM/LC
Ground	3	4	No connect
Ground	5	6	No connect
Ground	7	8	Index
Ground	9	10	Motor enable 0
Ground	11	12	Drive select 1
Ground	13	14	Drive select 0
Ground	15	16	Motor enable 1
Ground	17	18	Direction
Ground	19	20	Step
Ground	21	22	Write data
Ground	23	24	Write gate
Ground	25	26	Track 00
Ground	27	28	Write protect
Ground	29	30	Read data
Ground	31	32	Side 1 select
Ground	33	34	Diskette change

IRDA Connector

This connector is used for an IRDA connector for wireless communication.

IrDA Pin #	Signal Name
1	+5V
2	FIR
3	IR-RX
4	Ground
5	IR-TX

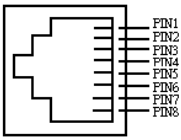
IDE Connector



Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Key
DRQ	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host PU 0
DACK	29	30	Ground
IRQ14	31	32	No connect
Address 1	33	34	P66DET
Address 0	35	36	Address 2
Chip select 1	37	38	Chip select 3
Activity LED	39	40	GND

LAN1, 2- RJ45 Connectors

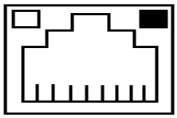
This connector is for the 10/100/1000Mbps Ethernet capability. The figure below shows the pin out assignments of this connector and its corresponding input jack.



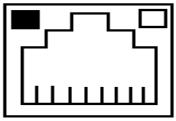
Pin #	Signal Name
1	MDI0+
2	MDI0-
3	MDI1+
4	MDI1-
5	MDI2+
6	MDI2-
7	MDI3+
8	MDI3-

LAN RJ45 LED1, 2

The LAN_LEDs on top of RJ45 are to display the current network connection status. The green color LED on the right-hand side shows the link status and TX/RX activity. The Orange/Green Dual color LED on the left-hand side indicates the operation mode, i.e. 10Base-T, 100Base-T or 1000Base-T.



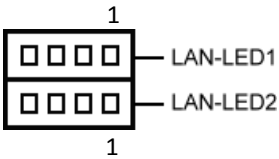
LNK/ACT	STATUS
GREEN	Link
OFF	Disconnected
FLASH	Packets TX/RX



SPEED	MODE
ORANGE	1000 Mbps
GREEN	100 Mbps
OFF	10 Mbps

LAN_LED1 Connector

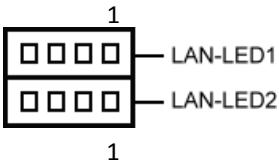
The 4-pins LAN_LED1 connector designed for LAN1 port is for applications need to display LAN1 port status on front panel or the places administrators are easy to access.



Pin #	Signal Name
1	1_ACTLED
2	1_PULUP
3	1_LINK1000
4	1_LINK100

LAN_LED2 Connector

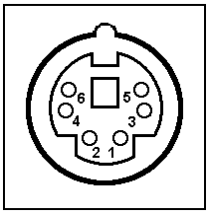
The 4-pins LAN_LED2 connector designed for LAN2 port is for applications need to display LAN2 port status on front panel or the places administrators are easy to access.



Pin #	Signal Name
1	2_ACTLED
2	2_PULUP
3	2_LINK1000
4	2_LINK100

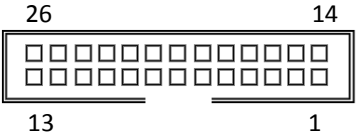
PS/2 Keyboard & Mouse Connector

The following table describes the pin assignment of PS/2 Keyboard and Mouse connector, which is mount on button of bracket. To attach PS/2 Keyboard and mouse, users need to connect trough a PS/2 1-to-2 Y-cable and plug into this Mini-Din connector. All the PISA-E11 boards come with a Y-cable. Contact with your dealer if the Y-cable is missing.



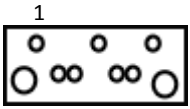
Pin #	Signal Name
1	Keyboard data
2	Mouse data
3	GND
4	5V
5	Keyboard clock
6	Mouse clock

PRINTER Connector



Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
PD7, parallel data 7	9	22	Ground
ACK, acknowledge	10	23	Ground
Busy	11	24	Ground
Paper empty	12	25	Ground
Select	13	26	N/A

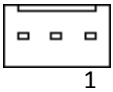
SATA1~6 Connectors



Pin #	Signal Name
1	GND
2	SATATX+
3	SATATX-
4	GND
5	SATARX-
6	SATARX+
7	GND

System FAN Connector

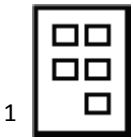
This is a 3-pin header for the system fan.



Pin #	Signal Name
1	Ground
2	+12V
3	SYSPWM

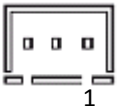
SPDIF Connector

SPDIF connector is for S/PDIF audio module that allows digital instead of analog sound input or output.



Signal Name	Pin	Pin	Signal Name
VCC	1	2	NC
SPDIFO	3	4	SPDIFI
GND	5	6	GND

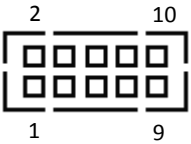
SDVO_CTRL



Pin #	Signal Name
1	Exp_EN
2	SDVO_CLCLK
3	SDVO_CLDATA

USB12, 34, 56 Connectors

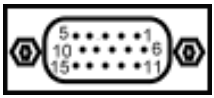
The following table shows the pin outs of the USB12, USB34, USB56 connectors.



Signal Name	Pin #	Pin #	Signal Name
N.C.	1	2	VCC
GND	3	4	USB-
USB+	5	6	USB+
USB-	7	8	GND
VCC	9	10	N.C.

VGA Connector

The pin assignments of VGA CRT connector are as follows:



Signal Name	Pin #	Pin #	Signal Name
Red	1	2	Green
Blue	3	4	N.C.
GND	5	6	GND
GND	7	8	GND
N.C.	9	10	GND
N.C.	11	12	DDC_DATA
HSYNC	13	14	VSYNC
DDC_CLK	15		

Chapter 3 BIOS Setup

This chapter describes the different settings available in the Award BIOS that comes with the TR-995 CPU card. The topics covered in this chapter are as follows:

3.1 MAIN MENU 31
3.2 STANDARD CMOS FEATURES 33
3.3 ADVANCED BIOS FEATURES 39
3.4 ADVANCED CHIPSET FEATURES..... 46
3.5 INTEGRATED PERIPHERALS..... 50
3.6 POWER MANAGEMENT SETUP 59
3.7 PNP/PCI CONFIGURATION..... 64
3.8 PC HEALTH STATUS 68
3. 9 LOAD FAIL-SAFE DEFAULTS..... 70
3.10 LOAD OPTIMIZED DEFAULTS 70
3.11 SET SUPERVISOR/ USER PASSWORD..... 71
3.12 SAVE & EXIT SETUP 73
3.13 EXIT WITHOUT SAVING 73

BIOS Introduction

This manual describes AMI's Setup program, which is built into the ROM BIOS. The Setup program allows users to modify the basic system configuration. This special information is then stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

Starting Setup

The following pages are meant to give you a better insight into the options you have to setup your system. Many options depend on the choice of type of memory, memory speed, peripherals and the programs that you will be running. The effective of these settings are related to system performance that can destabilize operation. We urge you to proceed with caution.

When the system is powered on, use the bios set program when you start up your system, reconfiguring your system, or press “Delete” promptly to run setup. This section will explain how to configure your system using this utility. And this change will be recognized and record them in the CMOS RAM of the SPI chip.

When you start up the computer, the system provides you the opportunity to set the program. Press the “del” during the P.O.S.T (Power-on Self-Test) to enter the program setting. And the POST will continue with the test routines. And the firmware chip will store the setup utility on the board. However, if you want to enter the setup after the POST, you can press Ctrl + Alt + Del simultaneously or turn off the power then back on.

3.1 Main Menu

Phoenix-AwardBIOS CMOS Setup Utility	
►Standard CMOS Features	Load Fail-Safe Defaults
►Advanced BIOS Features	Load Optimized Defaults
►Advance Chipset Features	Set Supervisor Password
►Integrated Peripherals	Set User Password
►Power Management Setup	Save & Exit Setup
►PnP/PCI Configurations	Exit Without Saving
►PC Health Status	
Esc :Quit F10:Save & Exit Setup	↑ ↓ ←→ : Select Item
Load Optimized Defaults	

(Figure 1)

Note that a brief description of each highlighted selection appears at the bottom of the screen.

Setup Items

The main menu includes the following main setup categories.

➢Standard CMOS Features

Use this menu for basic system configuration.

➢ Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

➢ Advance Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

➢ Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

➢ Power Management Setup

Use this menu to specify your settings for power management.

➢ PnP/PCI Configurations

Use this menu to set up the PnP/PCI configuration.

➢ PC Health Status

Use this menu to display the CPU temperature, FAN speed and voltages.

➢ Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

➢ Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

➢ Set Supervisor/ User Password

Use this menu to set User and Supervisor Passwords.

➢ Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

➢ Exit Without Saving

Abandon all CMOS value changes and exit setup.

3.2 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <Pg Dn> keys to select the value you want in each item.

Phoenix-Award BIOS CMOS Setup Utility Standard CMOS Features		
Date (mm :dd: yy)	Mon, Apr 28 2008	Item Help
Time (hh: mm: ss)	15 : 35 : 35	
		Menu Level ►
►IDE Channel 0 Master	[None]	
►IDE Channel 0 Slave	[None]	Change the day, month, year, and century
►IDE Channel 1 Master	[None]	
►IDE Channel 1 Slave	[None]	
►IDE Channel 2 Master	[None]	
►IDE Channel 3 Master	[None]	
Drive A	[1.44 M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All , But Disk/Key]	
Base Memory	639K	
Extend Memory	1037312K	
Total Memory	1038336K	
↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default		

(Figure 2)

This table shows the selections that you can make on the Standard CMOS Menu.

Item	Options	Description
Date	Month DD YYYY	Set the system date. Note that the 'Day' automatically changes when you set the date
Time	HH : MM : SS	Set the system time
IDE Channel 0 Master	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
IDE Channel 0 Slave	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
IDE Channel 1 Master	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
IDE Channel 1 Slave	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
IDE Channel 2 Master	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
IDE Channel 3 Master	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
Drive A Drive B	None 360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in	Select the type of floppy disk drive installed in your system
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify you
Base Memory	N/A	Displays the amount of conventional memory detected during boot up
Extended Memory	N/A	Displays the amount of extended memory detected during boot up
Total Memory	N/A	Displays the total memory available in the system

➢IDE Channel 0, 1 Master/ Slave

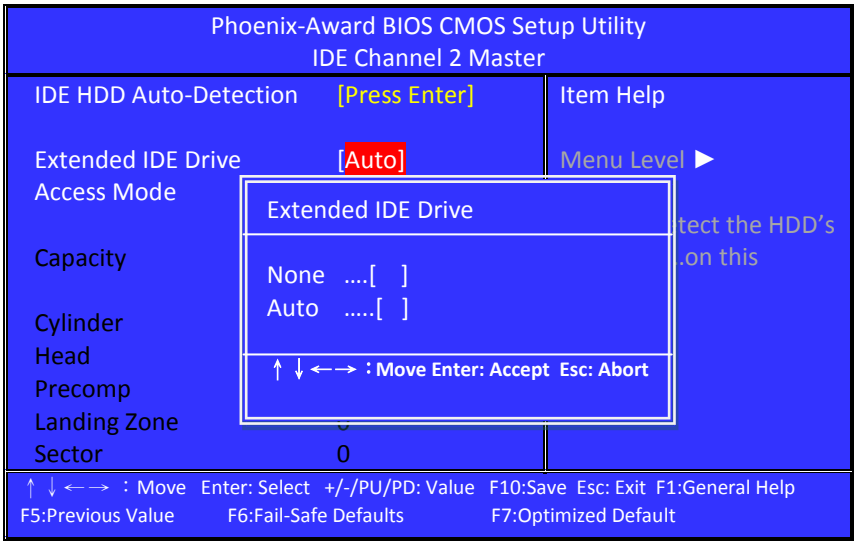
The IDE adapters control the hard disk drive. Use a separate sub menu to configure each hard disk drive. Figure 3 shows the IDE Channel 0 / Channel 1 master sub menu.

Phoenix-Award BIOS CMOS Setup Utility IDE Channel 0 Master		
IDE HDD Auto-Detection	[Press Enter]	Item Help
IDE Channel 0 Master	[Auto]	Menu Level ►
Access Mode	[Auto]	To auto-detect the HDD's size, head…on this channel
Capacity	0 MB	
Cylinder	0	
Head	0	
Precomp	0	
Landing Zone	0	
Sector	0	
↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default		

(Figure 3)

➢IDE Channel 2, 3 Master

Figure 4 shows the IDE Channel 2 / Channel 3 master sub menu.



(Figure 4)

Extended IDE Drive

The choice: None, Auto **(default)**

Use the legend keys to navigate through this menu and exit to the main menu. Use the Table listed below to configure the hard disk.

Item	Options	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Channel 0 Master	None Auto Manual	Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE!
Access Mode	CHS LBA Large Auto	Choose the access mode for this hard disk
Capacity	Auto Display your disk drive size	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.
The following options are selectable only if the 'IDE Channel 0 Master' item is set to 'Manual'		
Cylinder	Min = 0 Max = 65535	Set the number of cylinders for this hard disk.
Head	Min = 0 Max = 255	Set the number of read/write heads
Precomp	Min = 0 Max = 65535	**** Warning: Setting a value of 65535 means no hard disk
Landing zone	Min = 0 Max = 65535	****
Sector	Min = 0 Max = 255	Number of sectors per track

Drive A/B

These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

None	360K 5.25 in.	1.2M 5.25 in.	720K 3.5 in.	1.44M 3.5 in. **(default)**	2.88M 3.5 in.

Video

This field selects the type of video display card installed in your system.

You can choose the following video display cards:

EGA/VGA: For EGA, VGA, SEGA, SVGA or PGA monitor adapters. **(default)**

CGA 40: Power up in 40 column mode.

CGA 80: Power up in 80 column mode.

MONO: For Hercules or MDA adapters.

Halt On

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

All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
No errors	The system boot will not be halted for any error that may be detected.
All, But Keyboard	The system boot will not be halted for a keyboard error; it will stop for all other errors
All, But Diskette	The system boot will not be halted for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not be halted for a key-board or disk error; it will stop for all others. **(default)**

3.3 Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

Phoenix-Award BIOS CMOS Setup Utility
Advanced BIOS Features

►CPU Features	[Press Enter]	Item Help
►Hard Disk Boot Priority	[Press Enter]	
Virus Warning	[Disabled]	Menu Level ►
CPU L3 Cache	[Enabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Hard Disk]	
Second Boot Device	[CDROM]	
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Swap Floppy Drive	[Disabled]	
Boot Up Floppy Seek	[Enabled]	
Boot UP Num Lock Status	[Off]	
Gate A20 Option	[Fast]	
Typematic Rate Setting	[Disabled]	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	[Setup]	
APIC Mode	[Enabled]	
MPS Version Control For OS	[1.4]	
OS Select For DRAM > 64MB	[Non-OS2]	
Report No FDD For WIN 95	[No]	

↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit
F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default

(Figure 5)

➢CPU Feature

Phoenix-Award BIOS CMOS Setup Utility CPU Feature		
PPM Mode	[Native Mode]	Item Help
Limit CPUID Max Val	[Disabled]	
C1E Function	[Auto]	Menu Level ►
Execute Disabled Bit	[Enabled]	
Virtualization Technology	[Enabled]	
Core Multi-Processing	[Enabled]	
↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default		

(Figure 6)

PPM Mode

The choice: Native Mode **(default)**, SMM Mode.

Limit CPUID Max Val

The choice: Enabled, Disabled **(default)**.

C1E Function

The choice: Auto **(default)**, Disabled.

Execute Disabled Bit

The choice: Enabled, Disabled **(default)**.

Virtualization Technology

The choice: Enabled **(default)**, Disabled.

Core Multi-Processing

The choice: Enabled **(default)**, Disabled.

➢Hard Disk Boot Priority

Phoenix-Award BIOS CMOS Setup Utility Hard Disk Boot Priority	
1.Bootable Add-in Cards	Item Help Menu Level ► Use <↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.
↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default	

(Figure 7)

Bootable Add-in Cards

This is for setting the priority of the hard disk boot order when the "Hard Disk" option is selected in the "[First/Second/Third] Boot Device "menu item.

Virus Warning

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection.
If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

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

CPU L3 Cache

This field is used to enable or disable the CPU's L3 cache.
The choice: Enabled **(default)**, Disabled.

Quick Power On Self Test

Allows the system to skip certain tests while booting.
This will decrease the time needed to boot the system.

Enabled	Enable quick POST**(default)**
Disabled	Normal POST

First/Second/Third Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.
The Choice: Floppy, LS120, Hard-Disk, ZIP100, CDROM, Disabled, USB-FDD, USB-ZIP, USB-CDROM, Legacy LAN.

Item	**Default**
First Boot Device	Hard-Disk
Second Boot Device	CDROM
Third Boot Device	LS120

Boot Other Device

When enabled, BIOS will try to load the operating system from other device when it failed to load from the three devices above.
The choice: Enabled **(default)**, Disabled.

Swap Floppy Drive

If the system has two floppy drives, choose "Enabled" to assign physical drive B to logical drive A and vice-versa.
The choice: Enabled, Disabled **(default)**.

Boot Up Floppy Seek

Selection of the command ‘Disabled’ will speed the boot up.
Selection of ‘Enabled’ Searches disk drives during boot up.
The choice: Enabled **(default)**, Disabled

Boot Up Num Lock Status

Selects power on state for Num Lock.
The choice: On, Off **(default)**.

Gate A20 Option

The choice:
Normal: A pin in the keyboard controller controls GateA20.
Fast **(default)**: Lets chipset control GateA20.

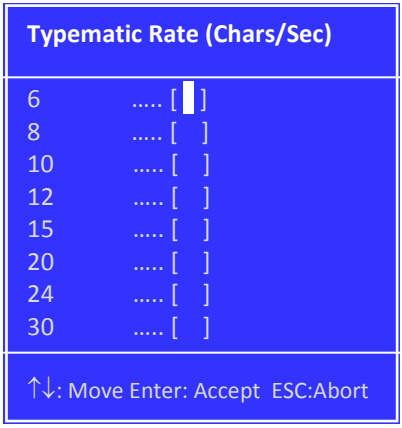
Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.
The choice: Enabled, Disabled **(default)**.

If Typematic Rate Setting is [Enabled], can choice Rate and Delay:

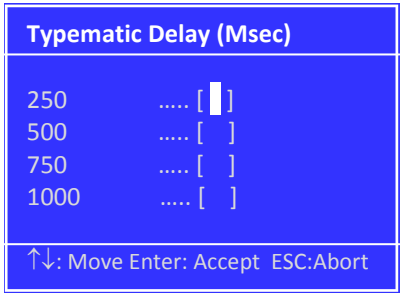
Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a keystroke when you hold the key down.
The choice: 6 **(default)**, 8, 10, 12, 15, 20, 24, 30.



Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.
The choice: 250 **(default)**, 500, 750, and 1000.



Security Option

Select whether the password is required every time the system boots or only when you enter setup.

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

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

APIC Mode

This setting allows to enable the APIC mode.
The choice: Enabled **(default)**, Disabled.

MPS Version Control For OS

The BIOS supports version 1.1 and 1.4 of the Intel multiprocessor specification.
Select version supported by the operation system running on this computer.
The choice: 1.1, 1.4 **(default)**.

OS Select For DRAM > 64MB

Select OS2 only if you are running OS/2 operating system with greater than 64MB of RAM on the system.
The choice: Non-OS2 **(default)**, OS2.

Report No FDD For WIN 95

The choice: No **(default)**, Yes.

3.4 Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

```
Phoenix-Award BIOS CMOS Setup Utility
Advanced Chipset Features

  DRAM Timing Selectable          [By SPD]      Item Help
x CAS Latency Time                [Auto]
x Dram RAS# to CAS# Delay         [Auto]        Menu Level ►
x DRAM RAS# Precharge             [Auto]
x Precharge dealy (tRAS)          [Auto]
x System Memory Frequency         [Auto]
  System BIOS Cacheable           [Enabled]
  Memory Hole At 15M-16M          [Disabled]
► PCI Express Root Port Func      [Press Enter]

  **VGA Setting**
  PEG/Onchip VGA Control          [Auto]
  On-Chip Frame Buffer Size       [    8MB]
  DVMT Mode                       [DVMT]
  DVMT / FIXED Memory Size        [128MB]
  Lan1 Chip Control               [Enabled]
  Lan2 Chip Control               [Enabled]

↑↓←→ : Move  Enter: Select  +/-/PU/PD: Value  F10:Save  Esc: Exit  F1:General
Help F5:Previous Value  F6:Fail-Safe Defaults  F7:Optimized Default
```

(Figure 8)

DRAM Timing Selectable

The choice: Manual, By SPD **(default)**.

If DRAM Timing Selectable is [Manual], can choice these Items:

►CAS Latency Time
►Dram RAS# to CAS# Delay
►DRAM RAS# Precharge
►Precharge dealy (tRAS)
►System Memory Frequency

CAS Latency Time

This controls the latency between DDR RAM read command and the time that the data actually becomes available.
Leave this on the default setting.
The choice: 5, 4, 3, 6, Auto **(default)**.

DRAM RAS# to CAS# Delay

In order to improve performance, certain space in memory is reserved for PISA cards.
This memory must be mapped into the memory space below 16MB.
The choice: 2, 3, 4, 5, 6, Auto **(default)**.

DRAM RAS# Precharge

This controls the idle clocks after issuing a precharge command to DRAM.
Leave this on the default setting.
The choice: Auto **(default)**, 2, 3,4,5,6.

Precharge dealy (tRAS)

The choice: Auto **(default)**, 4,5,6,7,8,9,10,11,12,13,14,15.

System Memory Frequency

The choice: Auto **(default)**, 533MHz, 667MHz.

System BIOS Cacheable

The choice: Enabled **(default)**, Disabled.

Memory Hole At 15M-16M

Enabling this feature reserves 15 MB to 16 MB memory address space for ISA expansion cards that specifically require this setting. This makes memory from 15 MB and up unavailable to the system. Expansion cards can only access memory up to 16 MB.
The choice: Enabled, Disabled **(default)**

➢PCI Express Root Port Func

The choice: [Press Enter].

Phoenix-Award BIOS CMOS Setup Utility PCI Express Root Port Func		
		Item Help
PCI Express Port 1	[Auto]	
PCI Express Port 2	[Auto]	Menu Level ►
PCI Express Port 3	[Auto]	
PCI Express Port 4	[Auto]	
PCI Express Port 5	[Auto]	
PCI-E Compliancy Mode	[v1.0a]	
↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default		

PCI Express Port 1, 2, 3, 4, 5

The choice: Auto **(default)**, Enabled, Disabled.

PCI-E Compliancy Mode

The choice: v1.0a (**default)**, v1.0.

PEG/Onchip VGA Control

The choice: Onchip VGA, PEG Port, Auto **(default)**.

On-Chip Frame Buffer Size

User can select frame buffer size.
The choice: 1MB, 8MB **(default)**.

DVMT Mode

This field shows the current DVMT mode.
The choice: FIXED, DVMT **(default)**, BOTH.

DVMT / FIXED Memory Size

This field is used to select the graphics memory size used by DVMT/ Fixed mode.
The choice: 64MB, 128MB **(default)**, 224MB.

Lan1 Chip Control

The choice: Enabled **(default)**, Disabled.

Lan2 Chip Control

The choice: Enabled **(default)**, Disabled.

3.5 Integrated Peripherals

Phoenix-Award BIOS CMOS Setup Utility Integrated Peripherals		
► On Chip IDE Device	[Press Enter]	Item Help
► Super IO Device	[Press Enter]	
Watch Dog Timer Select	[Disabled]	Menu Level ►
►USB Device Setting	[Press Enter]	
↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default		

➢On Chip IDE Device

Phoenix-Award BIOS CMOS Setup Utility On Chip IDE Device		
IDE HDD Block Mode	[Enabled]	Item Help
IDE DMA transfer access	[Enabled]	
IDE Primary Master PIO	[Auto]	Menu Level ►
IDE Primary Slave PIO	[Auto]	If your IDE hard
IDE Primary Master UDMA	[Auto]	drive suppers
IDE Primary Slave UDMA	[Auto]	block mode select
On-Chip Secondary PCI IDE	[Enabled]	Enabled for
IDE Secondary Master PIO	[Auto]	automatic
IDE Secondary Slave PIO	[Auto]	detection of the
IDE Secondary Master UDMA	[Auto]	optimal number
IDE Secondary Slave UDMA	[Auto]	of lock
SATA Mode	[IDE]	read/writes per
LEGACY Mode Support	[Disabled]	sector the drive
		can support
↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default		

IDE HDD Block Mode

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

The choice: Enabled **(default)**, Disabled.

IDE DMA transfer access

The choice: Enabled **(default)**, Disabled.

IDE Primary/Secondary, Master/Slave PIO

The choice: Auto **(default)**, Mode0, Mode1, Mode2, Mode3, Mode4.

Caution: Do not use the wrong setting or you will have drive errors.

PIO means Programmed Input/output.

Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves.

Your system supports five modes, 0 (default) to 4, which primarily differ in timing.

When Auto is selected, the BIOS will select the best available mode after checking your drive.

Auto	The BIOS will automatically set the system according to your hard disk drive's timing **(default)**.
Mode 0-4	You can select a mode that matches your hard disk drive's timing.

IDE Primary/Secondary, Master/ Slave UDMA

The choice: Disabled, Auto **(default).**

On-Chip Secondary PCI IDE

These fields allow you to enable or disable the primary and secondary IDE controller.
Select disabled if you want to add a different hard drive controller.
The choice: Enabled **(default)**, Disabled.

SATA Mode

Controls the SATA controller's operating mode.
The choice: IDE **(default)**, RAID, AHCI.

LEGACY Mode Support

The choice: Enabled, Disabled **(default)**.

➢Super IO Device

Phoenix-Award BIOS CMOS Setup Utility Super IO Device		
Onboard FDC Controller	[Enabled]	Item Help
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	Menu Level ►
UART Mode Select	[Normal]	
x RxD , TxD Active	Hi, Lo	
x IR Transmission Delay	Enabled	
x UR2 Duplex Mode	Half	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
x EPP Mode Select	EPP1.7	
x ECP Mode Use DMA	3	
PWRON After PWR-Fail	[Off]	
↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default		

Onboard FDC Controller

The choice: Enabled **(default)**, Disabled.

Onboard Serial Port 1

Select an address and corresponding interrupt for the first serial ports.
The choice: Disable, 3F8/IRQ4 **(default)**, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto.

Onboard Serial Port 2

Select an address and corresponding interrupt for the second serial ports.
The choice: Disable, 3F8/IRQ4, 2F8/IRQ3 **(default)**, 3E8/IRQ4, 2E8/IRQ3, Auto.

UART Mode Select

This item allows you to select which mode for the Onboard Serial Port 2.
The choice: IrDA, ASKIR, Normal **(default).**
If UART Mode Select is IrDA and ASKIR will show:

Phoenix-Award BIOS CMOS Setup Utility Super IO Device		
Onboard FDC Controller	[Enabled]	Item Help
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	Menu Level ▶
UART Mode Select	[IrDA]	
RxD , TxD Active	[Hi, Lo]	
IR Transmission Delay	[Enabled]	
UR2 Duplex Mode	[Half]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
x EPP Mode Select	EPP1.7	
x ECP Mode Use DMA	3	
PWRON After PWR-Fail	[Off]	

↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit
F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default

RxD, TxD Active

The choice:

UART Mode Select

Hi, Hi .....[ ]
Hi, Lo .....[ ]
Lo, Hi .....[ ]
Lo, Lo .....[ ]

↑↓: Move Enter: Accept ESC: Abort

IR Transmission Delay

The choice: Disabled, Enabled **(default)**.

UR2 Duplex Mode

The choice: Full, Half **(default)**.

Onboard Parallel Port

This item allows you to determine onboard parallel port controller I/O address setting.
The choice: 378/IRQ7 **(default)**, 278/IRQ5, 3BC/IRQ7, Disabled.

Parallel Port Mode

The choice: SPP **(default)**, EPP, ECP, ECP+EPP, Normal.

SPP	Sets the parallel port to function as a Standard Parallel Port. This is the default (and slowest) option.
EPP	Sets the parallel port to Enhanced Parallel Port mode. Sometimes also called "Bi-directional"
ECP	Sets the parallel port up as an Enhanced Capabilities Port. This setting requires the use of a DMA channel

If Parallel Port Mode Select is [SPP] and [Normal] will show:

```
Phoenix-Award BIOS CMOS Setup Utility
Super IO  Device

   Onboard  Serial Port 1      [3F8/IRQ4]     Item Help
   Onboard  Serial Port 2      [2F8/IRQ3]
   UART   Mode Select          [IrDA]         Menu Level ►
   RxD  ,  TxD  Active         [Hi, Lo]
   IR Transmission Delay       [Enabled]
   UR2  Duplex  Mode           [Half]
   Onboard  Parallel  Port     [378/IRQ7]
   Parallel  Port Mode         [SPP]
 x EPP Mode Select             EPP1.7
 x ECP Mode  Use DMA           3
   PWRON  After  PWR-Fail      [Off]

↑↓←→ : Move   Enter: Select   +/-/PU/PD: Value   F10:Save  Esc: Exit
F1:General Help F5:Previous Value  F6:Fail-Safe Defaults   F7:Optimized Default
```

If Parallel Port Mode Select is [EPP] will show:

Phoenix-Award BIOS CMOS Setup Utility Super IO Device		
Onboard Serial Port 1	[3F8/IRQ4]	Item Help
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[IrDA]	Menu Level ▶
RxD , TxD Active	[Hi, Lo]	
IR Transmission Delay	[Enabled]	
UR2 Duplex Mode	[Half]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[EPP]	
EPP Mode Select	[1.7]	
x ECP Mode Use DMA	3	
PWRON After PWR-Fail	[Off]	
↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default		

EPP Mode Select

Select EPP port type 1.7 or 1.9.

The choice: 1.7 **(default)**, 1.9.

If Parallel Port Mode Select is [ECP] will show:

Phoenix-Award BIOS CMOS Setup Utility Super IO Device		
Onboard Serial Port 1	[3F8/IRQ4]	Item Help
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[IrDA]	Menu Level ▶
RxD , TxD Active	[Hi, Lo]	
IR Transmission Delay	[Enabled]	
UR2 Duplex Mode	[Half]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[ECP]	
x EPP Mode Select	1.7	
ECP Mode Use DMA	[3]	
PWRON After PWR-Fail	[Off]	
↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default		

ECP Mode Use DMA

If your system supports ECP parallel port mode and you have the port set to use ECP, you must use this setting to assign a DMA channel for use by the port.
The choice: DMA1, DMA3 **(default)**.

If Parallel Port Mode Select is [ECP+EPP] will show:

Phoenix-Award BIOS CMOS Setup Utility Super IO Device		
Onboard Serial Port 1	[3F8/IRQ4]	Item Help
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[IrDA]	Menu Level ►
RxD , TxD Active	[Hi, Lo]	
IR Transmission Delay	[Enabled]	
UR2 Duplex Mode	[Half]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[ECP+EPP]	
EPP Mode Select	[1.7]	
ECP Mode Use DMA	[3]	
PWRON After PWR-Fail	[Off]	
↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default		

EPP Mode Select

Select EPP port type 1.7 or 1.9.
The choice: 1.7 **(default)**, 1.9.

ECP Mode Use DMA

If your system supports ECP parallel port mode and you have the port set to use ECP, you must use this setting to assign a DMA channel for use by the port.
The choice: DMA1, DMA3 **(default)**.

PWRON After PWR-Fail

When power fails, you can select power ON or Off or Former status.
The choice: Off **(default)**, On, Former-Sts.

Watch Dog Timer Select

The choice: Disabled **(default)**, Enable.

➢ USB Device Setting

```
Phoenix-Award BIOS CMOS Setup Utility
USB Device Setting

USB 1.0 Controller          [Enabled]        Item
USB 2.0 Controller          [Enabled]        Help
USB Operation Mode          [High Speed]
USB Keyboard Function       [Enabled]        Menu
USB Mouse Function          [Enabled]        Level
USB Storage Function        [Enabled]        ►

***USB Mass Storage Device Boot Setting***

↑ ↓ ←→ : Move  Enter: Select  +/-/PU/PD: Value  F10:Save Esc: Exit  F1:General Help
F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default
```

USB 1.0 Controller

This entry is for disable/enable USB1.0 controller only. The BIOS itself may/may not have high speed USB support.
If the BIOS has high speed USB support built in, the support will be automatically turn on when high speed device were attached.
The choice: Enabled **(default)**, Disabled.

USB 2.0 Controller

This entry is for disable/enable USB2.0 controller only. The BIOS itself may/may not have high speed USB support.
If the BIOS has high speed USB support built in, the support will be automatically turn on when high speed device were attached.
The choice: Enabled **(default)**, Disabled.

USB Operation Mode

The choice: Full/Low Speed, High Speed **(default)**.

USB Keyboard Function

The choice: Enabled **(default)**, Disabled.

USB Mouse Function

The choice: Enabled **(default)**, Disabled.

USB Storage Function

The choice: Enabled **(default)**, Disabled.

3.6 Power Management Setup

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

```
Phoenix-Award BIOS CMOS Setup Utility
Power Management Setup

  ACPI  Function                  [Enabled]        Item Help
  Power  Management               [User  Define]
  Video  Off  Method              [DPMS]           Menu Level ►
  Video  Off  In  Suspend         [Yes]
  Suspend  Type                   [Stop  Grant]
  MODEM  Use  IRQ                 [3]
  Suspend  Mode                   [Disabled]
  HDD  Power Down                 [Disabled]
  Soft-Off  by  PWR-BTTN          [Instant-Off]
  CPU  THRM-Throttling            [50.0%]
  Wake-Up  by  PCI  card          [Enabled]
  Power  On  by  Ring             [Enabled]
  Resume  by  Alarm               [Disabled]
x Data(of  Month)Alarm            0
x Time(hh: mm: ss)Alarm           0 : 0  : 0

**Reload  Global  Timer Events**
  Primary  IDE 0                  [Disabled]
  Primary  IDE 1                  [Disabled]
  Secondary  IDE 0                [Disabled]
  Secondary  IDE 1                [Disabled]
  FDD , COM , LPT  Port           [Disabled]
  PCI  PIRQ[A-D]#                 [Disabled]

↑↓←→ : Move  Enter: Select  +/-/PU/PD: Value  F10:Save  Esc: Exit  F1:General
Help F5:Previous Value  F6:Fail-Safe Defaults  F7:Optimized Default
```

ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI).
The choice: Enabled **(default)**, Disabled.

Power Management

The choice: User Define **(default)**, Min Saving, Max Saving.

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

Video off Method

This determines the manner in which the monitor is blanked.
This specifies the power saving state that the VGA video subsystem enters after the specified period of display inactivity has expired.
The choice: Blank Screen, V/H SYNC+ Blank, DPMS **(default).**

Blank Screen	The BIOS will only black the screen when the system gets into power management mode and writes blanks to the video buffer.
V/H SYNC + Blank	Writes blanks to the video buffer, and turns off the vertical and horizontal scanning.
DPMS	Allows the BIOS to control the video display card if it supports the DPMS feature **(default).**

Video Off In Suspend

This field is used to activate the video off feature when the system enters the Suspend mode.
The choice: No, Yes **(default)**.

Suspend Type

The choice: Stop Grant **(default)**,PwrOn Suspend.

MODEM Use IRQ

This field is used to set an IRQ channel for the modem installed in your system.
The choice: NA, 3 **(default)**, 4, 5, 7, 9, 10, 11.

Suspend Mode

This field specifies the length of time of system inactivity while in full power on state before the computer enters suspend mode and motivates the enable 'Wake up Events in Doze & Standby' / 'PM Events'.
The choice: 1Min, 2Min, 4Min, 8Min, 12Min, 20Min, 30Min, 40Min,1Hour, Disable **(default)**.

HDD Power Down

When enable and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
The choice: 1Min, 2Min, 3Min, 4Min, 5Min, 6Min, 7Min, 8Min, 9Min, 10Min, 11Min, 12Min, 13Min, 14Min, 15Min, Disable **(default)**.

Soft-Off by PWR-BTTN

This field defines the power off mode when using an ATX power supply.
The choice: Instant-Off, Delay 4 Sec.

Instant-Off	Press power button then Power off instantly .**(default)**
Delay 4 Sec	Press power button 4 sec. to Power off. Enter suspend if button is pressed less than 4 sec.

CPU THRM-Throttling

This field allows you to select the CPU THRM-Throttling rate.
The choice: 75.0%, 50.0% **(default)**, 25.0%.

Wake-Up by PCI card

Enable/Disable PCI PME wake up function.
The choice: Enabled **(default)**, Disabled.

Power On by Ring

Enable/Disable Power on by Ring function.
The choice: Enabled **(default)**, Disabled.

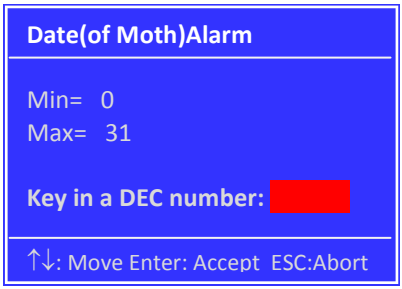
Resume by Alarm

You can set "Resume by Alarm" item to enabled and key in Date/time to power on system.
The choice: Enabled, Disabled **(default).**

If Resume by Alarm is [Enabled], can choice Date Alarm and Time Alarm:

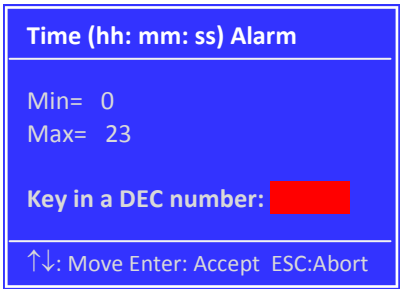
Date (of Month) Alarm

Every day, 1~31.



Time (hh: mm: ss) Alarm

(0~23): (0~59): (0~59).



Primary/ Secondary IDE 0/1

When Enabled, the system will resume from suspend mode if Primary IDE 0 (1) or Secondary IDE 0 (1) is active.
The choice: Enabled, Disabled **(default).**

FDD, COM, LPT Port

When Enabled, the system will resume from suspend mode if FDD, COM port, or LPT port is active.
The choice: Enabled, Disabled **(default)**.

PCI PIRQ [A-D]

When Enabled, the system will resume from suspend mode if interrupt occurs.
The choice: Enabled, Disabled **(default)**.

3.7 PnP/PCI Configuration

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

```
Phoenix-Award BIOS CMOS Setup Utility
PnP/PCI Configuration

  Init Display First                [PCI Slot]        Item Help
  Reset Configuration Data          [Disabled]
                                                      Menu Level ►
  Resources Controlled By           [Auto(ESCD)]
x IRQ Resources                     Press Enter

  PCI/VGA Palette Snoop             [Disabled]
  INT Pin 1 Assignment              [Auto]
  INT Pin 2 Assignment              [Auto]
  INT Pin 3Assignment               [Auto]
  INT Pin 4 Assignment              [Auto]
  INT Pin 5 Assignment              [Auto]
  INT Pin 6 Assignment              [Auto]
  INT Pin 7 Assignment              [Auto]
  INT Pin 8 Assignment              [Auto]

  **PCI Express relative items**
  Maximum Payload Size              [128]

↑↓←→ : Move  Enter: Select  +/-/PU/PD: Value  F10:Save  Esc: Exit  F1:General Help
      F5:Previous Value  F6:Fail-Safe Defaults  F7:Optimized Default
```

Init Display First

This item allows you to choose which one to activate first, PCI Slot or onchip VGA.

The choice: PCI Slot **(default)**, Onboard, PCIEx.

Reset Configuration Data

Default is disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot.
The choice: Enabled, Disabled **(default)**.

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.
The choice: Auto (ESCD) **(default)**, Manual.

If Resources Controlled By is [Manual], can choice IRQ Resource:

```
Phoenix-Award BIOS CMOS Setup Utility
PnP/PCI Configuration

  Init Display First              [PCI  Slot]      Item Help
  Reset  Configuration  Data      [Disabled]
                                                   Menu Level ►
  Resources  Controlled  By       [Manual]
► IRQ  Resources                  [Press Enter]

  PCI/VGA Palette  Snoop          [Disabled]
  INT Pin 1 Assignment            [Auto]
  INT Pin 2 Assignment            [Auto]
  INT Pin 3Assignment             [Auto]
  INT Pin 4 Assignment            [Auto]
  INT Pin 5 Assignment            [Auto]
  INT Pin 6 Assignment            [Auto]
  INT Pin 7 Assignment            [Auto]
  INT Pin 8 Assignment            [Auto]

  **PCI Express relative items**
  Maximum Payload Size            [128]

↑ ↓ ←→ : Move  Enter: Select  +/-/PU/PD: Value  F10:Save  Esc: Exit  F1:General Help
        F5:Previous Value  F6:Fail-Safe Defaults  F7:Optimized Default
```

➢IRQ Resource

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt. This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot.

Phoenix-Award BIOS CMOS Setup Utility IRQ Resource		
IRQ-3 assigned to	[PCI Device]	Item Help
IRQ-4 assigned to	[PCI Device]	
IRQ-5 assigned to	[PCI Device]	Menu Level ►
IRQ-7 assigned to	[PCI Device]	Legacy ISA for
IRQ-9 assigned to	[PCI Device]	devices compliant
IRQ-10 assigned to	[PCI Device]	with the original PC
IRQ-11 assigned to	[PCI Device]	AT bus specification,
IRQ-12 assigned to	[PCI Device]	PCI/ISA PnP for
IRQ-14 assigned to	[PCI Device]	devices compliant
IRQ-15 assigned to	[PCI Device]	with the Plug and
		Play standard
		whether designed for
		PCI or ISA bus
		architecture
↑ ↓ ←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default		

IRQ-3,4,5,7,9,10,11,12,14,15 assigned to

IRQ-3 assigned to	
PCI Device	..... [ ]
Reserved	..... [ ]
↑↓: Move Enter: Accept ESC:Abort	

The choice: PCI Device, Reserved.

PCI/VGA Palette Snoop

This BIOS feature determines if your graphics card should allow VGA palette snooping by a fixed function display card.
The choice: Enabled, Disabled **(default).**

INT Pin 1/2/3/4/5/6/7/8 Assignment

The choice: Auto **(default)**,3,4,5,7,9,10,11,12,14,15.

Maximum Payload Size

The choice: 128 (**default)**, 256,512,1024,2048,4096.

3.8 PC Health Status

This section helps you to get more information about your system including CPU temperature, FAN speed and voltages. It is recommended that you contact with your motherboard supplier to get proper value about your setting of the CPU temperature.

Phoenix-Award BIOS CMOS Setup Utility PC Health Status		
CPU Warning Temperature	[Disabled]	Item Help
Current System Temp.	40°C / 107°F	
Current CPU Temp.	40°C / 100°F	Menu Level ▶
CPU FAN Speed	3308 RPM	
CHASSIS Fan Speed	0 RPM	
POWER Fan Speed	0 RPM	
Vcore	1.20V	
+1.5V	1.52V	
+3.3V	3.47V	
+5V	5.13V	
+12V	12.22V	
VBAT(V)	3.42V	
5VSB(V)	5.09V	
Shutdown Temperature	[Disabled]	
↑↓←→ : Move Enter: Select +/-/PU/PD: Value F10:Save Esc: Exit F1:General Help F5:Previous Value F6:Fail-Safe Defaults F7:Optimized Default		

CPU Warning Temperature

Select the CPU over-heated warning temperature.
The choice: Disabled **(default)**, 50°C/122°F, 53°C/127°F, 56°C/133°F, 60°C/140°F, 63°C/145°F, 66°C/151°F, 70°C/158°F.

Current System Temp

Show System Temperature.

Current CPU Temp

Shows Board Temperature.

CPU FAN Speed

Shows CPU Fan speed.

CHASSIS Fan Speed

Shows CHASSIS Fan speed.

POWER Fan Speed

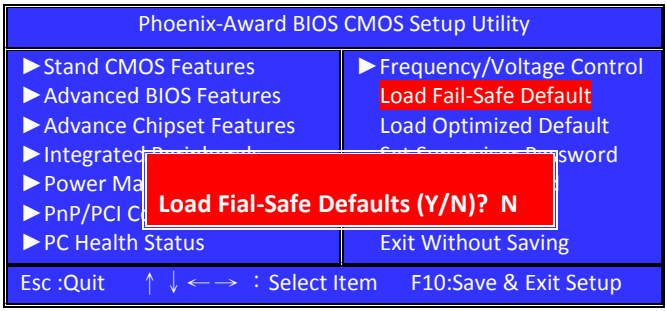
Shows POWER Fan speed.

Shutdown Temperature

Select the CPU over-heated shutdown temperature.
The choice: Disabled **(default)**, 60°C/140°F, 65°C/149°F, 70°C/158°F, 75°C/167°F.

3. 9 Load Fail-Safe Defaults

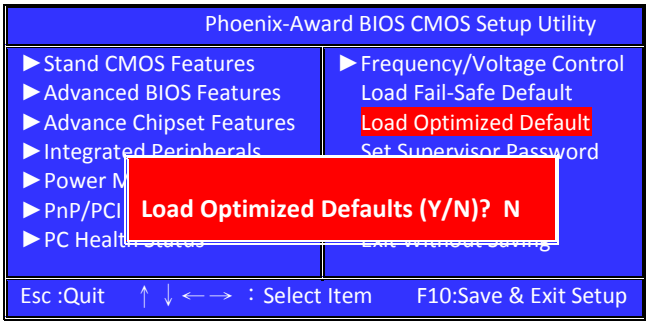
When you press <Enter> on this item you get a confirmation dialog box with a message similar to:



Pressing '**Y**' loads the BIOS default values for the most stable, minimal-performance system operations.

3.10 Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:



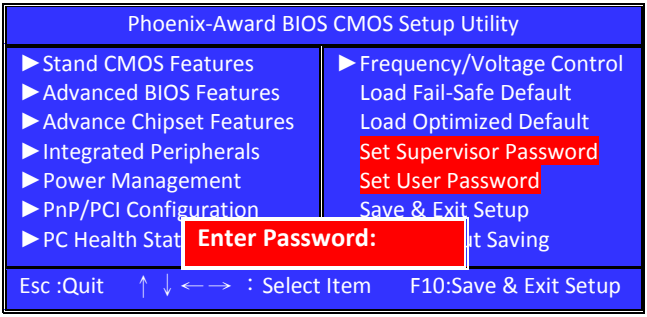
Pressing '**Y**' loads the default values that are factory settings for optimal performance system operations.

3.11 Set Supervisor/ User Password

You can set either supervisor or user password, or both of them. The differences between are:

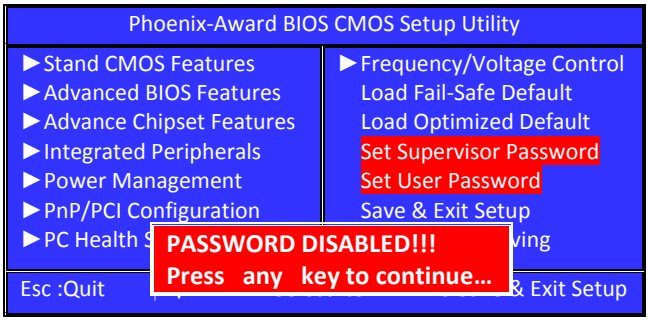
Supervisor password: can enter and change the options of the setup menus.

User password: just can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.



ENTER PASSWORD:
Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.



PASSWORD DISABLED:

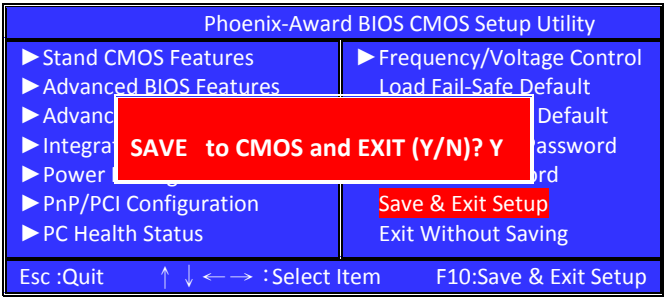
When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

3.12 Save & Exit Setup

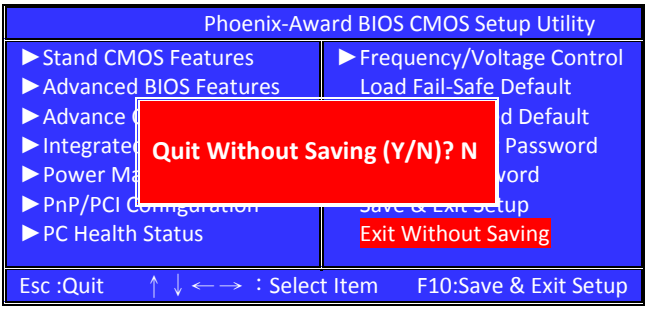
Pressing <Enter> on this item asks for confirmation:



Pressing "**Y**" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

3.13 Exit Without Saving

Pressing <Enter> on this item asks for confirmation:



This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

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CHAPTER 4 Appendix

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C. POST BEEP..... 78

A. I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses which also becomes the identity of the device. There is a total of 1K port address space available. The following table lists the I/O port addresses used on the Industrial CPU Card.

Address	Device Description
000h - 01Fh	DMA Controller #1
020h - 03Fh	Interrupt Controller #1
040h - 05Fh	Timer
060h - 06Fh	Keyboard Controller
070h - 07Fh	Real Time Clock, NMI
080h - 09Fh	DMA Page Register
0A0h - 0BFh	Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h	Clear Math Coprocessor Busy Signal
0F1h	Reset Math Coprocessor
1F0h - 1F7h	IDE Interface
278 - 27F	Parallel Port #2(LPT2)
2F8h - 2FFh	Serial Port #2(COM2)
2B0 - 2DF	Graphics adapter Controller
378h - 3FFh	Parallel Port #1(LPT1)
360 - 36F	Network Ports
3B0 - 3BF	Monochrome & Printer adapter
3C0 - 3CF	EGA adapter
3D0 - 3DF	CGA adapter
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1(COM1)

B. Interrupt Request Lines (IRQ)

There are a total of 15 IRQ lines available on the Industrial CPU Card. Peripheral devices use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on the Industrial CPU Card.

Level	Function
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ3	Serial Port #2
IRQ4	Serial Port #1
IRQ5	Reserved
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port #1
IRQ8	Real Time Clock
IRQ9	Software Redirected to Int0Ah
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 Mouse
IRQ13	80287
IRQ14	Primary IDE
IRQ15	Secondary IDE

C. POST Beep

Currently there are two kinds of beep codes in BIOS. This code indicates that a **video error** has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps.

The other code indicates that your **DRAM error** has occurred. This beep code consists of a single long beep repeatedly.