Panel PC

Series PPCxxP855

USER'S MANUAL

Intel ® 855 platform Panel PC

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The product is a high performance Panel PC with Intel 855GME chipset motherboard and combine with a TFT LCD Panel. It is a compact design to meet the demanding performance requirements of today's business and industrial applications.

1.1 Product Overview

Panel PC combines a motherboard, LCD Display within a compact chassis, with an option to add on HDD, FDD, CD-ROM, and touch screen as a matter of preference.
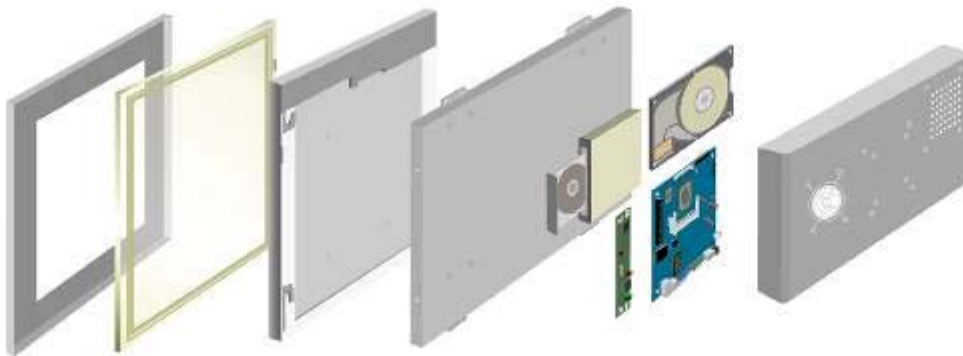
1.2 Features

CPU Onboard:
The PPC is designed for Intel® Pentium® / Celeron® M CPU onboard, which is equipped with a high performance and low power processor, an advanced multi-I/O, provides all the performance, reliability, and quality.

LCD Display:
The PPC is equipped with a TFT LCD size from 8.4" to 42".

Power Management：
The PPC supports DC input power supply with a power adapter. Supports AC97, LAN

wake up and modem ring-in functions. I/O peripheral devices support power saving and doze/standby/suspend modes.

DVD / HDD Solution：
The Panel PC also provides one Standard Slim DVD ROM/Combo/Dual (Optional) for choice.

Figure 1.1 Product Overview
1.3 System Specification

Table 1.1 System Specification

Form Factor	Mini-ITX
CPU Socket	Socket 479 or CPU on board
CPU	Intel Pentium M/Celeron M up to 2.0GHz
Front Side Bus	400 MHz
Chipset	Intel 855 GME/852 GM ICH4
Memory	One 184-pin DDR DIMM Max.1GB
BIOS	Award 4Mbit
VGA Controller	Intel 855GME integrated
VGA Memory	Shared memory Max. 64MB
LCD Support	24-bit LVDS (dual channel)
Ethernet	Intel ICH4 integrated + PHY 82565EZ Intel 82541 GI Gigabit Ethernet
Audio	Built-in audio+AC97 codec
IDE	2 U DMA33/66/100
SATA	N/A
Super I/O Chipset	W83627HF
Parallel	1 SPP/EPP/ECP port
Serial	2 RS232
Fire Wire	2 1394
USB	2 port on board Pin header for 4 ports(USB 2.0)
KB / Mouse Connector	PS/2
DVD（Optional）	Standard Slim DVD ROM/Combo/Dual (15" to 19")
Watchdog Timer	256 levels
Expansion Slots	Mini PCI , Internal/socket, PCI socket optional
Power Adapter	DC In 12V or 19V
Operation temperature	0~45(°C)
IP65	Optional

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Chapter 2　Hardware Installation

The PPC is a PC-based industrial computer that is housed in aluminum alloy front panel and heavy-duty steel chassis. And the following section will show the HDD and DVD-ROM installation process.

2.1　DVD ROM Installation

The PPC has a Standard Slim DVD ROM/Combo/Dual for choice (15" to 19").

When installing the DVD ROM, please follow the steps below:

Step 1. Take out the screws and remove the PPC back cover.

Step 2. Fasten the DVD ROM to the drives shelf by 4 screws.

Step 3. Fasten screws on the side cover of the PPC.

2.2　HDD Installation

The PPC has a IDE connector for 3.5" HDD, the user can install 3.5"HDD easily by removing the side cover of HDD drive bay.

If the user intends to install DVD ROM and HDD, follow the steps below：

Step 1. Take out the screws and remove the PPC back cover.

Step 2~4. Fasten DVD with shelf by 4 screws. Fix DVD ROM within the Panel PC with 4 screws. Connect IDE cable to the DVD IDE pin connector. Match pin 1 of the DVD and the pin 1 of the cable.

Step 5~6. Fasten the HDD to the drives shelf by 4 screws.

Step 7. Fix HDD within the Panel PC above the DVD ROM. Fasten the HDD drive shelf

inside with 4 screws.

Step8. Use the IDE cable to connect the HDD to the IDE pin connector. Match pin 1 of the HDD and the pin 1 of the cable. Connect HDD power connector as the picture showed below.

Step 9. Fasten screws on the side cover of the PPC.

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SYSTEM
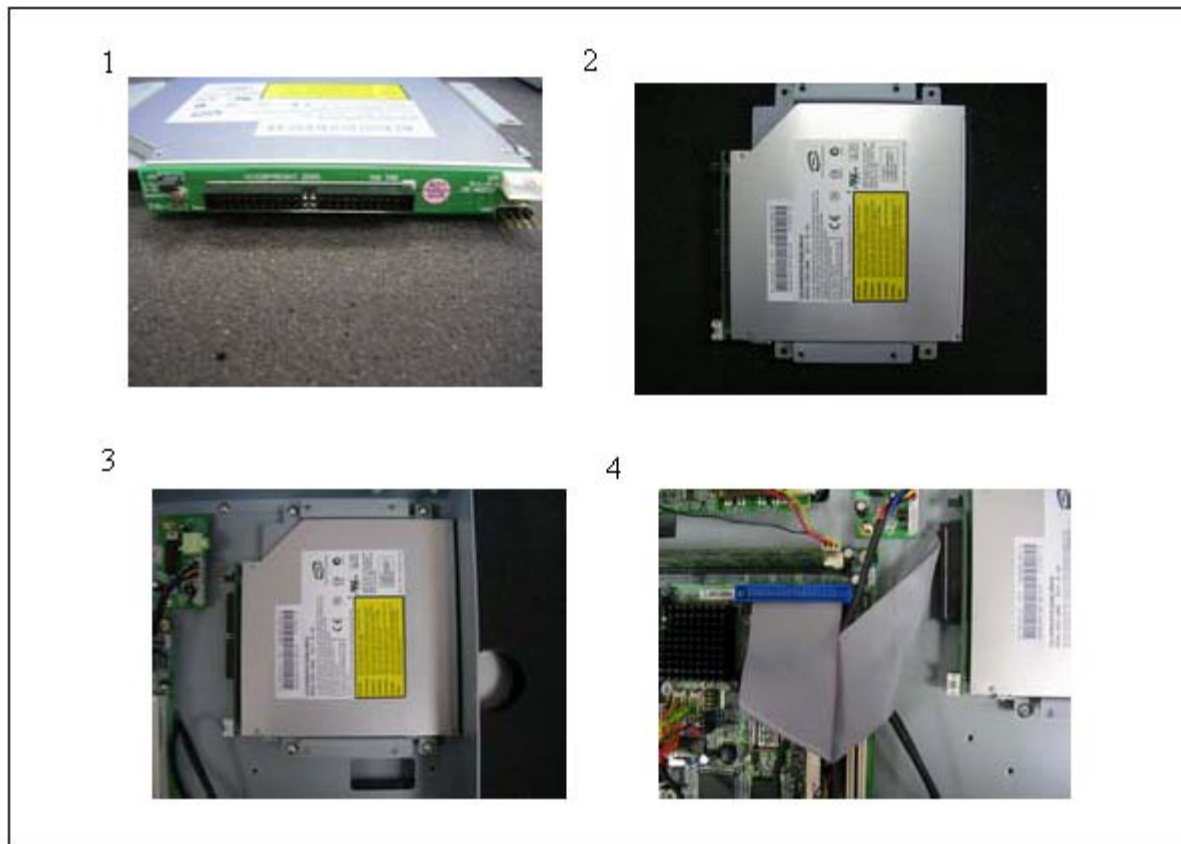
3

Chapter 3　Settings Jumpers and Connectors

3.1　Jumpers and Connectors

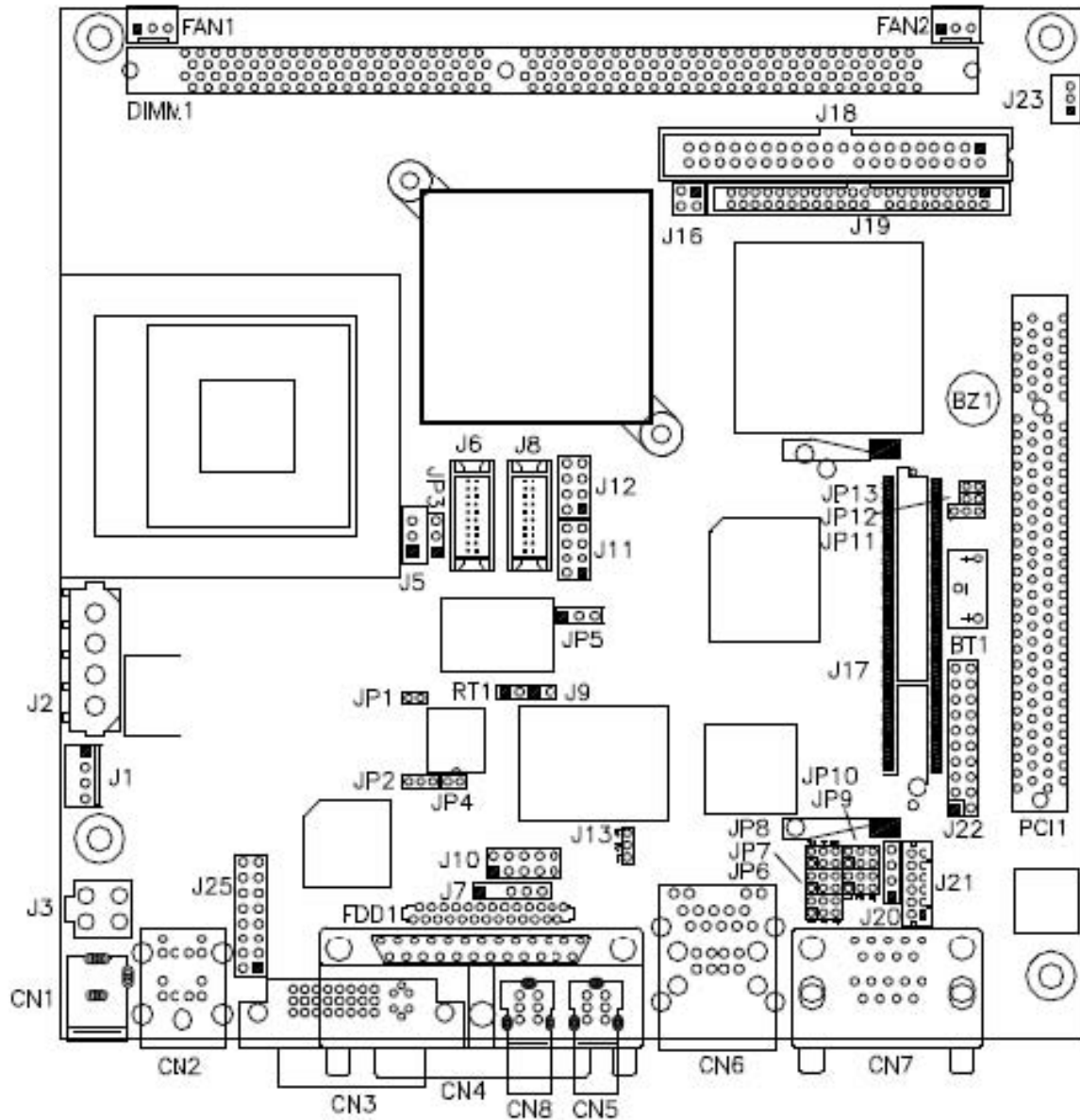### 3.1.1　Jumper and Connector Layout

Figure 3.1 Jumper and Connector Layout

3.1.2　Jumpers and Connectors

Connectors on the board are linked to external devices such as hard disk drives, keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

The following tables list the function of each of the board's jumpers and connectors.

Table 3.1 Jumpers

Label	Function
JP1	CPU Host Clock
JP2	Power Mode Setting
JP3	LVDS Power Setting
JP4	1394 Controller EEPROM Write Protect
JP6, JP7, JP8	RS232/422/485 (COM2) Selection
JP9	COM2 RS232 Pin9 Setting
JP10	COM1 RS232 Pin9 Setting
JP11	Clear CMOS Contents
JP13	Compact Flash Mode Setting
J13	Intel® 82541GI Gigabit LAN Enable/Disable

Table 3.2 Connectors

Label	Function
CN1	DC Jack for DC Adaptor
CN2	PS/2 Keyboard and PS/2 Mouse Connectors
CN3	DVI-I Connector
CN4	Parallel Port Connector
CN5, CN8	1394 Connectors
CN6	RJ45 and 2 USB Ports
CN7	COM1 and COM2 Serial Ports
J2	HDD Power Connector
J3	Internal DC-In Power Connector
J5	LCD Backlight Setting
J6, J8	Panel Connectors (1st channel, 2nd channel)
J7	IrDA Connector
J10	Digital I/O
J11, J12	USB Port Pin Header
J16	HDD Power Pin Header
J17	Mini PCI Socket
J18, J19	Primary and Secondary IDE Connectors
J20	CD-In Pin Header
J21	External Audio Connector
J22	System Function Connector
J23	Wake On LAN Connector
J24	Compact Flash Socket
J25	VGA CRT Connector
FAN1	CPU Fan Power Connector
FAN2	System Fan Power Connector

3.2　Setting Jumpers

3.2.1　CPU Host Clock(JP1)

SEL-0	SEL_1 (JP1)	SEL_2	Host Clock
1	SEL_1 (JP1)	0	100MHz (default)
1	□ □ Short	0	133MHz

3.2.2　Power Mode Setting(JP2)

JP2	Power Mode
JP2	Simulate ATX Power Mode (default)
□ □ □ 1 2 3	AT Power Mode

3.2.3　LVDS Power Setting(JP3)

JP3	LVDS Power
JP3	+3.3V (default)
□ □ □ 1 2 3	+5V

3.2.4　1394 Controller EEPROM Write Protect(JP4)

JP4	Function

JP4 ▭	Write Disable
▫ ▫ Open	Write Enabled

3.2.5 RS232/422/485 (COM2) Selection(JP6, JP7, JP8)

COM1 is fixed for RS-232 use only.
COM2 is selectable for RS232, RS-422 and RS-485.
The following table describes the jumper settings for COM2 selection.
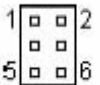
COM2 Function	RS-232	RS-422	RS-485
Jumper Setting (pin closed)	JP6: 3-5 & 4-6 JP7: 3-5 & 4-6 JP8: 1-2	JP6: 1-3 & 2-4 JP7: 1-3 & 2-4 JP8: 3-4	JP6: 1-3 & 2-4 JP7: 1-3 & 2-4 JP8: 5-6
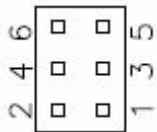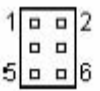
3.2.6 COM2 RS232 Pin9 Setting(JP9)

Pin	Signal	JP9	Signal	Pin
1	RI		+12V	2
3		RI (Default)	RI (Default)	4
5	RI		+5V	6

COM2 Settings: Pin 1-2 short = +12V, Pin 5-6 short = +5V, Pin 3-4 RI Signal (default)

3.2.7 COM1 RS232 Pin9 Setting(JP10)

Pin	Signal	JP10	Signal	Pin
1	RI		+12V	2
3		RI (Default)	RI (Default)	4
5	RI		+5V	6

COM1 Settings: Pin 1-2 short = +12V, Pin 5-6 short = +5V, Pin 3-4 RI Signal

3.2.8 Clear CMOS Contents(JP11)
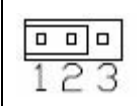
Use JP11 to clear the CMOS contents. Note that the ATX-power connector should be disconnected from the board before clearing CMOS.

JP11	Setting	Function
JP11	Pin 1-2 Short/Closed	Normal
1 2 3	Pin 2-3 Short/Closed	Clear CMOS

3.2.9 Compact Flash Mode Setting(JP13)

JP13	CF Mode
JP13	Slave
Open	Master

3.2.10 Intel® 82541GI Gigabit LAN Enable/Disable(J13)

J13	Gigabit LAN
J13	Enable
1 2 3	Disable

3.3　Connector Definitions

3.3.1　DC Jack for DC Adaptor (CN1)

The DC jack accepts input of 12V or 19V.

3.3.2　PS/2 Keyboard and PS/2 Mouse Connectors (CN2)

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

3.3.3　DVI-I Connector (CN3)

Signal	PIN		Signal
DATA 2-	1	16	HOT POWER
DATA 2+	2	17	DATA 0-
Shield 2/4	3	18	DATA 0+
DATA 4-	4	19	SHIELD 0/5
DATA 4+	5	20	DATA 5-
DDC CLOCK	6	21	DATA 5+
DDC DATA	7	22	SHIELD CLK
VSYNC	8	23	CLOCK -
DATA 1-	9	24	CLOCK +
DATA 1+	10	C1	A RED
SHIELD 1/3	11	C2	A GREEN
DATA 3-	12	C3	A BLUE
DATA 3+	13	C4	HYNC
DDC POWER	14	C5	A GROUND2
A GROUND 1	15	C6	A GROUND3

3.3.4   Parallel Port Connector (CN4)

Signal	PIN		Signal
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	N/A	Ground

3.3.5   RJ45 and 2 USB Ports (CN6)

CN6 is a stacked connector with RJ45 on top and 2 USB ports at the bottom.

3.3.6   COM1 and COM2 Serial Ports (CN7)

CN7 is a stacked connector with COM1 on top and COM2 at the bottom.

Signal	PIN		Signal
DCD, Data carrier detect	1	6	RXD, Receive data
TXD, Transmit data	2	7	DTR, Data terminal ready
GND, ground	3	8	DSR, Data set ready
RTS, Request to send	4	9	CTS, Clear to send
RI, Ring indicator	5	10	Not Used

COM2 is jumper selectable for RS-232, RS-422 and RS-485.

PIN	Signal		
	RS-232	RS-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	NC
4	DTR	RX-	NC

5	Ground	Ground	Ground
6	DSR	RTS-	NC
7	RTS	RTS+	NC
8	CTS	CTS+	NC
9	RI	CTS-	NC
10	NC	NC	NC

3.3.7   HDD Power Connector (J2)

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

3.3.8   Internal DC-In Power Connector (J3)

Pin	Signal
1	Ground
2	Ground
3	+12V or 19V
4	+12V or 19V

3.3.9   LCD Backlight Setting (J5)

Pin	Signal
1	+12V
2	Backlight Enable
3	Ground

3.3.10   Panel Connectors (1st channel, 2nd channel) (J6, J8)

The Panel connectors on board consist of the first channel (J6) and second channel (J8) and supports 24-bit or 48-bit.

Signal	PIN		Signal
TX0-	2	1	TX0+
Ground	4	3	Ground

TX1-	6	5	TX1+
5V/3.3V	8	7	Ground
TX3-	10	9	TX3+
TX2-	12	11	TX2+
Ground	14	13	Ground
TXC-	16	15	TXC+
5V/3.3V	18	17	ENABKL
+12V	20	19	+12V

3.3.11   IrDA Connector (J7)

J7 is used for an optional IrDA connector for wireless communication.

Pin	Signal
1	+5V
2	No connect
3	Ir RX
4	Ground
5	Ir TX

3.3.12   Digital I/O (J10)

Signal	PIN		Signal
GND	1	2	VCC
OUT3	3	4	OUT1
OUT2	5	6	OUT0
IN3	7	8	IN1
IN2	9	10	IN0

3.3.13   USB Port Pin Header (J11, J12)

Signal	PIN		Signal
Vcc	1	5	Ground
D-	2	6	D+
D+	3	7	D
Ground	4	8	Vcc

3.3.14   HDD Power Pin Header (J16)

Signal	PIN		Signal
Vcc	2	1	Vcc
NC	4	3	Ground

3.3.15   Mini PCI Socket (J17)

3.3.16   Primary and Secondary IDE Connectors (J18, J19)

Signal	PIN		Signal
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	Protect pin
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK0	29	30	Ground

Signal		PIN		Signal
IRQ14		31	32	No connect
Address 1		33	34	No connect
Address 0		35	36	Address 2
Chip select 0		37	38	Chip select 1
Activity		39	40	Ground

3.3.17 Secondary IDE Connector (J19)

Signal	PIN		Signal
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
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK0	29	30	Ground
IRQ14	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground
Vcc	41	42	Vcc
Ground	43	44	N.C.

3.3.18 CD-In Pin Header (J20)

Pin	Signal
1	CD Audio R
2	Ground
3	Ground
4	CD Audio L

3.3.19 External Audio Connector (J21)

J21 is a 12-pin header that is used to connect to the optional audio cable card that integrates jacks for Line In, Line Out and Mic.

Signal	PIN		Signal
LINEOUT_R	1	2	LINEOUT_L
Ground	3	4	Ground
LINEIN_R	5	6	LINEIN L
Ground	7	8	Ground
Mic-In	9	10	VREFOUT
Ground	11	12	Protect pin

3.3.20 System Function Connector (J22)

J22 provides connectors for system indicators that provide light indication of the computer activities and switches to change the computer status. J22 is a 20-pin header that provides interfaces for the following functions.
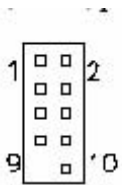
Signal Name	Pin	Pin	Signal Name
SP+	1	2	SP-
Ground	3	4	EXT_SMI_SW
Ground	5	6	PWR BTN
Ground	7	8	Reset
HDD LED+	9	10	HDD LED-

Speaker: Pins 1 – 4
This connector provides an interface to a speaker for audio tone generation. An 8-ohm speaker is recommended.

Pin	Signal
1	Speaker out
2	No connect
3	Ground
4	+5V

Power LED: Pins 11 – 15
The power LED indicates the status of the main power switch.

Pin	Signal
1	Power LED
2	No connect
3	Ground
4	No connect
5	Ground

SMI/Hardware Switch: Pins 6 and 16
This connector supports the "Green Switch" on the control panel, which, when pressed, will force the system into the power-saving mode immediately.

Pin	Signal
1	SMI
2	Ground

ATX Power ON Switch: Pins 7 and 17
This 2-pin connector is an "ATX Power Supply On/Off Switch" on the system that connects to the power switch on the case. When pressed, the power switch will force the system to power on. When pressed again, it will force the system to power off.

Reset Switch: Pins 9 and 19
The reset switch allows the user to reset the system without turning the main power switch off and then on again. Orientation is not required when making a connection to this header.

Hard Disk Drive LED Connector: Pins 10 and 20
This connector connects to the hard drive activity LED on control panel. This LED will flash when the HDD is being accessed.

Pin	Signal
1	HDD Active
2	5V

3.3.21 Wake On LAN Connector (J23)

J23 is a 3-pin header for the Wake On LAN function. Wake On LAN will function properly only with an ATX power supply with 5VSB that has 200mA.

Pin	Signal
1	+5VSB
2	Ground
3	-PME

3.3.22 Compact Flash Socket (J24)

3.3.23 VGA CRT Connector (J25)

Signal	PIN		Signal
R	1	9	+5V
G	2	10	GND
B	3	11	NC
NC	4	12	DDCDAT
GND	5	13	HSYNC
GND	6	14	VSYNC
GND	7	15	DDCCLK
GND	8	16	TV out

3.3.24 CPU Fan Power Connector (FAN1)

FAN1 is a 3-pin header for the CPU fan. The fan must be a 12V fan.

Pin	Signal
1	Ground
2	+12V
3	Rotation detection

3.3.25 System Fan Power Connector (FAN2)

FAN2 is a 3-pin header for system fans. The fan must be a 12V (500mA) fan.

Pin	Signal
1	Ground
2	+12V
3	Rotation detection

4

Chapter 4   AWARD BIOS Setup

4.1   Starting Setup

The Award BIOS™ is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

By pressing <Del> immediately after switching the system on, or

By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press DEL to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to.

Press F1 to Continue, DEL to enter SETUP

4.2   Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Table 4.1   Legend Keys

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make 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	Calendar, only for Status Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

4.2.1   Navigating Through The Menu Bar

Use the left and right arrow keys to choose the menu you want to be in.

4.2.2   To Display a Sub Menu

Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A " ➤ " pointer marks all sub menus.

4.3   Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

4.4   In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AwardBIOS™ supports an override to the CMOS settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

4.5   Main Menu

Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

```
                    Phoenix - AwardBIOS CMOS Setup Utility
┌──────────────────────────────────────────────────────────────────────┐
│  Standard CMOS Features          │  Frequency/Voltage Control          │
│  Advanced BIOS Features          │  Load Fail-Safe Defaults            │
│  Advanced Chipset Features        │  Load Optimized Defaults            │
│  Integrated Peripherals           │  Set Supervisor Password            │
│  Power Management Setup           │  Set User Password                  │
│  PnP/PCI Configurations           │  Save & Exit Setup                  │
│  PC Health Status                 │  Exit Without Saving                │
├──────────────────────────────────┴─────────────────────────────────────┤
│  ESC : Quit                         ↑ ↓ → ← : Select Item               │
│  F10 : Save & Exit Setup                                                │
├─────────────────────────────────────────────────────────────────────────┤
│                    Time, Date, Hard Disk Type…                          │
└──────────────────────────────────────────────────────────────────────┘
```

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

4.5.1   Standard CMOS Features

The items in Standard CMOS Features 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 <PgDn> keys to select the value you want in each item.

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                             Standard CMOS Features

  Date (mm:dd:yy)            Wed,  Apr 28, 2004           Item Help
  Time (hh:mm:ss)            00 : 00 : 00          Menu Level  >

  IDE Primary Master         None                 Change the day, month,
  IDE Primary Slave          None                 Year and century
  IDE Secondary Master       None
  IDE Secondary Slave        None

  Drive A                    1.44M, 3.5 in.
  Drive B                    None

  Video                      EGA/VGA
  Halt On                    All Errors

  Base Memory                640K
  Extended Memory            129024K
  Total Memory               130048K
```

4.5.1.1   Main Manu Selection

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

Table 4.2   Main Menu Selection

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 Primary Master	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
IDE Primary Slave	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
IDE Secondary Master	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options

IDE Secondary Master	Options are in its sub menu (described in Table 3)	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

4.5.1.2   IDE Adapters

The IDE adapters control the hard disk drive. Use a separate sub menu to configure each hard disk drive.

Use the legend keys to navigate through this menu and exit to the main menu. Use Table 5.3 to configure the hard disk.

Table 4.3   Hard Disk Selection

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.

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 !	
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.
Access Mode	Normal LBA Large Auto	Choose the access mode for this hard disk

The following options are selectable only if the 'IDE Primary 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

4.5.2   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 - AwardBIOS CMOS Setup Utility
                       Advanced BIOS Features
┌─────────────────────────────────────────────────────────────────────┐
│ CPU Feature                  Press Enter    │        ITEM HELP        │
│ Virus Warning                Disabled       │  Menu Level  >          │
│ CPU L1 and L2 Cache          Enabled        │                         │
│ CPU L3 Cache                 Enabled        │                         │
│ Quick Power On Self Test     Enabled        │                         │
│ First Boot Device            Floppy         │                         │
│ Second Boot Device           HDD-0          │                         │
│ Third Boot Device            CDROM          │                         │
│ Boot Other Device            Enabled        │                         │
│ Swap Floppy Drive            Disabled       │                         │
│ Boot Up Floppy Seek          Disabled       │                         │
│ Boot Up NumLock Status       On             │                         │
│ Gate A20 Option              Fast           │                         │
│ Typematic Rate Setting       Disabled       │                         │
│ Typematic Rate (Chars/Sec)   6              │                         │
│ 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     Yes            │                         │
│ Small Logo (EPA) Show        Enabled        │                         │
└─────────────────────────────────────────────────────────────────────┘
```

4.5.2.1   CPU Feature

Press Enter to configure the settings relevant to CPU Feature.

4.5.2.2   Virus Warning

If this option is enabled, an alarm message will be displayed when trying to write
on the boot sector or on the partition table on the disk, which is typical of the virus.

4.5.2.3   CPU L1 and L2 Cache / CPU L3 Cache

Cache memory is additional memory that is much faster than conventional DRAM
(system memory). CPUs from 486-type on up contain internal cache memory, and most,
but not all, modern PCs have additional (external) cache memory. When the CPU
requests data, the system transfers the requested data from the main DRAM into cache
memory, for even faster access by the CPU. These items allow you to enable (speed up
memory access) or disable the cache function. By default, these items are Enabled.

4.5.2.4   Quick Power On Self Test

When enabled, this field speeds up the Power On Self Test (POST) after the system is
turned on. If it is set to Enabled, BIOS will skip some items.

4.5.2.5   First/Second/Third Boot Device

These fields determine the drive that the system searches first for an operating system. The options available include Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, ZIP100, USB-FDD, USB-CDROM, USB-HDD and Disable.

4.5.2.6   Boot Other Device

These fields allow the system to search for an OS from other devices other than the ones selected in the First/Second/Third Boot Device.

4.5.2.7   Swap Floppy Drive

This item allows you to determine whether or not to enable Swap Floppy Drive. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to Disabled.

4.5.2.8   Boot Up Floppy Seek

This feature controls whether the BIOS checks for a floppy drive while booting up. If it cannot detect one (either due to improper configuration or its absence), it will flash an error message.

4.5.2.9   Boot Up NumLock Status

This allows you to activate the NumLock function after you power up the system.

4.5.2.10   Gate A20 Option

This field allows you to select how Gate A20 is worked. Gate A20 is a device used to address memory above 1 MB.

4.5.2.11   Typematic Rate Setting

When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to Disabled.

4.5.2.12   Typematic Rate (Chars/Sec)

When the typematic rate is enabled, the system registers repeated keystrokes speeds. Settings are from 6 to 30 characters per second.

4.5.2.13   Typematic Delay (Msec)

When the typematic rate is enabled, this item allows you to set the time interval for displaying the first and second characters. By default, this item is set to 250msec.

4.5.2.14   Security Option

This field allows you to limit access to the System and Setup. The default value is Setup. When you select System, the system prompts for the User Password every time you boot up. When you select Setup, the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.

4.5.2.15   APIC Mode

APIC stands for Advanced Programmable Interrupt Controller. The default setting is Enabled.

4.5.2.16   MPS Version Control for OS

This option is specifies the MPS (Multiprocessor Specification) version for your operating system. MPS version 1.4 added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability. The default setting is 1.4.

4.5.2.17   OS Select for DRAM > 64MB

This option allows the system to access greater than 64MB of DRAM memory when used with OS/2 that depends on certain BIOS calls to access memory. The default setting is Non-OS/2.

4.5.2.18   Report No FDD For WIN 95

If you are using Windows 95/98 without a floppy disk drive, select Enabled to release IRQ6. This is required to pass Windows 95/98's SCT test. You should also disable the Onboard FDC Controller in the Integrated Peripherals screen when there's no floppy drive in the system. If you set this feature to Disabled, the BIOS will not report the missing floppy drive to Win95/98.

4.5.2.19   Small Logo (EPA) Show
The EPA logo appears at the right side of the monitor screen when the system is boot up. The default setting is Enabled.

4.5.3   Advanced Chipset Features

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                          Advanced Chipset Features

   DRAM Timing Selectable        By SPD              ITEM HELP
   CAS Latency Time              2             Menu Level  >
   Active to Precharge Delay     6
   DRAM RAS# to CAS# Delay       3
   DRAM RAS# Precharge           3
   DRAM Data Integrity Mode      ECC
   MGM Core Frequency            Auto Max 266MHz
   System BIOS Cacheable         Enabled
   Video BIOS Cacheable          Enabled
   Memory Hole at 15M-16M        Disabled
   Delayed Transaction           Enabled
   Delay Prior to Thermal        16 Min
   AGP Aperture Size (MB)        64

   ** On-Chip VGA Setting **
   On-Chip VGA                   Enabled
   On-Chip Frame Buffer Size     32MB
   Boot Display                  CRT+DVI
   TV Standard                   Off
   Video Connector               Automatic
   TV Format                     Auto
   Panel Scaling                 Auto
   Panel Number                  1024x768   18bit  SC
```

4.5.3.1   DRAM Timing Selectable

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

4.5.3.2   CAS Latency Time

You can configure CAS latency time in HCLKs as 2 or 2.5 or 3. The system board designer should set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU.

4.5.3.3   Active to Precharge Delay

The default setting for the Active to Precharge Delay is 7.

4.5.3.4   DRAM RAS# to CAS# Delay

This option allows you to insert a delay between the RAS (Row Address Strobe) and CAS (Column Address Strobe) signals. This delay occurs when the SDRAM is written to, read from or refreshed. Reducing the delay improves the performance of the SDRAM.

4.5.3.5   DRAM RAS# Precharge

This option sets the number of cycles required for the RAS to accumulate its charge before the SDRAM refreshes. The default setting for the Active to Precharge Delay is 3.

4.5.3.6   DRAM Data Integrity Mode

Select ECC if your memory module supports it. The memory controller will detect and correct single-bit soft memory errors. The memory controller will also be able to detect double-bit errors though it will not be able to correct them. This provides increased data integrity and system stability.

4.5.3.7   MGM Core Frequency

This field sets the frequency of the DRAM memory installed. The default setting is Auto Max 266MHz.

4.5.3.8   System BIOS Cacheable

The setting of Enabled allows caching of the system BIOS ROM at F000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

4.5.3.9   Video BIOS Cacheable

The Setting Enabled allows caching of the video BIOS ROM at C0000h-F7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

4.5.3.10   Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB. The choices are Enabled and Disabled.

4.5.3.11   Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

4.5.3.12   Delay Prior to Thermal

This field activates the CPU thermal function after the systems boots for the set number of minutes. The options are 16Min and 64Min.

4.5.3.13   AGP Aperture Size

The field sets aperture size of the graphics. The aperture is a portion of the PCI memory

address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The default setting is 64M.

4.5.3.14   On-Chip VGA

The default setting is Enabled.

4.5.3.15   On-Chip Frame Buffer Size

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

4.5.3.16   Boot Display

The default setting is CRT+DVI. The options available include some combinations with LVDS and TV-out. The B89 supports dual view (CRT with LVDS or TV-out).

4.5.3.17   TV Standard

The default setting is Off.

4.5.3.18   Video Connector

The default setting is Automatic.

4.5.3.19   TV Format

The default setting is Auto.

4.5.3.20   Panel Scaling

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

4.5.3.21   Panel Number

These fields allow you to select the LCD Panel type. The default values for these ports are:

         640x480
         800x480
         800x600
         1024x768
         1280x720
         1280x768
         1280x1024
         1366x768
         1400x1050
         1600x1200
         1600x1200A

4.5.3.22   Panel Protocol

These fields allow you to select the LCD Panel Protocol. The default values for these parts are:

    18bit   1ch
    24bit   1ch   SPGM
    24bit   1ch   OpenLDI
    18bit   2ch
    24bit   2ch   SPGM
    24bit   2ch   OpenLDI

4.5.4   Integrated Peripherals

This section sets configurations for your hard disk and other integrated peripherals. The first screen shows three main items for user to select. Once an item selected, a submenu appears. Details follow.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      Integrated Peripherals

 OnChip IDE Device        Press Enter           ITEM HELP
 Onboard Device           Press Enter      Menu Level  >
 SuperIO Device           Press Enter
```

```
              Phoenix - AwardBIOS CMOS Setup Utility
                       OnChip IDE Device

 On-Chip Primary  PCI IDE     Enabled          ITEM HELP
 IDE Primary Master PIO       Auto        Menu Level  >
 IDE Primary Slave  PIO       Auto
 IDE Primary Master UDMA      Auto
 IDE Primary Slave  UDMA      Auto
 On-Chip Secondary PCI IDE    Enabled
 IDE Secondary Master PIO     Auto
 IDE Secondary Slave  PIO     Auto
 IDE Secondary Master UDMA    Auto
 IDE Secondary Slave  UDMA    Auto

 IDE HDD Block Mode           Enabled
```

```
                Phoenix - AwardBIOS CMOS Setup Utility
                            Onboard Device

  USB Controller              Enabled              ITEM HELP
  USB 2.0 Controller          Enabled        Menu Level  >
  USB Keyboard Support        Disabled
  USB Mouse Support           Disabled
  AC97 Audio                  Auto
  Init Display First          PCI Slot
  Power On After Fail         Off
```

```
                Phoenix - AwardBIOS CMOS Setup Utility
                            SuperIO Device

  Onboard FDC Controller      Enabled              ITEM HELP
  Onboard Serial Port 1       3F8/IRQ4       Menu Level  >
  Onboard Serial Port 2       2F8/IRQ3
  UART Mode Select            Normal
  RxD , TxD Active            Hi, Lo
  IR Transmission Delay       Disabled
  UR2 Duplex Mode             Half
  Use IR Pins                 IR-Rx2Tx2
  Onboard Parallel Port       378/IRQ7
  Parallel Port Mode          SPP
  EPP Mode Select             EPP1.7
  ECP Mode Use DMA            3
```

4.5.4.1   OnChip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.

4.5.4.2   IDE Primary/Secondary Master/Slave PIO

These fields allow your system hard disk controller to work faster. Rather than have the BIOS issue a series of commands that transfer to or from the disk drive, PIO (Programmed Input/Output) allows the BIOS to communicate with the controller and CPU directly. The system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

4.5.4.3   IDE Primary/Secondary Master/Slave UDMA

These fields allow your system to improve disk I/O throughput to 33Mb/sec with the Ultra DMA/33 feature. The options are Auto and Disabled.

4.5.4.4   IDE HDD Block Mode

This field allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

4.5.4.5   USB Controller

The options for this field are Enabled and Disabled. By default, this field is set to Enabled.

4.5.4.6   USB 2.0 Controller

The options for this field are Enabled and Disabled. By default, this field is set to Enabled. In order to use USB 2.0, necessary OS drivers must be installed first. Please update your system to Windows 2000 SP4 or Windows XP SP2.

4.5.4.7   USB Keyboard Support

The options for this field are Enabled and Disabled. By default, this field is set to Disabled.

4.5.4.8   USB Mouse Support

The options for this field are Enabled and Disabled. By default, this field is set to Disabled.

4.5.4.9   AC97 Audio

The default setting of the AC97 Audio is Auto.

4.5.4.10   Init Display First

The default setting is PCI Card.

4.5.4.11   Power On After Fail

The setting configures the system power on status when power is restored to the system after a power failure occurrence. The default setting is Off.

4.5.4.12   Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the motherboard and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field. This option allows you to select the onboard FDD port.

4.5.4.13   Onboard Serial/Parallel Port

These fields allow you to select the onboard serial and parallel ports and their addresses.
The default values for these ports are:
Serial Port 1   3F8/IRQ4
Serial Port 2   2F8/IRQ3
Parallel Port 3   78H/IRQ7

4.5.4.14   UART Mode Select

This field determines the UART 2 mode in your computer. The default value is Normal.
Other options include IrDA and ASKIR.

4.5.4.15   Parallel Port Mode

This field allows you to determine parallel port mode function.

SPP   Standard Printer Port
EPP   Enhanced Parallel Port
ECP   Extended Capabilities Port

4.5.5   Power Management Setup

The Power Management Setup allows you to save energy of your system effectively.

```
Phoenix - AwardBIOS CMOS Setup Utility
              Power Management Setup
```

Power-Supply Type	ATX	ITEM HELP
ACPI Function	Enabled	
Power Management	User Define	Menu Level >
Video Off Method	V/H SYNC+Blank	
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%	
Wake-Up by PCI Card	Disabled	
Power On by Ring	Disabled	
Resume by Alarm	Disabled	
Date (of Month) Alarm	0	
Time (hh:mm:ss) Alarm	0 : 0 : 0	
** Reload Global Timer Events **		
Primary IDE 0	Enabled	
Primary IDE 1	Enabled	
Secondary IDE 0	Enabled	
Secondary IDE 1	Enabled	
FDD, COM, LPT Port	Enabled	
PCI PIRQ[A-D] #	Enabled	

4.5.5.1   Power Supply Type

Use this field to select the power supply type used in the system. The default setting is ATX.

4.5.5.2   ACPI Function

Enable this function to support ACPI (Advance Configuration and Power Interface).

4.5.5.3   Power Management

This field allows you to select the type of power saving management modes.   There are four selections for Power Management.
Min. Power Saving   Minimum power management
Max. Power Saving   Maximum power management.
User Define   Each of the ranges is from 1 min. to 1hr. Except for HDD Power Down which ranges from 1 min. to 15 min.

4.5.5.4   Video Off Method

This field defines the Video Off features. There are three options.

V/H SYNC + Blank   Default setting, blank the screen and turn off vertical and horizontal scanning.
DPMS   Allows BIOS to control the video display.
Blank Screen   Writes blanks to the video buffer.

4.5.5.5　Video Off In Suspend

When enabled, the video is off in suspend mode. The default setting is Yes.

4.5.5.6　Suspend Type

The default setting for the Suspend Type field is Stop Grant.

4.5.5.7　Modem Use IRQ

This field sets the IRQ used by the Modem. By default, the setting is 3.

4.5.5.8　Suspend Mode

When enabled, and after the set time of system inactivity, all devices except the CPU will be shut off.

4.5.5.9　HDD Power Down

When enabled, and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

4.5.5.10　Soft-Off by PWRBTN

This field defines the power-off mode when using an ATX power supply. The Instant Off mode allows powering off immediately upon pressing the power button. In the Delay 4 Sec mode, the system powers off when the power button is pressed for more than four seconds or enters the suspend mode when pressed for less than 4 seconds.

4.5.5.11　CPU THRM-Throttling

When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

4.5.5.12　Wake up by PCI Card

By default, this field is disabled.

4.5.5.13　Power On by Ring

This field enables or disables the power on of the system through the modem connected to the serial port or LAN.

4.5.5.14   Resume by Alarm

This field enables or disables the resumption of the system operation. When enabled, the user is allowed to set the Date and Time.

4.5.5.15   Reload Global Timer Events

The HDD, FDD, COM, LPT Ports, and PCI PIRQ are I/O events that can prevent the system from entering a power saving mode or can awaken the system from such a mode. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

4.5.6   PNP/PCI Configurations

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.

```
                 Phoenix - AwardBIOS CMOS Setup Utility
                        PnP/PCI Configurations
┌──────────────────────────────────────────────────────────────────────┐
│ Reset Configuration Data      Disabled            ITEM HELP            │
│                                           ─────────────────────────    │
│                                           Menu Level                   │
│ Resources Controlled By       Auto (ESCD)                             │
│ IRQ Resources                 Press Enter     Select Yes if you are    │
│                                               using a Plug and Play    │
│ PCI/VGA Palette Snoop         Disabled        capable operating       │
│                                               system Select No if      │
│                                               you need the BIOS to     │
│                                               configure non-boot       │
│                                               devices                  │
└──────────────────────────────────────────────────────────────────────┘
```

4.5.6.1   Reset Configuration Data

This field allows you to determine whether to reset the configuration data or not. The default value is Disabled.

4.5.6.2   Resources Controlled by

This PnP BIOS can configure all of the boot and compatible devices automatically with the use of a use a PnP operating system such as Windows 95.

4.5.6.3   PCI/VGA Palette Snoop

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether or not MPEG ISA/VESA VGA cards can work with PCI/VGA. When

this field is enabled, a PCI/VGA can work with an MPEG ISA/VESA VGA card. When this field is disabled, a PCI/VGA cannot work with an MPEG ISA/VESA card.

4.5.7   PC Health Status

This section shows the parameters in determining the PC Health Status. These parameters include temperatures, fan speeds and voltages.

```
               Phoenix - AwardBIOS CMOS Setup Utility
                          PC Health Status

  CPU Warning Temperature     85°C                ITEM HELP
  Shutdown Temperature        Disabled          Menu Level  >
  System Temp.                45°C/113°F
  CPU Temp                    52°C/125°F
  FAN1 Speed                  5400 RPM
  FAN2 Speed                  5463 RPM
  FAN3 Speed                  5388 RPM
  Vcore(V)                    1.02 V
  VGMCH(V)                    1.32 V
  +3.3V                       3.32 V
  +5V                         4.94 V
  +12V                        12.03 V
  VBAT                        3.21 V
  5VSB(V)                     4.96 V
  Smart Fan1 Temp             Disabled
  Smart Fan2 Temp             Disabled
```

4.5.7.1   CPU Warning Temperature

This field allows the user to set the temperature so that when the temperature is reached, the system sounds a warning. This function can help prevent damage to the system that is caused by overheating.

4.5.7.2   Temperatures/Voltages

These fields are the parameters of the hardware monitoring function feature of the motherboard. The values are read-only values as monitored by the system and show the PC health status.

4.5.7.3   Shutdown Temperature

This field allows the user to set the temperature by which the system automatically shuts down once the threshold temperature is reached. This function can help prevent damage to the system that is caused by overheating.

4.5.7.4   Smart Fan Temperature

This field enables or disables the smart fan feature. At a certain temperature, the fan starts turning. Once the temperature drops to a certain level, it stops turning again.

4.5.8   Frequency/Voltage Control

This section shows the user how to configure the processor frequency.

```
          Phoenix - AwardBIOS CMOS Setup Utility
                 Frequency/Voltage Control
┌─────────────────────────────────────────────────────────────┐
│ Auto Detect PCI Clk          Disabled  │      ITEM HELP       │
│ Spread Spectrum Modulated    Disabled  │  Menu Level  >       │
│                                        │                      │
└─────────────────────────────────────────────────────────────┘
```

4.5.8.1   Auto Detect PCI Clk

This field enables or disables the auto detection of the PCI clock.

4.5.8.2   Spread Spectrum Modulated

This field sets the value of the spread spectrum. The default setting is Disabled. This field is for CE testing use only

4.5.9   Load Fail-Safe Defaults

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

4.5.10   Load Optimized Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

4.5.11   Set Supervisor Password

These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled. Once the password is

disabled, the system will boot and you can enter Setup freely.

4.5.12   Save & Exit Setup

This option allows you to determine whether or not to accept the modifications. If you type "Y", you will quit the setup utility and save all changes into the CMOS memory. If you type "N", you will return to Setup utility.

4.5.13   Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing "Y" will quit the Setup utility without saving the modifications. Typing "N" will return you to Setup utility.