USER'S MANUAL

PSB-1720LF

Pentium® 4
Full-size CPU Card
With VGA/Sound/LAN

PSB-1720LF M1

PSB-1720LF Pentium® 4
Full-size CPU Card
With VGA/Sound/LAN

OPERATION MANUAL

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This operation manual is meant to assist both Embedded Computer manufacturers and end users in installing and setting up the system. The information contained in this document is subject to change without any notice.

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CE NOTICE

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

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I/O & Memory Map B-6

INTRODUCTION

CHAPTER

1

This chapter gives you the information for PSB-1720LF. It also outlines the System specification.

Section includes:

- About This Manual
- System Specifications
- Safety precautions

Experienced users can skip to chapter 2 on page 2-1 for Quick Start.

1-1. ABOUT THIS MANUAL

Thank you for purchasing our PSB-1720LF Socket 478 Embedded Card enhanced with VGA / Sound / LAN, which is fully PC / AT compatible. PSB-1720LF provides faster processing speed, greater expandability and can handle more task than before. This manual is designed to assist you how to install and set up the system. It contains four chapters. The user can apply this manual for configuration according to the following chapters :

Chapter 1 Introduction

This chapter introduces you to the background of this manual, and the specification for this system. Final part of this chapter will indicate you how to avoid damaging this Embedded Card.

Chapter 2 Hardware Configuration

This chapter outlines the component location and their functions. In the end of this chapter, you will learn how to set jumper and how to configure this card to meet your own needs.

Chapter 3 Software Utilities

This chapter contains helpful information for proper installations of the VGA utility, LAN utility, sound utility, and BIOS update. It also describes the Watchdog timer configuration.

Chapter 4 Award BIOS Setup

This chapter indicates you how to set up the BIOS configurations.

Appendix A Expansion Bus

This Appendix introduces you the expansion bus for ISA Bus and PCI Bus.

Appendix B Technical Summary

This section gives you the information about the Technical maps.

1-2. SYSTEM SPECIFICATION

- **CPU (mPGA 478) :**
  Intel® Pentium® 4 in mPGA478 socket (Northwood/Prescott processor)
  Available at 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0, 2.2, 2.4, 2.8, 3.06GHz
  System bus frequency at 400MHz/533MHz
  Auto detect voltage regulator

- **SYSTEM CHIPSET :**
  Intel® 845GV chipset

- **MEMORY :**
  Supports up to 2GB DDR SDRAM.
  Two 184-pin DDR DIMM sockets on board

- **CACHE :**
  Built-in CPU

- **REAL-TIME CLOCK / CALENDAR :**
  256-byte battery backed CMOS RAM.
  Hardware implementation to indicate century rollover

- **BIOS :**
  Phoenix-AwardBIOS™ for plug & play function
  Memory size with 4 MB, with VGA BIOS

- **KEYBOARD/MOUSE CONNECTOR :**
  Mini DIN connector, selectable for Keyboard, PS/2 Mouse, or Y-Cable
  One additional 5-pin External keyboard connector

- **UNIVERSAL SERIAL BUS :**
  Universal Serial Bus Connector on board
  Supports up to four USB 2.0 ports.

- **DISK-ON-CHIPS SOCKET :**
  One 32-pin socket supports up to 288MB disk-on-chip.

- **BUS SUPPORT :**
  External PPCI Bus
  Compact Flash Bus (IDE Interface)

- **DISPLAY :**
  Built in Intel 845GV, support CRT, DVO.

- **WATCHDOG :**
  I / O port 0443H to Enable watchdog.
  I / O port 0441H to Disable watchdog.
  Watchdog function is selectable for Reset or NMI function.
  Time-out timing select0 / 8 / sec +/- 4%, 16 / 24 / 32 / 40 / 48 / 56 / 64 / 72 / 80 / 88 / 96 / 104 / 112 / 120 sec +/- 25%.

- **IDE INTERFACE :**
  Two IDE ports support up to four IDE devices.
  Supports UDMA 100.

- **FLOPPY DISK DRIVER INTERFACE :**
  Supports up to two Floppy Disk Drives, 3.5" and 5.25".

- **LAN INTERFACE :**
  Intel® 82562ET PHY PCI Fast Ethernet
  One RJ-45 Jack onboard
  Supports 10BaseT/100BaseTX PCI Ethernet.

- **SERIAL PORT :**
  Two high speed 16550 Compatible UARTs with Send / Receive 16 Byte FIFOs. COM1 for RS232; COM2 for RS232/422/485.
  Programmable Baud Rate Generator

- **SOUND INTERFACE :**
  AC '97 Codec.
  Fully Compliant AC '97 Analog I/O Component
  Interface: Line-In, Line-Out, Microphone, and CD Audio-In.

- **PARALLEL PORT :**
  One port supports SPP / ECP / EPP Function.

- **HARDWARE MONITORING FUNCTION :**
  Monitor Voltage, CPU Temperature and Cooling Fan.

- **IRDA PORT :**
  One 5-pin Infrared connector
  Supports IrDA v1.0 SIR protocol.

- **LED INDICATOR :**
  System power
  Hard Disk access
  LAN LED indicator

- **OPERATING TEMPERATURE :**
  0 to 60°C (32°F to 140°F)

- **SYSTEM POWER REQUIREMENT :**
  DC Voltage: +5V, minimum +4.75V, maximum +5.25V.
  DC Ampere: 2.5A.
  DC Voltage: +12V, minimum +11.4V, maximum +12.6V.
  DC Ampere: 4.7A.

- **BOARD DIMENSION :**
  338.5mm x 122mm (13.3” x 4.8”)

- **BOARD NET WEIGHT :**
  420 grams (0.92 lb)

1-3. SAFETY PRECAUTIONS

Follow the messages below to avoid your systems from damage:

1. Avoid your system from static electricity on all occasions.

2. Prevent electric shock. Don‘t touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.

3. Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

HARDWARE CONFIGURATION

CHAPTER

2

*** QUICK START ***

Helpful information describes the jumper & connector settings, and component locations.

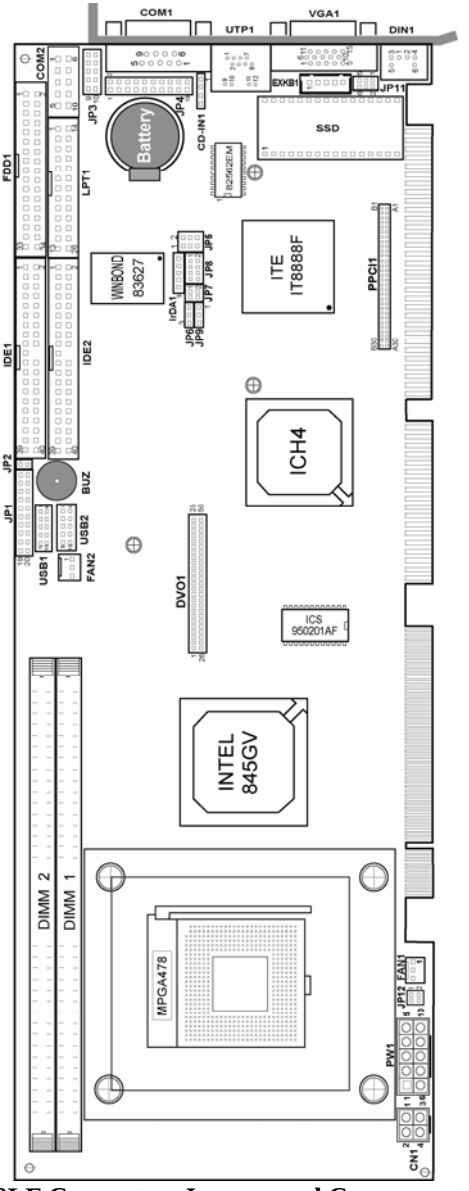
Section includes:

- Jumper & Connector Quick Reference Table
- Component Locations
- Configuration and Jumper settings
- Connector's Pin Assignments

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

COM Port Connector	COM1, COM2
RS232/422/485 (COM2) Selection	JP4
Solid-State Disk Socket	SSD
SSD Memory Mapping Selection	JP7, JP8
Keyboard or PS/2 Mouse Connector	DIN1
Keyboard or PS/2 Mouse Selection	JP11
External Keyboard Connector	EXKB1
Reset Connector	JP1 (18,20)
Hard Disk Drive LED Connector	JP1 (12,14)
ATX Power Button	JP1 (13,15)
External Speaker Connector	JP1 (2,4,6,8)
Power LED Connector	JP1 (1,3,5)
KeyLock Connector	JP1 (7,9)
Clear CMOS Data Selection	JP9
CPU Fan Connector	FAN1
System Fan Connector	FAN2
VGA CRT Connector	VGA1
DVO Connector	DVO1
Hard Disk Drive Connector	IDE1, IDE2
Floppy Disk Drive Connector	FDD1
Printer Connector	LPT1
Universal Serial Bus Connector	USB1, USB2
IrDA Connector	IrDA1
LAN Connector	UTP1
ATX Power Connector	PW1
ATX Power Signal Connector	JP6
ATX +12V Power Connector	CN1
Memory Installation	DIMM1, DIMM2
Reset/NMI/Clear Watchdog Selection	JP5
Sound Connector	JP3
CD Audio-In Connector	CD-IN1
PPCI Connector	PPCI1
Compact Flash Card Master/Slave Selection	JP2
AT/ATX Power Selection	JP12

2-2. COMPONENT LOCATIONS



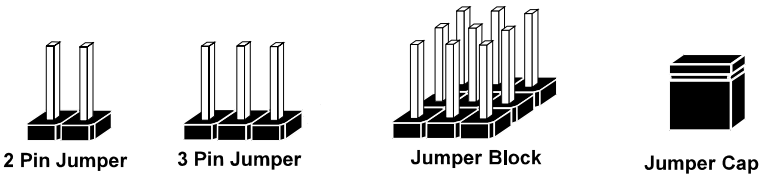
PSB-1720LF Connector, Jumper and Component locations

2-3. HOW TO SET THE JUMPERS

You can configure your board by setting jumpers. Jumper is consists of two or three metal pins with a plastic base mounted on the card, and by using a small plastic "cap", Also known as the jumper cap (with a metal contact inside), you are able to connect the pins. So you can set-up your hardware configuration by "open" or "close" pins.

The jumper can be combined into sets that called jumper blocks. When the jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows how this looks like.

JUMPERS AND CAPS



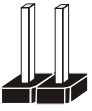
If a jumper has three pins (for examples, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams look and what they represent.

JUMPER DIAGRAMS



Jumper Cap looks like this





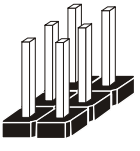
2 pin Jumper looks like this



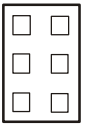


3 pin Jumper looks like this





Jumper Block looks like this

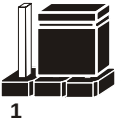


JUMPER SETTINGS

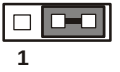


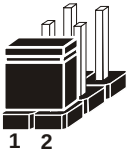
2 pin Jumper close(enabled) Looks like this



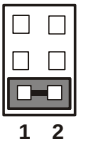


3 pin Jumper 2-3 pin close(enabled) Looks like this





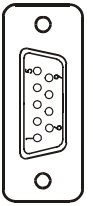
Jumper Block 1-2 pin close(enabled) Looks like this



2-4. COM PORT CONNECTOR

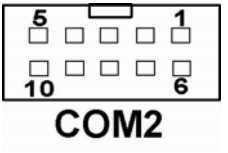
COM1 : COM1 Connector
COM1 is fixed as RS-232.
The pin assignment is as follows :

PIN	ASSIGNMENT
1	COM1_DCD
2	COM1_RXD
3	COM1_TXD
4	COM1_DTR
5	GND
6	COM1_DSR
7	COM1_RTS
8	COM1_CTS
9	COM1_RI



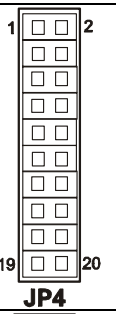
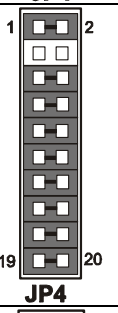
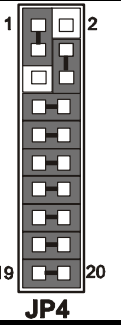
COM2 : COM2 Connector
The COM2 is selectable as RS-232/422/485.
The pin assignment is as follows :

PIN	ASSIGNMENT		
	RS-232	**RS-422**	**RS-485**
1	COM2_DCD	TX-	TX-
2	COM2_RXD	TX+	TX+
3	COM2_TXD	RX+	RX+
4	COM2_DTR	RX-	RX-
5	GND	GND	GND
6	COM2_DSR	RTS-	NC
7	COM2_RTS	RTS+	NC
8	COM2_CTS	CTS+	NC
9	COM2_RI	CTS-	NC
10	NC	NC	NC



2-5. RS232/422/485 (COM2) SELECTION

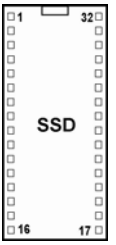
JP4 : RS-232/422/485 (COM2) Selection
This connector is used to set the COM2 function.
The jumper settings are as follows :

COM 2 Function	Jumper Settings (pin closed)	Jumper Illustrations
RS-232	Open	
RS-422	1-2, 5-6, 7-8 9-10, 11-12, 13-14 15-16, 17-18, 19-20	
RS-485	1-3, 4-6, 7-8, 9-10 11-12, 13-14, 15-16 17-18, 19-20	

*** Manufactory default --- RS-232.

2-6. SOLID-STATE DISK SOCKET

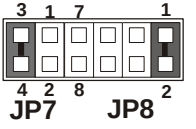
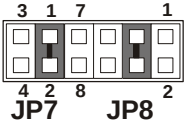
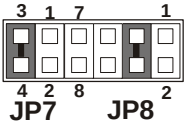
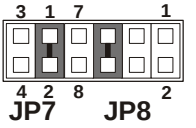
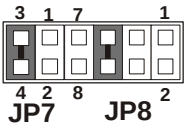
SSD: 32pin Disk-on-chip Socket
The pin assignments are as follows:



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	17	SD3
2	GND	18	SD4
3	GND	19	SD5
4	SA12	20	SD6
5	SA7	21	SD7
6	SA6	22	CE
7	SA5	23	SA10
8	SA4	24	SMEMR#
9	SA3	25	SA11
10	SA2	26	SA9
11	SA1	27	SA8
12	SA0	28	GND
13	SD0	29	GND
14	SD1	30	VCC
15	SD2	31	SMEMW#
16	GND	32	VCC

2-7. SSD MEMORY MAPPING SELECTION

JP7, JP8 : SSD Memory Mapping Selections
A 32-pin SSD socket supports Disk-on-Chip up to 288MB. This PnP Flash ROM SSD can be install as one of user's hard disk drive.
The SSD Memory Mapping Selections are as follows:

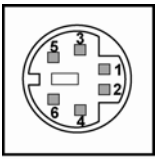
SSD Memory Map	JUMPER SETTING (pin closed) JP7	JP8	JUMPER ILLUSTRATION
CC000h-CDFFFh	3-4	1-2	
D0000h-D1FFFh	1-2	3-4	
D4000h-D5FFFh	3-4	3-4	
D8000h-D9FFFh	1-2	5-6	
DC000h-DDFFFh	3-4	5-6	

*** Manufactory default --- CC000h--CDFFFh.

2-8. KEYBOARD OR PS/2 MOUSE CONNECTOR

DIN1 : Keyboard or PS/2 Mouse Connector
DIN1 connector can support keyboard, Y-cable, or PS/2 Mouse, user may select the right device to used on "Keyboard or PS/2 Mouse Selection". The pin assignments are as follows :

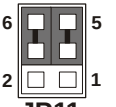
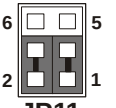
PIN	ASSIGNMENT	
	Keyboard	**PS/2 Mouse**
1	KBDATA	MSDATA
2	MSDATA	MSDATA
3	GND	GND
4	VCC	VCC
5	KBCLK	MSCLK
6	MSCLK	MSCLK



DIN1

2-9. KEYBOARD OR PS/2 MOUSE SELECTION

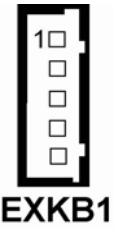
JP11 : Keyboard or PS/2 Mouse Selection
For Y-Cable user, please set the jumper same as AT keyboard.
The jumper settings are as follows:

DEVICE TYPE	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
AT KEYBOARD	3-5 4-6	 JP11
PS/2 MOUSE	1-3 2-4	 JP11

*** Manufactory default -- AT Keyboard

2-10. EXTERNAL KEYBOARD CONNECTOR

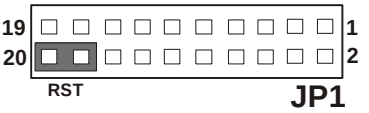
EXKB1 : External Keyboard Connector
The pin assignment is as follows :



PIN	ASSIGNMENT
1	KBCLK
2	KBDATA
3	NC
4	GND
5	VCC

2-11. RESET CONNECTOR

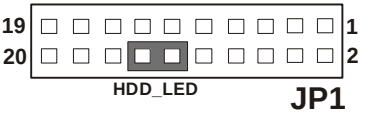
JP1 (18,20) : Reset Connector.
The pin assignment is as follows :



PIN	ASSIGNMENT
18	HW RESET
20	GROUND

2-12. HARD DISK DRIVE LED CONNECTOR

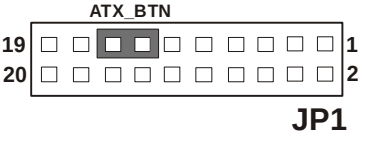
JP1 (12,14) : Hard Disk Drive LED Connector
The pin assignment is as follows :



PIN	ASSIGNMENT
12	HDD_LED
14	PULL-HIGH TO VCC

2-13. ATX POWER BUTTON

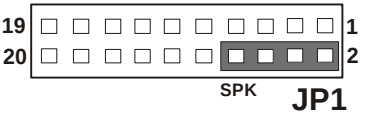
JP1 (13,15) : ATX Power Button
The pin assignment is as follows :



PIN	ASSIGNMENT
13	PULL-HIGH TO +5VSB
15	PWR_BN2

2-14. EXTERNAL SPEAKER CONNECTOR

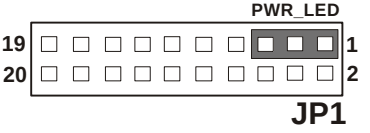
JP1 (2,4,6,8) : External Speaker Connector
The pin assignment is as follows :



PIN	ASSIGNMENT
2	VCC
4	GND
6	NC
8	SPEAKER SIGNAL

2-15. POWER LED CONNECTOR

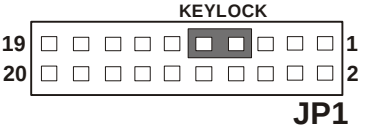
JP1 (1,3,5) : Power LED Connector
The pin assignment is as follows:



PIN	ASSIGNMENT
1	PULL-HIGH TO VCC
3	PULL-HIGH TO VCC
5	GND

2-16. KEYLOCK CONNECTOR

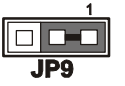
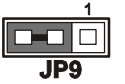
JP1 (7,9) : Keylock Connector
The pin assignment is as follows:



PIN	ASSIGNMENT
7	KEYLOCK#
9	GND

2-17. CLEAR CMOS DATA SELECTION

JP9 : Clear CMOS Data Selection
The selections are as follows :

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
Clear CMOS	1-2	
Normal	2-3	

*** Manufacturing Default is set as Normal.

Note: To clear CMOS data, user must power-off the computer and set the jumper to "Clear CMOS" as illustrated above. After five to six seconds, set the jumper back to "Normal" and power-on the computer.

2-18. CPU FAN CONNECTOR

FAN1 : CPU Fan connector
The pin assignment is as follows:

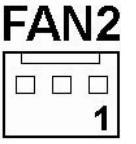
PIN	ASSIGNMENT
1	GND
2	+12V
3	FAN1



2-19. SYSTEM FAN CONNECTOR

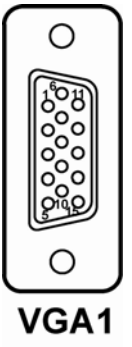
FAN2 : System Fan connector
The pin assignment is as follows:

PIN	ASSIGNMENT
1	GND
2	+12V
3	FAN2



2-20. VGA CRT CONNECTOR

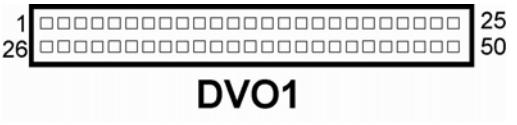
VGA1 : VGA CRT Connector
The pin assignments are as follows:



PIN	ASSIGNMENT
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	VCC
10	GND
11	NC
12	VGA DDC DATA
13	HSYNC
14	VSYNC
15	VGA DDC CLK

2-21. DVO CONNECTOR

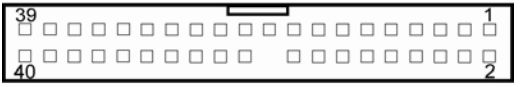
DVO1 : DVO Connector
The pin assignments are as follows :



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC	26	+12V
2	VCC	27	+12V
3	VCC	28	GND
4	VCC3_3	29	GND
5	VCC3_3	30	DVO1_D0
6	VDDQ	31	DVO1_D1
7	MI2C_DATA	32	DVO1_D2
8	MI2C_CLK	33	DVO1_D3
9	DVO1_BLANK#	34	DVO1_D4
10	DVO1_FLDSTL	35	DVO1_D5
11	GND	36	DVO1_D6
12	DVO1_CLK	37	DVO1_D7
13	DVO1_CLK#	38	DVO1_D8
14	GND	39	DVO1_D9
15	DVO1_VSYNC	40	DVO1_D10
16	DVO1_HSYNC	41	DVO1_D11
17	MDVI_CLK	42	DVO12_INTR#
18	MDVI_DATA	43	ADDDETECT
19	PCIRST#	44	ADDID4
20	DVO12CLKINT#	45	ADDID5
21	ADDID0	46	ADDID6
22	ADDID1	47	ADDID7
23	ADDID2	48	REF14.318M
24	ADDID3	49	VCC2_5
25	DVO_VREF	50	VCC2_5

2-22. HARD DISK DRIVE CONNECTOR

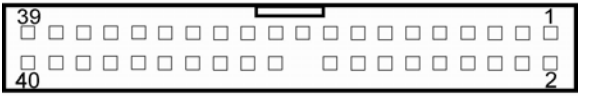
IDE1: Hard Disk Drive Connector
The PSB-1720LF possesses two HDD connectors, IDE1 and IDE2. The pin assignments are as follows:



IDE1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST#	2	GND
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	GND	20	NC
21	PDREQ	22	GND
23	PDIOW#	24	GND
25	PDIOR#	26	GND
27	PDIORDY	28	PULL LOW
29	PDDACK#	30	GND
31	IRQ14	32	NC
33	PDA1	34	PD66_DECT
35	PDA0	36	PDA2
37	PDCS#1	38	PDCS#3
39	IDEACTP#	40	GND

IDE2: Hard Disk Drive Connector
The pin assignments are as follows:

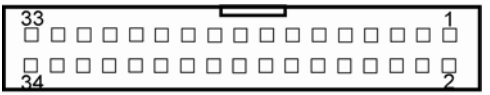


IDE2

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST#	2	GND
3	SDD7	4	SDD8
5	SDD6	6	SDD9
7	SDD5	8	SDD10
9	SDD4	10	SDD11
11	SDD3	12	SDD12
13	SDD2	14	SDD13
15	SDD1	16	SDD14
17	SDD0	18	SDD15
19	GND	20	NC
21	SDREQ	22	GND
23	SDIOW#	24	GND
25	SDIOR#	26	GND
27	SDIORDY	28	PULL LOW
29	SDDACK#	30	GND
31	IRQ15	32	NC
33	SDA1	34	SD66_DECT
35	SDA0	36	SDA2
37	SDCS#1	38	SDCS#3
39	IDEACTS#	40	GND

2-23. FLOPPY DISK DRIVE CONNECTOR

FDD1 : Floppy Disk Drive Connector
You can use a 34-pin daisy-chain cable to connect two-FDDs. On one end of this cable is a 34-pin flat cable to attach the FDD on the board, and the other side is attaches two FDDs.
The pin assignments are as follows :

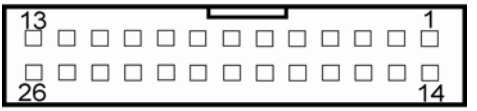


FDD1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	RWC#
3	GND	4	NC
5	NC	6	DS1#
7	GND	8	INDEX#
9	GND	10	MOA#
11	GND	12	DSB#
13	GND	14	DSA#
15	GND	16	MOB#
17	GND	18	DIR#
19	GND	20	STEP#
21	GND	22	WD#
23	GND	24	WE#
25	GND	26	TRAK0#
27	GND	28	WP#
29	NC	30	RDATA#
31	GND	32	HEAD#
33	NC	34	DSKCHG#

2-24. PRINTER CONNECTOR

LPT1 : Printer Connector
As to link the Printer to the card, you need a cable to connect both DB25 connector and parallel port.
The pin assignments are as follows :



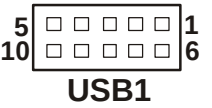
LPT1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	PRNSTRB#	14	PRNALF#
2	PRND0	15	PRNERROR#
3	PRND1	16	PRNPARINIT#
4	PRND2	17	PRNSLCTIN#
5	PRND3	18	GND
6	PRND4	19	GND
7	PRND5	20	GND
8	PRND6	21	GND
9	PRND7	22	GND
10	PRNACK#	23	GND
11	PRNBUSY	24	GND
12	PRNPE	25	GND
13	PRNSLCT#	26	NC

2-25. UNIVERSAL SERIAL BUS CONNECTOR

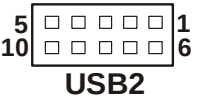
USB1: Universal Serial Bus Connector
The PSB-1720LF possesses two USB connectors, USB1 and USB2. The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC
2	DATA0–
3	DATA0+
4	GND
5	GND
6	VCC
7	DATA1–
8	DATA1+
9	GND
10	GND



USB2: Universal Serial Bus Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC
2	DATA2–
3	DATA2+
4	GND
5	GND
6	VCC
7	DATA3–
8	DATA3+
9	GND
10	GND



2-26. IRDA CONNECTOR

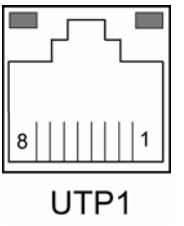
IrDA1: IrDA (Infrared) Connector
The pin assignments are as follows:



PIN	ASSIGNMENT
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX

2-27. LAN CONNECTOR

UTP1: LAN Connector
The pin assignments are as follows:



PIN	ASSIGNMENT
1	TX+
2	TX-
3	RX+
4	ISOLATED GND
5	ISOLATED GND
6	RX-
7	ISOLATED GND
8	ISOLATED GND

LAN LED Indicator:
Left side LED:

Yellow Color Blinking	LAN Message Active
Off	No LAN Message Active

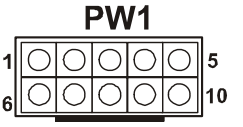
Right side LED:

Green Color on	10/100 LAN Speed Indicator
Off	No LAN Switch/hub Connected

2-28. ATX POWER CONNECTOR

PW1 : ATX Power Connector
The pin assignments are as follows:

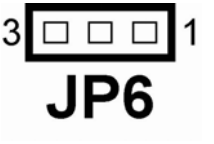
PIN	ASSIGNMENT
1	VCC
2	VCC
3	GND
4	GND
5	+12V
6	+5VSB
7	VCC
8	GND
9	PS_ON
10	-12V



2-29. ATX POWER SIGNAL CONNECTOR

JP6 : ATX Power Signal Connector
The pin assignments are as follows:

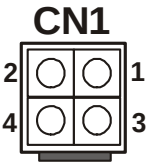
PIN	ASSIGNMENT
1	+5V SB
2	GND
3	PS_ON



2-30. ATX +12V POWER CONNECTOR

CN1 : ATX +12V Power Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	GND
3	+12V
4	+12V



2-31. MEMORY INSTALLATION

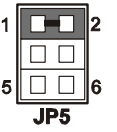
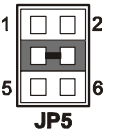
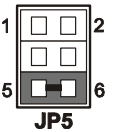
PSB-1720LF CPU Card can support up to 2GB in two DIMM sockets.

DRAM BANK CONFIGURATION

DIMM 1	DIMM 2	TOTAL MEMORY
128MB	128MB	256MB
256MB	256MB	512GB
512MB	512MB	1GB
1GB	1GB	2GB

2-32. RESET/NMI/CLEAR WATCHDOG SELECTION

JP5 : Reset/NMI/Clear Watchdog Selection
The selections are as follows:

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
RESET	1-2	
NMI	3-4	
CLEAR WATCHDOG	5-6	

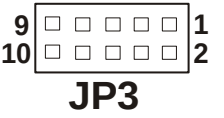
***Manufacturing Default is set as Reset.

- User may select to use the Reset or NMI watchdog. NMI, also known as Non-Maskable Interrupt, is used for serious conditions that demand the processor's immediate attention, it cannot be ignored by the system unless it is shut off specifically. To clear NMI command, user should short the "Clear Watchdog" pin via push button.

2-33. SOUND CONNECTOR

JP3 : Sound Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	MIC-IN
2	NC
3	GND
4	GND
5	LINE-L
6	LINE-R
7	GND
8	GND
9	SPK-L
10	SPK-R



2-34. CD Audio-IN CONNECTOR

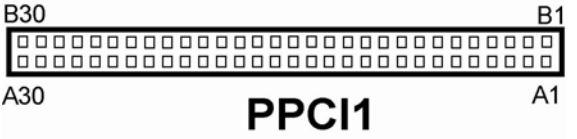
CD-IN1 : CD Audio-In Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	CD_L
2	CDGND
3	CDGND
4	CD_R



2-35. PPCI CONNECTOR

You will find a PPCI connector in our PSB-1720LF. This connector is used to connect our SCSI daughter boards.
The pin assignments are as follows:



PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	GND	B1	GND
A2	AD0	B2	AD1
A3	AD2	B3	AD3
A4	AD4	B4	AD5
A5	AD6	B5	AD7
A6	AD8	B6	AD9
A7	AD10	B7	AD11
A8	VCC	B8	VCC
A9	AD12	B9	AD13
A10	AD14	B10	AD15
A11	AD16	B11	AD17
A12	AD18	B12	AD19
A13	AD20	B13	AD21
A14	AD22	B14	AD23
A15	VCC	B15	VCC
A16	AD24	B16	AD25
A17	AD26	B17	AD27
A18	AD28	B18	AD29
A19	AD30	B19	AD31
A20	PIRQ#B	B20	PAR
A21	PP CLK	B21	IRDY#
A22	ID SEL	B22	TRDY#
A23	CBE#0	B23	CBE#1
A24	CBE#2	B24	CBE#3
A25	PGNT#4	B25	PREQ#4
A26	SERR#	B26	PERR#
A27	PIRQ#A	B27	PCI_RST#
A28	STOP#	B28	PLOCK#
A29	DEVSEL#	B29	FRAME#
A30	GND	B30	GND

☞ The PPCI expansion connector of this Card is designed based on PCI Bus Master. That means when the PPCI expansion connector is used, the 4th PCI slot on the backplane is occupied.

2-36. CF CARD MASTER/SLAVE SELECTION

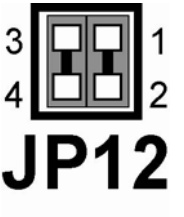
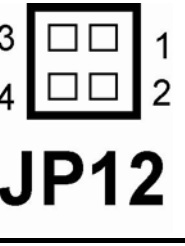
JP2 : Compact Flash Card Master/Slave Selection.
The selections are as follows:

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
Master	1-2	
Slave	Open	

***Manufacturing Default is set as Slave.

2-37. AT/ATX POWER SELECTION

JP12 : AT/ATX Power Selection.
The selections are as follows:

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
AT	1-2, 3-4	
ATX	Open	

***Manufacturing Default is set as ATX.

SOFTWARE UTILITIES

CHAPTER

3

This chapter comprises the detailed information of VGA driver, LAN driver, and Flash BIOS update. It also describes how to install the watchdog timer configuration.

Section includes:

- VGA Driver Utility
- Flash BIOS Update
- LAN Driver Utility
- Sound Driver Utility
- Intel® Chipset Software Installation Utility
- USB2.0 Chipset Software Installation Utility
- Watchdog Timer Configuration

3-1. INTRODUCTION

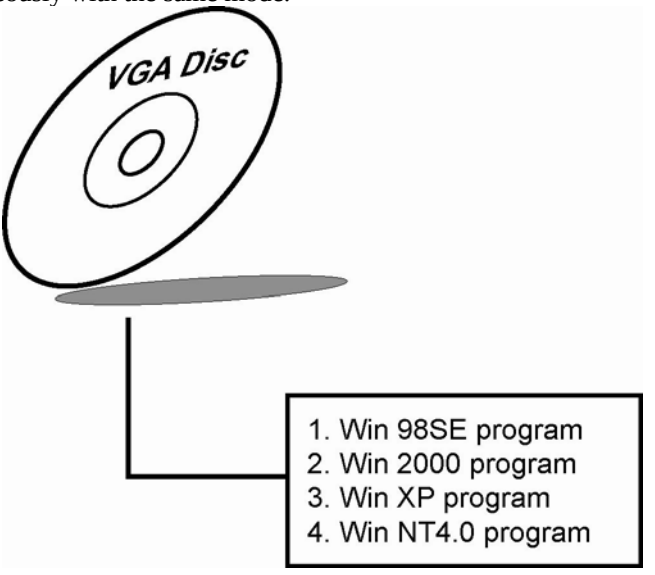
Enclosed with our PSB-1720LF package is our driver utility, which may comes in a form of a CD ROM disc or floppy diskettes. For CD ROM disc user, you will only need some of the files contained in the CD ROM disc, please kindly refer to the following chart:

Filename (Assume that CD ROM drive is D:)	**Purpose**
D:\Driver\VGA	Intel 845GV For VGA driver installation
D:\Driver\FLASH	For BIOS update utility
D:\Driver\LAN	For LAN Driver installation
D:\Driver\Sound	Realtel ALC202A AC97 For Sound driver installation
D:\Driver\UTILITY	Intel® Chipset Software Installation Utility For Win 2000, XP
D:\Driver\USB 2.0	USB 2.0 Software Installation Utility For Win 98SE, 2000, ME, XP

🔔 User should remember to install the Utility right after the OS fully installed.

3-2. VGA DRIVER UTILITY

The VGA interface embedded with our PSB-1720LF can support a wide range of display. You can display CRT, LVDS and PanelLink™ simultaneously with the same mode.



3-2-1. Installation of VGA Driver:

To install the VGA Driver, simply follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 98SE/NT4.0/2000/XP system, go to the directory where VGA driver is located.
3. Click **Setup.exe** file for VGA driver installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart in order for the changes to take effect.

3-3. FLASH BIOS UPDATE

3-3-1. System BIOS Update:

Users of PSB-1720LF can use the program “Awdflash.exe” contained in the Utility Disk for system BIOS and VGA BIOS update.

3-3-2. To update VGA BIOS for LCD Flat Panel Display:

As PSB-1720LF user, you have to update the VGA BIOS for your specific LCD flat panel you are going to use. For doing this, you need two files. One is the “Awdflash.exe” file and the other is the VGA BIOS for ATI Rage Mobility M6 file for LCD panel display. Both file must be provided by the vendor or manufacturer. When you get these two files ready, follow the following steps for updating your VGA BIOS:

1. Install “Awdflash.exe” from Utility Disk to Drive C.
2. Insert the VGA BIOS file you have obtained from the vendor. Type the path to Awdflash.exe and execute the VGA BIOS update with file H15bxxxx.bin
3. C:\UTIL\AWDFLASH>AWDFLASH H15bxxxx.bin
4. The screen will display as the table fount on the next page:

FLASH MEMORY WRITER v7.XX (C) Award Software 2001 All Rights Reserved
Flash Type – SST 49LF004A /3.3V File Name to Program: H20bxxxx.bin Checksum: XXXXX
Error Message: Do You Want To Save BIOS (Y/N)

If you want to save up the original BIOS, enter "Y" and press < Enter >. If you choose "N", the following table will appear on screen.

FLASH MEMORY WRITER v7.XX (C) Award Software 2001 All Rights Reserved
Flash Type – SST 49LF004A /3.3V File Name to Program: H20bxxxx.bin Checksum: XXXXX
Error Message : Are You Sure To Program (Y/N)

Select "Y", and the BIOS will be renewed. When you are refreshing the BIOS, do not turn off or reset the system, or you will damage the BIOS. After you have completed all the programming, the screen displays the table below:

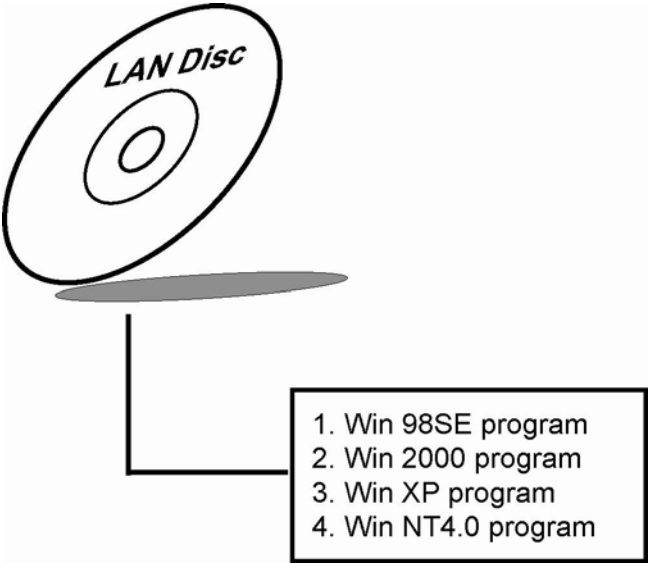
FLASH MEMORY WRITER v7.XX (C) Award Software 2001 All Rights Reserved
Flash Type – SST 49LF004A /3.3V File Name to Program: H20bxxxx.bin Checksum: XXXXX Reset System or Power off to accomplish update process!
F1: Reset F10: Exit

Please reset or power off the system, and then the Flash BIOS is fully implemented.

3-4. LAN DRIVER UTILITY

3-4-1. Introduction

PSB-1720LF is enhanced with LAN function that can support various network adapters. Installation programs for LAN drivers are listed as follows:

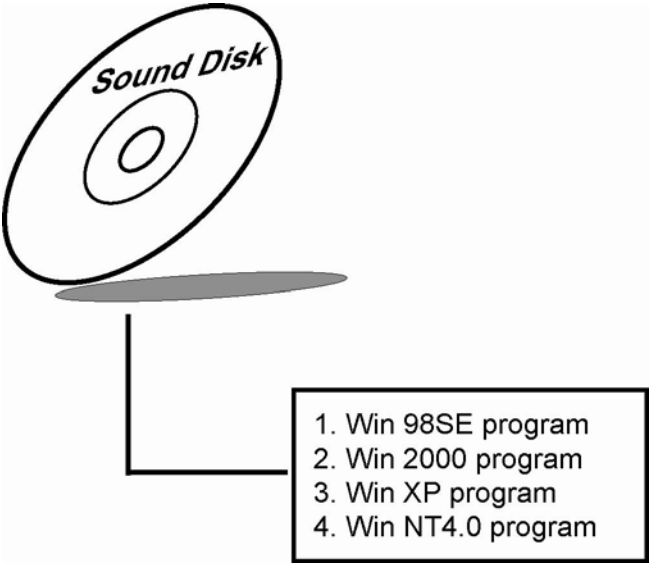


For more details on Installation procedure, please refer to Readme.txt file found on LAN DRIVER UTILITY.

3-5. SOUND DRIVER UTILITY

3-5-1. Introduction

The Realtek ALC201A sound function enhanced in this system is fully compatible with Windows 98, Windows 98SE, Windows NT 4.0, Windows 2000, Windows ME and Windows XP. Below, you will find the content of the Sound driver :



3-5-2. Installation Procedure for Windows 98SE/NT/2000/XP

1. From the task bar, click on Start, and then Run.
2. In the Run dialog box, type D:\Sound\path\setup, where "D:\Sound\pathname" refers to the full path to the source files.
3. Click on the OK button or press the ENTER key.
4. Click on the "Next" and OK prompts as they appear.
5. Reboot the system to complete the driver installation.

3-6. INTEL® CHIPSET SOFTWARE INSTALLATION UTILITY

3-6-1. Introduction

The Intel® Chipset Software Installation Utility installs to the target system the Windows* INF files that outline to the operating system how the chipset components will be configured. This is needed for the proper functioning of the following features:

- Core PCI and ISAPNP Services
- AGP Support
- IDE/ATA33/ATA66/ATA100 Storage Support
- USB Support
- Identification of Intel® Chipset Components in Device Manager

3-6-2. Installation of Utility for Windows 98SE/NT4.0/2000/XP

The Utility Pack is to be installed only for Windows 98SE, Windows NT4.0, Windows 2000 and XP program.
It should be installed right after the OS installation, kindly follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 98SE/NT4.0/2000/XP system, go to the directory where Utility Disc is located.
3. Click **Setup.exe** file for utility installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart in order for the changes to take effect.

3-7. USB2.0 SOFTWARE INSTALLATION UTILITY

3-7-1. Installation of Utility for Windows 98SE/ 2000/XP

Intel USB 2.0 Enhanced Host Controller driver can only be used on Windows 98SE, Windows 2000 and Windows XP on Intel Desktop boards. It should be installed right after the OS installation, kindly follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 98SE, 2000, and XP system, go to the directory where Utility Disc is located.
3. Start the "System" wizard in control panel. (Click Start/Settings/Control Panel).
4. Select "Hardware" and click "Device Manager " button.
5. Double Click "USB Root Hub".
6. Select "Driver".
7. Click "Install" to install the driver.
8. Follow the instructions on the screen to complete the installation.
9. Click "Finish" after the driver installation is complete.

3-8. WATCHDOG TIMER CONFIGURATION

This board has watchdog timer function for monitoring whether the system is still work or not after a period of time. The user can select watchdog timer to system reset or NMI (Non Maskable interrupt) depending on the jumper set in chapter 2. This is defined at I/O port **443H**. When you want to enable the watchdog timer, please write I/O port **443H**, and then the system will either reset itself or perform the NMI function. Likewise, when you want to disable the function, write I/O port **441H**, the system will run the command to stop the Watchdog function.

In PSB-1720LF watchdog function, you must write your program so when it writes I/O port address 443 for enable watchdog and write I/O port address 441 for disable watchdog. The timer's intervals have a tolerance of 25% (but for level 1 and 2, the tolerance is 4%), so you should program an instruction that will refresh the timer about every second.

The following program shows you how to program the watch timer in your program.

Watchdog enable program:
MOVAX, 000FH(choose the values you need; start from 0)
MOVDX, 443H
OUTDX, AX

Watchdog disable program:
MOVAX, 000FH(this value can be ignored)
MOVDX, 441H
OUTDX, AX

The Watchdog Timer control table is as follows:

Level	Value	Time/sec	Level	Value	Time/sec
1	F	0	9	7	64
2	E	8	10	6	72
3	D	16	11	5	80
4	C	24	12	4	88
5	B	32	13	3	96
6	A	40	14	2	104
7	9	48	15	1	112
8	8	56	16	0	120

AWARD BIOS SETUP

CHAPTER 4

This chapter shows how to set up the Award BIOS.

Section includes:

- Introduction
- Entering Setup
- The Standard CMOS Features
- The Advanced BIOS Features
- The Advanced Chipset Features
- Integrated Peripherals
- Power Management Setup
- PNP/PCI Configuration
- PC Health Status
- Frequency Control
- Load Fail-Safe Defaults
- Load Optimized Defaults
- Password Setting
- Save and Exit Setup
- Exit Without Saving

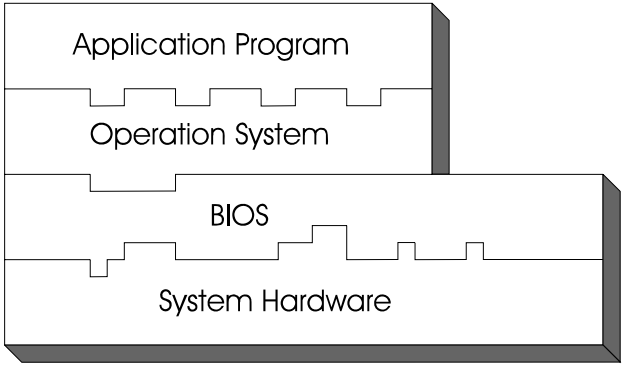
4-1. INTRODUCTION

This chapter will show you the function of the BIOS in managing the features of your system. The PSB-1720LF Pentium® 4 Full-size CPU Card is equipped with the BIOS for system chipset from Award Software Inc. This page briefly explains the function of the BIOS in managing the special features of your system. The following pages describe how to use the BIOS for system chipset Setup menu.

Your application programs (such as word processing, spreadsheets, and games) rely on an operating system such as DOS or OS/2 to manage such things as keyboard, monitor, disk drives, and memory.

The operating system relies on the BIOS (Basic Input and Output system), a program stored on a ROM (Read-only Memory) chip, to initialize and configure your computer's hardware. As the interface between the hardware and the operating system, the BIOS enables you to make basic changes to your system's hardware without having to write a new operating system.

The following diagram illustrates the interlocking relationships between the system hardware, BIOS, operating system, and application program:



4-2. ENTERING SETUP

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines and the following message will appear on the lower screen:

PRESS <DEL> TO ENTER SETUP, ESC TO SKIP MEMORY TEST

As long as this message is present on the screen you may press the <Del> key (the one that shares the decimal point at the bottom of the number keypad) to access the Setup program. In a moment, the main menu of the Award SETUP program will appear on the screen:

Phoenix - AwardBIOS CMOS Setup Utility

►Standard CMOS Features	►Frequency 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 F10 : Save & Exit Setup	↑↓→← : Select Item
Time, Date, Hard Disk Type ….	

Setup program initial screen

You may use the cursor the up/down keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear at the bottom of the screen.

4-3. THE STANDARD CMOS FEATURES

Highlight the "STANDARD CMOS FEATURES" and press the <ENTER> key and the screen will display the following table:

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Tue, Oct 29 2002	Item Help
Time (hh:mm:ss)	10 : 37 : 33	Menu Level ►
► IDE Primary Master	[MAXTOR 6L040J2]	Change the internal clock.
► IDE Primary Slave	[None]	
► IDE Secondary Master	[None]	
► IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	1039360K	
Total Memory	1040384K	

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

CMOS Setup screen

In the above Setup Menu, 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.

Date:

< Month >, < Date > and <Year >. Ranges for each value are in the CMOS Setup Screen, and the week-day will skip automatically.

Time:

< Hour >, < Minute >, and < Second >. Use 24 hour clock format, i.e., for PM numbers, add 12 to the hour. For example: 4: 30 P.M. You should enter the time as 16:30:00.

IDE Primary Master / Slave:
IDE Secondary Master / Slave:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix - AwardBIOS CMOS Setup Utility
IDE Primary Master

IDE HDD Auto-Detection	[Press Enter]	Item Help
IDE Primary Master	[Auto]	Menu Level ►►
Access Mode	[Auto]	
Capacity	13022 MB	To auto-detect the HDD's size, head…on this channel
Cylinder	25232	
Head	16	
Precomp	65535	
Landing Zone	25231	
Sector	63	

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

Table 1 – IDE Primary Master sub menu

Descriptions on each item above are as follows:

1. IDE HDD Auto-detection
   Press the enter key to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
2. IDE Primary Master
   There are three available options on this category, namely: None, Auto, and Manual. By selecting "Manual", you can set the remaining fields on this screen, such as -
   a. Cylinder – Set the number of cylinders for this hard disk.
   b. Head – Set the number of read/write heads.
   c. Precomp - ***Warning!** Setting a value of 65535 means no HDD.
   d. Landing Zone
   e. Sector – Set the number of sector per track

3. Access Mode
   There are four available options for this item, namely: Normal, LBA, Large and Auto. Choose the access mode for this hard disk.
4. Capacity
   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.

DRIVE A AND DRIVE B:

Select the type of floppy disk drive installed in your system. The available options are 360KB 5.25in, 1.2KB 5.25in, 720KB 3.5in, 1.44MB 3.5in, 2.88MB 3.5in and None.

VIDEO:

This category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type in Setup. Available Options are as follows:

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode.
CGA 80	Color Graphics Adapter, power up in 80 column mode.
MONO	Monochrome adapter, includes high resolution monochrome adapters.

HALT ON:

This category allows user to choose whether the computer will stop if an error is detected during power up. Available options are “All errors”, “No errors”, “All, But keyboard”, “All, But Diskette”, and “All But Disk/Key”.

BASE MEMORY:

Displays the amount of conventional memory detected during boot up.

EXTENDED MEMORY:

Displays the amount of extended memory detected during boot up.

TOTAL MEMORY:

Displays the total memory available in the system.

HARD DISK ATTRIBUTES:

Type	Cylinders	Heads	V-P comp	LZone	Sect	Capacity
1	306	4	128	305	17	10
2	615	4	300	615	17	20
3	615	6	300	615	17	30
4	940	8	512	940	17	62
5	940	6	512	940	17	46
6	615	4	65535	615	17	20
7	642	8	256	511	17	30
8	733	5	65535	733	17	30
9	900	15	65535	901	17	112
10	820	3	65535	820	17	20
11	855	5	65535	855	17	35
12	855	7	65535	855	17	49
13	306	8	128	319	17	20
14	733	7	65535	733	17	42
15	000	0	0000	000	00	00
16	612	4	0000	663	17	20
17	977	5	300	977	17	40
18	977	7	65535	977	17	56
19	1024	7	512	1023	17	59
20	733	5	300	732	17	30
21	733	7	300	732	17	42
22	733	5	300	733	17	30
23	306	4	0000	336	17	10
24	977	5	65535	976	17	40
25	1024	9	65535	1023	17	76
26	1224	7	65535	1223	17	71
27	1224	11	65535	1223	17	111
28	1224	15	65535	1223	17	152
29	1024	8	65535	1023	17	68
30	1024	11	65535	1023	17	93
31	918	11	65535	1023	17	83
32	925	9	65535	926	17	69
33	1024	10	65535	1023	17	85
34	1024	12	65535	1023	17	102
35	1024	13	65535	1023	17	110
36	1024	14	65535	1023	17	119
37	1024	2	65535	1023	17	17
38	1024	16	65535	1023	17	136
39	918	15	65535	1023	17	114
40	820	6	65535	820	17	40
41	1024	5	65535	1023	17	42
42	1024	5	65535	1023	26	65
43	809	6	65535	852	17	40
44	809	6	65535	852	26	61
45	776	8	65335	775	33	100
47			AUTO			

Award Hard Disk Type Table

4-4. THE ADVANCED BIOS FEATURES

Choose the "ADVANCED BIOS FEATURES" in the main menu, the screen shown as below.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

Virus Warning	[Disabled]	Item Help
CPU L1 & L2 Cache	[Enabled]	
Quick Power On Self Test	[Enabled]	Menu Level ►
First Boot Device	[Floppy]	
Second Boot Device	[HDD-0]	
Third Boot Device	[LS120]	
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]	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	[Setup]	
APCI Mode	[Enabled]	
MPS Version Control For OS	[1.4]	
OS Select For DRAM > 64MB	[Non-OS2]	
HDD S.M.A.R.T Capability	[Disabled]	
Small Logo (EPA) Show	[Disabled]	

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

BIOS Features Setup Screen

The "BIOS FEATURES SETUP" allow you to configure your system for basic operation. The user can select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

A brief introduction of each setting is given below.

VIRUS WARNING :

This item 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.

CPU L1 & L2 CACHE :

This item allows you to enable L1 & L2 cache.

QUICK POWER ON SELF-TEST:

This item allows you to speed up Power On Self Test (POST) after power-up the computer. When enabled, the BIOS will shorten or skip some check items during POST.

FIRST/SECOND/THIRD/OTHER BOOT DEVICE:

The BIOS attempt to load the operating system from the devices in the sequence selected in these items.

SWAP FLOOPY DRIVE:

This field is effective only in systems with two floppy drives. Selecting Enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.

BOOT UP FLOPPY SEEK:

You may enable / disable this item to define whether the system will look for a floppy disk drive to boot at power-on, or proceed directly to the hard disk drive.

BOOT UP NUMLOCK STATUS:

Select power on state for NumLock.

GATE A20 OPTION:

This entry allows you to select how the gate A20 is handled. When Normal was set, a pin in the keyboard controller controls Gate A20. And when Fast was set, the chipset controls Gate A20.

TYPEMATIC RATE SETTING:

Enable this item if you wish to be able to configure the characteristics of your keyboard. Typematic refers to the way in which characters are entered repeatedly if a key is held down. For example, if you press and hold down the "A" key, the letter "a" will repeatedly appear on your screen on your screen until you release the key. When enabled, the typematic rate and typematic delay can be selected.

TYPEMATIC RATE (CHARS/SEC):

This item sets the number of times a second to repeat a key stroke when you hold the key down.

TYPEMATIC DELAY (MSEC):

The item sets the delay time after the key is held down before it begins to repeat the keystroke.

SECURITY OPTION:

This category allows you to limit access to the system and Setup, or just to 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.

🔔 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.

MPS VERSION CONTROL FOR OS :

The BIOS supports versions 1.1 and 1.4 of the Intel multiprocessor specification. Select the version supported by the operating system running on this computer.

OS SELECT FOR DRAM >64MB :

Select the operating system that is running with greater than 64MB or RAM on the system. You may choose OS2 or Non-OS2.

4-5. ADVANCED CHIPSET FEATURES

Choose the "ADVANCED CHIPSET FEATURES" from the main menu, the screen shown as below.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Timing Selectable	[By SPD]	Item Help
x CAS Latency Time	2	
x Active to Precharge Delay	6	
x DRAM RAS# to CAS# Delay	3	Menu Level ►
x DRAM RAS# Precharge	3	
Turbo Mode	[Disabled]	
Memory Frequency For	[Auto]	
System BIOS Cacheable	[Enabled]	
Video BIOS Cacheable	[Disabled]	
Memory Hole At 15M-16M	[Disabled]	
Delayed Transaction	[Enabled]	
AGP Aperture Size (MB)	[64]	
	[Disabled]	
** On-Chip VGA Setting **		
On-Chip VGA	[Enabled]	
On-Chip Frame Buffer Size	[8MB]	
Boot Display	[Auto]	
Panel Type	[1024 x 768 LVDS]	
IO Channel Check NMI	[Disabled]	

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

Chipset Features Setup Screen

This parameter allows you to configure the system based on the specific features of the installed chipset. The chipset manages bus speed and access to system memory resources, such as DRAM and the external cache.

It also coordinates communications between 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 the system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

DRAM TIMING BY SELECTABLE:

This allows you to select the DRAM timing.

CAS LATENCY TIME:

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.

ACTIVE TO PRECHARGE DELAY:

This item controls the number of DRAM clocks for TRAS.

DRAM RAS# TO CAS# DELAY:

This field let's you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

DRAM RAS# PRECHARGE:

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

SYSTEM BIOS CACHEABLE:

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

VIDEO BIOS CACHEABLE:

Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

MEMORY HOLE AT 15M-16M:

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

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.

AGP APERTURE SIZE:

This field determines the effective size of the Graphic Aperture used for a particular GMCH configuration. It can be updated by the GMCH-specific BIOS configuration sequence before the PCI standard bus enumeration sequence takes place. If it is not updated then a default value will select an aperture of maximum size.

IO CHANNEL CHECK NMI:

This field allows you to enable or disable IO channel check NMI. Before selecting this function, the user should check first that NMI function is enabled as described in chapter 2 (*Reset/NMI/Clear Watchdog Selection*).

4-6. INTEGRATED PERIPHERALS

Choose "INTEGRATED PERIPHERALS" from the main setup menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

	On-Chip Primary PCI IDE	[Enabled]	Item Help
	IDE Primary Master PIO	[Auto]	
	IDE Primary Slave PIO	[Auto]	Menu Level ►
	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]	
	USB Controller	[Enabled]	
	USB 2.0 Controller	[Enabled]	
	USB Keyboard Support	[Disabled]	
	USB Mouse Support	[Disabled]	
	AC97 Audio	[Auto]	
	Onboard/CNR LAN Selection	[Auto]	
	Onboard LAN	[Auto]	
	Init Display First	[Onboard]	
	BIOS Flash Function	[Enabled]	
	IDE HDD Block Mode	[Enabled]	
	POWER ON Function	[BUTTON ONLY]	
x	KB Power ON Password	Enter	
x	Hot Key Power ON	Ctrl-F1	
	Onboard FDC Controller	[Enabled]	
	Onboard Serial Port 1	[3F8/IRQ4]	
	Onboard Serial Port 2	[2F8/IRQ3]	
	UART Mode Select	[Normal]	
x	RxD, TxD Active	Hi, Lo	
x	IR Transmission Delay	Enabled	
x	UR2 Duplex Mode	Half	
x	Use IR Pins	IR-Rx2Tx2	
	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 Values F6: Fail-Safe Defaults F7:Optimized Defaults

Integrated Peripherals Setup Screen

By moving the cursor to the desired selection and by pressing the <F1> key, the all options for the desired selection will be displayed for choice.

ON-CHIP PRIMARY PCI IDE:
ON-CHIP SECONDARY PCI IDE:

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

IDE PRIMARY MASTER/SLAVE PIO:
IDE SECONDARY MASTER/SLAVE PIO:

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

IDE PRIMARY MASTER/SLAVE UDMA:
IDE SECONDARY MASTER/SLAVE UDMA:

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

USB CONTROLLER:

Select enabled if the system contains a Universal Serial Bus (USB) controller and you have a USB peripherals.

USB KEYBOARD SUPPORT:

Select Enabled if you have a USB Keyboard.

USB MOUSE SUPPORT:

Select enabled if the system contains a Universal Serial Bus (USB) controller and you have a USB Mouse.

AC97 Audio:

This item allows you to enable/disable to support AC97 Audio.

ONBOARD LAN:

This item allows you to set enable/disable/auto to support onboard LAN.

INIT DISPLAY FIRST:

This item allows you to decide to active whether PCI Slot or on-chip VGA first.

BIOS FLASH FUNCTION:

This item allows you to enable the BIOS Flash function.

IDE HDD BLOCK MODE:

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

POWER ON FUNCTION:

This item allows you the select power on event.

KB POWER ON PASSWORD:

This item allows you to set the keyboard power on password.

HOT KEY POWER ON:

This item allows you to select the hot key of the keyboard power on.
The choice: Ctrl-F1~F12.

ONBOARD FDC CONTROLLER:

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

ONBOARD SERIAL PORT 1:
ONBOARD SERIAL PORT 2:

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

UART MODE SELECT:

This item allows you to select UART mode.

RxD, TxD ACTIVE:

This item allows you to determine the active of RxD, TxD.

IR TRANSMISSION DELAY:

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

UR2 DUPLEX MODE:

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

USE IR PINS:

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

ONBOARD PARALLEL PORT:

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

PARALLEL PORT MODE:

Select an operating mode for the onboard parallel (printer) port. Select *Normal, Compatible,* or *SPP* unless you are certain your hardware and software both support one of the other available modes.

EPP MODE SELECT:

Select EPP port type 1.7 or 1.9.

ECP MODE USE DMA:

Select a DMA channel for the parallel port for use during ECP mode.

PWRON AFTER PWR-FAIL:

This item allows you to select if you want to power on the system after power failure. The choice: Off, On, Former-Sts.

4-7. POWER MANAGEMENT SETUP

Choose "POWER MANAGEMENT SETUP" option on the main menu, a display will be shown on screen as below :

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI Function	[Enabled]	Item Help
Power Management	[User Define]	
MODEM Use IRQ	[3]	
Suspend Mode	[Disabled]	Menu Level ►
Power-Supply Type	[ATX]	
Soft-Off by PWR-BTTN	[Instant-Off]	
Wake-Up by PCI card	[Enabled]	
Power On by Ring	[Enabled]	
Resume by Alarm	[Disabled]	
x Date (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]	

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

Power Management Setup Screen

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

ACPI SUSPEND TYPE:

This item allows the user to set the ACPI suspend type to be used.

POWER MANAGEMENT:

This item allows you to select the Power Management mode.

MODEM USE IRQ:

This item enable you to name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

SUSPEND MODE:

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

SOFT-OFF BY PWR-BTTN:

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung". The choices are Delay 4 Sec and Instant-Off.

WAKE-UP BY PCI CARD:

An input signal from PME on the PCI card awakens the system from a soft off state.

POWER ON BY RING:

This category enables or disables the powering up of the system when the modem receives a call while the computer is in Soft-Off state.

RESUME BY ALARM:

When *Enabled,* your can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

PM EVENTS:

PM events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything, which occurs to a device which is configured as *Enabled*, even when the system is in a power down mode. (1) **Primary IDE 0** (2) **Primary IDE 1** (3) **Secondary IDE 0** (4) **Secondary IDE 1** (5) **FDD, COM, LPT Port**

4-8. PNP/PCI CONFIGURATION

Choose "PNP/PCI CONFIGURATION" from the main menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

PNP OS Installed	[No]	Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto (ESCD)]	Menu Level ►
x IRQ Resources	Press Enter	
x DMA Resources	Press Enter	Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
PCI/VGA Palette Snoop	[Disabled]	

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

PNP/PCI Configuration Setup Screen

The PNP/PCI Configuration Setup describes how to configure PCI bus system. PCI, also known as Personal Computer Interconnect, is a system, which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

This section covers technical items, which is strongly recommended for experienced users only.

PNP OS INSTALLED:

This item allows you to determine install PnP OS or not.

RESET CONFIGURATION DATA:

Normally, you leave this field 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 configuration has caused such a serious conflict that the operating system cannot boot.

RESOURCE CONTROLLED BY:

The Award Plug and Play Bios can automatically configure all of the booth and Plug and Play-compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95. By choosing "manual", you are allowed to configure the *IRQ Resources and DMA Resources*.

IRQ RESOURCES:

You may assign each system interrupt a type, depending on the type of device using the interrupt.

DMA RESOURCES:

When resources are controlled manually, assign each system DMA channel a type, depending on the type of device using the DM channel.

PCI/VGA PALETTE SNOOP:

Leave this field at disabled.

4-9. PC HEALTH STATUS

Choose "PC HEALTH STATUS" from the main menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status

Current Warning Temperature	[Disabled]	Item Help
Current CPU Temperature	48℃/118℉	Menu Level ►
Current CPU Fan Speed	0 RPM	
Current System Fan Speed	0 RPM	
Vcore	1.71V	
3.3 V	3.24V	
+ 5 V	5.02V	
+12 V	11.79V	
-12 V	-12.28V	
- 5 V	- 5.09V	
VBAT (V)	3.18V	
5VSB (V)	4.94V	
Shutdown Temperature	[Disabled]	

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

PC Health Status Setup Screen

The PC Health Status Setup allows you to select whether to choose between monitoring or to ignore the hardware monitoring function of your system.

CURRENT WARNING TEMPERATURE:

Select the combination of lower and upper limits for the CPU temperature. If the CPU temperature extends beyond either limit, any warning mechanism programmed into your system will be activated.

CURRENT CPU TEMPERATURE:

This item shows you the current CPU temperature.

CURRENT CPU/SYSTEM FAN SPEED:

This item shows you the current CPU/ SYSTEM FAN speed.

VCORE:

This item shows you the current system voltage.

3.3V / +5V / +12V / -12V / -5V:

Show you the voltage of 3.3V/+5V/+12V/-12V/-5V.

SHUTDOWN TEMPERATURE:

This item allows you to set up the CPU shutdown Temperature. This function is only effective under Windows 98 ACPI mode.

4-10. FREQUENCY CONTROL

Choose "FREQUENCY CONTROL" from the main menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
Frequency Control

Auto Detect PCI Clk	[Enabled]	Item Help
Spread Spectrum	[Disabled]	Menu Level ►

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

Frequency Control Setup Screen

This setup menu allows you to specify your settings for frequency control.

AUTO DETECT PCI CLK:

This item allows you to enable or disable auto detect PCI Clock.

SPREAD SPECTRUM:

When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Enabling pulse spectrum spread modulation changes the extreme values from spikes to flat curves, thus reducing EMI. This benefit may in some cases be outweighed by problems with timing-critical devices such as a clock-sensitive SCSI device.

4-11. LOAD FAIL-SAFE DEFAULTS

By pressing the <ENTER> key on this item, you get a confirmation dialog box with a message similar to the following:



To use the BIOS default values, change the prompt to "Y" and press the <Enter > key. CMOS is loaded automatically when you power up the system.

4-12. LOAD OPTIMIZED DEFAULTS

When you press <Enter> on this category, you get a confirmation dialog box with a message similar to the following:



Pressing "Y" loads the default values that are factory setting for optimal performance system operations.

4-13. PASSWORD SETTING

User is allowed to set either supervisor or user password, or both of them. The difference is that the supervisor password can enter and change the options of the setup menus while the user password can enter only but do not have the authority to change the options of the setup menus.

TO SET A PASSWORD

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

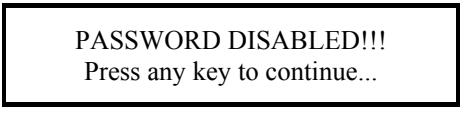


Type the password up to eight characters in length, and press < Enter >. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press the < Enter > key. You may also press < Esc > to abort the selection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

🔔 User should bear in mind that when a password is set, you will be asked to enter the password everything you enter CMOS setup Menu.

TO DISABLE THE PASSWORD

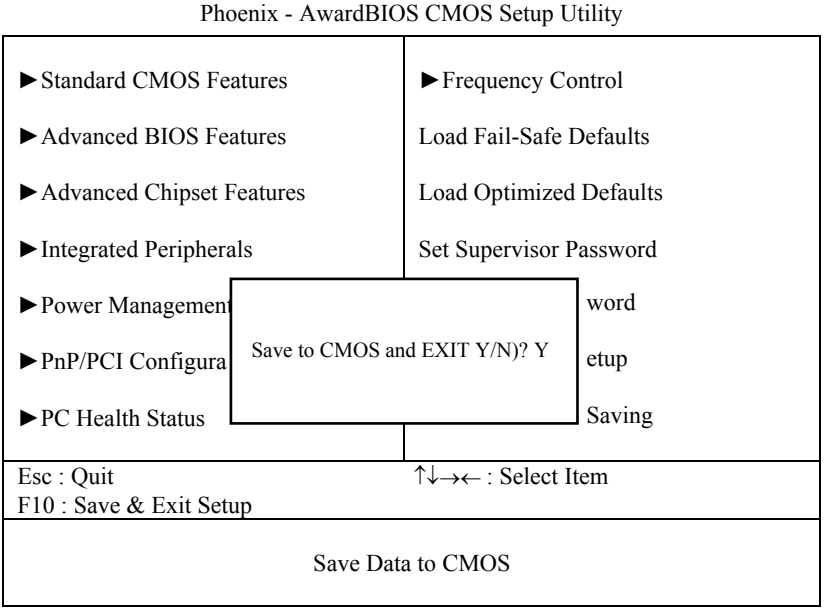
To disable the password, select this function (do not enter any key when you are prompt to enter a password), and press the <Enter> key and a message will appear at the center of the screen:



Press the < Enter > key again and the password will be disabled. Once the password is disabled, you can enter Setup freely.

4-14. SAVE & EXIT SETUP

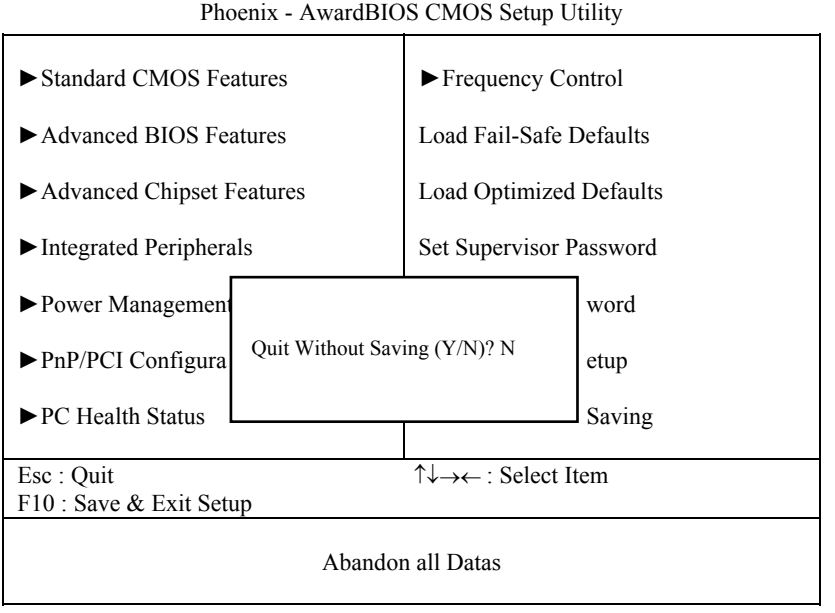
After you have completed adjusting all the settings as required, you must remember to save these setting into the CMOS RAM. To save the settings, select "SAVE & EXIT SETUP" and press <Enter>, a display will be shown as follows:



When you confirm that you wish to save the settings, your system will be automatically restarted and the changes you have made will be implemented. You may always call up the setup program at any time to adjust any of the individual items by pressing the <Del> key during boot up.

4-15. EXIT WITHOUT SAVING

If you wish to cancel any changes you have made, you may select the "EXIT WITHOUT SAVING" and the original setting stored in the CMOS will be retained. The screen will be shown as below:



EXPANSION BUS

APPENDIX

A

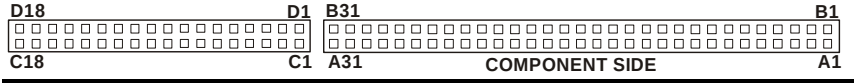
This appendix indicates the pin assignments.

Section includes:

- ISA BUS Pin Assignment
- PCI BUS Pin Assignment

ISA BUS PIN ASSIGNMENT

There are two edge connectors (called "gold fingers") on this CPU Card, on the right hand is the connector of ISA Bus, followed up by PCI BUS connector. The ISA-bus connector is divided into two sets: one consists of 62 pins; the other consists of 36 pins. The pin assignments are as follows :

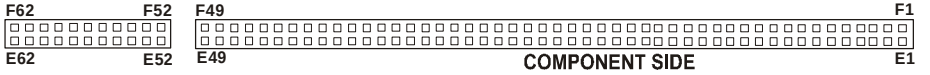


B		A		D		C	
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
B1	GND	A1	-I/O CH CHK	D1	-MEMCS16	C1	SBHE
B2	RESET	A2	SD07	D2	-I/OCS16	C2	LA23
B3	+5V	A3	SD06	D3	IRQ10	C3	LA22
B4	IRQ9	A4	SD05	D4	IRQ11	C4	LA21
B5	NC	A5	SD04	D5	IRQ12	C5	LA20
B6	NC	A6	SD03	D6	IRQ15	C6	LA19
B7	-12V	A7	SD02	D7	IRQ14	C7	LA18
B8	OWS	A8	SD01	D8	-DACK0	C8	LA17
B9	+12V	A9	SD00	D9	DRQ0	C9	-MEMR
B10	GND	A10	-I/O CH RDY	D10	-DACK5	C10	-MEMW
B11	-SMEMW	A11	AEN	D11	DRQ5	C11	SD08
B12	-SMEMR	A12	SA19	D12	-DACK6	C12	SD09
B13	-IOW	A13	SA18	D13	DRQ6	C13	SD10
B14	-IOR	A14	SA17	D14	-DACK7	C14	SD11
B15	-DACK3	A15	SA16	D15	DRQ7	C15	SD12
B16	-DRQ3	A16	SA15	D16	+5V	C16	SD13
B17	-DACK1	A17	SA14	D17	-MASTER	C17	SD14
B18	-DRQ1	A18	SA13	D18	GND	C18	SD15
B19	-REFRESH	A19	SA12				
B20	BCLK	A20	SA11				
B21	IRQ7	A21	SA10				
B22	NC	A22	SA09				
B23	IRQ5	A23	SA08				
B24	IRQ4	A24	SA07				
B25	IRQ3	A25	SA06				
B26	NC	A26	SA05				
B27	T/C	A27	SA04				
B28	BALE	A28	SA03				
B29	+5V	A29	SA02				
B30	OSC	A30	SA01				
B31	GND	A31	SA00				

PCI BUS PIN ASSIGNMENT

Like ISA-BUS connector, the PCI-BUS edge connector is also divided into two sets: one consists of 98-pin; the other consists of 22-pin. The standard of PICMG 32-bit PCI-ISA connector contains 218 pins in total.

The pin assignments are as follows :



F		E		F		E	
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
F1	-12V	E1	TRST#	F31	NC	E31	AD18
F2	TCK	E2	+12V	F32	AD17	E32	AD16
F3	GND	E3	TMS	F33	C/BE2#	E33	NC
F4	TDO	E4	TDI	F34	GND	E34	FRAME#
F5	+5V	E5	+5V	F35	IRDY#	E35	GND
F6	+5V	E6	INTA#	F36	NC	E36	TRDY#
F7	INTB#	E7	INTC#	F37	DEVSEL#	E37	GND
F8	INTD#	E8	+5V	F38	GND	E38	STOP#
F9	REQ3#	E9	CLKC	F39	LOCK#	E39	NC
F10	REQ1#	E10	+5V(I/O)	F40	PERR#	E40	SDONE
F11	GNT3#	E11	CLKD	F41	NC	E41	SB0#
F12	GND	E12	GND	F42	SERR#	E42	GND
F13	GND	E13	GND	F43	NC	E43	PAR
F14	CLKA	E14	GNT1#	F44	C/BE1#	E44	AD15
F15	GND	E15	RST#	F45	AD14	E45	NC
F16	CLKB	E16	+5V(I/O)	F46	GND	E46	AD13
F17	GND	E17	GNT0#	F47	AD12	E47	AD11
F18	REQ0#	E18	GND	F48	AD10	E48	GND
F19	+5V(I/O)	E19	REQ2#	F49	GND	E49	AD09
F20	AD31	E20	AD30	F52	AD08	E52	C/BE0#
F21	AD29	E21	NC	F53	AD07	E53	NC
F22	GND	E22	AD28	F54	NC	E54	AD06
F23	AD27	E23	AD26	F55	AD05	E55	AD04
F24	AD25	E24	GND	F56	AD03	E56	GND
F25	NC	E25	AD24	F57	GND	E57	AD02
F26	C/BE3#	E26	GNT2#	F58	AD01	E58	AD00
F27	AD23	E27	NC	F59	+5V(I/O)	E59	+5V(I/O)
F28	GND	E28	AD22	F60	ACK64#	E60	REQ64#
F29	AD21	E29	AD20	F61	+5V	E61	+5V
F30	AD19	E30	GND	F62	+5V	E62	+5V

TECHNICAL SUMMARY

APPENDIX

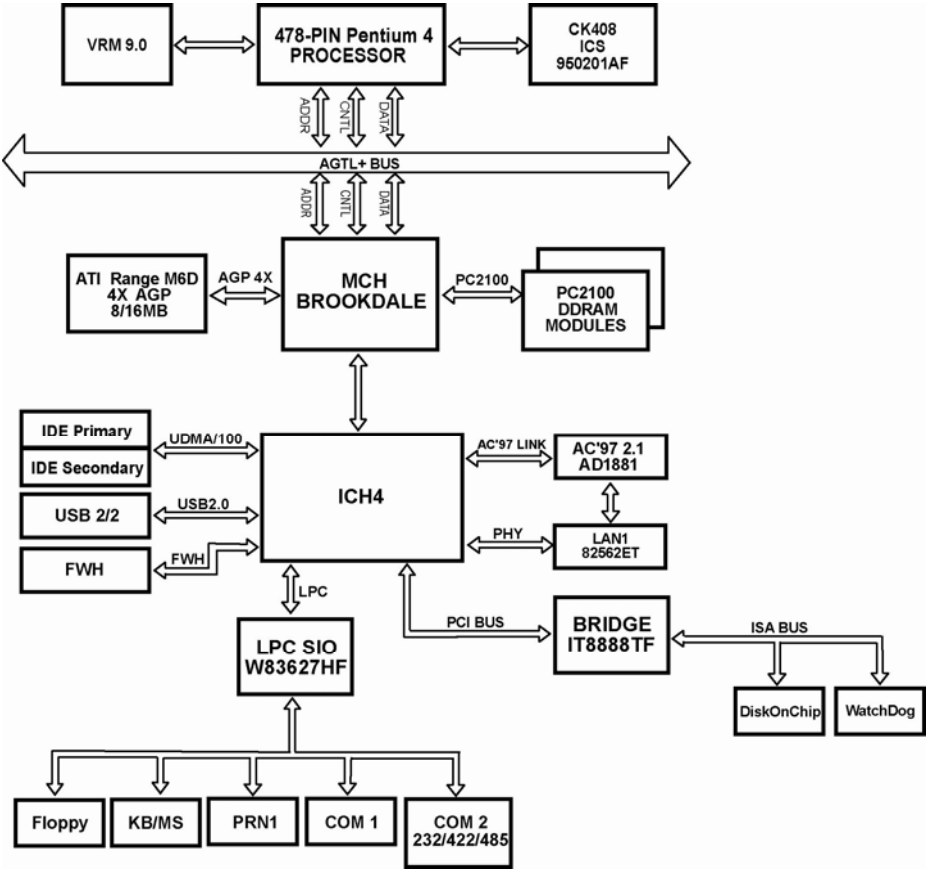
B

This section introduce you the maps concisely.

Section includes:

- Block Diagram
- Interrupt Map
- RTC & CMOS RAM Map
- Timer & DMA Channels Map
- I / O & Memory Map

BLOCK DIAGRAM



INTERRUPT MAP

IRQ	ASSIGNMENT
0	System TIMER
1	Keyboard
2	Cascade
3	Serial port 2
4	Serial port 1
5	Available
6	Floppy
7	Parallel port 1
8	RTC clock
9	Available
10	Available
11	Available
12	PS/2 Mouse
13	Math coprocessor
14	IDE1
15	IDE2

RTC & CMOS RAM MAP

CODE	ASSIGNMENT
00	Seconds
01	Second alarm
02	Minutes
03	Minutes alarm
04	Hours
05	Hours alarm
06	Day of week
07	Day of month
08	Month
09	Year
0A	Status register A
0B	Status register B
0C	Status register C
0D	Status register D
0E	Diagnostic status byte
0F	Shutdown byte
10	Floppy Disk drive type byte
11	Reserve
12	Hard Disk type byte
13	Reserve
14	Equipment byte
15	Base memory low byte
16	Base memory high byte
17	Extension memory low byte
18	Extension memory high byte
30	Reserved for extension memory low byte
31	Reserved for extension memory high byte
32	Date Century byte
33	Information Flag
34-3F	Reserve
40-7f	Reserved for Chipset Setting Data

TIMER & DMA CHANNELS MAP

Timer Channel Map :

Timer Channel	Assignment
0	System timer interrupt
1	DRAM Refresh request
2	Speaker tone generator

DMA Channel Map :

DMA Channel	Assignment
0	Available
1	Available
2	Floppy
3	Available
4	Cascade
5	Available
6	Available
7	Available

I/O & MEMORY MAP

Memory Map :

MEMORY MAP	ASSIGNMENT
0000000-009FFFF	System memory used by DOS and application
00A0000-00BFFFF	Display buffer memory for VGA/ EGA / CGA / MONOCHROME adapter
00C0000-00DFFFF	Reserved for I/O device BIOS ROM or RAM buffer.
00E0000-00EFFFF	Reserved for PCI device ROM
00F0000-00FFFFF	System BIOS ROM
0100000-FFFFFFF	System extension memory

I/O Map :

I/O MAP	ASSIGNMENT
000-01F	DMA controller (Master)
020-021	Interrupt controller (Master)
022-023	Chipset controller registers I/O ports.
040-05F	Timer control regsiters.
060-06F	Keyboard interface controller (8042)
070-07F	RTC ports & CMOS I/O ports
080-09F	DMA register
0A0-0BF	Interrupt controller (Slave)
0C0-0DF	DMA controller (Slave)
0F0-0FF	Math coprocessor
1F0-1F8	Hard Disk controller
278-27F	Parallel port-2
2B0-2DF	Graphics adapter controller
2F8-2FF	Serial port-2
360-36F	Net work ports
378-37F	Parallel port-1
3B0-3BF	Monochrome & Printer adapter
3C0-3CF	EGA adapter
3D0-3DF	CGA adapter
3F0-3F7	Floppy disk controller
3F8-3FF	Serial port-1