USER'S MANUAL

ProX-1688

For Socket 370
Full-size CPU Card
With VGA / Sound / LAN

Prox-1688 M2

Prox-1688 Dual Socket 370
Full-size Embedded Card
With VGA / Dual LAN

OPERATION MANUAL

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ACKNOWLEDGEMENTS

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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CHAPTER

1

INTRODUCTION

This chapter gives you the information for Prox-1688. 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 Prox-1688 Socket 370 Full-size CPU Card equipped with VGA / LAN, which is fully PC / AT compatible. Prox-1688 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 locations 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, 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.

Appendix C Trouble Shooting

This section outlines the error messages and offers you the methods to solve the problems.

1-2. SYSTEM SPECIFICATION

- **CPU TYPE:**
  Single Intel® Celeron™ / P-III / Tualatin, VIA C3 processors.
  566MHz ~1.26 GHz clock generator.
  Auto detect voltage regulator.

- **MEMORY :**
  Up to 2GB SDRAM.
  Two 184-pin DDR (PC200/266) DIMM socket.

- **CACHE :**
  Depended on CPU.

- **SYSTEM CHIPSET :**
  VIA CLE266 & VT 8235

- **REAL-TIME CLOCK / CALENDAR :**
  Built-in VT 8235.

- **BIOS :**
  Phoenix-Award Flash BIOS for plug & play function.
  Memory size 512KB with VGA BIOS.
  Support Green Function.
  Support S/IO Setup.

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

- **UNIVERSAL SERIAL BUS :**
  Universal Serial Bus Connector on board.
  Supports up to 4 USB2.0 ports.

- **BUS SUPPORT :**
  External ISA/PCI BUS (PICMG Spec.); EPCI BUS
  External Compact Flash Bus.

- **DISPLAY :**
  Built-in VIA CLE 266
  Onboard 15-pin CRT connector, support resolutions up to 1600 x 1200.
  Fully support multi-display of CRT, and TTL interfaces.

- **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 select 0 / 8 / 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.
  Support Ultra DMA33/66/100/133.

- **FLOPPY DISK DRIVER INTERFACE :**
  Support up to two Floppy Disk Drives, 3.5" and 5.25" (360K / 720K / 1.2M / 1.44M / 2.88M).

- **LAN INTERFACE :**
  Realtek RTL8100BL fast Ethernet.
  Single port, support for 10BaseT/100 BaseTx Ethernet.
  Support Wake-On-LAN function when use ATX power.

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

- **PARALLEL PORT :**
  SPP, ECP, EPP Function.
  Bi-directional parallel port.

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

- **IRDA PORT :**
  5-pin Infrared port.
  Support IrDA v1.0 SIR protocol.

- **LED INDICATOR :**
  System power.
  Hard Disk access.
  Power LED indicator.

- **DMA CONTROLLER :**
  82C37 x 2

- **DMA CHANNELS :**
  7

- **INTERRUPT CONTROLLERS :**
  82C59 x 2

- **INTERRUPT LEVELS :**
  15

- **OPERATING TEMPERATURE :**
  0 to 60°C.

- **SYSTEM POWER REQUIREMENT :**
  DC Voltage: +5V, minimum +4.75V, maximum +5.25V.
  DC Ampere: 6.1A. (P-III 1.266 GHz)
  DC Voltage: +12V, minimum +11.4V, maximum +12.6V.
  DC Ampere: 500mA.

- **BOARD DIMENSION :**
  338.5mm x 122mm, 13.33” x 4.8”

- **BOARD NET WEIGHT :**
  375 grams

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.

CHAPTER

2

HARDWARE CONFIGURATION

** QUICK START **

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

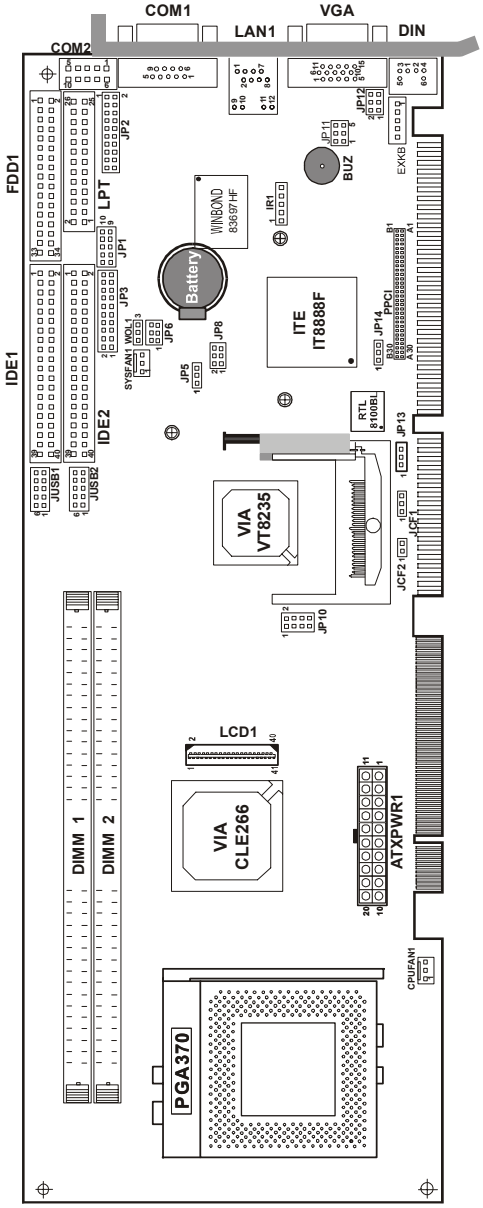
Section includes:

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

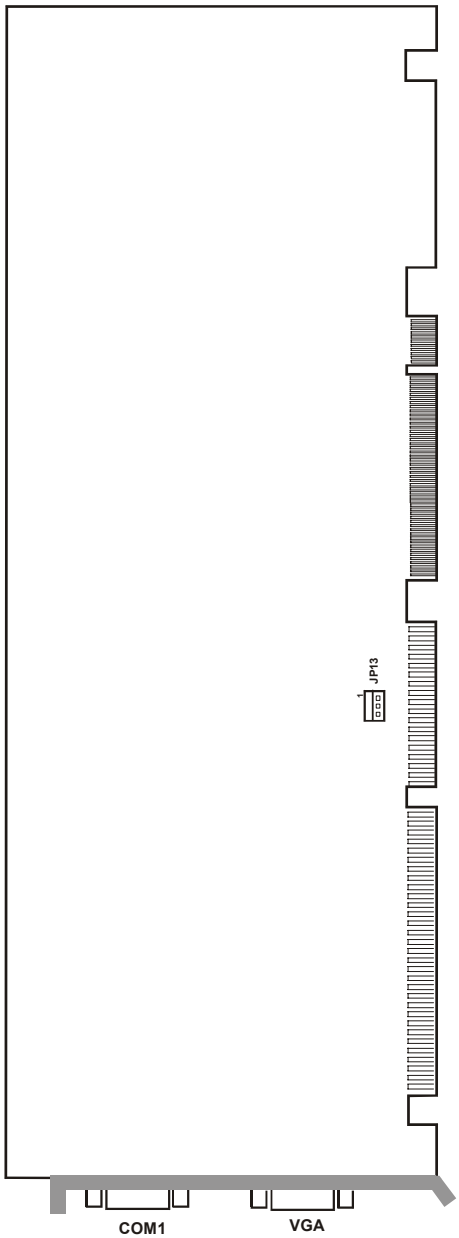
2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

COM Port Connector	COM1, COM2
COM Port RI & Voltage Selection	JP1
RS232/422/485 (COM2) Selection	JP2
Keyboard or PS/2 Mouse Connector	DIN1
Keyboard or PS/2 Mouse Selection	JP12
External Keyboard Connector	EXKB1
Reset Connector	JP3 (18,20)
Hard Disk Drive LED Connector	JP3 (10,12)
External Speaker Connector	JP3 (2,4,6,8)
Power LED Connector	JP3 (1,3,5)
ATX Power Button	JP3 (13,15)
IrDA Connector	IR1
Clear CMOS Data Selection	JP5
CPU Fan Connector	CPUFAN1
System Fan Connector	SYSFAN1
Universal Serial Bus Connector	JUSB1, JUSB2
Wake-on-LAN	WOL1
Reset/NMI/Clear Watchdog Selection	JP11
VGA Connector	VGA1
Hard Disk Drive Connector	IDE1, IDE2
Floppy Disk Drive Connector	FDD1
Printer Connector	LPT1
LAN Connector	LAN1
Compact Flash Power Selection	JCF1
Compact Flash Master/Slave Selection	JCF2
ATX Power Signal Connector	JP13
Power Connector	ATXPWR1
ATX / AT Power Selection	JP6
EPCI Connector	PPCI1
EPPCI IRQ Selection	JP14
Memory Installation	DIMM1, DIMM2
LCD Connector	LCD1
Reserved Pin	JP8, JP10

2-2. COMPONENT LOCATIONS



Prox-1688 Connector, Jumper and Component locations



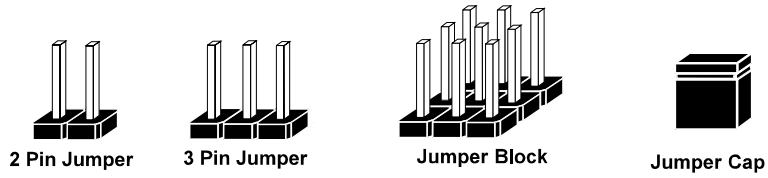
Prox-1688 Rear View-Connector, Jumper and Component locations

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.

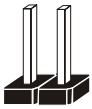
JUMPERS AND CAPS



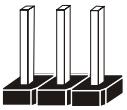
If a jumper has three pins (for examples, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual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

JUMPER DIAGRAMS

Jumper Cap looks like this

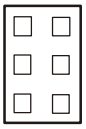


2 pin Jumper looks like this



3 pin Jumper looks like this

Jumper Block looks like this

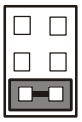


JUMPER SETTINGS

2 pin Jumper close(enabled) Looks like this

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

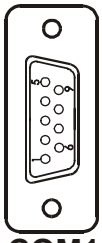
Jumper Block 1-2 pin close(enabled) Looks like this



2-4. COM PORT CONNECTOR

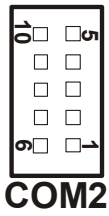
COM1 : COM1 Connector, fixed as RS-232.
The pin assignment is as follows :

PIN	ASSIGNMENT
1	NDCDA
2	NSINA
3	NSOUTA
4	NDTRA
5	GND
6	NDSRA
7	NRTSA
8	NCTSA
9	JNRIA
10	NC



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

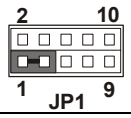
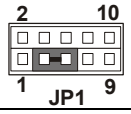
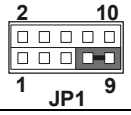
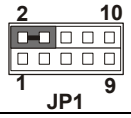
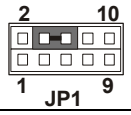
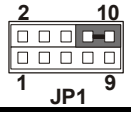
PIN	ASSIGNMENT		
	RS-232	RS-422	RS-485
1	NDCD2	TX-	TX-
2	NRXD2	TX+	TX+
3	NTXD2	RX+	RX+
4	NDTR2	RX-	RX-
5	GND	GND	GND
6	NDSR2	RTS-	NC
7	NRTS2	RTS+	NC
8	NCTS2	CTS+	NC
9	RI2/+12/+5V	CTS-	NC
10	NC	NC	NC



🕮 All COM port's pin 9 is selectable for RI, +5V and +12V. For more information, please refer to our "COM Port RI & Voltage Selection".

2-5. COM PORT RI & VOLTAGE SELECTION

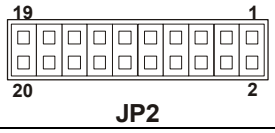
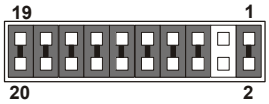
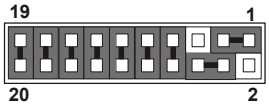
JP1 : COM Port RI & Voltage Selection
The selection are as follows :

Selection		Jumper Settings (pin closed)	Jumper Illustrations
COM1	+5V	1-3	
	+12V	3-5	
	RI	7-9	
COM2	+5V	2-4	
	+12V	4-6	
	RI	8-10	

***Manufacturing Default --- RI function.

2-6. RS232/422/485 (COM2) SELECTION

JP2 : RS-232/422/485 (COM2) Selection
The COM2 Function selections are as follows :

COM 2 Function	**Jumper Settings** (pin closed)	**Jumper** Illustrations
RS-232	Open	 **JP2**
RS-422	1-2, 5-6, 7-8 9-10, 11-12, 13-14, 15-16 17-18, 19-20	 **JP2**
RS-485	1-3, 4-6, 7-8 9-10, 11-12 13-14, 15-16 17-18, 19-20	 **JP2**

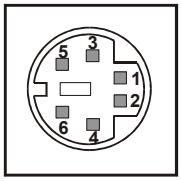
*** Manufactory default --- RS-232.

🔔 To select RS422 or RS485, COM2 must be set at RI function.

2-7. KEYBOARD OR PS/2 MOUSE CONNECTOR

DIN1 : Keyboard or PS/2 Mouse Connector
DIN 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 :

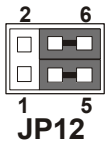
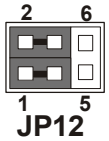
PIN	ASSIGNMENT	
	Keyboard	**PS/2 Mouse**
1	KBDATA	MSDATA
2	MSDATA	MSDATA
3	GND	GND
4	IOVSB	IOVSB
5	KBCLK	MSCLK
6	MSCLK	MSCLK



DIN1

2-8. KEYBOARD OR PS/2 MOUSE SELECTION

JP12 : 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
KEYBOARD	3-5 4-6	 **JP12**
PS/2 MOUSE	1-3 2-4	 **JP12**

*** Manufactory default -- AT Keyboard

2-9. EXTERNAL KEYBOARD CONNECTOR

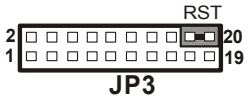
EXKB1 : External Keyboard Connector
The pin assignment is as follows :

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

2-10. RESET CONNECTOR

JP3 (18,20) : Reset Connector.
The pin assignment is as follows :

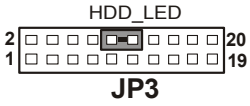
PIN	ASSIGNMENT
18	HWRSTJ
20	GROUND



2-11. HARD DISK DRIVE LED CONNECTOR

JP3 (10,12) : Hard Disk Drive LED Connector
The pin assignment is as follows :

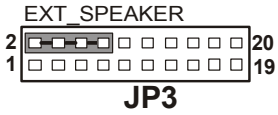
PIN	ASSIGNMENT
10	VCC
12	HD LED



2-12. EXTERNAL SPEAKER CONNECTOR

JP3 (2,4,6,8) : External Speaker Connector
The pin assignment is as follows :

PIN	ASSIGNMENT
2	VCC
4	GND
6	NC
8	P_SPK



2-13. POWER LED CONNECTOR

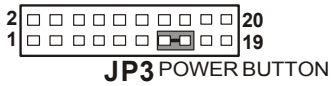
JP3 (1,3,5) : Power LED Connector
The pin assignment is as follows :

PIN	ASSIGNMENT
1	PW_LED
3	PW_LED
5	GND

2-14. ATX POWER BUTTON

JP3 (13,15) : ATX Power Button
The pin assignment is as follows :

PIN	ASSIGNMENT
13	PW_BN1
15	PW_BN2



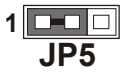
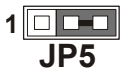
2-15. IRDA CONNECTOR

IR1: IrDA (Infrared) Connector
The pin assignments are as follows:

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

2-16. CLEAR CMOS DATA SELECTION

JP5 : Clear CMOS Data Selection
The selections are as follows :

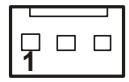
FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
Normal	1-2	
Clear CMOS	2-3	

*** 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.

2-17. CPU FAN CONNECTOR

CPUFAN1 : CPU Fan connector
The pin assignment is as follows:

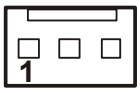


CPUFAN1

PIN	ASSIGNMENT
1	FAN1
2	+12V
3	GND

2-18. SYSTEM FAN CONNECTOR

SYSFAN1 : System Fan connector
The pin assignment is as follows:

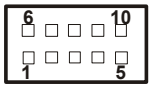


SYSFAN1

PIN	ASSIGNMENT
1	FAN2
2	+12V
3	GND

2-19. UNIVERSAL SERIAL BUS CONNECTOR

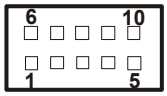
JUSB1: Universal Serial Bus Connector
This connector can connect up to two USB port.
The pin assignments are as follows:



JUSB1

PIN	ASSIGNMENT
1	VCC
2	USBP0–
3	USBP0+
4	GND
5	GND
6	VCC
7	USBP1–
8	USBP1+
9	GND
10	GND

JUSB2: Universal Serial Bus Connector
This connector can connect up to two USB port.
The pin assignments are as follows:



JUSB2

PIN	ASSIGNMENT
1	VCC
2	USBP2–
3	USBP2+
4	GND
5	GND
6	VCC
7	USBP3–
8	USBP3+
9	GND
10	GND

2-20. WAKE-ON-LAN CONNECTOR

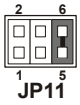
WOL1: Wake-On-LAN Connector.
The pin assignments are as follows:

WOL1

PIN	ASSIGNMENT
1	5VSB
2	GND
3	LWAKE

2-21. RESET/NMI/CLEAR WATCHDOG SELECTION

JP11 : 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	

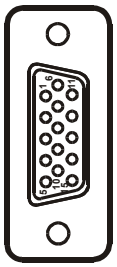
***Manufacturing Default is set as NMI.

- 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.

2-22. VGA CONNECTOR

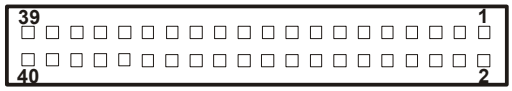
VGA1 : VGA Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	RED
2	GREEN
3	BLUE
4	VCC
5	GND
6	GND
7	GND
8	GND
9	VCC
10	GND
11	VCC
12	5VDDCDA
13	HSYNC
14	VSYNC
15	5VDDCCL



2-23 HARD DISK DRIVE CONNECTOR

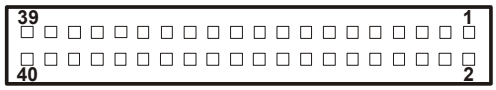
IDE1: Hard Disk Drive Connector
The Prox-1688 possesses two HDD connectors, which support ATA-100.
The pin assignments are as follows:



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	PIORDY	28	PULL LOW
29	PDDACK#	30	GND
31	IRQ14	32	NC
33	PDA1	34	P66 DETECT
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:

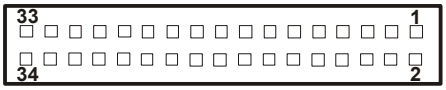


IDE2

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	SIORDY	28	PULL LOW
29	SDDACK#	30	GND
31	IRQ15	32	NC
33	SDA1	34	S66 DETECT
35	SDA0	36	SDA2
37	SDCS#1	38	SDCS#3
39	IDEACTS#	40	GND

2-24. 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 :

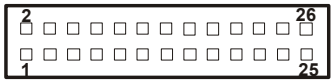


FDD1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	DENSEL#
3	GND	4	NC
5	GND	6	NC
7	GND	8	INDEX#
9	GND	10	MOTEA
11	GND	12	DRVB
13	GND	14	DRVA
15	GND	16	MOTEB
17	GND	18	DIR
19	GND	20	STEP
21	GND	22	WDATA
23	GND	24	WGATE
25	GND	26	TK00
27	GND	28	WPT
29	GND	30	RDATA#
31	GND	32	SIDE1
33	GND	34	DSKCHG

2-25. 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 :



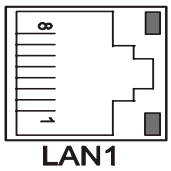
LPT1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STB	14	AFD1J
2	PD0	15	ERR1J
3	PD1	16	PINIT1J
4	PD2	17	SLIN1J
5	PD3	18	GND
6	PD4	19	GND
7	PD5	20	GND
8	PD6	21	GND
9	PD7	22	GND
10	ACK1J	23	GND
11	BUSY1	24	GND
12	PE1	25	GND
13	SLCT1	26	NC

2-26. LAN CONNECTOR

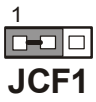
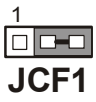
LAN1: LAN Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	TX+
2	TX-
3	RX+
4	ISOLATED GND
5	ISOLATED GND
6	RX-
7	ISOLATED GND
8	ISOLATED GND
9	SPEED LED
10	5VSB
11	LI LED
12	ACTIVE LED



2-27. COMPACT FLASH POWER SELECTION

JCF1: Compact Flash Power Selection.
The selections are as follows:

POWER SELECTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
5V	1-2	
3.3V	2-3	

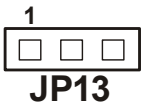
2-28. COMPACT FLASH MASTER/SLAVE SELECTION

JCF2: Compact Flash Master/Slave Selection.
The selections are as follows:

POWER SELECTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
Master	close	
Slave	open	

2-29. ATX POWER SIGNAL CONNECTOR

JP13 : ATX Power Signal Connector
The pin assignments are as follows:

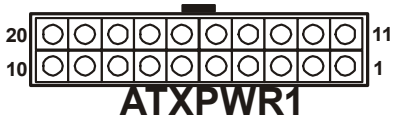


PIN	ASSIGNMENT
1	+5V SB
2	GND
3	PS_ON

2-30. POWER CONNECTOR

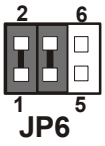
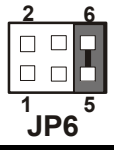
ATXPWR1: Power Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	3V3
2	3V3
3	GND
4	5V
5	GND
6	5V
7	GND
8	PW-OK
9	5VSB
10	12V
11	3V3
12	-12V
13	GND
14	PS-ON
15	GND
16	GND
17	GND
18	-5V
19	5V
20	5V



2-31. ATX / AT POWER SELECTION

JP6 : AT / ATX Power Selection
The selections are as follows:

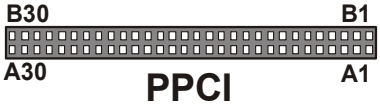
SELECTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
AT	1-2, 3-4	
ATX	5-6	

*** Manufactory default --- ATX.

The default is set as ATX, if you wish to use the AT Power, you must remember to change the "Power Supply Type" in Advanced Chipset Features. And also you must disable the ACPI Function in the Power Management found in BIOS.

2-32. EPCI CONNECTOR

PPCI: You will find a EPCI connector in our Prox-1688. This connector is used to connect our daughter boards.
The pin assignments are as follows:



PPCI

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	SCSILED	B20	PAR
A21	PCICLKA	B21	IRDYJ
A22	ID SEL	B22	TRDYJ
A23	CBEJ0	B23	CBEJ1
A24	CBEJ2	B24	CEBJ3
A25	GNTJ0	B25	REQJ0
A26	SERRJ	B26	PERRJ
A27	INTDJ	B27	PCIRSTJ
A28	STOPJ	B28	LOCKJ
A29	DEVSELJ	B29	FRAMEJ
A30	GND	B30	GND

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

2-33. EPPCI IRQ SELECTION

JP14: EPPCI IRQ Selection
The selections are as follows:

SELECTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
PCI_IRQB	1-2	
PCI_SERIRQ	2-3	

2-34. MEMORY INSTALLATION

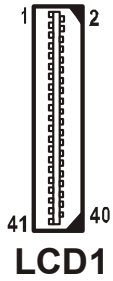
Prox-1688 CPU Card is enhanced with two DIMM socket.

DRAM BANK CONFIGURATION

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

2-35. LCD PANEL CONNECTOR

LCD1 : LCD Panel Connector
The pin assignments are as follows :



LCD1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	FD20	2	GND
3	FD16	4	VCC5
5	FD21	6	FD0
7	FD17	8	FD8
9	NC	10	FD1
11	FD18	12	FD9
13	NC	14	FD2
15	FD19	16	FD10
17	VCC	18	FD3
19	FLM	20	FD11
21	DEN	22	FD4
23	LP	24	FD12
25	SHIFT	26	FD5
27	VCC3.3	28	FD13
29	VCC3.3	30	NC
31	ENBKL	32	NC
33	VDDSAFE	34	NC
35	VBIASEN	36	NC
37	GND	38	12VSAFE
39	GND	40	12VSAFE
41	NC		

SOFTWARE UTILITIES

CHAPTER

3

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

Section includes:

- VIA 4 IN 1 Service Pack Driver
- VGA Driver Utility
- Flash BIOS Update
- LAN Driver Utility
- USB 2.0 Chipset Software Installation Utility
- Watchdog Timer Configuration

3-1. INTRODUCTION

Enclosed with our Prox-1688 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:

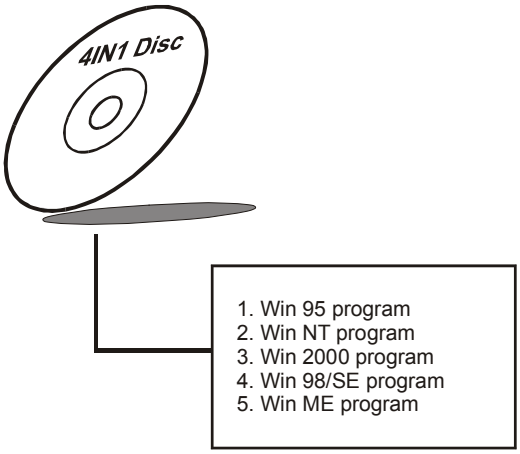
Filename (Assume that CD ROM drive is D:)	Purpose
D:\Utility	For VIA Hyperion 4 in 1 449
D:\VGA	For VGA driver installation
D:\Flash\	For BIOS update
D:\LAN	Realtek RTL8100BL For LAN Driver installation
D:\USB 2.0	USB 2.0 Software Installation Utility For Win 98SE, 2000, ME, XP

3-2. VIA 4IN1 SERVICE PACK DRIVER

3-2-1. Introduction

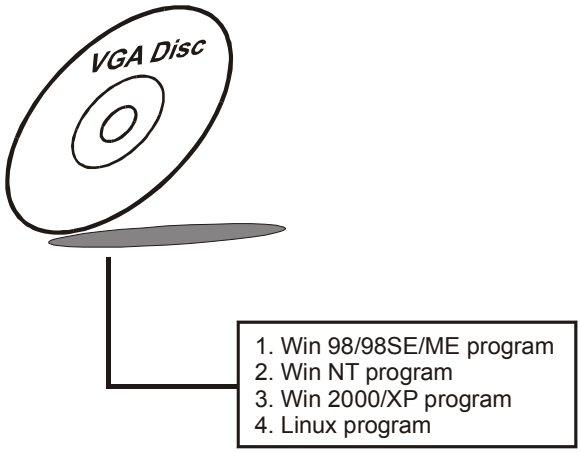
The 4-in-1 drivers are a collection of periodically updated drivers that provide enhanced VIA chipset to support under Microsoft Windows. This drivers should be installed after the OS is fully installed, to improve performance, fix issues, and minimize any incompatibilities.

The VIA 4 In 1 driver includes four system drivers to improve the performance and maintain the stability of systems using VIA chipsets. These four drivers are: VIA Registry (INF) Driver, VIA AGP VxD driver, VIA ATAPI Vendor Support Driver and VIA PCI IRQ Miniport Driver



3-3. VGA DRIVER UTILITY

The VGA interface embedded with our Prox-1688 can support a wide range of display mode, such as SVGA, STN, TFT .....etc. You can display CRT, LVDS and PanelLink simultaneously with the same mode.



3-4. FLASH BIOS UPDATE

3-4-1. System BIOS Update:

Users of Prox-1688 can use the program “Awdflash.exe” contained in the Utility Disk for system BIOS and VGA BIOS update.

3-4-2. To update VGA BIOS for LCD Flat Panel Display:

As Prox-1688 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 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.
3. Type the path to Awdflash.exe and execute the VGA BIOS update with file B75xxxxx.bin
   C:\UTIL\AWDFLASH>AWDFLASH B75xxxxx.bin
4. The screen will display the table below:

FLASH MEMORY WRITER v7.XX (C) Award Software 2000 All Rights Reserved
Flash Type - MXIC 29F004T /5V File Name to Program: B88bxxxx.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 2000 All Rights Reserved
Flash Type - MXIC 29F004T /5V File Name to Program: B88bxxxx.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:

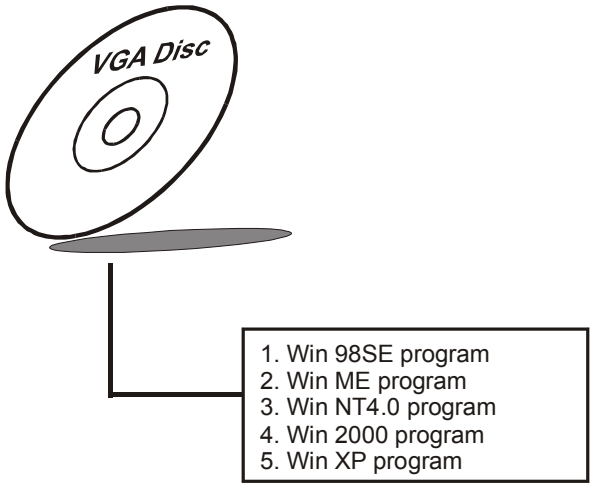
FLASH MEMORY WRITER v7.XX (C) Award Software 2000 All Rights Reserved
Flash Type - MXIC 29F004T /5V File Name to Program: B88bxxxx.bin Checksum: XXXXX Reset System or Power off to accomplish update process!
F1: Reset F10: Exit

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

3-5. LAN DRIVER UTILITY

3-5-1. Introduction

Prox-1688 Embedded Board is enhanced with LAN function that can support various network adapters. Installation programs for LAN drivers are listed as follows:



3-5-2. Installation Procedures of LAN Driver

1. Install LAN Driver to Windows 98SE/2000/XP

Executing Windows 98SE/Windows 2000/Windows XP, it will auto-detect your system configuration and find the adapter hardware.

(1) Ask you to select which driver you want to install, select "Driver from disk provided by hardware manufacturer".

(2) Insert the Realtek RTL8100BL driver disk into the drive A or CD drive and specify the setup file pathname, ex: A:\ .

(3) Win 98/ Win 2000/ Win XP will appear some messages to insert Windows 98/Win2000/Win XP system disk to complete setup step.

(4) Windows 98/Windows 2000/ Windows XP will finish the other installation procedure automatically, and then restart the system.

2. Install LAN Driver to Windows NT4.0

(1) In the Main group of NT, select the "Control Panel" icon.
(2) In the Control Panel window, choose the "Network" icon.
(3) In the Network Settings dialog box, choose the "Add adapter" button. The Add Network Adapter dialog box appears.
(4) In the list of network cards, select "<other> Requires disk from manufacturer", and then press <Enter> button.
(5) Insert the LAN driver utility, and enter the filename (ex. A:\ pathname) where the setup file OEMSETUP.INF is located, and then choose OK button.
(6) The screen will appear "Select Line Speed" dialog box, which is provided by RTL8100BL.SYS driver. The default value is "auto" so that the line speed can be auto detected as 10MB or 100MB, while the RTL8100BL.SYS is loading.
(7) The screen will appear "Input Ethernet ID" dialog box, which is provided by RTL8100BL.SYS driver. This option is only required when you have more than one RTL8100BL PCI Fast Ethernet adapters on this computer. Select "SKIP" if only one adapter is installed on this computer.
(8) "Bus Location" displayed in next screen. Your machine contains more than one hardware bus, please select the Bus Type and Bus number on which your network adapter card is installed.
(9) NT will then perform the binding process. If any additional network software options were installed, you may be prompted for specific information for these packages.
(10) Re-starting your system you will acquire network service.

🗁 Note: For Installing Multiple LAN Adapters:
Enter Windows NT and follow above setup procedure step 2, in the "Network Settings" dialog box, choose the "Configure..." button. The "Input Ethernet ID" dialog box appears and input adapter's Ethernet ID. Last step to select OK and close NETWORK SETUP. Select SKIP if only one adapter is installed on this computer.

For more information on installation procedure, please refer to TXT directory found on LAN DRIVER UTILITY.

3-6. USB2.0 SOFTWARE INSTALLATION UTILITY

3-6-1. 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.

3-7. 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 "Reset/NMI/Clear Watchdog Selection" found 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 Prox-1688 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% 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/Voltage Control
- Load Fail-Safe Defaults
- Load Optimized Defaults
- Password Setting
- Save and Exit Setup

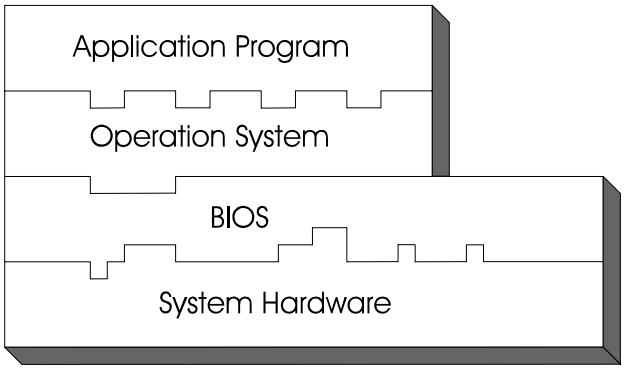
4-1. INTRODUCTION

This chapter will show you the function of the BIOS in managing the features of your system. The Prox-1688 Dual Socket 370 Full-sized 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 – Award BIOS 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 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 – Award CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Thu, Mar 6 2003	Item Help
Time (hh:mm:ss)	9 : 48 : 26	
		Menu Level ►
► IDE Primary Master	[Maxtor 6L040J2]	
► IDE Primary Slave	[None]	Change the day, month, year and century
► IDE Secondary Master	[None]	
► IDE Secondary Slave	[Pioneer DVD-ROM ATAP]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	1014784K	
Total Memory	1015808K	

↑↓→←: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 BIOS can automatically detect the specifications and optimal operating mode of almost all IDE hard drives. When you select type AUTO for a hard drive, the BIOS detect its specifications during POST, every time system boots.

If you do not want to select drive type AUTO, other methods of selecting drive type are available:

1. Match the specifications of your installed IDE hard drive(s) with the preprogrammed values for hard drive types 1 through 45.
2. Select USER and enter values into each drive parameter field.
3. Use the IDE HDD AUTO DETECTION function in Setup.

Here is a brief explanation of drive specifications:

Type: The BIOS contains a table of pre-defined drive types. Each defined drive type has a specified number of cylinders, number of heads, write precompensation factor, landing zone, and number of sectors. Drives whose specifications do not accommodate any predefine type are classified as type USER.

- Size: Disk drive capacity (approximate). Note that this size is usually greater than the size of a formatted disk given by a disk-checking program.
- Cyls: number of cylinders.
- Head: number of heads.
- Precomp: write precompensation cylinders.
- Landz: landing zone.
- Sector: number of sectors.
- Mode: Auto, Normal, Large or LBA.

  Auto: The BIOS automatically determines the optimal mode.

  - Normal: Maximum number of cylinders, heads, sectors supported are 1024, 16 and 63.
  - Large: For drives that do not support LBA and have more than 1024 cylinders.

- LBA (Logical Block Addressing): During drive accesses, the IDE controller transforms the data address described by sector, head and cylinder number into a physical block address, significantly improving data transfer rates. For drives greater than 1024 cylinders.

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 – Award CMOS Setup Utility
Advanced BIOS Features

Virus Warning	[Disabled]	Item Help
CPU Internal Cache	[Enabled]	
External Cache	[Enabled]	Menu Level ►
CPU L2 Cache ECC Checking	[Enabled]	
Processor Number Feature	[Disabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	Floppy	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
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]	
OS Select for DRAM > 64MB	[Non-OS2]	
Video BIOS Shadow	[Enabled]	
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 INTERNAL CACHE:
EXTERNAL CACHE:

These two categories speed up memory access. However, it depends on CPU/chipset design.

CPU L2 CACHE ECC CHECKING:

When you select Enabled, memory checking is enable when the external Cache contains ECC SRAMs.

PROCESSOR NUMBER FEATURE:

This option is for Pentium® III processor only. During Enabled, this will check the CPU Serial number. Disabled this option if you don't want the system to know the Serial number.

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 20A 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.

OS SELECT FOR DRAM > 64MB:

Select the operating system that is running with greater than 64MB of RAM on the system.

VIDEO BIOS SHADOW:

Determines whether video BIOS will be coped to RAM. However, it is optional depending on chipset design. Video Shadow will increase the video speed.

4-5. ADVANCED CHIPSET FEATURES

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

Phoenix – Award CMOS Setup Utility
Advanced Chipset Features

DRAM Clock/Drive Control	[Press Enter]	Item Help
AGP & P2P Bridge Control	[Press Enter]	
CPU & PCI Bus Control	[Press Enter]	
Memory Hole	[Disabled]	Menu Level ►
System BIOS Cacheable	[Enabled]	
Video RAM Cacheable	[Enabled]	
VGA Share Memory Size	[16M]	
Select Display Device	[CRT]	
Panel Type	[0A]	
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 CLOCK/DRIVE CONTROL:

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 – Award WorkstationCMOS Setup Utility
DRAM clock / Drive Control

Current FSB Frequency	100 MHz	Item Help
Current DRAM Frequency	133MHz	
DRAM Clock	[By SPD]	
DRAM Timing	[By SPD]	Menu Level ►
X DRAM Cas Latency	2.5	
X Bank Interleave	Disabled	
X Precharge to Active (Trp)	3T	
X Active to Precharge (Tras)	6T	
X Active to CMD (Trcd)	3T	
DRAM Command Rate	[2T Command]	

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

Descriptions on each item above are as follows:

1. **Current FSB Frequency**
   This item shows the CPU front-side Bus Frequency
2. **Current DRAM Frequency**
   This item shows the DRAM frequency
3. **DRAM Clock**
   This item allows you to control the DRAM speed at either equal to or one-half of the SYSCLK (system clock signal) speed. While speed is always desirable, choosing the higher setting may prove to be too fast for some components.
4. **DRAM Timing**
   The value in this field depends on performance parameters of the installed memory chips (DRAM). Do not change the value from the factory setting unless you install new memory that has a different performance rating than the original DRAMs.

5. **DRAM CAS Latency**
   When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.
6. **Bank Interleave**
7. **Precharge to Active (Trp)**
8. **Active to Precharge (Tras)**
   This item controls the number of DRAM clocks for TRAS.
9. **Active to CMD (Trcd)**
10. **DRAM Command Rate**
    This item set the DRAM command rate.

AGP & P2P BRIDGE CONTROL:

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 – Award CMOS Setup Utility
AGP & P2P Bridge Control

AGP Aperture Size	[64M]	Item Help
AGP Driving Control	[Audo]	
X AGP Driving Value	DA	
AGP Fast Write	[Disabled]	Menu Level ►
AGP Master 1 WS Write	[Disabled]	
AGP Master 1 WS Read	[Disabled]	

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

Descriptions on each item above are as follows:

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.

2. **AGP Mode**
   This item allows you to set the AGP mode.
3. **AGP Driving Control**
   This item allows you to adjust the AGP driving force. Choose Manual to key in an AGP Driving Value in the next selection. This field is recommended to set in Auto for avoiding any error in your system.
4. **AGP Driving Value**
   This item allows you to adjust the AGP driving force.
5. **AGP Fast Write**
   This item will enable the AGP model into fast write mode.
6. **AGP Master 1 WS Write**
   When Enabled, writes to the AGP (Accelerated Graphics Port) are executed with one wait state.
7. **AGP Master 1 WS Read**
   When Enabled, reads to the AGP (Accelerated Graphics Port) are executed with one wait state.

CPU & PCI BUS CONTROL:

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 – Award CMOS Setup Utility
CPU & PCI Bus Control

CPU to PCI Write Buffer	[Enabled]	Item Help
PCI Master 0 WS Write	[Enabled]	
PCI Delay Transaction	[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		

Descriptions on each item are as follows:

1. **CPU to PCI Write Buffer**
   When this field is Enabled, writes from the CPU to the PCI bus are buffered, to compensate for the speed differences between the CPU and the PCI bus. When Disabled, the writes are not buffered and the CPU must wait until the write is complete before starting another write cycle.
2. **PCI Master 0 WS Write**
   When Enabled, writes to the PCI bus are executed with zero wait states.
3. **PCI Delay 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.

MEMORY HOLE:

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

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 RAM CACHEABLE:

Selecting Enabled allows caching of the video BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

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 – Award CMOS Setup Utility
Integrated Peripherals

VIA OnChip IDE Device	[Press Enter]	Item Help
VIA OnChip PCI Device	[Press Enter]	
SuperIO Device	[Press Enter]	
Init Display First	[PCI Slot]	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

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.

If bios setup menu item supports USB device boot, it will cause Win9x detects the same storages twice when the system is rebooted, and USB HDD will fail. Note: this cause just happen under Win9x, the phenomenon is a limitation.

VIA ONCHIP IDE DEVICE:

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 – Award CMOS Setup Utility
VIA OnChip IDE Device

OnChip IDE Channel0	[Enabled]	Item Help
OnChip IDE Channel1	[Enabled]	
IDE Prefetch Mode	[Enabled]	
Primary Master PIO	[Auto]	Menu Level ►
Primary Slave PIO	[Auto]	
Secondary Master PIO	[Auto]	
Secondary Slave PIO	[Auto]	
Primary Master UDMA	[Auto]	
Primary Slave UDMA	[Auto]	
Secondary Master UDMA	[Auto]	
Secondary Slave UDMA	[Auto]	
IDE HDD Block Mode	[Enabled]	

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

Descriptions on each item above are as follows:

1. **OnChip IDE Channel 0 / 1**
   The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the secondary IDE interface. Select Disabled to deactivate this interface.
2. **IDE Prefetch Mode**
   The onboard IDE drive interfaces supports IDE pre-fetching for faster drive accesses. If you install a primary and or secondary add-in IDE interface, set this field to *Disabled* if the interface does not support pre-fetching.
3. **Primary Master/Slave PIO**
   Secondary Master/Slave PIO
   The four IDE PIO fields allow you to set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

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

VIA ONCHIP PCI DEVICE:

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 – Award CMOS Setup Utility
VIA OnChip PCI Device

USB 2.0 Support OnChip USB Controller USB Keyboard Support	[Enabled] [All Disabled] [Disabled]	Item Help 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		

Descriptions on each item above are as follows:

1. **OnChip USB Controller**
   This should be enabled if your system has a USB installed on the system board and you want to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.
2. **USB Keyboard Support**
   Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

SUPER IO DEVICE:

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 – Award CMOS Setup Utility
SuperIO Device

Onboard FDC Controller	[Enabled]	Item Help
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[Normal]	Menu Level ►
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	

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

Descriptions on each item above are as follows:

1. **Onboard FDC Controller**
   Select Enabled if the system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled.
2. **Onboard Serial Port 1/2**
   Select an address and corresponding interrupt for the first and second serial ports.
3. **UART Mode Select**
   This item allows you to select UART mode.
4. **RxD, TxD Active**
   This item allows you to determine the active of RxD, TxD.
5. **IR Transmission Delay**
   This item allows you to enable/disable IR transmission delay.
6. **UR2 Duplex Mode**
   This item allows you to select the IR half/full duplex function.
7. **Use IR Pins**
   This item allows you to select IR transmission routes, one is RxD2m, TxD2 (COM Port) and the other is IR-Rx2Tx2

8. **Onboard Parallel Port**
   This item allows you to determine access onboard parallel port

controller with which I/O address.

9. **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.
10. **EPP Mode Select**
    Select EPP port type 1.7 or 1.9.
11. **ECP Mode Use DMA**
    Select a DMA channel for the parallel port for use during ECP mode.

INIT DISPLAY FIRST:

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

4-7. POWER MANAGEMENT SETUP

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

Phoenix – Award CMOS Setup Utility
Power Management Setup

ACPI function	[Enabled]	Item Help
Power Management Option	[User Define]	
Suspend Mode	[Disable]	Menu Level ►
Video Off Option	[Suspend -> Off]	
Video Off Method	[V/H SYNC+Blank]	
MODEM Use IRQ	[3]	
Soft-Off by PWRBTN	[Instant - Off]	
Ac Loss Auto Restart	[Off]	
IRQ/Event Activity Detect	[Press Enter]	

↑↓→←: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 FUNCTION:

Users are allowed to enable or disable the Advanced Configuration and Power Management (ACPI).

POWER MANAGEMENT OPTION:

This item allows you to select the Power Management mode.

SUSPEND MODE:

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

VIDEO OFF OPTION:

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

Always On	Monitor will remain on during power saving modes.
Suspend --> Off	Monitor blanked when the systems enters the Suspend mode.
Susp,Stby --> Off	Monitor blanked when the system enters either Suspend or Standby modes.
All Modes --> Off	Monitor blanked when the system enters any power saving mode.

VIDEO OFF METHOD:

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Select this option if your monitor supports the Display Power Management Signalling (DPMS) standard of the Video Electronics Standards to select video power management values.

MODEM USE IRQ:

This determines the IRQ in which the MODEM can use.

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.

IRQ/EVENT ACTIVITY DETECT:

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 – Award CMOS Setup Utility
IRQ/Event Activity Detect

VGA	[OFF]	Item Help
LPT & COM	[LPT/COM]	
HDD & FDD	[ON]	
PCI Master	[OFF]	Menu Level ►
PowerOn by PCI Card	[Disabled]	
Modem Ring Resume	[Disabled]	
RTC Alarm Resume	[Disabled]	
X Date (Of Month)	0	
X Resume Time (hh:mm:ss)	0 : 0 : 0	
IRQs Activity Monitoring	[Press Enter]	

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

Descriptions on each item above are as follows:

1. **VGA**
   When *Enabled,* you can set the VGA awakens the system.
2. **LPT & COM**
   When *On of* LPT & COM, any activity from one of the listed system peripheral devices or IRQs wakes up the system.
3. **HDD & FDD**
   When *On of HDD* & FDD, any activity from one of the listed system peripheral devices wakes up the system.
4. **PCI Master**
   When *On of PCI Master*, any activity from one of the listed system peripheral devices wakes up the system.
5. **PowerOn by PCI Card**
   An input signal from PME on the PCI card awakens the system from a soft off state.
6. **Modem Ring Resume**
   An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

7. RTC Alarm Resume

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

8. IRQ Activity Monitoring

By entering this section, you will find a list of IRQ's, which can be exempted much as the COM ports and LPT ports above can. 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.

When set *On*, activity will neither prevent the system from going into a power management mode nor awaken it.

- **Primary INTR**
- **IRQ3 (COM 2)**
- **IRQ4 (COM 1)**
- **IRQ5 (LPT 2)**
- **IRQ6 (Floppy Disk)**
- **IRQ7 (LPT 1)**
- **IRQ8 (RTC Alarm)**
- **IRQ9 (IRQ2 Redir)**
- **IRQ10 (Reserved)**
- **IRQ11 (Reserved)**
- **IRQ12 (PS / 2 Mouse)**
- **IRQ13 (Coprocessor)**
- **IRQ14 (Hard Disk)**
- **IRQ15 (Reserved)**.

4-8. PNP/PCI CONFIGURATION

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

Phoenix – Award 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]	
Assign IRQ for VGA	[Enabled]	
Assign IRQ for USB	[Enabled]	

↑↓→←: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 DMA channel.

PCI/VGA PALETTE SNOOP:

Leave this field at disabled.

ASSIGN IRQ FOR VGA:

This item Enable/Disable to assign IRQ for VGA.

ASSIGN IRQ FOR USB:

This item Enable/Disable to assign IRQ for USB.

4-9. PC HEALTH STATUS

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

Phoenix – Award CMOS Setup Utility
PC Health Status

CPU Warning Temperature	[Disabled]	Item Help
System Temperatrue	39°C/102°F	Menu Level ►
CPU Temperature	49°C/111°F	
CPU Fan Speed	5273 RPM	
System Fan Speed	0 RPM	
VCORE	1.72V	
3.3V	3.28V	
+5V	4.94V	
+12V	11.85V	
-12V	-12.28V	
-5V	- 4.99V	
VBAT (V)	3.34V	
5BSB (V)	5.40V	
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.

CPU WARNING TEMERATURE:
This item will prevent CPU from overheating.

SYSTEM TEMPERATURE:
This item shows you the current system temperature.

CPU TEMPERATURE:
This item shows you the current CPU temperature.

CPU FAN SPEED:
This item shows you the current CPUFAN speed.

SYSTEM FAN SPEED:
This item shows you the current SYSTEMFAN speed.

VCORE:
This item shows you the current system voltage.

VCC3 / VCC5 / VCC12 / VCC12- / VCC5SB:
Show you the voltage of 3.3V/+5V/+12V/-12V/+5VSB.

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/VOLTAGE CONTROL

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

Phoenix – Award CMOS Setup Utility
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	[Enabled]	Item Help
Spread Spectrum	[Disabled]	
CPU Clock	[100]	Menu Level ►
Intel CPU Ratio	[Default]	

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

Frequency / Voltage Control Setup Screen

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

AUTO DETECT DIMM/PCI CLK:

When enabled, this item will auto detect if the DIMM and PCI socket have devices and will send clock signal to DIMM and PCI devices. When disabled, it will send the clock signal to all DIMM and PCI socket.

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.

CPU HOST / PCI CLOCK:

Select Default or select a timing combination for the CPU and the PCI bus. When set to Default, the BIOS uses the actual CPU and PCI bus clock values.

CPU RATIO:

This item allows you to set up the CPU clock ratio, but this function depends on different CPU performance. It is only effective for those clock ratio haven't been locked.

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:

```
Load Fail-Safe Defaults ( Y/N ) ? N
```

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:

```
Load Optimized Defaults ( Y/N ) ? N
```

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.

```
Enter Password:
```

Type the password up to eight characters in length, and press < Enter >. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press 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

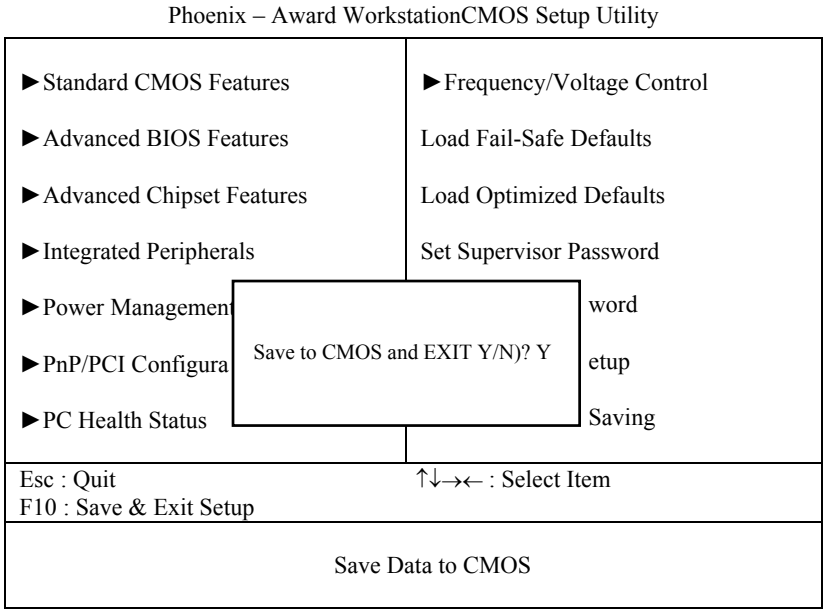
To disable the password, select this function (do not enter any key when you are prompt to enter a password), and press the <Enter> key and a message will appear at the center of the screen:

PASSWORD DISABLED!!!
Press any key to continue...

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

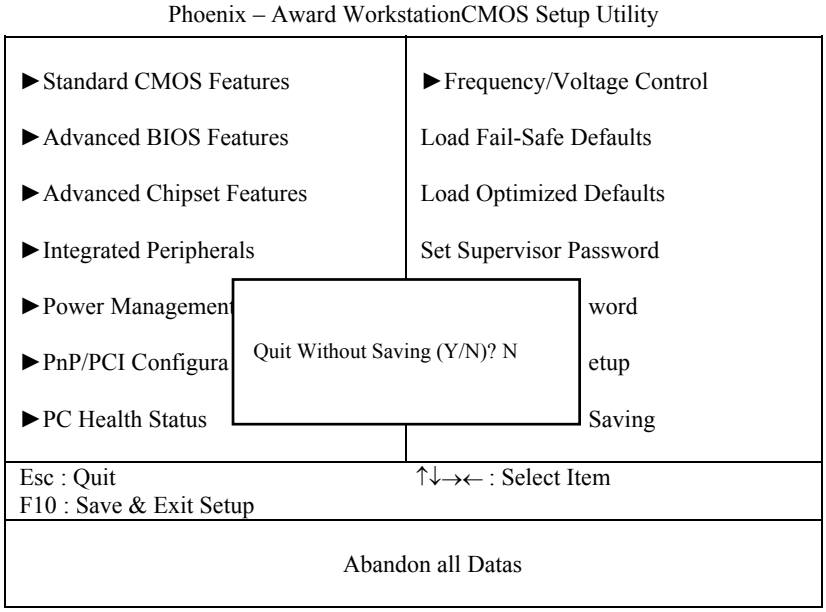
After you have completed adjusting all the settings as required, you must remember to save these setting into the CMOS RAM. To save the settings, select "SAVE & EXIT SETUP" and press <Enter>, a display will be shown as follows:



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

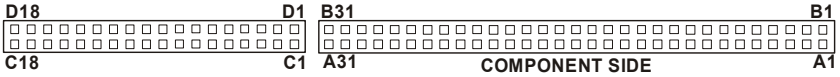
This appendix indicates the pin assignments.

Section includes:

- ISA BUS Pin Assignment
- PCI BUS Pin Assignment

ISA BUS PIN ASSIGNMENT

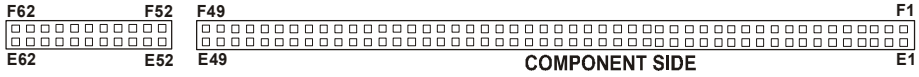
There are two edge connector (called "gold fingers") on this CPU Card, on the right hand is the connector of ISA Bus, followed up by PCI BUS connector. The ISA-bus connector is divided into two sets: one consists of 62 pins; the other consists of 36 pins.
The pin assignments are as follows :



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

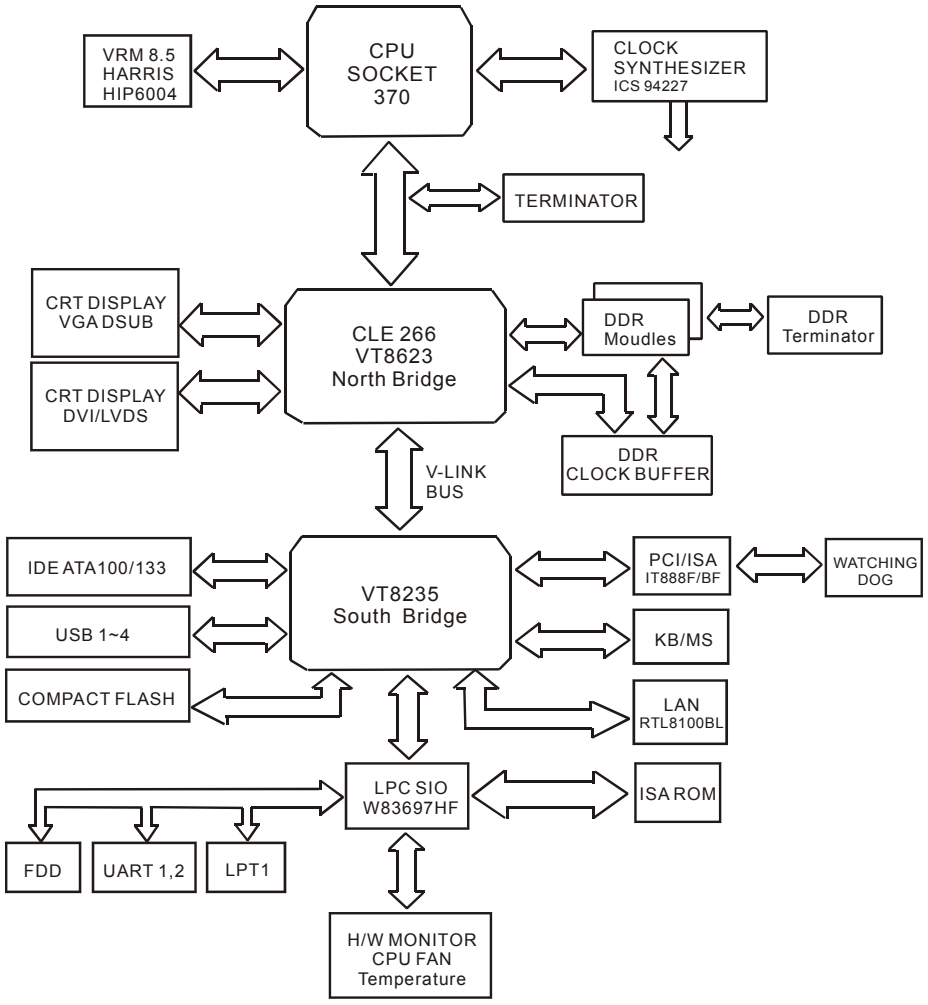
B

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

TROUBLE SHOOTING

APPENDIX

C

This section outlines the errors may occur when you operate the system. It also gives you the suggestions on solving the problems.

Section includes:

- Trouble Shooting for Error Messages
- Trouble Shooting for POST Code

TROUBLE SHOOTING FOR ERROR MESSAGES

The following information gives you the error messages and the trouble-shooting. Please adjust your systems according to the messages below. And make sure all the components and connectors are in proper position and firmly attached. If the errors still encountered, please contact with your distributor for maintenance.

POST BEEP :

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

CMOS BATTERY HAS FAILED :

This message informs you that the CMOS battery is no longer functional. The user should replace it.

CMOS CHECKSUM ERROR :

This message informs you that the CMOS is incorrect. This error may have caused by a weak battery. Check the battery and replace if necessary.

DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER :

No boot device was found. This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into Drive A: and press < Enter >. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also make sure the disk is formatted as a boot device. Then reboot the system.

DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP :

Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.

DISPLAY SWITCH IS SET INCORRECTLY :

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

DISPLAY TYPE HAS CHANGED SINCE LAST BOOT :

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

EISA CONFIGURATION CHECKSUM ERROR
PLEASE RUN EISA CONFIGURATION UTILITY :

The EISA non-violatile RAM checksum is incorrect or cannot correctly read the EISA slot. This can indicate either the EISA non-volatile memory has become corrupt or the slot has been configured incorrectly. Also be sure the card is installed firmly in the slot.

EISA CONFIGURATION IS NOT COMPLETE
PLEASE RUN EISA CONFIGURATION UTILITY :

The slot configure information stored in the EISA non-volatile memory is incomplete.

Note: When either of these errors appear, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

ERROR ENCOUNTERED INITIALIZING HARD DRIVE :

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

ERROR INITIALIZING HARD DISK CONTROLLER :

Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT :

Cannot find or initialize the floppy drive controller. Make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.

INVALID EISA CONFIGURATION
PLEASE RUN EISA CONFIGURATION UTILITY :

The non-volatile memory containing EISA configuration information was programmed incorrectly or has become corrupt. Re-run EISA configuration utility to correctly program the memory.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

KEYBOARD ERROR OR NO KEYBOARD PRESENT :

Cannot initialize the keyboard. Make sure that the keyboard is properly attached and no keys being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

MEMORY ADDRESS ERROR AT ... :

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

MEMORY PARITY ERROR AT ... :

Indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

MEMORY SIZE HAS CHANGED SINCE LAST BOOT :

Memory has been added or removed since the last boot. In EISA mode use Configuration Utility to reconfigure the memory configuration. In ISA mode enter Setup and enter the new memory size in the memory fields.

MEMORY VERIFY ERROR AT ... :

Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

OFFENDING ADDRESS NOT FOUND :

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

OFFENDING SEGMENT :

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

PRESS A KEY TO REBOOT :

This will be displayed at the bottom screen when an error occurs that requires you to reboot. Press any key and the system will reboot.

PRESS F1 TO DISABLE NMI, F2 TO REBOOT :

When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.

RAM PARITY ERROR – CHECKING FOR SEGMENT :

Indicates a parity error in Random Access Memory.

Should be Empty But EISA Board Found
PLEASE RUN EISA CONFIGURATION UTILITY :

A valid board ID was found in a slot that was configured as having no board ID.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Should Have EISA Board But Not Found
PLEASE RUN EISA CONFIGURATION UTILITY :

The board installed is not responding to the ID request, or no board ID has been found in the indicated slot.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Slot Not Empty :

Indicates that a slot designated as empty by the EISA Configuration Utility actually contains a board.

SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT :

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

Wrong Board in Slot
PLEASE RUN EISA CONFIGURATION UTILITY :

The board ID does not match the ID stored in the EISA non-volatile memory.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

FLOPPY DISK(S) FAIL (80) :

Unable to reset floppy subsystem.

FLOPPY DISK(S) FAIL (40) :

Floppy type dismatch.

Hard Disk(S) Fail (80) :

Hard Disk Drive reset failed.

Hard Disk(S) Fail (40) :

Hard Disk Drive controller diagnostics failed.

Hard Disk(S) Fail (20) :

Hard Disk Drive initialization error.

Hard Disk(S) Fail (10) :

Unable to recalibrate fixed disk.

Hard Disk(S) Fail (08) :

Sector Verify failed.

Keyboard is locked out – Unlock the key :

BIOS detect the keyboard is locked. P17 of keyboard controller is pulled low.

Keyboard error or no keyboard present :

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

Manufacturing POST loop :

System will repeat POST procedure infinitely while the P15 of keyboard controller is pull low. This is also used for M/B burn in test.

BIOS ROM checksum error – System halted :

The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail :

BIOS reports the memory test fail if the onboard memory is tested error.

TROUBLE SHOOTING FOR POST CODES

The lists below indicate you the post codes. Please follow the instruction to adjust your system. If the error still occurred, please contact with your distributor for maintenance.

CFh : Test CMOS R/W functionality.

C0h : Early chipset initialization
- Disable shadow RAM
- Disable L2 cache (socket 7 or below)
- Program basic chipset registers

C1h : Detect memory
- Auto-detection of DRAM size, type and ECC
- Auto-detection of L2 cache (socket 7 or below)

C3h : Expand compressed BIOS code to DRAM.

C5h : Call chipset hook to copy BIOS black to E000 & F000 shadow RAM.

0h1 : Expand the Xgroup codes locating in physical address 1000:0

02h : Reserved.

03h : Initial Superio_Early_Init switch.

04h : Reserved.

05h : 1. Blank out screen
2. Clear CMOS error flag

06h : Reserved

07h : 1. Clear 8042 interface
2. Initialize 8042 self-test

08h : 1. Test special keyboard controller for Winbond 977 series Super I/O Chips.
2. Enable keyboard interface.

09h : Reserved

0Ah : 1. Disable PS/2 mouse interface (optional)
2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional).
3. Reset keyboard for Winbond 977 series Super I/O chips.

0Bh : Reserved

0Ch : Reserved

0Dh : Reserved

0Eh : Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.

0Fh : Reserved

10h : Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD and DMI support.

11h : Reserved

12h : Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.

13h : Reserved

14h : Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.

15h : Reserved

16h : Initial Early_Init_Onboard_Generator switch.

17h : Reserved

18h : Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686).

19h : Reserved

1Ah : Reserved

1Bh : Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INIT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.

1Ch : Reserved

1Dh : Initial EARLY_PM_INIT switch

1Eh : Reserved

1Fh : Load keyboard matrix (notebook platform)

20h : Reserved

21h : HPM initialization (notebook platform)

22h : Reserved

23h :
1. Check validity of RTC value:
   e.g. a value of 5Ah is an invalid value for RTC minute.
2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead.
3. Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information.
4. Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots.
5. Early PCI initialization:
   -Enumerate PCI bus number
   -Assign memory & I/O resource
   -Search for a valid VGA device & VGA BIOS, and put it into C000:0.

24h : Reserved

25h : Reserved

26h : Reserved

27h : Initialize INT 09 buffer

28h : Reserved

29h :
1. Program CPU internal mtrr (P6 & PII) for 0-640K memory address.
2. Initialize the APIC for Pentium class CPU.
3. Program early chipset according to CMOS setup. Example: onboard IDE controller.
4. Measure CPU speed.
5. Invoke video BIOS.

2Ah : Reserved

2Bh : Reserved

2Ch : Reserved

2Dh :
1. Initialize multi-language
2. Put information on screen display, including Award title, CPU type, CPU speed …

2Eh : Reserved

2Fh : Reserved

30h : Reserved

31h : Reserved

32h : Reserved

33h : Reset keyboard except Winbond 977 series Super I/O chips.

34h : Reserved

35h : Reserved

36h : Reserved

37h : Reserved

38h : Reserved

39h : Reserved

3Ah : Reserved

3Bh : Reserved

3Ch : Test 8254

3Dh : Reserved

3Eh : Test 8259 interrupt mask bits for channel 1.

3Fh : Reserved

40h : Test 8259 interrupt mask bits for channel 2.

41h : Reserved

42h : Reserved

43h : Test 8259 functionality.

44h : Reserved

45h : Reserved

46h : Reserved

47h : Initialize EISA slot

48h : Reserved

49h : 1. Calculate total memory by testing the last double word of each 64K page.
2. Program writes allocation for AMD K5 CPU.

4Ah : Reserved

4Bh : Reserved

4Ch : Reserved

4Dh : Reserved

4Eh : 1. Program MTRR of M1 CPU
2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range.
3. Initialize the APIC for P6 class CPU.
4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.

4Fh : Reserved

50h : Initialize USB

51h : Reserved

52h : Test all memory (clear all extended memory to 0)

53h : Reserved

54h : Reserved

55h : Display number of processors (multi-processor platform)

56h : Reserved

57h : 1. Display PnP logo
2. Early ISA PnP initialization
-Assign CSN to every PnP device.

58h : Reserved

59h : Initialize the combined Trend Anti-Virus code.

5Ah : Reserved

5Bh : (Optional Feature)
Show message for entering AWDFLASH.EXE from FDD (optional)

5Ch : Reserved

5Dh : 1. Initialize Init_Onboard_Super_IO switch.
2. Initialize Init_Onboard_AUDIO switch.

5Eh : Reserved

5Fh : Reserved

60h : Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility

61h : Reserved

62h : Reserved

63h : Reserved

64h : Reserved

65h : Initialize PS/2 Mouse

66h : Reserved

67h : Prepare memory size information for function call:
INT 15h ax=E820h

68h : Reserved

69h : Turn on L2 cache.

6Ah : Reserved

6Bh : Program chipset registers according to items described in Setup and Auto-configuration table.

6Ch : Reserved

6Dh : 1. Assign resources to all ISA PnP devices.
2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".

6Eh : Reserved

6Fh : 1. Initialize floppy controller.
2. Set up floppy related fields in 40:hardware.

70h : Reserved

71h : Reserved

72h : Reserved

73h : (Optional Feature)
Enter AWDFLASH.EXE if:
- AWDFLASH is found in floppy drive.
- ALT+F2 is pressed

74h : Reserved

75h : Detect & install all IDE devices: HDD, LS120, ZIP, CDROM…..

76h : Reserved

77h : Detect serial ports and parallel ports

78h : Reserved

79h : Reserved

7Ah : Detect and install co-processor

7Bh : Reserved

7Ch : Reserved

7Dh : Reserved

7Eh : Reserved

7Fh : 1. Switch back to text mode if full screen logo is supported.
-If errors occur, report errors and wait for keys
-If no errors occur or F1 key is pressed to continue:
*Clear EPA or customization logo.

80h : Reserved

81h : Reserved

82h : 1. Call chipset power management hook.
2. Recover the text fond used by EPA logo (not for full screen logo).
3. If password is set, ask for password.

83h : Save all data in stack back to CMOS.

84h : Initialize ISA PnP boot devices.

85h : 1. USB final initialization.
2. NET PC: Build SYSID structure.
3. Switch screen back to text mode.
4. Setup ACPI table at top of memory.
5. Invoke ISA adapter ROMs.
6. Assign IRQs to PCI devices.
7. Initialize APM.
8. Clear noise of IRQs.

86h : Reserved

87h : Reserved

88h : Reserved

89h : Reserved

90h : Reserved

91h : Reserved

92h : Reserved

93h : Read HDD boot sector information for Trend Anti-Virus code.

94h :
1. Enable l2 cache.
2. Program boot up speed.
3. Chipset final initialization.
4. Power management final initialization.
5. Clear screen and display summary table
6. Program K6 write allocation.
7. Program P6 class write combining.

95h :
1. Program daylight saving.
2. Update keyboard LED and typematic rate.

96h :
1. Build MP table.
2. Build and update ESCD.
3. Set CMOS century to 20h or 19h.
4. Load CMOS time into DOS timer tick.
5. Build MSIRQ routing table.

FFh : Boot attempt (INT 19h)

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