

# **USER'S MANUAL**

**ProX-1640**

**P-III Socket 370  
Full-size CPU Card  
With VGA / Sound / 2LAN**

**ProX-1640 M0**

***ProX-1640 Socket 370  
Full-size CPU Card  
With VGA/Sound/2LAN***

***OPERATION MANUAL***

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

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## TABLE OF CONTENTS

### CHAPTER 1 INTRODUCTION

1-1	About This Manual .....	1-2
1-2	System Specification .....	1-3
1-3	Safety Precautions .....	1-6

### CHAPTER 2 HARDWARE CONFIGURATION

2-1	Jumper & Connector Quick Reference Table .....	2-2
2-2	Component Locations .....	2-3
2-3	How to Set the Jumpers .....	2-4
2-4	COM Port Connector .....	2-6
2-5	COM Port RI & Voltage Selection .....	2-7
2-6	RS232/422/485 (COM2) Selection .....	2-8
2-7	Solid-State Disk Socket .....	2-9
2-8	SSD Memory Mapping Selection .....	2-10
2-9	Keyboard or PS/2 Mouse Connector .....	2-11
2-10	Keyboard or PS/2 Mouse Selection .....	2-11
2-11	External Keyboard Connector .....	2-12
2-12	Reset Connector .....	2-12
2-13	Hard Disk Drive LED Connector .....	2-12
2-14	External Speaker Connector .....	2-13
2-15	Power LED & KeyLock Connector .....	2-13
2-16	Clear CMOS Data Selection .....	2-14
2-17	CPU Fan Connector .....	2-14
2-18	System Fan Connector .....	2-15
2-19	Universal Serial Bus Connector .....	2-15
2-20	IrDA Connector .....	2-16
2-21	Reset/NMI/Clear Watchdog Selection .....	2-16
2-22	VGA CRT Connector .....	2-17
2-23	DVO Connector .....	2-18
2-24	Sound Connector .....	2-19
2-25	CD-IN Connector .....	2-19
2-26	Hard Disk Drive Connector .....	2-20
2-27	Floppy Disk Drive Connector .....	2-22
2-28	Printer Connector .....	2-23
2-29	LAN Connector .....	2-24
2-30	LAN Enable/Disable Selection .....	2-25

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2-31	Power Connector .....	2-26
2-32	ATX Power Signal Connector .....	2-26
2-33	ATX/AT Power Selection .....	2-27
2-34	ATX Power Button .....	2-27
2-35	PPCI Connector .....	2-28
2-36	Memory Installation .....	2-29

### **CHAPTER 3 SOFTWARE UTILITIES**

3-1	Introduction .....	3-2
3-2	VGA Driver Utility .....	3-2
3-3	Flash BIOS Update .....	3-3
3-4	LAN Driver Utility .....	3-6
3-5	Sound Driver Utility .....	3-7
3-6	Intel Chipset Software Installation Utility .....	3-8
3-7	Watchdog Timer Configuration .....	3-10

### **CHAPTER 4 AWARD BIOS SETUP**

4-1	Introduction .....	4-2
4-2	Entering Setup .....	4-3
4-3	The Standard CMOS Setup .....	4-4
4-4	The Advanced BIOS Features .....	4-8
4-5	Advanced Chipset Features .....	4-11
4-6	Integrated Peripherals .....	4-15
4-7	Power Management Setup .....	4-18
4-8	PNP/PCI Configuration .....	4-21
4-9	PC Health Status .....	4-23
4-10	Frequency/Voltage Control .....	4-24
4-11	Load Fail-Safe Defaults .....	4-25
4-12	Load Optimized Defaults .....	4-25
4-13	Password Setting .....	4-26
4-14	Save & Exit Setup .....	4-27
4-15	Exit Without Saving .....	4-28

### **APPENDIX A ADAPTER CARD**

Wsound Adapter Card .....	A-2
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**APPENDIX B EXPANSION BUS**

ISA Bus Pin Assignment .....	B-2
PCI Bus Pin Assignment .....	B-3

**APPENDIX C TECHNICAL SUMMARY**

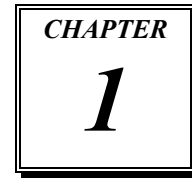
Block Diagram .....	C-2
Interrupt Map .....	C-3
RTC & CMOS RAM Map .....	C-4
Timer & DMA Channels Map .....	C-5
I/O & Memory Map .....	C-6

**APPENDIX D TROUBLE SHOOTING**

Trouble Shooting for Error Messages .....	D-2
Trouble Shooting for POST Codes .....	D-8



# ***INTRODUCTION***



This chapter gives you the information for Prox-1640. 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-1640 Socket 370 Embedded Card equipped with VGA / Sound / Dual LAN, which is fully PC / AT compatible. Prox-1640 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, Sound utility and BIOS update. It also describes the Watchdog timer configuration.

### ***Chapter 4 Award BIOS Setup***

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

### ***Appendix A Adapter Card***

This Appendix introduces you the W-Sound Adapter Card.

### ***Appendix B Expansion Bus***

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

### ***Appendix C Technical Summary***

This section gives you the information about the Technical maps.

### ***Appendix D Trouble Shooting***

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

## 1-2. SYSTEM SPECIFICATION

- **CPU TYPE:**

- Intel® Celeron™ / Coppermine / Tualatin processors.
  - 566~1.26 GHz clock generator.
  - Auto detect voltage regulator.

- **MEMORY :**

- Up to 512MB SDRAM.
  - Two 168-pin DIMM socket.

- **CACHE :**

- Depended on CPU.

- **SYSTEM CHIPSET :**

- Intel® Solano 2.
  - Built-in GMCH, ICH2, & FWH

- **REAL-TIME CLOCK / CALENDAR :**

- 256-byte battery backed CMOS RAM
  - Hardware implementation to indicate century rollover.

- **BIOS :**

- Phoenix-Award Flash BIOS for plug & play function.
  - Easy update 512KB flash EEPROM.
  - 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 2 USB ports.

- **BUS SUPPORT :**

- External ISA/PCI BUS (PICMG Spec.)
  - Internal AGP Bus for VGA.
  - Internal PCI Bus for PPCI, LAN & Sound.



● **DISPLAY :**

Built-in GMCH with 4MB display cache.  
Support 2D/3D engine.  
Support a Dynamic Video Memory Technology (DVMT) which allows the entire 3D rendering process to take place in system memory.  
Onboard 15-pin connector, support for resolution on SVGA Monitor.  
Onboard 30-pin DVO (Digital Video Output) connector, which allows for connection of digital flat panel displays compatible with DVI specification.

● **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 ATA-33/66/100.

● **FLOPPY DISK DRIVER INTERFACE :**

Support up to two Floppy Disk Drives, 3.5" and 5.25" (360K / 720K / 1.2M / 1.44M / 2.88M ).

● **DISK-ON-CHIP SOCKET :**

Onboard 32-pin socket.  
Supports up to 144MB disk-on-chip.

● **LAN INTERFACE :**

Built-in Intel 82562EM & Intel® 82559 Fast Ethernet.  
Dual RJ-45 port, support for 10/100 BaseTx PCI Ethernet.  
Support Wake-On-LAN function.

● **SERIAL PORT :**

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

● **SOUND INTERFACE :**

Enhanced with Analog Device AD1881 (AC'97 Codec).  
Fully Compliant AC'97 Analog I/O Component  
16-Bit Stereo Full-Duplex Codec  
Four Analog Line-level Stereo Inputs for Connection.  
High Quality CD Input with Ground Sense  
Stereo Line-Level Output  
Interface: Line-In, Line-Out, Microphone, and CD Audio-In.

● **PARALLEL PORT :**

SPP, ECP, EPP Function.  
Bi-directional parallel port.

● **GREEN FUNCTION :**

Software supported by BIOS setup.  
Hardware supported by switch control.

● **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.  
LAN LED indicator.

● **BUS SPEED :**

ISA Bus 8MHz  
PCI Bus 33MHz  
PPCI Bus 33MHz  
USB 12Mbit/sec

● **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: 7.5A.

DC Voltage: +12V, minimum +11.4V, maximum +12.6V.

DC Ampere: 500mA.

● **BOARD DIMENSION :**

338.5mm x 122mm

● **BOARD NET WEIGHT :**

386grams

**1-3. SAFETY PRECAUTIONS**

Follow the messages below to avoid your systems from damage:

1. Avoid your system from static electricity on all occasions.
2. Prevent electric shock. Don't touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
3. Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

# ***HARDWARE CONFIGURATION***

CHAPTER

**2**

## ***\*\* QUICK START \*\****

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

Section includes:

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

## 2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

COM Port Connector .....	COM1, COM2
COM Port RI & Voltage Selection .....	JP2
RS232/422/485 (COM2) Selection .....	JP1
Solid-State Disk Socket .....	SSD
SSD Memory Mapping Selection .....	JP4
Keyboard or PS/2 Mouse Connector .....	DIN
Keyboard or PS/2 Mouse Selection .....	JP8
External Keyboard Connector .....	EXKB
Reset Connector .....	RST1
Hard Disk Drive LED Connector .....	HDL1
External Speaker Connector .....	SPK1
Power LED & KeyLock Connector .....	KBL1
Clear CMOS Data Selection .....	JP3
CPU Fan Connector .....	FAN1
System Fan Connector .....	FAN2
Universal Serial Bus Connector .....	USB
IrDA Connector .....	IRDA1
Reset/NMI/Clear Watchdog Selection .....	JP7
VGA CRT Connector .....	VGA
DVO Connector .....	DVO1
Sound Connector .....	CN1
CD-In Connector .....	CN4
Hard Disk Drive Connector .....	IDE1, IDE2
Floppy Disk Drive Connector .....	FDD1
Printer Connector .....	PRN
LAN Connector .....	LAN1, LAN2
LAN Enable/Disable Selection .....	JP5
Power Connector .....	PWR1
ATX Power Signal Connector .....	CN2
ATX / AT Power Selection .....	JP6
ATX Power Button .....	CN3
PPCI Connector .....	PPCI
Memory Installation .....	DIMM1, DIMM2

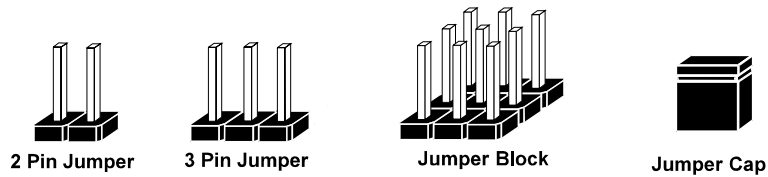


## 2-3. HOW TO SET THE JUMPERS

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

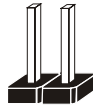


If a jumper has three pins (for examples, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual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

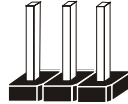
**JUMPER DIAGRAMS**



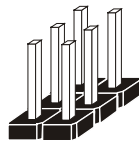
Jumper Cap  
looks like this



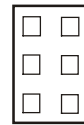
2 pin Jumper  
looks like this



3 pin Jumper  
looks like this



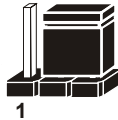
Jumper Block  
looks like this



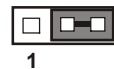
**JUMPER SETTINGS**



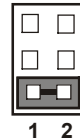
2 pin Jumper close(enabled)  
Looks like this



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



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

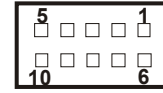




## 2-4. COM PORT CONNECTOR

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

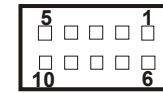
PIN	ASSIGNMENT
1	NDCD1
2	NRXD1
3	NTXD1
4	NDTR1
5	GND
6	NDSR1
7	NRTS1
8	NCTS1
9	RI1 / +5V / +12V selectable
10	NC




**COM1**

**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

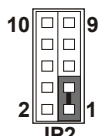
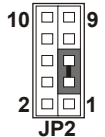
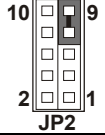
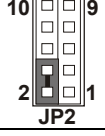
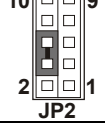
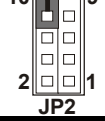


**COM2**

 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**

**JP2** : COM Port RI & Voltage Selection  
 The selection are as follows :

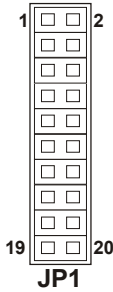
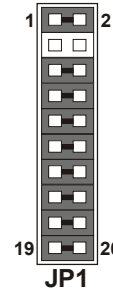
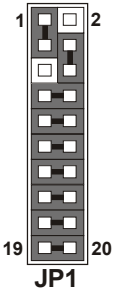
Selection		Jumper Settings (pin closed)	Jumper Illustrations
COM1	+5V	1-3	
	+12V	3-5	
	RI	7-9	
COM2	+5V	2-4	
	+12V	4-6	
	RI	8-10	

\*\*\*Manufacturing Default --- RI function.

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

**JP1** : RS-232/422/485 (COM2) Selection

The COM2 Function selections are as follows :

COM 2 Function	RS-232	RS-422	RS-422
<b>Jumper Settings (pin closed)</b>	Open	1-2 5-6 7-8 9-10 11-12 13-14 15-16 17-18 19-20	1-3 4-6 7-8 9-10 11-12 13-14 15-16 17-18 19-20
<b>Jumper Illustrations</b>	 <p>Diagram of JP1 jumper block showing all pins (1-20) open. The pins are labeled 1, 2, 19, and 20.</p>	 <p>Diagram of JP1 jumper block showing pins 1-2, 5-6, 7-8, 9-10, 11-12, 13-14, 15-16, 17-18, and 19-20 closed. The pins are labeled 1, 2, 19, and 20.</p>	 <p>Diagram of JP1 jumper block showing pins 1-3, 4-6, 7-8, 9-10, 11-12, 13-14, 15-16, 17-18, and 19-20 closed. The pins are labeled 1, 2, 19, and 20.</p>

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

## 2-7. SOLID-STATE DISK SOCKET

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



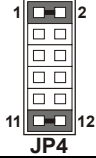
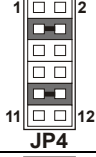
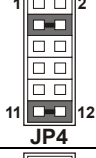
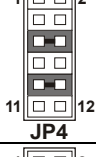
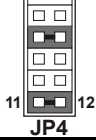
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	17	SD3
2	NC	18	SD4
3	NC	19	SD5
4	SA12	20	SD6
5	SA7	21	SD7
6	SA6	22	CE
7	SA5	23	SA10
8	SA4	24	OE
9	SA3	25	SA11
10	SA2	26	SA9
11	SA1	27	SA8
12	SA0	28	NC
13	SD0	29	NC
14	SD1	30	VCC
15	SD2	31	WE
16	GND	32	VCC

## 2-8. SSD MEMORY MAPPING SELECTION

### JP4 : SSD Memory Mapping Selections

A 32-pin SSD socket supports Disk-on-Chip up to 144MB. This PnP Flash ROM SSD can be install as one of user's hard disk drive.

The SSD Memory Mapping Selections are as follows:

SELECTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
CC000h-CDFFFh	1-2 11-12	
D0000h-D1FFFh	3-4 9-10	
D4000h-D5FFFh	3-4 11-12	
D8000h-D9FFFh	5-6 9-10	
DC000h-DDFFFh	5-6 11-12	

\*\*\* Factory default --- CC000h-CDFFFh.

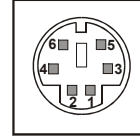
## 2-9. KEYBOARD OR PS/2 MOUSE CONNECTOR

**DIN** : 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



**DIN**

## 2-10. KEYBOARD OR PS/2 MOUSE SELECTION

**JP8** : Keyboard or PS/2 Mouse Selection

For Y-Cable user, please set the jumper same as AT keyboard.

The jumper settings are as follows:

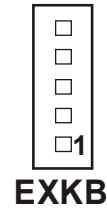
DEVICE TYPE	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
KEYBOARD	3-5 4-6	 <b>JP8</b>
PS/2 MOUSE	1-3 2-4	 <b>JP8</b>

\*\*\* Manufactory default -- AT Keyboard

## 2-11. EXTERNAL KEYBOARD CONNECTOR

**EXKB** : External Keyboard Connector  
The pin assignment is as follows :

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



## 2-12. RESET CONNECTOR

**RST1** : Reset Connector.  
The pin assignment is as follows :

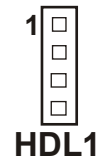
PIN	ASSIGNMENT
1	RESET SW
2	GROUND



## 2-13. HARD DISK DRIVE LED CONNECTOR

**HDL1** : Hard Disk Drive LED Connector  
The pin assignment is as follows :

PIN	ASSIGNMENT
1	VCC
2	IDE LED
3	IDE LED
4	IDE LED



## 2-14. EXTERNAL SPEAKER CONNECTOR

**SPK1** : External Speaker Connector  
The pin assignment is as follows :

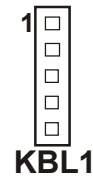
PIN	ASSIGNMENT
1	VCC
2	SPEAKER
3	SPEAKER
4	SPEAKER



## 2-15. POWER LED & KEYLOCK CONNECTOR

**KBL1** : Power LED & Keylock Connector  
The pin assignment is as follows :

PIN	ASSIGNMENT
1	VCC
2	NC
3	GND
4	KLOCK
5	GND

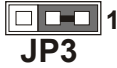
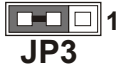




## 2-16. CLEAR CMOS DATA SELECTION

**JP3** : Clear CMOS Data Selection

The selections are as follows :

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
Normal	1-2	 <b>JP3</b>
Clear CMOS	2-3	 <b>JP3</b>

\*\*\* 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

**FAN1** : CPU Fan connector

The pin assignment is as follows:

PIN	ASSIGNMENT
1	GND
2	+12V
3	FAN1



## 2-18. SYSTEM FAN CONNECTOR

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

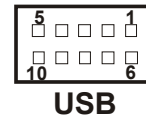
PIN	ASSIGNMENT
1	GND
2	+12V
3	FAN2



## 2-19. UNIVERSAL SERIAL BUS CONNECTOR

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

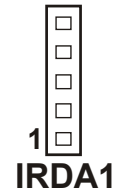
PIN	ASSIGNMENT
1	VCC
2	USBP0-
3	USBP0+
4	GND
5	GND
6	VCC
7	USBP1-
8	USBP1+
9	GND
10	GND



## 2-20. IRDA CONNECTOR

**IRDA1:** IrDA (Infrared) Connector  
The pin assignments are as follows:

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



## 2-21. RESET/NMI/CLEAR WATCHDOG SELECTION

**JP7 :** 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	

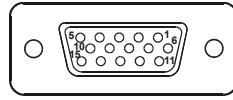
\*\*\*Manufacturing Default is set as NMI.

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 CRT CONNECTOR

**VGA :** VGA CRT Connector

The pin assignments are as follows:



**VGA**

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. DVO CONNECTOR

**DVO1** : DVO Connector

The pin assignments are as follows:



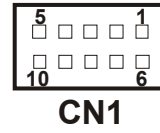
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC12	2	VCC5
3	GND	4	VCC5
5	GND	6	VCC3.3
7	FTD0	8	VCC3.3
9	FTD1	10	VCC1.8
11	FTD2	12	5VFTSDA
13	FTD3	14	5VFTSCL
15	FTD4	16	FTBLNK#
17	FTD5	18	SL_STALL
19	FTD6	20	FTCLK0
21	FTD7	22	FTCLK1
23	FTD8	24	FTVSYNC
25	FTD9	26	FTHSYNC
27	FTD10	28	3VFTSCL
29	FTD11	30	3VFTSDA


## 2-24. SOUND CONNECTOR

CN1 : Sound Connector

The pin assignments are as follows:

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



 This connector is to be connected to W-Sound Adapter Card, for more information, please refer to Appendix A.

## 2-25. CD-IN CONNECTOR

CN4 : CD-In Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	AUX L
2	GND
3	GND
4	AUX R

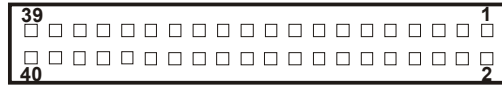


## 2-26. HARD DISK DRIVE CONNECTOR

### IDE1: Hard Disk Drive Connector

The Prox-1640 possesses two HDD connectors, which support ATA-100.

The pin assignments are as follows:

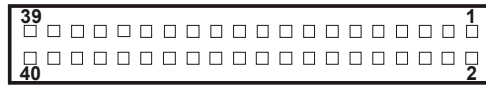


**IDE1**

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



## 2-27. 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**

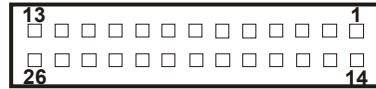
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	DENSEL#
3	GND	4	NC
5	GND	6	NC
7	GND	8	INDEX#
9	GND	10	MOTEA
11	GND	12	DRVB
13	GND	14	DRVA
15	GND	16	MOTEB
17	GND	18	DIR
19	GND	20	STEP
21	GND	22	WDATA
23	GND	24	WGATE
25	GND	26	TK00
27	GND	28	WPT
29	GND	30	RDATA#
31	GND	32	SIDE1
33	GND	34	DSKCHG

## 2-28. PRINTER CONNECTOR

**PRN** : 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 :



**PRN**

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STB	14	AUTFE
2	P0	15	ERROR
3	P1	16	INIT
4	P2	17	SLCTIN
5	P3	18	GND
6	P4	19	GND
7	P5	20	GND
8	P6	21	GND
9	P7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	NC

## 2-29. LAN CONNECTOR

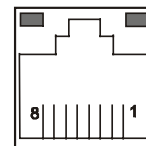
There are two LAN port found in this card called the LAN1 and LAN2. User must remember to choose LAN1 port connector when only one port is intended for use.

As you may notice, each individual port has two LAN led indicator. The green LED indicates power link, and the Yellow LED is used to detect data active transfer signal.

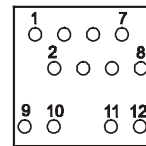
### LAN1: LAN Connector

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	V3SB
11	LI LED
12	ACTIVE LED



LAN1



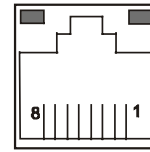
Green Yellow

- ⚠ The LAN1 function of this CPU Card is designed based on PCI Bus Master, which means one of the PCI Bus Masters is occupied. The LAN Bus Master is same as 1st PCI Slot on the backplane. **When the LAN chipset is on-board, the 1st PCI slot on backplane would fail even if LAN function is disabled.**

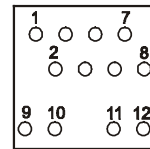
**LAN2: LAN Connector**

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	V3SB
11	LI LED
12	ACTIVE LED



LAN2



Green Yellow

**2-30. LAN ENABLE / DISABLE SELECTION**

**JP5: LAN Enable / Disable Selection**

The selections are as follows:

SELECTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
ENABLE	1-2	 JP5
DISABLE	2-3	 JP5

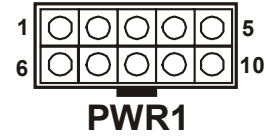
\*\*\*Manufacturing Default – Enable.

## 2-31. POWER CONNECTOR

**PWR1:** Power Connector

The pin assignments are as follows:

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

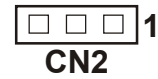


## 2-32. ATX POWER SIGNAL CONNECTOR

**CN2 :** ATX Power Signal Connector

The pin assignments are as follows:

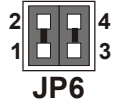

PIN	ASSIGNMENT
1	+5V SB
2	GND
3	PWR_ON



### 2-33. 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	 JP6
ATX	Open	 JP6

\*\*\* 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.

### 2-34. ATX POWER BUTTON

**CN3 :** ATX Power Button

The pin assignment is as follows :

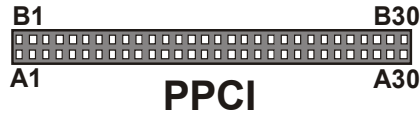
PIN	ASSIGNMENT
1	PANSWH
2	GND



## 2-35. PPCI CONNECTOR

You will find a PPCI connector in our Prox-1640. This connector is used to connect our daughter boards.

The pin assignments are as follows:



PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	GND	B1	GND
A2	AD0	B2	AD1
A3	AD2	B3	AD3
A4	AD4	B4	AD5
A5	AD6	B5	AD7
A6	AD8	B6	AD9
A7	AD10	B7	AD11
A8	VCC	B8	VCC
A9	AD12	B9	AD13
A10	AD14	B10	AD15
A11	AD16	B11	AD17
A12	AD18	B12	AD19
A13	AD20	B13	AD21
A14	AD22	B14	AD23
A15	VCC	B15	VCC
A16	AD24	B16	AD25
A17	AD26	B17	AD27
A18	AD28	B18	AD29
A19	AD30	B19	AD31
A20	SCSILED	B20	PAR
A21	PCICLKA	B21	IRDYJ
A22	ID SEL	B22	TRDYJ
A23	CBEJ0	B23	CBEJ1
A24	CBEJ2	B24	CBEJ3
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 PPCI expansion connector of this Card is designed based on PCI Bus Master. That means when the PPCI expansion connector is used, the 4<sup>th</sup> PCI slot on the backplane is occupied.

## 2-36. MEMORY INSTALLATION

Prox-1640 CPU Card is enhanced with two DIMM socket.



### DRAM BANK CONFIGURATION

DIMM 1	DIMM 2	TOTAL MEMORY
32MB		32MB
32MB	32MB	64MB
64MB		64MB
64MB	32MB	96MB
64MB	64MB	128MB
128MB		128MB
128MB	32MB	160MB
128MB	64MB	192MB
128MB	128MB	256MB
256MB		256MB
256MB	32MB	288MB
256MB	64MB	320MB
256MB	128MB	384MB
256MB	256MB	512MB





# ***SOFTWARE UTILITIES***

CHAPTER

**3**

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

Section includes:

- VGA Driver Utility
- Flash BIOS Update
- LAN Driver Utility
- Intel Service Pack 6
- Watchdog Timer Configuration

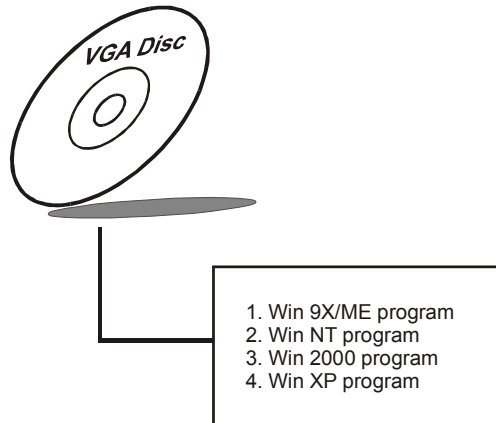
### 3-1. INTRODUCTION

Enclosed with our Prox-1640 package is our driver utility, which may come 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:\VGA\	Built-in GMCH For VGA driver installation
D:\Flash\Awdflash.exe	For BIOS update
D:\LAN\82562EM\ D:\LAN\82559V41\	Intel® 82562EM (LAN1) Intel® 82559 (LAN2) For LAN driver installation
D:\Sound\	Analog Device AD1881 AC97 For Sound driver installation
D:\Intel\Utility\ininst_auto1.exe	Intel® Chipset Software Installation Utility <i>Be sure to install this software 1<sup>st</sup>!</i>

### 3-2. VGA DRIVER UTILITY

The VGA interface embedded with our Prox-1640 can support a wide range of display. You can display CRT, LVDS and PanelLink™ simultaneously with the same mode.



### **3-2-1. Installation of VGA Driver:**

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

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 9x/2000/XP system, go to the directory where VGA driver is located.
3. Click **Win9xm66.exe/Win2K\_xpm66.exe/Winnt4m66.exe** file for VGA driver installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart in order for the changes to take effect.

## **3-3. FLASH BIOS UPDATE**

### **3-3-1. System BIOS Update:**

Users of Prox-1640 can use the program “Awdflash.exe” contained in the Utility Disk for system BIOS and VGA BIOS update.

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

As Prox-1640 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 B40xxxxx.bin  
C:\UTIL\AWDFLASH>AWDFLASH B40xxxxx.bin
4. The screen will display such as table below:

FLASH MEMORY WRITER v7.XX (C) Award Software 1999 All Rights Reserved
For i815-ITE8712-6A69RP6DC-0      DATE: 06/08/2001 Flash Type – SST 49LF004A/3.3V File Name to Program: B40xxxxx.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 1999 All Rights Reserved
For i815-ITE8712-6A69RP6DC-0      DATE: 06/08/2001 Flash Type – SST 49LF004A/3.3V File Name to Program: B40xxxxx.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:

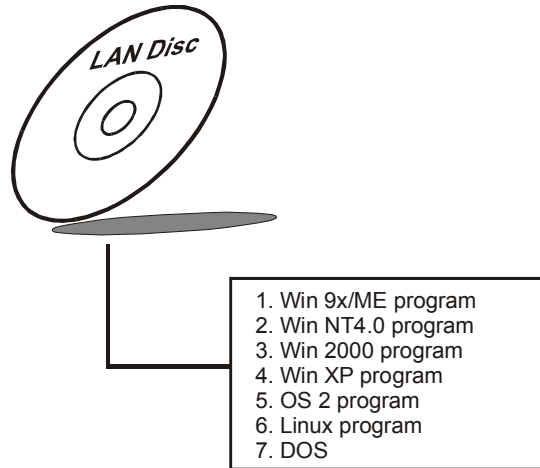
<p>FLASH MEMORY WRITER v7.XX (C) Award Software 1999 All Rights Reserved</p>
<p>For i815-ITE8712-6A69RP6DC-0      DATE: 06/08/2001 Flash Type – SST 49LF004A/3.3V File Name to Program: B40xxxxx.bin Checksum: XXXXX</p> <p>Reset System or Power off to accomplish update process!</p>
<p>F1: Reset F10: Exit</p>

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

## 3-4. LAN DRIVER UTILITY

### 3-4-1. Introduction

Prox-1640 Embedded Card is enhanced with dual LAN function that can support various network adapters. Installation programs for LAN drivers are listed as follows:



### 3-4-2. Installation of LAN Driver:

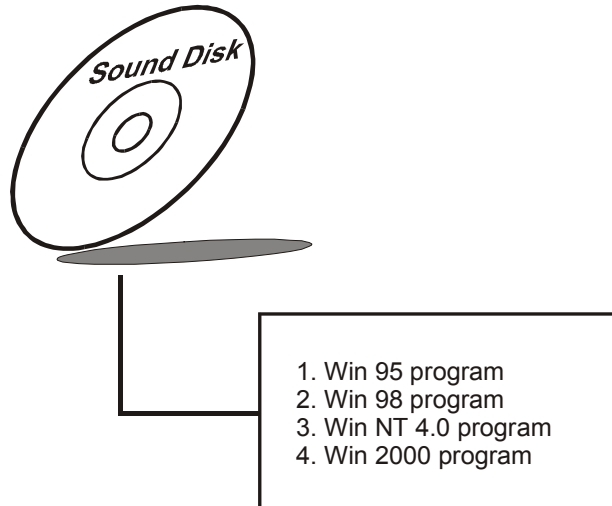
To install the LAN Driver, simply follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 9x/2000 system, go to the directory where LAN driver is located.
3. Click the **Setup.exe** file inside the Setup director for driver installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart in order for the changes to take effect.

## 3-5. SOUND DRIVER UTILITY

### 3-5-1. Introduction

The AD1881 sound function enhanced in this system is fully compatible with Windows 95/98, Windows NT 4.0, and Windows 2000. Below, you will find the content of the Sound driver :



### 3-5-2. Installation Procedure for Windows 9x/NT/2000

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

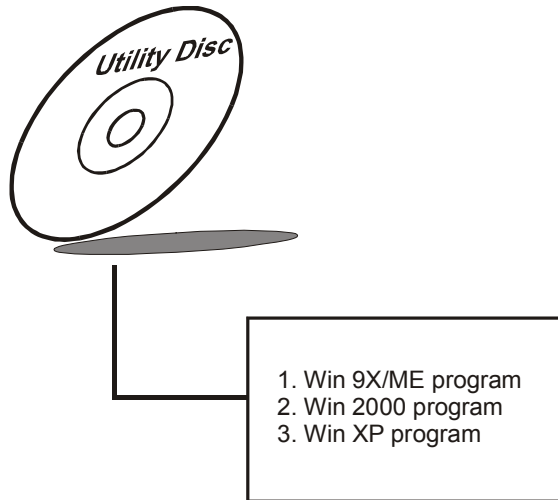


## 3-6. INTEL CHIPSET SOFTWARE INSTALLATION UTILITY

### 3-6-1. Introduction

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

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



**3-6-2. Installation of Utility for Windows 95/98/98SE/ME/2000/XP**

The Utility Pack is to be installed only for Windows 95, Windows 98/98SE, Windows ME, Windows 2000 and XP program. It should be installed right after the OS installation, kindly follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 95/98/98SE/ME/2000/XP system, go to the directory where Utility Disc is located.
3. Click **Infinst\_auto1.exe** file for utility installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart in order for the changes to take effect.

### 3-7. WATCHDOG TIMER CONFIGURATION

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

In Prox-1640 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
- Exit Without Saving

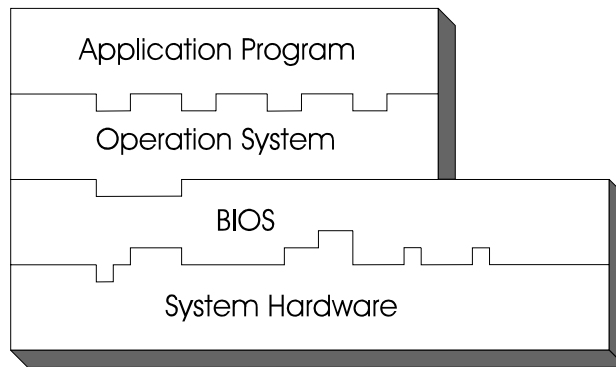
## **4-1. INTRODUCTION**

This chapter will show you the function of the BIOS in managing the features of your system. The Prox-1640 Socket 370 CPU Card is equipped with the BIOS for system chipset from Award Software Inc. This page briefly explains the function of the BIOS in managing the special features of your system. The following pages describe how to use the BIOS for system chipset Setup menu.

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

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

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



## 4-2. ENTERING SETUP

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

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

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

Phoenix – AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features	▶ Frequency/Voltage Control
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Advanced Chipset Features	Load Optimized Defaults
▶ Integrated Peripherals	Set Supervisor Password
▶ Power Management Setup	Set User Password
▶ PnP/PCI Configurations	Save & Exit Setup
▶ PC Health Status	Exit Without Saving
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type ....	

**Setup program initial screen**

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

### 4-3. THE STANDARD CMOS FEATURES

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

Phoenix – AwardBIOS CMOS Setup Utility  
Standard CMOS Features

Date (mm:dd:yy)	Mon, Feb 18 2002	Item Help
Time (hh:mm:ss)	11 : 0 : 7	
▶ IDE Primary Master	[Maxtor 4G160J8]	Menu Level ▶
▶ IDE Primary Slave	[None]	Change the day, month, year and century
▶ IDE Secondary Master	[None]	
▶ IDE Secondary Slave	[CD-540E]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	522240K	
Total Memory	523264K	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

**CMOS Setup screen**

In the above Setup Menu, use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

**Date:**

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

**Time:**

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

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

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

Phoenix – AwardBIOS CMOS Setup Utility  
 IDE Primary Master

IDE HDD Auto-Detection	[Press Enter]	Item Help
IDE Primary Master Access Mode	[Auto] [Auto]	Menu Level ►►
Capacity	13022 MB	To auto-detect the HDD's size, head...on this channel
Cylinder	25232	
Head	16	
Precomp	65535	
Landing Zone	25231	
Sector	63	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

**Table 1 – IDE Primary Master sub menu**

Descriptions on each item above are as follows:

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



3. Access Mode

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

4. Capacity

Disk Drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.

**DRIVE A AND DRIVE B:**

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

**VIDEO:**

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

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

**HALT ON:**

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

**BASE MEMORY:**

Displays the amount of conventional memory detected during boot up.

**EXTENDED MEMORY:**

Displays the amount of extended memory detected during boot up.

**TOTAL MEMORY:**

Displays the total memory available in the system.

**HARD DISK ATTRIBUTES:**

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

Award Hard Disk Type Table

### 4-4. THE ADVANCED BIOS FEATURES

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

Phoenix – AwardBIOS CMOS Setup Utility  
Advanced BIOS Features

Virus Warning	[Disabled]	Item Help
CPU Internal Cache	[Enabled]	
External Cache	[Enabled]	Menu Level ►
CPU L2 Cache ECC Checking	[Enabled]	
Quick Power On Self Test	[Enabled]	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
First Boot Device	[Floppy]	
Second Boot Device	[HDD-0]	
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Swap Floppy Drive	[Disabled]	
Boot Up Floppy Seek	[Enabled]	
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]	
HDD S.M.A.R.T. Capability	[Disabled]	
Report No FDD For WIN 95	[No]	
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 Menu

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 in the BIOS FEATURES SETUP program is given on the next few pages.

**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 :**

This item allows you to enable or disable CPU L2 Cache ECC checking.

**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 FLOPPY 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.

**TYPOMATIC 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.

**TYPOMATIC RATE (CHARS/SEC):**

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

**TYPOMATIC 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 or RAM on the system. You may choose OS2 or Non-OS2.

**REPORT NO FDD FOR WIN 95 :**

Select Yes to release IRQ6 when the system contains no floppy drive, for compatibility with Windows 95 logo certification. In the Integrated Peripherals screen, select Disabled for the Onboard FDC Controller field.

**4-5. ADVANCED CHIPSET FEATURES**

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

Phoenix – AwardBIOS CMOS Setup Utility  
Advanced Chipset Features

SDRAM CAS Latency Time	[Auto]	Item Help
SDRAM Cycle Time Tras/Trc	[Auto]	
SDRAM RAS-to-CAS Delay	[Auto]	Menu Level ►
SDRAM RAS Precharge Time	[Auto]	
System BIOS Cacheable	[Disabled]	
Video BIOS Cacheable	[Disabled]	
Memory Hole At 15M-16M	[Disabled]	
CPU Latency Timer	[Enabled]	
Delayed Transaction	[Enabled]	
AGP Graphics Aperture Size	[64M]	
Display Cache Frequency	[100 MHz]	
On-Chip Video Window Size	[64MB]	
* Onboard Display Cache Setting *		
CAS# Latency	[3]	
Paging Mode Control	[Open]	
RAS-to-CAS Override	[by CAS# LT]	
RAS# Timing	[Fast]	
RAS# Precharge Timing	[Fast]	
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.

**SDRAM CAS LATENCY TIME:**

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

**SDRAM CYCLE TIME TRAS/TRC:**

This item set the number of SCLKs for an access cycle.

**SDRAM RAS-TO-CAS DELAY:**

You can select RAS to CAS Delay time in HCLKs of 2/2 or 3/3. The system board designer should set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU.

**SDRAM RAS PRECHARGE TIME:**

Defines the length of time for Row Address Strobe is allowed to precharge.

**SYSTEM BIOS CACHEABLE:**

This item allows you to enable caching of the system BIOS ROM at F0000h-FFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

**VIDEO BIOS CACHEABLE:**

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

**MEMORY HOLE AT 15M-16M:**

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

**CPU LATENCY TIMER:**

When enabled this item, the CPU cycle will only be deferred after it has been held in a “Snoop Stall” for 31 clocks and another ADS# has arrived. When disabled, the CPU cycle will be deferred immediately after the GMCH receives another ADS#.

**DELAYED TRANSACTION:**

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

**AGP GRAPHIC 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.

**DISPLAY CACHE FREQUENCY:**

You can use this item to select the frequency of the display cache.

**POWER SUPPLY TYPE:**

This allows you to select the power supply type.

**ON-CHIP VIDEO WINDOW SIZE:**

Select the on-chip video window size for VGA drive use.

**CAS# LATENCY:**

Select the local memory clock periods.

**PAGING MODE CONTROL:**

Select the paging mode control.



**RAS-TO-CAS OVERRIDE:**

Select the display cache clock period control.

**RAS# TIMING:**

This item controls RAS# active to Protegra, and refresh to RAS# active delay (in local memory clocks).

**RAS# PRECHARGE TIMING:**

This item controls RAS# precharge (in local memory clocks).

**IO CHANNEL CHECK NMI:**

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

## 4-6. INTEGRATED PERIPHERALS

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

Phoenix – AwardBIOS CMOS Setup Utility  
Integrated Peripherals

On-Chip Primary PCI IDE	[Enabled]	Item Help
On-Chip Secondary PCI IDE	[Enabled]	
IDE Primary Master PIO	[Auto]	Menu Level ►
IDE Primary Slave PIO	[Auto]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	
IDE Primary Slave UDMA	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	
USB Controller	[Enabled]	
USB Keyboard Support	[Disabled]	
USB Mouse Support	[Disabled]	
Init Display First	[PCI Slot]	
AC97 Audio	[Auto]	
IDE HDD Block Mode	[Enabled]	
Onboard FDC Controller	[Enabled]	
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[Normal]	
x    UART Duplex Mode	Half	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
x    ECP Mode Use DMA	3	
PWRON After PWR-Fail	[Off]	
↑↓→←:Move   Enter: Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help F5: Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults		

### Integrated Peripherals Setup Screen

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

**ONCHIP PRIMARY PCI IDE:**

**ONCHIP SECONDARY PCI IDE:**

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

**IDE PRIMARY MASTER/SLAVE PIO:**

**IDE SECONDARY MASTER/SLAVE PIO:**

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

**IDE PRIMARY MASTER/SLAVE UDMA:**

**IDE SECONDARY MASTER/SLAVE UDMA:**

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

**USB CONTROLLER:**

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

**USB KEYBOARD SUPPORT:**

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

**USB MOUSE SUPPORT:**

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

**INIT DISPLAY FIRST:**

This item allows you to decide to active whether PCI Slot or on-chip VGA first. The choices are PCI Slot and Onboard.

**AC97 AUDIO:**

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

**IDE HDD BLOCK MODE:**

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

**ONBOARD FDC CONTROLLER:**

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

**ONBOARD SERIAL PORT 1:**

**ONBOARD SERIAL PORT 2:**

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

**UART MODE SELECT:**

Select an operating mode for the second serial port.

**UR2 DUPLEX MODE:**

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

**ONBOARD PARALLEL PORT:**

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

**PARALLEL PORT MODE:**

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

**ECP MODE USE DMA:**

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

**PWRON AFTER PWR-FAIL:**

This item allows you to select if you want to power on the system after power failure.

### 4-7. POWER MANAGEMENT SETUP

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

Phoenix – AwardBIOS CMOS Setup Utility  
Power Management Setup

ACPI Function	[Enabled]	Item Help
Power Management	[User Define]	
Video Off Method	[DPMS]	
Video Off In Suspend	[Yes]	Menu Level ►
MODEM Use IRQ	[NA]	
Suspend Mode	[Disabled]	
HDD Power Down	[Disabled]	
Soft-Off by PWR-BTTN	[Instant-Off]	
Wake-Up by PCI Card	[Disabled]	
Resume by Alarm	[Disabled]	
X Date (of Month) Alarm	0	
X Time (hh:mm:ss) Alarm	0 : 0 : 0	
** Reload Global Timer Events**		
Primary IDE 0	[Disabled]	
Primary IDE 1	[Disabled]	
Secondary IDE 0	[Disabled]	
Secondary IDE 1	[Disabled]	
FDD, COM, LPT Port	[Disabled]	
PCI PIRQ [A-D] #	[Disabled]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

#### Power Management Setup Screen

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

**ACPI FUNCTION:**

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

**ACPI SUSPEND TYPE:**

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

**POWER MANAGEMENT:**

This item allows the user to select the type or degree of power saving and is directly related to HDD Power Down, Doze Mode and Suspend Mode.

**VIDEO OFF METHOD:**

This category determines the manner in which the monitor is blanked.

V/H SYNC+BLANK	This selection will cause the system to turn off the vertical & horizontal synchronization ports and writes blanks to video buffer.
BLANK SCREEN	This selection only writes blanks to video buffer.
DPMS	Initial display power management signaling.

**VIDEO OFF IN SUSPEND:**

In suspending, this item allows you to select if you want to close the CRT under APM mode.

**SUSPEND TYPE:**

This item allows you to select the suspend type. Stop Grant means wake up by IRQ and PowerOn Suspend means wake up by ACPI wake up event.

**MODEM USE IRQ:**

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

**SUSPEND MODE:**

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

**HDD POWER DOWN:**

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

**SOFT-OFF BY PWR-BTTN:**

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

**WAKE-UP BY PCI CARD:**

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

**POWER ON BY RING:**

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

**USB KB WAKE-UP FROM S3:**

This item will enable you to wake-up the system USB keyboard when you shut down the computer in S3 mode.

**RESUME BY ALARM:**

When Enabled, you can set the date and time at which the RTC (Real Time Clock) alarm awakens the system from Suspend mode.

**PM EVENTS:**

PM events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as Enabled, even when the system is in a power down mode.

- (1) Primary IDE 0
- (2) Primary IDE 1
- (3) Secondary IDE 0
- (4) Secondary IDE 1
- (5) FDD, COM, LPT Port
- (6) PCI PIRQ[A-D]#

## 4-8. PNP/PCI CONFIGURATION

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

Phoenix – AwardBIOS CMOS Setup Utility  
PnP/PCI Configurations

PNP OS Installed	[No]	Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto (ESCD)]	Menu Level ►
x IRQ Resources	Press Enter	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
x DMA Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

### PNP/PCI Configuration Setup Screen

This section 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*, *DMA Resources* and *Memory Resources*. The choices are Auto (ESCD) and Manual.

**IRQ RESOURCES:**

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

**DMA RESOURCES:**

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

**PCI/VGA PALETTE SNOOP:**

Leave this field at disabled.

## 4-9. PC HEALTH STATUS

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

Phoenix – AwardBIOS CMOS Setup Utility  
PC Health Status

Shutdown Temperature	[Disabled]	Item Help	
Vcore	1.58V	Menu Level ►	
VTT	1.77V		
+3.3V	3.31V		
+5 V	4.97V		
+12V	11.96V		
-12V	(-)11.53V		
-5V	(-) 4.90V		
5VSB (V)	4.97V		
VBAT (V)	3.44V		
CPU Temperature	33°C		
CPU FAN1 Speed	4687 RPM		
CPU FAN2 Speed	0 RPM		
↑↓→←: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 setup menu allows you to select whether to choose between monitoring or ignoring the hardware monitoring function of your system.

#### SHUTDOWN TEMPERATURE:

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

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

This item shows you the voltage of +3.3V/+5V/+12V/-12V/-5V/5VSB.

#### VCORE:

This item shows you the current system voltage.

**CPU TEMPERATURE:**

This item shows you the current CPU temperature.

**CPUFAN1:**

**CPUFAN2:**

This item shows you the current CPUFAN speed.

**4-10. FREQUENCY/VOLTAGE CONTROL**

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

Phoenix – AwardBIOS CMOS Setup Utility  
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	[Enabled]	Item Help
Spread Spectrum	[Disabled]	
CPU Host/PCI Clock	[Default]	
CPU Clock Ratio	[X 3]	Menu Level ►

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

**Frequency / Voltage Control Setup Screen**

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

**AUTO DETECT DIMM/PCI CLK:**

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

**SPREAD SPECTRUM MODULATED:**

This item allows you to enable or disable the spread spectrum modulate.

**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 CLOCK 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

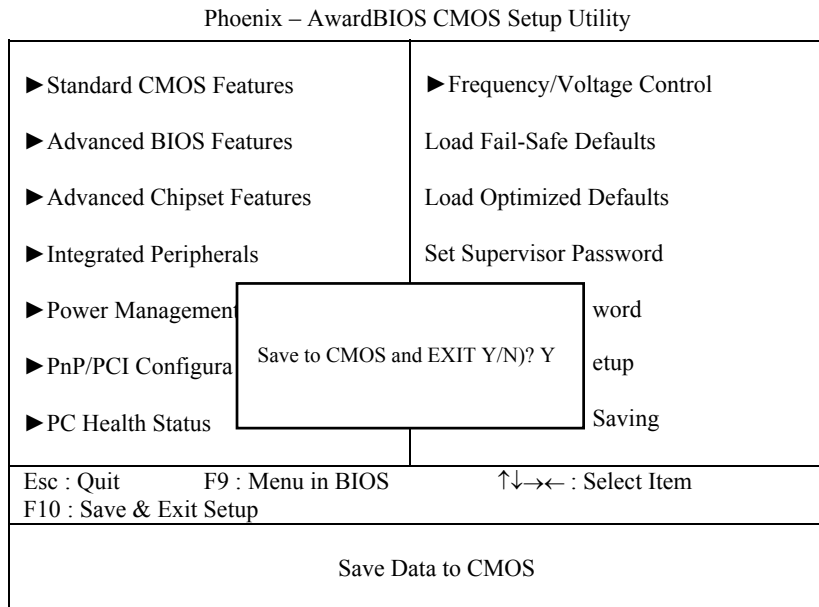
To disable the password, select this function (do not enter any key when you are prompt to enter a password), and press the <Enter> key and a message will appear at the center of the screen:

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

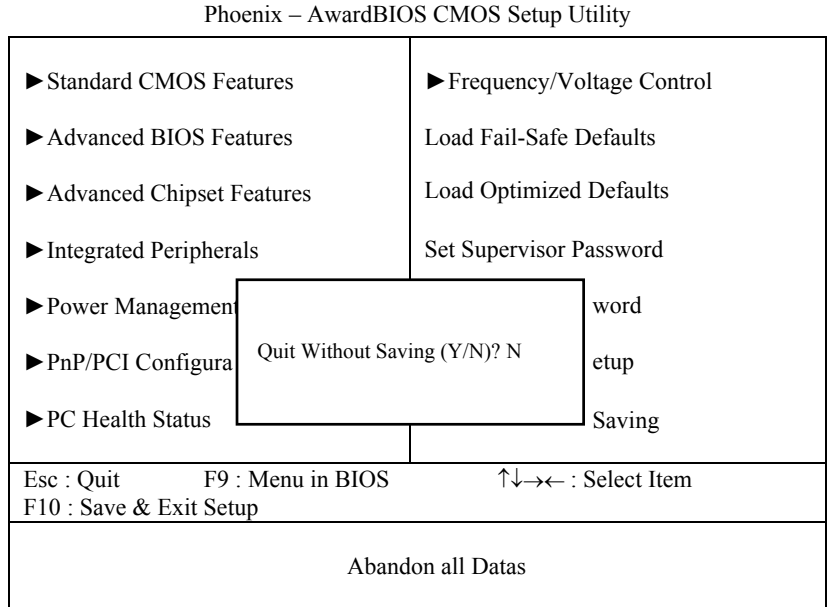
After you have completed adjusting all the settings as required, you must remember to save these setting into the CMOS RAM. To save the settings, select "SAVE & EXIT SETUP" and press <Enter>, a display will be shown as follows:



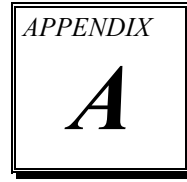
When you confirm that you wish to save the settings, your system will be automatically restarted and the changes you have made will be implemented. You may always call up the setup program at any time to adjust any of the individual items by pressing the <Del> key during boot up.

### 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:



# ***ADAPTER CARD***



This appendix explains the adapter card.

Section includes:

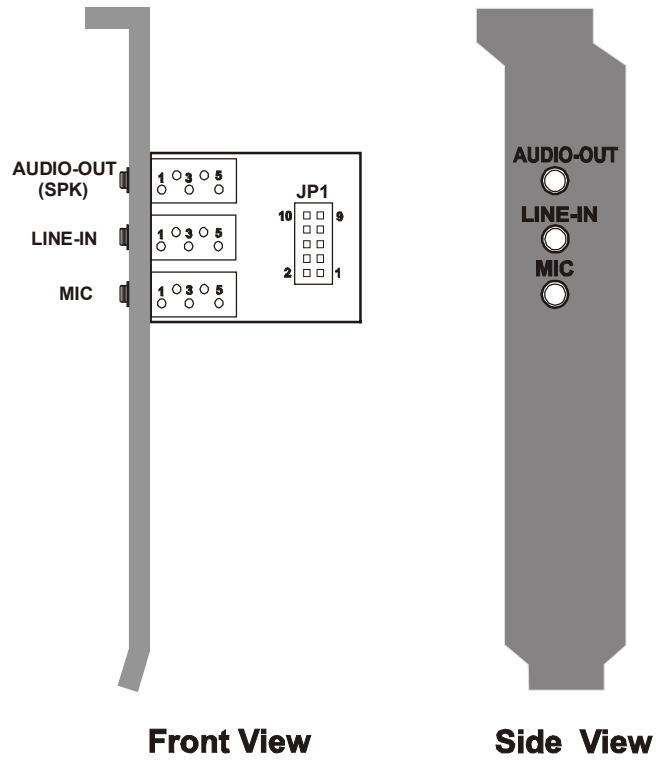
- W-Sound Adapter Card



## W-SOUND ADAPTER CARD

### Introduction:

You will also find W-Sound Adapter Card in our package. This card is designed as a converter of sound connector found in our system board. Below, you will find an illustration of our W-Sound Adapter Card:



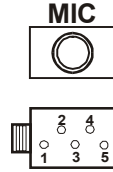
**Connector's Pin Assignment:**

You will find the following connectors on the W-Sound Adapter Card, pin assignment are listed as follows:

**MIC : Microphone Connector**

The pin assignments are as follows :

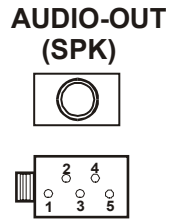
PIN	ASSIGNMENT
1	GND
2	MIC-IN
3	NC
4	MIC VDD
5	GND



**Audio-Out (SPK) : Speaker Connector**

The pin assignments are as follows :

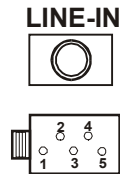
PIN	ASSIGNMENT
1	GND
2	SPK-L
3	NC
4	SPK-R
5	NC



**LINE-IN : Line Input Connector**

The pin assignments are as follows :

PIN	ASSIGNMENT
1	GND
2	LINE-R
3	GND
4	LINE-L
5	GND

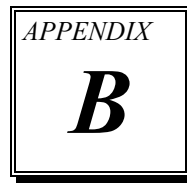


**Instruction for Assembling the W-Sound:**

The JP1 found in our W-Sound Adapter Card is used to connect the Sound Connector. To assemble, follow the following instruction:

- (1) Turn-off the computer system
- (2) Check the Sound cable enclosed with the package.
- (3) Connect one end of the cable to the Sound connector (CN1 found in Prox-1640 board), and the other end to the JP1 of the W-sound Adapter Card.

# ***EXPANSION BUS***



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.

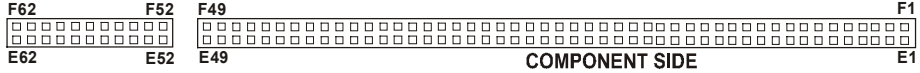
The pin assignments are as follows :

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.

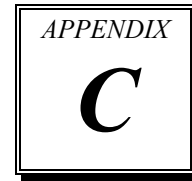
The pin assignments are as follows :



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***



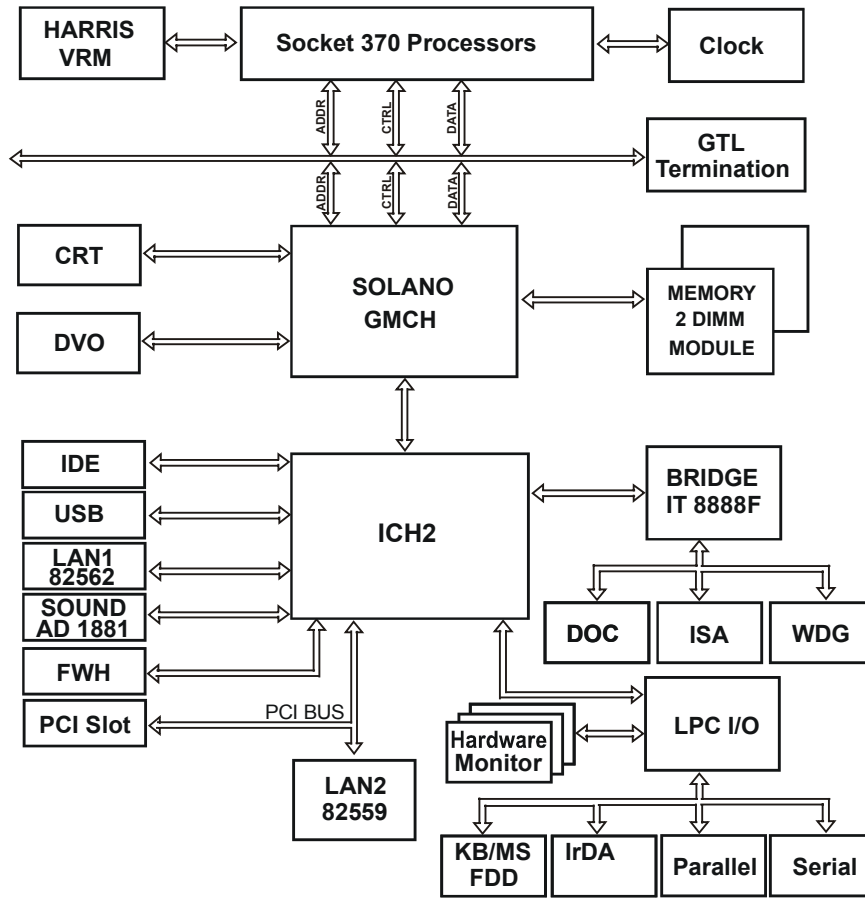
This section introduce you the maps concisely.

Section includes:

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



**BLOCK DIAGRAM**



**INTERRUPT MAP**

<b>IRQ</b>	<b>ASSIGNMENT</b>
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 :**

<b>Timer Channel</b>	<b>Assignment</b>
0	System timer interrupt
1	DRAM Refresh request
2	Speaker tone generator

**DMA Channel Map :**

<b>DMA Channel</b>	<b>Assignment</b>
0	Available
1	ECP / Available
2	Floppy
3	ECP / Available
4	Cascade
5	Available
6	Available
7	Available

## **I/O & MEMORY MAP**

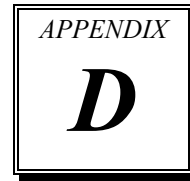
### **Memory Map :**

<b>MEMORY MAP</b>	<b>ASSIGNMENT</b>
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
00F0000-00FFFFFF	System BIOS ROM
0100000-FFFFFFF	System extension memory

### **I/O Map :**

<b>I/O MAP</b>	<b>ASSIGNMENT</b>
000-01F	DMA controller (Master)
020-021	Interrupt controller (Master)
022-023	Chipset controller registers I/O ports.
040-05F	Timer control registers.
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***



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-volatile 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 mismatch.

**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-FFFFFFH 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 block 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 (Cyrilx 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.



<b>34h</b>	:	Reserved
<b>35h</b>	:	Reserved
<b>36h</b>	:	Reserved
<b>37h</b>	:	Reserved
<b>38h</b>	:	Reserved
<b>39h</b>	:	Reserved
<b>3Ah</b>	:	Reserved
<b>3Bh</b>	:	Reserved
<b>3Ch</b>	:	Test 8254
<b>3Dh</b>	:	Reserved
<b>3Eh</b>	:	Test 8259 interrupt mask bits for channel 1.
<b>3Fh</b>	:	Reserved
<b>40h</b>	:	Test 8259 interrupt mask bits for channel 2.
<b>41h</b>	:	Reserved
<b>42h</b>	:	Reserved
<b>43h</b>	:	Test 8259 functionality.
<b>44h</b>	:	Reserved
<b>45h</b>	:	Reserved
<b>46h</b>	:	Reserved
<b>47h</b>	:	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 font 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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