USER'S MANUAL

ProX-1520

**NS-Geode Mini Board
With VGA / Sound / LAN**

Prox-1520 M1

ProX-1520 NS-Geode Mini Board
With VGA / SOUND / LAN

OPERATION MANUAL

COPYRIGHT NOTICE

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

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TABLE OF CONTENTS

APPENDIX C TECHNICAL SUMMARY

APPENDIX D TROUBLE SHOOTING

INTRODUCTION

This chapter gives you the information for Prox-1520. It also outlines the System specifications.

Section includes:

● About This Manual

● System Specifications

● Safety precautions

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

1-1. ABOUT THIS MANUAL

Thank you for purchasing our Prox-1520 NS-Geode™ GX1 Low Power Miniboard with VGA/Sound/LAN, which is fully PC/AT compatible. The Prox-1520 provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and setup 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 of the system. Final page in this chapter will give you some ideas on how to avoid damaging your Embedded Card.

Chapter 2 Hardware Configuration

This chapter outlines the component locations and their functions. In the end of this chapter, you will know 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 driver, LAN driver, Sound driver and how to update BIOS.   It also describes the Watchdog timer configuration.

Chapter 4 Award BIOS Setup

This chapter shows 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 PC104 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 some solutions.

1-2. SYSTEM SPECIFICATION

● **CPU :**
   Built-in NS-Geode™ GX1-300 MHz
   (Low-Power Processor)
   2.0V CPU Voltage.

● **MEMORY :**
   One 144-pin 64 bit SO-DIMM socket.

● **CHIPSET :**
   NS Geode™ CS5530A

● **CACHE :**
   Built-in CPU.

● **SUPER I/O :**
   Winbond 83977F.

● **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 256KB 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 additional 5-pin external keyboard connector.

● **BUS SUPPORT :**
   Internal PCI Bus for LAN and SOUND
   External PC104 Bus.

● **LAN INTERFACE :**
   Realtek RTL8139 PCI Fast Ethernet.
   Support 10/100 Mbps.
   RJ-45 jack on board

● **SOUND INTERFACE :**
   Analog Device AD1881 AC97 Codec.
   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: MIC, Line-In, and Line-Out through W-Sound Adapter.
         CD Audio-In onboard.

● **VGA DISPLAY :**
   Built-in NS Geode CS5530, up to 4MB system shared memory.
   Support 18-bit TFT LCD panel with resolution up to 1024 x 768 x 16bpp.
   Support CRT Monitor with resolution up to 1280 x 1024 x 8bpp.
   Support simultaneous display of CRT & LCD flat panel.
   Interface: 15-pin CRT Connector and
         41-pin LCD connector.

● **WATCHDOG :**
   I / O port 0443H to Enable watchdog.
   I / O port 0441H to Disable watchdog.
   Time-out timing select 0 / 8 / 16 / 24 / 32 / 40 / 48 / 56 / 64 / 72 / 80 / 88 / 96 /
   104 / 112 / 120 sec ±25%.

● **IDE INTERFACE :**
   One IDE port, support Ultra DMA-33.
   Support up to two Enhanced IDE devices.

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

● **SSD SOCKET :**
   A 32-pin SSD socket on-board.
   Supports up to 144MB Disk-on-chip.

● **USB CONNECTOR :**
Universal Serial Bus Connector on-board.
Supports up to two USB ports.

● **IRDA :**
5-pin IrDA connector.
Support IrDA v1.0 SIR protocol.

● **SERIAL PORT :**
Two high speed 16550 Compatible UARTs with Send / Receive 16 Byte
FIFOs.   COM1: RS-232; COM2: RS-232/422/485
Programmable Baud Rate Generator.

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

● **PC-104 BUS EXPANSION & SPEED :**
ISA   8MHz
PC-104   8MHz
PCI   33MHz
USB   12Mbit/sec

● **GREEN FUNCTION :**
Software supported by BIOS setup.
Hardware supported by switch control.

● **LED INDICATOR :**
System power.
Hard Disk access.
LAN Led indicator.

● **DMA CONTROLLER :**
82C37 x 2

● **DMA CHANNELS :**
7

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

● **INTERRUPT LEVELS :**
   15

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

● **SYSTEM POWER REQUIREMENT :**
   DC Voltage: +5V, minimum +4.75V, maximum +5.25V.
   DC Ampere: 3A.

● **BOARD DIMENSION :**
   102mm x 145mm

● **BOARD NET WEIGHT :**
   170 grams

1-3. SAFETY PRECAUTIONS

Follow the messages below to protect your systems and yourself from damages:

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

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

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

HARDWARE CONFIGURATION

** QUICK START **

Helpful information details you the jumper & connector settings, and component's location.

Sections include:

● Jumper & Connector Quick Reference Table

● Component's Location

● Configuration and Jumper settings

● Connector Pin Assignments

2-1 JUMPER & CONNECTOR QUICK REFERENCE TABLE

COM Port Connector COM1, COM2
RS232/422/485 (COM2) Selection JP1
Keyboard or PS/2 Mouse Connector ..……...…… PS1
Keyboard or PS/2 Mouse Selection ……............ JP6
External Keyboard Connector EXKB1
Reset Connector RST1
Hard Disk Drive LED Connector HDL1
Floppy Disk Drive Connector FDD1
Hard Disk Drive Connector IDE1
LAN Connector ………………………………….. LAN1
External Speaker Connector J7
VGA CRT Connector VGA1
LCD Connector ……………………………………. LCD1
Panel Power Connector ……………….….……... J3
Panel VCC Selection ……………...……………… JP3
Universal Serial Bus Connector …………………. USB1
IrDA Connector …………………………………. IR1
Power LED & KeyLock Connector KBL1
RTC Function Selection …………………………. JP5
Reset/Clear Watchdog Selection ………………... JP7
Power Connector J6
ATX Power Button …………………………….… J5
Printer Connector PRT1
Solid-State Disk Socket .... SSD
SSD Memory Mapping Selection JP4
Sound Connector …………………………………. SOUND1
CD-In Connector …………………………………. J1
AT/ATX Function Selection ……………………... JP2
ATX Power Signal Connector …………………… J2
Memory Installation .... SODIMM

2-2 COMPONENT LOCATIONS
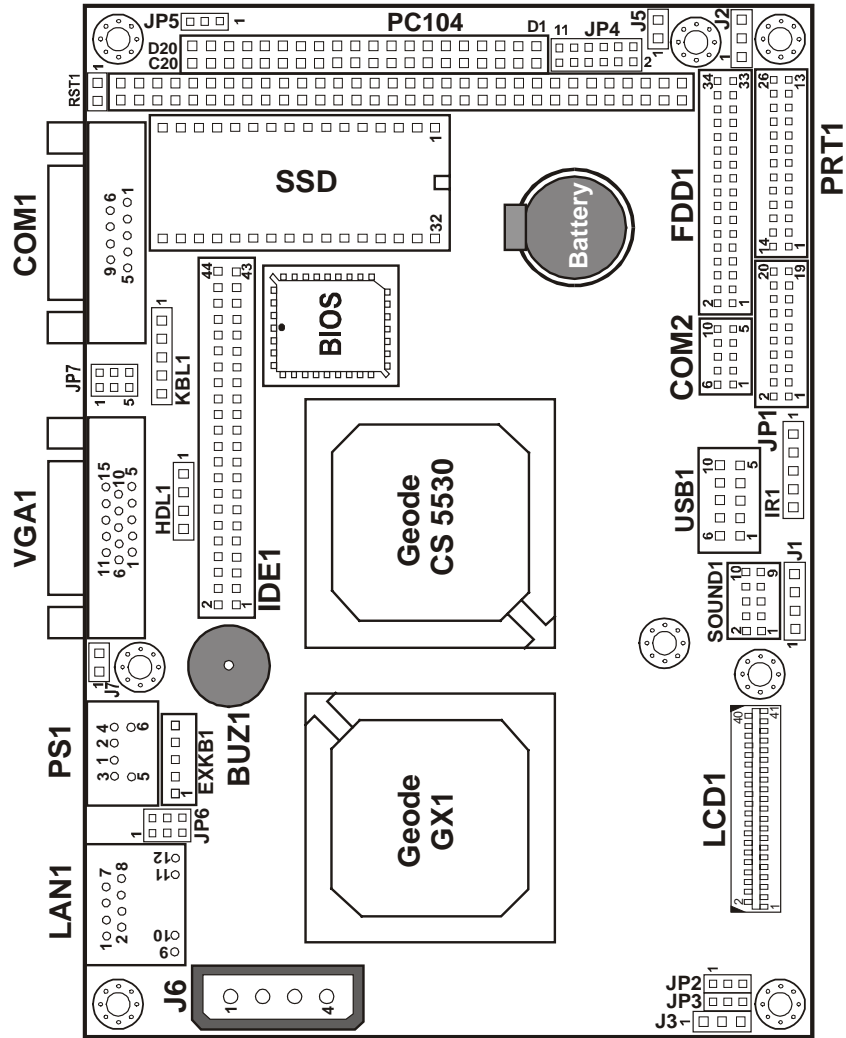
Prox-1520 Connector, Jumper, and Component locations

2-3 HOW TO SET THE JUMPERS

You can configure your board by setting the jumpers. A jumper is consists of two or three metal pins with a plastic base mounted on the card. By using a small plastic "cap" (with a metal contact inside), you may connect the pins. So you can set up your hardware configuration by "opening" or "closing" the pins.

The jumper can be combined into sets, which called the 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.

JUMPERS AND CAPS

2 Pin Jumper   3 Pin Jumper   **Jumper Block**   **Jumper Cap**
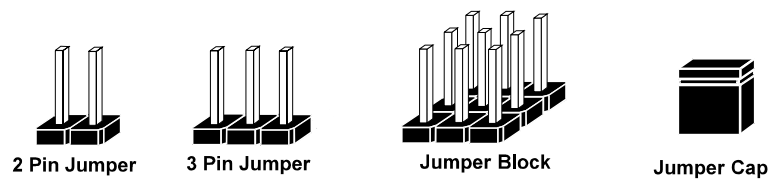
If a jumper has three pins, for example: labelled PIN1, PIN2, and PIN3. You can connect PIN1 & PIN2 to create one setting and shorting. Or you may also connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagram looks like and what they represent.

JUMPER DIAGRAMS

Jumper Cap
looks like this
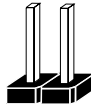
2 pin Jumper
looks like this
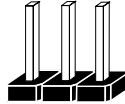
3 pin Jumper
looks like this
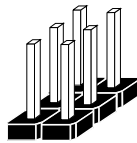
Jumper Block
looks like this
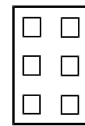
JUMPER SETTINGS

2 pin Jumper close(enabled)
looks like this

1
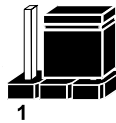
3 pin Jumper
2-3 pin close(enabled)
looks like this

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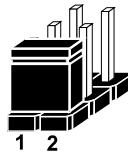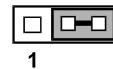
Jumper Block
1-2 pin close(enabled)
looks like this

1 2
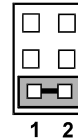
2-4. COM PORT CONNECTOR

COM1 : COM1 Connector, DB9 male connector
The pin assignment are as follows :

PIN	ASSIGNMENT
1	DCD
2	TIN
3	ROUT
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI
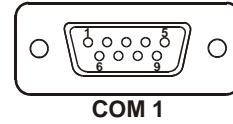
COM 1

COM2 : COM2 Connector
The pin assignments are as follows :

PIN	ASSIGNMENT		
	RS-232	RS-422	RS-485
1	DCD	TX-	TX-
2	TIN	TX+	TX+
3	ROUT	RX+	RX+
4	DTR	RX-	RX-
5	GND	GND	GND
6	DSR	RTS-	NC
7	RTS	RTS+	NC
8	CTS	CTS+	NC
9	RI	CTS-	NC
10	NC	NC	NC
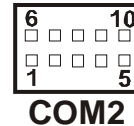
COM2
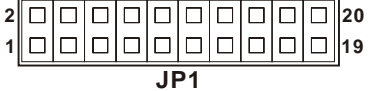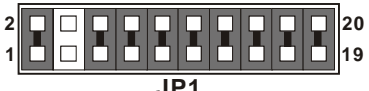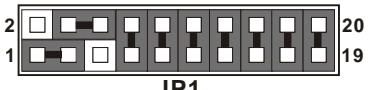
2-5. RS232/422/485 (COM2) SELECTION

JP1 : RS-232/422/485 Selection
COM1 is fixed for RS-232 function only.
COM2 is selectable for RS-232, 422, 485 function.
The jumper settings are as follows :

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

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

2-6. KEYBOARD OR PS/2 MOUSE CONNECTOR

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

PIN	ASSIGNMENT	
	Keyboard	**PS/2 Mouse**
1	KBDATA	MSDATA
2	MSDATA	MSDATA
3	GND	GND
4	VCC	VCC
5	KBCLK	MSCLK
6	MSCLK	MSCLK
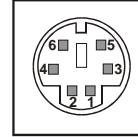
PS1

2-7. KEYBOARD OR PS/2 MOUSE SELECTION

JP6 : Keyboard or PS/2 Mouse Selection.
If User select to use Y-Cable, please set the jumper same as AT Keyboard.
The jumper settings are as follows:

DEVICE TYPE	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
AT KEYBOARD	3-5 4-6	**JP6**
PS/2 MOUSE	1-3 2-4	**JP6**

*** Manufactory default -- AT Keyboard

2-8. EXTERNAL KEYBOARD CONNECTOR

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

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

EXKB1

2-9. RESET CONNECTOR

RST1 : Reset Connector
The pin assignment is as follows:

PIN	ASSIGNMENT
1	RESET
2	GND

RST1

2-10. HARD DISK DRIVE LED CONNECTOR

HDL1 : Hard Disk Driver LED Connector
The pin assignments is as follows:

PIN	ASSIGNMENT
1	VCC
2	HDD Active Signal
3	HDD Active Signal
4	HDD Active Signal

HDL1

2-11. 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 attaches to the FDD on the board,
and the other side is attaches to two FDDs.
The pin assignments are as follows :
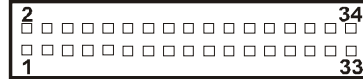
FDD1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	RPM
3	GND	4	NC
5	GND	6	DS1J
7	GND	8	INDEXJ
9	GND	10	MTR0J
11	GND	12	DR1J
13	GND	14	DR0J#
15	GND	16	MTR1J
17	GND	18	DIR
19	GND	20	STEPJ
21	GND	22	WDATAJ
23	GND	24	WGATEJ
25	GND	26	TRAK0
27	GND	28	WRTPRTJ
29	NC	30	RDATA
31	GND	32	HDSEL
33	NC	34	DSKCHG

2-12. HARD DISK DRIVE CONNECTOR

IDE1: Hard Disk Drive Connector
The pin assignments are as follows:
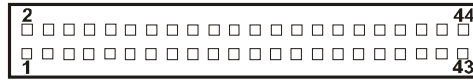
IDE1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDE RST	2	GND
3	PD7	4	PD8
5	PD6	6	PD9
7	PD5	8	PD10
9	PD4	10	PD11
11	PD3	12	PD12
13	PD2	14	PD13
15	PD1	16	PD14
17	PD0	18	PD15
19	GND	20	NC
21	PDREQR	22	GND
23	PIOWJ	24	GND
25	PIORJ	26	GND
27	PIORDYR	28	PCSEL
29	PDACKJ	30	GND
31	PINTR	32	NC
33	PA1	34	NC
35	PA0	36	PA2
37	PCS0J	38	PCS1J
39	PLED	40	GND
41	VCC	42	VCC
43	GND	44	NC

2-13. LAN CONNECTOR

LAN1: LAN Connector
You will find two LAN LED indicators on LAN connector, the green LED is used to detect the 100Mbps speed, while the yellow LED is used to detect "LINK" and "ACTIVE" signal.
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	Pull Hi
10	LED – Green
11	Pull Hi
12	LED – Yellow
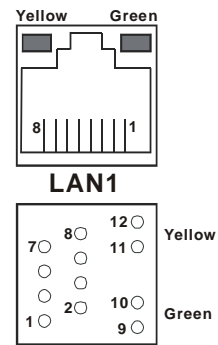
2-14. EXTERNAL SPEAKER CONNECTOR

J7 : External Speaker Connector
The pin assignments is as follows:

PIN	ASSIGNMENT
1	VCC
2	ACTIVE SIGNAL
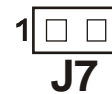
2-15. VGA CRT CONNECTOR

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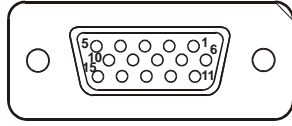
VGA1

PIN	ASSIGNMENT
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	VCCDDC
10	GND
11	NC
12	DDCSDA
13	HSYNC
14	VSYNC
15	DDCSCLB

2-16. LCD CONNECTOR

LCD1: LCD Connector
The connector LCD is a 41-pin, dual-in-line header used for LCD display.
The pin assignments are as follows:
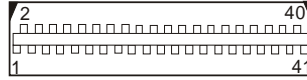
LCD1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	FP$D14	2	GND
3	GND	4	VCC
5	FP$D15	6	GND
7	GND	8	GND
9	FP$D16	10	GND
11	FP$D12	12	GND
13	FP$D17	14	FP$D0
15	FP$D13	16	FP$D6
17	VCC	18	FP$D1
19	VSYNC	20	FP$D7
21	DISPEN	22	FP$D2
23	HSYNC	24	FP$D8
25	CLK$FP	26	FP$D3
27	VCC3	28	FP$D9
29	VCC3	30	FP$D4
31	FP$BKLEN	32	FP$D10
33	VDDSAFE	34	FP$D5
35	FP$VDDEN	36	FP$D11
37	GND	38	+12VSAFE
39	GND	40	+12VSAFE
41	NC		

2-17. PANEL POWER CONNECTOR

J3 : Panel Power Connector
The pin assignments is as follows:

PIN	ASSIGNMENT
1	+12V SAFE
2	GND
3	VDD SAFE (+5V/3.3V)

1 □
□
□
J3

&Note: Before using this connector, make sure that
you set the JP3 jumper at the same time. Pin
#3 can be +5V or +3.3V depending on the
jumper set on "Panel VCC Selection".

2-18. PANEL VDD SELECTION

JP3 : Panel VDD Selection
The pin assignments is as follows:

SELECTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
VDD +5V	1-2	1 ▤ ▤ □ **JP3**
VDD +3.3V	2-3	1 □ ▤ ▤ **JP3**

2-19. UNIVERSAL SERIAL BUS CONNECTOR

USB1: Universal Serial Bus Connector
This connector can connect up to two USB port.
The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC
2	DATA0–
3	DATA0+
4	GND
5	GND
6	VCC
7	DATA1–
8	DATA1+
9	GND
10	GND
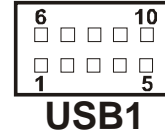
2-20. IRDA CONNECTOR

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

PIN	ASSIGNMENT
1	VCC
2	NC
3	IRRXD
4	GND
5	IRTXD

2-21. POWER LED & KEYLOCK CONNECTOR

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

PIN	ASSIGNMENT
1	POWER LED
2	NC
3	GROUND
4	KEYLOCK
5	GROUND

□ □ □ □ □ **1**
KBL1

2-22. RTC FUNCTION SELECTION

JP5 : RTC Function Selection
The selections are as follows:
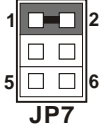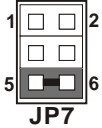
FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
NORMAL	1-2	**1** **JP5**
CLEAR RTC	2-3	**1** **JP5**

***Manufacturing Default is set as Normal.

2-23. RESET/CLEAR WATCHDOG SELECTION

JP7 : Reset/Clear Watchdog Selection
The selections are as follows:

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

***Manufacturing Default is set as Reset.

☺ To Clear Watchdog, user should short the "Clear Watchdog" pin via push button.

## 2-24. POWER CONNECTOR

J6 : Power Connector
The pin assignments is as follows:

PIN	ASSIGNMENT
1	+12V
2	GND
3	GND
4	+5V

J6

2-25. ATX POWER BUTTON

J5 : ATX Power Button
The pin assignments are as follows:

PIN	ASSIGNMENT
1	PWR BTN
2	GROUND

J5

2-26. PRINTER CONNECTOR

PRT1 : 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:
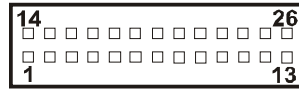
PRT1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STB	14	AFD
2	PD0	15	ERROR
3	PD1	16	INIT
4	PD2	17	SLIN
5	PD3	18	GND
6	PD4	19	GND
7	PD5	20	GND
8	PD6	21	GND
9	PD7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	NC

2-27. SOLID-STATE DISK SOCKET

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

```
16                    1
┌─────────────────────┐
│ □□□□□□□□□□□□□□□□    │
│                     │
│      SSD         □  │
│                     │
│ □□□□□□□□□□□□□□□□    │
└─────────────────────┘
17                   32
```
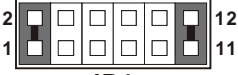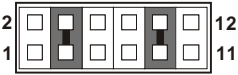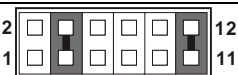
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	17	SD3
2	NC	18	SD4
3	NC	19	SD5
4	SA12	20	SD6
5	SA7	21	SD7
6	SA6	22	CE
7	SA5	23	SA10
8	SA4	24	OE
9	SA3	25	SA11
10	SA2	26	SA9
11	SA1	27	SA8
12	SA0	28	SA14
13	SD0	29	SA13
14	SD1	30	NC
15	SD2	31	WE
16	GND	32	VCC

2-28. SSD MEMORY MAPPING SELECTION

JP4 : SSD Memory Mapping Selection.
A 32-pin SSD socket supports an SSD up to 144MB. This PnP flash ROM SSD can be installed as one of user's hard disks. And if set as Drive C, it can be used to boot up the computer with MS-DOS installed.
The SSD Memory Mapping selection are listed as follows :

SSD Memory Map	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	

***Manufactory default --- CC000h-CDFFFh

2-29. SOUND CONNECTOR

SOUND1 : Sound Connector
This connector is used to connect the microphone, line-in, and line-out
through our adapter card.   The pin assignments are as follows:

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

SOUND1
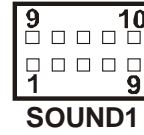
✍ Please refer our Appendix A for more information about installation.

2-30. CD AUDIO-IN CONNECTOR

J1 : CD Audio-in Connector
The pin assignments are as follows:
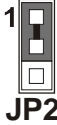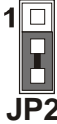
PIN	ASSIGNMENT
1	AUXAL
2	GND
3	GND
4	AUXAR

J1
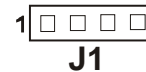
2-31. AT/ATX FUNCTION SELECTION

JP2 : AT/ATX Function Selection
The selections are as follows:

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
AT	1-2	**1** ... **JP2**
ATX	2-3	**1** ... **JP2**

***Manufacturing Default is set as AT.

2-32. ATX POWER SIGNAL CONNECTOR

J2 : ATX Power Signal Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	PS_ON
2	GND
3	+5VSB

1 □ □ □ **J2**
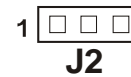
2-33. MEMORY INSTALLATION

Prox-1520 contains one 144-pin SO-DIMM.

DRAM BANK CONFIGURATION

DIMM1	TOTAL MEMORY
32M	32MB
64M	64MB
128M	128MB

SOFTWARE UTILITIES

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.

Sections include:

● VGA Driver Utility

● Flash BIOS Update

● LAN Driver Utility

● Sound Driver Utility

● Watchdog Timer Configuration

3-1. INTRODUCTION

Enclosed with our Prox-1520 package is our driver utility, which may comes in a form of a CD ROM disc or floppy diskettes.   For CD ROM disc user, you will only need some of the files contained in the CD ROM disc, please kindly refer to the following chart:

File name (Assume that CD ROM drive is D:)	Purpose
D:\VGA\GX1\	For VGA driver installation
D:\Flash\V7.96 or V7.72	For BIOS update
D:\Lan\RTL8139	For LAN Driver installation
D:\Sound\	For Sound Driver installation
D:\GX1\Utility	For PCI Bridge Utility

3-2. VGA DRIVER UTILITY

The VGA interface embedded with our Prox-1520 can support a wide range of display mode, such as SVGA, STN, TFT....etc. You can display CRT and LCD Panel simultaneously on this board, but make sure that the modes for CRT and LCD Panel are the same. If not, only one of them can be displayed.

VGA Disk

1. Awdflash 7.XX program
2. Win NT program
3. Win 98 program
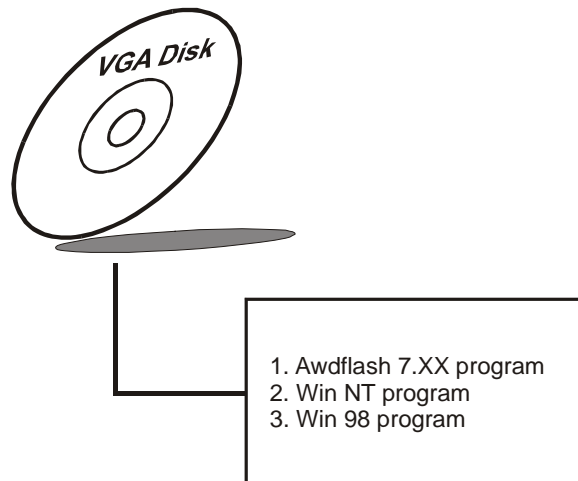
3-2-1. Installation of VGA Driver

1. Install VGA driver to Windows NT 4.0
    (1). To install VGA drivers to Windows 4.0 is as you normally would. Click START, then SETTINGS, then CONTROL PANEL of the operating system.
    (2). Select the DISPLAY icon to start the DISPLAY PROPERTIES window, then choose the SETTING tab, then DISPLAY TYPE.
    (3). In the CHANGE DISPLAY TYPE window, click on the CHANGE button in the ADAPTER TYPE, this will bring up the SELECT DEVICE window.
    (4). In the CHANGE DISPLAY window, click on Have Disk. Follow the instructions appearing on the screen until you complete the whole installation.
    (5). Once installation is completed, the system must be shut down and restarted for the new drivers to take effect.

2. Install VGA driver to Windows 98
    (1). Click MY COMPUTER, then CONTROL PANEL of the operating system.
    (2). Select SYSTEM icon to bring up the SYSTEM PROPERTIES window.
    (3). Select DEVICE MANAGER, then look for STANDARD PCI GRAPHIC ADAPTER (VGA), which is found under the DISPLAY ADAPTERS.
    (4). Double click the STANDARD PCI GRAPHIC ADAPTER (VGA) icon to bring up the STANDARD PCI GRAPHIC ADAPTER (VGA) PROPERTIES window, Select DRIVER, and then UPDATE DRIVER.
    (5). Upon selecting the UPDATE DRIVER, the UPDATE DEVICE DRIVER WIZARD window will show up.
    (6). Select the pathname where the driver is located and follow the remaining instructions appearing on the screen.
    (7). Once installation is completed, the system must be shut down and restarted for the new drivers to take effect.

3-3. FLASH BIOS UPDATE

3-3-1. System BIOS Update:

Users of Prox-1520 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-1520 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 file for LCD panel display. Both file must be provided by the vendor or manufacturer. When you get these two files ready, follow the following steps for updating your VGA BIOS:

1. Install "Awdflash.exe" from Utility Disk to Drive C.
2. Insert the VGA BIOS file you have obtained from the vendor.
3. Type the path to Awdflash.exe and execute the VGA BIOS update with file F20xxxxx.bin
   C:\UTIL\AWDFLASH>AWDFLASH   F20xxxxx.bin
4. The screen will display the table below:

```
┌─────────────────────────────────────────────────────────┐
│              FLASH MEMORY WRITER v7.XX                   │
│        (C) Award Software 1999 All Rights Reserved      │
│                                                          │
│   For GXm-Cx5530-2A434P69C-0        DATE:   04/29/2002  │
│            Flash Type:   MXIC 29F002T/5V                │
│          File Name to Program:   F20xxxxx.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 GXm-Cx5530-2A434P69C-0        DATE:   04/29/2002│
│            Flash Type:   MXIC 29F002T/5V              │
│        File Name to Program:   F20xxxxx.bin           │
│              Checksum:   XXXXX                         │
│                                                       │
│                                                       │
├─────────────────────────────────────────────────────┤
│  Error Message :    Are You Sure To Program (Y/N)     │
└─────────────────────────────────────────────────────┘
```

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

```
┌─────────────────────────────────────────────────────┐
│                                                       │
│            FLASH MEMORY WRITER v7.XX                  │
│        (C) Award Software 1999 All Rights Reserved    │
│                                                       │
├─────────────────────────────────────────────────────┤
│   For GXm-Cx5530-2A434P69C-0        DATE:   04/29/2002│
│            Flash Type:   MXIC 29F002T/5V              │
│        File Name to Program:   F20xxxxx.bin           │
│              Checksum:   XXXXX                         │
│                                                       │
│              Reset System or Power off to             │
│               accomplish update process!              │
├─────────────────────────────────────────────────────┤
│  F1: Reset    F10: Exit                                │
└─────────────────────────────────────────────────────┘
```

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

3-4. LAN DRIVER UTILITY

3-4-1. Introduction

Prox-1520 Embedded board is enhanced with LAN function can support various network adapters.   Installation programs for LAN drivers are listed as follows:


```
1. Linux
2. NDIS
3. SCO Unix
4. Win 95/98/2000 program
5. WFW 3.11 program
6. Win NT 3.1program
7. MSLAN
8. DMI
9. WIN DIAG
10. Netware
```
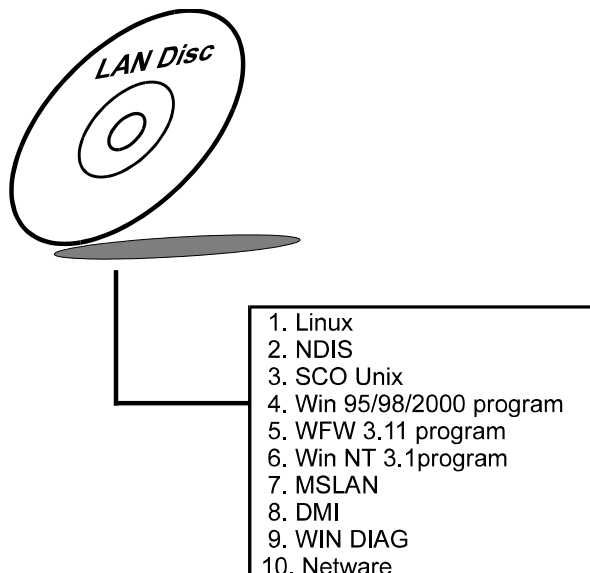
3-4-2. Installing Procedure on Microsoft Windows 95

Executing Windows 95, it will auto-detect your system configuration and find the adapter hardware.

1. Insert the LAN Driver disk into Drive A or CD ROM drive and specify the setup file pathname A:\.
2. Windows 95 will appear some messages to insert Windows 95 system disk to complete setup.
3. Windows 95 will finish the other installation procedure automatically, then restart the system.

3-4-3. Installing Procedure on Microsoft Windows NT

1. In the Main group to NT, select the "Control Panel" icon.
2. In the Control Panel window, choose the "Network" icon.
3. In the Network Settings dialog box, choose the "Add adapter" button. The Add Network Adapter dialog box appears.
4. In the list of network cards, select "<Other> requires disk from manufacturer", and then press <Enter> button.
5. Insert the LAN Driver disk in Drive A, and key-in A:\ (pathname) where the setup file OEMSETUP.INF is located, and then choose OK button.
6. The screen will appear "Select Line Speed" dialog box, which is provided by RTL8139.SYS driver. The default value is "auto" so that the line speed can be auto detected as 10Mb or 100Mb, while the RTL8139.SYS is loading.
7. The screen will appear "Input Ethernet ID" dialog box, which is provided by RTL8139.SYS driver.   This option is only required when you have more than one RTL8139 PCI Fast Ethernet adapters on this computer.   Select "SKIP" if only one adapter is installed on this computer.
8. "Bus Location" display in next screen.   If your system contains more than one hardware bus, please select the Bus Type and Bus number on which your network adapter card in installed.
9. NT will then perform the binding process. If any additional network software options were installed, you may be prompted for specific information for these packages.
10. Re-boot your system to complete the installation process.

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

For more details on Installation procedure, please refer to TXT directory found on LAN DRIVER UTILITY.

3-5. SOUND DRIVER UTILITY

3-5-1. Introduction

Sound function is also enhanced in this board and is applicable for the following Operating system:

1. Win 98 program
2. Win NT program
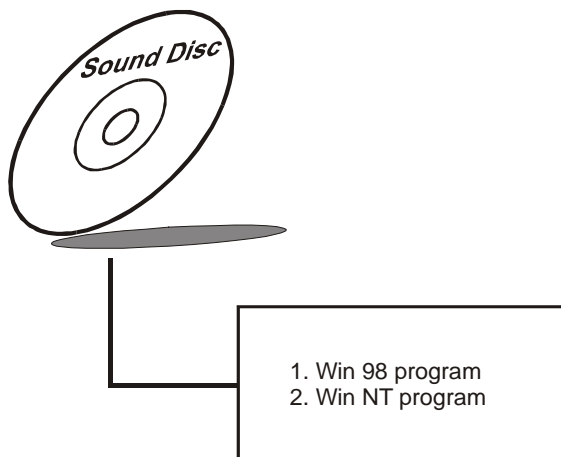
3-5-2. Installing Procedure on Microsoft Windows 98

(1) Click START, then SETTINGS, then CONTROL PANEL. Select the SYSTEM icon to bring up the SYSTEM PROPERTIES window. Then select the DEVICE MANAGER, and you will find *PCI MULTIMEDIA AUDIO DEVICE* and *UNKNOWN DEVICE*. *(Note: This two category must be installed using the same instruction.)*

(2) Double click the PCI MULTIMEDIA AUDIO DEVICE icon to bring up its PROPERTIES window. Then Select GENERAL and click REINSTALL DRIVER.

(3) Upon selecting the REINSTALL DRIVER, the REINSTALL DRIVER WIZARD window will show up.

(4) Select pathname (D:\Sound\GX1\win98) and follow the remaining instructions appearing on the screen.

(5) Once the PCI MULTIMEDIA AUDIO DEVICE is completely installed, follow the same instruction to install the UNKNOWN DEVICE.

3-6. WATCHDOG TIMER CONFIGURATION

This board has watchdog timer function for monitoring whether the system is still work or not after a period of time. This is defined at I/O port **443H**. When you want to enable the watchdog timer, please write I/O port **443H**, then the system will either reset itself. 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-1520 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
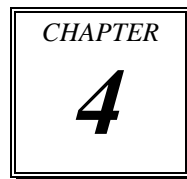
This chapter states out how to set up the Award BIOS.

Section includes:

- Introduction

- Entering Setup

- The Standard CMOS Setup

- The BIOS Features Setup

- The Chipset Features Setup

- Power Management Setup

- PNP/PCI Configuration

- Load BIOS/Setup Defaults

- Integrated Peripherals

- IDE HDD Auto Detection

- Save and Exit Setup

4-1. INTRODUCTION

This chapter will show you the function of the BIOS in managing the features of your system. The Prox-1520 NS-Geode Miniboard 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:

```
┌─────────────────────────────┐
│   Application Program        │
├─────────────────────────────┤
│   Operation System          │
├─────────────────────────────┐
│   BIOS                       │
├─────────────────────────────┤
│   System Hardware            │
└─────────────────────────────┘
```
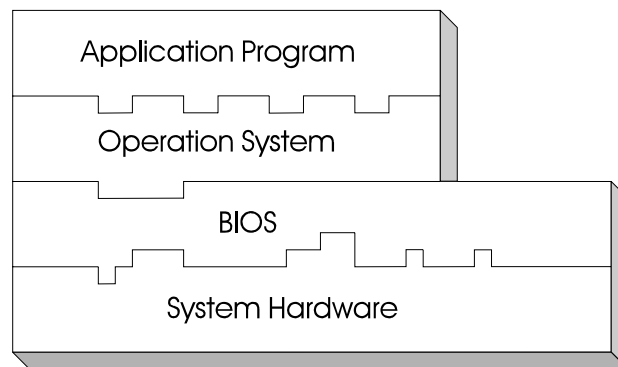
4-2. ENTERING SETUP

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

```
ROM PCI / ISA BIOS (2A434P69)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP             INTEGRATED PERIPHERALS

BIOS FEATURES SETUP             SUPERVISOR PASSWORD

CHIPSET FEATURES SETUP          USER PASSWORD

POWER MANAGEMENT SETUP          IDE HDD AUTO DETECTION

PNP/PCI CONFIGURATION           SAVE & EXIT SETUP

LOAD BIOS DEFAULTS              EXIT WITHOUT SAVING

LOAD SETUP DEFAULTS

Esc : Quit                      ↑↓→←  : Select Item
F10 : Save & Exit Setup         (Shift)F2 : Change Color

Time, Date, Hard Disk Type.........
```

Setup program initial screen

You may use the cursor up/down keys to highlight the individual menu items. As you highlight each item, a brief description of that item's function will appears in the lower window. If you have a color monitor you can use the Shift F2 keys to scroll through the various color combinations available.

4-3. THE STANDARD CMOS SETUP

Highlight   STANDARD CMOS SETUP   and press < ENTER > and the
screen will display the following table:

```
            ROM PCI / ISA BIOS (2A434P69)
               STANDARD CMOS SETUP
               AWARD SOFTWARE, INC.


Date  (mm:dd:yy)   :  Mon,   Apr   1   2002
Time  (hh:mm:ss)   :  13   :   20   :   33

                 CYLS  HEADS  PRECOMP  LANDZONE  SECTORS   MODE
Drive C : Auto (    0Mb)     0      0         0           0          0      AUTO
Drive D : Auto (    0Mb)     0      0         0           0          0      AUTO


Drive A : 1.44M, 3.5 in.
Drive B : None                         Base Memory:       640K
                                   Extended Memory:   128512K
Video   : EGA/VGA                     Other Memory:       384K
Halt On : All, But Keyboard       ----------------------------------
                                   Total Memory:   129536K

 Esc : Quit          ↑↓→← : Select Item        Pu/Pd/+/- : Modify
 F1  : Help          (Shift) F2 : Change Color
```

CMOS Setup Screen

In the above table the base memory size and the extended memory size are
displayed. This is automatically read from your systems, and you do not need
to set these parameters.

Information on each items are as follows:

DATE:
The BIOS determines the day of the week from the other date information.
This field is for information only.
Press the left or right arrow key to move to the desired field (date, month,
year).   Press the PgUp or PgDn key to increment the setting, or type the
desired value into the field.

TIME:

The time format is based on the 24-hour military time clock. For example, 4:00pm is entered as 13:00:00.

PRIMARY MASTER/SLAVE:

The categories identify the types of hard disk drive C or drive D that had been installed in the computer. There are 45 predefined types and 2 user definable types are for Normal BIOS. Type 1 to Type 45 are predefined. Type User is user-definable.

Press PgUp / <+> or PgDn / <-> to select a numbered hard disk type or type the number and press < Enter >. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select Type User, related information is asked to be entered to the following items. Enter the information directly from the keyboard and press < Enter >. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is ESDI, the selection shall be "Type 1".

If the controller of HDD interface is SCSI, the selection shall be "None"
If the controller of HDD interface is CD-ROM, the selection shall be "None"

CYLS:

This refers to the number of cylinders found in the specified drive type.

HEADS:

This refers to the number of heads found in the specified drive type.

PRECOMP:

Precomp is the read delay circuitry, which takes into account the timing differences between the inner and outer edges of the surface of the disk platter. The number designates the starting cylinder of the signal.

LANDZONE:

Landz is the landing zone of the heads. This number determines the cylinder location where the heads will normally park when the system is shut down.

SECTOR:

This is the number of sector found in a specified drive type.

DRIVE A:
DRIVE B:

This category identifies the type of floppy disk drive A or B that have been installed in the computer.

VIDEO:

The category determines 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.

HALT ON:

The category determines whether the computer will stop if an error is detected during power up. The options are as follows:

No errors	Whenever the BIOS detect a non-fatal error the system will be stopped and you will be prompted.
All errors	The system boot will not be stopped for any error that may be detected.
All, but keyboard	The system boot will stop for all other errors, except keyboard error.
All, but diskette	The system boot will stop for all other errors, except keyboard error.
All, but disk/key	The system boot will stop for all other errors, except for keyboard error and/or disk error.

BASE MEMORY:

The POST will determine the amount of base (or conventional) memory installed in the system.   The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

EXTENDED MEMORY:

The BIOS determine how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

OTHER MEMORY:

This refers to the memory located in the 640K to 1024K address space. This is memory that can be used for different applications.   DOS uses this area to load device drivers in an effort to keep as much base memory free for application programs.   The BIOS is the most frequent user of this RAM area since this is where it shadows RAM.

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 BIOS FEATURES SETUP

Choose the　BIOS FEATURES SETUP　in the main menu and the following screen will be shown:

```
            ROM PCI/ISA BIOS (2A434P69)
               BIOS FEATURES SETUP
              AWARD SOFTWARE, INC.

Virus Warning            : Disabled   Video    BIOS Shadow    : Enabled
CPU Internal Cache       : Enabled    C8000-CBFFF Shadow      : Disabled
                                      CC000-CFFFF Shadow      : Disabled
Quick Power On Self Test : Disabled   D0000-D3FFF Shadow      : Disabled
Boot Sequence            : A,C, SCSI  D4000-D7FFF Shadow      : Disabled
Swap Floppy Drive        : Disabled   D8000- DBFFF Shadow     : Disabled
Boot Up Floppy Seek      : Enabled    DC000-DFFFF Shadow      : Disabled
Boot Up NumLock Status   : On         Cyrix 6x86/MII CPUID    : Enabled
Boot Up System Speed     : High
Gate A20 Option          : Fast
Memory Parity Check      : Enabled
Typematic Rate Setting   : Disabled
Typematic Rate (Chars/Sec) : 6
Typematic Delay (Msec)   : 250        Esc : Quit     ↑↓→← :  Select Item
Security Option          : Setup      F1 : Help     Pu/Pd/+/- : Modify
PCI/VGA Palette Snoop    : Disabled   F5 : Old Values  (Shift)F2 :  Color
OS Select For DRAM > 64MB : Non-OS2   F6 : Load BIOS Defaults
Report No FDD for WIN 95 : Yes        F7 : Load Setup Defaults
```

BIOS Features Setup Screen

This setup menu allows you to configure your system for basic operation. The user has the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

To get help on each item, highlight the relevant item and press the F1 key. A Windows will appear on your screen detailing the various options available for each item.

A brief introduction of each setting in the BIOS FEATURES SETUP program is found on the next following pages.

VIRUS WARNING:

When enabled, the BIOS will supervise the boot sector and partition table of the hard disk drive for any attempt for modification.   If an attempt is made, the BIOS will halt the system and an error message will appear.   Afterwards, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done.

CPU INTERNAL CACHE:

This category speed up memory access.   However, it depends on CPU/chipset design.

QUICK POWER ON SELF TEST:

You can Enabled or Disabled this item to speed up Power On Self Test (POST) after you power up the computer. If it is set to Enabled, BIOS will shorten or skip some check items during POST.

BOOT SEQUENCE:

This category determines the sequence of which drive to search first for the disk operating system such as DOS.

SWAP FLOPPY DRIVE:

This item allows you to choose whether enable the swap floppy drive or not.

BOOT UP FLOPPY SEEK:

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

BOOT UP NUMLOCK STATUS:

This allows you to determine the default state of the numeric keypad.   By default, the system boots up with NumLock on.

BOOT UP SYSTEM SPEED:

Select High to configure your system in the turbo speed mode at boot up, or select Low to configure your system in normal speed mode. Whichever setting you chose you will still be able to use the turbo switch to toggle between the two modes during use.

GATE 20A OPTION:

This entry allows you to select how the gate A20 is handled. The gate A20 is a device used to address memory above 1Mbytes. Initially, the gate A20 was handled via a pin on the keyboard. Today, while keyboards still provide this support, it is more common and much faster for the system chipset to provide support for gate A20.

MEMORY PARITY CHECK:

This entry allows to detect the memory parity.

TYPEMATIC RATE SETTING:

Enabled 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 until you release the key.

TYPEMATIC RATE (CHARS/SEC):

You can use this item to define the typematic rate delay of your keyboard, i.e. the rate at which characters will be repeated when a key held down.

TYPEMATIC DELAY (MSEC):

You can use this item to define the period after which the typematic function become active i.e. how long after you press a key the characters will be repeated.

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

PCI/VGA PALETTE SNOOP:

This entry enables or disables the system to work with MPEG ISA/VESA VGA Card.

OS SELECT FOR DRAM > 64MB:

This item allows you to access the memory that over 64MB in OS/2.

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.

VIDEO BIOS SHADOW:

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

C8000-CBFFF ~ DC000-DFFFF SHADOW:

These categories determine whether option ROMs will be copied to RAM. An example of such option ROM would be support of onboard SCSI.

4-5. CHIPSET FEATURES SETUP

Choose the 〝CHIPSET FEATURES SETUP〞 from the main menu, the screen shown as below.

```
            ROM PCI/ISA BIOS (2A434P69)
              CHIPSET FEATURES SETUP
              AWARD SOFTWARE, INC.

 SDRAM CAS latency Time   : 3 T    Display Status        : CRT
 SDRAM Clock Ratio Div By : 4      Flat Panel Resolution : 640x480
                                   Power Type Select     : AT
 16-bit I/O Recovery (CLK)  : 5
 8-bit I/O Recovery (CLK)   : 5

 USB Controller           : Disabled


 Build in CPU Audio        : Enabled
 Audio I/O Base Address    : 220H
 MPU-401 I/O Base Address  : 330H
 Audio IRQ Select          : IRQ5
 Audio Low DMA Select      : DMA1    Esc : Quit      ↑↓→←  :  Select Item
 Audio High DMA Select     : DMA5    F1 : Help       Pu/Pd/+/- :  Modify
                                     F5 : Old Values  (Shift)F2 :  Color
                                     F6 : Load BIOS Defaults
                                     F7 : Load Setup Defaults
 Video Memory Size         : 4.0M
```

Chipset Features Setup Screen

The parameters in this setup menu are for system designers, service personnel, and technically competent users only.   Do not reset these values unless you understand the consequences of your changes.

SDRAM CAS LATENCY TIME:
When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.

SDRAM CLOCK RATIO DIV BY:
This item allows user to set the DRAM timing.

16-BIT I/O RECOVERY (CLK):
8-BIT I/O RECOVERY (CLK):
The recovery time is the length of time, measured in CPU clocks, which the system will delay after the completion of an input/output request. This delay takes place because the CPU is operating so much faster than the input/output bus that the CPU must be delayed to allow for the completion of the I/O. This item allows you to determine the recovery time allowed for 16/8bit I/O.

USB CONTROLLER:
Set to Enabled when your system contains Universal Serial Bus controller and you have a USB keyboard.

BUILD IN CPU AUDIO:
This item allows you to enable or disabled the build-in audio.

AUDIO I/O BASE ADDRESS:
This item allows you to set the Audio I/O Base Address.

MPU-401 I/O BASE ADDRESS:
This chipset traps I/O access for Roland MPU UART interface at 330H, 300H or Disable.

AUDIO IRQ SELECT:
This item allows you to select an interrupt for the audio port.

AUDIO LOW DMA SELECT:
AUDIO HIGH DMA SELECT:
The chipset supports I/O trapping for low DMA accesses and thus allows you to set the Audio low/ High DMA type.

VIDEO MEMORY SIZE:
This item allows you to set the memory size of Video.

FLAT PANEL RESOLUTION:
This item selects the flat panel resolution.

POWER TYPE SELECT:
This item selects the type of power supply used.

4-6. POWER MANAGEMENT SETUP

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

```
              ROM PCI/ISA BIOS (2A434P69)
              POWER MANAGEMENT SETUP
              AWARD SOFTWARE, INC.

Power Management    : Disabled    IRQ1    (Keyboard)      : ON
                                  IRQ3    (COM 2)         : OFF
    ** PM Timers**                IRQ4    (COM 1)         : OFF
Standby Mode        : Disabled    IRQ5    (LPT 2)         : OFF
HDD Power Down      : Disabled    IRQ6    (Floppy Disk)   : OFF
                                  IRQ7    (LPT 1)         : OFF
                                  IRQ9    (IRQ2 Redir)    : OFF
                                  IRQ10   (Reserved)      : OFF
                                  IRQ11   (Reserved)      : OFF
                                  IRQ12   (PS/2 Mouse)    : OFF
                                  IRQ13   (Coprocessor)   : OFF
                                  IRQ14   (Hard Disk)     : OFF
                                  IRQ15   (Reserved)      : OFF

                                  Esc : Quit    ↑↓→←  :  Select Item
                                  F1 : Help     Pu/Pd/+/- :  Modify
                                  F5 : Old Values  (Shift)F2 :  Color
                                  F6 : Load BIOS Defaults
                                  F7 : Load Setup Defaults
```

Power Management Setup Screen

This setup menu allows you to configure your system to the most effectively save energy while operating in a manner consistent with your own style of computer use.

POWER MANAGEMENT:

This category allows you to select the type or degree of power saving and is directly related to Standby Mode, and HDD Power Down.

STANDBY MODE:

This is one of the Green PC power saving function, which is only user configurable when *User Define* Power Management has been selected. When enabled and after the set time of system inactivity, the fixed disk drive and the video would be shut off while all other devices still operate at full speed.

HDD POWER DOWN:

This is one of the Green PC power saving function, which is only user configurable when *User Define* Power Management has been selected. When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

4-7. PNP/PCI CONFIGURATION

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

```
┌──────────────────────────────────────────────────────────────────┐
│                   ROM PCI/ISA BIOS (2A434P69)                      │
│                     PNP/PCI CONFIGURATION                          │
│                      AWARD SOFTWARE, INC.                          │
├───────────────────────────────────┬──────────────────────────────┤
│ PNP OS Installed         : No      │ PCI IRQ Actived By    : Level │
│ Resources Controlled by  : Auto    │                              │
│ Reset Configuration Data : Disabled │                              │
│                                    │                              │
│                                    │                              │
│                                    │                              │
│                                    │                              │
│                                    │                              │
│                                    │                              │
│                                    │ Esc : Quit    ↑↓→← : Select Item │
│                                    │ F1 : Help     Pu/Pd/+/- : Modify │
│                                    │ F5 : Old Values  (Shift)F2 : Color │
│                                    │ F6 : Load BIOS Defaults       │
│                                    │ F7 : Load Setup Defaults      │
└───────────────────────────────────┴──────────────────────────────┘
```

PNP/PCI Configuration Setup Screen

This setup menu describes configuring the PCI bus system.   PCI, also known as Personal Computer Interconnect, is a system, which allows I/O devices to operate at speed near the speed of the CPU itself uses when communicating with its own special components.   It covers some technical items, which is strongly recommended only for experienced users.

PNP OS INSTALLED:

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

RESOURCE CONTROLLED BY:

The BIOS can automatically configure all of the boot and Plug and Play compatible devices.   If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assign them.

PCI IRQ ACTIVATED BY:

This sets the method by which the PCI bus recognizes that an IRQ service is being requested by a device.   Under all circumstances, you should retain the default configuration unless advised otherwise by your system's manufacturer.

4-8. LOAD BIOS DEFAULTS

AUTO CONFIGURATION WITH BIOS DEFAULTS

"LOAD BIOS DEFAULTS" loads the default BIOS values. When the diagnostic aid of your system becomes unusable, choose this option and the following message appears:

```
Load BIOS Default ( Y / N ) ? Y
```

To use the BIOS defaults, change the prompt to "Y" and press < Enter >, the CMOS is loaded automatically when you power on the Prox-1520.

4-9. LOAD SETUP DEFAULTS

AUTO CONFIGURATION WITH SETUP DEFAULTS

This Main Menu item uses the default SETUP values. Use this option as a diagnostic aid of your system behaves erratically. Choose this item and the following message appears:

```
Load SETUP Default ( Y / N ) ? Y
```

To use the SETUP defaults, change the prompt to "Y" and press <Enter>. The CMOS is loaded automatically form SETUP default values:

4-10. INTEGRATED PERIPHERALS

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

```
              ROM PCI/ISA BIOS (2A434P69)
                INTEGRATED PERIPHERALS
                 AWARD SOFTWARE, INC.

IDE HDD Block Mode        : Enabled
Primary IDE Channel       : Enabled
   Master Drive PIO Mode   : Auto
   Slave Drive PIO Mode    : Auto

IDE Primary Master UDMA    : Auto
IDE Primary Slave UDMA     : Auto

KBC input clock           : 8 MHz
Onboard FDC Controller    : Enabled
Onboard Serial Port 1     : 3F8/IRQ4
Onboard Serial Port 2     : 2F8/IRQ3
Onboard IR Controller     : Disabled
                                        Esc : Quit      ↑↓→← :   Select Item
                                        F1 : Help       Pu/Pd/+/- :   Modify
Onboard Parallel Port     : 378/IRQ7    F5 : Old Values   (Shift)F2 :   Color
Parallel Port Mode        : SPP         F6 : Load BIOS Defaults
                                        F7 : Load Setup Defaults
```

INTEGRATED PERIPHERALS

By moving cursor to the desired selection and pressing <F1> key, the all options for the desired selection will be displayed for choice. User has to use select the desired option. Having made all the setting according to your selections, press <Esc> to return to the Main Menu.

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.

PRIMARY IDE CHANNEL:
You may separately disable the primary channel on an IDE interface installed in a PCI expansion slot.

IDE PRIMARY MASTER/SLAVE UDMA:
This item allows you to enable/disable IDE Primary Master/Slave UDMA mode.

KBC INPUT CLOCK:
This item allows you to select the frequency of the KBC input clock.

ON-BOARD FDC CONTROLLER:
Select Enable if your 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 in this field.

ONBOARD SERIAL PORT 1/2:
Select a logical COM port name and matching address for the first and second serial ports.   Select an address and corresponding interrupt for the first and second serial ports.

ONBOARD IR CONTROLLER:
This item enables or disables the onboard IR controller.

ON-BOARD PARALLEL PORT:
This option allows you to determine access onboard parallel port controller with I/O address.

PARALLEL PORT MODE:
Select an operating mode for the onboard parallel (printer) port.   Select Normal unless your hardware and software require one of the other modes offered in this field.

4-11. PASSWORD SETTINGS

You may choose to select to set either supervisor or user password, or both of them.   The differences is that the supervisor password can enter and change options of the setup menus while user password can only enter setup menu but does not have any rights to change any settings.

TO SET A PASSWORD

If you want to enable this item you should choose the   PASSWORD SETTING   option from the main menu, 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, and press < Enter >. You will be asked to confirm the password.   Type the password again and press < Enter >. You may also press < Esc > to abort the selection and not enter a password.

To change the original password, enter CMOS setup Menu again and you will be asked to enter the original password, then select   PASSWORD SETTING   and press enter.   The system will asked you to enter a password, then you may enter new password and re-type new password for confirmation.

🖎 User should bear in mind that when a password is set, you will be ask to enter the password whenever you enter CMOS setup Menu.   This can prevent an unauthorized person from changing any part of your system configuration.

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

TO DISABLE THE PASSWORD

Upon entering the CMOS setup Menu, the system will ask you to enter the original password, after entering the original password, press
PASSWORD SETTING a message will appear at the center.

```
┌─────────────────────────────────────┐
│         Password Disabled!!!         │
│       Press any key to continue...   │
└─────────────────────────────────────┘
```

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

4-12. IDE HDD AUTO DETECTION

Choose the IDE HDD AUTO DETECTION option . The screen will be shown as below.

```
ROM PCI / ISA BIOS (2A434P69)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

                    CYLS.  HEADS  PRECOMP  LANDZONE  SECTORS  MODE
Drive C    : (850Mb)  824    32       0        1647       63     LBA
Drive D    : (    Mb)


         Select Drive D Option (N=Skip) : N

  Option   Size   Cyls   Heads   Precomp   Landzone   Sectors   Mode
  _____
   1 (Y)    0      0       0         0         0          0     Normal


Note: Some Oses (like SCO-UNIX) must use "Normal" for installation
                      Esc : Skip
```

IDE HDD AUTO DETECTION Screen

This setup menu allows you to save time in finding the Hard Disk Drive information, just follow the following steps:

1. Select the IDE HDD AUTO DETECTION from the Main Menu.
2. After a couple of seconds, the screen will appear the Hard Disk information and following message:

"SELECT PRIMARY MASTER OPTION (N=SKIP):N"

3. Enter Y or N to confirm the acceptance of the parameter reported by BIOS, then press the <ENTER> key.

☺ The process will repeat again form Primary Slave, Secondary Master and Secondary Slave Hard Disks.

4-13. SAVE & EXIT SETUP

When you have completed adjusting all the settings as required, you should enter these setting into the CMOS RAM. Select   SAVE & EXIT SETUP and press<Enter>, as the display shown below:

```
ROM PCI / ISA BIOS (2A434P69)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP              INTEGRATED PERIPHERALS

BIOS FEATURES SETUP              SUPERVISOR PASSWORD

CHIPSET FEATURES SETUP           USER PASSWORD

POWER MANAGEMENT SETUP           IDE HDD AUTO DETECTION

PNP / PCI CONFIGU                           SETUP
                   SAVE to CMOS and EXIT (Y/N)? N
LOAD BIOS DEFAUL                             SAVING

LOAD SETUP DEFAULTS

   Esc : Quit                    ↑↓→←  :Select Item
   F10 : Save & Exit Setup       (Shift)F2 : Change Color

         Save Data to CMOS & Exit SETUP
```

When you confirm that you wish to save the settings your machine will be automatically rebooted and the changes you have made will be implemented. You may call up the setup program at any time to adjust any of the individual items by pressing the <Del> key during boot up.
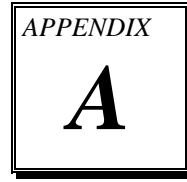
4-14. EXIT WITHOUT SAVING

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

```
ROM PCI / ISA BIOS (2A434P69)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP          INTEGRATED PERIPHERALS

BIOS FEATURES SETUP          SUPERVISOR PASSWORD

CHIPSET FEATURES SETUP       USER PASSWORD

POWER MANAGEMENT SETUP       IDE HDD AUTO DETECTION

PNP / PCI CONFIGU                            SETUP

                    Quit Without Saving (Y/N) ? N
LOAD BIOS DEFAUL                              SAVING

LOAD SETUP DEFAULTS

 Esc : Quit                  ↑↓→←  :Select Item
 F10 : Save & Exit Setup     (Shift)F2 : Change Color

            Abandon all Datas & Exit SETUP
```

ADAPTER CARD

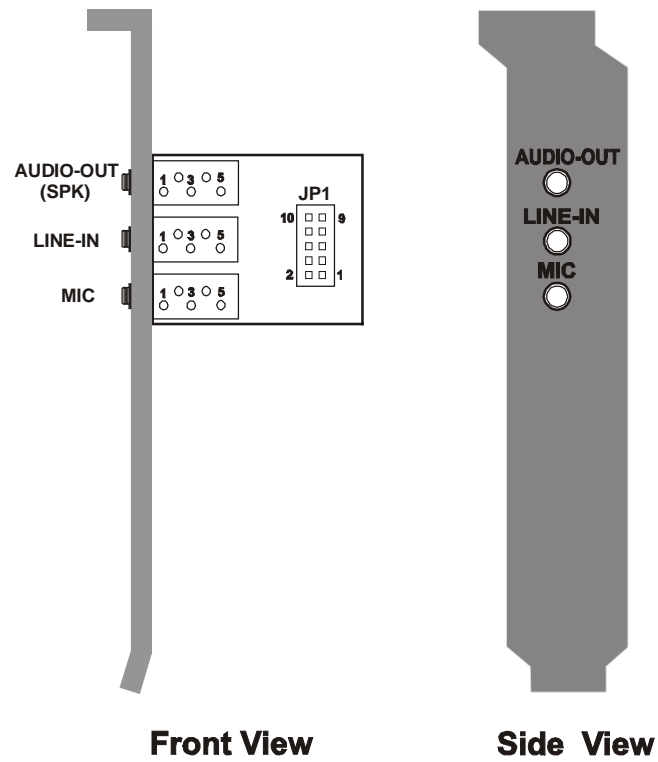This appendix explains the adapter card.

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:
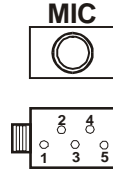

Front View   **Side View**

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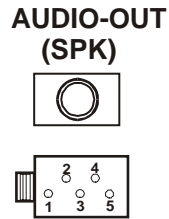
PIN	ASSIGNMENT
1	GND
2	MIC-IN
3	NC
4	MIC VDD
5	GND

Audio-Out (SPK) : Speaker Connector
The pin assignments are as follows :

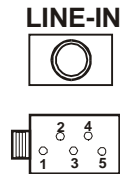| PIN	ASSIGNMENT
1	GND
2	SPK-L
3	NC
4	SPK-R
5	NC

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 (SOUND1 found in Prox-1520 board), and the other end to the JP1 of the W-sound Adapter Card.

EXPANSION BUS
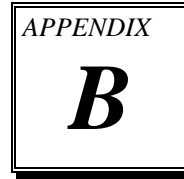
This appendix indicates the pin assignments.

Section includes:

● PC104 BUS Pin Assignment

PC-104 CONNECTOR PIN ASSIGNMENT

104AB, 104CD : PC-104 Connector

```
B1 ┌──────────────────────────────────────┐ B32
A1 └──────────────────────────────────────┘ A32
   104AB   C1 ┌────────────────────────┐ C20
           D1 └────────────────────────┘ D20
                              104CD
```
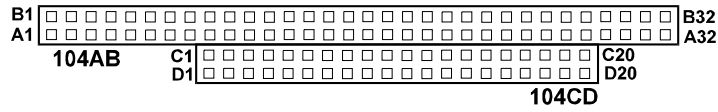
The PC-104 can support multi-pieces of PC-104 modules. This card has two connectors : one (104AB) consists of 64 pin; the other one (104CD) consists of 40 pin, both of them are dual-in-line headers

The pin assignments for connector 104AB & 104CD are as follow:

104AB				104CD			
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	IOCHK	B1	GND	C1	GND	D1	GND
A2	D7	B2	REST	C2	SBHE	D2	MEMCS16
A3	D6	B3	VCC	C3	LA23	D3	IOCS16
A4	D5	B4	IRQ9	C4	LA22	D4	IRQ10
A5	D4	B5	-5V	C5	LA21	D5	IRQ11
A6	D3	B6	DRQ2	C6	LA20	D6	IRQ12
A7	D2	B7	-12V	C7	LA19	D7	IRQ15
A8	D1	B8	OWS	C8	LA18	D8	IRQ14
A9	D0	B9	+12V	C9	LA17	D9	DACK0
A10	IOCHRDY	B10	GND	C10	MEMR	D10	DRQ0
A11	AEN	B11	SMEMW	C11	MEMW	D11	DACK5
A12	A19	B12	SMEMR	C12	D8	D12	DRQ5
A13	A18	B13	IOW	C13	D9	D13	DACK6
A14	A17	B14	IOR	C14	D10	D14	DRQ6
A15	A16	B15	DACK3	C15	D11	D15	DACK7
A16	A15	B16	DRQ3	C16	D12	D16	DRQ7
A17	A14	B17	DACK1	C17	D13	D17	VCC
A18	A13	B18	DRQ1	C18	D14	D18	MASTER
A19	A12	B19	REFRESH	C19	D15	D19	GND
A20	A11	B20	CLK	C20	KEY PIN	D20	GND
A21	A10	B21	IRQ7				
A22	A9	B22	IRQ6				
A23	A8	B23	IRQ5				
A24	A7	B24	IRQ4				
A25	A6	B25	IRQ3				
A26	A5	B26	DACK2				
A27	A4	B27	TC				
A28	A3	B28	BALE				
A29	A2	B29	VCC				
A30	A1	B30	OSC				
A31	A0	B31	GND				
A32	GND	B32	GND				

TECHNICAL SUMMARY
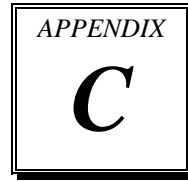
This section introduces you the maps concisely.

Section includes:

● Block Diagram

● Interrupt Map

● RTC & CMOS RAM Map

● Timer & DMA Channels Map

● I / O & Memory Map

BLOCK DIAGRAM
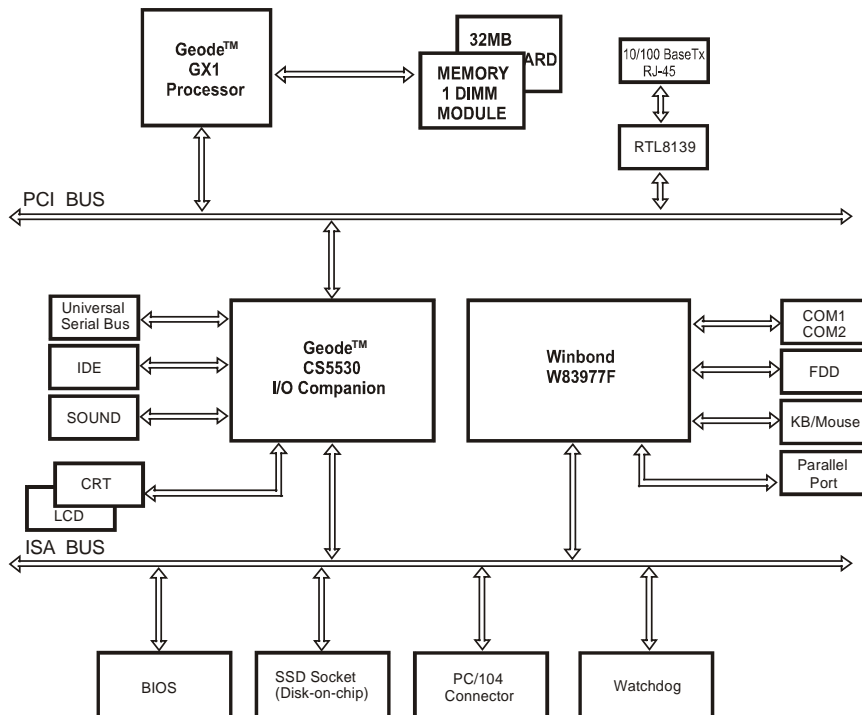
INTERRUPT MAP

IRQ	ASSIGNMENT
0	System TIMER interrupt from TIMER-0
1	Keyboard output buffer full
2	Cascade for IRQ 8-15
3	Serial port 2
4	Serial port 1
5	Available / Sound
6	Floppy
7	Parallel port 1
8	RTC clock
9	Available
10	Available
11	Available
12	PS/2 Mouse
13	Math coprocessor
14	Hard disk adapter
15	Available

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

<u>**Timer Channel Map**</u> **:**

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

<u>**DMA Channel Map**</u> **:**

| DMA Channel	Assignment
0	Available
1	Available / Sound Blaster
2	Floppy Disk Adapter
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

I/O & MEMORY MAP

Memory Map :

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

I/O Map :

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

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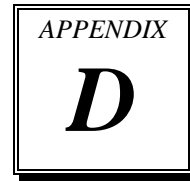
This section outlines the errors may occur when you operate the system.　　It also gives you the suggestions on solving the problems.

Section includes:

- Trouble Shooting for Error Messages

- Trouble Shooting for POST Code

TROUBLESHOOTING FOR ERROR MESSAGE

The following information inform 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 kind of beep codes in BIOS. The 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 con-sists of a single long beep followed by three short beeps. The other one code indicates that your DRAM error has occurred. This beep code consists of a single long beep repeatedly.

CMOS BATTERY FAILURE :

When the CMOS battery is out of work or has run out, the user has to replace the whole unit.

CMOS CHECKSUM ERROR :

This error inform you that the CMOS is corrupted. When the battery runs weak, this situation might happen. Please check the battery and change a new one when necessary.

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.

DISK BOOT FAILURE:

When you can't find the boot device, insert a system disk into Drive A and press < Enter >. Make sure both the controller and cables are all in proper positions, also make sure the disk is formatted correct device. Then reboot the system.

DISKETTE DRIVES OR TYPES MISMATCH ERROR :

When the diskette drive type is different from CMOS, please run setup or configure the drive again.

ERROR ENCOUNTERED INITIALIZING HARD DRIVE :

When you can't initialize the hard drive. Assure 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 :

When this error occurs. Be sure the cord is exactly installed in the bus. Make sure the correct hard drive type is selected in Setup. Also check whether all of the jumpers are set correctly in the hard drive.

FLOPPY DISK CONTROLLER ERROR OR
NO CONTROLLER PRESENT :

When you cannot find or initialize the floppy drive controller, please check the controller whether in proper Setup. If there are no floppy drive installed, Ensure the Diskette Drive selection in Setup is set to NONE.

KEYBOARD ERROR OR NO KEYBOARD PRESENT :

When this situation happens, please check keyboard attachment 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 :

When the memory address indicates error. 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 :

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

MEMORY VERIFYING ERROR :

It 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 MISSING :

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

REBOOT ERROR :

When this error occurs that requires you to reboot.. Press any key and the system will reboot.

SYSTEM HALTED :

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.

TROUBLESHOOTING FOR POST CODES

When you power on your PC, and the screen display nothing. You have to insert the POST Card for test. The address for ISA POST port is 80h. Make sure the card is in correct slot. The lists below indicate you the error messages. Please follow the instruction to adjust your system. If the error still occurred, please contact with your distributor for maintenance.

C0 : Turn off OEM specific cache, shadow.....

03 : Initialize all the standard devices with default values Standard devices includes :
DMA controller (8237).
Programmable Interrupt Controller (8259).
Programmable Interval Timer (8254).
RTC chip.

05 : 1.Keyboard Controller Self-Test.
2.Enable Keyboard Interface.

07 : Verfies CMOS's basic R/W functionality.

BE : Program defaults values into chipset according to the MODBINable Chipset Default Table.

C1 : Auto-detection of onboard DRAM & Cache.

C5 : Copy the BIOS from ROM into E0000-FFFFF shadow RAM so that POST will go faster.

08 : Test the first 256K DRAM.

09 : 1. Program the configuration register of Cyrix CPU according to the MODBINable Cyrix Register Table.
2. OEM specific cache initialization (if needed).

0A : 1. Initialize the first 32 interrupt vectors with corresponding Interrupt
       handlers Initialize INT no from 33-120 with Dummy(Spurious) Interrupt
       Handler.
     2. Issue CPUID instruction to identify CPU type.
     3. Early Power Management initialization (OEM specific).

0B : 1.Verify the RTC time is valid or not.
     2. Detect bad battery.
     3. Read CMOS data into BIOS stack area.
     4. PnP initializations including (PnP BIOS only).
          -Assign CSN to PnP ISA card.
          -Create resource map from ESCD.
     5. Assign I/O & Memory for PCI devices (PCI BIOS only).

0C : Initialization of the BIOS Data Area (40 : 0N-40:FF).

0D : 1. Program some of the Chipset's value according to Setup. (Early Setup
       Value Program).
     2. Measure CPU speed for display & decide the system clock speed.
     3. Video initialization including Monochrome ,CGA, EGA/VGA. If no
       display device found, the speaker will beep.

0E : 1. Initialize the APIC (Multi-Processor BIOS only).
     2. Test video RAM (If Monochrome display device found).
     3. Show messages including :
         -Award Logo, Copyright string, BIOS Date code & Part No.
         -OEM specific sign on messages.
         -Energy Star Loge (Green BIOS only).
         -CPU brand, type & speed.
         -Test system BIOS checksum (Non-compress Version only).

0F : DMA channel 0 test.

10 : DMA channel 1 test.

11 : DMA page registers test.

14 : Test 8254 Timer 0 Counter2.

15 : Test 8259 interrupt mask bits for channel 1.

16 : Test 8259 interrupt mask bits for channel 2.

19 : Test 8259 functionality.

30 : Detect Base Memory & Extended Memory Size.

31 : 1. Test Base Memory from 256K to 640K.
   2. Test Extended Memory from 1M to the top of memory.

32 : 1.Display the Award Plug & Play BIOS Extension message (PnP BIOS only).
   2.Program all onboard super I/O chips (if any) including COM ports, LPT
     ports, FDD port....according to setup value.

3C : Set flag to allow users to enter CMOS Setup Utility.

3D : 1 Initialize Keyboard.
   2 Install PS2 mouse.

3E : Try to turn on Level 2 cache.
   Note : Some chipset may need to turn on the L2 cache in this stage. But
        usually, the cache is turn on later in POST 61h.

BF : 1. Program the rest of the Chipset's value according to Setup. (Later Setup
     Value Program).
   2. If auto-configuration is enabled, programmed the chipset with pre-defined
     value in the MODBINable Auto-Table.

41 : Initialize floppy disk drive controller.

42 : Initialize Hard drive controller.

43 : If it is a PnP BIOS, initialize serial & parallel ports.

45 : Initialize math coprocessor.

4E : If there is any error detected (such as video, kb....), show all the error
messages the screen & wait for user to press <F1> key.

4F : 1. If password is needed, ask for password.
2. Clear the Energy Star Logo (Green BIOS only).

50 : Write all CMOS values currently in the BIOS stack area back into the CMOS.

52 : 1.Initialize all ISA ROMs.
2. Later PCI initializations (PCI BIOS only).
-assign IRQ to PCI devices.
-initialize all PCI ROMs.
3.PnP Initializations (PnP BIOS only).
-assign I/O, Memory, IRQ & DMA TO PnP ISA devices.
-initialize all PnP ISA ROMs.
4. Program shadows RAM according to Setup settings.
5. Program parity according to Setup setting.
6. Power Management Initialization.
-Enable/Disable global PM.
-APM interface initialization.

53 : 1.If it is NOT a PnP BIOS, initialize serial & parallel ports.
2. Initialize time value in BIOS data area by translate the RTC time value into
a timer tick value.

60 : Setup Virus Protection (Boot Sector Protection) functionality according to
Setup setting.

61 : 1. Try to turn on Level 2 cache.
Note : if L2 cache is already turned on in POST 3D, this part will be skipped.
2. Set the boot up speed according to Setup setting.
3. Last chance for Chipset initialization.
4. Last chance for Power Management initialization (Green BIOS   only).
5. Show the system configuration table.

62 : 1.Setup daylight saving according to Setup value.
 2.Program the NumLock, typematic rate & typematic speed according to
  Setup setting.

63 : 1. If there is any changes in the hardware configuration, update the ESCD
  information (PnP BIOS only).
 2. Clear memory that have been used.
 3. Boot system via INT 19H.

FF : System Booting. this means that the BIOS already pass the control right to
 the operating system.

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