USER'S MANUAL

ProX-1330

386SX-40
Embedded Card
With VGA / LAN

Prox-1330 M4

Prox-1330 EMBEDDED CARD
With VGA / LAN

OPERATION MANUAL

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ACKNOWLEDGEMENTS

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CHAPTER 1

INTRODUCTION

This chapter gives you the information for Prox-1330. 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 the Prox-1330 Embedded Card with VGA/LAN, which is fully PC/AT compatible. The Prox-1330 is designed for low-cost controller or workstation. With the standard SBC functions and other features which make this CPU Card more suitable for harsh industrial environment and commercial application. This manual is designed to assist you on 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 page in 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 the jumpers and how to configure this card to meet your own needs.

Chapter 3 Software Utilities

This chapter contains helpful information that gives you instruction for proper installation of the VGA driver, LAN driver, and update flash BIOS. It also describes the Watchdog-timer configuration.

Chapter 4 Award BIOS Setup

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

Appendix A Expansion Bus

This Appendix introduces you the expansion bus for PC-104 BUS and ISA BUS.

Appendix B Technical Summary

This section gives you the information about the Technical maps.

Appendix C Trouble Shooting

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

1-2. SYSTEM SPECIFICATION

- **CPU :**
  Built-in 386SX-40MHz.

- **MEMORY :**
  4MB DRAM on board (optional).
  One 72-pin SIMM socket. (Note: Do not use double bank).

- **REAL-TIME CLOCK / CALENDAR :**
  CMOS data back up from BIOS set or BIOS default.
  Dallas 12887 Real Time Clock.

- **BIOS :**
  Award Flash BIOS for plug & play function.
  Easy update 128KB flash EEPROM.
  Support S/IO Setup.

- **KEYBOARD/MOUSE CONNECTOR :**
  One Mini DIN connector, support Keyboard and PS/2 Mouse by jumper selection.
  One 5-pin External keyboard connector.

- **BUS SUPPORT :**
  External ISA BUS and PC-104 BUS.
  Internal ISA BUS for VGA.

- **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 supports 2 enhanced IDE devices.

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

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

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

- **SSD SOCKET :**
  Two 32-pin solid-state-disk socket, each support up to 144MB DOC.

- **LAN INTERFACE :**
  Built-in UMC UM9008.
  10 Base Ethernet Controller with ISA Interface.

- **LED INDICATOR :**
  System power.
  Hard Disk access.
  Turbo mode.

- **PC-104 BUS EXPANSION & SPEED :**
  ISA 8MHz
  PC-104 8MHz

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

- **DMA CHANNELS :**
  7

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

- **INTERRUPT LEVELS :**
  15

- **STORAGE TEMPERATURE :**
  -40 to 80°C.

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

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

- **BOARD DIMENSION :**
  185mm x 122 mm

- **BOARD WEIGHT :**
  0.24 Kg.

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. Stay safe from the 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, 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 details you the jumper & connector settings, and components locations.

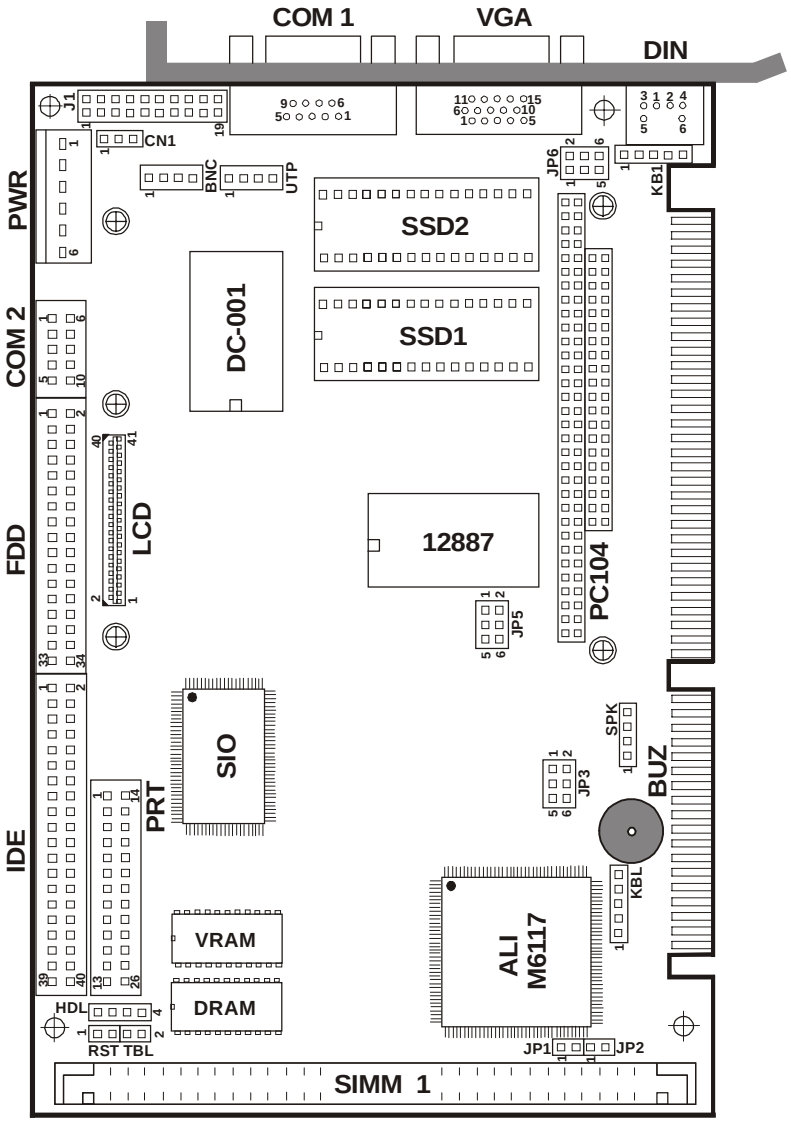
Section includes:

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

2-1 JUMPER & CONNECTOR QUICK REFERENCE TABLE

COM Port Connector	COM1, COM2
RS232/422/485 (COM2) Selection	J1
Keyboard or PS/2 Mouse Selection	JP6
Keyboard or PS/2 Mouse Connector	DIN
Floppy Disk Drive Connector	FDD
Turbo LED Connector	TBL
Reset Connector	RST
External Speaker Connector	SPK
External Keyboard Connector	KB1
Power LED & KeyLock Connector	KBL
Power Connector	PWR
VGA CRT Connector	VGA
Hard Disk Drive LED Connector	HDL
Hard Disk Drive Connector	IDE
Printer Connector	PRT
Solid State Disk Socket	SSD1, SSD2
SSD Memory Mapping Selection	JP3
Watchdog Enable Selection	JP5
Panel Power Connector	CN1
LCD Panel Connector	LCD
LAN Connector	BNC, UTP
LAN Led Connector	JP1, JP2
Memory Installation	SIMM1

2-2 COMPONENT LOCATIONS



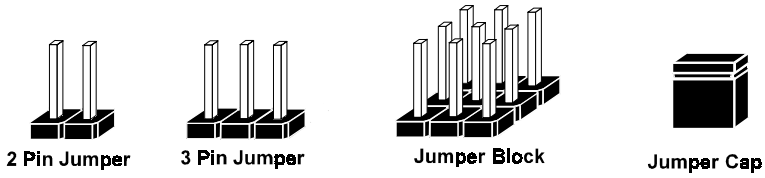
Prox-1330 Connectors, Jumpers, and Component locations

2-3 HOW TO SET THE JUMPERS

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

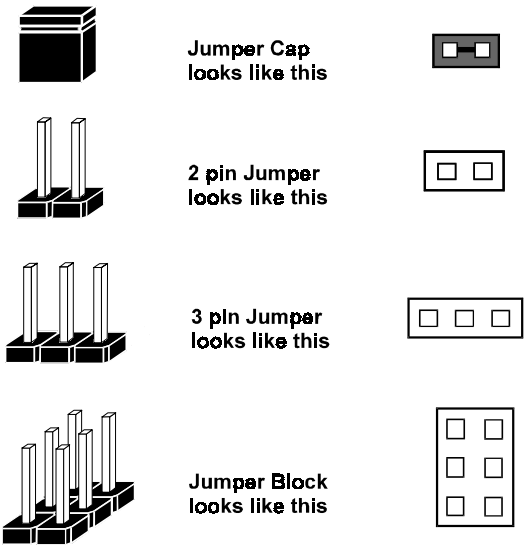
The jumper can be combined into sets, which called jumper blocks. When the jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows how this looks.

JUMPERS AND CAPS

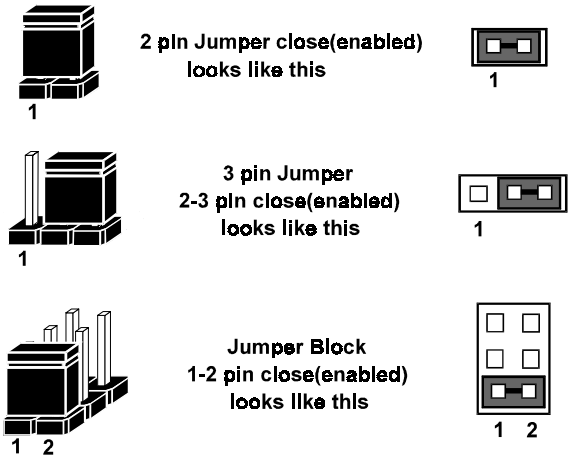


If a jumper has three pins, for example labelled PIN1, PIN2, and PIN3. You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagram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

JUMPER DIAGRAMS



JUMPER SETTINGS

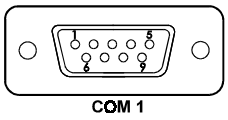


2-4 COM PORT CONNECTOR

Prox-1330 possesses two serial port connectors, namely the COM1 and COM2.

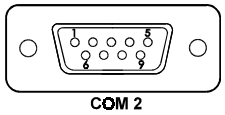
COM1 : COM1 Connector, DB9 male connector
The pin assignment is as follows :

PIN	ASSIGNMENT
1	DCD
2	RX
3	TX
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI



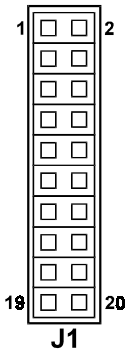
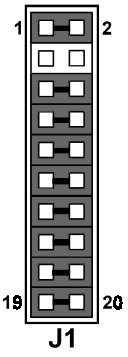
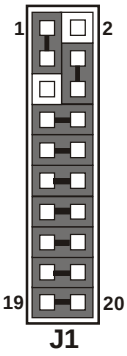
COM2 : COM2 Connector
The pin assignment is as follows :

PIN	ASSIGNMENT		
	RS-232	RS-422	RS-485
1	DCD	TX-	TX-
2	RX	TX+	TX+
3	TX	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



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

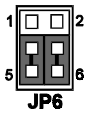
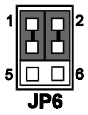
J1 : RS-232/422/485 Selection
COM1 is fixed for RS-232 function only.
COM2 is selectable for RS-232/422/485 functions with J1.
The jumper settings are as follows :

COM 2 Function	**RS-232**	**RS-422**	**RS-485**
Jumper Settings (pin closed)	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
Jumper Illustration			

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

2-6 KEYBOARD OR PS/2 MOUSE SELECTION

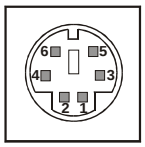
JP6 : Keyboard or PS/2 Mouse Selection
The jumper settings are as follows :

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

2-7 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 :

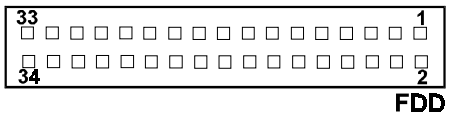
PIN	ASSIGNMENT	
	Keyboard	PS/2 Mouse
1	KBDATA	MSDATA
2	MSDATA	MSDATA
3	GND	GND
4	IOVSB	IOVSB
5	KBCLK	MSCLK
6	MSCLK	MSCLK



DIN

2-8 FLOPPY DISK DRIVE CONNECTOR

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



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	RPM
3	GND	4	NC
5	GND	6	RATE0
7	GND	8	INDEX
9	GND	10	MTR0
11	GND	12	DRV1
13	GND	14	DRV0
15	GND	16	MTR1
17	GND	18	DIR
19	GND	20	STEP
21	GND	22	WDATA
23	GND	24	WGATE
25	GND	26	TRK0
27	GND	28	WRPRT
29	GND	30	RDATA
31	GND	32	HDSEL
33	GND	34	DSKCHG

2-9 TURBO LED CONNECTOR

TBL: Turbo LED Connector
The pin assignments are as follows :

PIN	ASSIGNMENT
1	VCC
2	Turbo Signal

2-10 RESET CONNECTOR

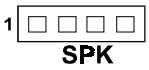
RST : Reset Connector
The pin assignments are as follows :

PIN	ASSIGNMENT
1	Reset
2	Ground

2-11 EXTERNAL SPEAKER CONNECTOR

SPK : External Speaker Connector
The pin assignments are as follows :

PIN	ASSIGNMENT
1	VCC
2	Speaker Signal
3	Speaker Signal
4	Speaker Signal



2-12 EXTERNAL KEYBOARD CONNECTOR

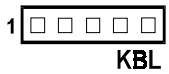
KB1 : External Keyboard Connector
The pin assignments are as follows :

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

2-13 POWER LED & KEYLOCK CONNECTOR

KBL : Power LED & Keylock Connector
The pin assignments are as follows :

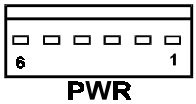
PIN	ASSIGNMENT
1	Power LED
2	NC
3	Ground
4	Keyboard INT
5	Ground



2-14 POWER CONNECTOR

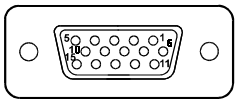
PWR : Power Connector
The pin assignments are as follows :

PIN	ASSIGNMENT
1	NC
2	+5V
3	+12V
4	-12V
5	GND
6	GND



2-15 VGA CRT CONNECTOR

VGA : VGA CRT Connector
The pin assignments are as follow:



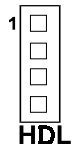
VGA

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

2-16 HARD DISK DRIVE LED CONNECTOR

HDL : Hard Disk Driver LED Connector
The pin assignments are as follows :

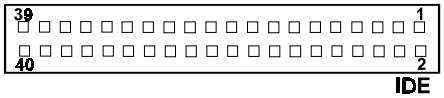
PIN	ASSIGNMENT
1	VCC
2	HDD Active Signal
3	HDD Active Signal
4	HDD Active Signal



HDL

2-17 HARD DISK DRIVE CONNECTOR

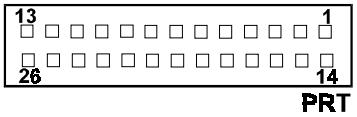
IDE : Hard Disk Connector
The HDD disk pin assignments are as follows :



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST	2	GND
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	GND	20	NC
21	NC	22	GND
23	IOW	24	GND
25	IOR	26	GND
27	IORDY	28	BALE
29	NC	30	GND
31	IRQ14	32	IO16
33	A1	34	GND
35	A0	36	A2
37	CS0	38	CS1
39	HDLED	40	GND

2-18 PRINTER CONNECTOR

PRT : 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 :



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

2-19 SOLID-STATE DISK SOCKET

This card has two SSD socket on board, namely the SSD1 and SSD2.

SSD1 : Disk-on-chip socket.
The pin assignment 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

SSD2 : 32-pin Disk on chip socket.
The pin assignment 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

2-20 SSD MEMORY MAPPING SELECTION

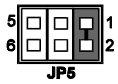
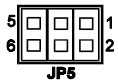
JP3: SSD Memory Mapping Selection.
The 32pin SSD socket supports a Disk-on-chip up to 144MB. This PnP Flash ROM SSD can be installed as one of user's hard disk drive. If set as Drive C, it can be used as a boot-up hard disk.
The SSD Memory Mapping Selections are as follows:

SSD Memory Mapping SSD1	SSD2	JUMPER SETTINGS (pin closed)	JUMPER ILLUSTRATION
D8000	DA000	5-6	
DC000	DE000	3-4 5-6	

Note: No manufacturer's default setting is done on this SSD. User should set the jumper according to the following Memory Map.

2-21 WATCHDOG ENABLE SELECTION

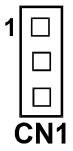
JP5 : Watchdog Enable Selection
The jumper settings are as follows:

FUNCTION	JUMPER SETTINGS (pins closed)	JUMPER ILLUSTRATION
ENABLE	1-2	
DISABLE	Open	

2-22 PANEL POWER CONNECTOR

CN1 : Panel Power Connector for VGA delay voltage.
The pin assignments are as follow :

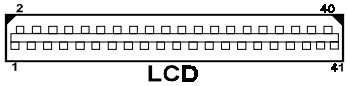
PIN	ASSIGNMENT
1	LCD VDD (+5V)
2	GND
3	LCD +12V



The third pin of this connector uses +12V. And therefore if you wish to use connector, PWR Connector pin#3 should be properly connected.

2-23 LCD PANEL CONNECTOR

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



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	P20	2	GND
3	P16	4	VCC
5	P21	6	P0
7	P17	8	P8
9	P22	10	P1
11	P18	12	P9
13	P23	14	P2
15	P19	16	P10
17	VCC	18	P3
19	FLM	20	P11
21	MDE	22	P4
23	LP	24	P12
25	SHFCLK	26	P5
27	3.3V	28	P13
29	3.3V	30	P6
31	ENABKL	32	P14
33	LCDVDD	34	P7
35	ENVEE	36	P15
37	GND	38	+12V
39	GND	40	+12V
41	NC		

2-24 LAN CONNECTOR

There are two kinds of LAN connector found in our Prox-1330. User may select which connector to use.

BNC : BNC Connector.
The pin assignments are as follow:

PIN	ASSIGNMENT
1	GND
2	RXI
3	ISOLATED
4	GND

UTP : UTP Connector.
The pin assignments are as follow:

PIN	ASSIGNMENT
1	TX+
2	TX-
3	RX+
4	RX-

2-25 LAN LED CONNECTOR

JP2 : LAN LED Connector
The pin assignments are as follow:

PIN	ASSIGNMENT
1	Pull hi Vcc
2	Link Signal

JP1 : LAN LED Connector
The pin assignments are as follow:

PIN	ASSIGNMENT
1	Pull hi Vcc
2	Active Signal

2-26 MEMORY INSTALLATION

The Prox-1330 local bus CPU Card support 1 DRAM bank, which can support FP DRAM & EDO DRAM at the same time.

DRAM BANK CONFIGURATION (Standard)

ONBOARD MEMORY	SIMM 1	TOTAL MEMORY
4M	0M	4M
4M	1M	5M
4M	2M	6M
4M	4M	8M
4M	8M	12M
4M	16M	20M

DRAM BANK CONFIGURATION (Optional Solution)

ONBOARD MEMORY	SIMM 1	TOTAL MEMORY
0M	1M	1M
0M	2M	2M
0M	4M	4M
0M	8M	8M
0M	16M	16M

SOFTWARE UTILITIES

CHAPTER
3

This chapter comprises the detailed information of VGA driver and Watchdog function. It also describes how to install the configuration.

Section includes:

- VGA Drivers Utility
- Flash BIOS Update
- LAN Drivers Utility
- Watchdog Timer Configuration

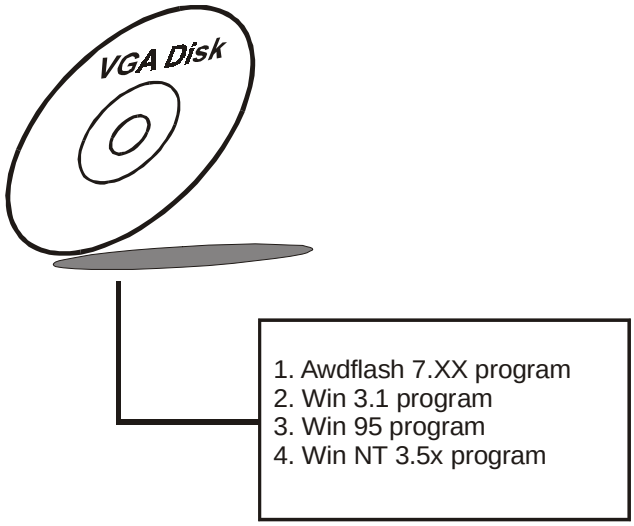
3-1. INTRODUCTION

Enclosed with our Prox-1330 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\C&T\CT6554x	For VGA driver installation
D:\Flash\Awdflash.exe	For BIOS update
D:\LAN\um9008	For LAN driver installation

3-2. VGA DRIVER UTILITY

The VGA interface embedded with our Prox-1330 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.



3-2-1. Installation of VGA Driver for PCI

1. Install VGA Driver to Windows 3.1

(1). To install VGA driver to Windows 3.1, please insert Utility Disk into floppy disk drive A/B or CD ROM drive under your Windows 3.1 system, and go to directory where VGA driver is located.

(2). Click Setup.exe file for VGA driver installation directly. Follow the instructions on the screen and complete the installation.

(3). Once installation is completed, you must shut down system and restart in order for changes to take effect.

2. Install VGA Driver to Windows 95

(1). Click START, SETTINGS, then CONTROL PANEL.

(2). On CONTROL PANEL, click the DISPLAY icon and enter the SETTINGS tab of the DISPLAY PROPERTIES window.

(3). Select the SETTINGS page, push the CHANGE DISPLAY TYPE button. Click the CHANGE button in the "Adapter Type" area.

(4). Push the "HAVE DISK BUTTON" and press OK.

(5). Specify the path for the new driver and press the <Enter> key. The "Select Device" dialog box will appear. Select the "Chips and Tech 6554x PCI".

(6). Follow the remaining instructions that appear on the screen to complete the rest of the installation, and then restart your computer.

3. Install VGA driver to Windows NT 3.5x

(1). To install VGA drivers to Windows 3.5x 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.

3-3. FLASH BIOS UPDATE

3-3-1. System BIOS Update:

Users of Prox-1330 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-1330 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 C&T 65545 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 D30xxxxx.bin
   C:\UTIL\AWDFLASH>AWDFLASH D30xxxxx.bin
4. The screen will display the table below:

FLASH MEMORY WRITER v7.XX (C) Award Software 2000 All Rights Reserved
For AliM6117C-SMC-2A9KHP69C-0 DATE: 10/13/2000 Flash Type: SST 28EE010 & 28EE011/5V File Name to Program: D30xxxxx.bin Checksum: XXXXX
Error Message : Do You Want To Save BIOS (Y/N)

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

FLASH MEMORY WRITER v7.XX (C) Award Software 2000 All Rights Reserved
For AliM6117C-SMC-2A9KHP69C-0 DATE: 10/13/2000 Flash Type: SST 28EE010 & 28EE011/5V File Name to Program: D30xxxxx.bin Checksum: XXXXX
Error Message : Are You Sure To Program (Y/N)

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

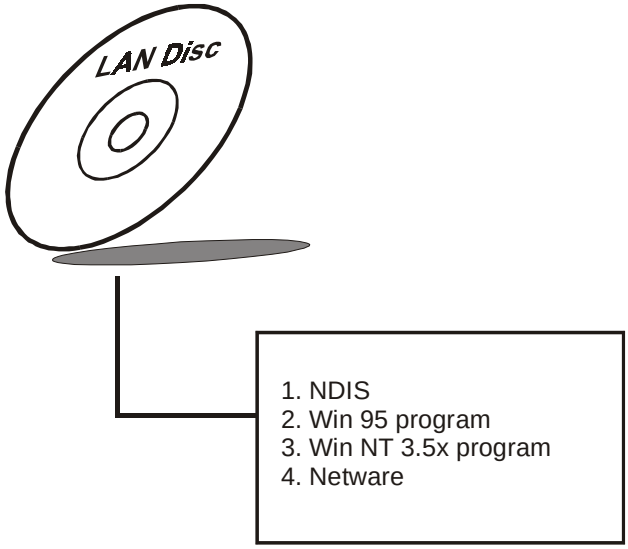
FLASH MEMORY WRITER v7.XX (C) Award Software 2000 All Rights Reserved
For AliM6117C-SMC-2A9KHP69C-0 DATE: 10/13/2000 Flash Type: SST 28EE010 & 28EE011/5V File Name to Program: D30xxxxx.bin Checksum: XXXXX Reset System or Power off to accomplish update process!
F1: Reset F10: Exit

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

3-4. LAN DRIVER UTILITY

3-4-1. Introduction

Prox-1330 Embedded Card is enhanced with LAN function can support various network adapters. Installation programs for LAN drivers are listed as follows:



For more information on driver installation, please refer to the install.doc found on the LAN driver utility.

3-5. WATCHDOG TIMER CONFIGURATION

The watchdog timer can reset the system automatically. It 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 reset itself. When you want to disable the function, write I/O port **441H**, the system will run the command to stop the Watchdog function.

The Prox-1330 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:

```
MOV AX, 000FH (choose the values you need; start from 0)
MOV DX, 443H
OUT DX, AX
```

Watchdog disable program:

```
MOV AX, 000FH (this value can be ignored)
MOV DX, 441H
OUT DX, AX
```

The Watchdog Timer control table is as follow:

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 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 Configuration Setup
- Load BIOS defaults
- Load Setup Defaults
- Password Setting
- IDE HDD Auto Detection
- Save and Exit Setup

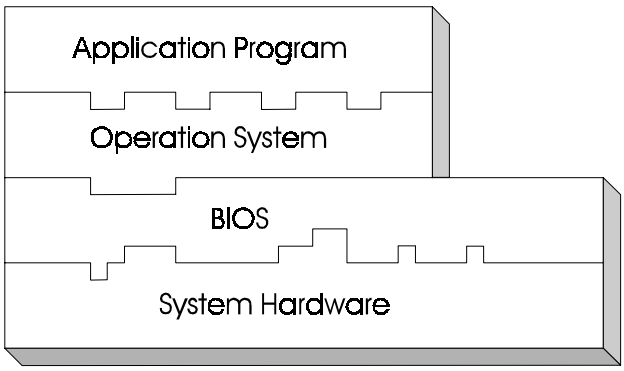
4-1. INTRODUCTION

This chapter will show you the function of the BIOS in managing the features of your system. The Prox-1330 Embedded 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 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 ISA BIOS (2A4KDP6L)
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 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

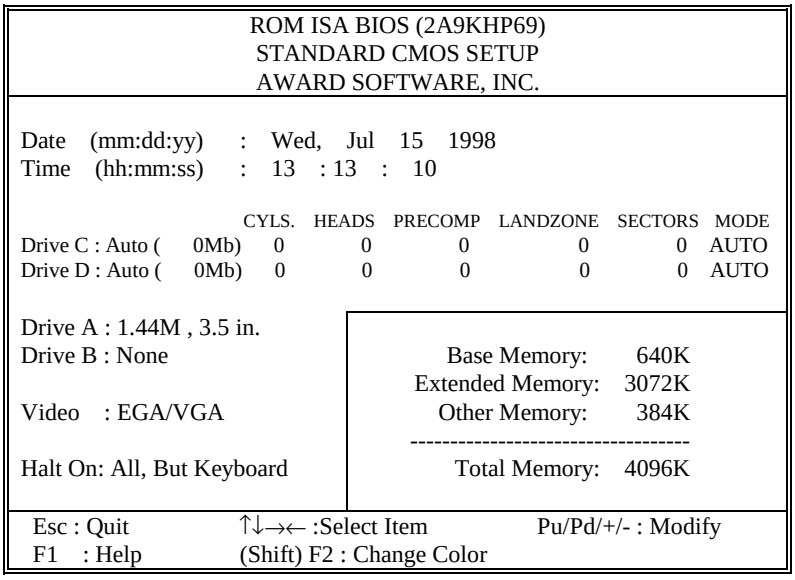
Time, Date, Hard Disk Type.....

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 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:



CMOS setup screen

The "Standard CMOS Setup Menu" are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight each category and use the <PgUp> or <PgDn> keys to select the value you want.

Information on each category is as follows:

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 examples, 4: 30P.M. You should enter the time as 16:30:00.

Drive C type / Drive D type:

The categories identify the types of 2 channels that have been installed in the computer. There are 45 predefined types and 4 user definable types are for Enhanced IDE 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 asks 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"

TYPE:

This is the number designation for a drive with certain identification parameters.

CYLS.:

This is the number of cylinders found in the specified drive type.

HEADS:

This is 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:

Landzone 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:

Sector is the number of sectors per track.

DRIVE A AND DRIVE B:

Select the type of floppy disk drive installed in your system.

VIDEO:

Select the default video device. The options are Monochrome, Color 40, VGA/EGA, Color 80.

HALT ON:

Select the situation in which you want the BIOS to stop the POST process and notify you.

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 BIOS FEATURES SETUP

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

ROM ISA BIOS (2A9KHP69)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000 -CFFFF Shadow	: Disabled
External Cache	: Enabled	D0000- D7FFF Shadow	: Disabled
Quick Power On Self Test	: Disabled	D8000- DFFFF Shadow	: Disabled
Boot Sequence	: A,C, SCSI		
Swap Floppy Drive	: Disabled		
Boot Up Floppy Seek	: Enabled		
Boot Up Numlock Status	: On		
Boot Up System Speed	: High		
Memory Parity Check	: Disabled		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
OS Select For DRAM>64MB	: Non-OS2		

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

BIOS Features Setup

The “BIOS FEATURES SETUP” allows you to configure your system for basic operation. You can 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 window will appear on your screen detailing the various options available for each item. A brief introduction of each setting is given below:

VIRUS WARNING:

When enabled, the BIOS will supervise the boot sector and partition table of the hard disk drive for any attempt for modification.

CPU INTERNAL CACHE/EXTERNAL CACHE:

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

QUICK POWER ON SELF TEST:

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

BOOT SEQUENCE:

This category determines the sequence for which drive to look for first when system boots up. You may set the system to look first at drive A: and then at drive C: or vice versa.

SWAP FLOPPY DRIVE:

This category is effective only in systems wherein there are two floppy drives. Selecting enabled assigns physical swapping of 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 directly to the hard disk drive.

BOOT UP NUMLOCK STATUS:

This category 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, select Low to configure your system in normal speed mode. Whichever settings you have choose, you will still be able to use the turbo switch to toggle between the tow modes during use.

MEMORY PARITY CHECK:

Enable or Disable this item according to whether you wish the system to check the memory parity during boot up or not. If you disable this item even if the BIOS encounters a parity error it will be ignored. We recommend that you always enable this item in order to ensure that the memory is good each time you turn your PC on.

TYPEMATIC RATE SETTING:

This category determines if the typematic rate is to be used. When disabled, continually holding down a key on your keyboard will generate only one instance. In other words, the BIOS will only report that the key is down. When typematic rate is enabled, the BIOS will report as before, but it will then wait a moment, and, if the key is still down, it will begin the report that the key has been depressed repeatedly. 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.

TYPEMATIC RATE (CHARS-SEC):

When enabled, this selection allows you to select the rate at which the keys are accelerated.

TYPEMATIC DELAY (MSEC):

When enabled, this selection allows you to select the delay between when the key was first depressed and when the acceleration begins.

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:

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

VIDEO BIOS SHADOW:

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

4-5 CHIPSET FEATURES SETUP

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

ROM ISA BIOS (2A9KHP69)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Disabled
AT-BUS Clock	: 14.318/2
DRAM Refresh Type	: RAS only
Slow Refresh	: 60 us
Memory Remap	: Enabled
RAS Precharge Time	: 3.5T
RAS Active Time WS	: Enabled
CAS Precharge Time WS	: Enabled
Memory Read Access WS	: Enabled
Memory Write Access WS	: Enabled
ISA I/O High Speed	: Enabled
ISA Memory High Speed	: Enabled
ISA Write Cycle End WS	: Disabled
IO Recovery Period	: 750 ns
On-Chip I/O Recovery	: Disabled
16-Bit ISA Cycle WS	: Disabled
Memory Hole At 15-16M	: Disabled

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

Chipset Features Setup

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.

AUTO CONFIGURATION:

This item allows you to select pre-determined optimal values for DRAM, cache, timing according to CPU type and system clock.

AT BUS CLOCK:

This item set the speed of the AT bus in terms of a fraction of the CPU clock speed (PCLK2), or at the fixed speed of 7.16MHz.

RAS PRECHARGE TIME:

The precharge time is the number of cycles it takes for the RAS to accumulate its charge before DRAM refresh. If insufficient time is allowed, refresh may be incomplete and the DRAM may fail to retain data.

CAS PRECHARGE TIME WS:

Select the number of CPU clocks allocated for the CAS# signal to accumulate its charge before the DRAM is refreshed. If insufficient time is allowed, refresh may be incomplete and data lost.

MEMORY HOLE AT 15-16M:

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

4-6 POWER MANAGEMENT SETUP

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

ROM ISA BIOS (2A9KHP69)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	:Disable
PM Control by APM	:Yes
Video Off Option	:Susp,Stby->off
Video Off Method	:DPMS support
Modem Use IRQ	:3
** PM Timers**	
HDD Standby Timer	:Disabled
Doze Timer Select	:Disabled
Standby Timer Select	:Disabled
Inactive Timer Select	:Disabled
** PM Events **	
VGA	:OFF
DRQ	:ON
IRQ1 (keyboard)	:ON
IRQ3 (COM2)	:OFF
IRQ4 (COM 1)	:OFF
IRQ5 (LPT 2)	:OFF
IRQ6 (Floppy Disk)	:ON
IRQ7 (LPT 1)	:OFF

IRQ8	(RTC Alarm)	: OFF
IRQ9	(IRQ Redir)	: ON
IRQ10	(Reserved)	: OFF
IRQ11	(Reserved)	: OFF
IRQ12	(PS/2 Mouse)	: OFF
IRQ13	(Coprocessor)	: OFF
IRQ14	(Hard Disk)	: ON
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

The Power Management Setup allows you to configure your system to 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 the HDD power down, doze mode, standby mode, and suspend mode.

PM CONTROL BY APM:

When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock. If Advance Power Management (APM) is installed on your system, selecting "yes" gives better power savings.

VIDEO OFF OPTION:

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

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

VIDEO OFF METHOD:

This determines the manner in which the monitor is blanked.

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

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.

DOZE MODE:

When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

STANDBY MODE:

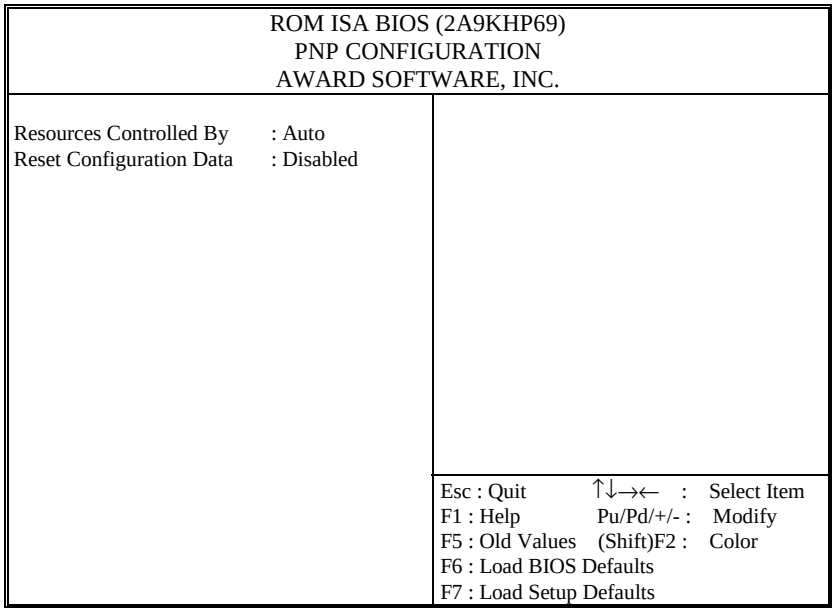
When enabled and after the set time of inactivity, the fixed disk drive and the video would be shut off while all other devices still operate at full speed.

SUSPEND MODE:

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

4-7 PNP CONFIGURATION SETUP

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



PNP CONFIGURATION

Highlight the selected item and pressing <F1> key, then all options for the desired selection will be displayed for choice. User has to use select the desired options. Having made all the above setting according to your configuration. Press <Esc> to return to the main menu.

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 load automatically when you power on the Prox-1330.

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 load 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 ISA BIOS (2A9KHP69) INTEGRATED PERIPHERALS AWARD SOFTWARE, INC.	
IDE HDD Block Mode : Enabled Onboard IDE Controller : Primary Onboard FDC Controller : Enabled Onboard UART 1 : 3F8/IRQ4 Onboard UART 2 : 2F8/IRQ3 Onboard Parallel Port : 378/IRQ7 Parallel Port Mode : Normal	Esc : Quit ↑↓→← : Select Item F1 : Help Pu/Pd/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

INTEGRATED PERIPHERALS

By moving the cursor to the desired selection and pressing <F1> key, all options for the desired selection will be displayed for choice. User may select the desired option. Having made all the setting according to your selections. Press <Esc> to return to the Main Menu.
Information on each item are listed as follows:

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 unless you installed an add-in FDC.

ONBOARD PARALLEL PORT:

Select a logical LPT port address and corresponding interrupt for the physical parallel port.

PARALLEL PORT MODE:

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

4-11. PASSWORD SETTING

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, and 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 to “Setup”, prompting will only occurs when trying to enter Setup.

TO DISABLE THE PASSWORD

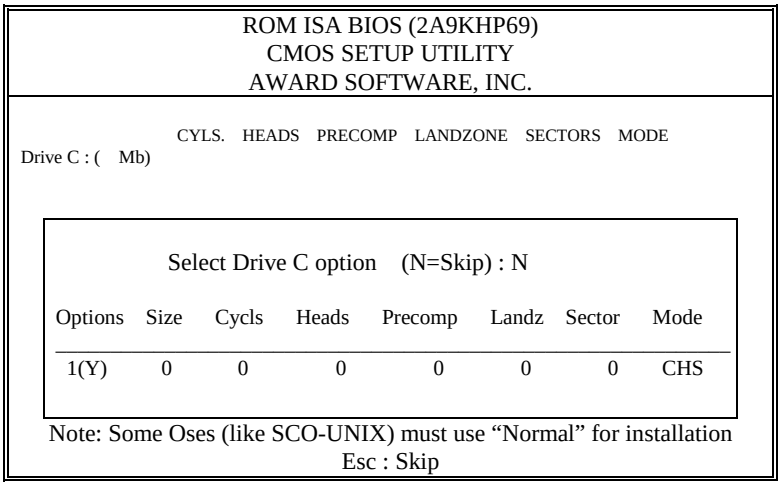
Upon entering the CMOS setup Menu, the system will ask you to enter the original password, after entering the original password, press 〝PASSWORD SETTING〞 a message will appear at the center.

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.



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:

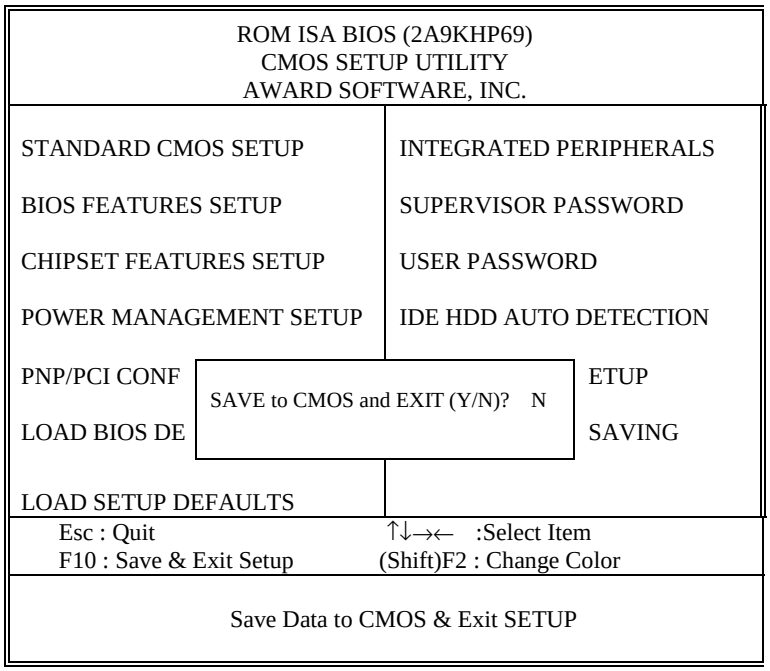
   “SELECT DRIVE C OPTION (N=SKIP):N”

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 for Drive D.

4-13. SAVE & EXIT SETUP

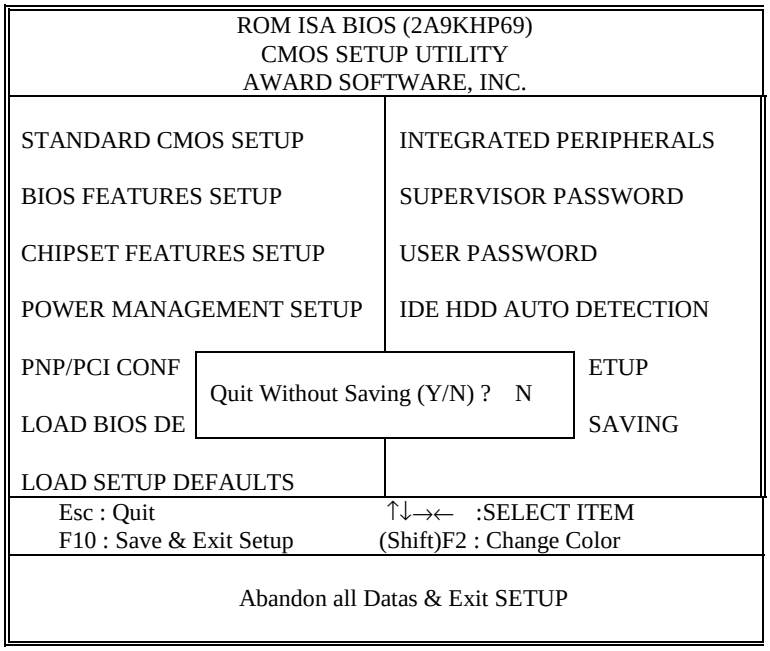
When you have completed adjusting all the settings as required, you should enter these setting into the CMOS RAM. Select "SAVE & EXIT SETUP" and press<Enter>, a screen will appear as shown below:



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:



EXPANSION BUS

APPENDIX

A

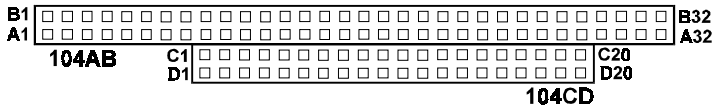
This appendix indicates you the pin assignments.

Section includes:

- PC-104 Connector Pin Assignment
- ISA BUS Pin Assignment

PC-104 CONNECTOR PIN ASSIGNMENT

104AB, 104CD : PC-104 Connector



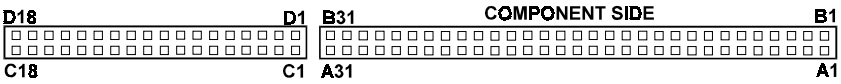
The PC-104 can support multi-pieces of PC-104 modules. This card has two connectors : one (104AB) consists of 64 pin, dual-in-line header, the other one (104CD) consists of 40 pin, dual-in-line header
The pin assignments for connector 104AB & 104CD are as follow:

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				

ISA BUS PIN ASSIGNMENT

The ISA BUS for this card is called “Gold Fingers”. It 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	-5V	A5	SD04	D5	IRQ12	C5	LA20
B6	DRQ2	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	IRQ6	A22	SA09				
B23	IRQ5	A23	SA08				
B24	IRQ4	A24	SA07				
B25	IRQ3	A25	SA06				
B26	-DACK2	A26	SA05				
B27	T/C	A27	SA04				
B28	BALE	A28	SA03				
B29	+5V	A29	SA02				
B30	OSC	A30	SA01				
B31	GND	A31	SA00				

TECHNICAL SUMMARY

APPENDIX

B

This section introduce you the maps concisely.

Section includes:

- 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	Parallel port 2
6	Floppy Disk adapter
7	Parallel port 1
8	RTC clock
9	Available
10	Available
11	Available
12	Available
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

Timer Channel Map :

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

DMA Channel Map :

DMA Channel	Assignment
0	Available
1	IBM SDLC
2	Floppy Disk adapter
3	Channel-3 Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

I/O & MEMORY MAP

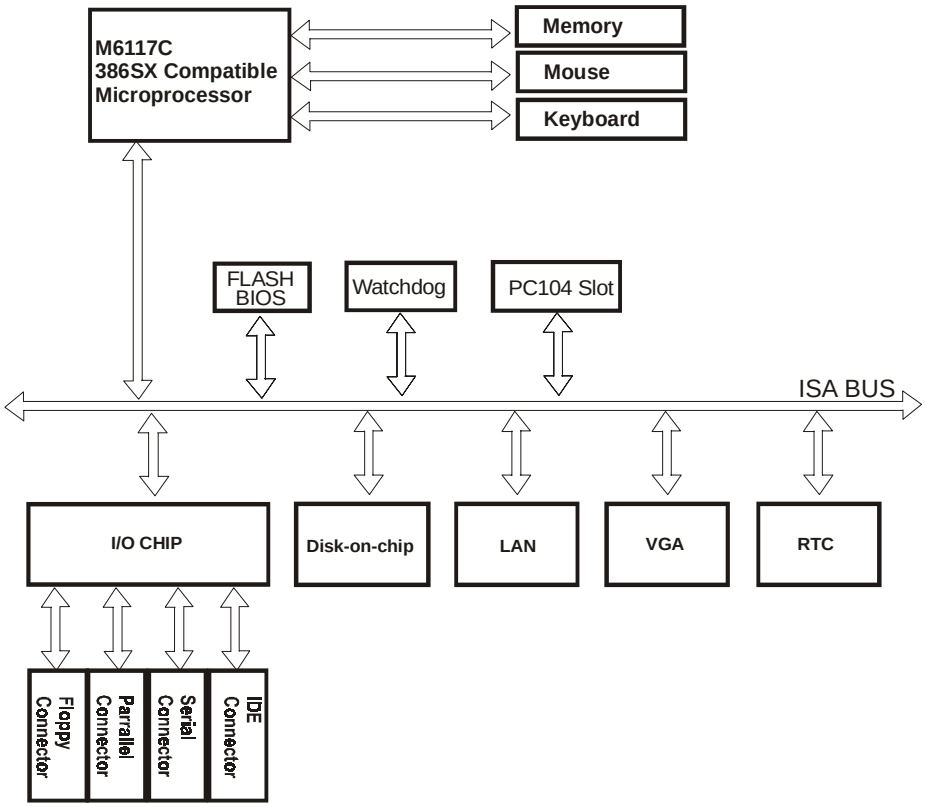
Memory Map :

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-BFFFFF	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

BLOCK DIAGRAM



TROUBLE SHOOTING

APPENDIX

C

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

Section includes:

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

TROUBLE SHOOTING FOR ERROR MESSAGE

The following information informs 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 in-dicates 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.

TROUBLE SHOOTING 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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