USER'S MANUAL

Prox-1550

P5/6x86 Half-sized
Embedded Card
W/ VGA / SCSI / LAN

Prox-1550-M1

ProX-1550 P5/6x86 Half-sized EMBEDDED CARD
With VGA/SCSI/LAN

OPERATION MANUAL

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INTRODUCTION

This chapter gives you the information for Prox-1550. 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 a Quick Start.

1-1. ABOUT THIS MANUAL

Thank you for procuring our Prox-1550 P5/6x86 Embedded Card enhanced with VGA/SCSI/LAN, which is fully PC / AT compatible. The Prox-1550 provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the system. It contains five 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 service manual, and the specification for this system. The Final page of this chapter indicates how to avoid damaging the Embedded Card.

Chapter 2 Hardware Configuration

This chapter outlines the component's location and their functions. At 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 for proper installation of VGA driver, SCSI driver, LAN driver and how to update BIOS.   It also explains the watchdog-timer configuration.

Chapter 4 Green PC Function

This chapter explains the Green PC functions concisely.

Chapter 5 Award BIOS Setup

This chapter indicates how to set up the BIOS configurations.

Appendix A Expansion Bus

This Appendix introduces you the expansion bus for PC-104, PCI 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 you the methods to solve the problems.

1-2. SYSTEM SPECIFICATION

● **CPU :**

Intel, AMD, Cyrix.
54C/55C, K5/K6/K6-2/K6-3, M1/M2.
320/321 pin PGA socket.
1.8V/1.9V/2.0V/2.1V/2.2V/2.3V/2.4V/2.5V/2.8V/2.9V/3.0V/3.1V/3.2V/
3.3V/3.4V/3.5V voltage regulator.

● **MEMORY :**

Up to 512MB SDRAM
Two 168pin DIMM socket on board.

● **CACHE :**

L1 Cache (depended on CPU type).
L2 Cache on board 512KB.

● **REAL-TIME CLOCK / CALENDAR :**

CMOS data back up from BIOS set or BIOS default.
Dallas DS 12887 Real Time Clock.

● **BIOS :**

Award Flash BIOS for plug & play function.
Easy update 256KB flash EEPROM.
Support Green Function.
Support S/IO Setup.

● **KEYBOARD CONNECTOR :**

PC/AT type mini DIN connector.
Support AT Keyboard or PS/2 Mouse by jumper selection.
5-pin External keyboard connector.

● **BUS SUPPORT :**

External ISA/PCI BUS.
Internal PCI Bus for VGA, IDE, LAN, & SCSI.
PC-104 BUS.

● **DISPLAY :**
Support SVGA for CRT & Panel.
Support 32bits PCI Local Bus.
VGA BIOS combines in 256KB flash ROM together with system BIOS.
Support 15-pin connector 1024 x 768 (256 colors) resolution on SVGA
Monitor.
Integrates 2Mbytes of SDRAM for graphics/video frame buffer.
Support 51-pin connector 640 x 480, 800 x 600, 1024 x 768 resolutions on
LCD Panel.
Panel support: Color STN, TFT, and EL modes.
Support simultaneous display of CRT & LCD flat Panel.

● **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 :**
Two IDE ports, Support Ultra DMA-33, Support up to four Enhanced IDE
devices.

● **FLOPPY DISK DRIVER INTERFACE :**
Support up to two Floppy Disk Drivers, 3.5" and 5.25" (360K / 720K /
1.2M / 1.44M / 2.88M / LS-120).

● **DISK-ON-CHIPS SOCKET :**
A 32-pin SSD socket on-board, Supports up to 144MB Disk-On-Chips.

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

● **SCSI INTERFACE :**
Two connectors on board, one for SCSI 50pin connector and one 68pin
ULTRA (transfer rate 40MB/S) or ULTRA2 (transfer rate 80MB/S) wide
SCSI connector.

● **LAN ADAPTER :**
  Realtek RTL8139 Fast Ethernet.
  10/100 Base-T PCI Bus.
  RJ-45 Jack on board.

● **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.

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

● **LED INDICATOR :**
  System power.
  Hard Disk access.
  Green function mode.
  LAN LED indicator.

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

● **DMA CONTROLLER :**
  82C37 x 2

● **DMA CHANNELS :**
  7

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

● **INTERRUPT LEVELS :**
   15

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

● **SYSTEM POWER REQUIREMENT :**
   DC Voltage: +5V, minimum +4.75V, maximum +5.25V.
   DC Ampere: 15A.
   DC Voltage: +12V, minimum +11.4V, maximum +12.6V.
   DC Ampere: 500mA.

● **BOARD DIMENSION :**
   338.5mm x 122mm

● **BOARD NET WEIGHT :**
   0.37 Kgs.

1-3. SAFETY PRECAUTIONS

Follow the messages below to avoid your systems from damage:

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

2. Prevent electric shock. Don't touch any components of this card when the card is 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
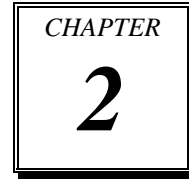
** QUICK START **

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

CPU Type & Clock Selection	JP2
Bus Frequency Ratio Selection	JP1
CPU Voltage Selection	JP8, JP9
COM1 Connector	COM1
COM2 Connector	COM2
RS232/422/485 (COM2) Selection	JP5
Keyboard or PS/2 Mouse Connector ...…….....…	DIN
Keyboard or PS/2 Mouse Selection …….........…	JP4
External Keyboard Connector	EXKB
Reset Connector	RST
CPU Fan Connector …………………………...	CPUFAN
System Fan Connector …………………….…...	JP13
Reset/NMI/Clear Watchdog ……………………...	JP6
Floppy Disk Drive Connector	FDD
Hard Disk Drive Connector	IDE1, IDE2
Hard Disk Drive LED Connector	HDL
LAN Connector ………………………………...	UTP
Power LED & KeyLock Connector	KBL
Panel Power Connector ....…………….…..	JP11
Panel VCC Selection …………………………...	JP12
LCD Panel Connector	LCD
VGA CRT Connector	VGA
Power Connector	PWR
Printer Connector	PRT
External Speaker Connector	JP3
Universal Serial Bus Connector	USB
SCSI Connector	SCSI,ULTRA
Solid-State Disk Socket	SSD
SSD Memory Mapping Selection	JP7
Green Function Connector ……………………….	GRN
Memory Installation	DIMM1, DIMM2

2-2 COMPONENT LOCATIONS
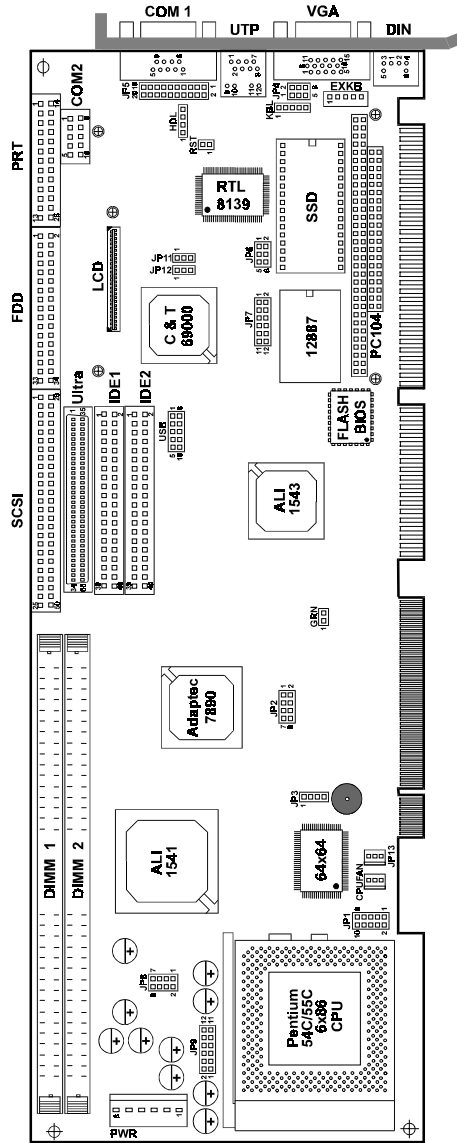
Prox-1550 Connector, Jumper, and Component locations

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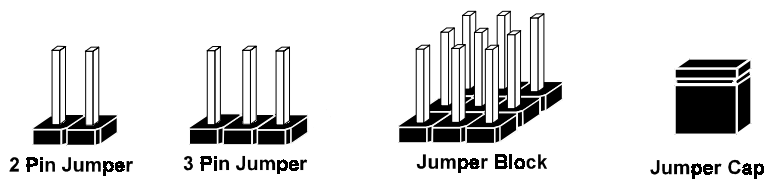
If a jumper has three pins, for example: labelled PIN1, PIN2, and PIN3. You can connect PIN1 & PIN2 to create one setting and shorting. Or you may also connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagram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

JUMPER DIAGRAMS

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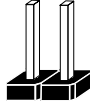
2 pin Jumper
looks like this
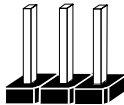
3 pin Jumper
looks like this
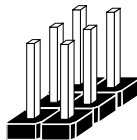
Jumper Block
looks like this
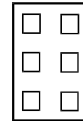
JUMPER SETTINGS

2 pin Jumper close(enabled)
looks like this
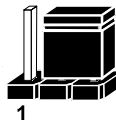
3 pin Jumper
2-3 pin close(enabled)
looks like this
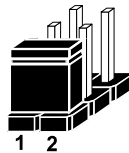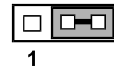
Jumper Block
1-2 pin close(enabled)
looks like this
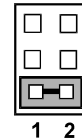
2-4 CPU TYPE & CLOCK SELECTION

JP1 : Bus Frequency Ratio Selection
JP2 : CPU Type & Clock Selection
JP8, JP9 : CPU Voltage Selection
The jumper settings are as follows:

2-4-1 Intel 150/166 CPU type & clock Jumper Settings

CPU TYPE	CPU CLOCK	Jumper Setting (Pin closed)				JUMPER ILLUSTRATION
		JP1	JP2	JP8	JP9	
Intel Pentium 150Mhz	60Mhz	1-2 3-4	1-2 3-4 5-6 7-8	1-2 5-6 7-8	5-6 7-8	
Intel Pentium 166Mhz	66Mhz	1-2 3-4	3-4 5-6 7-8	1-2 5-6 7-8	5-6 7-8	

2-4-2 Intel 200 CPU type & clock Jumper Settings

CPU TYPE	CPU CLOCK	Jumper Setting (Pin closed)				JUMPER ILLUSTRATION
		JP1	JP2	JP8	JP9	
Intel Pentium 200Mhz	66Mhz	3-4	3-4 5-6 7-8	1-2 5-6 7-8	5-6 7-8	

2-4-3 Intel MMX-166/200 CPU type & clock Jumper Settings

| CPU TYPE | CPU CLOCK | Jumper Setting (Pin closed) | | | | JUMPER ILLUSTRATION |
		JP1	JP2	JP8	JP9	
Intel Pentium MMX 166Mhz	66Mhz	1-2 3-4	3-4 5-6 7-8	7-8	1-2 3-4	
Intel Pentium MMX 200Mhz	66Mhz	3-4	3-4 5-6 7-8	7-8	1-2 3-4	

2-4-4 Intel MMX 233 CPU type & clock Jumper Settings

CPU TYPE	CPU CLOCK	Jumper Setting (Pin closed)				JUMPER ILLUSTRATION
		JP1	JP2	JP8	JP9	
Intel Pentium MMX 233Mhz	66Mhz	Open	3-4 5-6 7-8	7-8	1-2 3-4	

2-4-5 Cyrix MMX-233/266 CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper Setting (Pin closed)				JUMPER ILLUSTRATION
		JP1	JP2	JP8	JP9	
Cyrix MMX 233Mhz	66Mhz	3-4	3-4 5-6 7-8	1-2 7-8	1-2 3-4	
Cyrix MMX 266Mhz	83Mhz	1-2 3-4	3-4 7-8	1-2 7-8	1-2 3-4	

2-4-6 Cyrix MMX-300/M2-300 CPU type & clock Jumper Settings

CPU TYPE	CPU CLOCK	Jumper Setting (Pin closed)				JUMPER ILLUSTRATION
		JP1	JP2	JP8	JP9	
Cyrix MMX 300Mhz	66Mhz	Open	3-4 5-6 7-8	1-2 7-8	1-2 3-4	
Cyrix M2 300Mhz	66Mhz	Open	3-4 5-6 7-8	1-2 7-8	1-2 3-4	

2-4-7 AMD K6-200/233 CPU type & clock Jumper Settings

CPU TYPE	CPU CLOCK	Jumper Setting (Pin closed)				JUMPER ILLUSTRATION
		JP1	JP2	JP8	JP9	
AMD K6 200Mhz	66Mhz	3-4	3-4 5-6 7-8	1-2 7-8	1-2 3-4	
AMD K6 233Mhz	66Mhz	Open	3-4 5-6 7-8	5-6 7-8	5-6 7-8	

2-4-8 AMD K6-2-266/300 CPU type & clock Jumper Settings

CPU TYPE	CPU CLOCK	Jumper Setting (Pin closed)				JUMPER ILLUSTRATION
		JP1	JP2	JP8	JP9	
AMD K6-2 266Mhz	66Mhz	1-2 5-6	3-4 5-6 7-8	5-6	1-2 3-4	
AMD K6-2 300Mhz	100Mhz	3-4	7-8	5-6	1-2 3-4	

2-4-9 AMD K6-2-333/350 CPU type & clock Jumper Settings

CPU TYPE	CPU CLOCK	Jumper Setting (Pin closed)				JUMPER ILLUSTRATION
		JP1	JP2	JP8	JP9	
AMD K6-2 333Mhz	95Mhz	Open	1-2 7-8	5-6	1-2 3-4	
AMD K6-2 350Mhz	100Mhz	Open	7-8	5-6	1-2 3-4	

2-4-10 AMD K6-2-366/380 CPU type & clock Jumper Settings

CPU TYPE	CPU CLOCK	Jumper Setting (Pin closed)				JUMPER ILLUSTRATION
		JP1	JP2	JP8	JP9	
AMD K6-2 366Mhz	66Mhz	5-6	3-4 5-6 7-8	5-6	1-2 3-4	
AMD K6-2 380Mhz	95Mhz	1-2 5-6	1-2 7-8	5-6	1-2 3-4	

2-4-11 AMD K6-2-400/450 CPU type & clock Jumper Settings

CPU TYPE	CPU CLOCK	Jumper Setting (Pin closed)				JUMPER ILLUSTRATION
		JP1	JP2	JP8	JP9	
AMD K6-2 400Mhz	100Mhz	1-2 5-6	7-8	5-6	1-2 3-4	
AMD K6-2 450Mhz (2.2V)	100Mhz	1-2 3-4 5-6	7-8	5-6	1-2 3-4	

2-4-12 AMD K6-2-450/500 CPU type & clock Jumper Settings

CPU TYPE	CPU CLOCK	Jumper Setting (Pin closed)				JUMPER ILLUSTRATION
		JP1	JP2	JP8	JP9	
AMD K6-2 450Mhz (2.4V)	100Mhz	1-2 3-4 5-6	7-8	3-4 5-6	1-2 3-4	
AMD K6-2 500Mhz (2.4V)	100Mhz	3-4 5-6	7-8	3-4 5-6	1-2 3-4	

2-4-13 AMD K6-3-400/450 CPU type & clock Jumper Settings

CPU TYPE	CPU CLOCK	Jumper Setting (Pin closed)				JUMPER ILLUSTRATION
		JP1	JP2	JP8	JP9	
AMD K6-3 400Mhz	100Mhz	1-2 5-6	7-8	3-4 5-6	1-2 3-4	
AMD K6-3 450Mhz	100Mhz	1-2 3-4 5-6	7-8	3-4 5-6	1-2 3-4	

2-4-14 AMD K6-3-500 CPU type & clock Jumper Settings

CPU TYPE	CPU CLOCK	Jumper Setting (Pin closed)				JUMPER ILLUSTRATION
		JP1	JP2	JP8	JP9	
AMD K6-3 500Mhz	100Mhz	3-4 5-6	7-8	3-4 5-6	1-2 3-4	

2-5 COM1 CONNECTOR

COM1 : COM1 Connector, DB9 male connector
The COM1 Connector assignments are as follows :

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

COM 1
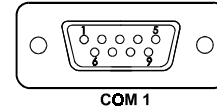
2-6 COM2 CONNECTOR

COM2 : COM2 Connector
The COM2 Connector assignments are 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
10	NC	NC	NC
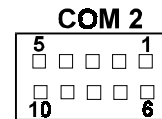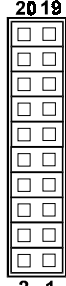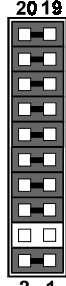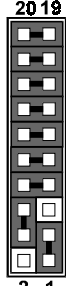
COM 2

2-7 RS232/422/485 (COM2) SELECTION

JP5 : 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	RS-232	RS-422	RS-485
Jumper setting (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.

2-8 KEYBOARD OR PS/2 MOUSE CONNECTOR

DIN : Keyboard or PS/2 Mouse Connector
User may select to use keyboard or PS/2 mouse in JP4 before using this connector. The pin assignments are as follows:

PIN	ASSIGNMENT	
	KEYBOARD	**PS/2 MOUSE**
1	KBDATA	MS DATA
2	NC	NC
3	GND	GND
4	VCC	+5V
5	KBCLK	MS CLK
6	NC	NC
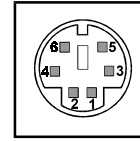
DIN

2-9 AT KEYBOARD / PS2 MOUSE SELECTION

JP4 : AT Keyboard / PS2 Mouse Selection.
The jumper settings are as follows:

DEVICE TYPE	JUMPER SETTING (pin closed) JP4	JUMPER ILLUSTRATION
AT KEYBOARD	3-5 4-6	**JP4**
PS/2 MOUSE	1-3 2-4	**JP4**

2-10 EXTERNAL KEYBOARD CONNECTOR

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

PIN	ASSIGNMENT
1	KBCLK
2	KBDATA
3	NC
4	GND
5	VCC
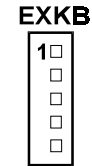
2-11 RESET CONNECTOR

JP10 : Reset Connector.
The pin assignment is as follows:

PIN	ASSIGNMENT
1	RESET
2	GND
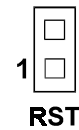
2-12 CPU FAN CONNECTOR

CPUFAN : CPU Fan Connector.
The pin assignment is as follows:

PIN	ASSIGNMENT
1	CPUFAN
2	+12V
3	GND
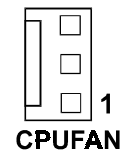
2-13 SYSTEM FAN CONNECTOR

SYSFAN : System Fan Connector.
The pin assignment is as follows:

PIN	ASSIGNMENT
1	SYSFAN
2	+12V
3	GND
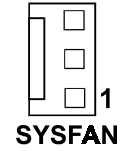
2-14 RESET/NMI/CLEAR WATCHDOG

JP6 (1-2) : For Reset
JP6 (3-4) : For NMI
JP6 (5-6) : For Clear Watchdog
The pin assignments are as follows:

PIN	ASSIGNMENT
1	WDGRST
2	WDGRSTJ
3	WDGNMI
4	IOCHKJ
5	CLRWDG
6	GND
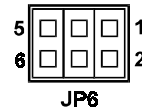
2-15 FLOPPY DISK DRIVE CONNECTOR

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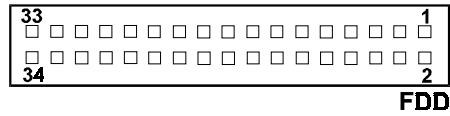
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	RPM
3	GND	4	NC
5	GND	6	RATE0
7	GND	8	INDEX
9	GND	10	MTR0
11	GND	12	DRV1
13	GND	14	DRV0
15	GND	16	MTR1
17	GND	18	DIR
19	GND	20	STEP
21	GND	22	WDATA
23	GND	24	WGATE
25	GND	26	TRK0
27	GND	28	WRPRT
29	GND	30	RDATA
31	GND	32	SEL
33	GND	34	DSKCHG

2-16 HARD DISK DRIVE CONNECTOR

The Prox-1550 possesses two HDD connectors, IDE1 and IDE2. The pin assignments are as follows:

IDE1: Hard Disk Drive Connector
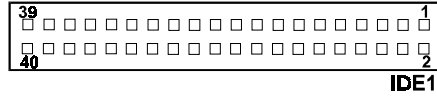
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST	21	IDEREQ0
2	GND	22	GND
3	IDED7	23	IDEIOW
4	IDED8	24	GND
5	IDED6	25	IDEIOR
6	IDED9	26	GND
7	IDED5	27	IDERDY
8	IDED10	28	PULL HI
9	IDED4	29	IDEACK0
10	IDED11	30	GND
11	IDED3	31	IRQ14
12	IDED12	32	IOCS16
13	IDED2	33	IDEA1
14	IDED13	34	GND
15	IDED1	35	IDEA0
16	IDED14	36	IDEA2
17	IDED0	37	IDECS1P
18	IDED15	38	IDECS3P
19	GND	39	IDELEDP
20	N.C.	40	GND

IDE2: Hard Disk Drive Connector
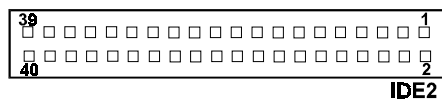
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST	21	IDEREQ1
2	GND	22	GND
3	IDED7	23	IDEIOW
4	IDED8	24	GND
5	IDED6	25	IDEIOR
6	IDED9	26	GND
7	IDED5	27	IDERDY
8	IDED10	28	PULL HI
9	IDED4	29	IDEACK1
10	IDED11	30	GND
11	IDED3	31	IDESIRQ
12	IDED12	32	IOCS16
13	IDED2	33	IDEA1
14	IDED13	34	GND
15	IDED1	35	IDEA0
16	IDED14	36	IDEA2
17	IDED0	37	IDECS1S
18	IDED15	38	IDECS3S
19	GND	39	IDELEDS
20	N.C.	40	GND

2-17 HARD DISK DRIVE LED CONNECTOR

HDL : 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

2-18. LAN CONNECTOR

UTP: LAN Connector
You will find two LAN LED indicator 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
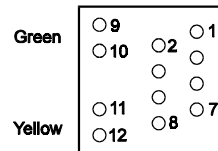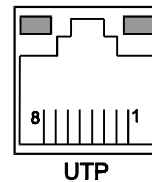
2-19 POWER LED & KEYLOCK CONNECTOR

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

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

1 □
 □
 □
 □
 □

KBL

2-20 PANEL POWER CONNECTOR

JP11 : Panel Power Connector
This connector is to supply proper power to panel LCD.
The pin assignments is as follows:
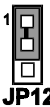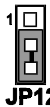
PIN	ASSIGNMENT
1	LCD +12V
2	GND
3	LCD VDD (+5V/3.3V)

1 □
 □
 □

JP11

⌂Note: Before using this connector, make sure that you set the JP12
    jumper at the same time. Pin #3 can be +5V or +3.3V depending
    on the jumper set on JP12.

2-21 PANEL VCC SELECTION

JP12 : Panel VCC Connector
The pin assignments is as follows:

Panel VCC Selection	VCC	VCC3.3V
JUMPER SETTING (pin closed)	1-2	2-3
JUMPER ILLUSTRATION	JP12	JP12

2-22 LCD PANEL CONNECTOR

LCD : LCD Panel Connector
The connector LCD is a 51-pin, dual-in-line header used for Flat Panel displays. The pin assignments are as follows:

LCD
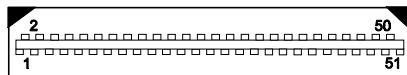
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	P0	2	P16
3	P1	4	P17
5	P2	6	P18
7	P3	8	P19
9	P4	10	P20
11	P5	12	P21
13	P6	14	P22
15	P7	16	P23
17	LCD VDD	18	LCDVDD
19	P8	20	P24
21	P9	22	P25
23	P10	24	P26
25	P11	26	P27
27	P12	28	P28
29	P13	30	P29
31	P14	32	P30
33	P15	34	P31
35	P34	36	P32
37	P35	38	P33
39	M	40	GND
41	VDDSAFE	42	FLM
43	VDDSAFE	44	GND
45	ENABKL	46	SHFCLK
47	ENVEE	48	GND
49	12VSAFE	50	LP
51	12VSAFE		

2-23 VGA CRT CONNECTOR

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

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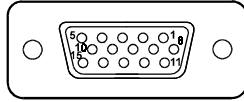
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	RED	9	NC
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	NC
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	NC
8	GND		

2-24 POWER CONNECTOR

PWR : Power Connector
The pin assignments is as follows:

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

PWR

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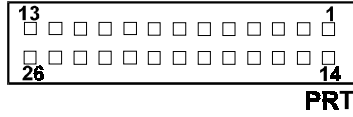
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STB	14	AUTFE
2	P0	15	ERROR
3	P1	16	INIT
4	P2	17	SLCTIN
5	P3	18	GND
6	P4	19	GND
7	P5	20	GND
8	P6	21	GND
9	P7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	NC

2-26 EXTERNAL SPEAKER CONNECTOR

JP3 : External Speaker Connector
The pin assignments are as follows :

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

JP3
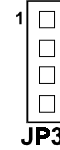
2-27 UNIVERSAL SERIAL BUS CONNECTOR

USB: Universal Serial Bus Connector
The USB connector of this board can support up to two USB ports.
The pin assignments are as follows:

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

USB
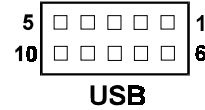
2-28 SCSI CONNECTOR

The Prox-1550 is equipped with two SCSI Connectors on board - the SCSI and ULTRA. The SCSI is a 50 pins dual-in-line header, and ULTRA is a 68 pins dual-in-line header for Ultra2-Wide SCSI. The pin assignments are as follows:

SCSI : SCSI Connector
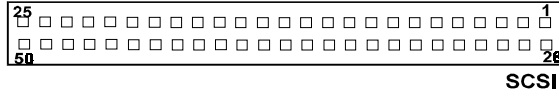
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	18	GND	35	GND
2	GND	19	GND	36	GND
3	GND	20	GND	37	GND
4	GND	21	GND	38	TRMPWR
5	GND	22	GND	39	GND
6	GND	23	GND	40	GND
7	GND	24	GND	41	SATTN-
8	GND	25	GND	42	GND
9	GND	26	SCD0	43	SBSY-
10	GND	27	SCD1	44	SACK-
11	GND	28	SCD2	45	SRST-
12	GND	29	SCD3	46	SMSG-
13	GND	30	SCD4	47	SSEL-
14	GND	31	SCD5	48	SCD-
15	GND	32	SCD6	49	SREQ-
16	GND	33	SCD7	50	SIO-
17	GND	34	SCDPL		

ULTRA : SCSI Connector for Ultra2-wide SCSI HDD.

```
34                                             1
68                                             35
ULTRA
```
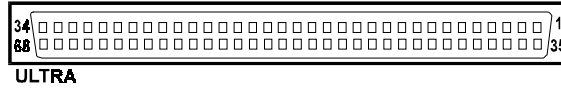
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LVDP12	24	LVACKP	47	LVDM7
2	LVDP13	25	LVRSTP	48	LVDPLM
3	LVDP14	26	LVMSGP	49	GND
4	LVDP15	27	LVSELP	50	NC
5	LVDPHP	28	LVCDP	51	LVTRMPWR
6	LVDP0	29	LVREQP	52	LVTRMPWR
7	LVDP1	30	LVIOP	53	NC
8	LVDP2	31	LVDP8	54	GND
9	LVDP3	32	LVDP9	55	LVATNM
10	LVDP4	33	LVDP10	56	GND
11	LVDP5	34	LVDP11	57	LVBSYM
12	LVDP6	35	LVDM12	58	LVACKM
13	LVDP7	36	LVDM13	59	LVRSTM
14	LVDPLP	37	LVDM14	60	LVMSGM
15	GND	38	LVDM15	61	LVSELM
16	DIFFSE	39	LVDPHM	62	LVCDM
17	LVTRMPWR	40	LVDM0	63	LVREQM
18	LVTRMPWR	41	LVDM1	64	LVIOM
19	NC	42	LVDM2	65	LVDM8
20	GND	43	LVDM3	66	LVDM9
21	LVATNP	44	LVDM4	67	LVDM10
22	GND	45	LVDM5	68	LVDM11
23	LVBSYP	46	LVDM6		

♦※ The SCSI function of this CPU Card is designed based on PCI Bus Master, that means one of the PCI Bus Master is occupied. The SCSI Bus Master (DRQ3) is same as 4th PCI Slot on the backplane (DRQ3).
When the SCSI chipset is on-board, the 4th PCI slot on backplane would fail even if SCSI function is disabled.

2-29. SOLID-STATE DISK SOCKET

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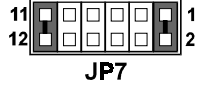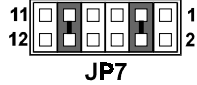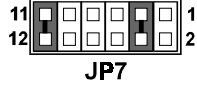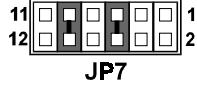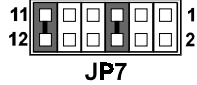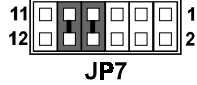
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	17	SD3
2	NC	18	SD4
3	NC	19	SD5
4	SA12	20	SD6
5	SA7	21	SD7
6	SA6	22	CE
7	SA5	23	SA10
8	SA4	24	OE
9	SA3	25	SA11
10	SA2	26	SA9
11	SA1	27	SA8
12	SA0	28	NC
13	SD0	29	NC
14	SD1	30	VCC
15	SD2	31	WE
16	GND	32	VCC

2-30 SSD MEMORY MAPPING SELECTION

JP7 : 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	
E0000h-E1FFFh	7-8 9-10	

***Manufactory default --- CC000h-CDFFFh

2-31 GREEN FUNCTION CONNECTOR

GRN: Green Function Connector
The pin assignments is as follows:

PIN	ASSIGNMENT
1	EXTSMI-
2	GND

2-32 MEMORY INSTALLATION

The Prox-1550 P5/6x86 Embedded Card can support 2 DRAM banks in two pieces 168 pin DIMM sockets on board.

DRAM BANK CONFIGURATION

DIMM 1	DIMM 2	TOTAL MEMORY
32M		32M
32M	32M	64M
32M	64M	96M
64M		64M
64M	32M	96M
64M	64M	128M
64M	128M	192M
128M		128M
128M	64M	192M
128M	128M	256M
128M	256M	384M
256M		256M
256M	128M	384M
256M	256M	512M

SOFTWARE UTILITIES

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

Section includes:

● VGA Driver Utility

● Flash BIOS Update

● LAN Driver Utility

● SCSI Driver Utility

● Watchdog Timer Configuration

3-1. INTRODUCTION

Enclosed with our Prox-1550 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\CT69K	For VGA driver installation
D:\Flash\Awdflash.exe	For BIOS update
D:\SCSI\AIC7890	For SCSI driver installation
D:\LAN\RTL8139	For LAN Driver installation

3-2. VGA DRIVER UTILITY

The VGA interface embedded with our Prox-1550 can support a wide range of display mode, such as SVGA, STN, TFT, EL,.....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 3.1 program
3. Win 95 program
4. Win NT program
5. Win 98 program
6. OS/2 Video Device Driver
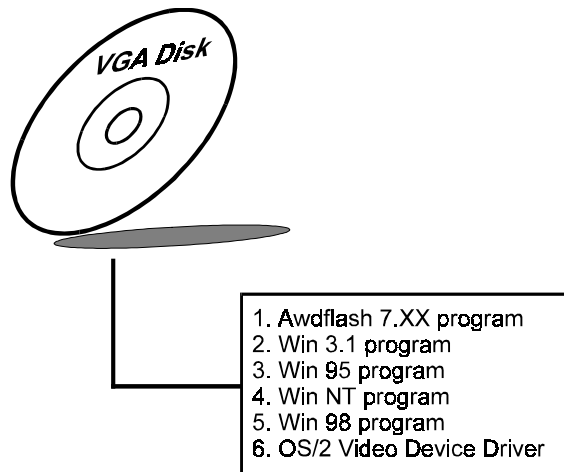
3-2-1. Installation of VGA Driver for PCI

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 "Adaper 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 69000 PCI".
   (6). Follow the remaining instruction that appear on the screen to complete the rest of the installation, then restart your computer.

3. Install VGA driver to Windows NT 3.5x/4.0
   (1). To install VGA drivers to Windows 3.5x/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.

4. Install VGA driver to OS/2 Warp Operation System

(1) Preliminary Steps:

(i)   OS/2 DOS Support must be installed.

(ii) If you previously installed SVGA support, you must reset the system to VGA mode. VGA is the default video mode enable when OS/2 is to be installed.

(iii) To restore VGA mode, Use SELECTIVE INSTALL and select VGA for PRIMARY DISPLAY. For more information on this procedure, see the section on Changing Display Adapter Support in the OS/2 User's Guide.

(2) Start Driver installation

(i)   Open an OS/2 full screen or windowed session.

(ii) Place into Drive A/B the Utility Disk, which contains the 69000 Display Driver.

(iii) At the OS/2 command prompt , type the following commands to copy the files to the OS/2 drive:
Type A: and press ENTER to make this the default drive.
Type Setup A: C: and press ENTER

⧖ When the setup Program is completed, you will need to perform a shut down and then restart the system in order for changes to take effect.

(iv) After restarting the system, first open the OS/2 System folder.

(v)   Then open the System Setup folder.

(vi) Open the Display Driver Install Object.

(vii) When the Display Driver Install window appears, select PRIMARY DISPLAY, and click OK.

(viii) When the Primary Display Driver List window appears, select "Chips and Technologies 69000" from the list of Adapter types, then select OK to install the video driver.

(ix) When installation is complete, you should shut down and restart the system for the changes to take effect. And also make sure to remove the install Utility Disk before restarting system.

3-3. FLASH BIOS UPDATE

3-3-1. System BIOS Update:

Users of Prox-1550 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-1550 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 69000 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 F50xxxxx.bin
   C:\UTIL\AWDFLASH>AWDFLASH   F50xxxxx.bin
4. The screen will display the table below:

```
FLASH MEMORY WRITER v7.XX
(C) Award Software 1999 All Rights Reserved


For ALLADIN5-2A5KKP6CC-0          DATE:   12/12/1999
         Flash Type:    MXIC 29F002(N)T/5V
       File Name to Program:    F50xxxxx.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 ALLADIN5-2A5KKP6CC-0      DATE:   12/12/1999       │
│            Flash Type: MXIC 29F002(N)T/5V                │
│          File Name to Program:   F60xxxxx.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 ALLADIN5-2A5KKP6CC-0      DATE:   12/12/1999       │
│            Flash Type: MXIC 29F002(N)T/5V                │
│          File Name to Program:   F60xxxxx.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. SCSI DRIVER UTILITY

3-4-1. Introduction

Prox-1550 is embedded with SCSI Adaptec 7890 can support SCSI II and Ultra/Ultra2-wide SCSI.   Installation programs are provided as follows:

1. Netware program
2. OS/2 program
3. Windows 3.1 / 9x / NT
4. SCOUnix
5. Unixware
6. SCO OpenServer 5.0
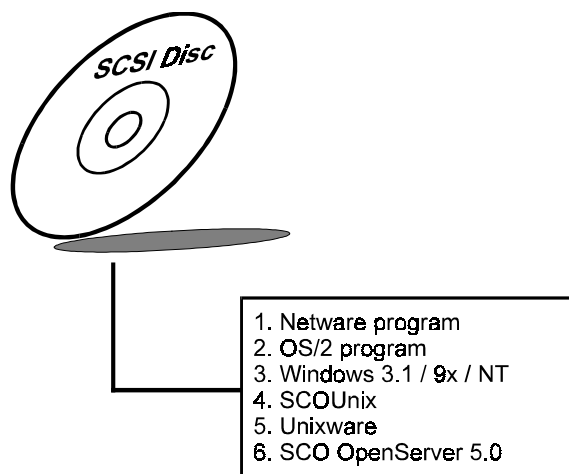
Details on Installation procedure is found in the README.TXT file found on SCSI DRIVER UTILITY.

3-5. LAN DRIVER UTILITY

3-5-1. Introduction

Prox-1550 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
```
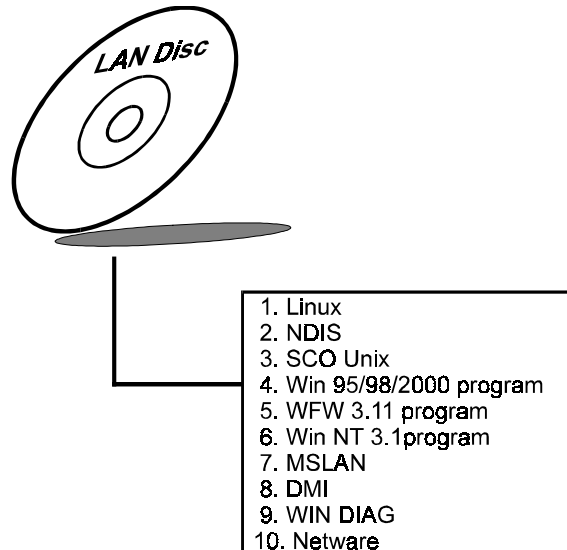
3-5-2. Installing Procedure on Microsoft Windows 95

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.

3-5-3. 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.

3-6. WATCHDOG TIMER CONFIGURATION

This board has watchdog timer function for monitoring whether the system is still work or not after a period of time. The user can select watchdog timer to system reset or NMI (Non Maskable interrupt) depending on the jumper set in JP6 as described in chapter 2. This is defined at I/O port **443H**. When you want to enable the watchdog timer, please write I/O port **443H**, then the system will either reset itself or perform the NMI function. Likewise, when you want to disable the function, write I/O port **441H**, the system will run the command to stop the Watchdog function.

The Prox-1550 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, 0443H
OUTDX, AX

Watchdog disable program:
MOVAX, 000FH   (this value can be ignored)
MOVDX, 0441H
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

GREEN PC
FUNCTION
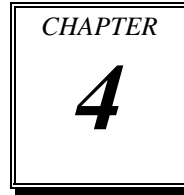
This chapter gives you the concise information for Green PC Function.

Sections include:

● Power Saving Block Diagram

● CPU Doze Mode

● System STANDBY Mode

● System SUSPEND Mode

4-1. POWER SAVING BLOCK DIAGRAM
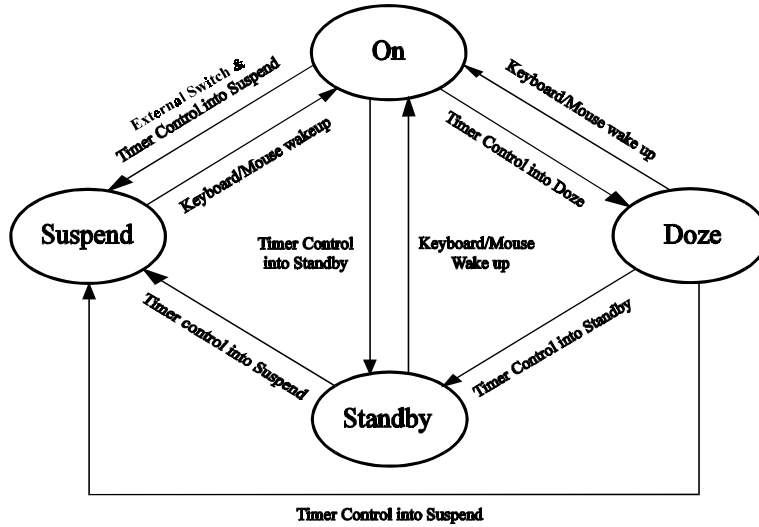
4-2. CPU DOZE MODE

1. After out of the timer, CPU clock is slow down to 8MHz.
2. One beep sound.
3. Flash LED to indicate power saving status.
4. Monitor Activity, according to the setting of Advanced Setup.
5. Any activity occurs, system will exit from Doze mode to On mode.

4-3. SYSTEM STANDBY MODE

1. After out of the timer, CPU clock is slow down to 8MHz.
2. Two beep sound.
3. Flash LED to indicate power saving status.
4. Level 1 cache are disabled.
5. VGA monitor displays blank screen.
6. Fixed disk driver motor will be spin off.
7. Any activity occurs, system will exit from Standby mode to On mode.

4-4. SYSTEM SUSPEND MODE

1. After out of the timer, CPU clock is slow down to 8MHz, if you use Intel Pentium or Cyrix (SMI) CPU, then CPU clock will be stopped.
2. Three beep sounds.
3. Flash LED to indicate power saving status.
4. Level 2 cache are disabled.
5. VGA monitor displays blank screen.
6. Fixed disk driver motor will be spin off.
7. Monitor activity according to the setting of Advanced Setup.
8. When system in Suspend mode, only Keyboard / Mouse / Alarm resume can wakeup system.

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

5-1. INTRODUCTION

This chapter will show you the function of BIOS in managing the features of your system. The Prox-1550 P5/6x86 Embedded Card is equipped with the BIOS for system chipset from Award Software Inc. This page briefly explains the function of 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 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:
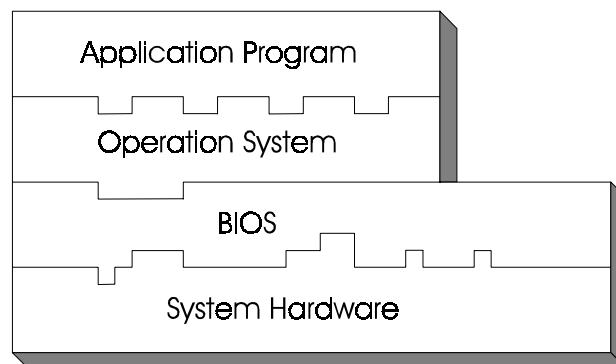
5-2 ENTERING SETUP

When the system is powered on, the BIOS will enter the Power On Self Test (also known as POST) routines and the 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 (2A5KKP6C)                │
│                  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    │  HDD LOW LEVEL FORMAT         │
│                            │                               │
│   LOAD BIOS DEFAULTS       │  SAVE & EXIT SETUP            │
│                            │                               │
│   LOAD SETUP DEFAULTS      │  EXIT WITHOUT SAVING          │
│                                                           │
├─────────────────────────────────────────────────────────┤
│   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. You can use the Shift F2 keys to scroll through the various color combinations available.

5-3 THE STANDARD CMOS SETUP

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

```
                 ROM PCI / ISA BIOS (2A5KKP6C)
                    STANDARD CMOS SETUP
                    AWARD SOFTWARE, INC.


  Date  (mm:dd:yy)    :    Tue,  Feb  29  2000
  Time  (hh:mm:ss)    :    14  :  57  :  43

  HARD DISKS       TYPE SIZE  CYLS HEAD  PRECOMP LANDZ SECTOR  MODE
  Primary Master  :  Auto   0    0     0        0      0       0      AUTO
  Primary Slave   :  Auto   0    0     0        0      0       0      AUTO
  Secondary Master:  Auto   0    0     0        0      0       0      AUTO
  Secondary Slave :  Auto   0    0     0        0      0       0      AUTO

  Drive A : 1.44M , 3.5 in.                    Base Memory:      640K
  Drive B : None                           Extended Memory:    31744K
                                               Other Memory:      384K
  Video   : EGA/VGA                    ----------------------------------
  Halt On : All Errors                       Total Memory:     32768K


  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. The screen shows a calendar. Since you have not yet set the time and date, the date displayed is probably incorrect. Information on each item are 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: 30 P.M. You should enter the time as 16:30:00.

Primary Master/Primary Slave/Secondary Master/Secondary Slave :
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 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"

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

SIZE (CAPACITY):
This is the formatted capacity of the drive based on the following formula:
(# of heads) X (# of cylinders) X (# of sets) X (512bytes/sects).

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

HEAD:

This is the number of head 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.

LANDZ:

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 per track.

DRIVE A AND DRIVE B:

The option are 360KB 5.25in, 1.2KB 5.25in, 720KB 3.5in, 1.44MB 3.5in, 2.88MB 3.5in and None. Not Installed could be used as an option for diskless workstations.

VIDEO:

Options are Monochrome, Color 40, VGA/EGA, Color 80.

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

5-4 The BIOS FEATURES SETUP

Choose the 〝BIOS FEATURES SETUP〞 in the main menu, the screen are shown as below.

```
ROM PCI/ISA BIOS (2A5KKP6C)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning              : Enabled      Video    BIOS Shadow      : Disabled
CPU Internal Cache         : Disabled     C8000-CBFFF Shadow        : Disabled
External Cache             : 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        : Disabled     DC000-DFFFF Shadow        : Disabled
Boot Up Numlock Status     : Off          Cyrix 6x86/MII CPUID      : Enabled
Boot Up System Speed       : Low
Gate A20 Option            : Normal
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 Pallete 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   : No           F7 : Load Setup Defaults
```

BIOS Features Setup

The BIOS FEATURES SETUP allows you find true certain features supported by the chipset and Award BIOS. It also includes support for shadow RAM under which the contents of the ROM BIOS can be copied into memory at boot up, enhancing performance. When you change any of the setting, you may recall the default settings at any time from the main menu.

This is detailed later. 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 given below.

VIRUS WARNING:

When this item is set to Enabled, the BIOS will supervise the boot sector and partition table of the hard disk drive for any attempt for modification.

CPU INTERNAL CACHE:

This item should always be Enable, If your system is 486CPU or above, Even if you have installed the external cache. If you have no external cache installed this item should be enabled to allow use of the internal cache in the 486 CPU or above.

EXTERNAL CACHE:

Enable or disable this function according to whether you want external cache enabled or disabled.

QUICK POWER ON SELF TEST:

This item allows you to speed up Power On Self Test (POST) after power-on on the computer when it is set to Enable. The BIOS will shorten or skip some check items during POST.

BOOT SEQUENCE:

This item allows you to define to the system the sequences 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 item allows you to swap the floopy drive or not. You may choose enable or disabled.

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:

Use this item to enable or disable the NumLock on your keyboard auto-matically at power-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 setting you choose you will still be able to use the turbo switch to toggle between the tow modes during use.

GATE 20A OPTION:

When you set this category as Fast. The A20 signal is controlled by chipset specific method.

TYPEMATIC RATE SETTING:

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

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. 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.

PCI/VGA PALETTE SNOOP:

This item enable or disabled the system to work with MPEG ISA/VESA VGA Card. The default setting is set to disabled.

OS SELECT FOR DRAM >64MB:

This item allows you to access the memory that over 64MB in OS/2. You may choose OS2 or Non-OS2, the default setting is set to Non-OS2.

REPORT NO FDD FOR WIN 95:

Whether report no FDD for Win 95 or not. The available options are Yes and No.

5-5 CHIPSET FEATURE SETUP

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

```
          ROM PCI/ISA BIOS (2A5KKP6C)
            CHIPSET FEATURES SETUP
             AWARD SOFTWARE, INC.

Auto Configuration           : Disabled
AT Bus Clock                 : 7.16MHz
L2 TAG RAM Size              : 8
DRAM Timing                  : Slow
SDRAM CAS Latency            : 3
Pipelined Function           : Disabled
Graphics Aperture Size       : 16 MB
DRAM Data Integrity Mode     : Disabled
Memory Hole At 15-16M        : Disabled
Host Read DRAM Command Mode  : Syn.
AGP Read Burst               : Enabled
ISA Line Buffer              : Disabled
Passive Release              : Disabled
Delay Transaction            : Disabled
Primary Frame Buffer         : Disabled   Esc : Quit        ↑↓→←  :  Select Item
VGA Frame Buffer             : Disabled   F1 : Help         Pu/Pd/+/- :  Modify
Data Merge                   : Disabled   F5 : Old Values   (Shift)F2 :  Color
IO Recovery Period           : 0 us       F6 : Load BIOS Defaults
IO Channel Check NMI         : Disabled   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:

When this option is Enabled, the BIOS automatically configures cache and clock settings based on detection of the CPU clock speed, you cannot change the other parameters. Set this option to Disabled to manually set DRAM, cache and I/O bus clock operating parameters.

AT BUS CLOCK:

The chipset generates the ISA bus clock (ATCLK) from an internal division of PCICLK.   You can set the speed of the AT bus in terms of a fraction of the CPU clock speed, or at the fixed speed of 7.16MHz.

L2 TAG RAM SIZE:

The system uses tag bits to determine the status of data in the L2 cache. Set this field to match the specifications (8 or 10 bits) of the installed tag RAM chip.

DRAM TIMING:

The value in this field depends on performance parameters of the installed memory chips (DRAM).   Do not change the value from the factory setting unless you install new memory that has a different performance rating than the original DRAMs.

SDRAM CAS LATENCY:

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.

PIPELINED FUNCTION:

When Enabled, the controller signals the CPU for a new memory address before all data transfers for the current cycles are complete, resulting in faster performance.

DRAM DATA INTEGRITY MODE:

Select Parity or ECC (error-correcting code), according to the type of installed DRAM. The available choices are Disabled, ECC, Parity.

MEMORY HOLE AT 15M-16M:

This item allows you to reserve a certain space in memory for ISA cards for better performance. This memory must be mapped into the memory space below 16MB. The choices are enabled and disabled to set the support of memory hole.

HOST READ DRAM COMMAND MODE:

This item allows you to select the type of Host Read DRAM Command Mode. The choice are: Syn., and Bypass.

ISA LINE BUFFER:

The PCI to ISA Bridge has an 8 byte bi-directional line buffer for ISA or DMA bus master memory reads from or writes to the PCI bus. When Enabled, an ISA or DMA bus master can pre-fetch two double words to the line buffer for a read cycle.

PASSIVE RELEASE:

When Enabled, CPU to PCI bus accesses is allowed during passive release. Otherwise, the arbiter only accepts another PCI master access to local DRAM.

DELAY TRANSACTION:

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

PRIMARY FRAME BUFFER:

Select a size for the PCI frame buffer. The size of the buffer should not impinge on local memory.

VGA FRAME BUFFER:

When enabled, a fixed VGA frame buffer from A000h to BFFFh and a CPU-to-PCI write buffer are implemented.

DATA MERGE:

This field controls the word-merge feature for frame buffer cycles. When enabled, this controller checks the eight CPU Byte Enable signals to determine if data words read from the PCI bus by the CPU can be merged.

IO CHANNEL CHECK NMI:

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

5-6 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 (2A5KKP6C)
        POWER MANAGEMENT SETUP
        AWARD SOFTWARE, INC.

ACPI Function      : Enabled          ** External   Switch **
Power Management   : User Define    Power Button Mode    : Disabled
PM Control by APM  : No             DOCK I/O SMI         : Disabled
MODEM Use IRQ      : NA             AC Power SMI         : Disabled
Video Off Option   : Always On      Thermal  SMI         : Disabled
Video Off Method   : Blank Screen

        ** PM      **
Monitor            : Disable
HDD Power Down     : Disable
Doze Mode          : Disable
Standby Mode       : Disable
Suspend Mode
                     **
        ** PM Events
Primary HDD        : Disabled     Esc : Quit    ↑↓→←  :  Select Item
Floppy             : Disabled     F1 : Help     Pu/Pd/+/- : Modify
COM Ports          : Disabled     F5 : Old Values  (Shift)F2 :  Color
Keyboard           : Disabled     F6 : Load BIOS Defaults
LPT Ports          : Disabled     F7 : Load Setup Defaults
```

Power Management Setup

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

ACPI FUNCTION:

This item allows you to enable or disable the Advanced Configuration and Power Management (ACPI).

POWER MANAGEMENT:

This category allows you to select the type (or degree) of power saving and is directly related to HDD Power Down, Doze Mode, Standby Mode and Suspend Mode. There are four available choices for Power Management, namely: Disable, Min Power Saving, Max. Power Saving, and User Defined.

PM CONTROL BY APM:

When this item is set to be YES, the system BIOS will wait for APM's prompt before it enter any PM mode e.g. DOZE, STANDBY or SUSPEND. If APM is installed, & if there is a task running, even the timer is time out, the APM will not prompt the BIOS to put the system into any power saving mode.

MODEM USE IRQ:

This item determines the IRQ in which the modem can be used.

VIDEO OFF OPTION:

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

Always On	Monitor will remain on during power saving modes.
Suspend → Off	Monitor blanked when the system enters the Suspend mode.
Susp, Stby → Off	Monitor blanked when the system enters either Suspend mode or Standby modes.
All Modes →Off	Monitor blanked when the system enter 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 a slower speed while all other devices still operate at full speed.

STANDBY MODE:
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.

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

POWER BUTTON MODE:
This item allows you to select the function of power button.

DOC I/O SMI:
This item allows you to enable or disable the function of DOCK I/O SMI.

5-7 PNP/PCI CONFIGURATION

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

```
         ROM PCI/ISA BIOS (2A5KKP6C)
           PNP/PCI CONFIGURATION
             AWARD SOFTWARE, INC.

 PNP OS Installed        : No      PCI IDE 2nd Channel    : Disabled
 Resources Controlled by : Auto    PCI IRQ Actived By     : Edge
 Reset Configuration Data : Disabled  PCI IDE IRQ Map To    : PCI-Auto
                                      Primary   IDE INT#   : A
                                      Secondary IDE INT#   : A




                                  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

This category configures PCI (Personal Computer Interconnect) bus system. It is a system which allows I/O devices to operate at speed nearing the speed of the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

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

RESOURCES CONTROLLED BY:

The Award Plug & Play BIOS has the capacity to automatically configure all the boot and Plug & Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug & Play operating system such as Win 95. The available choices are Auto and Manual.

RESET CONFIGURATION DATA:

Normally, set this field to Disable. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

PCI IDE 2ND CHANNEL:

Select Disabled to deactivate the onboard PCI IDE second channel interface, if you install a secondary add-in IDE interface.

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.

PCI IDE IRQ MAP TO:

This allows you to configure your system to the type of IDE disk controller in use. By default, Setup assumes that your controller is an ISA (Industry Standard Architecture) device rather than a PCI controller. The more apparent difference is the type of slot being used.

If you have equipped your system with a PCI controller, changing this allows you to specify which slot has the controller and which PCI interrupt (A, B, C or D) is associated with the connected hard drives.

Remember that this setting refers to the hard disk drive itself, rather than individual partitions. Since each IDE controller supports two separate hard drives, you can select INT# for each. Again, you will note that the primary has a lower interrupt than the secondary as described in "*Slot x Using INT#*" above.

Selecting "*PCI Auto*" allows the system to automatically determine how your IDE disk system is configured.

5-8 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 Defaults (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-1550.

5-9 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 Defaults   (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:

5-10 INTEGRATED PERIPHERALS

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

```
                    ROM PCI/ISA BIOS (2A5KKP6C)
                      INTEGRATED PERIPHERALS
                       AWARD SOFTWARE, INC.

On-Chip Primary PCI IDE      : Disabled     Onboard UART 1          : Disabled
                                            Onboard UART 2          : Disabled
                                            Onboard Parallel Port   : Disabled

On-Chip Secondary PCI IDE   : Disabled



IDE HDD Block Mode          : Disabled
On-Chip USB Controller      : Enabled
  USB Keyboard Support      : Disabled
Init Display First          : PCI Slot

RTC Alarm Controller        : Disabled
                                            Esc : Quit        ↑↓→←   :   Select Item
                                            F1 : Help         Pu/Pd/+/- :   Modify
                                            F5 : Old Values   (Shift)F2 :   Color
                                            F6 : Load BIOS Defaults
Onboard FDC Controller      : Disabled      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.

ON-CHIP PRIMARY IDE:

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

ON-CHIP SECONDARY IDE:

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

IDE HDD BLOCK MODE:

This allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive. When Enabled, IDE controller uses block mode while Disabled, IDE controller uses standard mode.

ON-CHIP USB CONTROLLER:

Select Enabled if your system contains a Universal Serial Bus (USB) controller.

USB KEYBOARD SUPPORT:

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

INIT DISPLAY FIRST:

This item allows you to decide to active whether PCI slot or AGP first. The choice are PCI Slot and AGP.

RTC ALARM CONTROLLER:

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

ON BOARD FDC CONTROLLER:

This item allows you to either enable or disable Floppy disk controller (FDC) installed on the system board and you want to use it.

ON-BOARD PARALLEL PORT:

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

5-11 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 the < Enter > key. 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, 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 to "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. Type the original password, select 〝PASSWORD
SETTING〞 and you will be prompted to enter a password. Instead of
typing a new password, press the enter key and a message will appear at
the center of the screen.

> 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.

5-12 IDE HDD AUTO DETECTION

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

```
             ROM PCI / ISA BIOS (2A5KFP6C)
                 STANDARD CMOS SETUP
                 AWARD SOFTWARE, INC.


                   CYLS.  HEADS  PRECOMP  LANDZONE  SECTORS  MODE
Primary Master : (  Mb)    0      0        0          0         0    -------
Primary Slave   :
Secondary Master :
Secondary Slave :

       Select Secondary Slave Option (N=Skip) : N

   Option   Size   Cyls   Heads   Precomp  Landzone  Sectors   Mode
   _____
   2(Y)     540    524     32        0       1048      63      LBA
   1        541    1049    16      65535     1048      63      Normal
   3        540    524     32      65535     1048      63      LARGE
   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.

5-13 HDD LOW LEVEL FORMAT

Choose 〝HDD LOW LEVEL FORMAT 〞 from the main menu, a display will be shown on screen as below:

Hard Disk Low Level Format Utility	NO. CYLS HEAD

```
 --------------    SELECT DRIVE      ------------
 --------------    BAD TRACK LIST    ------------
 --------------    PREFORMAT         -----------

        Current Select drive is  :   C

 DRIVE  :  C    CYLINDER  :    0   HEAD  :    0
```

		SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	:	541	1049	16	65535	1048	63	AUTO
Primary Slave	:	0	0	0	0	0	0	AUTO
Secondary Master	:	0	0	0	0	0	0	AUTO
Secondary Slave	:	0	0	0	0	0	0	AUTO

Up/Down - Select item   Enter - Accept   ESC - Exit / Abort
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HDD LOW LEVEL FORMAT

5-14 SAVE & EXIT SETUP

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

```
┌─────────────────────────────────────────────────────────┐
│            ROM / PCI / ISA BIOS (2A5KKP6C)                │
│               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 CONF     ┌─────────────────────┐   FORMAT        │
│                   │ SAVE to CMOS and     │                │
│  LOAD BIOS DE     │ EXIT (Y/N)? N        │   ETUP         │
│                   └─────────────────────┘                │
│  LOAD SETUP DEFAULTS          EXIT WITHOUT SAVING         │
├─────────────────────────────────────────────────────────┤
│   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.

If wish 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 (2A5KKP6C)                │
│                   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 CONF  ┌────────────────────────┐   FORMAT         │
│                │ Quit Without Saving (Y/N) ?   Y │          │
│  LOAD BIOS DE  └────────────────────────┘   ETUP           │
│                                                             │
│  LOAD SETUP DEFAULTS          EXIT WITHOUT SAVING           │
├─────────────────────────────────────────────────────────────┤
│   Esc : Quit                 ↑↓→←  :SELECT ITEM            │
│   F10 : Save & Exit Setup    (Shift)F2 : Change Color      │
├─────────────────────────────────────────────────────────────┤
│             Abandon all Datas & Exit SETUP                  │
└─────────────────────────────────────────────────────────────┘
```

EXPANSION BUS

This appendix indicates you the pin assignments.

Section includes:

● PC-104 Connector Pin Assignment

● ISA BUS Pin Assignment

● PCI BUS Pin Assignment

PC-104 CONNECTOR PIN ASSIGNMENT

104AB, 104CD : PC-104 Connector

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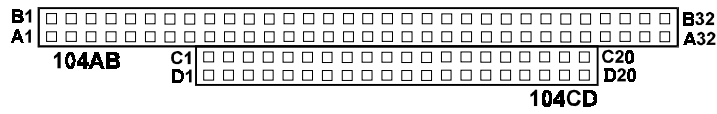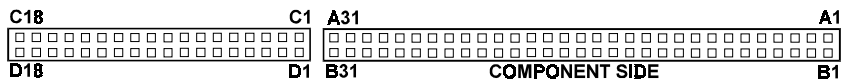
The PC-104 can support multi-pieces of PC-104 modules. This card has two connectors : one (104AB) consists of 64 pin; the other one (104CD) consists of 40 pin, both of them are dual-in-line headers

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				

ISA BUS PIN ASSIGNMENT

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

```
C18                    C1 A31                                    A1
┌─────────────────────┐┌──────────────────────────────────────────┐
│ □□□□□□□□□□□□□□□□□□ ││ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ │
│ □□□□□□□□□□□□□□□□□□ ││ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ │
└─────────────────────┘└──────────────────────────────────────────┘
D18                    D1 B31          COMPONENT SIDE             B1
```

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				

PCI BUS PIN ASSIGNMENT

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

The pin assignments are as follows:

| F		E		F		E	
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
F1	-12V	E1	TRST#	F31	+3.3V	E31	AD18
F2	TCK	E2	+12V	F32	AD17	E32	AD16
F3	GND	E3	TMS	F33	C/BE2#	E33	+3.3V
F4	TDO	E4	TDI	F34	GND	E34	FRAME#
F5	+5V	E5	+5V	F35	IRDY#	E35	GND
F6	+5V	E6	INTA#	F36	+3.3V	E36	TRDY#
F7	INTB#	E7	INTC#	F37	DEVSEL#	E37	GND
F8	INTD#	E8	+5V	F38	GND	E38	STOP#
F9	REQ3#	E9	CLKC	F39	LOCK#	E39	+3.3V
F10	REQ1#	E10	+5V(I/O)	F40	PERR#	E40	SDONE
F11	GNT3#	E11	CLKD	F41	+3.3V	E41	SB0#
F12	GND	E12	GND	F42	SERR#	E42	GND
F13	GND	E13	GND	F43	+3.3V	E43	PAR
F14	CLKA	E14	GNT1#	F44	C/BE1#	E44	AD15
F15	GND	E15	RST#	F45	AD14	E45	+3.3V
F16	CLKB	E16	+5V(I/O)	F46	GND	E46	AD13
F17	GND	E17	GNT0#	F47	AD12	E47	AD11
F18	REQ0#	E18	GND	F48	AD10	E48	GND
F19	+5V(I/O)	E19	REQ2#	F49	GND	E49	AD09
F20	AD31	E20	AD30	F52	AD08	E52	C/BE0#
F21	AD29	E21	+3.3V	F53	AD07	E53	+3.3V
F22	GND	E22	AD28	F54	+3.3V	E54	AD06
F23	AD27	E23	AD26	F55	AD05	E55	AD04
F24	AD25	E24	GND	F56	AD03	E56	GND
F25	+3.3V	E25	AD24	F57	GND	E57	AD02
F26	C/BE3#	E26	GNT2#	F58	AD01	E58	AD00
F27	AD23	E27	+3.3V	F59	+5V(I/O)	E59	+5V(I/O)
F28	GND	E28	AD22	F60	ACK64#	E60	REQ64#
F29	AD21	E29	AD20	F61	+5V	E61	+5V
F30	AD19	E30	GND	F62	+5V	E62	+5V

TECHNICAL SUMMARY
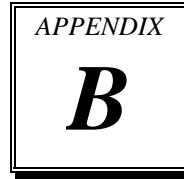
This section introduces you the maps concisely.

Section includes:

● Block Diagram

● Interrupt Map

● RTC & CMOS RAM Map

● Timer & DMA Channels Map

● I / O & Memory Map

BLOCK DIAGRAM
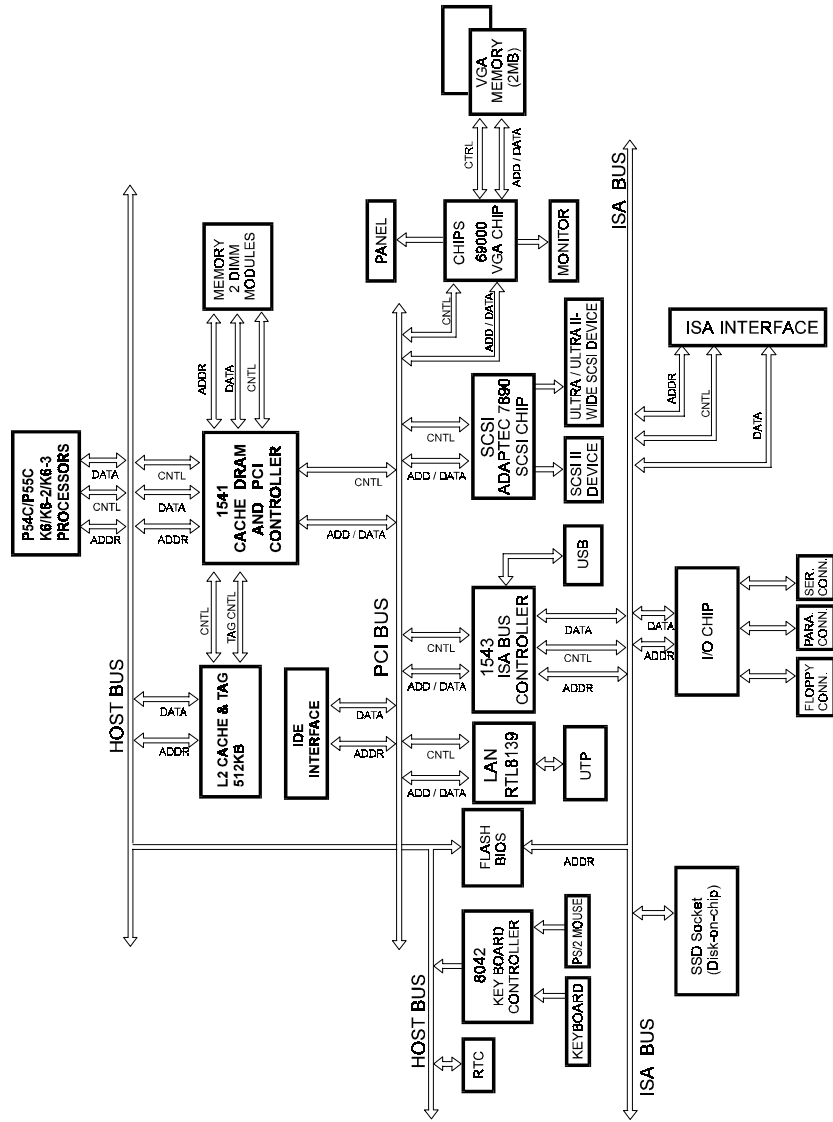
INTERRUPT MAP

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	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-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
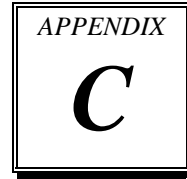
This section outlines the error message may occur when you operate the system, also gives you the suggestions on solving the problems.

Section includes:

● Trouble Shooting for Error Messages

● Trouble Shooting for POST Code

TROUBLE SHOOTING FOR ERROR MESSAGE

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

POST BEEP :

Currently there are two kinds of beep codes in BIOS. 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 consists 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 message informs 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 reconfigure 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 computer system, 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 : Verifies 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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