

# USER'S MANUAL

**PC-560-G5**

**586/6x86**

**Pentium Embedded Card**

**W/ VGA & SSD**

**PC-560-G5 M1**

***PC-560-G5 P5/6x86 Embedded Card  
WITH VGA & SSD***

***OPERATION MANUAL***

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

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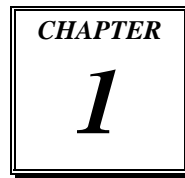
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# ***INTRODUCTION***



This chapter gives you the information for PC-560-G5. It also outlines the System specification.

Sections include:

- About This Manual
- System Specifications
- Safety precautions

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

## **1-1. ABOUT THIS MANUAL**

Thank you for purchasing our PC-560-G5 P5/6x86 Embedded Card with VGA and SSD, which is fully PC / AT compatible. The PC-560-G5 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 the background of this manual, and the specification for this system. The final page of this chapter will show you how to avoid damaging this Embedded Card.

### ***Chapter 2 Hardware Configuration***

This chapter outlines the component's locations and their functions. In the end of this chapter, you will know how to set jumper and how to configure this card to meet your own needs.

### ***Chapter 3 Software Utilities***

This chapter contains helpful information that informs you the proper installations of the VGA driver and Flash BIOS. It also describes the Watchdog-timer function.

### ***Chapter 4 Green PC Function***

This chapter explains the Green PC functions concisely.

### ***Chapter 5 Award BIOS Setup***

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

### ***Appendix A Expansion Bus***

This Appendix introduces you the expansion bus for PC-104 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 some solutions.

## 1-2. SYSTEM SPECIFICATION

- **CPU :**
  - Intel, AMD, Cyrix.
  - 54C/55C, K5/K6, M1/M2.
  - 320 pin PGA socket.
  - 75/90/100/120/133/166/200/233/266MHz clock generator.
  - 2.8V/2.9V/3.2V/3.3V/3.5V voltage regulator.
  
- **MEMORY :**
  - Up to 256MB, EDO/FPM DRAM
  - Two 72pin SIMM sockets on board.
  
- **CACHE :**
  - L1 Cache: Depended on CPU type
  - L2 Cache: On board 512KB Pipeline Cache
  
- **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 128/256KB flash EEPROM.
  - Support Green Function.
  - Support S/IO Setup.
  
- **KEYBOARD CONNECTOR :**
  - One mini DIN connector, Support keyboard or PS/2 Mouse by jumper selection
  - One additional 5 pin external keyboard connector
  
- **BUS SUPPORT :**
  - External ISA/PC-104 BUS.
  - Internal PCI Bus for VGA, and IDE.



● **DISPLAY :**

Support VGA for CRT & Panel LCD  
Support 32bits PCI Local Bus  
VGA BIOS combines in 128/256KB flash ROM together with system BIOS.  
Support 2 MB Video memory  
Support 41-pin connector 640 x 480, 800 x 600 resolutions on LCD Panel.  
Panel support Color STN, TFT, EL.  
CRT & LCD Panel Display simultaneously.

● **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  $\pm 25\%$ .

● **IDE INTERFACE :**

One IDE port supports 2 Enhanced IDE devices.

● **FLOPPY DISK DRIVE INTERFACE :**

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

● **DISK-ON-CHIP SOCKET :**

Supports up to 144MB.

● **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.

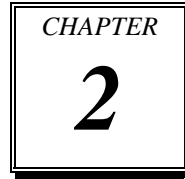
- **GREEN FUNCTION :**
  - Software support by BIOS setup.
  - Hardware support by switch control.
  
- **LED INDICATOR :**
  - System power.
  - Hard Disk access.
  - Turbo and green function mode.
  
- **PC-104 BUS EXPANSION & SPEED :**
  - ISA        8MHz
  - PC-104    8MHz
  - PCI Bus    33MHz
  
- **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 :**
  - 185mm x 122mm
  
- **BOARD NET WEIGHT :**
  - 0.26 Kg.

### **1-3. SAFETY PRECAUTIONS**

Follow the messages below to protect your systems and yourself:

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

# ***HARDWARE CONFIGURATION***



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

Helpful information details you the jumper & connector settings, and components locations.

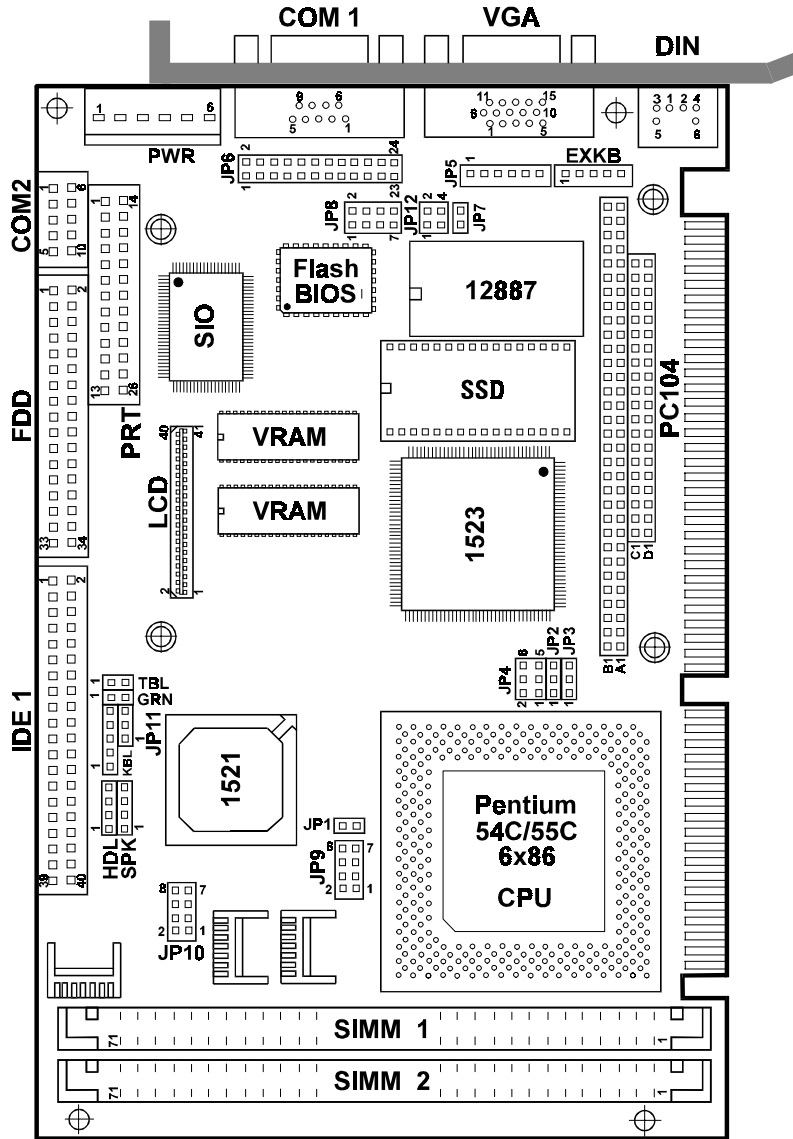
Sections include:

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

## 2-1 JUMPER & CONNECTOR QUICK REFERENCE TABLE

CPU Type Selection .....	JP1
Bus Frequency Ratio Selection .....	JP2, JP3
CPU Clock Selection .....	JP4
CPU Voltage Selection .....	JP9, JP10
RS232/422/485 (COM2) Selection .....	JP6
AT Keyboard or PS/2 Mouse Selection .....	JP5
Turbo LED Connector .....	TBL
Green Function Connector .....	GRN
SSD Memory Mapping Selection .....	JP8, JP12
COM1 Connector .....	COM1
COM2 Connector .....	COM2
Keyboard or PS/2 Mouse Connector .....	DIN
External Keyboard Connector .....	EXKB
Reset Connector .....	JP7
Floppy Disk Drive Connector .....	FDD
Hard Disk Drive Connector .....	HDD
Hard Disk Drive LED Connector .....	HDL
Power LED & KeyLock Connector .....	KBL
LCD Panel Connector .....	LCD
VGA CRT Connector .....	VGA
Power Connector .....	PWR
Printer Connector .....	PRT
External Speaker Connector .....	SPK
Panel Power Connector .....	JP11
Memory Installation .....	SIMM1, ..... SIMM2
Solid State Disk Socket .....	SSD

2-2 COMPONENT LOCATIONS



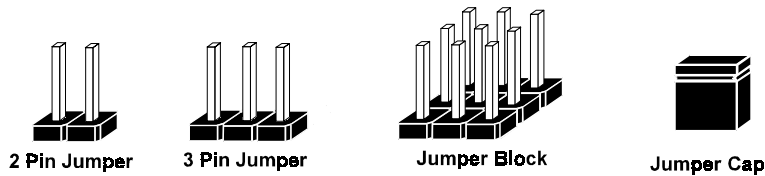
PC-560-G5 Connector, Jumper and Component locations

## 2-3 HOW TO SET THE JUMPERS

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

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

### JUMPERS AND CAPS

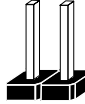


If a jumper has three pins, for example labelled PIN1, PIN2, and PIN3. You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams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

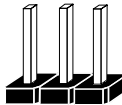
**JUMPER DIAGRAMS**



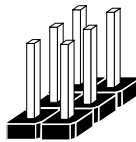
**Jumper Cap**  
looks like this



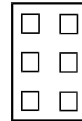
**2 pin Jumper**  
looks like this



**3 pin Jumper**  
looks like this



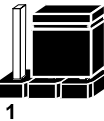
**Jumper Block**  
looks like this



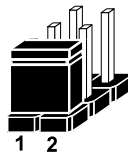
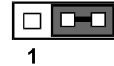
**JUMPER SETTINGS**



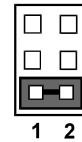
**2 pin Jumper close(enabled)**  
looks like this



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



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





## 2-4. CPU TYPE & CPU CLOCK SELECTION

**JP1** : CPU Type Selection

**JP2, JP3** : Bus Frequency Ratio Selection

**JP4** : CPU Clock Selection

**JP10, JP9** : CPU Voltage Selection

The jumper settings are as follows:

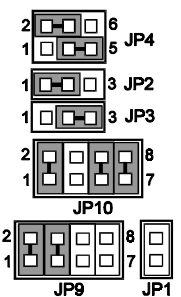
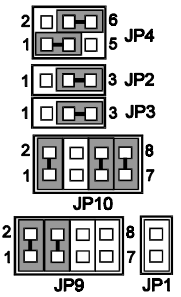
### 2-4-1 Intel 75 / 90 CPU type & clock Jumper Settings

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
Intel Pentium 75Mhz	50MHz	3-5 4-6	1-2	1-2	1-2 5-6 7-8	1-2 3-4	Open	
Intel Pentium 90Mhz	60MHz	1-3 4-6	1-2	1-2	1-2 5-6 7-8	1-2 3-4	Open	

2-4-2 Intel 100 / 120 CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
Intel Pentium 100Mhz	66MHz	2-4 3-5	1-2	1-2	1-2 5-6 7-8	1-2 3-4	Open	
Intel Pentium 120Mhz	60MHz	1-3 4-6	1-2	2-3	1-2 5-6 7-8	1-2 3-4	Open	

2-4-3 Intel 133/150 CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
Intel Pentium 133Mhz	66MHz	2-4 3-5	1-2	2-3	1-2 5-6 7-8	1-2 3-4	Open	
Intel Pentium 150Mhz	60MHz	1-3 4-6	2-3	2-3	1-2 5-6 7-8	1-2 3-4	Open	

2-4-4 Intel 166/200 CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
Intel Pentium 166Mhz	66MHz	2-4 3-5	2-3	2-3	1-2 5-6 7-8	1-2 3-4	Open	
Intel Pentium 200Mhz	66MHz	2-4 3-5	2-3	1-2	1-2 5-6 7-8	1-2 3-4	Open	

2-4-5 Intel MMX-166/200 CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
Intel Pentium MMX 166Mhz	66MHz	2-4 3-5	2-3	2-3	7-8	5-6 7-8	Open	
Intel Pentium MMX 200Mhz	66MHz	2-4 3-5	2-3	1-2	7-8	5-6 7-8	Open	

2-4-6 Intel MMX233/Cyrix P-166+ CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
Intel Pentium MMX 233Mhz	66MHz	2-4 3-5	1-2	1-2	7-8	5-6 7-8	Open	
Cyrix P-166+	66MHz	2-4 3-5	1-2	2-3	1-2 5-6 7-8	1-2 3-4	close	

2-4-7 Cyrix P-120+/150+ CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
Cyrix P-120+	50MHz	3-5 4-6	1-2	2-3	1-2 5-6 7-8	1-2 3-4	close	
Cyrix P-150+	60MHz	1-3 4-6	1-2	2-3	1-2 5-6 7-8	1-2 3-4	close	

2-4-8 Cyrix 6x86MX-PR166/200 CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
Cyrix 6x86MX PR166	60MHz	1-3 4-6	2-3	2-3	7-8	5-6 7-8	close	
Cyrix 6x86MX PR200	66MHz	2-4 3-5	2-3	2-3	7-8	5-6 7-8	close	



2-4-9 Cyrix MMX-233/266 CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
Cyrix MMX PR-233	66MHz	2-4 3-5	2-3	1-2	7-8	5-6 7-8	close	
Cyrix MMX PR-266	66Mhz	2-4 3-5	1-2	1-2	7-8	5-6 7-8	close	

2-4-10 Cyrix 6x86L-PR120/150 CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
Cyrix 6x86L-PR120	50MHz	3-5 4-6	1-2	2-3	7-8	5-6 7-8	close	
Cyrix 6x86L-PR150	60MHz	1-3 4-6	1-2	2-3	7-8	5-6 7-8	close	

2-4-11 Cyrix 6x86L-PR166/AMD K5-75 CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
Cyrix 6x86L PR-166	66MHz	2-4 3-5	1-2	2-3	7-8	5-6 7-8	close	
AMD K5-75	50Mhz	3-5 4-6	1-2	1-2	1-2 5-6 7-8	1-2 3-4	Open	

2-4-12 AMD K5-90/100 CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
AMD K5-90	60Mhz	1-3 4-6	1-2	1-2	1-2 5-6 7-8	1-2 3-4	Open	
AMD K5-100	66Mhz	2-4 3-5	1-2	1-2	1-2 5-6 7-8	1-2 3-4	Open	

2-4-13 AMD K5-120/133 CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
AMD K5-120	60MHz	1-3 4-6	1-2	2-3	1-2 5-6 7-8	1-2 3-4	Open	
AMD K5-133	66MHz	2-4 3-5	1-2	2-3	1-2 5-6 7-8	1-2 3-4	Open	

2-4-14 AMD K5-166/K6-166 CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
AMD K5-166	66MHz	2-4 3-5	2-3	2-3	1-2 5-6 7-8	1-2 3-4	open	
AMD K6-166	66MHz	2-4 3-5	2-3	2-3	1-2 7-8	5-6 7-8	open	

2-4-15 AMD K6-200/233 CPU type & clock Jumper Setting

CPU TYPE	CPU CLOCK	Jumper setting (Pin closed)						Jumper Illustration
		JP4	JP2	JP3	JP10	JP9	JP1	
1-2 7-8	5-6 7-8	2-4 3-5	2-3	1-2	1-2 7-8	5-6 7-8	open	
AMD K6-233	66MHz	2-4 3-5	1-2	1-2	2-4 7-8	5-6 7-8	open	

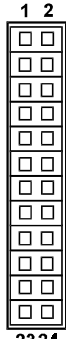
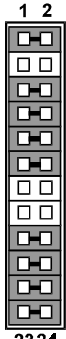
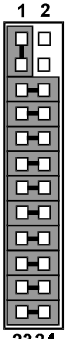
## 2-5. RS232/422/485 (COM2) SELECTION

**JP6:** 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 17-18 19-20 21-22 23-24	1-3 5-6 7-8 9-10 11-12 13-14 15-16 17-18 19-20 21-22 23-24
Jumper illustration	 <p>1 2 23 24 <b>JP6</b></p>	 <p>1 2 23 24 <b>JP6</b></p>	 <p>1 2 23 24 <b>JP6</b></p>



\*\*\* Manufacturer's default -- RS232.



## 2-6. AT KEYBOARD OR PS/2 MOUSE SELECTION

**JP5:** AT Keyboard or PS/2 Mouse Selection

The jumper settings are as follows:

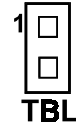
DEVICE TYPE	JUMPER SETTING (pin closed) JP5	JUMPER ILLUSTRATION
AT KEYBOARD	2-3 5-6	
PS/2 MOUSE	1-2 4-5	

## 2-7. TURBO LED CONNECTOR

**TBL:** Turbo LED Connector

The jumper settings are as follows:

PIN	ASSIGNMENT
1	Vcc
2	Turbo Signal



## 2-8. GREEN FUNCTION CONNECTOR

**GRN:** Green Function Connector

The jumper settings are as follows:

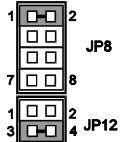
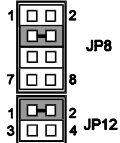
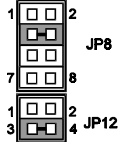
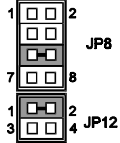
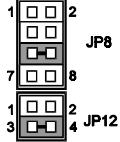
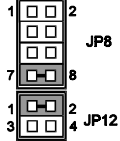
PIN	ASSIGNMENT
1	Vcc
2	Green Signal



## 2-9. SSD MEMORY MAPPING SELECTION

**JP8, JP12:** SSD Memory Mapping Selection.

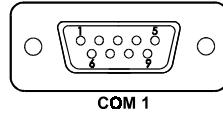
A 32-pin SSD socket supports DOC (Disk-on-chip) up to 144MB. This PnP flash ROM SSD can be installed as one of the user's hard disks. If set as Drive C, it can be used as a boot-up hard disk. The SSD Memory Mapping are as follows:

SSD Memory Map	Jumper Setting (pin closed)		JUMPER ILLUSTRATION
	JP8	JP12	
CC000h-CDFFFh	1-2	3-4	
D0000h-D1FFFh	3-4	1-2	
D4000h-D5FFFh	3-4	3-4	
D8000h-D9FFFh	5-6	1-2	
DC000h-DDFFFh	5-6	3-4	
E0000h-E1FFFh	7-8	1-2	

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

## 2-10. COM1 CONNECTOR

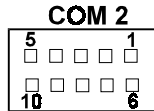
**COM1** : COM1 Connector, DB9 male connector  
 The COM1 Connector assignments are as follows :



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

## 2-11. 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

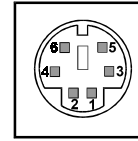
## 2-12. KEYBOARD OR PS/2 MOUSE CONNECTOR

**DIN** : Keyboard or PS/2 Mouse Connector

The DIN Connector can support keyboard or PS/2 Mouse Connector.

The pin assignments are as follows:

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



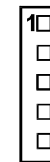
**DIN**

## 2-13. EXTERNAL KEYBOARD CONNECTOR

**EXKB** : External Keyboard Connector

The pin assignments are as follows:

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



**EXKB**

## 2-14. RESET CONNECTOR

**JP7** : Reset Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	Reset
2	Ground



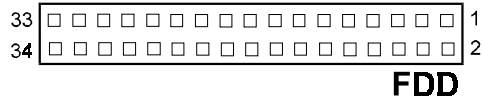
**JP7**

## 2-15. FLOPPY DISK DRIVE CONNECTOR

### FDD : Floppy Disk Drive Connector

You can use a 34-pin daisy-chain cable to connect a two-FDDs. On one end of this cable is a 34-pin flat cable to attach the FDD on the board, the other side is to attaches to two FDDs.

The pin assignments are as follows :

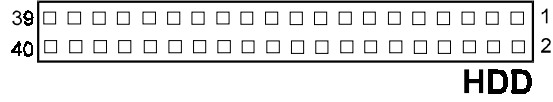


PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	RPM
3	GND	4	NC
5	GND	6	RATE0
7	GND	8	INDEX
9	GND	10	MTR0
11	GND	12	DRV1
13	GND	14	DRV0
15	GND	16	MTR1
17	GND	18	DIR
19	GND	20	STEP
21	GND	22	WDATA
23	GND	24	WGATE
25	GND	26	TRK0
27	GND	28	WRPRT
29	GND	30	RDATA
31	GND	32	SEL
33	GND	34	DSKCHG

## 2-16. HARD DISK DRIVE CONNECTOR

**HDD:** Hard Disk Drive Connector

The pin assignments are as follows:

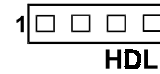


PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST	21	IDEREQ0
2	GND	22	GND
3	IDED7	23	IDEIOW
4	IDED8	24	GND
5	IDED6	25	IDEIOR
6	IDED9	26	GND
7	IDED5	27	IDERDY
8	IDED10	28	PULL HI
9	IDED4	29	IDEACK0
10	IDED11	30	GND
11	IDED3	31	IRQ14
12	IDED12	32	IOCS16
13	IDED2	33	IDEA1
14	IDED13	34	GND
15	IDED1	35	IDEA0
16	IDED14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

## 2-17. HARD DISK DRIVE LED CONNECTOR

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

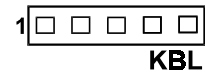
PIN	ASSIGNMENT
1	VCC
2	HDD Active Signal
3	HDD Active Signal
4	HDD Active Signal



## 2-18. POWER LED & KEYLOCK CONNECTOR

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

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

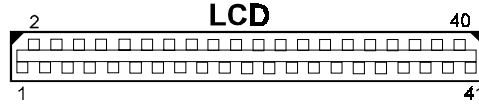


## 2-19. LCD PANEL CONNECTOR

### LCD: LCD Panel Connector

The connector LCD is a 41-pin, dual-in-line header used for LCD display.

The pin assignments are as follows:



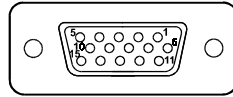
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	P20	2	GND
3	P16	4	VCC
5	P21	6	P0
7	P17	8	P8
9	P22	10	P1
11	P18	12	P9
13	P23	14	P2
15	P19	16	P10
17	VCC	18	P3
19	FLM	20	P11
21	MDE	22	P4
23	LP	24	P12
25	SHFCLK	26	P5
27	3.3V	28	P13
29	3.3V	30	P6
31	ENABKL	32	P14
33	LCDVDD	34	P7
35	ENVEE	36	P15
37	GND	38	+12V
39	GND	40	+12V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



## 2-20. VGA CRT CONNECTOR

**VGA:** VGA CRT Connector

The pin assignments are as follows:



**VGA**

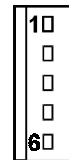
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	RED	9	NC
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	NC
5	GND	13	HSYNC
6	GND	14	YSYNC
7	GND	15	NC
8	GND		

## 2-21. POWER CONNECTOR

**PWR:** Power Connector

The pin assignments are as follows:

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

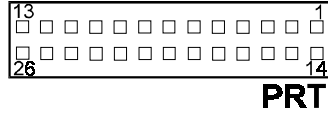


**PWR**

## 2-22. PRINTER CONNECTOR

**PRT:** Printer Connector

The pin assignments are as follows:



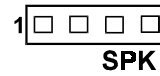
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STB	14	AUTFE
2	P0	15	ERROR
3	P1	16	INIT
4	P2	17	SLCTIN
5	P3	18	GND
6	P4	19	GND
7	P5	20	GND
8	P6	21	GND
9	P7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	NC

## 2-23 EXTERNAL SPEAKER CONNECTOR

**SPK:** External Speaker Connector

The pin assignments are as follows:

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



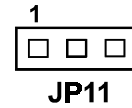
## 2-24. PANEL POWER CONNECTOR

JP11: Panel Power Connector

This connector acts as an inverter to supply proper power to panel LCD.

The pin assignments are as follows:

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



## 2-25. MEMORY INSTALLATION

The PC-560-G5 P5/6x86 Embedded Card supports 2 pieces of 72-pin SIMM sockets on board up to 256MB DRAM

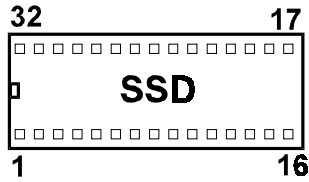
### DRAM BANK CONFIGURATION:

SIMM1	SIMM2	TOTAL
4M		4M
	4M	4M
4M	4M	8M
8M		8M
	8M	8M
8M	8M	16M
16M		16M
	16M	16M
16M	16M	32M
32M		32M
	32M	32M
32M	32M	64M
64M		64M
	64M	64M
64M	64M	128M
128M		128M
	128M	128M
128M	128M	256M

## 2-26. SOLID STATE DISK SOCKET

**SSD:** 32-pin Solid State Disk Socket.

This connector supports up to 144MB Disk-on-chip. 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



# ***SOFTWARE UTILITIES***

CHAPTER

**3**

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

Section includes:

- VGA Drivers Utilities
- Flash BIOS Update
- SCSI Drivers Utilities
- Watchdog Timer Configuration

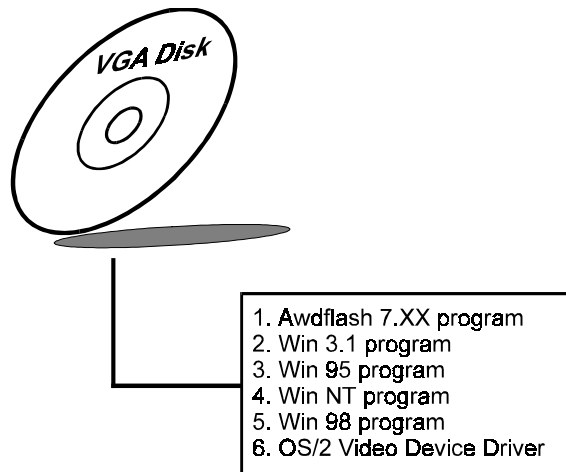
### 3-1. INTRODUCTION

Enclosed with our PC-560-G5 package is our driver utility, which may come in a form of a CD ROM disc or floppy diskettes. For CD ROM disc user, you will only need some of the files contained in the CD ROM disc, please kindly refer to the following chart:

File name (Assume that CD ROM drive is D:)	Purpose
D:\VGA\C&T\CT6555X	For VGA driver installation
D:\Flash\Awdflash.exe	For BIOS update

### 3-2. VGA DRIVER UTILITY

The VGA interface embedded with our PC-560-G5 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.



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

#### 1. Install VGA Driver to Windows 3.1

- (1). To install VGA driver to Windows 3.1, please insert Utility Disk into floppy disk drive A/B or CD ROM drive under your Windows 3.1 system, and go to directory where VGA driver is located.
- (2). Click Setup.exe file for VGA driver installation directly. Follow the instructions on the screen and complete the installation.
- (3). Once installation is completed, you must shut down system and restart in order for changes to take effect.

#### 2. Install VGA Driver to Windows 95

- (1). Click START, SETTINGS, then CONTROL PANEL.
- (2). On CONTROL PANEL, click the DISPLAY icon and enter the SETTINGS tab of the DISPLAY PROPERTIES window.
- (3). Select the SETTINGS page, push the CHANGE DISPLAY TYPE button. Click the CHANGE button in the "Adapter Type" area.
- (4). Push the "HAVE DISK BUTTON" and press OK.
- (5). Specify the path for the new driver and press the <Enter> key. The "Select Device" dialog box will appear. Select the "Chips and Tech 65550 PCI".
- (6). Follow the remaining instructions 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 windows, 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 65550 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 chane 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 65550/554" 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 PC-560-G5 can use the program “Awdflash.exe” contained in Utility Disk for update of system BIOS and VGA BIOS.

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

As PC-560-G5 user, you have to update the VGA BIOS for the specific LCD flat panel you are going to use. In doing this, you need two files. One is the “Awdflash.exe” file and the other is the VGA BIOS C&T 65550 file for LCD panel display. Both file should be provided by 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#1 to Drive C.
2. Insert the VGA BIOS file you have obtained from vendor.
3. Type th path to Awdflash.exe and execute the VGA BIOS update with file 560xxxxx.bin  
C:\UTIL\AWDFLASH>AWDFLASH 560xxxxx.bin
4. The screen will display the table below:

FLASH MEMORY WRITER v7.xx (C) Award Software 1998 All Rights Reserved	
For 9-ALI-1521/1523-2A5KFP6EC	DATE : 06/14/99
File Name to Program : 560xxxxx.bin	
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”, a will appear on screen (see next page).

FLASH MEMORY WRITER v7.xx (C) Award Software 1998 All Rights Reserved
For 9-ALI-1521/1523-2A5KFP6EC      DATE : 06/14/99
File Name to Program : 560xxxxx.bin
Error Message : Are You Sure To Program (Y/N)

Select "Y", and the BIOS will be renewed. When you are refreshing your 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 1998 All Rights Reserved
For 9-ALI-1521/1523-2A5KFP6EC      DATE : 06/14/99 Flash Type:    MXIC28F2000PPC/12V File Name to Program: 560xxxxx.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. WATCHDOG TIMER CONFIGURATION

The watchdog timer can reset the system automatically. It is defined at I/O port **443H**. When you want to enable the watchdog timer, please write I/O port **443H**, then the system will reset itself. When you want to disable the function, write I/O port **441H**, the system will run the command to stop the Watchdog function.

The PC-560-G5 watchdog function, You must write your program so when it writes I/O port address 443 for enable watchdog and write I/O port address 441 for disable watchdog. The timer's intervals have a tolerance of 25% so you should program an instruction that will refresh the timer about every second.

The following program shows you how to program the watch timer in your program.

**Watchdog enable program:**

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

**Watchdog disable program:**

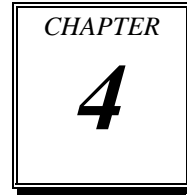
```
MOV AX, 000FH(this value can be ignored)
MOVDX, 441H
OUTDX, AX
```

The Watchdog Timer control table is as follows:

Level	Value	Time/sec	Level	Value	Time/sec
1	F	0	9	7	64
2	E	8	10	6	72
3	D	16	11	5	80
4	C	24	12	4	88
5	B	32	13	3	96
6	A	40	14	2	104
7	9	48	15	1	112
8	8	56	16	0	120



# ***GREEN PC FUNCTION***

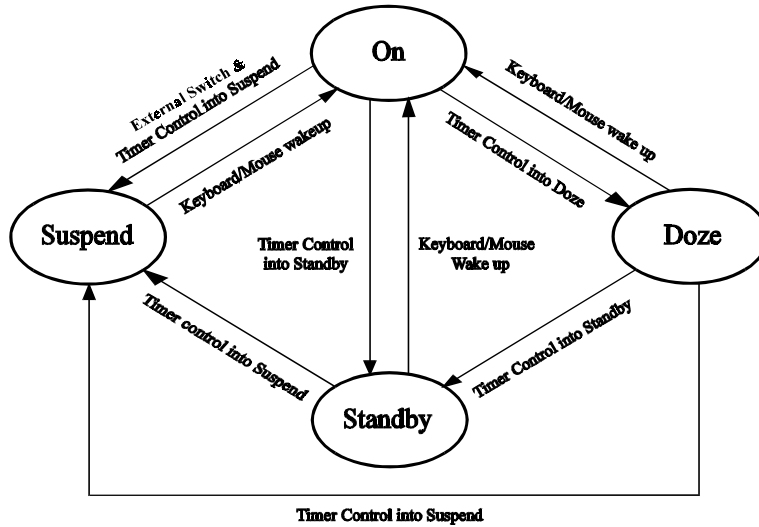


This chapter gives you the concise information for Green PC Function.

Section includes:

- 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. At the timer OUT, CPU clock slows 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. At the timer OUT, CPU clock slows 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 drive motor will spin off.
7. Any activity occurs, system will exit from Standby mode to On mode.

#### **4-4. SYSTEM SUSPEND MODE**

1. At the timer OUT, CPU clock slows down to 8MHz. If you use Intel Pentium or Cyrix (SMI) CPU, then CPU clock will stop.
2. Three beep sound.
3. Flash LED to indicate power saving status.
4. Level 2 cache are disabled.
5. VGA monitor displays blank screen.
6. Fixed disk drive motor will spin off.
7. Monitor activity according to the setting of Advanced Setup.
8. When system in Suspend mode, only Keyboard / Mouse / Alarm resume can wake up system.





# ***AWARD BIOS SETUP***

## **CHAPTER 5**

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

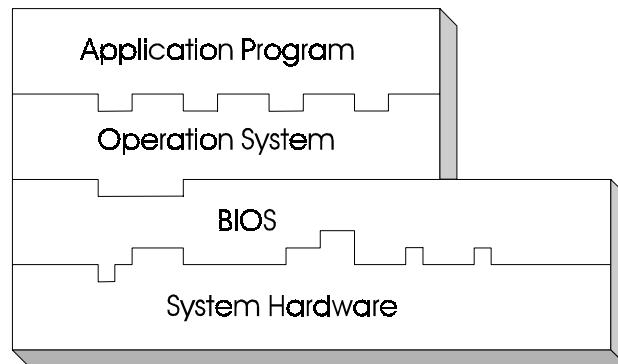
## 5-1. INTRODUCTION

This chapter will show you the function of a BIOS in managing the features of your system. The PC-560-G5 Pentium Embedded Card is equipped with the BIOS for system chipset from Award Software Inc. This page briefly explains the function of a 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 a 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 (POST) routines and following messages will appear on the lower screen:

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

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

ROM PCI / ISA BIOS (2A5KFP6E) 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 CINFIGURATION	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. If you have a color monitor 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 (2A5KFP6E)							
STANDARD CMOS SETUP							
AWARD SOFTWARE, INC.							
Date (mm:dd:yy) : Fri, Jun 11 1999							
Time (hh:mm:ss) : 13 : 24 : 30							
		CYLS.	HEADS	PRECOMP	LANDZONE	SECTORS	MODE
Drive C :	Auto ( 0Mb)	0	0	0	0	0	AUTO
Drive D :	Auto ( 0Mb)	0	0	0	0	0	AUTO
Drive A : 1.44M , 3.5 in.				Base Memory: 640K			
Drive B : None				Extended Memory: 15360K			
Video : EGA/VGA				Other Memory: 384K			
Halt On: All, But Keyboard				-----			
				Total Memory: 16384K			
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. The week display will depend on the date set in your system clock and the flashing indicating the current date. Since you have not yet set the time and date, the date displayed is probably incorrect.

Informations 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 example, 4:30 P.M., you should enter the time as 16 : 30 : 00.

**DRIVE C / DRIVE D:**

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

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

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

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

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

**TYPE:**

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

**CYLS.:**

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

**HEADS:**

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

**PRECOMP:**

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

**LANDZONE:**

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

**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)

**DRIVE A / DRIVE B:**

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

The options are 360K, 5.25in; 1.2M, 5.25in; 720K, 3.5in; 1.44M, 3.5in; 2.88M, 3.5in; and None.

**VIDEO:**

The category determines the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you don't have to select the type in Setup.

The available options are Mono, EGA/VGA, CGA 40, CGA 80.

**HALT ON:**

The category determines whether the computer will stop if an error is detected during power up.

The options are No errors; All errors; All, But Keyboard; All, But Diskette; and All, But Disk/Key.

**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 and the following screen will be shown:

ROM PCI/ISA BIOS (2A5KFP6E)			
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	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		
Boot Up System Speed	: Low		
Gate A20 Option	: Normal		
Memory Parity Check	: Disabled		
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
PS/2 Mouse function control	: Disabled	F5 : Old Values (Shift)F2 :	Color
PCI/VGA Palette Snoop	: Disabled	F6 : Load BIOS Defaults	
OS Select For DRAM > 64MB	: Non-OS2	F7 : Load Setup Defaults	

### BIOS Features Setup

The BIOS FEATURES SETUP allows you to 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 on the next page.

**VIRUS WARNING:**

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

**CPU INTERNAL/EXTERNAL CACHE:**

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

**QUICK POWER ON SELF TEST:**

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

**BOOT SEQUENCE:**

You may define whether the system will look first at drive A: and then at drive C: when booting up, or vice versa.

**SWAP FLOPPY DRIVE:**

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

**BOOT UP FLOPPY SEEK:**

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

**BOOT UP NUMLOCK STATUS:**

Use this item to Enabled / Disabled the NumLock on your keyboard automatically 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 two modes during use.

**MEMORY PARITY CHECK:**

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

**GATE 20A OPTION:**

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

**TYPEMATIC RATE SETTING:**

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

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

 To Disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is Disabled, the system will boot and you can enter Setup freely.

**PCI/VGA PALETTE SNOOP:**

This entry enable or disable the system to work with MPEG ISA/VESA VGA Card.

**OS SELECT FOR DRAM > 64MB:**

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

**5-5. CHIPSET FEATURE SETUP**

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

ROM PCI/ISA BIOS (2A5KFP6E) CHIPSET FEATURES SETUP AWARD SOFTWARE, INC.	
Auto Configuration	: Disabled
AT Bus Clock	: 7.16MHz
Async. SRAM Write WS	: X-3-3-3
Async. SRAM Read WS	: X-3-3-3
EDO Read WS	: X-3-3-3
Page Mode Read WS	: X-4-4-4
DRAM Write WS	: X-3-3-3
CPU to DRAM Page Mode	: Disabled
DRAM Refresh Period	: 15 us
DRAM Data Integrity Mode	: Parity
Pipelined Function	: Disabled
16 Bit ISA I/O Command WS	: Normal
16 Bit ISA Mem Command WS	: Normal
Local Memory 15-16M	: Disabled
Passive Release	: Disabled
ISA Line Buffer	: Disabled
Delay Transaction	: Disabled
Primary Frame Buffer	: Disabled
VGA Frame Buffer	: Disabled
M1 Linear Burst Mode	: Disabled
Esc : Quit      ↑↓→← : Select Item F1 : Help      Pu/Pd/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

**Chipset Features Setup**

This setup page allows you to configure the system based on the specific features of the installed chipset. By moving cursor to the desired selection and pressing < F1 > key, all options for the desired selection will be displayed for choice. User has to select the desired option.

**AUTO CONFIGURATION:**

This item allows you to select pre-determined optimal values for DRAM, cache, timing according to CPU type and system clock. When set to enable, the pre-defined items will become SHOW only.

**AT BUS CLOCK:**

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

**PAGE MODE READ WS:**

Select the correct cycle timing combination for the system board design and Page Mode DRAM specifications.

**DRAM WRITE WS:**

This item allows you to set the wait state, time that the CPU is held idle, while the system is writing to DRAM.

**DRAM REFRESH PERIOD:**

This item select the period required to refresh the DRAMs, according to DRAM specifications.

**DRAM DATA INTEGRITY MODE:**

Select Parity or ECC (error-correcting code), according to the type of installed DRAM.

**PIPELINED FUNCTION:**

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

**PASSIVE RELEASE:**

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

**ISA LINE BUFFER:**

This 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 enable, an ISA or DMA bus master can prefetch two double words to the line buffer for a read cycle.

**DELAY TRANSACTION:**

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

**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 (2A5KFP6E)			
POWER MANAGEMENT SETUP			
AWARD SOFTWARE, INC.			
Power Management	: User Define	IRQ7 (LPT 1)	: OFF
PM Control by APM	: Yes	IRQ8 (RTC Alarm)	: OFF
MODEM Use IRQ	: NA	IRQ9 (IRQ2 Redir)	: OFF
Video Off Option	: Always On	IRQ10 (Reserved)	: OFF
Video Off Method	: Blank Screen	IRQ11 (Reserved)	: OFF
** PM Timers **		IRQ12 (PS/2 Mouse)	: OFF
HDD Power Down	: Disabled	IRQ13 (Coprocesor)	: OFF
Doze Mode	: Disabled	IRQ14 (Hard Disk)	: OFF
Standby Mode	: Disabled	IRQ15 (Reserved)	: OFF
Suspend Mode	: Disabled		:
** PM Events **			
VGA	: OFF		
DRQ	: OFF		
IRQ1 (Keyboard)	: OFF	Esc : Quit	↑↓→← : Select Item
IRQ3 (COM2)	: OFF	F1 : Help	Pu/Pd/+/- : Modify
IRQ4 (COM1)	: OFF	F5 : Old Values (Shift)	F2 : Color
IRQ5 (LPT2)	: OFF	F6 : Load BIOS Defaults	
IRQ6 (Floppy Disk)	: OFF	F7 : Load Setup Defaults	

**Power Management Setup**

This category determines how much power consumption for system after selecting below items. Default value is Disabled. Having made all the settings above, press < Esc > to return to the main menu.

**POWER MANAGEMENT:**

This item determines how much power consumption for system. When you define it as Max Saving,all timers are set to MIN value.

**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 set the IRQ in which the modem can use.

**VIDEO OFF OPTION:**

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

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

**VIDEO OFF METHOD:**

This item 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:**

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

**DOZE MODE:**

This is one of the Green PC power saving function which is only user configurable when *User Define* Power Management has been selected. When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

**STANDBY MODE:**

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

**SUSPEND MODE TIMER:**

This is one of the Green PC power saving function which is only user configurable when *User Define* Power Management has been selected. When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.



### 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 (2A5KFP6E) PNP/PCI CONFIGURATION AWARD SOFTWARE, INC.	
Resources Controlled by : Auto Reset Configuration Data : Disabled	PCI IDE 2 <sup>nd</sup> Channel : Disabled PCI IRQ Activated By : Edge 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

You can manually configure the PnP/PCI Device's IRQ. Highlight the selected item and pressing <F1> key, all options for the desired selection will be displayed for choice. User has to use select the desired options. Having made all the above setting according to your configuration, press <Esc> to return to the main menu.

#### RESOURCE CONTROLLED BY:

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

**RESET CONFIGURATION DATA:**

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

**PCI IRQ ACTIVATED BY:**

This determined 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 manufacturer.

**PCI IDE IRQ MAP TO:**

This field lets you choose PCI IDE IRQ mapping or PC AT (ISA) interrupts. If your system does not have one or two PCI IDE connectors on the system board, select values according to the type of IDE interface(s) installed in your system (PCI or ISA). Standard ISA interrupts for IDE channels are IRQ14 for primary and IRQ15 for secondary.

## 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 Default ( Y / N ) ? Y

To use the BIOS defaults, change the prompt to "Y" and press < Enter >, the CMOS is loaded automatically when you power on the PC-560-G5.

## 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 Default ( Y / N ) ? Y

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

## 5-10. INTEGRATED PERIPHERALS

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

ROM PCI/ISA BIOS (2A5KFP6E) INTEGRATED PERIPHERALS AWARD SOFTWARE, INC.	
On-Chip IDE Controller	: Disabled
IDE HDD Block Mode	: Disabled
Onboard FDC Controller	: Enabled
Onboard UART 1	: 3F8/IRQ4
Onboard UART 2	: 2F8/IRQ3
Onboard UART 2 Mode	: Standard
Esc : Quit            ↑↓→← : Select Item F1 : Help            Pu/Pd/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

### INTEGRATED PERIPHERALS

By moving 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 IDE CONTROLLER:

The chipset contains a PCI IDE interface with support for two IDE channels. When enable, it will activate the primary and/or secondary IDE interface.

#### IDE HDD BLOCK MODE:

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

**ON-BOARD FDC CONTROLLER:**

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

**ON-BOARD PARALLEL PORT:**

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

**5-11. PASSWORD SETTINGS**

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


**TO SET A PASSWORD**

If you want to enable this item you should choose the "PASSWORD SETTING" option from the main menu, the following message will appear at the center of the screen to assist you in creating a password.

Enter Password:

Type the password, up to eight characters, and press < Enter >. You will be asked to confirm the password. Type the password again and press < Enter >. You may also press < Esc > to abort the selection and not enter a password.

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

 User should bear in mind that when a password is set, you will be asked 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, after entering the original password, press "PASSWORD SETTING" a message will appear at the center.

Password Disabled!!!  
Press any key to continue...

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

## 5-12. IDE HDD AUTO DETECTION

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

ROM PCI / ISA BIOS (2A5KFP6E) STANDARD CMOS SETUP AWARD SOFTWARE, INC.							
		CYLS.	HEADS	PRECOMP	LANDZONE	SECTORS	MODE
Drive C	: (850Mb)	824	32	0	1647	63	LBA
Drive D	: ( Mb)						

Select Drive D Option (N=Skip) : N							
Option	Size	Cyls	Heads	Precomp	Landzone	Sectors	Mode
1 (Y)	0	0	0	0	0	0	Normal

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

### IDE HDD AUTO DETECTION Screen

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

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

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

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

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

### 5-13. HDD LOW LEVEL FORMAT

Choose "HDD LOW LEVEL FORMAT" from the main CMOS SETUP 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
Drive C	: (850Mb)	824	32	0	1647	63	LBA
Drive D	:	0	0	0	0	0	Normal
	:						
	:						
Up/Down - Select item                      Enter - Accept                      ESC - Exit / Abort							
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#### HDD LOW LEVEL FORMAT

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.



### 5-14. SAVE & EXIT SETUP

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

ROM / PCI / ISA BIOS (2A5KFP6E) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP / PCI CONFIGU	FORMAT
LOAD BIOS DEFAUL	SAVE to CMOS & EXIT (Y/N)? N
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.

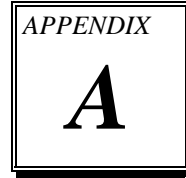
### 5-15. EXIT WITHOUT SAVING

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

ROM / PCI / ISA BIOS (2A5KFP6E) 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 CONFIG	FORMAT
LOAD BIOS DEFAULT	Quit Without Saving (Y/N) ? N
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
Esc : Quit	↑↓→← :SELECT ITEM
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Abandon all Datas & Exit SETUP	



# ***EXPANSION BUS***



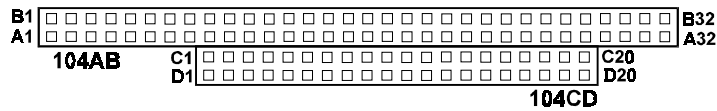
This appendix indicates you the pin assignments.

Section includes:

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

## PC-104 CONNECTOR PIN ASSIGNMENT

### 104AB, 104CD : PC-104 Connector



The PC-104 can support multi-pieces of PC-104 modules. This card has two connectors : one (104AB) consists of 64 pin; the other one (104CD) consists of 40 pin, both of them are dual-in-line headers

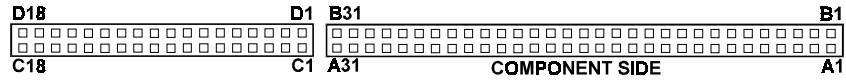
The pin assignments for connector 104AB & 104CD are as follows:

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

## ISA BUS PIN ASSIGNMENT

The ISA Bus for this csrd is called “ Gold Fingers ”. It is divided into two sets: one consists of 62 pins, the other consists of 36 pins.

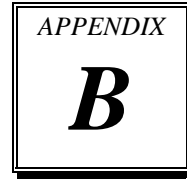
The pin assignments are as follows:



B		A		D		C	
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
B1	GND	A1	-I/O CH CHK	D1	-MEMCS16	C1	SBHE
B2	RESET	A2	SD07	D2	-I/OCS16	C2	LA23
B3	+5V	A3	SD06	D3	IRQ10	C3	LA22
B4	IRQ9	A4	SD05	D4	IRQ11	C4	LA21
B5	-5V	A5	SD04	D5	IRQ12	C5	LA20
B6	DRQ2	A6	SD03	D6	IRQ15	C6	LA19
B7	-12V	A7	SD02	D7	IRQ14	C7	LA18
B8	OWS	A8	SD01	D8	-DACK0	C8	LA17
B9	+12V	A9	SD00	D9	DRQ0	C9	-MEMR
B10	GND	A10	-I/O CH RDY	D10	-DACK5	C10	-MEMW
B11	-SMEMW	A11	AEN	D11	DRQ5	C11	SD08
B12	-SMEMR	A12	SA19	D12	-DACK6	C12	SD09
B13	-IOW	A13	SA18	D13	DRQ6	C13	SD10
B14	-IOR	A14	SA17	D14	-DACK7	C14	SD11
B15	-DACK3	A15	SA16	D15	DRQ7	C15	SD12
B16	-DRQ3	A16	SA15	D16	+5V	C16	SD13
B17	-DACK1	A17	SA14	D17	-MASTER	C17	SD14
B18	-DRQ1	A18	SA13	D18	GND	C18	SD15
B19	-REFRESH	A19	SA12				
B20	BCLK	A20	SA11				
B21	IRQ7	A21	SA10				
B22	IRQ6	A22	SA09				
B23	IRQ5	A23	SA08				
B24	IRQ4	A24	SA07				
B25	IRQ3	A25	SA06				
B26	-DACK2	A26	SA05				
B27	T/C	A27	SA04				
B28	BALE	A28	SA03				
B29	+5V	A29	SA02				
B30	OSC	A30	SA01				
B31	GND	A31	SA00				



# ***TECHNICAL SUMMARY***



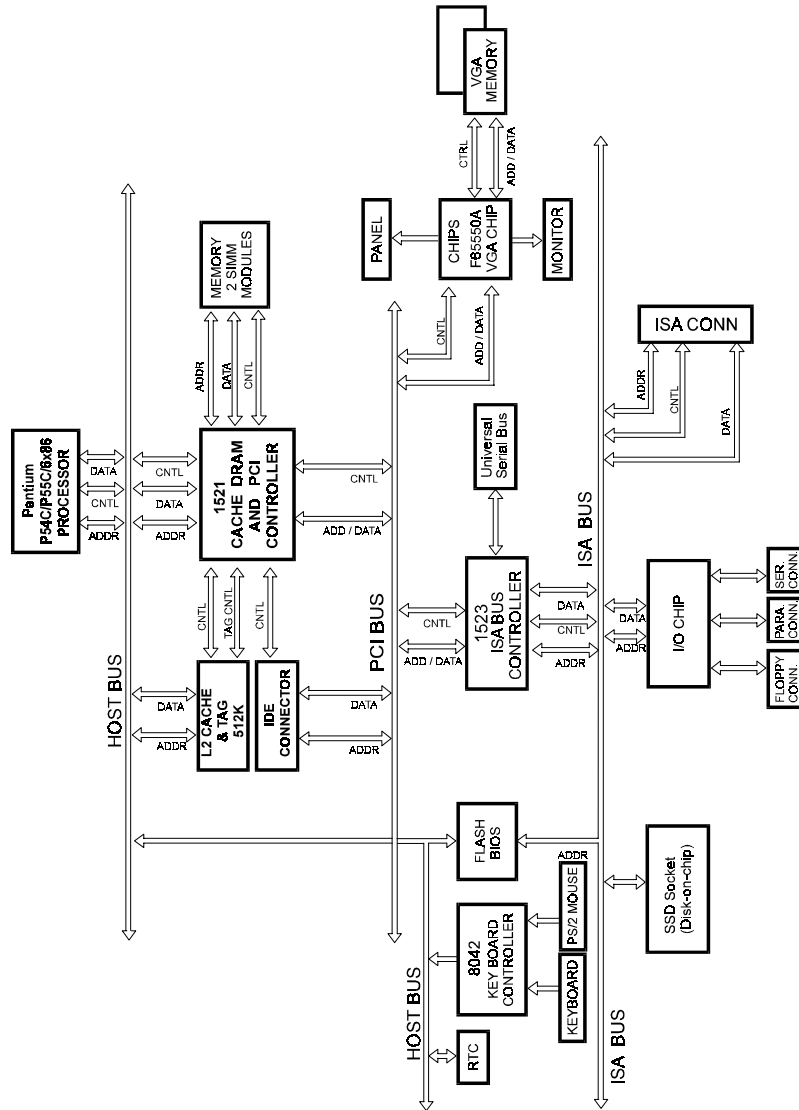
This section introduce you the maps concisely.

Section includes:

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



BLOCK DIAGRAM



**INTERRUPT MAP**

<b>IRQ</b>	<b>ASSIGNMENT</b>
0	System TIMER 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**

<b>CODE</b>	<b>ASSIGNMENT</b>
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

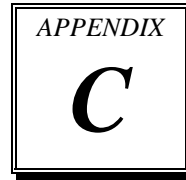
### Memory Map :

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 ISA device ROM
00F0000-00FFFFFF	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 registers.
060-06F	Keyboard interface controller (8042)
070-07F	RTC ports & CMOS I/O ports
080-09F	DMA register
0A0-0BF	Interrupt controller (Slave)
0C0-0DF	DMA controller (Slave)
0F0-0FF	Math coprocessor
1F0-1F8	Hard Disk controller
278-27F	Parallel port-2
2B0-2DF	Graphics adapter controller
2F8-2FF	Serial port-2
360-36F	Net work ports
378-37F	Parallel port-1
3B0-3BF	Monochrome & Printer adapter
3C0-3CF	EGA adapter
3D0-3DF	CGA adapter
3F0-3F7	Floppy disk controller
3F8-3FF	Serial port-1

# ***TROUBLE- SHOOTING***



This section outlines the errors messages that may occur when you operate the system. It also gives you some tips on how to solve the problems.

Sections include:

- Troubleshooting for Error Messages
- Troubleshooting for POST Code

## **TROUBLESHOOTING FOR ERROR MESSAGE**

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

### **POST BEEP :**

Currently there are two kind of beep codes in BIOS. The one code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code 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 inform you that the CMOS is corrupted. When the battery runs weak, this situation might happen. Please check the battery and change a new one when necessary.

### **DISPLAY SWITCH IS SET INCORRECTLY :**

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

### **DISK BOOT FAILURE:**

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

**DISKETTE DRIVES OR TYPES MISMATCH ERROR :**

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

**ERROR ENCOUNTERED INITIALIZING HARD DRIVE :**

When you can't initialize the hard drive. Assure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

**ERROR INITIALIZING HARD DISK CONTROLLER :**

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

**FLOPPY DISK CONTROLLER ERROR OR NO CONTROLLER PRESENT :**

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

**KEYBOARD ERROR OR NO KEYBOARD PRESENT :**

When this situation happens, please check keyboard attachment and no keys being pressed during the boot. If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

**MEMORY ADDRESS ERROR :**

When the memory address indicates error. You can use this location along with the memory map for your system to find and replace the bad memory chips.

**MEMORY SIZE HAS CHANGED :**

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



**MEMORY VERIFYING ERROR :**

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

**OFFENDING ADDRESS MISSING :**

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

**REBOOT ERROR :**

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

**SYSTEM HALTED :**

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

## **TROUBLESHOOTING FOR POST CODES**

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

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

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

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

**07** : 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-FFFFFF 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 Logo (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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