

# **USER'S MANUAL**

**PS-8150**

**Socket 370 (Celeron / P-III)  
Panel PC System**

**PS-8150 M0**

# ***PS-8150 Panel PC System With LCD / Touch screen (optional)***

## ***OPERATION MANUAL***

### **COPYRIGHT NOTICE**

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

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### **ACKNOWLEDGEMENTS**

All trademarks and registered trademarks mentioned herein are the property of their respective owners.

**CAUTION!** Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

**WARNING!** Some internal parts of the system may have high electrical voltage. And therefore we strongly recommend that qualified engineers can open and disassemble the system.

The LCD and touch screen are fragile, please handle them with extra care.

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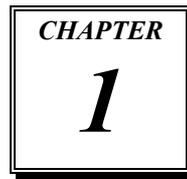
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# ***INTRODUCTION***



This chapter gives you the information for PS-8150. It also outlines the System specifications.

Section includes:

- About This Manual
- Case Illustration
- System Specifications
- Safety precautions

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

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

Thank you for purchasing our PS-8150 Panel PC. The PS-8150 is an updated system designed to be comparable with the highest performance of IBM AT personal computers. It provides faster processing speed, greater expandability, and can handle more tasks. This manual is designed to assist you on how to make the proper installation to set up the system. It contains five chapters. The user can use this manual for configuration according to the following chapters :

### ***Chapter 1 Introduction***

This chapter introduces you to the background of this manual, illustration of the case, and the specifications for this system. The final page of this chapter indicates some safety reminders on how to take care of your system.

### ***Chapter 2 System Configuration***

This chapter outlines the Prox-3650 components' locations and their functions. In the end of this chapter, you will learn how to set jumper and how to configure the system for your own needs.

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

This chapter contains helpful information for proper installations of the VGA utility, LAN utility, Sound utility and Flash BIOS update. It also describes the function of the Watchdog Timer.

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

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

### ***Appendix A System Assembly***

This section gives you the exploded diagram for the whole system unit.

### ***Appendix B Technical Summary***

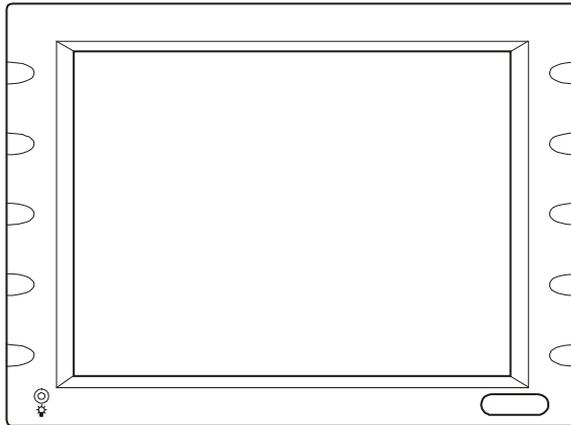
This section gives you the information about the Technical maps.

### ***Appendix C Trouble Shooting***

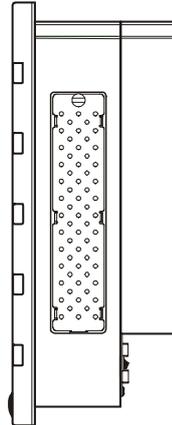
This section outlines the error messages and offers you the methods to solve the problems.

1-2. CASE ILLUSTRATION

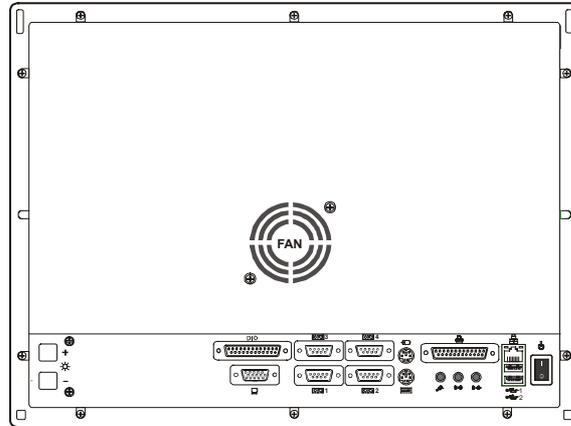
FRONT VIEW



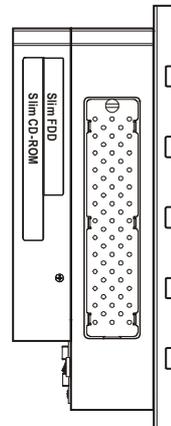
R-SIDE VIEW



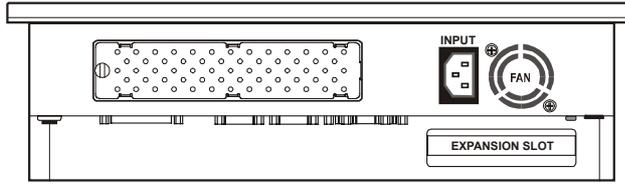
REAR VIEW



L-SIDE VIEW



**BOTTOM VIEW**



## 1-3. SYSTEM SPECIFICATIONS

### **MAINBOARD (PROX-3650)**

● **CPU TYPE:**

Intel® Celeron™ / Coppermine processors 566~1GHz or higher processor.  
Intel® Tualatin processor 1GHz or higher processor.  
Support FSB 66/100/133 MHz.  
Auto detect voltage regulator.

● **CHIPSET:**

Intel® 815E

● **MEMORY :**

Up to 512MB SDRAM  
One 168-pin DIMM sockets on board.

● **CACHE :**

Built-in CPU(128/256KB Cache).

● **REAL-TIME CLOCK :**

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

● **BIOS :**

Award Flash BIOS for plug & play function.  
Easy update 512KB flash EEPROM.  
Support Green Function.  
Support S I/O Setup.

● **KEYBOARD CONNECTOR :**

Mini DIN connector.  
Supports PC/AT Keyboard.

● **MOUSE CONNECTOR :**

Mini DIN connector.  
Supports PS/2 Mouse.

● **SSD SOCKET :**

One 32-pin socket on board.  
Supports Disk-on-chip up to 288MB.

● **BUS SUPPORT :**

Internal PCI for VGA, IDE, LAN, and Sound.  
External PISA Bus.

● **DIGITAL I/O :**

8 MOSFET digital out, 8 TTL digital in.  
One 25-pin D-Sub connector.  
Support up to 5V.

● **VGA :**

C&T 69000 chips on board  
2MB on-die memory  
Simultaneously support CRT & LCD displays.

● **DIGITAL (GENERAL PURPOSE) I/O INTERFACE :**

Digital Input

- Support up to eight (8) digital inputs.
- Designed to accept TTL level inputs.

Digital Output

- Support up to eight (8) digital outputs.
- TL compliant for voltage & current capabilities for sink & source requirements.

● **WATCHDOG :**

I / O port 443H to Enable watchdog.  
I / O port 441H to Disable watchdog.  
Selectable for NMI or Reset function.  
Time-out timing select 0 / 8 / 16 / 24 / 32 / 40 / 48 / 56 / 64 / 72 / 80 / 88 /  
96 / 104 / 112 / 120 sec +/- 25%.

● **IDE INTERFACE :**

Two IDE port, support for Ultra ATA-100.  
Support up to four IDE devices.

● **FLOPPY DISK DRIVE INTERFACE :**

One 26-pin connector.  
Support for slim Floppy Disk Drive.

● **SERIAL PORT :**

Four high speed 16550 Compatible UARTs with Send / Receive 16 Byte FIFOs.

COM1 (D-Sub Connector) for RS-232;  
COM2 (D-Sub Connector) for RS-232/422/485;  
COM3 (D-Sub Connector) for RS-232  
COM4 (D-Sub Connector) for RS-232 or fixed for Touch Screen.

MIDI Compatible.  
Programmable Baud Rate Generator.

● **PARALLEL PORT :**

One 25-pin D-Sub connector on rear panel.  
Support for SPP, ECP, EPP Function.  
Bi-directional parallel port.

● **LAN ADAPTER :**

Intel® 82562 PCI Fast Ethernet.  
RJ-45 jack onboard, Support for 10/100 Base-T PCI BUS.  
Support Wake-On-LAN function.

● **USB CONNECTOR :**

Two USB ports on rear panel.  
Complies with USB Spec Rev 1.0.

● **SOUND :**

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

- **GREEN FUNCTION :**  
Software supported by BIOS setup.  
Hardware supported by switch control.
  
- **IRDA FUNCTION :**  
One IrDA on Front Panel.  
Supports IrDA v1.0 SIR protocol.
  
- **HARDWARE MONITORING FUNCTION :**  
Monitor CPU Voltage, CPU Temperature and Cooling Fan.
  
- **LED INDICATOR :**  
System power.  
Hard Disk access.  
LAN LED indicator.
  
- **DMA CONTROLLER :**  
82C37 x 2
  
- **DMA CHANNELS :**  
7
  
- **INTERRUPT CONTROLLERS :**  
82C59 x 2
  
- **INTERRUPT LEVELS :**  
15

### **LCD PANEL**

- **LCD TYPE :**  
Acer M150XN02 (L150X2M-1)  
15.0" TFT LCD
  
- **RESOLUTION :**  
Max. Resolution: 1024 (RGB x3) x 768 XGA

- **PIXEL PITCH :**  
0.297 x 0.297
- **BRIGHTNESS :**  
250 cd / m<sup>2</sup>
- **CONTRAST RATIO :**  
300 : 1 (typ.)
- **POWER CONSUMPTION :**  
14W
- **VIEWING ANGLE :**  
UP 40 Degree  
DOWN 60 Degree  
LEFT 60 Degree  
RIGHT 60 Degree
- **RESPONSE TIME :**  
35 (typ.) (TR+TF)
- **COLOR :**  
Native 256K colors (6-bit for RGB)
- **LCD MTBF :**  
50,000 hours
- **BACKLIGHT MTBF :**  
25,000 hours  
Support brightness control
- **DIMENSION :**  
336mm(W) x 249mm(H) x 13.5mm(D)

**TOUCH SCREEN : (OPTIONAL)**

TYPE	ANALOG RESISTIVE
Resolution	1024 x 768
Light Transmission	80%
Controller	RS-232 interface (uses COM4)
Power Consumption	+5V
Durability (Lifetime)	10 million

**RISER CARD : (OPTIONAL)**

Optional 1: 1 PCI & 1 ISA slots

Optional 2: 3 PCI & 3 ISA slots

The maximum dimension of the accepted add-on card is 190mm wide by 108mm high excluding golden finger. The limited depth/thickness of the accepted add-on cards is 17mm.

**GENERAL INFORMATION**

● **POWER SUPPLY :**

Model: PW-F80ATX, 80 watt ATX Power Supply

Input: 90~265 Vac / 3A, 60~60Hz

Output: +5VSB/1.5A, +5Vdc/10A, +12Vdc/1.5A, -12Vdc/0.22A

Input Current: Max. 3.0A at 115 Vac

Dimension: 80mm x 130mm x 40mm

● **DRIVE BAYS :**

One 3.5" HDD, one slim FDD, and one slim CD-ROM

● **EXPANSION SLOTS :**

PISA slots for Riser Card use.

● **CONSTRUCTION :**

High quality plastic frame architecture.

● **DIMENSIONS :**

CASE: 400 mm x 300 mm x 117.5mm

MAIN BOARD (Prox-3650) : 247mm x 160mm

● **NET WEIGHT :**

8.1 Kg

**1-4. SAFETY PRECAUTIONS**

Following messages are safety reminders on how to protect your systems from damages. And thus, helps you lengthen the life cycle of the system.

**1. Check the Line Voltage**

- a. The operating voltage for the power supply should cover the range of 95VAC-260VAC, otherwise the system may be damaged.

**2. Environmental Conditions**

- a. Place your PS-8150 on a sturdy, level surface. Be sure to allow enough room on each side to have easy access.
- b. Avoid extremely hot or cold places to install your PS-8150 Book-sized PC.
- c. Avoid exposure to sunlight for a long period of time (for example in a closed car in summer time. Also avoid the system from any heating device.). Or do not use PS-8150 when it's been left outdoors in a cold winter day.
- d. Bear in mind that the operating ambient temperature is from 0°C up to +50°C.
- e. Avoid moving the system rapidly from a hot place to a cold place or vice versa because condensation may come from inside of the system.
- f. Place PS-8150 against strong vibrations, which may cause hard disk failure.
- g. Do not place the system too close to any radio active device. Radioactive device may cause interference.

**3. Handling**

- a. Avoid putting heavy objects on top of the system.
- b. Do not turn the system upside down. This may cause the floppy drive and hard drive to mal-function.

- c. Do not remove the diskette from the Floppy drive while the light is still on. If you remove the diskette while the light is on, you may damage the information on the diskette.

**4. Good Care**

- a. When the outside of the case is stained, remove the stain with neutral washing agent with a dry cloth.
- b. Never use strong agents such as benzene and thinner to clean the system.
- c. If heavy stains are present, moisten a cloth with diluted neutral washing agent or with alcohol and then wipe thoroughly with a dry cloth.
- d. If dust has been accumulated on the outside, remove it by using a special made vacuum cleaner for computers.

# ***SYSTEM CONFIGURATION***

CHAPTER

**2**

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

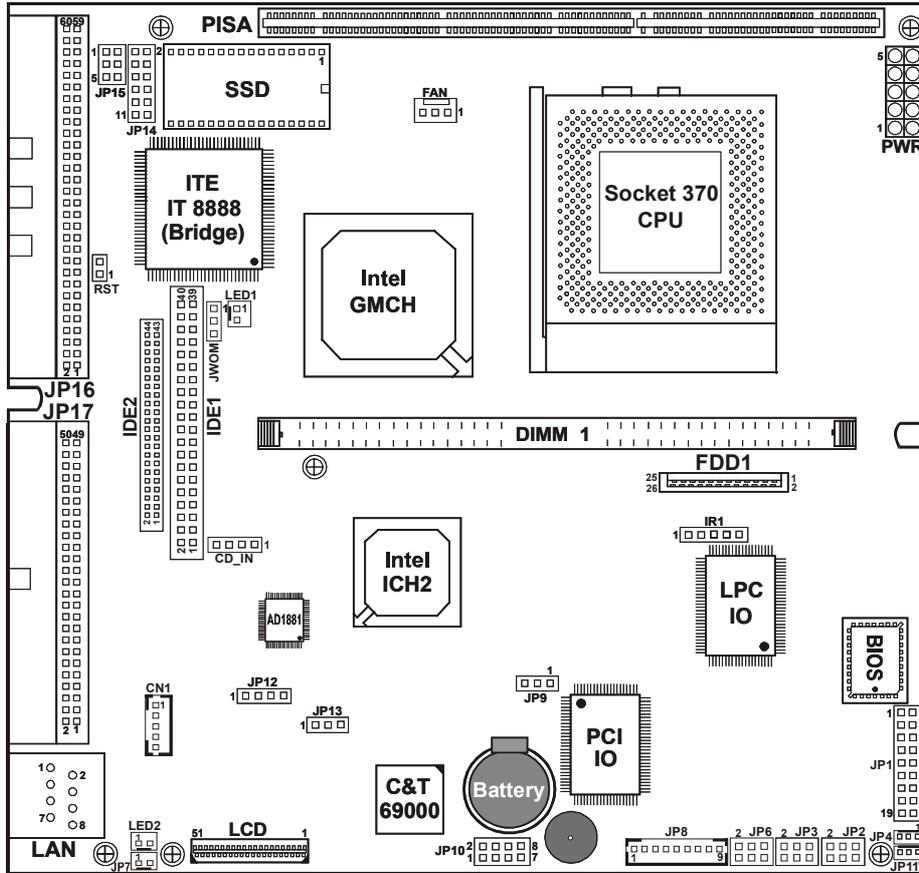
Section includes:

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

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

JP16 Connector .....	JP16
JP17 Connector .....	JP17
COM4 Connector .....	JP8
RS232/422/485 (COM2) Selection .....	JP1
COM1 RI & Voltage Selection .....	JP3
COM2 RI & Voltage Selection .....	JP2
COM3 RI & Voltage Selection .....	JP6
COM4 Voltage Selection .....	JP11
Infrared Connector .....	IR1
LCD Connector .....	LCD
LCD Inverter Power & Brightness Connector .....	CN1
LCD VDD Selection .....	JP13
Solid State Disk Socket .....	SSD
SSD Memory Mapping Selection .....	JP14
Floppy Disk Drive Connector .....	FDD1
Hard Disk Drive Connector .....	IDE1, IDE2
LAN Connector .....	LAN
LAN LED Connector .....	JP12
Power Connector .....	PWR
Reset Connector .....	RST
ATX Power Button .....	JP7
Clear CMOS Data Selection .....	JP9
CPU Fan Connector .....	FAN
System Fan Connector .....	JP4
Power LED Connector .....	LED2
HDD LED Connector .....	LED1
Reset/NMI/Clear Watchdog Selection .....	JP15
CD-in Connector .....	CD_IN
Wake On LAN Connector .....	JWOM
PCI/ISA Extension Bus Connector .....	PISA
Memory Installation .....	DIMM1
Reserved Pin .....	JP10

## 2-2. COMPONENT LOCATIONS



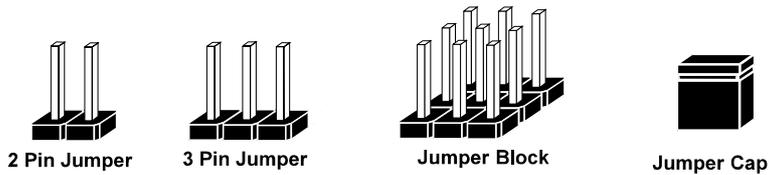
Prox-3650 Connector, Jumper and Component locations

## 2-3. HOW TO SET THE JUMPERS

You can configure your board by setting the jumpers. Jumper is consists of two or three metal pins with a plastic base mounted on the card, and by using a small plastic "cap", Also known as the jumper cap (with a metal contact inside), you are able to connect the pins. So you can set-up your hardware configuration by "opening" or "closing" pins.

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

### JUMPERS AND CAPS

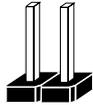


If a jumper has three pins for example, labelled PIN1, PIN2, and PIN3. You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams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

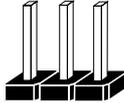
**JUMPER DIAGRAMS**



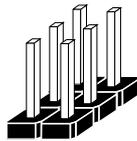
Jumper Cap looks like this



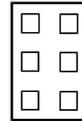
2 pin Jumper looks like this



3 pin Jumper looks like this



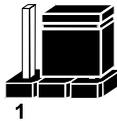
Jumper Block looks like this



**JUMPER SETTINGS**



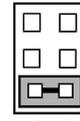
2 pin Jumper closed(enabled)  
looks like this



3 pin Jumper  
2-3 pin closed(enabled)  
looks like this



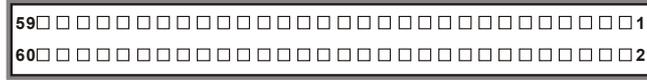
Jumper Block  
1-2 pin closed(enabled)  
looks like this



## 2-4. JP16 CONNECTOR

### JP16 : JP16 Connector

This connector consists of VGA, COM1~COM4 and Digital IO signal.  
The pin assignments are as follows:



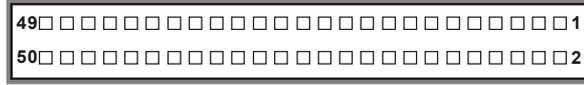
### JP16

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	HSYNCR	2	REDR
3	VSYNCR	4	GREENR
5	VGA_GND	6	BLUER
7	GND	8	GND
9	NRTSB	10	TRTS2
11	NSINB	12	TIN2
13	NDSRB	14	TDSR2
15	NDCDB	16	TDCD2
17	NSOUTB	18	ROUT2
19	NRIB	20	RIN2R
21	NDTRB	22	RDTR2
23	NCTSB	24	RCTS2
25	GND	26	GND
27	NDCDA	28	NDCD1#
29	NDSRA	30	NDSR1#
31	NSINA	32	NRXD1
33	NRTSA	34	NRTS1#
35	NSOUTA	36	NTXD1
37	NCTSA	38	NCTS1#
39	NDTRA	40	NDTR1#
41	NRIAR	42	NR11#R
43	GND	44	GND
45	D17	46	DO7
47	D16	48	DO6
49	D15	50	DO5
51	D14	52	DO4
53	D13	54	DO3
55	D12	56	DO2
57	D11	58	DO1
59	D10	60	DO0

## 2-5. JP17 CONNECTOR

**JP17** : JP17 Connector

This connector consists of Parallel, Keyboard, Mouse, Sound & USB signal.  
The pin assignments are as follows:



**JP17**

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	BRCTR	2	VCC
3	SLIN#R	4	INIT#R
5	AFD#R	6	STB#R
7	GND	8	GND
9	SLCT	10	PE
11	BUSY	12	ACK#
13	GND	14	GND
15	ERR#	16	PD7R
17	PD6R	18	PD5R
19	GND	20	GND
21	PD4R	22	PD3R
23	PD2R	24	PD1R
25	PD0R	26	GND
27	VKBMS	28	GND
29	MS CLK	30	MS DATA
31	KB CLK	32	KB DATA
33	AN_GND	34	GND
35	ROUT	36	LOUT
37	RIN	38	LIN
39	MIC	40	AN_GND
41	GND	42	GND
43	USBP0PR	44	USBP1PR
45	USBP1NR	46	USBP0NR
47	USBPWR1	48	USBPWR0
49	GND	50	GND

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

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

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 settings (pin closed)	Open	1-2 5-6 7-8 9-10 11-12 13-14 15-16 17-18 19-20	1-3 4-6 7-8 9-10 11-12 13-14 15-16 17-18 19-20
Jumper illustration			

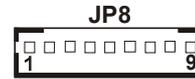
\*\*\* Manufactory default --- RS-232.

## 2-7. COM4 CONNECTOR

**JP8** : COM4 Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	NDCDB
2	NSINB
3	NSOUTB
4	NDTRB
5	GND
6	NDSRB
7	NRTSB
8	NCTSB
9	NC/+12V/+5V selectable



## 2-8. COM1 RI & VOLTAGE SELECTION

**JP3** : COM1 RI & Voltage Selection

The selections are as follows:

SELECTION	JUMPER SETTING (Pin Closed)	JUMPER ILLUSTRATION
RI	1-2	<p>The diagram shows a 6-pin connector labeled JP3. Pins 1 and 2 are connected by a jumper. The pins are numbered 1 through 6 from left to right.</p>
+12V	3-4	<p>The diagram shows a 6-pin connector labeled JP3. Pins 3 and 4 are connected by a jumper. The pins are numbered 1 through 6 from left to right.</p>
+5V	5-6	<p>The diagram shows a 6-pin connector labeled JP3. Pins 5 and 6 are connected by a jumper. The pins are numbered 1 through 6 from left to right.</p>

\*\*\*Manufacturing Default – RI.

## 2-9. COM2 RI & VOLTAGE SELECTION

**JP2** : COM2 RI & Voltage Selection

The selections are as follows:

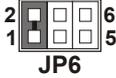
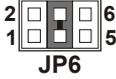
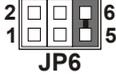
SELECTION	JUMPER SETTING (Pin Closed)	JUMPER ILLUSTRATION
RI	1-2	 JP2
+12V	3-4	 JP2
+5V	5-6	 JP2

\*\*\*Manufacturing Default - RI

## 2-10. COM3 RI & VOLTAGE SELECTION

**JP6** : COM3 RI & Voltage Selection

The selections are as follows:

SELECTION	JUMPER SETTING (Pin Closed)	JUMPER ILLUSTRATION
RI	1-2	 JP6
+12V	3-4	 JP6
+5V	5-6	 JP6

\*\*\*Manufacturing Default - RI

## 2-11. COM4 VOLTAGE SELECTION

**JP11** : COM4 Voltage Selection

The selections are as follows:

SELECTION	JUMPER SETTING (Pin Closed)	JUMPER ILLUSTRATION
NC	Open	 JP11
+12V	2-3	 JP11
+5V	1-2	 JP11

\*\*\*Manufacturing Default – NC.

## 2-12. INFRARED CONNECTOR

**IR1** : Infrared Connector

The pin assignments are as follows:

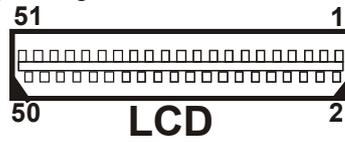
PIN	ASSIGNMENT
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX



### 2-13. 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 :



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		

## 2-14. LCD INVERTER POWER & BRIGHTNESS CONNECTOR

CN1 : LCD Inverter & Brightness Connector  
 The pin assignments are as follows:

PIN	ASSIGNMENT
1	BRCTR
2	SAFE +5V
3	VDDSAFE
4	GND
5	+12V SAFE



## 2-15. LCD VDD SELECTION

JP13: LCD VDD Selection  
 The pin assignments are as follows:

SELECTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
VDD 5V	1-2	JP13
VDD 3.3V	2-3	JP13

## 2-16. SOLID STATE DISK SOCKET

**SSD** : Solid State Disk Socket

The pin assignments are as follows:



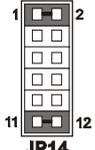
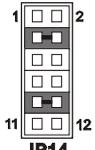
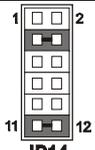
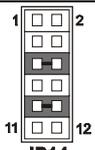
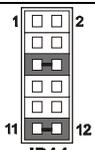
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	17	SD3
2	NC	18	SD4
3	NC	19	SD5
4	SA12	20	SD6
5	SA7	21	SD7
6	SA6	22	CE
7	SA5	23	SA10
8	SA4	24	OE
9	SA3	25	SA11
10	SA2	26	SA9
11	SA1	27	SA8
12	SA0	28	NC
13	SD0	29	NC
14	SD1	30	VCC
15	SD2	31	WE
16	GND	32	VCC

## 2-17. SSD MEMORY MAPPING SELECTION

### JP14 : SSD Memory Mapping Selection

A 32-pin SSD socket supports Disk-on-Chip up to 288MB. This PnP Flash ROM SSD can be install as one of user's hard disk drive.

The SSD Memory Mapping Selections are as follows:

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

\*\*\* Manufactory default --- CC000h-CDFFFh.

## 2-18. FLOPPY DISK DRIVE CONNECTOR

**FDD1** : Floppy Disk Drive Connector  
The pin assignments are as follows:



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

**2-19. HARD DISK DRIVE CONNECTOR**

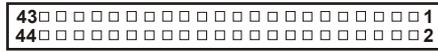
**IDE1** : Hard Disk Drive Connector  
 The pin assignments are as follows:



**IDE1**

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST#	2	GND
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	GND	20	NC
21	PDREQ	22	GND
23	PDIOW#	24	GND
25	PDIOR#	26	GND
27	PIORDY#	28	PULL LOW
29	PDDACK#	30	GND
31	IRQ14	32	NC
33	PDA1	34	P66 DETECT
35	PDA0	36	PDA2
37	PDCS#1	38	PDCS#3
39	IDEACTP#	40	GND

**IDE2** : Hard Disk Drive Connector  
 The pin assignments are as follows:



**IDE2**

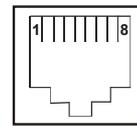
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST#	23	SDIOW#
2	GND	24	GND
3	SDD7	25	SDIOR#
4	SDD8	26	GND
5	SDD6	27	SIORDY
6	SDD9	28	GND
7	SDD5	29	SDDACK#
8	SDD10	30	GND
9	SDD4	31	IRQ15
10	SDD11	32	NC
11	SDD3	33	SDA1
12	SDD12	34	S66DETECT
13	SDD2	35	SDA0
14	SDD13	36	SDA2
15	SDD1	37	SDCS#1
16	SDD14	38	SDCS#3
17	SDD0	39	IDEACTS#
18	SDD15	40	GND
19	GND	41	VCC
20	NC	42	VCC
21	SDREQ	43	GND
22	GND	44	GND

## 2-20. LAN CONNECTOR

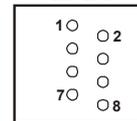
**LAN:** LAN Connector.

The pin assignment is as follows :

PIN	ASSIGNMENT
1	TX+
2	TX-
3	RX+
4	ISOLATED GND
5	ISOLATED GND
6	RX-
7	ISOLATED GND
8	ISOLATED GND



**LAN**

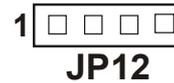


## 2-21. LAN LED CONNECTOR

**JP12 :** LAN LED Connector

The pin assignment is as follows :

PIN	ASSIGNMENT
1	SPEED LED#
2	V3SB
3	LINK LED
4	ACTIVE LED



**JP12**

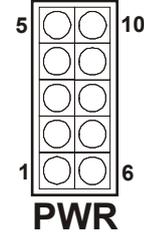
⚠ JP12 is divided into two sets of jumper pin. Pin#1 & Pin#2 is used to detect 10/100Mbps, while Pin#3 and Pin#4 is used to detect link and active signal.

## 2-22. POWER CONNECTOR

**PWR** : Power Connector

The pin assignments are as follows:

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



## 2-23. RESET CONNECTOR

**RST** : Reset Connector.

The pin assignments are as follows :

PIN	ASSIGNMENT
1	RESET
2	GROUND



## 2-24. ATX POWER BUTTON

**CN26** : ATX Power Button

The pin assignments are as follows:

PIN	ASSIGNMENT
1	PANSWIN
2	GROUND



## 2-25. CLEAR CMOS DATA SELECTION

**JP9** : CMOS Clear Data Selection

The selection are as follows :

FUNCTION	JUMPER SETTING	JUMPER ILLUSTRATION
Normal	1-2	1 JP9
Clear CMOS	2-3	1 JP9

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

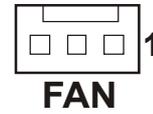
To clear CMOS data, user must power-off the computer and set the jumper to "Clear CMOS" as illustrated above. After five to six seconds, set the jumper back to "Normal" and power-on the computer.

## 2-26. CPU FAN CONNECTOR

**FAN:** CPU Fan Connector.

The pin assignments are as follows :

PIN	ASSIGNMENT
1	GROUND
2	+12V
3	FAN TAC1

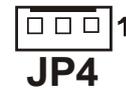


## 2-27. SYSTEM FAN CONNECTOR

**JP4:** System Fan Connector.

The pin assignments are as follows :

PIN	ASSIGNMENT
1	+12V
2	GROUND
3	+12V



## 2-28. POWER LED CONNECTOR

**LED2 :** Power LED Connector

The pin assignments are as follows :

PIN	ASSIGNMENT
1	VCC
2	PWR LED



## 2-29. HDD LED CONNECTOR

**LED1** : HDD LED Connector

The pin assignments are as follows :

PIN	ASSIGNMENT
1	VCC
2	IDE LED



## 2-30. RESET / NMI / CLEAR WATCHDOG SELECTION

**JP15** : Reset/NMI/Clear Watchdog Selection

The selections are as follows:

FUNCTION	JUMPER SETTING	JUMPER ILLUSTRATION
Reset	1-2	<p>The diagram shows a 6-pin connector labeled JP15. Pins 1 and 2 are shorted together with a jumper. Pins 3, 4, 5, and 6 are open.</p>
NMI	3-4	<p>The diagram shows a 6-pin connector labeled JP15. Pins 3 and 4 are shorted together with a jumper. Pins 1, 2, 5, and 6 are open.</p>
Clear Watchdog	5-6	<p>The diagram shows a 6-pin connector labeled JP15. Pins 5 and 6 are shorted together with a jumper. Pins 1, 2, 3, and 4 are open.</p>

\*\*\* Manufacturing Default --- is set as Reset.

⚠ User may select to use the Reset or NMI watchdog. NMI, also known as Non-Maskable Interrupt, is used for serious conditions that demand the processor's immediate attention, it cannot be ignored by the system unless it is shut off specifically. To clear NMI command, user should short the "Clear Watchdog" pin via push button.

### 2-31. CD-IN CONNECTOR

**CN\_IN** : CD-IN Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	CD-IN LEFT
2	GROUND
3	GROUND
4	CD-IN RIGHT



### 2-32. WAKE-ON-LAN CONNECTOR

**JWOM** : Wake-On-LAN Connector

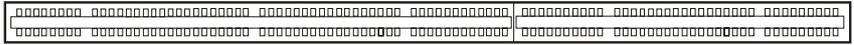
The pin assignments are as follows:

PIN	ASSIGNMENT
1	5VSBY
2	GND
3	Signal IN



**2-33. PCI/ISA EXTENSION BUS CONNECTOR**

**PISA** : PISA Extension Bus Connector.  
The pin assignments are as follow:



**PISA**

**PCI Bus:**

PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
E1	SMBCLK	F1	SMB DATA	G1	GND	H1	SERR#
E2	GND	F2	GND	G2	PCI PME#	H2	AD15
E3	PIRQ#B	F3	PIRQ#A	G3	CBE#1	H3	AD14
E4	PIRQ#D	F4	PIRQ#C	G4	PAR	H4	AD12
E5	VCC	F5	VCC	G5	GND	H5	GND
E7	VCC	F7	VCC	G7	GND	H7	GND
E8	PCI RST#R	F8	PCLK2	G8	AD13	H8	AD10
E9	PGNT#0	F9	GND	G9	AD11	H9	AD8
E10	PREQ#0	F10	PGNT#1	G10	AD9	H10	AD7
E11	GND	F11	GND	G11	CBE#0	H11	AD5
E12	P CLK1	F12	PREQ#1	G12	AD6	H12	AD3
E13	GND	F13	AD31	G13	AD4	H13	AD1
E14	AD30	F14	AD29	G14	AD2	H14	AD0
E15	PREQ#2	F15	PCLK6	G16	VCC	H16	VCC
E17	PGNT#2	F17	PCLK7	G17	VCC	H17	VCC
E18	AD28	F18	AD27	G18	GND	H18	GND
E19	AD26	F19	AD25	G19	GND	H19	GND
E20	AD24	F20	C BE#3				
E21	AD22	F21	AD23				
E22	AD20	F22	AD21				
E23	AD18	F23	AD19				
E24	PWRGDIN	F24	PREQ#3				
E26	GND	F26	PGNT#3				
E27	AD16	F27	AD17				
E28	FRAME#	F28	IRDY#				
E29	CBE#2	F29	DEVSEL#				
E30	TRDY#	F30	PLOCK#				
E31	STOP#	F31	PERR#				

**ISA Bus:**

PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	IOCHCK#	B1	GND	C1	SBHE#	D1	MEMCS16#
A2	SD7	B2	RSTDRV	C2	LA23	D2	IOCS16#
A3	SD6	B3	VCC	C3	LA22	D3	IRQ10
A4	SD5	B4	IRQ9	C4	LA21	D4	IRQ11
A5	SD4	B5	NC	C5	LA20	D5	IRQ12
A6	SD3	B6	DRQ2	C6	LA19	D6	IRQ15S
A7	SD2	B7	-12V	C7	LA18	D7	IRQ14S
A8	SD1	B8	N0WS#	C8	LA17	D8	DACK0#
A9	SD0	B9	+12V	C9	MEMR#	D9	DRQ0
A10	IOCHRDY	B10	GND	C10	MEMW#	D10	DACK5#
A11	AEN	B11	SMEMW#	C11	SD8	D11	DRQ5
A12	SA19	B12	SMEMR#	C12	SD9	D12	DACK6#
A13	SA18	B13	IOW#	C13	SD10	D13	DRQ6
A14	SA17	B14	IOR#	C14	SD11	D14	DACK7#
A15	SA16	B15	DACK3#	C15	SD12	D15	DRQ7
A16	SA15	B16	DRQ3	C16	SD13	D16	VCC
A17	SA14	B17	DACK1#	C17	SD14	D17	MASTER#
A18	SA13	B18	DRQ1	C18	SD15	D18	GND
A19	SA12	B19	REFRESH#				
A20	SA11	B20	BCLK				
A21	SA10	B21	IRQ7				
A22	SA9	B22	IRQ6				
A23	SA8	B23	IRQ5				
A24	SA7	B24	IRQ4				
A25	SA6	B25	IRQ3				
A26	SA5	B26	DACK2#				
A27	SA4	B27	TC				
A28	SA3	B28	BALE				
A29	SA2	B29	VCC				
A30	SA1	B30	OSC14M				
A31	SA0	B31	GND				

## **2-34. MEMORY INSTALLATION**

This system is enhanced with 1 SDRAM banks, which support up to 512MB.

### **DRAM BANK CONFIGURATION**

<b>DIMM 1</b>	<b>TOTAL MEMORY</b>
32M	32MB
64M	64MB
128M	128MB
256M	256MB
512M	512MB



# ***SOFTWARE UTILITIES***

CHAPTER

**3**

This chapter comprises the detailed information of VGA driver, LAN driver, sound driver, Intel® Chipset Software Installation Utility, Touchscreen driver and Flash BIOS update. It also describes how to install the watchdog timer configuration.

Section includes:

- Introduction
- Intel Chipset Software Installation Utility
- VGA Driver Utility
- Flash BIOS Update
- LAN Driver Utility
- Sound Driver Utility
- NetMos Driver Utility
- Touch screen Driver Utility (Optional)
- Watchdog Timer Configuration

### 3-1. INTRODUCTION

Enclosed with our PS-8150 package is our driver utility, which may come in a form of a CD ROM disc or floppy diskettes. For CD ROM disc user, you will only need some of the files contained in the CD ROM disc, please kindly refer to the following chart:

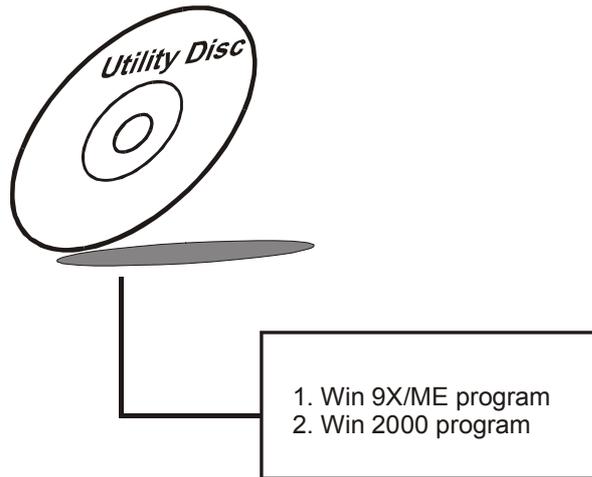
Filename (Assume that CD ROM drive is D:)	Purpose
D:\Utility\Infinst_enu.exe <i>***Install this software first!</i>	For Intel® Chipset Software Installation Utility Software Update 95/98/98SE/2K.
D:\VGA\C&T\CT69K	C&T 69000 For VGA driver installation
D:\Flash\	For flash BIOS update
D:\Lan\82562	Intel® 82562 For LAN Driver installation
D:\Sound\AD1881\	Analog Device AD1881 AC97 For Sound driver installation
D:\NetMos\	NetMos 9835 For multi-IO Driver installation
D:\Touch Screen\Fujitsu Touch\	For Touch screen Driver installation

### 3-2. INTEL CHIPSET SOFTWARE INSTALLATION UTILITY

#### 3-2-1. Introduction

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

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



### 3-2-2. Installation of Utility for Windows 95/98/98SE/ME/2000

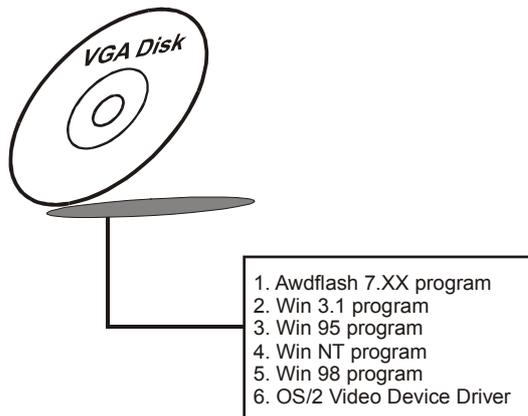
The Utility Pack is to be installed only for Windows 95, Windows 98/98SE, Windows ME, and Windows 2000 program. It should be installed right after the OS installation, kindly follow the following steps:

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

### 3-3. VGA DRIVER UTILITY

#### 3-3-1. Introduction

The VGA interface embedded with our PS-8150 can support a wide range of display mode, such as SVGA, STN, TFT,.....etc. You can display CRT and LCD Panel simultaneously on this board, but make sure that the modes for CRT and LCD Panel are the same. If not, only one of them can be displayed.



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

##### 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 9x**

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

**3. 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 change 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.

## **3-4. FLASH BIOS UPDATE**

### **3-4-1. Introduction**

Users of PS-8150 can use the program “Awdflash.exe” contained in the Utility Disk for system BIOS update.

### **3-4-2. Installation of system BIOS**

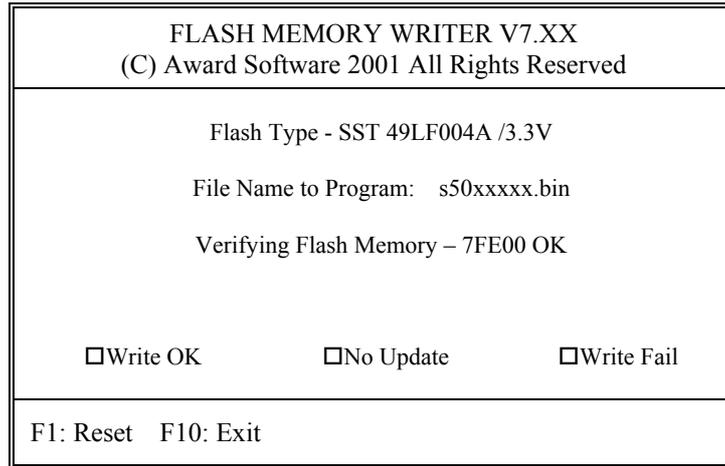
1. Install “Awdflash.exe” from Utility Disk to Drive C.
2. Type the path to Awdflash.exe and execute the system BIOS  
C:\UTIL\AWDFLASH>AWDFLASH s50xxxxx.bin
3. The screen will display the table below:

FLASH MEMORY WRITER V7.XX (C) Award Software 2001 All Rights Reserved
Flash Type - SST 49LF004A /3.3V File Name to Program: s50xxxxx.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", the following table will appear on screen.

FLASH MEMORY WRITER V7.XX (C) Award Software 2001 All Rights Reserved
Flash Type - SST 49LF004A /3.3V File Name to Program: s50xxxxx.bin
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:

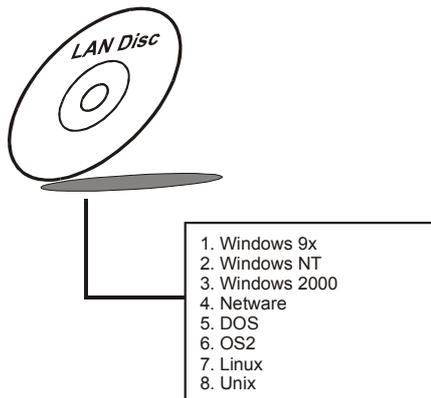


Please reset or power off the system, then the Flash BIOS is fully implemented.

### 3-5. LAN DRIVER UTILITY

#### 3-5-1. Introduction

The PS-8150 Panel PC is enhanced with LAN function that can support various network adapters. Installation programs for LAN drivers are listed as follows:



**3-5-2. Installation Procedure for Windows 9x**

1. Insert the LAN Driver disk into Drive A or CD ROM drive.
2. In the “My computer”, select the “Control Panel” icon.
3. In the “Control Panel” windows, select the “System” icon.
4. The “System Properties” window will appear, select the “Device Manager” and look for the “Network Adapter – PCI Fast Ethernet Adapter”.
5. Click “Properties” and then “PCI Fast Ethernet Adapter Properties”, choose the “Driver” icon.
6. Click “Update Driver” icon, and follow the remaining instruction.

**3-5-3. Installation Procedure for Windows NT**

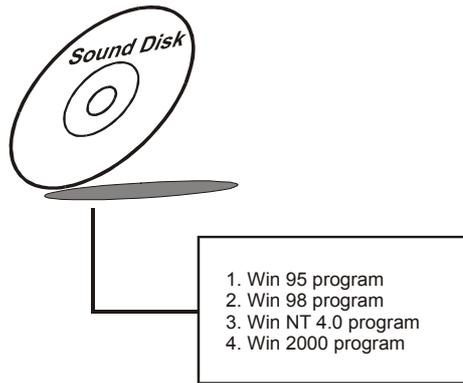
1. In the Main group to NT, select the “Control Panel” icon.
2. In the Control Panel window, choose the “Network” icon.
3. In the Network Settings dialog box, choose the “Add adapter” button. The Add Network Adapter dialog box appears.
4. In the list of network cards, select “<Other> requires disk from manufacturer”, and then press <Enter> button.
5. Insert the LAN Driver disk in Drive A or CDROM drive, and type D:\LAN, and then choose OK button.
6. Follow the remaining instruction, and re-boot your system to complete the installation process.

**For more information on installation procedure, please refer to TXT directory found on LAN DRIVER UTILITY.**

**3-6. SOUND DRIVER UTILITY**

**3-6-1. Introduction**

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



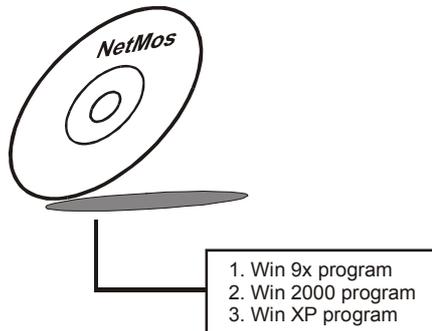
### 3-6-2. Installation Procedure for Windows 9x/NT/2000

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

## 3-7. NETMOS DRIVER UTILITY

### 3-7-1. Introduction

Installation programs for NetMos drivers are listed as follows:



**3-7-2. Installation Procedure for Windows 9x**

1. Insert the NetMos Driver disk into Drive A or CD ROM drive.
2. In the “My computer”, select the “Control Panel” icon.
3. In the “Control Panel” windows, select the “System” icon.
4. The “System Properties” window will appear, select the “Device Manager” and look for the “PCI Serial Port”.
5. Click “Properties” and choose the “Driver” icon.
6. Click “Update Driver” icon, and follow the remaining instruction.

**3-7-3. Installation Procedure for Windows 2000**

1. Insert the NetMos Driver disk into Drive A or CD ROM drive.
2. In the “My computer”, select the “Control Panel” icon.
3. In the “Control Panel” windows, select the “System” icon.
4. The “System Properties” window will appear, select the “Hardware” icon, and then “Device Manager” and look for the “PCI Serial Port”.
5. Double click on “PCI Serial Port” and choose the “Driver” icon.
6. Click “Update Driver” icon, and follow the remaining instruction.

**For more information on installation procedure, please refer to TXT directory found on NETMOS DRIVER UTILITY.**

**3-8. TOUCH SCREEN DRIVER UTILITY (OPTIONAL)**

The type of Touch Screen driver found on our CD-ROM Driver Disc is Fujitsu Touch (Driver location - D:\Touch Screen\Fujitsu Touch\).

To install, kindly refer to the readme.txt file found each separate file of the Driver Disc.

### 3-9. 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 “Reset/NMI/Clear Watchdog Selection” found in chapter 2. This is defined at I/O port **443H**. When you want to enable the watchdog timer, please write I/O port **443H**, and then the system will either reset itself or perform the NMI function. Likewise, when you want to disable the function, write I/O port **441H**, the system will run the command to stop the Watchdog function.

In PS-8150 watchdog function, you must write your program so when it writes I/O port address 443 for enable watchdog and write I/O port address 441 for disable watchdog. The timer's intervals have a tolerance of 25% so you should program an instruction that will refresh the timer about every second.

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

**Watchdog enable program:**

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

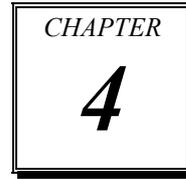
**Watchdog disable program:**

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

The Watchdog Timer control table is as follows:

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

# ***AWARD BIOS SETUP***



This chapter shows how to set up the Award BIOS.

Section includes:

- Introduction
- Entering Setup
- The Standard CMOS Features
- The Advanced BIOS Features
- The Advanced Chipset Features
- Integrated Peripherals
- Power Management Setup
- PNP/PCI Configurations
- PC Health Status
- Frequency/Voltage Control
- Load Fail-Safe Defaults
- Load Optimized Defaults
- Password Setting
- Save and Exit Setup
- Exit Without Saving

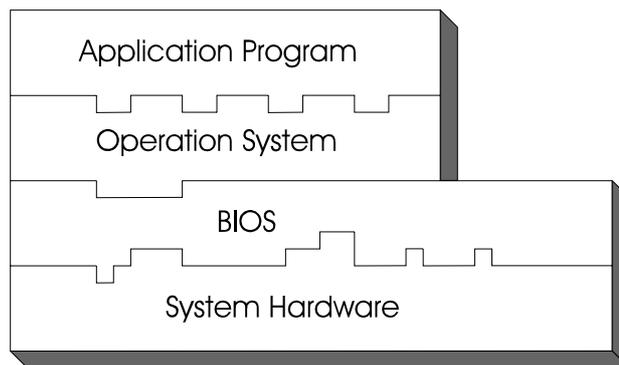
## **4-1. INTRODUCTION**

This chapter will show you the function of the BIOS in managing the features of your system. The PS-8150 Panel PC is equipped with the BIOS for system chipset from Award Software Inc. This page briefly explains the function of the BIOS in managing the special features of your system. The following pages describe how to use the BIOS for system chipset Setup menu.

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

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

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



## 4-2. ENTERING SETUP

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

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

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

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

### Setup program initial screen

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

### 4-3. THE STANDARD CMOS FEATURES

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

Phoenix - AwardBIOS CMOS Setup Utility  
Standard CMOS Features

Date (mm:dd:yy)	Wed, Jul 17 2002	Item Help
Time (hh:mm:ss)	7 : 0 : 39	
▶ IDE Primary Master	[None]	Menu Level ▶
▶ IDE Primary Slave	[ST3850A]	Change the day, month, year and century
▶ IDE Secondary Master	[None]	
▶ IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	130048K	
Total Memory	131072K	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

**CMOS Setup screen**

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

**Date:**

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

**Time:**

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

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

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

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

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

Descriptions on each item above are as follows:

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

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

**4. Capacity**

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

**DRIVE A AND DRIVE B:**

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

**VIDEO:**

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

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

**HALT ON:**

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

**BASE MEMORY:**

Displays the amount of conventional memory detected during boot up.

**EXTENDED MEMORY:**

Displays the amount of extended memory detected during boot up.

**TOTAL MEMORY:**

Displays the total memory available in the system.

**HARD DISK ATTRIBUTES:**

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

**Award Hard Disk Type Table**

### 4-4. THE ADVANCED BIOS FEATURES

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

Phoenix - AwardBIOS CMOS Setup Utility  
Advanced BIOS Features

Virus Warning	[Disabled]	Item Help
CPU Internal Cache	[Enabled]	
External Cache	[Enabled]	
CPU L2 Cache ECC Checking	[Enabled]	Menu Level ▶
Processor Number Feature	[Enabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	
Second Boot Device	[HDD-0]	
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Swap Floppy Drive	[Disabled]	
Boot Up Floppy Seek	[Enabled]	
Boot Up NumLock Status	[On]	
Gate A20 Option	[Fast]	
Typematic Rate Setting	[Disabled]	
X Typematic Rate (Chars/Sec)	6	
X Typematic Delay (Msec)	250	
Security Option	[Setup]	
OS Select for DRAM > 64MB	[Non-OS2]	
Report No FDD For Win 95	[No]	
Small Logo (EPA) Show	[Enabled]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

#### BIOS Features Setup Menu

The "BIOS FEATURES SETUP" allow you to configure your system for basic operation. The user can select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

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

**VIRUS WARNING :**

This item allows you to choose the Virus Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

**CPU INTERNAL CACHE :**

**EXTERNAL CACHE :**

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

**CPU L2 CACHE ECC CHECKING :**

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

**PROCESSOR NUMBER FEATURE :**

This option is for Pentium III processor only. During Enabled, this will check the CPU Serial number. Disabled this option if you don't want the system to know the Serial number.

**QUICK POWER ON SELF-TEST:**

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

**FIRST/SECOND/THIRD/OTHER BOOT DEVICE:**

The BIOS attempt to load the operating system from the devices in the sequence selected in these items.

**SWAP FLOPPY DRIVE:**

This field is effective only in systems with two floppy drives. Selecting Enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.

**BOOT UP FLOPPY SEEK:**

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

**BOOT UP NUMLOCK STATUS:**

Select power on state for NumLock.

**GATE 20A OPTION:**

This entry allows you to select how the gate A20 is handled. When Normal was set, a pin in the keyboard controller controls Gate A20. And when Fast was set, the chipset controls Gate A20.

**TYPOMATIC RATE SETTING:**

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

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

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

**TYPOMATIC DELAY (MSEC):**

The item sets the delay time after the key is held down before it begins to repeat the keystroke.

**SECURITY OPTION:**

This category allows you to limit access to the system and Setup, or just to Setup.

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

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

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

Select the operating system that is running with greater than 64MB or RAM on the system. You may choose OS2 or Non-OS2.

**REPORT NO FDD FOR WIN 95 :**

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

**4-5. ADVANCED CHIPSET FEATURES**

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

Phoenix - AwardBIOS CMOS Setup Utility  
Advanced Chipset Features

System BIOS Cacheable	[Disabled]	Item Help
Video BIOS Cacheable	[Disabled]	
Memory Hole At 15M-16M	[Disabled]	Menu Level ►
CPU Latency Timer	[Enabled]	
Delayed Transaction	[Enabled]	
System Memory Frequency	Auto	
IO Channel Check NMI	[Disabled]	
↑↓→←:Move    Enter: Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:General Help F5: Previous Values    F6:Fail-Safe Defaults    F7:Optimized Defaults		

**Chipset Features Setup Screen**

This parameter allows you to configure the system based on the specific features of the installed chipset. The chipset manages bus speed and access to system memory resources, such as DRAM and the external cache.

It also coordinates communications between conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for the system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

**SYSTEM BIOS CACHEABLE:**

This item allows you to enable caching of the system BIOS ROM at F0000h-F7FFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

**VIDEO BIOS CACHEABLE:**

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

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

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

**CPU LATENCY TIMER:**

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

**DELAYED TRANSACTION:**

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

**IO CHANNEL CHECK NMI:**

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

### 4-6. INTEGRATED PERIPHERALS

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

Phoenix - AwardBIOS CMOS Setup Utility  
Integrated Peripherals

On-Chip Primary PCI IDE	[Enabled]	Item Help
On-Chip Secondary PCI IDE	[Enabled]	
IDE Primary Master PIO	[Auto]	
IDE Primary Slave PIO	[Auto]	Menu Level ▶
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	
IDE Primary Slave UDMA	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	
USB Controller	[Enabled]	
USB Keyboard Support	[Disabled]	
USB Mouse Support	[Disabled]	
AC97 Audio	[Auto]	
Protech Panel Type	[45 1024x768 TFT]	
IDE HDD Block Mode	[Enabled]	
X Power On By Button	Enabled	
Power On By Keyboard	[Disabled]	
X KB Power ON Password	Enter	
X Hot Key Power ON	Ctrl - F1	
Onboard FDC Controller	[Enabled]	
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[Normal]	
X UR2 Duplex Mode	Half	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
X ECP Mode Use DMA	3	
PWRON After PWR-Fail	[Off]	
Game Port Address	[201]	
Midi Port Address	[330]	
Midi Port IRQ	[10]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

**Integrated Peripherals Setup Screen**

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

**ONCHIP PRIMARY PCI IDE:**

**ONCHIP SECONDARY PCI IDE:**

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

**IDE PRIMARY MASTER/SLAVE PIO:**

**IDE SECONDARY MASTER/SLAVE PIO:**

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

**IDE PRIMARY MASTER/SLAVE UDMA:**

**IDE SECONDARY MASTER/SLAVE UDMA:**

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

**USB CONTROLLER:**

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

**USB KEYBOARD SUPPORT:**

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

**USB MOUSE SUPPORT:**

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

**PROTECH PANEL TYPE:**

This indicates the type of panel that is used for this system.

**AC97 AUDIO:**

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

**IDE HDD BLOCK MODE:**

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

**ONBOARD FDC CONTROLLER:**

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

**ONBOARD SERIAL PORT 1:**

**ONBOARD SERIAL PORT 2:**

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

**UART MODE SELECT:**

Select an operating mode for the second serial port.

**UR2 DUPLEX MODE:**

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

**ONBOARD PARALLEL PORT:**

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

**PARALLEL PORT MODE:**

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

**ECP MODE USE DMA:**

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

**PWRON AFTER PWR-FAIL:**

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

### 4-7. POWER MANAGEMENT SETUP

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

Phoenix - AwardBIOS CMOS Setup Utility  
Power Management Setup

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

#### Power Management Setup Screen

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

#### ACPI FUNCTION:

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

#### POWER MANAGEMENT:

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

**VIDEO OFF METHOD:**

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

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

**VIDEO OFF IN SUSPEND:**

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

**SUSPEND TYPE:**

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

**MODEM USE IRQ:**

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

**SUSPEND MODE:**

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

**HDD POWER DOWN:**

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

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

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

**WAKE-UP BY PCI CARD:**

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

**RESUME BY ALARM:**

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

**PM EVENTS:**

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

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

**4-8. PNP/PCI CONFIGURATION**

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

Phoenix - AwardBIOS CMOS Setup Utility  
PnP/PCI Configurations

PNP OS Installed	[No]	Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto(ESCD)]	Menu Level ►  Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
x IRQ Resources	Press Enter	
x DMA Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	
Assign IRQ For VGA	[Disabled]	
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

**PNP/PCI Configuration Setup Screen**

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

**PNP OS INSTALLED:**

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

**RESET CONFIGURATION DATA:**

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

**RESOURCE CONTROLLED BY:**

The Award Plug and Play Bios can automatically configure all of the booth and Plug and Play-compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95. By choosing "manual", you are allowed to configure the *IRQ Resources*, *DMA Resources* and *Memory Resources*. The choices are Auto (ESCD) and Manual.

**IRQ RESOURCES:**

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

**DMA RESOURCES:**

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

**PCI/VGA PALETTE SNOOP:**

Leave this field at disabled.

### 4-9. PC HEALTH STATUS

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

Phoenix - AwardBIOS CMOS Setup Utility  
PC Health Status

Shutdown Temperature	[Disabled]	Item Help
VCORE	1.74V	Menu Level ►
VTT	1.45V	
+3.3V	3.24V	
+5 V	4.99V	
+12V	11.39V	
-12V	(-)12.60V	
VBAT (V)	3.21V	
CPU Temperature	45½C	
CPU FAN Speed	4560 RPM	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

#### PC Health Status Setup Screen

The setup menu allows you to select whether to choose between monitoring or ignoring the hardware monitoring function of your system.

#### SHUTDOWN TEMPERATURE:

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

#### VCORE:

This item shows you the current system voltage.

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

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

#### CPU TEMPERATURE:

This item shows you the current CPU temperature.

**CPU FAN Speed**

This item shows you the current CPU FAN speed.

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

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

Phoenix - AwardBIOS CMOS Setup Utility  
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	[Enabled]	Item Help
Spread Spectrum	[Disabled]	
CPU Clock	[133MHz]	Menu Level ▶
CPU Clock Ratio	[X 5.5]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

**Frequency / Voltage Control Setup Screen**

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

**AUTO DETECT DIMM/PCI CLK:**

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

**SPREAD SPECTRUM:**

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

**CPU CLOCK:**

Select Default or select a timing combination for the CPU and the PCI bus. When set to Default, the BIOS uses the actual CPU and PCI bus clock values.

**CPU CLOCK RATIO:**

This item allows you to set up the CPU clock ratio, but this function depends on different CPU performance. It is only effective for those clock ratio haven't been locked.

**4-11. LOAD FAIL-SAFE DEFAULTS**

By pressing the <ENTER> key on this item, you get a confirmation dialog box with a message similar to the following:

Load Fail-Safe Defaults ( Y/N ) ? N

To use the BIOS default values, change the prompt to "Y" and press the <Enter > key. CMOS is loaded automatically when you power up the system.

**4-12. LOAD OPTIMIZED DEFAULTS**

When you press <Enter> on this category, you get a confirmation dialog box with a message similar to the following:

Load Optimized Defaults ( Y/N ) ? N

Pressing "Y" loads the default values that are factory setting for optimal performance system operations.

## **4-13. PASSWORD SETTING**

User is allowed to set either supervisor or user password, or both of them. The difference is that the supervisor password can enter and change the options of the setup menus while the user password can enter only but do not have the authority to change the options of the setup menus.

### **TO SET A PASSWORD**

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Enter Password:

Type the password up to eight characters in length, and press < Enter >. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press the < Enter > key. You may also press < Esc > to abort the selection and not enter a password.

 User should bear in mind that when a password is set, you will be asked to enter the password everything you enter CMOS setup Menu.

### **TO DISABLE THE PASSWORD**

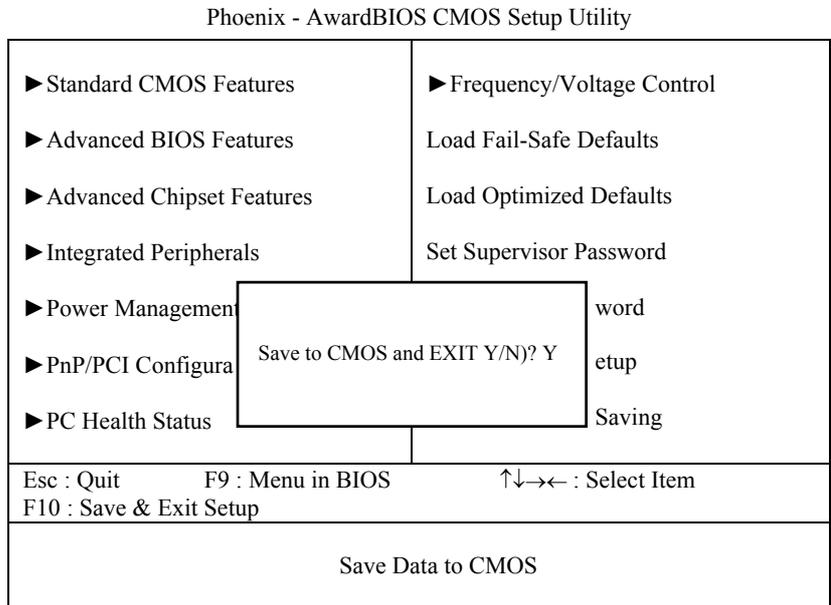
To disable the password, select this function (do not enter any key when you are prompt to enter a password), and press the <Enter> key and a message will appear at the center of the screen:

PASSWORD DISABLED!!!  
Press any key to continue...

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

### 4-14. SAVE & EXIT SETUP

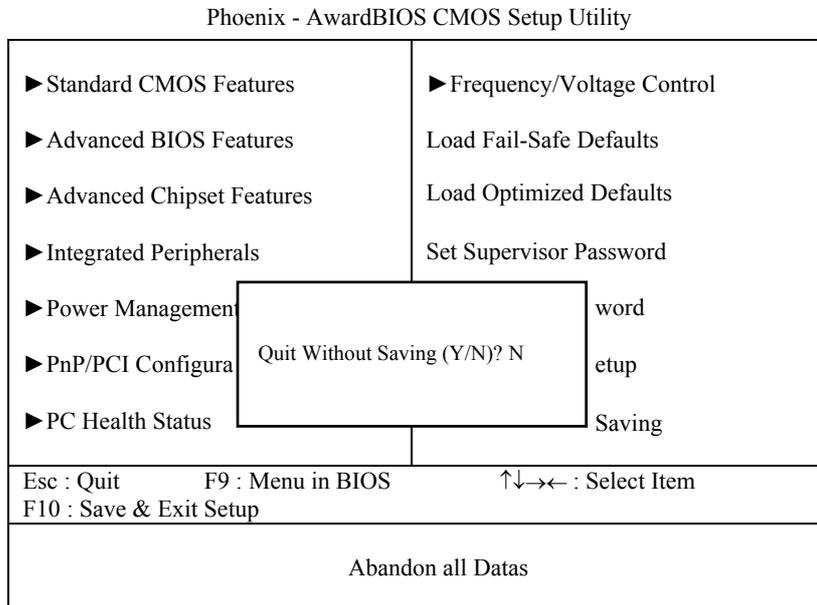
After you have completed adjusting all the settings as required, you must remember to save these setting into the CMOS RAM. To save the settings, select "SAVE & EXIT SETUP" and press <Enter>, a display will be shown as follows:



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

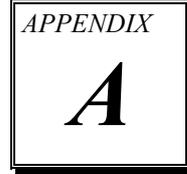
### 4-15. EXIT WITHOUT SAVING

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





# ***SYSTEM ASSEMBLY***

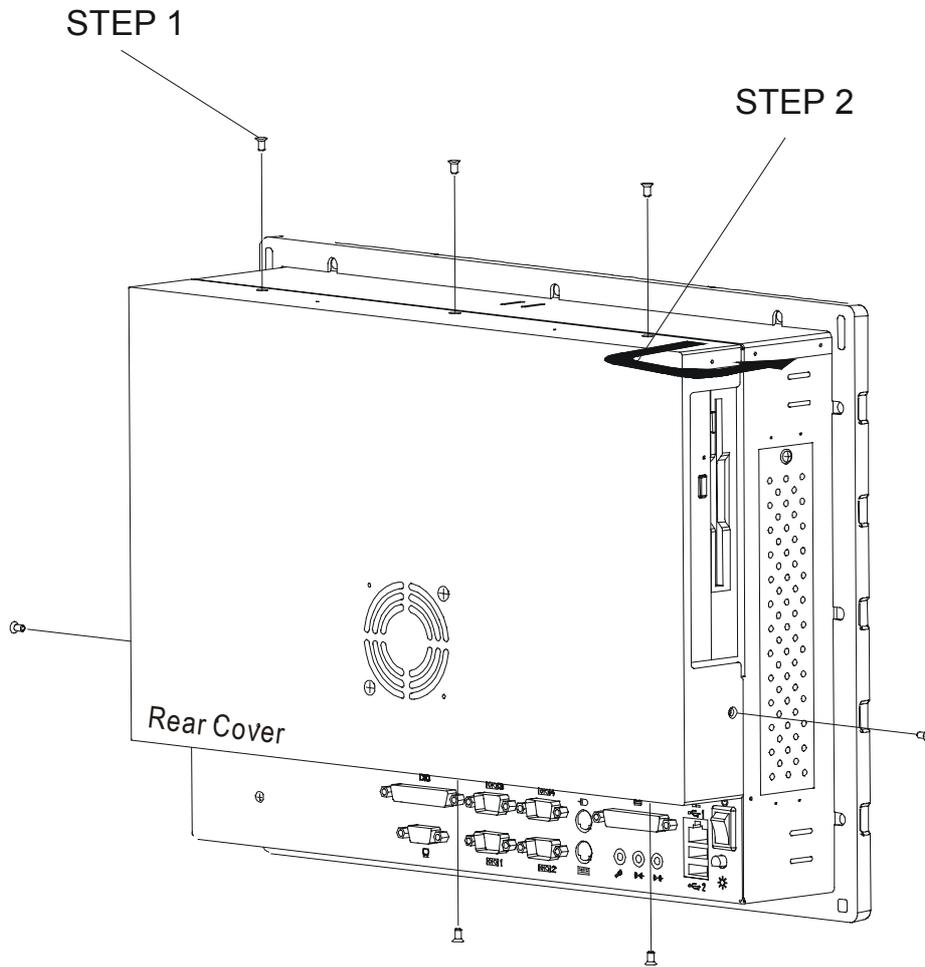


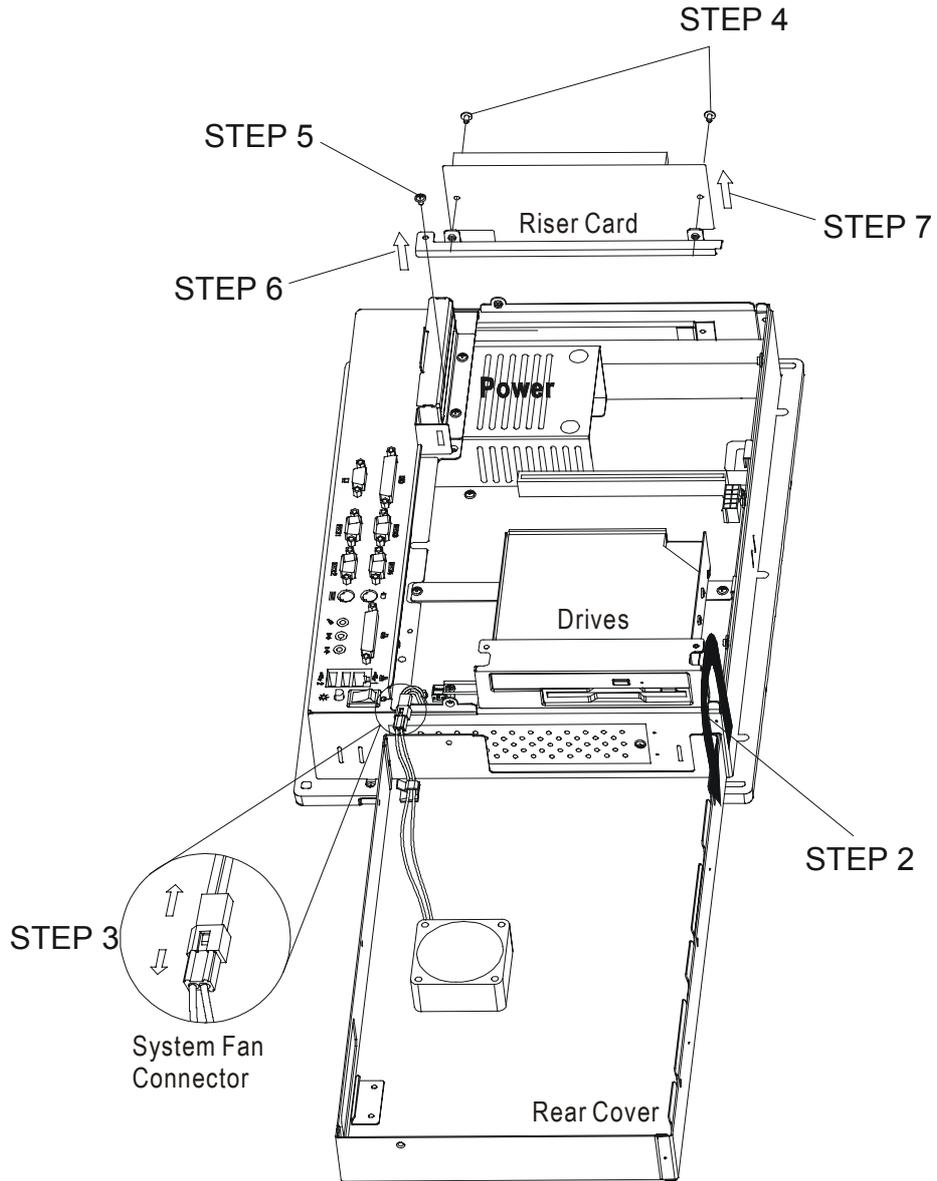
This appendix contain exploded diagram of the system.

Section includes:

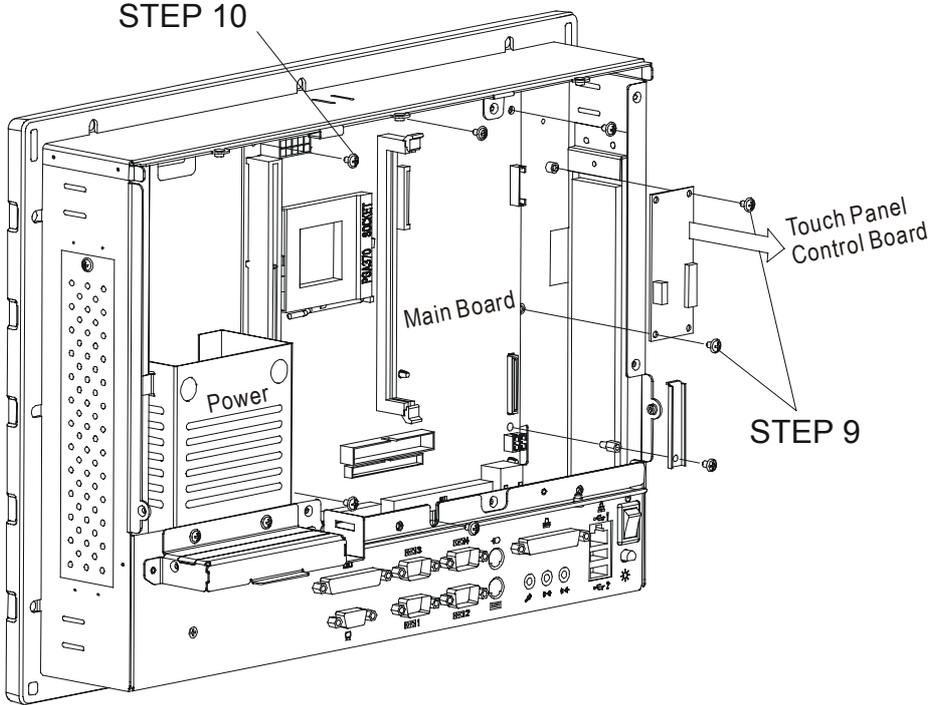
- Exploded Diagram for Dismantling the Whole System Unit
- Exploded Diagram for FDD / HDD / CD-ROM Drive
- Exploded Diagram for Installing Sheet Metal
- Exploded Diagram for Removing Sheet Metal
- Exploded Diagram for Dismantling Power Unit

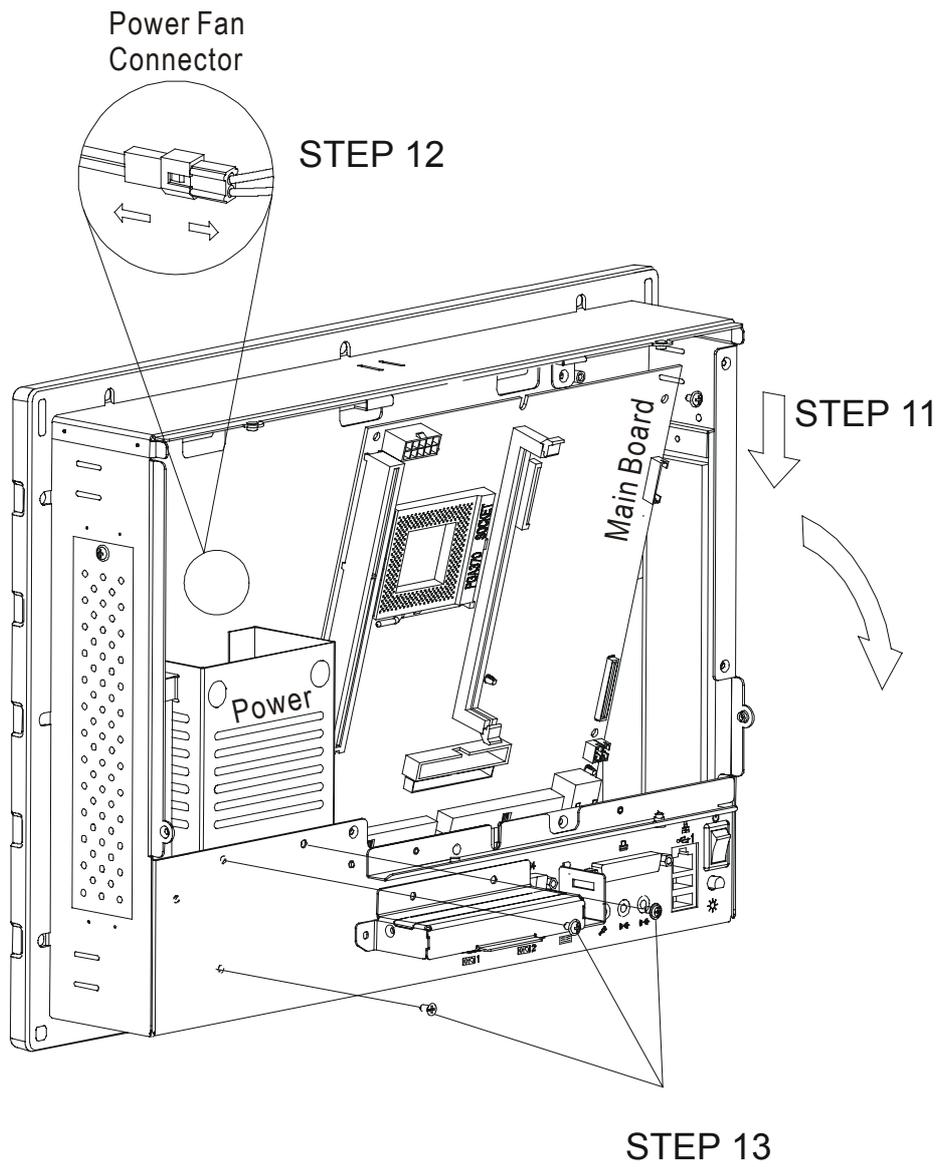
**EXPLODED DIAGRAM FOR DISMANTLING THE WHOLE SYSTEM UNIT**

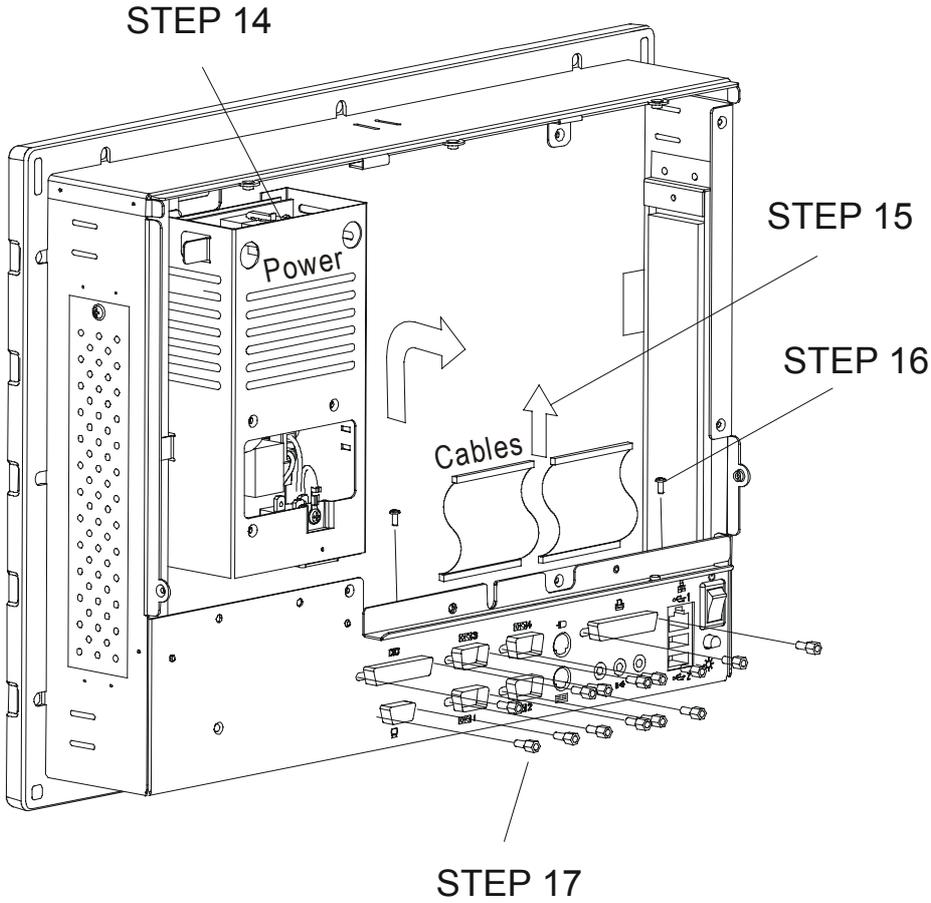


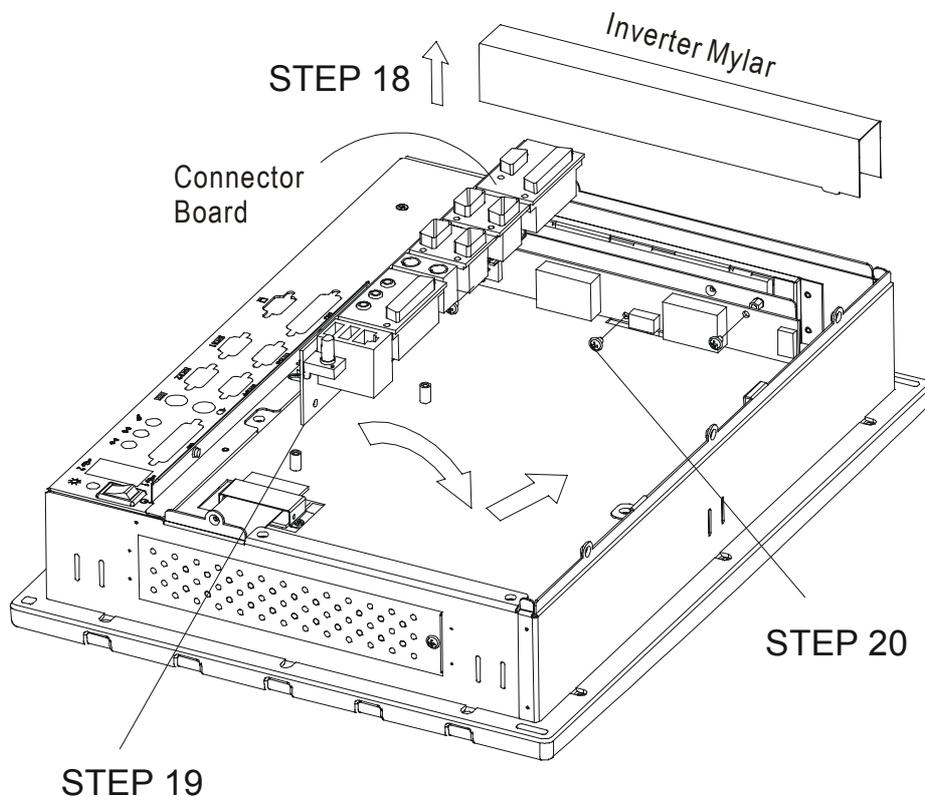


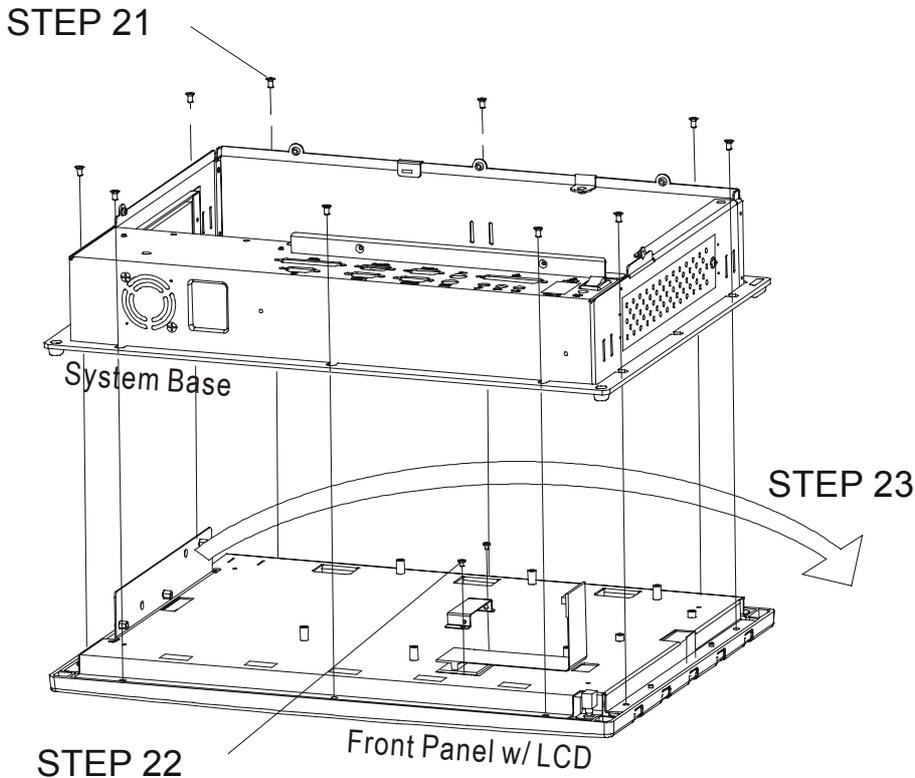


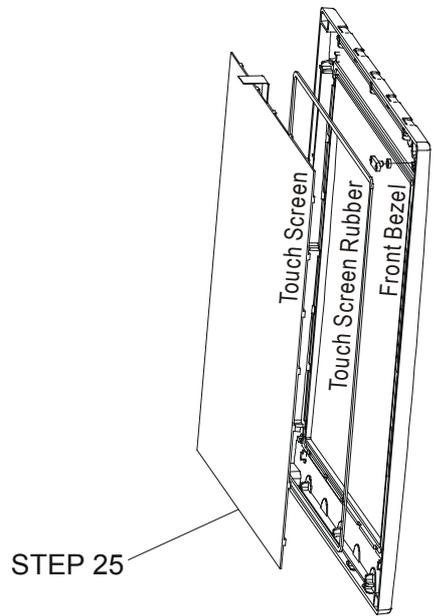
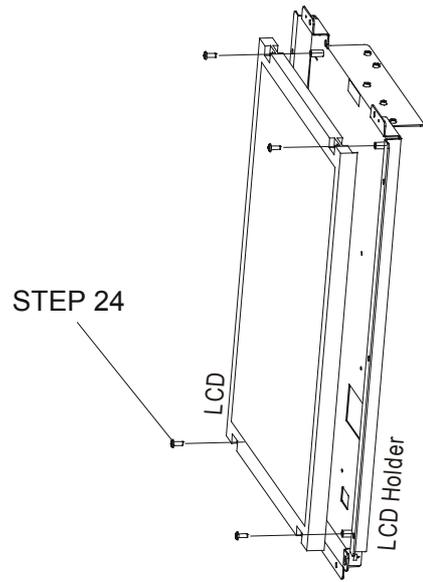




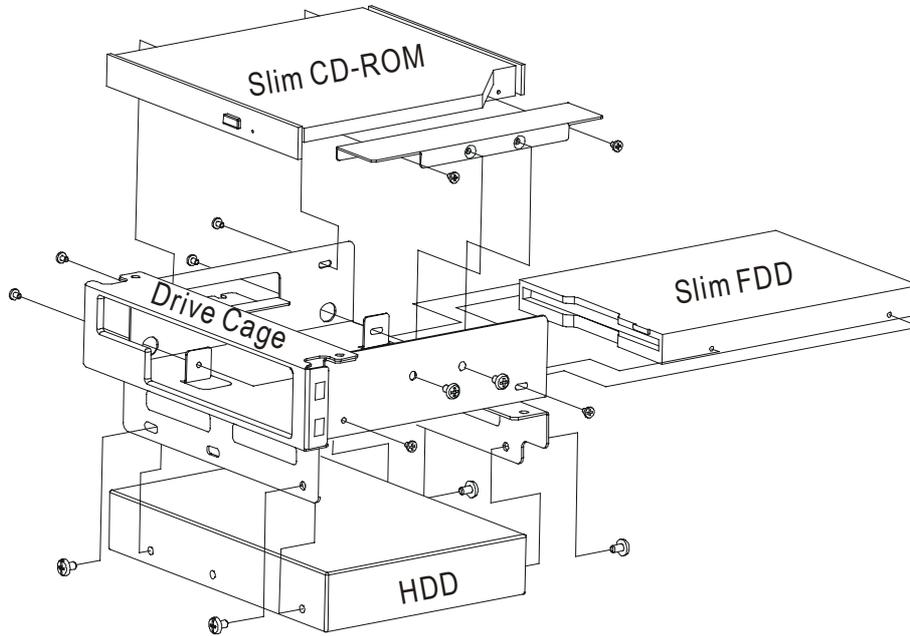








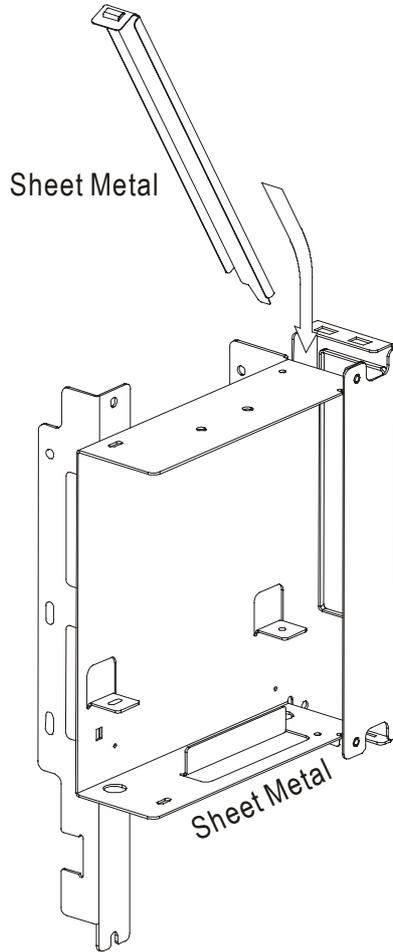
**EXPLODED DIAGRAM FOR FDD/HDD/CD-ROM DRIVE**



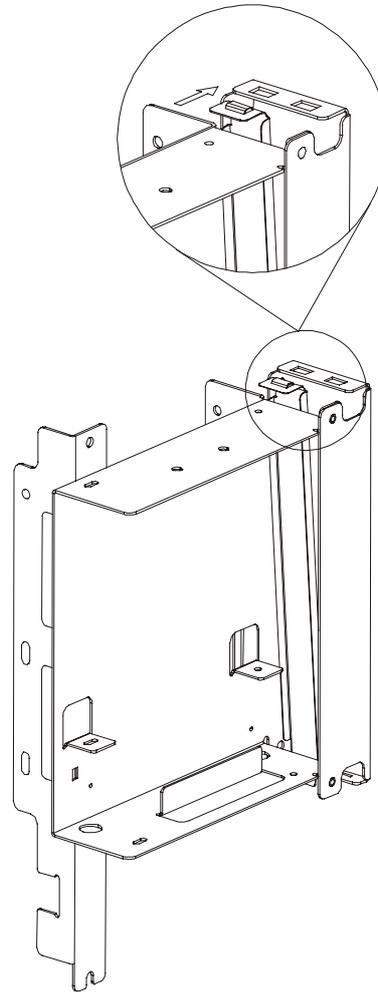
**EXPLODED DIAGRAM FOR INSTALLING SHEET METAL**

For systems without CD-ROM or FDD

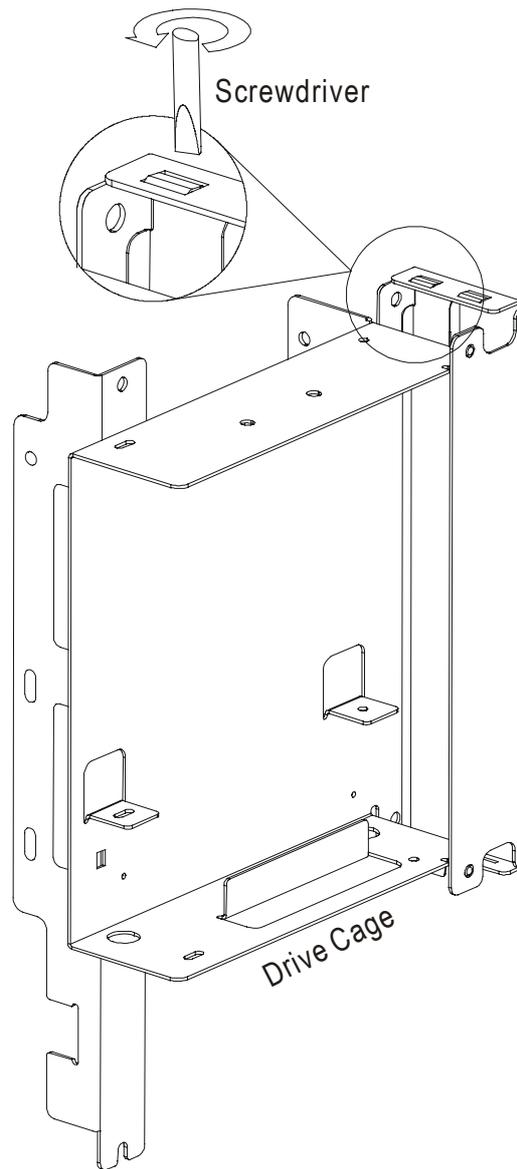
STEP 1



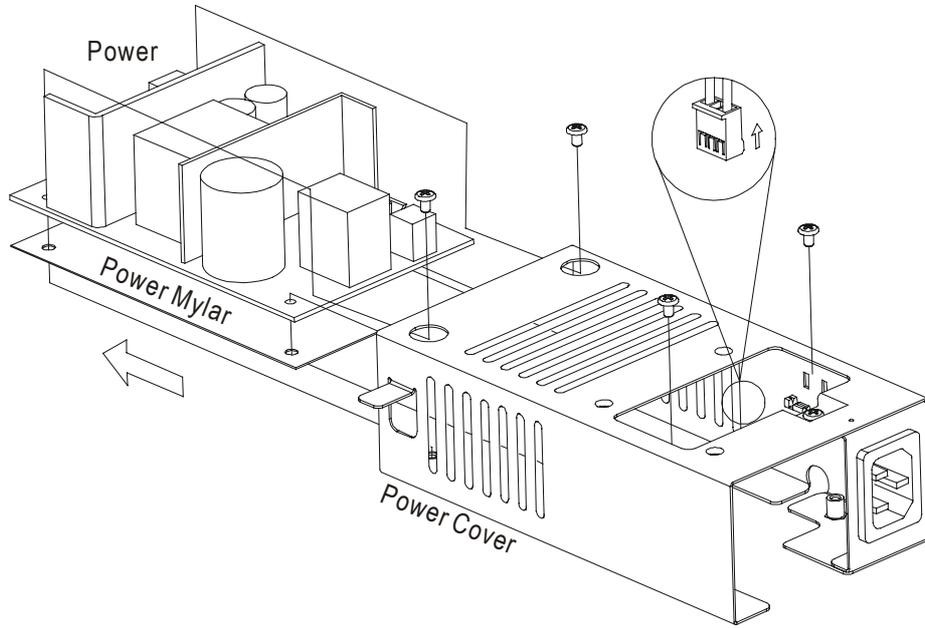
STEP 2



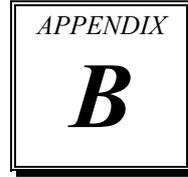
**EXPLODED DIAGRAM FOR REMOVING SHEET METAL**



**EXPLODED DIAGRAM FOR DISMANTLING POWER UNIT**



# ***TECHNICAL SUMMARY***

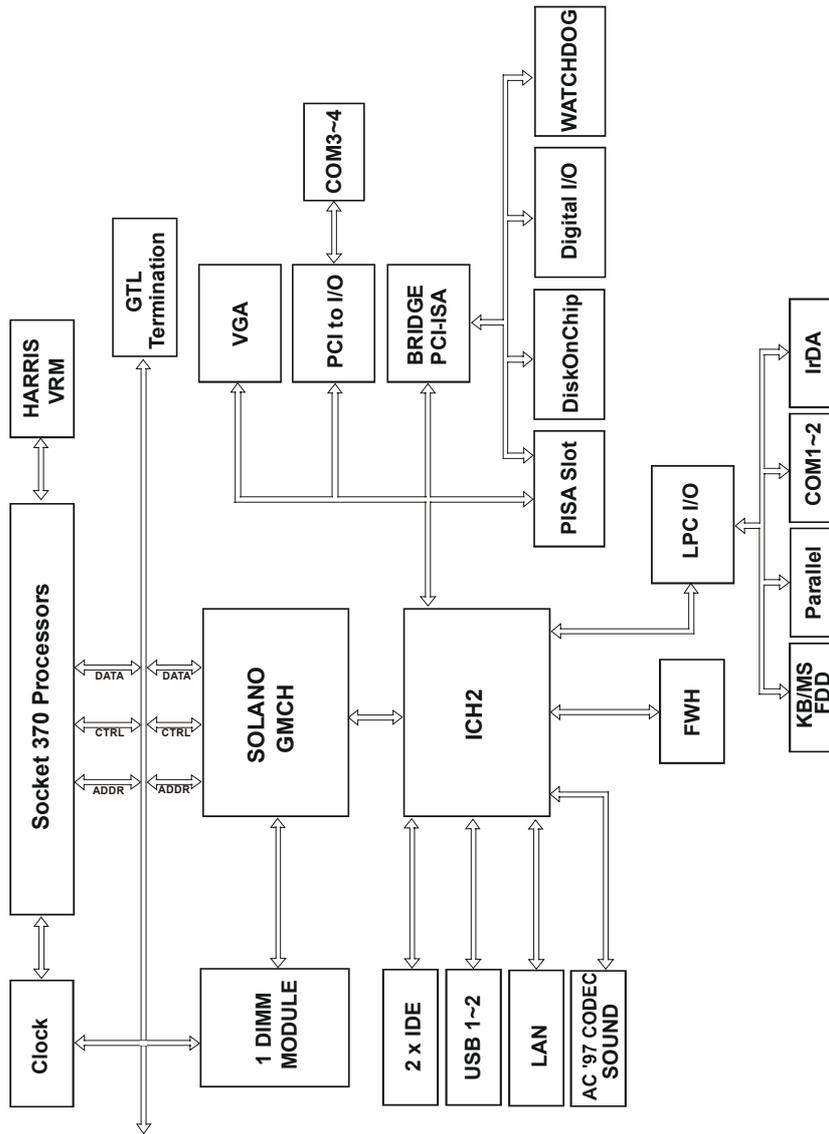


This section introduce you the maps concisely.

Sections include:

- Block Diagram
- Interrupt Map
- RTC (Standard) RAM Bank
- 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	Serial port 3
11	Serial port 4
12	Available
13	Math coprocessor
14	Hard Disk adapter
15	Available

**RTC (STANDARD) RAM BANK**

<b>CODE</b>	<b>ASSIGNMENT</b>
00h	Seconds
01h	Second alarm
02h	Minutes
03h	Minutes alarm
04h	Hours
05h	Hours alarm
06h	Day of week
07h	Day of month
08h	Month
09h	Year
0Ah	Status register A
0Bh	Status register B
0Ch	Status register C
0Dh	Status register D
0Eh-7Fh	114 Bytes of User RAM

## 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	Available
2	Floppy Disk adapter
3	Available
4	Cascade
5	Available
6	Available
7	Available

**I/O & MEMORY MAP**

**Fixed I/O Ranges Decoded by ICH2 :**

<b>I/O Address</b>	<b>Read Target</b>	<b>Write Target</b>	<b>Internal Unit</b>
00h-08h	DMA Controller	DMA Controller	DMA
09h-0Eh	Reserved	DMA Controller	DMA
0Fh	DMA Controller	DMA Controller	DMA
10h-18h	DMA Controller	DMA Controller	DMA
19h-1Eh	Reserved	DMA Controller	DMA
1Fh	DMA Controller	DMA Controller	DMA
20h-21h	Interrupt Controller	Interrupt Controller	Interrupt
24h-25h	Interrupt Controller	Interrupt Controller	Interrupt
28h-29h	Interrupt Controller	Interrupt Controller	Interrupt
2Ch-2Dh	Interrupt Controller	Interrupt Controller	Interrupt
2Eh-2Fh	LPC SIO	LPC SIO	Forwarder to LPC
30h-31h	Interrupt Controller	Interrupt Controller	Interrupt
34h-35h	Interrupt Controller	Interrupt Controller	Interrupt
38h-39h	Interrupt Controller	Interrupt Controller	Interrupt
3Ch-3Dh	Interrupt Controller	Interrupt Controller	Interrupt
40h-42h	Timer/Counter	Timer/Counter	PIT (8254)
43h	Reserved	Timer/Counter	PIT
4E-4F	LPC SIO	LPC SIO	Forwarder to LPC
50h-52h	Timer/Counter	Timer/Counter	PIT
53h	Reserved	Timer/Counter	PIT
60h	Microcontroller	Microcontroller	Forwarder to LPC
61h	NMI Controller	NMI Controller	Processor I/F
62h	Microcontroller	Microcontroller	Forwarder to LPC
63h	NMI Controller	NMI Controller	Processor I/F
64h	Microcontroller	Microcontroller	Forwarder to LPC
65h	NMI Controller	NMI Controller	Processor I/F
66h	Microcontroller	Microcontroller	Forwarder to LPC
67h	NMI Controller	NMI Controller	Processor I/F
70h	Reserved <sup>5</sup>	NMI & RTC controller	RTC
71h	RTC Controller	RTC Controller	RTC
72h	RTC Controller	NMI & RTC controller	RTC
73h	RTC Controller	RTC Controller	RTC
74h	RTC Controller	NMI & RTC controller	RTC
75h	RTC Controller	RTC Controller	RTC
76h	RTC Controller	NMI & RTC controller	RTC
77h	RTC Controller	RTC Controller	RTC

<b>I/O Address</b>	<b>Read Target</b>	<b>Write Target</b>	<b>Internal Unit</b>
80h	DMA Controller	DMA controller & LPC/PCI	DMA
81h-83h	DMA Controller	DMA Controller	DMA
84h-86h	DMA Controller	DMA Controller & LPC or PCI	DMA
87h	DMA Controller	DMA Controller	DMA
88h	DMA Controller	DMA Controller & LPC or PCI	DMA
89h-8Bh	DMA Controller	DMA Controller	DMA
8Ch-8Eh	DMA Controller	DMA Controller & LPC or PCI	DMA
08Fh	DMA Controller	DMA Controller	DMA
90h-91h	DMA Controller	DMA Controller	DMA
92h	Reset Generator	Reset Generator	Processor I/F
93h-9Fh	DMA Controller	DMA Controller	DMA
A0h-A1h	Interrupt Controller	Interrupt Controller	Interrupt
A4h-A5h	Interrupt Controller	Interrupt Controller	Interrupt
A8h-A9h	Interrupt Controller	Interrupt Controller	Interrupt
ACh-ADh	Interrupt Controller	Interrupt Controller	Interrupt
B0h-B1h	Interrupt Controller	Interrupt Controller	Interrupt
B2h-B3h	Power Management	Power Management	Power Management
B4h-B5h	Interrupt Controller	Interrupt Controller	Interrupt
B8h-B9h	Interrupt Controller	Interrupt Controller	Interrupt
BCh-BDh	Interrupt Controller	Interrupt Controller	Interrupt
C0h-D1h	DMA Controller	DMA Controller	DMA
D2h-DDh	Reserved	DMA Controller	DMA
DEh-DFh	DMA Controller	DMA Controller	DMA
F0h	See Note 3	FERR# /IGNNE#/ Interrupt Controller	Processor interface
170h-177h	IDE Controller <sup>1</sup>	IDE Controller <sup>1</sup>	Forwarded to IDE
1F0h-1F7h	IDE Controller <sup>2</sup>	IDE Controller <sup>2</sup>	Forwarded to IDE
376h	IDE Controller <sup>1</sup>	IDE Controller <sup>1</sup>	Forwarded to IDE
3F6h	IDE Controller <sup>2</sup>	IDE Controller <sup>2</sup>	Forwarded to IDE
4D0h-4D1h	Interrupt Controller	Interrupt Controller	Interrupt
CF9h	Reset Generator	Reset Generator	Processor interface

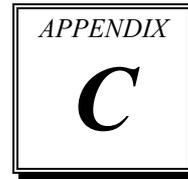
Notes:

1. Only if IDE Standard I/O space is enabled for Primary Drive. Otherwise, the target is PCI.
2. Only if IDE Standard I/O space is enabled for Secondary Drive. Otherwise, the target is PCI.
3. If POS\_DEC\_EN bit is enabled, reads from F0h will not be decoded by the ICH2. If POS\_DEC\_EN is not enabled, reads from F0h will forward to LPC.

**Memory Decode Ranges From Processor Perspective :**

<b>Memory Range</b>	<b>Target</b>	<b>Dependency/Comments</b>
0000 0000h-000D FFFFh 0010 0000-TOM (Top of Memory)	Main Memory	TOM registers in Host Controller
000E 0000h-000F FFFFh	FWH	Bit 7 in FWH Decode Enable Register is set
FEC0 0000h-FEC0 0100h	I/O APIC inside ICH2	
FFC0 0000h-FFC7 FFFFh FF80 0000h-FF87 FFFFh	FWH	Bit 0 in FWH Decode Enable Register
FFC8 0000h-FFCF FFFFh FF88 0000h-FF8F FFFFh	FWH	Bit 1 in FWH Decode Enable Register
FFD0 0000h-FFD7 FFFFh FF90 0000h-FF97 FFFFh	FWH	Bit 2 in FWH Decode Enable Register is set
FFD8 0000h-FFDF FFFFh FF98 0000h-FF9F FFFFh	FWH	Bit 3 in FWH Decode Enable Register is set
FFE0 0000h-FFE7 FFFFh FFA0 0000h-FFA7 FFFFh	FWH	Bit 4 in FWH Decode Enable Register is set
FFE8 0000h-FEF7 FFFFh FFA8 0000h-FFAF FFFFh	FWH	Bit 5 in FWH Decode Enable Register is set
FFF0 0000h-FFF7 FFFFh FFB0 0000h-FFB7 FFFFh	FWH	Bit 6 in FWH Decode Enable Register is set
FFF8 0000h-FFFF FFFFh FFB8 0000h-FFBF FFFFh	FWH	Always Enabled. The top two 64K blocks of this range can be swapped as described in Section 6.4.1.
FF70 0000h-FF7F FFFFh FF30 0000h-FF3F FFFFh	FWH	Bit 3 in FWH Decode Enable 2 Register is set
FF60 0000h-FF6F FFFFh FF20 0000h-FF2F FFFFh	FWH	Bit 2 in FWH Decode Enable 2 Register is set
FF50 0000h-FF5F FFFFh FF10 0000h-FF1F FFFFh	FWH	Bit 1 in FWH Decode Enable 2 Register is set
FF40 0000h-FF4F FFFFh FF00 0000h-FF0F FFFFh	FWH	Bit 0 in FWH Decode Enable 2 Register is set
Anywhere in 4GB range	D110 LAN Controller	Enable via BAR in Device 29:Function 0 (D110 LAN Controller)
All Other	PCI	None

# ***TROUBLE SHOOTING***



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

Section includes:

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

## **TROUBLE SHOOTING FOR ERROR MESSAGES**

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

### **POST BEEP :**

Currently there are two kinds of beep codes in BIOS. One code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps. The other code indicates that your DRAM error has occurred. This beep code consists of a single long beep repeatedly.

### **CMOS BATTERY HAS FAILED :**

This message informs you that the CMOS battery is no longer functional. The user should replace it.

### **CMOS CHECKSUM ERROR :**

This message informs you that the CMOS is incorrect. This error may have caused by a weak battery. Check the battery and replace if necessary.

### **DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER :**

No boot device was found. This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into Drive A: and press < Enter >. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also make sure the disk is formatted as a boot device. Then reboot the system.

### **DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP :**

Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.

**DISPLAY SWITCH IS SET INCORRECTLY :**

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

**DISPLAY TYPE HAS CHANGED SINCE LAST BOOT :**

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

**EISA CONFIGURATION CHECKSUM ERROR  
PLEASE RUN EISA CONFIGURATION UTILITY :**

The EISA non-volatile RAM checksum is incorrect or cannot correctly read the EISA slot. This can indicate either the EISA non-volatile memory has become corrupt or the slot has been configured incorrectly. Also be sure the card is installed firmly in the slot.

**EISA CONFIGURATION IS NOT COMPLETE  
PLEASE RUN EISA CONFIGURATION UTILITY :**

The slot configure information stored in the EISA non-volatile memory is incomplete.  
Note: When either of these errors appear, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

**ERROR ENCOUNTERED INITIALIZING HARD DRIVE :**

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

**ERROR INITIALIZING HARD DISK CONTROLLER :**

Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

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

Cannot find or initialize the floppy drive controller. Make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.

**INVALID EISA CONFIGURATION**

**PLEASE RUN EISA CONFIGURATION UTILITY :**

The non-volatile memory containing EISA configuration information was programmed incorrectly or has become corrupt. Re-run EISA configuration utility to correctly program the memory.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

**KEYBOARD ERROR OR NO KEYBOARD PRESENT :**

Cannot initialize the keyboard. Make sure that the keyboard is properly attached and no keys being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

**MEMORY ADDRESS ERROR AT ... :**

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

**MEMORY PARITY ERROR AT ... :**

Indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

**MEMORY SIZE HAS CHANGED SINCE LAST BOOT :**

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

**MEMORY VERIFY ERROR AT ... :**

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

**OFFENDING ADDRESS NOT FOUND :**

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

**OFFENDING SEGMENT :**

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

**PRESS A KEY TO REBOOT :**

This will be displayed at the bottom screen when an error occurs that requires you to reboot. Press any key and the system will reboot.

**PRESS F1 TO DISABLE NMI, F2 TO REBOOT :**

When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.

**RAM PARITY ERROR – CHECKING FOR SEGMENT :**

Indicates a parity error in Random Access Memory.

**Should be Empty But EISA Board Found**

**PLEASE RUN EISA CONFIGURATION UTILITY :**

A valid board ID was found in a slot that was configured as having no board ID.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

**Should Have EISA Board But Not Found**

**PLEASE RUN EISA CONFIGURATION UTILITY :**

The board installed is not responding to the ID request, or no board ID has been found in the indicated slot.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

**Slot Not Empty :**

Indicates that a slot designated as empty by the EISA Configuration Utility actually contains a board.

**SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT :**

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

**Wrong Board in Slot**

**PLEASE RUN EISA CONFIGURATION UTILITY :**

The board ID does not match the ID stored in the EISA non-volatile memory.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

**FLOPPY DISK(S) FAIL (80) :**

Unable to reset floppy subsystem.

**FLOPPY DISK(S) FAIL (40) :**

Floppy type mismatch.

**Hard Disk(S) Fail (80) :**

Hard Disk Drive reset failed.

**Hard Disk(S) Fail (40) :**

Hard Disk Drive controller diagnostics failed.

**Hard Disk(S) Fail (20) :**

Hard Disk Drive initialization error.

**Hard Disk(S) Fail (10) :**

Unable to recalibrate fixed disk.

**Hard Disk(S) Fail (08) :**

Sector Verify failed.

**Keyboard is locked out – Unlock the key :**

BIOS detect the keyboard is locked. P17 of keyboard controller is pulled low.

**Keyboard error or no keyboard present :**

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

**Manufacturing POST loop :**

System will repeat POST procedure infinitely while the P15 of keyboard controller is pull low. This is also used for M/B burn in test.

**BIOS ROM checksum error – System halted :**

The checksum of ROM address F0000H-FFFFFFH is bad.

**Memory test fail :**

BIOS reports the memory test fail if the onboard memory is tested error.

## **TROUBLE SHOOTING FOR POST CODES**

The lists below indicate you the post codes. Please follow the instruction to adjust your system. If the error still occurred, please contact with your distributor for maintenance.

- CFh** : Test CMOS R/W functionality.
- C0h** : Early chipset initialization
  - Disable shadow RAM
  - Disable L2 cache (socket 7 or below)
  - Program basic chipset registers
- C1h** : Detect memory
  - Auto-detection of DRAM size, type and ECC
  - Auto-detection of L2 cache (socket 7 or below)
- C3h** : Expand compressed BIOS code to DRAM.
- C5h** : Call chipset hook to copy BIOS block to E000 & F000 shadow RAM.
- 0h1** : Expand the Xgroup codes locating in physical address 1000:0
- 02h** : Reserved.
- 03h** : Initial Superio\_Early\_Init switch.
- 04h** : Reserved.
- 05h** :
  1. Blank out screen
  2. Clear CMOS error flag
- 06h** : Reserved
- 07h** :
  1. Clear 8042 interface
  2. Initialize 8042 self-test

- 08h** :
  - 1. Test special keyboard controller for Winbond 977 series Super I/O Chips.
  - 2. Enable keyboard interface.
- 09h** : Reserved
- 0Ah** :
  - 1. Disable PS/2 mouse interface (optional)
  - 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional).
  - 3. Reset keyboard for Winbond 977 series Super I/O chips.
- 0Bh** : Reserved
- 0Ch** : Reserved
- 0Dh** : Reserved
- 0Eh** : Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.
- 0Fh** : Reserved
- 10h** : Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD and DMI support.
- 11h** : Reserved
- 12h** : Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.
- 13h** : Reserved
- 14h** : Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.
- 15h** : Reserved
- 16h** : Initial Early\_Init\_Onboard\_Generator switch.

- 17h** : Reserved
- 18h** : Detect CPU information including brand, SMI type (Cyrrix or Intel) and CPU level (586 or 686).
- 19h** : Reserved
- 1Ah** : Reserved
- 1Bh** : Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS\_INIT\_HDLR & S/W interrupts to SPURIOUS\_soft\_HDLR.
- 1Ch** : Reserved
- 1Dh** : Initial EARLY\_PM\_INIT switch
- 1Eh** : Reserved
- 1Fh** : Load keyboard matrix (notebook platform)
- 20h** : Reserved
- 21h** : HPM initialization (notebook platform)
- 22h** : Reserved
- 23h** :
  1. Check validity of RTC value:  
e.g. a value of 5Ah is an invalid value for RTC minute.
  2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead.
  3. Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information.
  4. Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots.
  5. Early PCI initialization:
    - Enumerate PCI bus number
    - Assign memory & I/O resource
    - Search for a valid VGA device & VGA BIOS, and put it into C000:0.

- 24h** : Reserved
- 25h** : Reserved
- 26h** : Reserved
- 27h** : Initialize INT 09 buffer
- 28h** : Reserved
- 29h** :
  1. Program CPU internal mtrr (P6 & PII) for 0-640K memory address.
  2. Initialize the APIC for Pentium class CPU.
  3. Program early chipset according to CMOS setup.  
Example: onboard IDE controller.
  4. Measure CPU speed.
  5. Invoke video BIOS.
- 2Ah** : Reserved
- 2Bh** : Reserved
- 2Ch** : Reserved
- 2Dh** :
  1. Initialize multi-language
  2. Put information on screen display, including Award title, CPU type, CPU speed ...
- 2Eh** : Reserved
- 2Fh** : Reserved
- 30h** : Reserved
- 31h** : Reserved
- 32h** : Reserved
- 33h** : Reset keyboard except Winbond 977 series Super I/O chips.

- 34h** : Reserved
- 35h** : Reserved
- 36h** : Reserved
- 37h** : Reserved
- 38h** : Reserved
- 39h** : Reserved
- 3Ah** : Reserved
- 3Bh** : Reserved
- 3Ch** : Test 8254
- 3Dh** : Reserved
- 3Eh** : Test 8259 interrupt mask bits for channel 1.
- 3Fh** : Reserved
- 40h** : Test 8259 interrupt mask bits for channel 2.
- 41h** : Reserved
- 42h** : Reserved
- 43h** : Test 8259 functionality.
- 44h** : Reserved
- 45h** : Reserved
- 46h** : Reserved
- 47h** : Initialize EISA slot

- 48h** : Reserved
- 49h** :
  1. Calculate total memory by testing the last double word of each 64K page.
  2. Program writes allocation for AMD K5 CPU.
- 4Ah** : Reserved
- 4Bh** : Reserved
- 4Ch** : Reserved
- 4Dh** : Reserved
- 4Eh** :
  1. Program MTRR of M1 CPU
  2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range.
  3. Initialize the APIC for P6 class CPU.
  4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
- 4Fh** : Reserved
- 50h** : Initialize USB
- 51h** : Reserved
- 52h** : Test all memory (clear all extended memory to 0)
- 53h** : Reserved
- 54h** : Reserved
- 55h** : Display number of processors (multi-processor platform)
- 56h** : Reserved
- 57h** :
  1. Display PnP logo
  2. Early ISA PnP initialization
    - Assign CSN to every PnP device.

- 58h** : Reserved
- 59h** : Initialize the combined Trend Anti-Virus code.
- 5Ah** : Reserved
- 5Bh** : (Optional Feature)  
Show message for entering AWDFLASH.EXE from FDD  
(optional)
- 5Ch** : Reserved
- 5Dh** : 1. Initialize Init\_Onboard\_Super\_IO switch.  
2. Initialize Init\_Onboard\_AUDIO switch.
- 5Eh** : Reserved
- 5Fh** : Reserved
- 60h** : Okay to enter Setup utility; i.e. not until this POST stage can users  
enter the CMOS setup utility
- 61h** : Reserved
- 62h** : Reserved
- 63h** : Reserved
- 64h** : Reserved
- 65h** : Initialize PS/2 Mouse
- 66h** : Reserved
- 67h** : Prepare memory size information for function call:  
INT 15h ax=E820h
- 68h** : Reserved
- 69h** : Turn on L2 cache.

- 6Ah** : Reserved
- 6Bh** : Program chipset registers according to items described in Setup and Auto-configuration table.
- 6Ch** : Reserved
- 6Dh** :
  1. Assign resources to all ISA PnP devices.
  2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".
- 6Eh** : Reserved
- 6Fh** :
  1. Initialize floppy controller.
  2. Set up floppy related fields in 40:hardware.
- 70h** : Reserved
- 71h** : Reserved
- 72h** : Reserved
- 73h** : (Optional Feature)  
Enter AWDFLASH.EXE if:
  - AWDFLASH is found in floppy drive.
  - ALT+F2 is pressed
- 74h** : Reserved
- 75h** : Detect & install all IDE devices: HDD, LS120, ZIP, CDROM.....
- 76h** : Reserved
- 77h** : Detect serial ports and parallel ports
- 78h** : Reserved
- 79h** : Reserved
- 7Ah** : Detect and install co-processor

- 7Bh** : Reserved
- 7Ch** : Reserved
- 7Dh** : Reserved
- 7Eh** : Reserved
- 7Fh** :
  1. Switch back to text mode if full screen logo is supported.
    - If errors occur, report errors and wait for keys
    - If no errors occur or F1 key is pressed to continue:
      - \*Clear EPA or customization logo.
- 80h** : Reserved
- 81h** : Reserved
- 82h** :
  1. Call chipset power management hook.
  2. Recover the text font used by EPA logo (not for full screen logo).
  3. If password is set, ask for password.
- 83h** : Save all data in stack back to CMOS.
- 84h** : Initialize ISA PnP boot devices.
- 85h** :
  1. USB final initialization.
  2. NET PC: Build SYSID structure.
  3. Switch screen back to text mode.
  4. Setup ACPI table at top of memory.
  5. Invoke ISA adapter ROMs.
  6. Assign IRQs to PCI devices.
  7. Initialize APM.
  8. Clear noise of IRQs.
- 86h** : Reserved
- 87h** : Reserved

- 88h** : Reserved
- 89h** : Reserved
- 90h** : Reserved
- 91h** : Reserved
- 92h** : Reserved
- 93h** : Read HDD boot sector information for Trend Anti-Virus code.
- 94h** :
  - 1. Enable l2 cache.
  - 2. Program boot up speed.
  - 3. Chipset final initialization.
  - 4. Power management final initialization.
  - 5. Clear screen and display summary table
  - 6. Program K6 write allocation.
  - 7. Program P6 class write combining.
- 95h** :
  - 1. Program daylight saving.
  - 2. Update keyboard LED and typematic rate.
- 96h** :
  - 1. Build MP table.
  - 2. Build and update ESCD.
  - 3. Set CMOS century to 20h or 19h.
  - 4. Load CMOS time into DOS timer tick.
  - 5. Build MSIRQ routing table.
- FFh** : Boot attempt (INT 19h)





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