

PT-6IFA
SYSTEM BOARD
(VER. 1.x)

OPERATION MANUAL

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TRADEMARKS

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NOTE

The "LOAD SETUP DEFAULTS" function loads the default settings directly from BIOS default table, these default settings are the best-case values that should optimize system performance and increase system stability . This function will be necessary when you accept this system board, or the system CMOS data is corrupted. By pressing "Enter" key, while "LOAD SETUP DEFAULTS" is highlighted, then presses "Y" and "Enter" key. the SETUP default values will be loaded. (Please refer to the Chapter 5 AWARD BIOS SETUP procedures in this manual.)

NOTICE

Information presented in this manual has been carefully checked for reliability; however, no responsibility is assumed for inaccuracies. The information contained in this manual is subject to change without notice.

WARNING !

The "Static Electricity" will cause damage to the components on the system board, for this reason, please eliminate all static electricity on your body before you touch this system board.

I. INTRODUCTION

A. SYSTEM OVERVIEW

The □PT-6IFA□ Pentium Pro PCI Local Bus system board is an ATX form-factor system board. It is designed based on the Intel 82440FX PCIset system chipset and Winbond I/O chipset. It built-in two channel PIO and Bus Master Enhanced PCI IDE ports, one Floppy Disk control port, two high speed Serial ports (UARTs) and one multimode Parallel port and also supports PS/2 mouse, IR and USB ports. It is designed to fit a high performance, Pentium Pro Processor 150 MHz up to 266 MHz based solution for high-end and true GREEN-PC computer systems.

The Pentium Pro Processor is a 64-bit processor with RISC technology, which offers several key features such as built-in 256KB/512KB L2 cache, 12-stage superpipeline architecture, out of order execution etc, in order to optimize its capabilities and performances, the Pentium Pro Processors require 32-bit Operating Systems (such Windows NT and OS/2) and applications.

This system board supports the Peripheral Component Interconnect (PCI) Local Bus standard (PCI Spec. Rev. 2.1 compliant). It not only breaks through the I/O bottlenecks of the traditional ISA main board, but also provides the performance needs for networking and multi-user environments.

A. FEATURES

The PT-6IFA system board contains the following features:

- Supports wide range Pentium Pro family CPUs from 150 MHZ through 266 MHz , fully IBM PC/AT compatible system board with ISA Bus and PCI Local Bus.
- Built-in 3 set voltage regulator circuits to support all low-voltage components include CPU, chipset ..., so that no VRM (Voltage Regulator Module) is needed.
- DRAM Memory : Supports fast page mode (FPM), Extended Data Out (EDO) and Burst Extended Data Out (BEDO) memory. Supports

ECC/Parity functions.

- Cache Memory : Supports Pentium Pro CPU's built-in 256KB/512KB L2 cache.
- System BIOS : Supports Plug and Play System BIOS.
- IDE ports : Supports two channel PIO and Bus Master Enhanced PCI IDE ports, up to Mode 4 timing, and up to 22 MBytes/s transfer rates.
- I/O ports : Supports two high speed serial ports (UARTs), One multimode parallel port for standard (SPP), enhanced (EPP) and high speed (ECP) modes. One Floppy Disk Control port. And also supports PS/2 mouse connector on board.
- IR Port : Supports IR (Infrared Rays) functions. Both HPSIR and ASKIR are supported.
- USB Ports : Supports two Universal Serial Bus (USB) ports.
- ACPI : Supports a part of ACPI (Advanced Configuration and Power Interface) functions, such as "Software Power Off".

I. SPECIFICATIONS

CPU

Intel Pentium Pro processors, from 150MHz through 266 MHz

CPU VCC

Three set voltage regulator circuits, support CPU operating voltage from +2.1V DC through +3.5V DC

WORD SIZE

Data Path: 8-bit, 16-bit, 32-bit, 64-bit

PC SYSTEM CHIPSET

Intel 82440FX PCIsset (82441FX, 82442FX, 82371SB)

SUPER I/O CHIPSET

Winbond W83977F

BUS FREQUENCY

60/66.6 MHz adjustable.

MEMORY

DRAM: Four banks, each bank could be single or double sided, 8MB up to 1024 MB.

Supports fast page mode (FPM), Extended Data Out (EDO) and Burst Extended Data Out (BEDO) memory. (Using 72-pin SIMM x 6).

CACHE: Supports Intel Pentium Pro CPU's built-in 256KB/512KB L2 cache.

BIOS

AWARD Plug & Play System BIOS. (128KBx8, Flash ROM)

EXPANSION SLOTS

PCI Slots : 32-bit x 4 (All Master/Slave, PCI Spec. Rev. 2.1 Compliant)

ISA Slots : 16-bit x 4 (One slot PCI/ISA shared)

□ IDE PORTS

Two channel PIO and Bus Master Enhanced PCI IDE ports, maximum could be connected up to 4 IDE Hard Disk and ATAPI CD-ROM device. BIOS supports IDE CD-ROM boot-up.

□ SUPER I/O PORTS

1. Two high speed NS16C550 compatible serial ports (UARTs).
2. One parallel port, supports SPP/EPP/ECP mode.
3. One Floppy Disk Control port.

□ IR PORT

One HPSIR and ASKIR compatible IR transmission connector (5-pin).

□ MOUSE AND KEYBOARD

One PS/2 mouse connector, One PS/2 keyboard connector (optional) and One AT keyboard connector.

□ USB PORTS

Two Universal Serial Bus (USB) ports.

□ DIMENSION

Width & Length : 244 mm x 305 mm.

Height : 3/4 inches with components mounted, but without expansion boards and cables.

PCB Thickness : 4 layers, 0.05 inches normal.

Weight : 20 ounces.

□ ENVIRONMENT

Operating Temperature : 10°C to 40°C. (50°F to 104°F)

Required Airflow : 50 linear feet per minute across CPU.

Storage Temperature : - 40°C to 70°C. (- 40°F to 158°F)

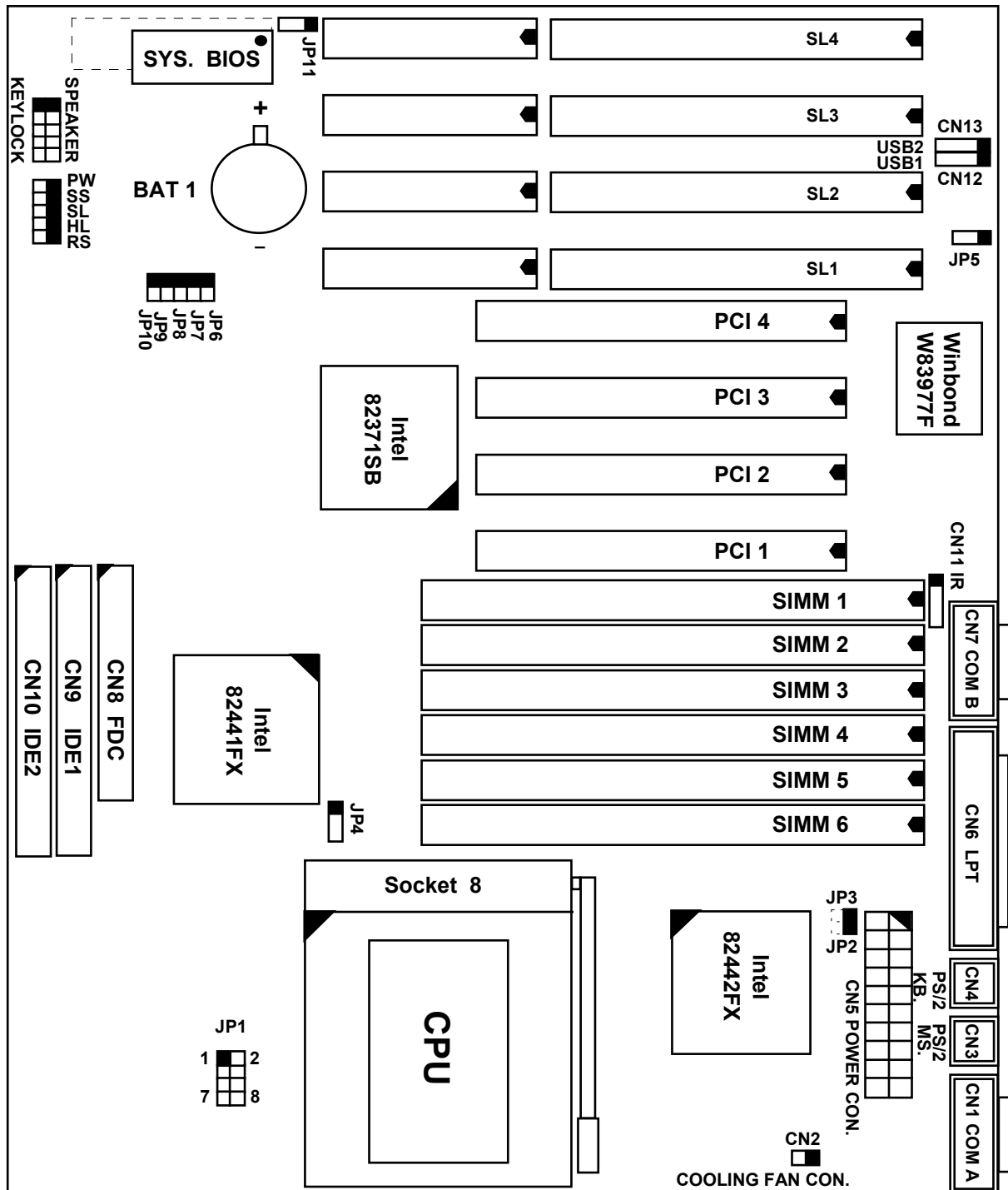
Humidity : 0 to 90% noncondensing.

Altitude : 0 to 10,000 feet.

I. SYSTEM BOARD LAYOUT

A. PT-6IFA VER. 1.x

Explanation : All connectors, jumpers and components which marks by a black point on the corner means the pin-1 side of the connector, jumper and component.



I. HARDWARE SETUP

A. UNPACKING

The system board package should contain the following parts :

- The PT-6IFA system board.
- OPERATION MANUAL.
- Cable set for IDE and I/O device.

A. HARDWARE CONFIGURATION

Before the system board is ready to operate, the hardware must be configured to allow for various functions within the system. To configure the PT-6IFA system board is a simple task, only a few jumpers, connectors, cables and sockets needs to be selected and installed. (For the detailed locations of each component please refer to page 3-1 "system board layout" figure)

1. DRAM INSTALLATION

The PT-6IFA system board will support four banks main memory on board (bank0 : SIMM1, SIMM2. bank1 : SIMM3, SIMM4. bank2 : SIMM5, SIMM6), each bank could be single-sided or double-sided, 8MB up to 768 MB of local memory can be attained. It supports three types of DRAM memory either standard fast page mode (FPM), Extended Data Out (EDO) or Burst Extended Data Out (BEDO) memory. (Both Symmetrical and Asymmetrical DRAM addressing are supported.)

Bank can be populated in any order (bank 0 does not have to be populated before bank 1). Within any given bank, two SIMMs must be same size. Among the two banks, SIMMs' densities could be mixed in any order. EDO, FPM and BEDO DRAMs could be mixed between Banks, a given SIMM must contain only one type of DRAM. When DRAM types are mixed, each SIMM runs optimized for that particular type of DRAM.

The speed of FPM DRAMs must be used 70ns or faster than 70ns, the speed of EDO DRAMs and BEDO DRAMs must be used 60ns or faster than 60ns.

There is no jumper needed for DRAM configuration, DRAMs' type and size will be detected by system BIOS automatically.

In DRAM memory subsystem, ECC and Parity can be checked on the DRAM interface (Functions selected by BIOS via CMOS setup, please refer to Chapter 5, the default status is parity selected.) All SIMMs and DIMM must be populated with *parity bit* to implement ECC or Parity functions.

ECC is an optional data integrity feature provided by the system. This feature provides single-bit error correction, multiple-bit error detection, and detection of all errors confined to single nibble for DRAM memory subsystem.

The SIMMs' operating voltage are :

SIMM1 - SIMM6 : + 5V DC

The usable DRAM modules are : (*Note : S = Single-sided , D = Double-sided*)

SIMMs : 1MBx32(36)-S (**4MB**) ,
 2MBx32(36)-D (**8MB**) ,
 4MBx32(36)-S (**16MB**) ,
 8MBx32(36)-D (**32MB**) ,
 16MBx32(36)-S (**64MB**) ,
 32MBx32(36)-D (**128MB**) .

The following table is an example for DRAM memory installation, it contains several modules combination, but not all combination.

Bank 0 SIMM1, SIMM2	Bank 1 SIMM3, SIMM4	Bank 2 SIMM5, SIMM6	Total Size
4MB, 4MB	4MB, 4MB	4MB, 4MB	24 MB
8MB, 8MB	8MB, 8MB	8MB, 8MB	48 MB
16MB, 16MB	16MB, 16MB	16MB, 16MB	96 MB
32MB, 32MB	32MB, 32MB	32MB, 32MB	192 MB
64MB, 64MB	64MB, 64MB	64MB, 64MB	384 MB
128MB, 128MB	128MB, 128MB	128MB, 128MB	768 MB

1. CONNECTORS

A connector is two or more pins that are used make connections to the system standard accessories (such as power, mouse, printer,...etc.) The following is a list of connectors on board, as well as descriptions of each individual connector.

(A) BAT1 Battery Socket (Using 3 Vlots Lithium battery : CR2032)

<u>Pin #</u>	<u>Assignment</u>
<input type="checkbox"/>	Battery Positive
<input type="checkbox"/>	Ground

(B) CN1 COM A (Serial Port 1) connector
COM1/2/3/4, selected by BIOS setup, using IRQ4 or 3

<u>Pin #</u>	<u>Assignment</u>	<u>Pin #</u>	<u>Assignment</u>
<input type="checkbox"/>	1 DCD (Data Carrier Detect)	<input type="checkbox"/>	2 RD (Received Data)
<input type="checkbox"/>	3 TD (Transmit Data)	<input type="checkbox"/>	4 DTR (Data Terminal Ready)
<input type="checkbox"/>	5 Ground	<input type="checkbox"/>	6 DSR (Data Set Ready)
<input type="checkbox"/>	7 RTS (Request To Send)	<input type="checkbox"/>	8 CTS (Clear To Send)
<input type="checkbox"/>	9 RI (Ring Indicator)	<input type="checkbox"/>	10 NC (No Connection)

(B) CN2 Cooling Fan Power Connector

<u>Pin #</u>	<u>Assignment</u>	<u>Pin #</u>	<u>Assignment</u>
<input type="checkbox"/>	1 + 12V DC	<input type="checkbox"/>	2 Ground

(C) CN3 PS/2 Mouse connector

<u>Pin #</u>	<u>Assignment</u>	<u>Pin #</u>	<u>Assignment</u>	<u>Pin #</u>	<u>Assignment</u>
1	Mouse Data	3	Ground	5	Mouse Clock
2	No Connection	4	+ 5V DC	6	No Connection

(D) CN4 PS/2 Keyboard connector

<u>Pin #</u>	<u>Assignment</u>	<u>Pin #</u>	<u>Assignment</u>	<u>Pin #</u>	<u>Assignment</u>
1	Keyboard Data	3	Ground	5	Keyboard Clock
2	No Connection	4	+ 5V DC	6	No Connection

(E) CN5 Power connector

<u>Pin #</u>	<u>Assignment</u>	<u>Pin #</u>	<u>Assignment</u>	<u>Pin #</u>	<u>Assignment</u>
1	+ 3.3V DC	8	PW-OK	15	Ground
2	+ 3.3V DC	9	+ 5V SB	16	Ground
3	Ground	10	+ 12V DC	17	Ground
4	+ 5V DC	11	+ 3.3V DC	18	- 5V DC
5	Ground	12	- 12V DC	19	+ 5V DC
6	+ 5V DC	13	Ground	20	+ 5V DC
7	Ground	14	PS-ON		

(F) CN6 Parallel Port connector

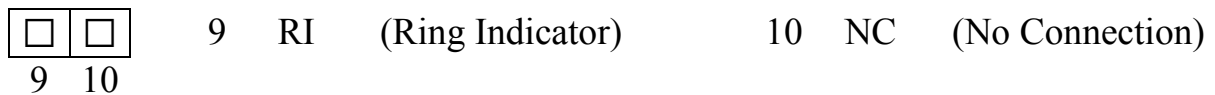
(Supports Normal/EPP/ECP mode, selected by BIOS setup, using IRQ7 or IRQ5, ECP using DMA channel 3 or 1)

<u>Pin #</u>	<u>Assignment</u>	<u>Pin #</u>	<u>Assignment</u>
1	STROBE <input type="checkbox"/>	14	AUTO FEED <input type="checkbox"/>
2	Data Bit 0	15	ERROR <input type="checkbox"/>
3	Data Bit 1	16	INIT <input type="checkbox"/>
4	Data Bit 2	17	SLCT IN <input type="checkbox"/>
5	Data Bit 3	18	Ground
6	Data Bit 4	19	Ground
7	Data Bit 5	20	Ground
8	Data Bit 6	21	Ground
9	Data Bit 7	22	Ground
10	ACK <input type="checkbox"/>	23	Ground
11	BUSY	24	Ground
12	PE	25	Ground
13	SLCT	26	N.C. (No Connection)

(G) CN7 COM B (Serial Port 2) connector

COM1/2/3/4, selected by BIOS setup, using IRQ3 or 4

<u>Pin #</u>	<u>Assignment</u>	<u>Pin #</u>	<u>Assignment</u>
1	DCD (Data Carrier Detect)	2	RD (Received Data) or IR-RX
3	TD (Transmit Data) or IR-TX	4	DTR (Data Terminal Ready)
5	Ground	6	DSR (Data Set Ready)
7	RTS (Request To Send)	8	CTS (Clear To Send)

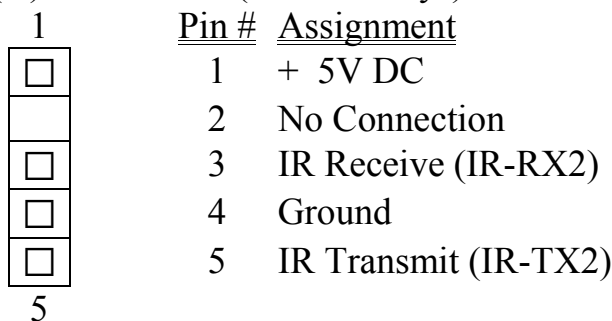


(H) CN8 Floppy Disk Control Port connector (Using IRQ6, DMA channel 2)

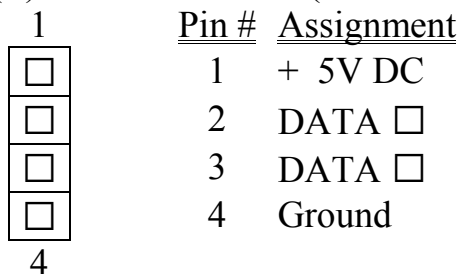
(I) CN9 IDE 1 connector (Primary IDE Port, I/O address is 1F0H, using IRQ14)

(J) CN10 IDE 2 connector (Secondary IDE Port, I/O address is 170H, using MIRQ0)

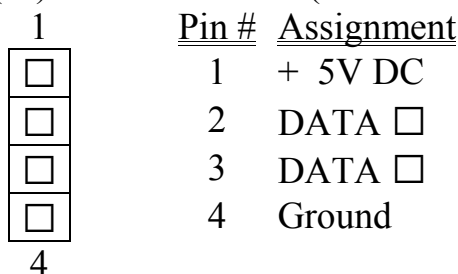
(K) CN11 IR (Infrared Rays) connector



(L) CN12 USB 1 (Universal Serial Bus port1) connector



(M) CN13 USB 2 (Universal Serial Bus port2) connector

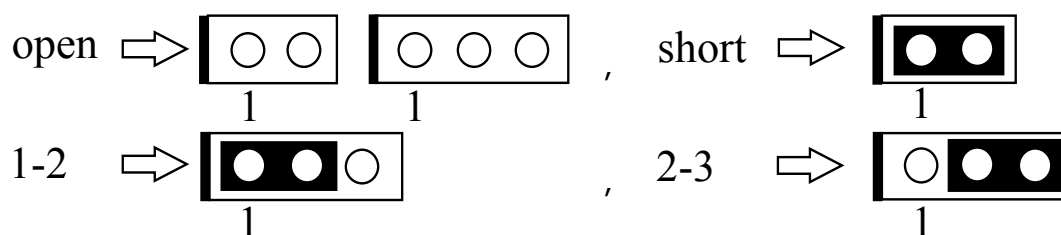


(N) RS Reset Button connector

<u>Pin #</u>	<u>Assignment</u>	<u>Pin1&2</u>	<u>Function</u>
1	Ground	Open	No action

- 2 Reset Control Short System Reset
- (O) HL IDE HDD LED connector
- | <u>Pin #</u> | <u>Assignment</u> |
|--------------|-------------------|
| 1 | Pullup (+ 5V DC) |
| 2 | Signal Pin |
- (P) TL Turbo LED connector
- | <u>Pin #</u> | <u>Assignment</u> |
|--------------|-------------------|
| 1 | Pullup (+ 5V DC) |
| 2 | Signal Pin |
- (Q) SS External SMI button connector
- | <u>Pin #</u> | <u>Assignment</u> | <u>Pin1&2</u> | <u>Function</u> |
|--------------|-------------------|-------------------|--------------------------|
| 1 | SMI Control | Open | For normal operation |
| 2 | Ground | Short | To get into Suspend mode |
- (R) PW Panel Power Switch connector
- Once : Power On
- Next : Power Off
- (S) SPEAKER Speaker connector
- | <u>Pin #</u> | <u>Assignment</u> |
|--------------|---------------------|
| 1 | + 5V DC |
| 2 | No Connection |
| 3 | No Connection |
| 4 | Speaker Data Signal |
| 5 | No Connection |
- 5
- (T) KEY LOCK Front Panal Power LED & Key-Lock connector
- | <u>Pin #</u> | <u>Assignment</u> |
|--------------|--------------------------------|
| 1 | Pullup (+ 5V DC for Power LED) |
| 2 | No Connection |
| 3 | Ground |
| 4 | Keyboard Lock |
| 5 | Ground |
- 5

Explanation : (For next section : JUMPERS)



1. JUMPERS

A jumper is two, three or more pins which may or may not be covered by a plastic connector plug (mini-jumper). A jumper is used to select different system options. ***Please make sure all jumpers at correct position before this system board used.***

(A) JP1 CPU operating voltage selection

Different Pentium Pro processors may require different operating voltages (VccP). Current processors (marked "Pentium Pro") support VID and will automatically adjust the output of voltage regulator so that no jumper setting are needed (leave these jumpers open in this case). Some older processors without VID support require manual voltage ID setting. The following table is used for those older processors only.

Voltage	JP1			
	1-2 VID0	3-4 VID1	5-6 VID2	7-8 VID3
+2.1V	short	open	open	open
+2.2V	open	short	open	open
+2.3V	short	short	open	open
+2.4V	open	open	short	open
+2.5V	short	open	short	open
+2.6V	open	short	short	open
+2.7V	short	short	short	open
+2.8V	open	open	open	short

Voltage	JP1			
	1-2 VID0	3-4 VID1	5-6 VID2	7-8 VID3
+2.9V	short	open	open	short
+3.0V	open	short	open	short
+3.1V	short	short	open	short
+3.2V	open	open	short	short
+3.3V	short	open	short	short
+3.4V	open	short	short	short
+3.5V	short	short	short	short

Note : The detailed CPU-VccP requirement, please inquire of your CPU supplier.

(B) JP4,JP6-JP10 CPU External (BUS) Frequency and CPU to BUS Frequency Ratio selection

(1). CPU External (BUS) Frequency selection

Frequency (unit : MHZ)		JP4	JP9	JP10	Remark (CPU Type)
System	PCI Bus				
60	30	1-2	open	short	For 150, 180, 210, 240
66.6	33.3	2-3	short	open	For 166, 200, 233, 266

(2). CPU to BUS Frequency Ratio selection

Ratio	JP6	JP7	JP8	Remark (CPU Type)
2 x	short	short	short	
2.5 x	open	short	short	For 150, 166
3 x	short	open	short	For 180, 200
3.5 x	open	open	short	For 210, 233
4 x	short	short	open	For 240, 266
5 x	short	open	open	

(3). Currently common CPUs Frequency and Ratio quick setting

CPU (MHz)	JP4	JP6	JP7	JP8	JP9	JP10	Remark
150 MHz	1-2	open	short	short	open	short	
166 MHz	2-3	open	short	short	short	open	
180 MHz	1-2	short	open	short	open	short	
200 MHz	2-3	short	open	short	short	open	
210 MHz	1-2	open	open	short	open	short	
233 MHz	2-3	open	open	short	short	open	
240 MHz	1-2	short	short	open	open	short	
266 MHz	2-3	short	short	open	short	open	

(C) JP5 Clear CMOS button

<u>Pin #</u>	<u>Function</u>
--------------	-----------------

open	Normal operation
------	------------------

short	Clear CMOS
-------	------------

(Note : Don't forget to open this jumper after 2-3 seconds)

Note : Depends on different brand-name of RTC IC (U33 or U32), there are two times to clear CMOS, the following is a list for reference :

(1) while power-on : BENCHMARK / bq3287AMT, SGS / M48T86,

*(2) while power-off : VIA / VT82885N, ODIN / OEC12C885 /
OEC12C887A, DALLAS / DS12887A.*

(D) JP11 ROM BIOS Selection

<u>Pin #</u>	<u>Function</u>
--------------	-----------------

1-2	For +5V FLASH ROM
-----	-------------------

2-3	For +12V FLASH ROM
-----	--------------------

I. AWARD BIOS SETUP

A. GETTING STARTED

When the system is first powered on or reset, the BIOS will enter the Power-On Self Test routines (POST : Display a copyright message on the screen followed by a diagnostics and initialization procedure.) (If an EGA or VGA card is installed, the copyright message of the video card maybe displayed on the screen first.) The BIOS will indicate any error or malfunction by a series of beeps or display the error message on screen.

Normally, the simulate figure 5-1 will display on the screen when the system is powered on.

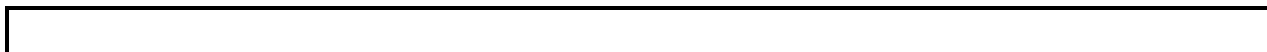


Fig. 5-1 Initial Power-On screen.

During the POST routines are progress, the following message appears :

" Press **DEL** to enter SETUP "

To execute the Award BIOS Setup program, press **DEL** key. The simulate screen in figure 5-2 MAIN MENU will be displayed at this time.

A. MAIN MENU

ROM PCI / ISA BIOS (2A69HXXX)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	SUPERVISOR PASSWORD
BIOS FEATURES SETUP	USER PASSWORD
CHIPSET FEATURES SETUP	IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP	HDD LOW LEVEL FORMAT
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
INTEGRATED PERIPHERALS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	

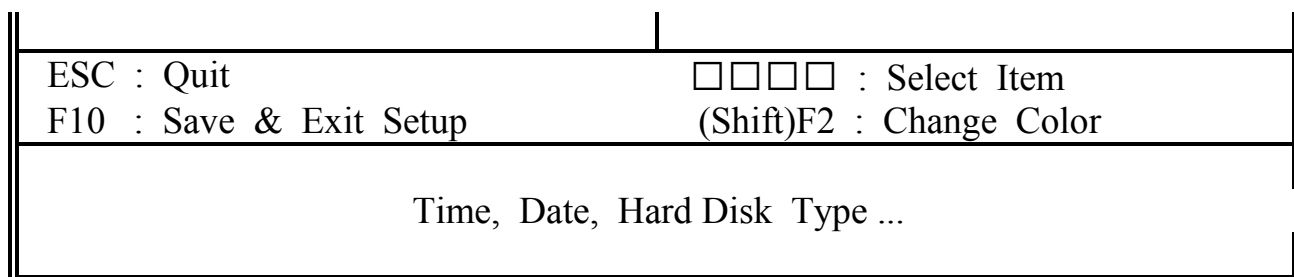


Fig. 5-2 CMOS SETUP MAIN MENU screen.

A. CONTROL KEYS

Listed below is an explanation of the keys displayed at the bottom of the screens accessed through the BIOS SETUP program :

- Arrow Keys** : Use the arrow keys to move the cursor to the desired item.
- Enter** : To Select the desired item.
- F1** : Display the help screen for the selected feature.
- (Shift)F2** : To change the screen color, total 16 colors.
- ESC** : Exit to the previous screen.
- PgUp(-)/PgDn(+)** : To modify the default value of the options for the highlighted feature.
- F5** : Retrieves the previous CMOS values from CMOS, only for the current option page setup menu.
- F6** : Loads the BIOS default values from BIOS default table, only for the current option page setup menu.
- F7** : Loads the SETUP default values from BIOS default table, only for the current option page setup menu.
- F10** : Save all changes made to CMOS RAM, only for the MAIN MENU.

The following pages will show the simulate screens of CMOS SETUP, each figure contains the setup items and the default settings of them. Below each figure may or may not contain a lists of function description for commonly used settings. For the other settings' function description if you still needed, please feel free to contact with your supplier.

A. STANDARD CMOS SETUP

ROM PCI / ISA BIOS (2A69HXXX)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm : dd : yy) : Mon, Mar 10 1997																			
Time (hh : mm : ss) : 16 : 43 : 55																			
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE											
Primary Master	Auto	0	0	0	0	0	0	0	Auto										
Primary Slave	Auto	0	0	0	0	0	0	0	Auto										
Secondary Master	Auto	0	0	0	0	0	0	0	Auto										
Secondary Slave	Auto	0	0	0	0	0	0	0	Auto										
Drive A : 1.44M, 3.5 in.					<table border="1"> <tr> <td>Base Memory :</td> <td>640 K</td> </tr> <tr> <td>Extended Memory :</td> <td>xxxxxx K</td> </tr> <tr> <td>Other Memory :</td> <td>xxxxxx K</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td>Total Memory :</td> <td>xxxxxx K</td> </tr> </table>					Base Memory :	640 K	Extended Memory :	xxxxxx K	Other Memory :	xxxxxx K	<hr/>		Total Memory :	xxxxxx K
Base Memory :	640 K																		
Extended Memory :	xxxxxx K																		
Other Memory :	xxxxxx K																		
<hr/>																			
Total Memory :	xxxxxx K																		
Drive B : None																			
Video : EGA/VGA																			
Halt On : All Errors																			
ESC : Quit			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item			PU/PD/+/- : Modify													
F1 : Help			(Shift)F2 : Change Color																

Fig. 5-3 STANDARD CMOS SETUP screen.

MODE :

For IDE hard disks, this BIOS provides three modes to support both normal size IDE hard disks and also disks size larger the 528MB:

NORMAL : For IDE hard disks size smaller then 528MB.

LBA : For IDE hard disks size larger then 528MB and up to 8.4GB (Giga Bytes) that use Logic Block Addressing (LBA) mode.

Large : For IDE hard disks size larger then 528MB that do not use LBA mode. Large mode is a new specifition which may not be fully supported by all operation systems. Now it can only be used with the MS-DOS and is very uncommon.

Auto Mode : Auto is a new technology, you can select "Auto" under TYPE and fields. This will enable automatic detection of your IDE driver during bootup.

(Note : Some OSes (like SCO-UNIX) must use "NORMAL" for installation.)

A. BIOS FEATURES SETUP

ROM PCI / ISA BIOS (2A69HXXX)

BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
Boot Up System Speed	: High		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled	ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
OS Select For DRAM > 64MB	: Non-OS2	F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values (Shift)	F2 : Color
PS/2 mouse function control	: Enable	F7 : Load Setup Defaults	

Fig. 5-4 BIOS FEATURES SETUP screen.

Virus Warning :

This feature flashes some messages on the screen. During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and an error message will appear, in the mean time, you can run anti-virus program to locate the problem. Default values is "Disabled"

Enabled : Activate automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Disabled : No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

CPU Internal Cache / External Cache :

These fields allow you to choose from the default of Enable or choose Disable to turn on or off the CPU's Level 1 and Level 2 built-in cache.

Boot Sequence :

This field determines where the system looks first for operating system. Options are "A,C,SCSI", "C,A,SCSI", "C,CDROM,A", "CDROM,C,A", "D,A,SCSI", "E,A,SCSI",

"F,A,SCSI", "SCSI,A,C", "SCSI,C,A", and "C only". These wide range settings allow you boot-up from either a floppy disk, an IDE hard disk ,a SCSI hard disk or a CD-ROM device.

PCI/VGA Palette Snoop :

Some display cards that are non-standard VGA such as graphics accelerators or MPEG Video Cards may not show color properly. The setting Enabled should correct this problem. Otherwise leave this on the setup default setting of Disabled.

OS Select For DRAM > 64MB :

When using OS/2 operating systems with installed DRAM of greater then 64MB, you must to set this setting to OS2 otherwise leave this on the setup default of Non-OS2.

PS/2 mouse function control :

On this system board built-in a PS/2 mouse port, but if you still won't use PS/2 mouse, this field allows you to Disable PS/2 mouse function and release IRQ12 for the other devices, otherwise leave this field on the setup default of Enabled to enable PS/2 mouse function.

A. CHIPSET FEATURES SETUP

ROM PCI / ISA BIOS (2A69HXXX)

CHIPSET FEATURES SETUP

AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	8 Bit I/O Recovery Time	: 1
DRAM Speed Selection	: 60 ns	16 Bit I/O Recovery Time	: 1
DRAM RAS# Precharge Time	: 3	Memory Hole at 15M-16M	: Disabled
MA Additional Wait State	: Disabled	DRAM Fast Leadoff	: Disabled
RAS# To CAS# Delay	: Disabled	Passive Release	: Enabled
DRAM Read Burst (B/E/F)	: x2/2/3	Delayed Transaction	: Disabled
DRAM Write Burst (B/E/F)	: x2/2/3		
ISA Bus Clock	: PCICLK/4		
DRAM Refresh Queue	: Enabled		
DRAM RAS Only Refresh	: Enabled		
DRAM ECC/PARITY Select	: Disabled		
Fast Dram Refresh	: Disabled		
Read-Around-Write	: Enabled		
PCI Burst Write Combine	: Enabled		
PCI-To-DRAM Pipeline	: Enabled	ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
CPU-To-PCI Write Post	: Enabled	F1 : Help	PU/PD/+/- : Modify

CPU-To-PCI IDE Posting	: Enabled	F5	: Old Values (Shift)	F2	: Color
System BIOS Cacheable	: Disabled	F7	: Load Setup Defaults		
Video RAM Cacheable	: Disabled				

Fig. 5-5 CHIPSET FEATURES SETUP screen.

WARNING : *The CHIPSET FEATURES SETUP in this screen are provided so that technical professionals can modify the Chipset to suit their requirement. If you are not a technical engineer, do not use this program !*

Auto Configuration :

When "Enabled", this parameter automatically enters and locks some of the optimum values for the chipset and CPU. Otherwise, this parameter allows the values of these fields could be changed.

DRAM Speed Selection :

When "Auto Configuration" is "Enabled", this field provides two suit of the optimal values for the chipset and CPU, depends on the DRAMs' speed, you can select "70 ns" or "60 ns". "70ns" maybe caused your system more stable, but also decrease the system's performance.

DRAM ECC/PARITY Select :

This system board provides a DRAM ECC (Error Checking and Correcting) or Parity function for DRAM subsystem. If all your DRAM modules (includes SIMMs and DIMM) have parity bit, you can set this field to ECC or PARITY to monitoring the DRAMs access status, but if your DRAM modules don't all have parity bit, leave this field on default setting of Disabled to avoid any error movement occurs.

Read-Around-Write :

The default setting of Enabled will increase the execution efficiency of the processor. It allows the processor to execute read commands out of order if there is no dependence between these read and other write commands.

PCI Burst Write Combine :

The default setting of Enabled will increase the efficiency of the PCI bus by combining several CPU to PCI write cycles into one. VGA performance is increased by this action.

PCI-To-DRAM Pipeline :

The default setting of Enabled will increase the bandwidth of the path between the PCI and the DRAM to enhance the PCI bus efficiency and DRAM accessing.

CPU-To-PCI Write Post :

The default setting of Enabled will increase the efficiency of the PCI bus and speed up the execution in the processor.

CPU-To-PCI IDE Posting :

Leave on default setting of Enabled so that the CPU to PCI IDE posting cycles are treated as normal I/O write transactions.

Video RAM Cacheable :

Video RAM caching is a new cache technology for video memory of Pentium Pro Processor. It can greatly improve the display speed by caching the display data. You must leave this field on default setting of Disabled if your display card cannot support this feature or else your system may not boot.

Memory Hole at 15M-16M :

Enabling this feature reserves 15MB to 16MB memory address space to ISA expansion cards that specifically require this setting. This makes the memory from 15MB and up unavailable to the system. Expansion cards can only access memory up to 16MB. The default setting is Disabled.

A. POWER MANAGEMENT SETUP

ROM PCI / ISA BIOS (2A69HXXX)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	: User Define	** Power Down & Resume Events **	
PM Control by APM	: Yes	IRQ 3 (COM 2)	: ON
Video Off Method	: Blank Screen	IRQ 4 (COM 1)	: ON

MODEM Use IRQ	: 3	IRQ 5 (LPT 2)	: ON
Doze Mode	: Disable	IRQ 6 (Floppy Disk)	: OFF
Standby Mode	: Disable	IRQ 7 (LPT 1)	: ON
Suspend Mode	: Disable	IRQ 8 (RTC Alarm)	: OFF
HDD Power Down	: Disable	IRQ 9 (IRQ2 Redir)	: ON
		IRQ 10 (Reserved)	: ON
		IRQ 11 (Reserved)	: ON
** Wake Up Events In Doze & Standby **		IRQ 12 (PS/2 Mouse)	: ON
IRQ3 (Wake-Up Event)	: ON	IRQ 13 (Coprocessor)	: ON
IRQ4 (Wake-Up Event)	: ON	IRQ 14 (Hard Disk)	: ON
IRQ8 (Wake-Up Event)	: OFF	IRQ 15 (Reserved)	: OFF
IRQ12 (Wake-Up Event)	: ON		
		ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values (Shift)	F2 : Color
		F7 : Load Setup Defaults	

Fig. 5-6 POWER MANAGEMENT SETUP screen.

WARNING : *The POWER MANAGEMENT SETUP in this screen are provided so that technical professionals can modify the Chipset to suit their requirement. If you are not a technical engineer, do not use this program !*

Power Management :

This setting controls the Power Management functions. "User Define" allows the values of all parameters could be modified. "Min Saving" and "Max Saving" fixed the values of four parameters, including "Doze Mode", "Standby Mode", "Suspend Mode" and "HDD Power Down". "Disable" disabled all Power Management functions. Default is "User Define".

A. PNP/PCI CONFIGURATION

ROM PCI / ISA BIOS (2A69HXXX)

PNP/PCI CONFIGURATION

AWARD SOFTWARE, INC.

Resources Controlled By	: Manual	PCI IRQ Activated By	: Level
Reset Configuration Data	: Disabled	PCI IDE IRQ Map To	: PCI-AUTO
		Primary IDE INT#	: A
		Secondary IDE INT#	: B
IRQ-3 assigned to	: Legacy ISA	Used MEM base addr	: N/A
IRQ-4 assigned to	: Legacy ISA		
IRQ-5 assigned to	: PCI/ISA PnP		

IRQ-7 assigned to	: Legacy ISA	
IRQ-9 assigned to	: PCI/ISA PnP	
IRQ-10 assigned to	: PCI/ISA PnP	
IRQ-11 assigned to	: PCI/ISA PnP	
IRQ-12 assigned to	: Legacy ISA	
IRQ-14 assigned to	: Legacy ISA	
IRQ-15 assigned to	: Legacy ISA	
DMA-0 assigned to	: PCI/ISA PnP	
DMA-1 assigned to	: PCI/ISA PnP	
DMA-3 assigned to	: PCI/ISA PnP	ESC : Quit <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
DMA-5 assigned to	: PCI/ISA PnP	F1 : Help PU/PD/+/- : Modify
DMA-6 assigned to	: PCI/ISA PnP	F5 : Old Values (Shift)F2 : Color
DMA-7 assigned to	: PCI/ISA PnP	F7 : Load Setup Defaults

Fig. 5-7 PNP/PCI CONFIGURATION setup screen.

WARNING : *The PNP/PCI CONFIGURATION in this screen are provided so that technical professionals can modify the Resources Configuration to suit their requirement.If you are not a technical engineer, do not use this program !*

Resources Controlled by :

Manual : The system BIOS will not reference the ESCD for IRQ & DMA informations. Instead, it will reference the items in this setup menu for assigning IRQ & DMA, but for I/O and Memory space the system BIOS still refer to the ESCD.

Atuo : The system BIOS will reference the ESCD all legacy informations.

Reset Configuration Data :

Disabled : The system BIOS will do nothing.

Enabled : The system BIOS will clear/reset the ESCD during "POST". After clearing the ESCD,the system BIOS will then change this item's value back to "Disable", otherwise, the ESCD will become useless.

IRQ# / DMA# assigned to :

Legacy : The system BIOS will skip never assign this specified IRQ/DMA resource to PCI or ISA PnP devices.

PCI/ISA: All items set to this value will make the specified IRQ/DMA have a chance to be assigned to PCI or ISA PnP devices.

PCI IRQ Actived By :

This option tells the system board chipset the IRQ signals input is Level or Edge trigger.

PCI IDE IRQ Map To : (for off-board PCI IDE cards)

PCI-AUTO : The BIOS will scan for PCI IDE devices and determine the location of the PCI IDE device, then assign IRQ 14 for primary IDE INT#, and assign IRQ 15 for secondary IDE INT#.

PCI-SLOT1 : For the specified slot, the BIOS will assign IRQ 14 for primary IDE INT#, to and assign IRQ 15 for secondary IDE INT#.

PCI-SLOT4

ISA : The BIOS will not assign any IRQs even if PCI IDE card is found. Because some IDE cards connect the IRQ 14 and 15 directly from ISA slot thru a card. (This card is called Legacy Header)

Used MEM base addr and Used MEM Length :

These fields are used for some specific ISA legacy cards with requested memory space below 1M address. You can define where the used memory address is located and its length of the legacy area corresponding. Base on these, BIOS will skip the UMB area that is used by the legacy device to avoid the memory conflict.

Note : No matter the item "Resources Controlled By" is set to "Manual" or "Auto", the system BIOS assign IRQs to PCI devices from high to low. For ISA PnP devices, the sequence is from low to high.

Explanation for proper nouns :

PnP device :

Device that has Plug & Play compatibility. That means it can request for DMA, IRQ, I/O and Memory from the PnP BIOS and all these requests can be relocatable. In other words, these devices does not utilized any fixed resources.

- All PCI devices and all ISA PnP devices are PnP devices.

Legacy device :

- A legacy device is a device that all its resources are fixed by hardware (or selected by jumpers).
- All ISA Non-PnP devices are legacy device.

Extended System Configuration Data (ESCD) :

- A media between the user and the system BIOS for passing the legacy devices informations. These informations are stored in the onboard NVRAM (flash ROM).

A. INTEGRATED PERIPHERALS

There are maybe a few different setup items on this screen while using different I/O chipset, the following figure is an example. For the different setup items, if you still want to know, please feel free to contact with your supplier.

ROM PCI / ISA BIOS (2A69HXXX)

INTEGRATED PERIPHERALS

AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Enabled	Onboard Parallel Port	: 378/IRQ7
IDE Primary Master PIO	: Auto	Parallel Port Mode	: SPP
IDE Primary Slave PIO	: Auto		
IDE Secondary Master PIO	: Auto		
IDE Secondary Slave PIO	: Auto		
On-Chip Primary PCI IDE	: Enabled	USB Controller	: Disabled
On-Chip Secondary PCI IDE	: Enabled		
PCI Slot IDE 2nd Channel	: Enabled		
KBC input clock	: 8 MHz		
Onboard FDD Controller	: Enabled		
Onboard Serial Port 1	: Auto		
Onboard Serial Port 2	: Auto		
Onboard IR Controller	: Disabled		

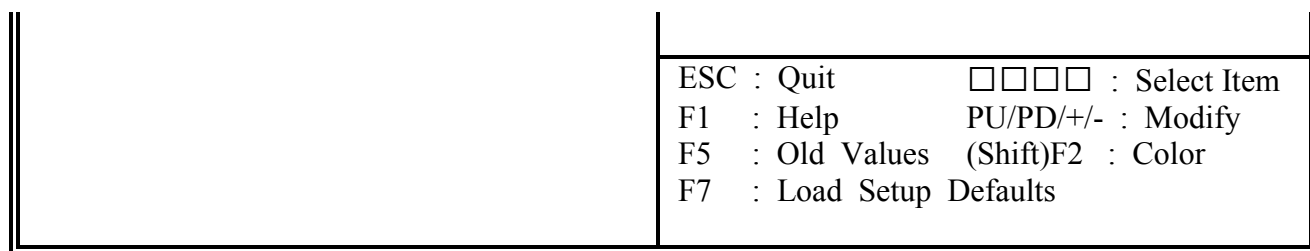


Fig. 5-8 INTEGRATED PERIPHERALS setup screen.

WARNING : *The INTEGRATED PERIPHERALS in this screen are provided so that technical professionals can modify the Chipset to suit their requirement. If you are not a technical engineer, do not use this program !*

IDE HDD Block Mode :

This feature enhances hard disk performance, making multi-sector transfers instead of one sector per transfer. Most IDE drives, except the very early designs can use this feature. Default is "Enabled".

IR Duplex Mode :

This field determines the IR port transmission mode is Half-Duplex or Full-Duplex.

Use IR Pins :

This field determines the IR module is connected to CN12 (IR-RX2TX2) or CN11 (IR-RX TX).

Parallel Port Mode :

This field determines the onboard parallel port (CN 6) function mode. Supports either Normal, EPP, ECP or ECP+EPP.

A. LOAD SETUP DEFAULTS

This option loads the SETUP default values from BIOS default table. By pressing "Enter" key, while "LOAD SETUP DEFAULTS" is highlighted, then presses "Y" and "Enter" key. the SETUP default values will be loaded. The SETUP default settings are the best-case values that should optimize system performance and increase system stability. If CMOS RAM is corrupted, the SETUP DEFAULTS settings are loaded automatically.

A. SUPERVISOR PASSWORD / USER PASSWORD

Type the Password and press "Enter", then repeat. Enters up to eight alphanumeric characters. By pressing "Enter" key twice, without any alphanumeric character enters, the PASSWORD will be disabled.

A. IDE HDD AUTO DETECTION

By pressing "Enter" key, while "IDE HDD AUTO DETECTION" is highlighted causes the system to attempt to detect the type of hard disk. If successful, then presses "Y" (or 1, 2, ...) and "Enter" key, it fills in the remaining fields on this menu and the correlated fields in the STANDARD CMOS SETUP menu.

A. HDD LOW LEVEL FORMAT

This option provides an utility program for IDE HDD Low Level Format. Performing the Hard Disk Format will destroy any data on the Hard Disk. Back up the Hard Disk(s) before actually performing of these routines.

*Note : These routines are not valid for a **SCSI** Disk Drive.*

A. SAVE & EXIT SETUP

This option saves all setup values to CMOS RAM & EXIT SETUP routine, by moving the cursor to "SAVE & EXIT SETUP" and pressing "Enter" key, then types "Y" and "Enter" key, the values will be saved, the setup program will be terminated and the system will be reboot.

A. EXIT WITHOUT SAVING

This option exits setup routine without saving any changed values to CMOS RAM, by moving the cursor to "EXIT WITHOUT SAVING" and pressing "Enter" key, then types "Y" and "Enter" key, the setup program will be terminated and the system will be reboot.