

P6FX1-B

User's Manual (for Award BIOS)

V1.0

October, 1996

This mainboard requires correct configuration information; otherwise, a malfunction may result.



Static electricity can cause serious damage to integrated circuit mainboards. To avoid building up a static electric charging on your body, be sure you discharge any static electricity by grounding yourself before handling the mainboards. If mainboards are handed from one person to another, they should touch hands first, then pass the mainboards.

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Contact your dealer for warranty details.

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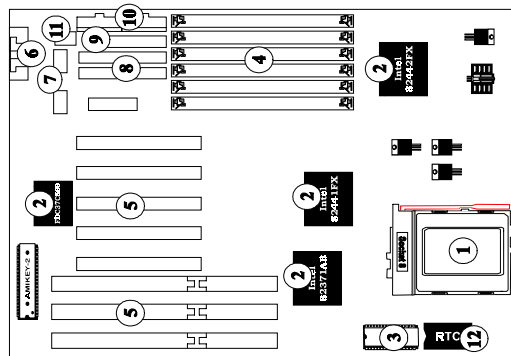
1 Introduction

Main Features

P6FX1-B is a Pentium Pro mainboard based on the Intel 440FX chipset (82441FX, 82442FX and 82371SB) and SMC 37C669 Super I/O Chip. There are three ISA Bus slots and five PCI Bus slots on P6FX1-B. Three banks (6 SIMMs) DRAM with memory size up to 384MB support fast page mode or EDO memory type. Baby AT form factor lets users install the board in a traditional PC AT chassis.

This is a high performance all-in-one mainboard which supports Intel Pentium-Pro CPU, EDO DRAM, ECC function, USB interface, PCI IDE interface.....and so on.

Mainboard Description



- | | |
|---------------------------------------|---------------------------|
| ① Processor Socket | ⑦ Serial / Parallel Ports |
| ② Chipset | ⑧ PCI IDE Connectors |
| ③ System BIOS | ⑨ FDD Connector |
| ④ SIMM System Memory Socket | ⑩ Power Supply Connector |
| ⑤ Expansion Slots | ⑪ USB Header |
| ⑥ AT K/B or PS/2 Mouse & Keyboard Set | ⑫ RTC |

Introduction

Specification

1. Processor Socket:

- One Socket 8 supports Pentium Pro 150/166/180/200 MHz CPU
- L1 16 KB, L2 256/512KB cache in Pentium Pro Processor.
- Upgrade capacity to future Pentium Pro Overdrive.

2. Chipset:

- Intel 440FX Pentium Pro Chipset.
- SMC 37C699 (PnP Super I/O Controller).

3. System BIOS:

- Award flash BIOS.
 - Ä DMI 2.0
 - Ä PnP 1.0a (comply with Intel and Windows 95)
 - Ä PCI 2.1
 - Ä CD ROM boot

4. SIMM System Memory Socket:

- 6 pieces of 72-pin SIMM sockets with memory size from 8MB to 384MB.
- Support parity or error checking and correction. (ECC function for reliability) with 36-bit SIMMs.
- Support EDO / Fast Page Mode DRAM .

5. Expansion Slots:

- 3 16-bit ISA slots with 100% ISA compatible function.
- 5 32-bit PCI slots all support PCI master.
 - Ä PCI specification version 2.1.
 - Ä CPU to PCI memory write posting with 4 Word deep buffers.
 - Ä Convert Back-to-Back sequential CPU to PCI memory writes to PCI Burst writes.
 - Ä PCI slot 4 and PCI slot 5 share the same IRQ.

Introduction

6. AT Keyboard or PS/2 Mouse & Keyboard Set:

- Provides Connectors for AT Keyboard & PS/2 mouse cable / bracket or PS/2 mouse & keyboards connector set.

7. Serial / Parallel Ports:

- One muti-mode parallel port with chip-protect circuitry supports standard, enhanced (EPP), high speed (ECP) mode.
- Two high speed 16C550 UART compatible buffer fast serial port.
- Support IrDA/ASKIR Infrared Interface.

8. PCI IDE Connector:

- Build-in Intel 82371SB chip 32-bit PCI IDE interface with 2 IDE channels.
 - ▲ Support Maximum 4 IDE devices.
 - ▲ Support PIO and Bus master IDE.
 - ▲ Support up to PIO mode 4 timings or bus master.
 - ▲ Transfer 8x32 bit buffer for Bus master IDE PCI Burst
 - ▲ Support Separate Master / Slave IDE mode.
 - ▲ Plug and Play compatible.
 - ▲ Fully compatible with PCI local bus specification V2.1.

9. FDD Connector:

- Two floppy drives support 360K/720K/1.2MB/1.44MB/2.88MB and 3 mode floppy drives.

10. Power Supply Connector:

- Provides the connectors for standard PC power supply.

11. USB Header:

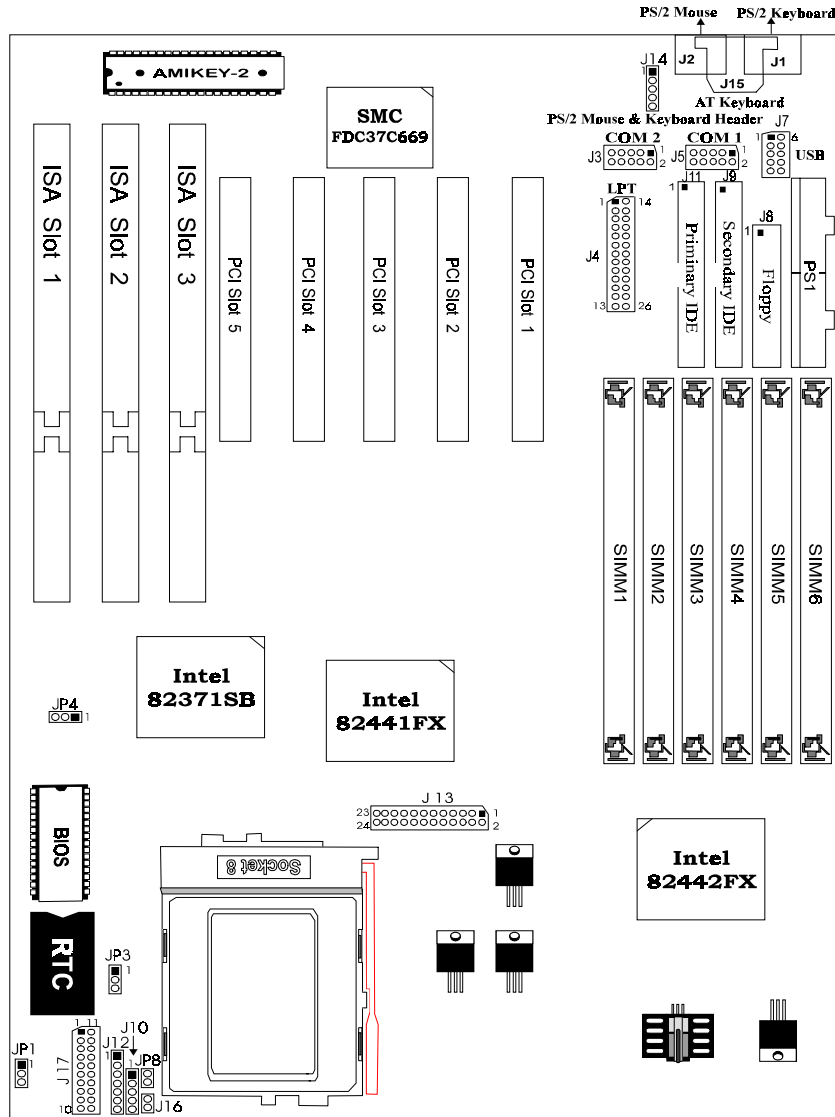
- Provides the interface for use of two USB channels.

12. RTC:

- Stores the CMOS data, Real Time Clock and built-in battery.

Introduction

Mainboard Layout



Introduction

Figure 1 -1. P6FX1-B Mainboard Layout

2 Installation

This chapter provides information on how to install and configure P6FX1-B Mainboard.

CheckList

The standard packing of P6FX1-B should include:

- P6FX1-B mainboard
- 1 IDE cable
- 1 Floppy cable
- 1 9-pin Serialportcable /bracket
- 1 9-pin Serialport& 25-pin parallelportcable /bracket
- P6FX1-B User's Manual

Optional packing of P6FX1-B includes:

PS2 cable mouse /bracket

IDE driver diskette

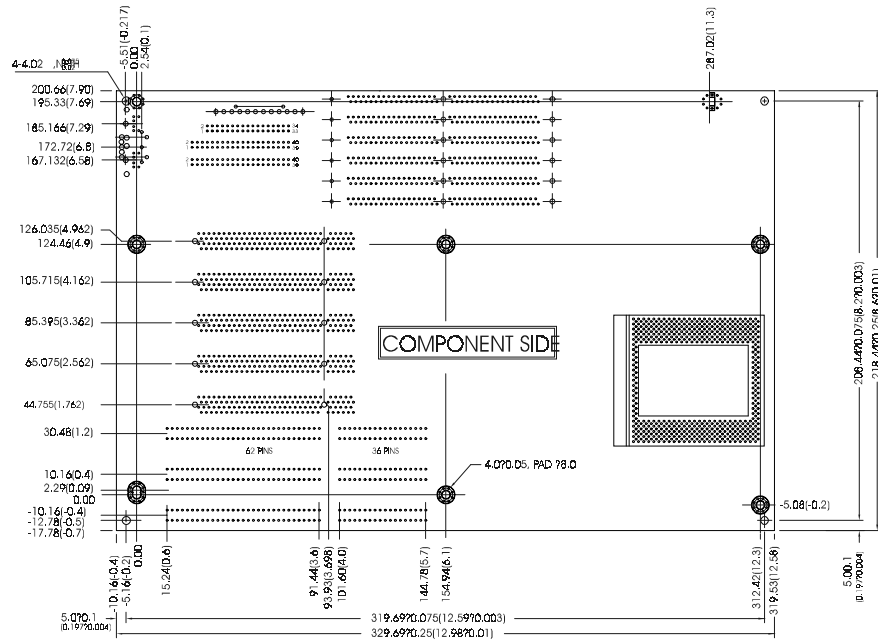
IrDA cable /bracket

USB cable /bracket

Installation

Dimensions

P6FX1-B is designed to fit standard Baby AT form factor chassis. Check the dimensions and mounting holes for special purpose of chassis only.



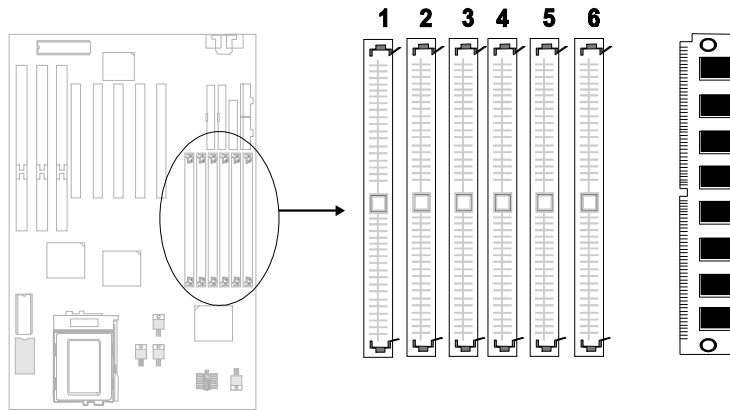
Install Main Memory

P6FX1-B provides tremendous flexibility DRAM configurations. It accepts a maximum of 384MB memory size with fast page mode or Extended Data Output (EDO) memory. The on-board DRAM is installed with 72-pin SIMM (Single-In-line-Memory Module).

P6FX1-B can support non-parity SIMMs (32-bit) or parity SIMMs (36-bit). When using parity SIMMs, enabling BIOS ECC function can give the system memory the ECC function (one bit error correction, double bit error detection)

Installation

DRAM Memory Installation:



The following table lists a number of possible DRAM combinations.

Bank 0		Bank 1		Bank 2		Total Memory Size
SIMM1	SIMM2	SIMM3	SIMM4	SIMM5	SIMM6	
64MB	64MB	64MB	64MB	64MB	64MB	Bank0+Bank1+Bank 2
32MB	32MB	32MB	32MB	32MB	32MB	The combination of memory size if from minimum 8 MB to maximum 384MB.
16MB	16MB	16MB	16MB	16MB	16MB	
8MB	8MB	8MB	8MB	8MB	8MB	
4MB	4MB	4MB	4MB	4MB	4MB	
none☆	none☆	none ☆	none☆	none☆	none☆	

Table 2 -1. P6Fx1-B Memory Configuration

☆: It means the DRAM module is not installed.



The minimum memory size is 8MB. At lease on bank of SIMMs should be installed.

Installation

How to do the Combination ?

Users can install the SIMM module on any bank according to the listing table last page. The possible combinations will make the total memory size from minimum 8 MB to maximum 384 MB.

There are a lot of kinds memory combination to choose. Please refer to the following table for the detailed combination.

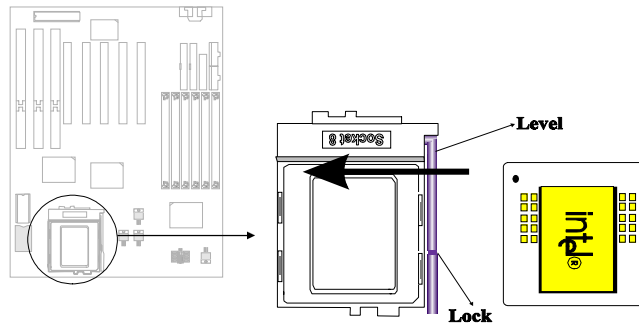
Bank 0		Bank 1		Bank 2		Total Memory Size
SIMM1	SIMM2	SIMM3	SIMM4	SIMM5	SIMM6	
4MB	4MB	None	None	None	None	8MB
8MB	8MB	4MB	4MB	None	None	24MB
16MB	16MB	None	None	4MB	4MB	40MB
64MB	64MB	64MB	64MB	64MB	64MB	384MB



64MB SIMMs are not available for testing now.

InstallCPU

P6FX1-B provides one ZIF socket 8 for installation of Pentium Pro processor. To install Pentium Pro processor, check the direction of CPU and ZIF socket, lift the level up to the top, put the CPU onto the socket, and lay down the level of socket and then lock the level of socket.



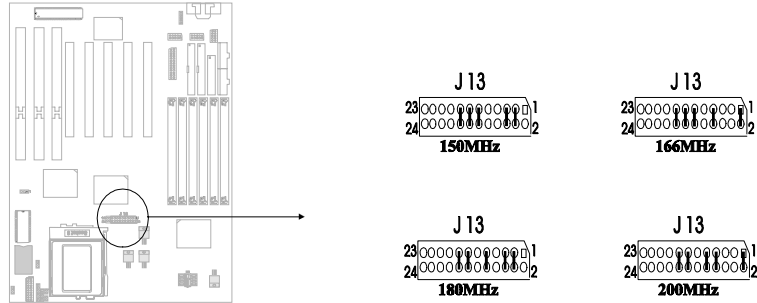
CPU Frequency and Bus frequency:

To install the CPU at its correct frequency, Please refer the following table to set up CPU frequency.

Core CPU Freq.	Host Clock	Clock Multiplier	J13 (Jumper Short)
150 MHz	60	2.5	short 3-4, short 5-6, short 11-12 short 13-14, short 15-16
166 MHz	66	2.5	short 1-2, short 7-8, short 11-12 short 13-14, short 15-16
180 MHz	60	3	short 3-4, short 5-6, short 9-10 short 13-14, short 15-16
200 MHz	66	3	short 1-2, short 7-8, short 9-10 short 13-14, short 15-16

Table 2 -2. CPU Frequency and Bus Frequency

Installation



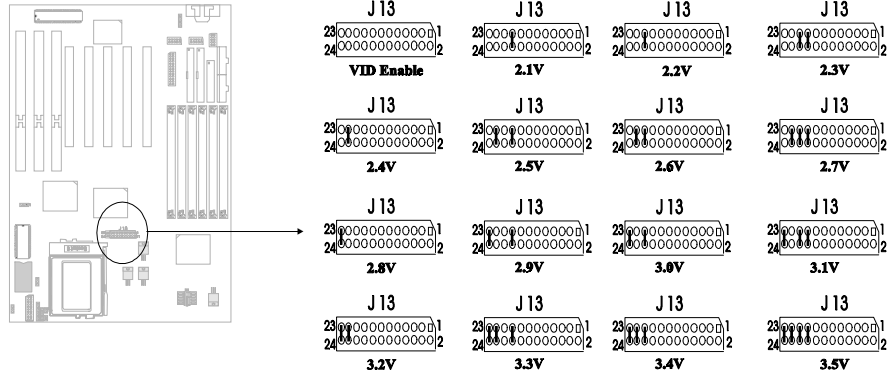
Set the Jumpers for CPU Voltage:

The Pentium Pro Processor has VID to detect the CPU core voltage automatically. Leave VID 0 ~ VID 3 open unless you have VID disabled Pentium Pro Processor.

J13	VID 0 17-18	VID 1 19-20	VID 2 21-22	VID 3 23-24
VID Enable	open	open	open	open
2.1	short	open	open	open
2.2	open	short	open	open
2.3	short	short	open	open
2.4	open	open	short	open
2.5	short	open	short	open
2.6	open	short	short	open
2.7	short	short	short	open
2.8	open	open	open	short
2.9	short	open	open	short
3.0	open	short	open	short
3.1	short	short	open	short
3.2	open	open	short	short
3.3	short	open	short	short
3.4	open	short	short	short
3.5	short	short	short	short

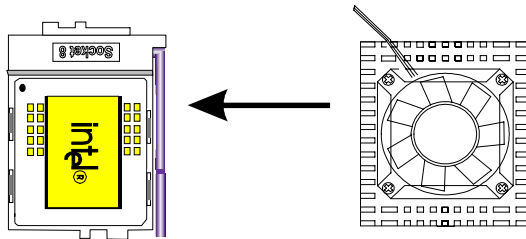
Table 2 -3. the Jumpers for CPU Voltage

Installation



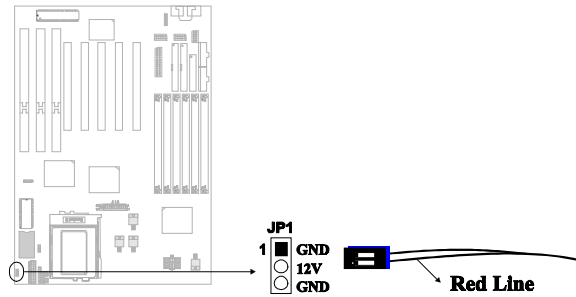
CPU Fan :

The Pentium Pro Processor needs one fan / heatsink installed on to help heat dissipation. **Do not** install Pentium Pro Processor without the fan/ heatsink.



Install Fan Power On-board:

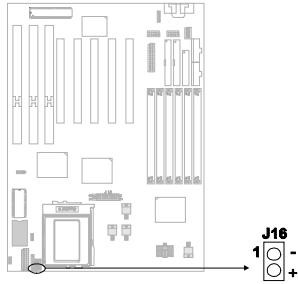
P6FX1-B provides the ability to turn the CPU cooling fan off while the system is in low-power suspend mode. If the fan has 2-pin power-cord, please connect the CPU cooling fan power to JP1 and enable “CPU Fan Power Green “ function in BIOS “Power Management Setup” in order to make it work.



Installation

Green LED: (J16)

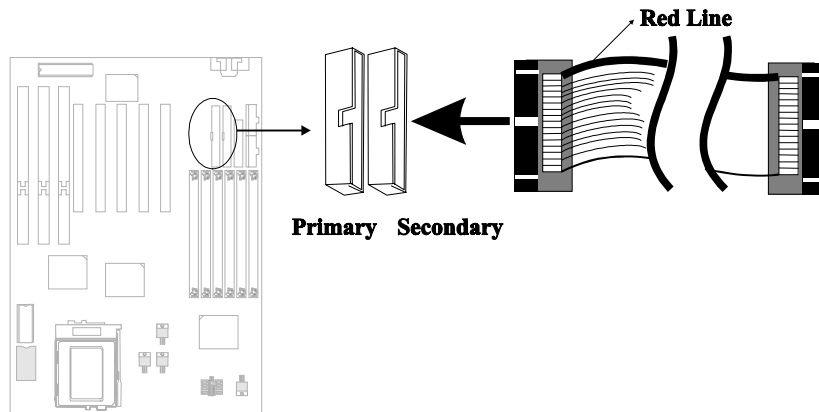
Install Green Function Indicator (Green LED) connect the front panel power LED or green LED to J16. The LED blinking indicates the system in low-power suspend mode.



InstallCables

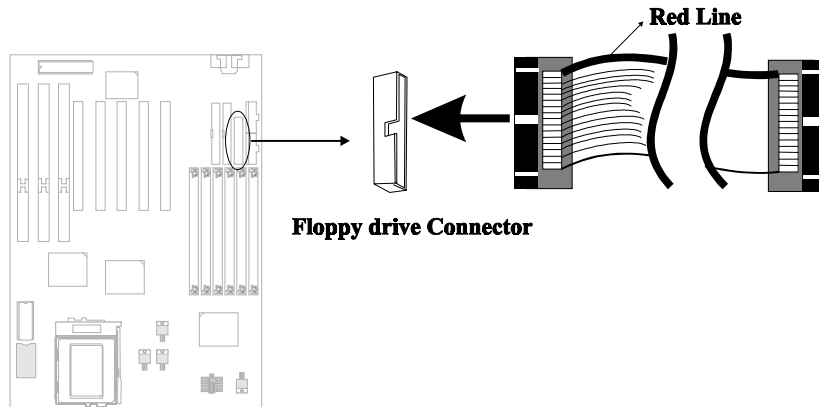
IDE Connector:

P6FX1-B provides 2 PCI IDE connectors which supports 2 ATAPI IDE devices (for example, Hard Drive and CD-ROM) on each connector. Use 40-pin IDE cable to connect IDE devices and IDE connector.



Floppy Cable:

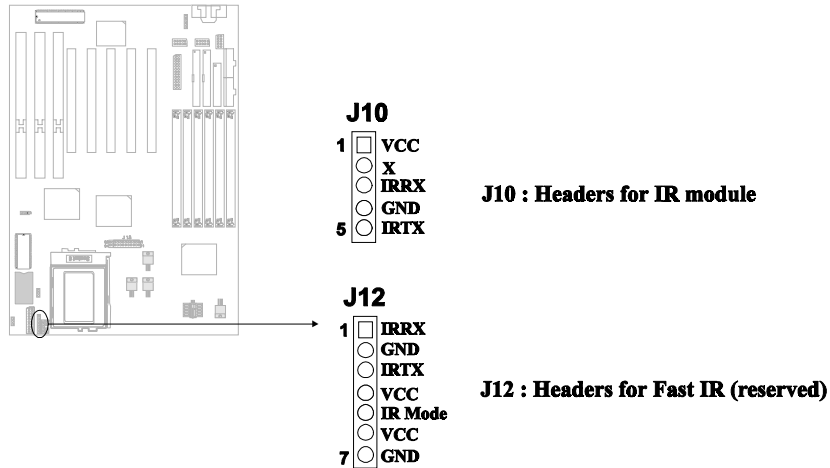
P6FX1-B provides one floppy drive connector with one 34-pin floppy cable. It can support 2 floppy drivers with type : 360KB/ 720KB/ 1.2 MB / 1.44MB or 3 mode.



Installation

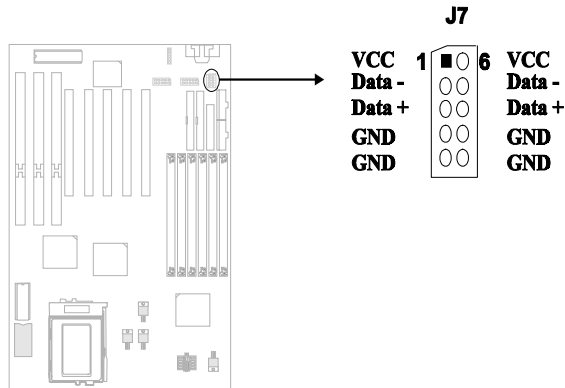
IrDA :

P6FX1-B is an IrDA-capable mainboard. It gives users IR wireless data exchange directly from mobile computers, printers and PDAs,.....etc. Optional IrDA cable/bracket provides connector with IrDA module.



USB Header:

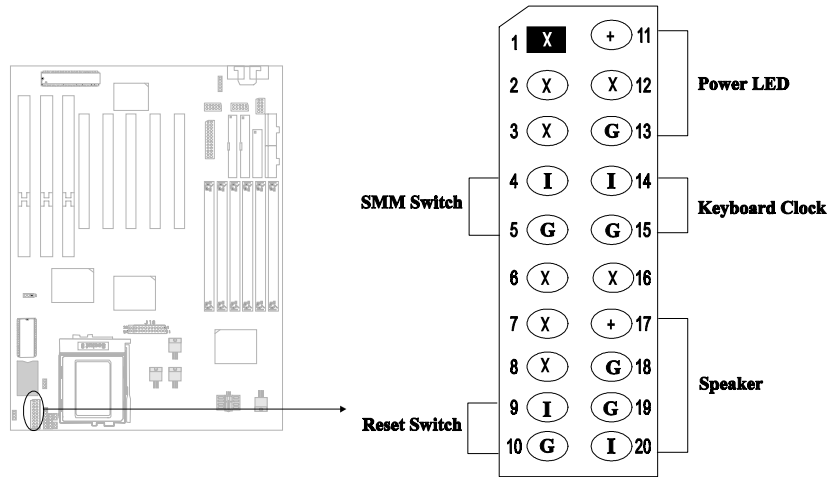
Universal Serial Bus (USB) is a new industry standard interface for ease use of PC peripheral expansion. Optional USB cable / bracket provides two USB connectors with USB devices.



Installation

20-pin Front Panel Switch Connector:

In order to help quick install front panel switch, these headers are integrated in 20-pin header set.



X : No function **G : Ground**
I : Input **+ : Vcc**

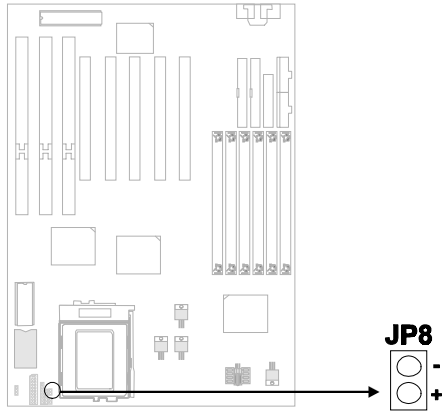
Connector	Featruer / Conect to
SMM Switch	Suspend / Resume
Reset Switch	Reset System
Keyboard Lock	Front Panel Keylock (Optional)
Speaker	Front Panel Speaker
Power LED	Front Panel Power LED

Table 2 -4. Front Panel Switch Connector

Installation

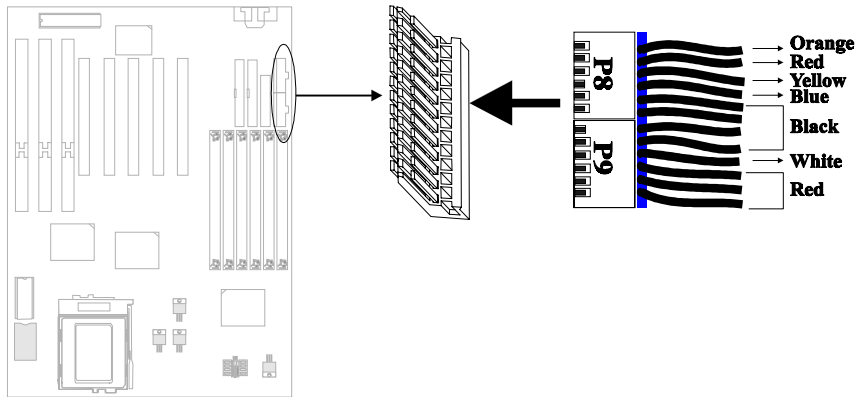
H.D.D. LED:

P6FX1-B provides one set of IDE HDD LED headers to connect the front panel HDD LED. When the IDE devices are accessed, the LED will indicate the activity.



Power Supply Connector:

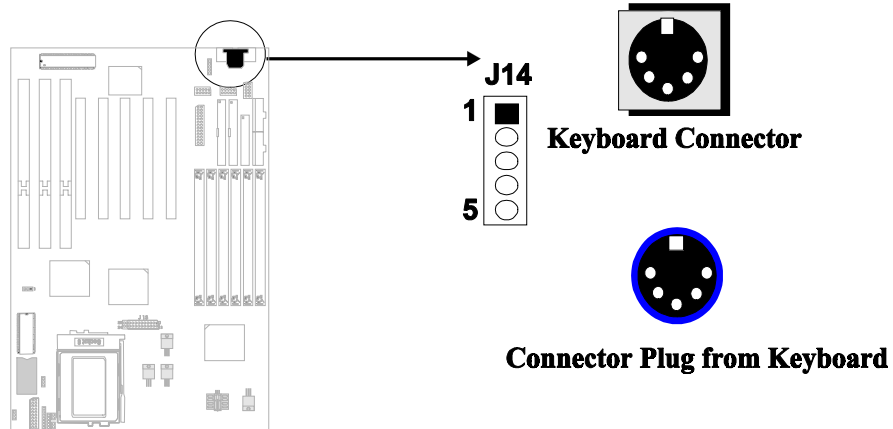
P6FX1-B provides one set of PS/2 power supply connectors. Follow the direction to install the power cable on connectors.



Installation

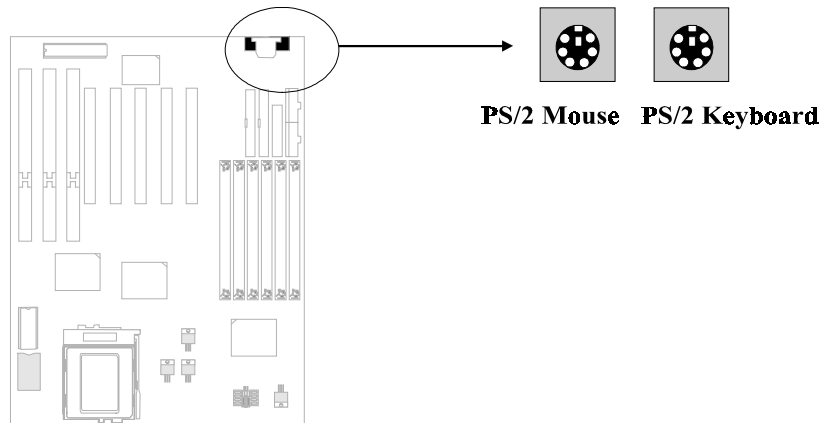
AT Keyboard Connector:

P6FX1-B provides one AT keyboard connector. Follow the direction of keyboard cable to install on keyboard connector. If users want to install PS/2 mouse, P6FX1-B provides one set of headers with PS/2 cable mouse/ bracket to install on the back panel of your chassis.



PS/2 Mouse & Keyboard Connector:

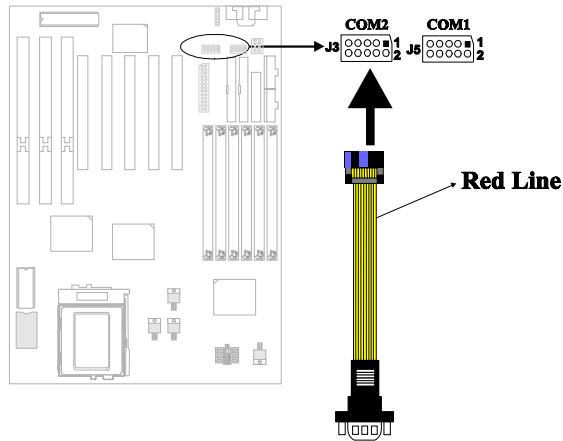
P6FX1-B provides (manufactured option) PS/2 mouse and keyboard set.



Installation

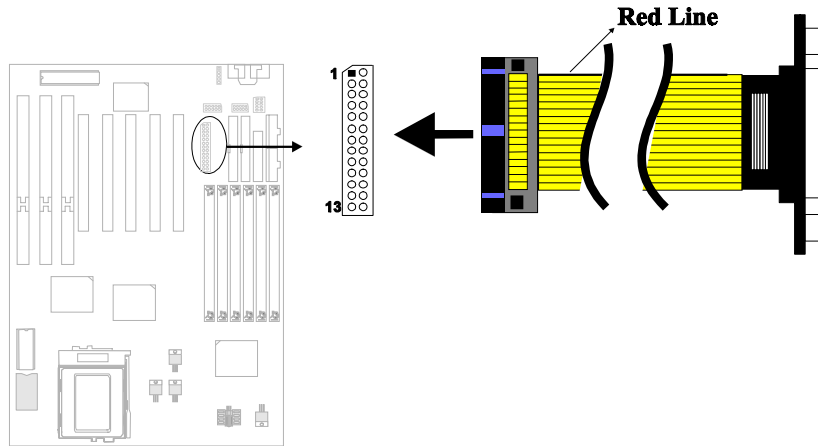
Serial Port COM1 and COM2 :

P6FX1-B provides two sets of high speed serial port heads and cables. Each serial port is 16550 UART compatible.



Parallel Port Printer Connector :

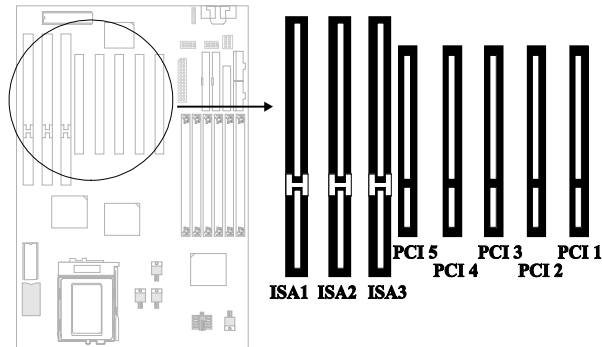
P6FX1-B provides one set of high speed parallel port headers and cable. The parallel port can support bidirection / EPP / ECP mode.



The serial port and parallel port cable are mounted on two bracket, and also can be seperated.

InstallAdd-onCard

P6FX1-B provides three ISA slots and five PCI slots. ISA 3 and PCI 5 slots are shared and can not be installed at the same time. PCI 4 and PCI 5 slots share the same IRQ.

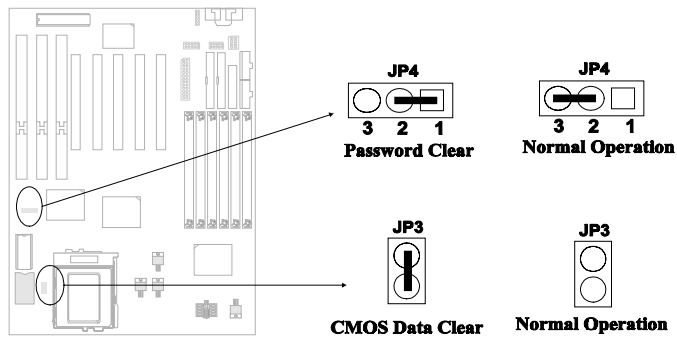


OtherJumpers

Clear CMOS (JP3) and Clear Password (JP4)

BIOS setting values and password are stored in CMOS RAM. To clear CMOS Data of your computer, please open the computer chassis; short JP3 with short jumper ; power on your system carefully; power off your system; then CMOS data will be cleared. For normal operation, please remove the short jumper from JP3 and close your computer chassis.

To clear Password of your system, please short 1-2 of JP4 at system power on stage; short 2-3 in normal stage.



Installation

Summary

Jumper Setting:

Jumper Block	Function	Configuration (Jumper short)
J13 1-2, 3-4, 5-6, 7-8, 9-10, 11-12, 13-14, 15-16	Pentium® Pro Processor Speed	<u>200MHz</u> <u>180MHz</u> <u>166MHz</u> <u>150MHz</u> ☆ 1-2 3-4 1-2 3-4 7-8 5-6 7-8 5-6 9-10 9-10 11-12 11-12 13-14 13-14 13-14 13-14 15-16 15-16 15-16 15-16
J13 17-18, 19-20, 21-22 23-24	Pentium® Pro Processor Voltage	☆ Open for CPU with VID enabled (Auto-detection for CPU Voltage)
JP3	Clear CMOS	short : Clear CMOS open : Normal Operaion ☆
JP4	Clear Password	1-2 : Clear Password 2-3 : Normal Operation☆

Table 2 -5. Jumper Settings

☆: Default configuration

Host Clock Setting:

The table below presents the detailed Jumper Settings for different CPU Clock. Users can refer to this table for the reference if you cannot find out the proper CPU type on “ **Table2-5JumperSettings** ”.

Host Clock	60 MHz	J13 short 3-4, short 5-6
	66 MHz	J13 shot 1-2, short 7-8
CPU Core Clock	Host Clock * 2	J13 shot 9-10, short 11-12, short 13-14, short 15-16
	Host Clock * 2.5	J13 short 11-12, short 13-14, short 15-16
	Host Clock * 3	J13 shot 9-10, short 13-14, short 15-16
	Host Clock * 3.5	J13 short 13-14, short 15-16
	Host Clock * 4	J13 shot 9-10, short 11-12, short 15-16

Installation

Table 2 -6. Host Clock Settings

Installation

Pentium® Pro CPU Speed Table:

The table below shows the configuration for different speeds of the Pentium® Pro Processor.

Pentium Pro	Cache Size	Host Freq. (MHz)	PCI Freq. (MHz)	ISA Freq. (MHz)
150MHz	L1 16KB, L2 256KB	60	30	7.5
166MHz	L1 16KB, L2 512KB	66	33	8.33
180MHz	L1 16KB, L2 256KB	60	30	7.5
200MHz	L1 16KB, L2 256/512KB	66	33	8.33

Table 2 -7. CPU Speed

Connector Table:

Connector	Function	Description
PS1	PS/1 12-pin Power Connector	Connect to power supply P8 and P9
JP1	CPU Fan Connector	Connect to 2 or 3-pin power cord
JP8	Hard Disk LED Connector	Connect to chassis front panel HDD indicator
J1	PS/2 Keyboard Connector (Optional)	Connect to PS/2 Keyboard
J2	PS/2 Mouse Connector (Optional)	Connect to PS/2 Mouse
J3	Serial Port Two (COM2)	Connect to serial port 2 bracket
J5	Serial Port One (COM1)	Connect to serial port 1 bracket
J7	USB Port 1 & Port 2 Connector	Connect to 2 channel of USB cable
J8	Floppy Disk Connector	Connect to one or two floppy drive
J9	Secondary Hard Disk Connector	Connect to the 2nd IDE channel for 1 or 2 IDE drives
J10	Infrared (IR) Connector	Connect to Infra-red cable/bracket

Installation

Continued.....

Installation

Connector	Function	Description
J11	Primary Hard Disk Connector	Connect to the 1st IDE channel for 1 or 2 IDE drives
J12	Fast Infrared (IR) Connector	Connect to FIR cable / bracket (reserved)
J14	5-pin Header with PS/2 Mouse	Connect to PS/2 cable mouse / bracket
J15	AT Keyboard Connector	Connect to AT Keyboard
J16	Green LED	Connect the LED to J16. The LED blinking indicates the low-power suspend mode.
J17	Front Panel Switch Connector	Connect to several purpose of front panel function of indicator

Table 2 -8. Connectors

Installation

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3 Built-in BIOS Setup Program

SETUP Program

This chapter describes the Award BIOS setup for P6FX1-B. The setup program uses a number of menus that you can specify changes to your hardware and turn the special features on or off.

To enter the BIOS setup program, users can turn on or reboot the system. Press the key when the system displays "Press DEL to enter SETUP".

The following screen will be displayed.

```

ROM PCI/ISA BIOS <<P6FX1-B>>
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

```

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
Esc : Quit	
↑ ↓ → ← : Select Item	
F10 : Save & Exit Setup (Shift)F2 : Change Color	
Time, Date, Hard Disk Type ...	

Figure 3 -1. SETUP Main Menu



The instructions at the bottom of Main Menu Screen show the items of each option.

- STANDARD CMOS SETUP** - This option allows users to check or modify the basic system configuration.
- BIOS FEATURES SETUP** - This option is used to set the various system options for the users, including the virus warning, external cache, security option, boot operations, and video BIOS shadow, etc.
- CHIPSET FEATURES SETUP** - This option allows users to control the features of chipset.
- POWER MANAGEMENT SETUP** - This option allows users to set the power saving status for reducing the power consumption.

BIOS

- PNP/PCICONFIGURATIONSETUP** - This option is used to set the various system function and internal addresses of the PCI devices. Allows users to configure system IRQ and DMA to **PCI/ISAPnP** or **LegacyISA** .
- LOADBIOSDEFAULTS** - Users can load the BIOS default values to boot the system safely.
- LOADSETUPDEFAULTS** - This option supports the better performance for the system. It is recommended to choose **SETUPDefaults** for the setup.
- INTEGRATEDPERIPHERALS-** This option allows users to decide how many kinds peripherals need to change their I/O type , mode and used or not. This options also allows user to set the various system function and onboard PCI IDE controller.
- SUPERVISORPASSWORD** - Password is required when entering and changing all of the SETUP option or booting your system. Users can change the current password stored in the CMOS by accessing this option.
- USERPASSWORD** - Password is required when booting your system and entering to change only the USER PASSWORD . Users can change the current password stored in the CMOS by accessing this option.
- IDEHDDAUTODETECTION** - This option can automatic detect the hard disk drive type(s) including the number of cylinders and heads, write pre-compensation time, read/write head landing zone, and number of sectors per track.
- SAVE&EXITSETUP** - After saving the changes what you have made in the SETUP program, then exit and reboot the system.
- EXITWITHOUTSAVING** - Abandons all previous settings, then exit and reboot the system.

After choosing an item from the SETUP main menu, move the cursor by using the ↑,↓,→,← arrow keys and press <Enter>. To modify the setting of an option, simply press the <PgUp> or <+> and the <PgDn> or <-> keys. Press the <F2> key when changing the color setting, <F1> for a context sensitive help function, and the <ESC> key when quitting SETUP.

StandardCMOSSetup

ROM PCI/ISA BIOS <<P6FX1-B>>
STANDARD CMOS SETUP
AWARD SOFTWARE, INC

Data (mm:dd:yy) : Thu, Sep 17 1996
Time (hh:mm:ss) : 17 : 58 : 42

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	: Auto	0	0	0	0	0	0	Auto
Primary Slave	: Auto	0	0	0	0	0	0	Auto
Secondary Master	: Auto	0	0	0	0	0	0	Auto
Secondary Slave	: Auto	0	0	0	0	0	0	Auto
Drive A	: 1.44M, 3.5 in.							
Drive B	: None							
Floppy 3 mode Support	: Disabled							
Video	: EGA/VGA							
Halt On	: All Errors							
		Base Memory:		640K				
		Extended Memory:		7168K				
		Other Memory:		384K				
		Total Memory:		8192K				
Esc	: Quit	↑ ↓ → ←		: Select Item		PU/PD/+/- : Modify		
F1	: Help	(Shift)F2		: Change Color				

Figure 3-2. Standard CMOS SETUP Screen

Date - Allows manual setting of the electronic calendar on the mainboard.

Time - Sets the internal clock of the system which includes hour, minutes, and seconds.

Primary Master - Specifies the physical and electronic properties of the standard hard disk drives installed. Relevant specifications include the type, number of cylinders (CYLS), heads (HEAD), write pre-compensation time (PRECOMP), read/write head landing zone (LANDZ), number of sectors per track (SECTOR), and HDD mode (MODE). Selecting "**AUTO**" in the hard disk type item avoids the necessity of loading the HDD specifications and the function of the IDE HDD Auto Detection option in the main menu. The system BIOS will automatically detect the hard drive installed on the system upon bootup.

Drive A:/B: - Specifies the capacity and format of the floppy drive installed in your system.

Floppy 3 Mode Support - If 3 mode function is enabled, Floppy Diskette is only compatible to the Floppy Diskette Format of Japan Spec. : **12MB35in.** Otherwise, it is compatible to Floppy Diskette Format of IBM PC.

Video - Specifies the display adapter installed.

Halt On - Enables the system to halt on several conditions/options. The default value is set as "**All Errors.**"

Base/Extended/Other Memory - A small section in the lower right corner of the screen displays the important information about your system which includes the base, extended, and other memory sizes. They are updated automatically by the SETUP program according to the status detected by the BIOS self-test. This section of the Standard CMOS SETUP screen is for viewing purpose only; therefore, manual modifications are not allowed.

BIOS

BIOSFeaturesSetup

ROM PCI/ISA BIOS <<P6FX1-B>>
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	: Disabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A,C	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up NumLock Status	: On	DC000-DFFFF Shadow	: Disabled
Gate A20 Option	: Fast		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled		
OS Select For DRAM > 64MB	: Non-OS2		

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

Figure 3 -3. BIOS Features Setup Screen

Virus Warning - Allows the virus warning feature for the hard disk boot sector to display a warning message and produce a beep sound whenever an attempt is made to write on the hard disk's boot sector. The default value for this option is "**Disabled**."

CPU Internal Cache - Enables the internal 16KB code/data cache of the Intel Pentium CPU when set to "**Enabled**" (default).

External Cache - Enables the on-board secondary cache (either standard non-burst or burst cache) when set to "**Enabled**" (default).

Quick Power On Self Test - Allows the power on self test to run at either a fast or a normal speed. The available options are:

- Disabled (default)
- Enabled

BIOS

Boot Sequence - Selects the drive where the system would search for the operating system to run with. The available options are:

- A,C (default)
- C,A
- C,CDROM, A
- CDROM,C,A

Swap Floppy Drive - "**Enabled**" will effectively change the A: drive to B: and the B: to A: drive. "**Disabled**" (default) sets the floppy drives in their default states.

Boot Up NumLock Status - Sets the <Num Lock> key to either on or off during system boot-up. The available options are:

- On (default)
- Off

Gate A20 Option - Boosts the performance of system with software using the 80286 protected mode such as OS/2 or UNIX. This option determines the accessibility of the extended memory. The available options are:

- Fast (default)
- Normal

Security Option - Determines whether the password will be asked for in every boot (**System**), or when entering into the SETUP program (**Setup** - default). Refer to the section entitled SUPERVISOR PASSWORD for the password setting procedure.

PCI/VGA Palette Snoop - Selects "Enabled" to solve the abnormal color in Windows while using ISA MPEG and PCI VGA card. The available options are:

- Disabled (default)
- Enabled

OS Select For DRAM > 64MB - Selects the OS if DRAM > 64MB. This option allows you to access the memory that over 64MB in OS/2. The available options are:

- Non-OS2 (default)
- OS2

Video BIOS Shadow - Enables the system shadowing and achieve the best performance of the system. The available options are:

- Enabled (default)
- Disabled

C8000-CBFFF, CC000-CFFFF, D0000-D3FFF, D4000-D7FFF, D8000-DBFFF, DC000-DFFFF Shadow - If you have a shadowing of the BIOS at any of the above segments, you may set the appropriate memory cacheable function to "**Enabled**". Otherwise, select "**Disabled**" (default).

BIOS

ChipsetFeaturesSetup

áROM PCI/ISA BIOS <<P6FX1-B>>
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	System BIOS Cacheable	: Enabled
DRAM Speed Selection	: 60ns	Video RAM Cacheable	: Disabled
DRAM RAS# Precharge Time	: 3	8 Bit U/O Recovery Time	: 1
MA Additional Wait State	: Disabled	16 Bit U/O Recovery Time	: 1
RAS# to CAS# Delay	: Disabled	Memory Hole At 15M-16M	: Disabled
DRAM Read Burst (B/E/F)	: x2/2/3	DRAM Fast Leadoff	: Disabled
DRAM Write Burst (B/E/F)	: x2/2/3		
ISA Bus Clock	: PCICLK/4		
DRAM Refresh Queue	: Enabled		
DRAM Refresh Type	: CAS b4 RAS		
DRAM ECC/PARITY Select	: Disabled		
Fast Dram Refresh	: Disabled		
Read-Around-Write	: Enabled		
PCI Burst Write Combine	: Enabled		
PCI-To-DRAM Pipeline	: Enabled		
CPU-To-PCI Write Post	: Enabled		
CPU-To-PCI IDE Posting	: Enabled		

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

Figure 3 -4. Chipset Features Setup Screen

Auto Configuration - Loads the default values, if “Enabled”, for the DRAM and cache options. Otherwise, “Disabled” allows you to program each option as required. The available options are:

- Enabled (default)
- Disabled

DRAM Speed Selection - Configures the DRAM read/write timing for the maximum performance. The available options are:

- 60ns (default)
- 70ns

DRAM RAS# Precharge Time - Selects RAS# precharge time for DRAM access. The available options are:

- 3 (default)
- 4

MA Additional Wait State - One additional wait state is inserted before the assertion of the first Maxx and CAS#/RAS# assertion during DRAM read or write leadoff cycles. The available options are:

- Disabled (default)
- Enabled

RAS# To CAS# Delay - Allows 1 clock delay or none between assertion of RAS# and CAS#. The available options are:

- Disabled (default)
- Enabled

DRAM Read Burst Timing <B/E/F> - Controls DRAM Read Burst Timings. If users set the option to x2/2/3, the Burst Read Timings of **B**EDO, **E**DO and **F**PM DRAM respectively are x222, x222, and x333. The available options are:

- x2/2/3 (default)
- x1/2/3
- x2/3/4
- x3/4/4

DRAM Write Burst Timing <B/E/F> -Controls DRAM Write Burst Timings. The available options are:

- x2/2/3 (default)
- x3/3/4
- x3/3/3
- x4/4/4

ISA Clock - ISA clock divide by 4 or 3 depending on PCI bus clock. Users can refer to the formula for clear figure. (**ISAClock=PCIClock/3orISAClock=PCIClock/4**). The available options are:

- PCICLK/4 (default)
- PCICLK/3

DRAM Refresh Queue - If DRAM is set to “Enabled”, the internal 4 deep refresh queue is enable for adjusting the DRAM refresh rate. The available options are:

- Enabled (default)
- Disabled

DRAM Refresh Type -If you choose “RAS only”, the DRAM refresh type is RAS only; If you choose “CAS b4 RAS”, the DRAM refresh type is CAS-before-RAS. The available options are:

- CAS b4 RAS (default)
- RAS only

DRAM ECC/PARITY Select - Allows user configure the DRAM error check method is ECC or Parity check . The available options are:

- Enabled (default)
- Disabled

Fast DRAM Refresh - The fast refresh mode implements a refresh cycle every 32 host clocks. The available options are:

- Disabled (default)
- Enabled

Read -Around-Write - When the option is disabled, all posed writes in the DBX are retired before a CPU or PCI read access is serviced. The available options are:

- Enabled (default)
- Disabled

BIOS

PCI Burst Write Combine - If this option is set as enabled, DBX is allowed to combine back-to-back sequential CPU to PCI Writes into a single PCI Write Burst. The available options are:

- Enabled (default)
- Disabled

PCI-To-DRAM Pipeline - Restricts pipelining of PCI to DRAM Write cycles when this option is set as disabled. The available options are:

- Enabled (default)
- Disabled

CPU-To-PCI Write Post - Enables the CPU to PCI posting. The available options are :

- Enabled (default)
- Disabled

CPU-To-PCI IDE Post - When this option is set as disabled, the cycles are treated as normal I/O write transactions. The available options are :

- Enabled (default)
- Disabled

System BIOS Cacheable - Allows shadowing of the system BIOS and improves the system performance. The available options are:

- Enabled (default)
- Disabled

Video RAM Cacheable - Sets the mode of the system's video BIOS shadowing mode. The available options are:

- Disabled (default)
- Enabled

8 Bit I/O Recovery Time - Defines the 8-bit I/O recovery time with one of the following system clock options. The available options are:

- 1 (default)
- 2/3/4/5/6/7/8/NA

16 Bit I/O Recovery Time - Defines the 16-bit I/O recovery time with one of the following system clock options. The available options are:

- 1 (default)
- 2/3/4/NA

Memory Hole At 15M-16M - Enables this option to reserve the certain space in memory for ISA cards. The available options are:

- Disabled (default)
- Enabled

DRAM Fast Leadoff - Reserves for performance enhancement. The available options are:

- Disabled (default)
- Enabled

PowerManagementSetup

ROM PCI/ISA BIOS <<P6FX1-B>>
Power MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	: Disabled	** Power Down & Resume Events **
PM Control by APM	: Yes	IRQ3 (COM 2) : ON
Video Off Method	: DPMS	IRQ4 (COM 1) : ON
MODEM Use IRQ	: NA	IRQ5 (LPT 2) : ON
Doze Mode	: Disabled	IRQ6 (Floppy Disk) : ON
Standby Mode	: Disabled	IRQ7 (LPT 1) : ON
Suspend Mode	: Disabled	IRQ8 (RTC Alarm) : OFF
HDD Power Down	: Disabled	IRQ9 (IRQ2 Redir) : ON
**Wake Up Events In Doze & Standby **		IRQ10 (Reserved) : ON
IRQ3 (Wake-Up Event)	: ON	IRQ11 (Reserved) : ON
IRQ4 (Wake-Up Event)	: ON	IRQ12 (PS/2 Mouse) : ON
IRQ8 (Wake-Up Event)	: OFF	IRQ13 (Coprocesor) : ON
IRQ12 (Wake-Up Event)	: ON	IRQ14 (Hard Disk) : ON
		IRQ15 (Reserved) : ON
		ESC : Quit ↑↓←→: Select Item
		F1 : Help PU/PD/+/- : Modify
		F5 : Old Values (Shift)F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

Figure 3 -5. Power Management Setup Screen

Power management - Allows users determine how often the Power management activating . The available options are:

- Disable (default)
- Min Saving
- Max Saving
- User Define

PM Control by APM - Sets the power management (PM) control by the APM. The available options are:

- Yes (default)
- No

Video Off Method - Sets the video power green method . The available options are:

- DPMS (default)
- Blank Screen
- V/H SYNC+Blank

MODEM Use IRQ - In order to support resume on ring and to pass APM 1.2, this option is required to be set same IRQ as the modem add-in-card used. The available options are:

- NA (default)
- 3/4/5/7/9/10/11

Doze Mode - Sets the time interval after system inactivity when the system enters DOZE mode. The available options are:

- Disabled (default)
- 1/2/4/6/8/10/20/30/40 Min
- 1 Hour

Standby Mode - Sets the timer interval after system inactivity when the system enters STANDBY mode. The available options are:

- Disabled (default)
- 1 Hour

BIOS

- 1/2/4/6/8/10/20/30/40 Min

Suspend Mode -Sets the time interval after system inactivity when the system enters SUSPEND mode. The available options are:

- Disabled (default)
- 1 Hour
- 1/2/4/6/8/10/20/30/40 Min

HDD Power Down - Sets the time to power down HDD is standby mode. The available options are:

- Disabled (default)
- 1....15 Min

Wake Up Events In Doze & Standby

IRQ 3/4/8/12 (Wake-Up Event) - Sets the wake-up event to “**ON**” or “**OFF**” while system enters the suspend mode.

Power Down & Resume Events

Power Down Activities - The manual also lists the Power Management SETUP (PM) events by which the system wakes up from STANDBY or SUSPEND modes. Switch the following parameters to “**ON**” or “**OFF**”:

- COM Ports Accessed
- LPT Ports Accessed
- Drive Ports Accessed
- IRQ3 (COM2)
- IRQ4 (COM1)
- IRQ5 (LPT2)
- IRQ6 (Floppy Disk)
- IRQ7 (LPT 1)
- IRQ8 (RTC Alarm)
- IRQ9 (IRQ2 Redir)
- IRQ10 (Reserved)
- IRQ11 (Reserved)
- IRQ12 (PS/2 Mouse)
- IRQ13 (Coprocessor)
- IRQ14 (Hard Disk)
- IRQ15 (Reserved)

PNP/PCICONFIGURATIONSetup

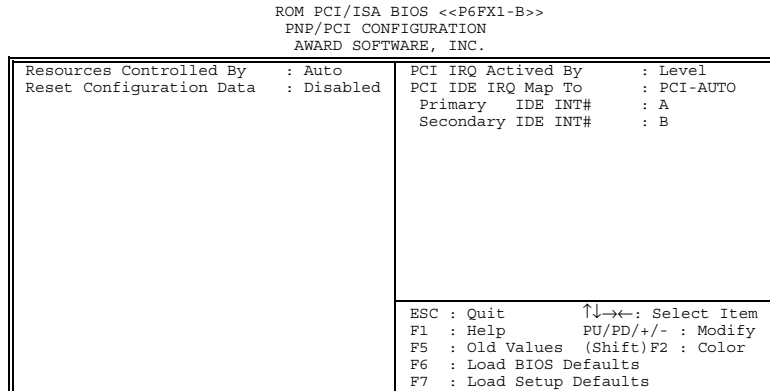


Figure 3 -6. PNP/PCI CONFIGURATION SETUP Screen

Resources Controlled By - Allows user what kind IRQs assignment to be used .
 “Manual” or “Automatic” definition . The available options are:

- Auto (default)
- Manual



The default of “Resources Controlled By” is Auto. If users set Manual option for the setting, “IRQ-3 / IRQ-4 / IRQ-5 / IRQ-7 / IRQ-9 / IRQ-10 / IRQ-11 / IRQ-12 / IRQ-14 / IRQ-15 / DMA-0 / DMA-1 / DMA-3 / DMA-5 / DMA-6 / DMA-7 assigned to” options below will be shown on the screen.

Reset Configuration Data - Determines whether store in ESCD data want to clear .
 This is a one shot switch . The available options are:

- Enabled (default)
- Disabled

IRQ-3 / IRQ-4 / IRQ-5 / IRQ-7 / IRQ-9 / IRQ-10 / IRQ-11 / IRQ-12 / IRQ-14 /
 IRQ-15 / DMA-0 / DMA-1 / DMA-3 / DMA-5 / DMA-6 / DMA-7 assigned to -
 Users can select resources controlled by “manual” method to fix legacy ISA card
 IRQ & DMA in Plug & Play problem . Legacy card has the highest priority to use
 someone IRQ# & DMA# which one assigned by manual . The available options
 are:

- Legacy ISA (default of IRQ-3 / IRQ-4 / IRQ-7 / IRQ-14 / IRQ-15 assigned to)
- PCI/ISA PnP (default of IRQ-5 / IRQ-9 / IRQ-10 / IRQ-11 / IRQ-12 / DMA-0 /
 DMA-1 / DMA-3 / DMA-5 / DMA-6 / DMA-7 assigned to)

PCI IRQ Activated By - Programs the PCI IRQ to single edge or logic level.
 Level/Edge sensitivity is programmed per controller. Every IRQ input for a given
 bank is either “EDGE” or “LEVEL” (default) triggered.

BIOS

PCI IDE IRQ Map To - Defines the IDE IRQ Routing either from the PCI Bus or the ISA Bus. The available options are:

- PCI-AUTO (default)
- PCI-SLOT 1
- PCI-SLOT 3
- ISA
- PCI-SLOT 2
- PCI-SLOT 4



If user sets this option to "ISA", both the "Primary IDE INT#" and "Secondary IDE INT#" options below will not be shown on the screen.

Primary/Secondary IDE INT# - Defines the primary/secondary IDE INT# of the PCI IDE card. The available options are:

- A (default of Primary IDE INT#)
- C
- B (default of Secondary IDE INT#)
- D



This option may not be able to configure all the values within the SETUP program according to the installed equipments (i.e., floppy drives A: & B:, hard disk drives C: & D:).

LoadBIOSDefaults

In the event of a loss in memory on the configuration SETUP, the user can restore the information on the BIOS by loading its default values. Loading the BIOS defaults provides safe booting of the system.

LoadSetupDefaults

SETUP defaults are considered default values with which the system will be enabled to perform better. This is due to the enabling of some options within the SETUP program. However, if problems are encountered after loading the SETUP defaults, reboot the system and load the BIOS defaults instead.

INTEGRATED PERIPHERALS

ROM PCI/ISA BIOS <<P6FX1-B>>
 INTEGRATED PERIPHERALS
 AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Enabled	USB Controller	: Disabled
IDE Primary Master PIO	: Auto		
IDE Primary Slave PIO	: Auto		
IDE Secondary Master PIO	: Auto		
IDE Secondary Slave PIO	: Auto		
On-Chip Primary PCI IDE	: Enabled		
On-Chip Secondary PCI IDE	: Enabled		
PCI Slot IDE 2nd Channel	: Enabled		
Onboard FDD Controller	: Enabled		
Onboard Serial Port 1	: 3F8/IRQ4		
Onboard Serial Port 2	: 2F8/IRQ3		
UART 2 Mode	: Standard		
Onboard Parallel Port	: 378H/IRQ7		
Parallel Mode	: Normal		
		ESC : Quit	↑↓←→ : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values (Shift)	F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Figure 3 -7. PNP CONFIGURATION SETUP Screen

IDE HDD Block Mode - Determines whether block transfer mode want to use or not . The available options are:

- Enabled (default)
- Disabled

IDE Primary/Secondary Master/ Slave PIO - Sets the advanced hard disk PIO transfer mode which effects your hard disk transfer rate. The program will auto detect the mode of this option you select “*Auto*”. Otherwise, you must set this option by yourself. The available options are:

- Auto (default)
- Mode 0
- Mode 1
- Mode 2
- Mode 3
- Mode 4

On-Chip Primary/Secondary PCI IDE - Enables or Disables the primary/secondary PCI IDE of Intel IDE controller. Selecting “*Disabled*” can release IRQ14.

- Enabled (default)
- Disabled

PCI Slot IDE 2nd Channel - *Enables* or *Disables* the second IDE channel of PCI slot if users use the PCI IDE card on board. The available options are:

- Enabled (default)
- Disabled

BIOS

Onboard FDD Controller - Enables or Disables the FDD controller or on-board I/O chip. The available options are:

- Enabled (default)
- Disabled

Onboard Serial Port 1/2 - Sets the I/O address for serial port 1/2.

- 3F8/IRQ4 (default of Onboard serial Port 1)
- 2F8/IRQ3 (default of Onboard serial Port 2)
- 3E8/IRQ4
- 2E8/IRQ3
- Disabled

UART 2 Mode - Determines which type IR module want to use . The available options are:

- Standard (default)
- ASKIR
- HPSIR



If users set this option to "Standard", the "IR Duplex Mode" option below will not be shown on the screen.

IR Duplex Mode - Allows users to control the infrared communication duplex mode. The available options are:

- Half (default)
- Full

Onboard Parallel Port - Sets the I/O address for the parallel port. The available options are:

- 3BC/IRQ7 (default)
- Disabled
- 278/IRQ5
- 378/IRQ7



If users set this option to "Disabled", the "Onboard Parallel Mode" option below will not be shown on the screen.

Parallel Mode - Selects the working mode of parallel port. The available options are:

- Normal (default)
- ECP+EPP
- EPP
- ECP



1. *If users set this option to "Normal", the "ECP Mode Use DMA" and "Parallel Port EPP Type" options below will not be shown on the screen.*
2. *If users set this option to "EPP", the "ECP Mode Use DMA" option below will not be shown on the screen.*
3. *If Users set this option to "ECP", the "Parallel Port EPP Type" option will not be shown on the screen.*

ECP Mode Use DMA - Selects the DMA channel of ECP Mode to transfer your data. The available options are:

- 3 (default)
- 1

Parallel Port EPP Type - Determines what version EPP protocol support . The available options are:

- EPP1.7 (default)
- EPP1.9

USB Controller - Enables or Disables the USB function of Intel on-board chip. The available options are:

- Disabled (default)
- Enabled

SUPERVISORPASSWORD

The SUPERVISOR PASSWORD utility allows you to set, change, and disable the password which is stored in the BIOS. To change the password setting, press <Enter> on the SUPERVISOR PASSWORD option of the main menu and then type the new password.

Configure the Security Option within the BIOS Features Setup corresponding to the setting in this utility. SUPERVISOR PASSWORD access right hither than USER PASSWORD .

The password can be at most 8 characters long. The program will require you to confirm the new password before it exits and will enable the utility. To disable the SUPERVISOR PASSWORD, press the <F1> when the program asks you to enter the new password.

USERPASSWORD

USER PASSWORD only can be used when the system is booting . Users only can enter SETUP screen to change the USER PASSWORD.

The password can be at most 8 characters long. The program will require you to confirm the new password before it exits and enables the utility. To disable the USER PASSWORD, press the <F1> as the program asks you to enter the new password.

IDEHDDAutoDetection

The IDE HDD Auto Detection provides auto configuration of the hard drive installed in the system. It supports LBA, Large, and Normal modes. If the system's hard disk drive has a capacity of over 528MB and supports LBA functions, you may enable either the LBA mode or the Large mode. On the other hand, if the hard disk

BIOS

drive's capacity is over 528MB but does support LBA functions, you may enable the Large mode in order to use over 528MB.



- a. The LBA and Large modes will only appear on the screen when the installed hard disk drive is specified to support the LBA mode.
- b. In the case when a hard disk drive's cylinder specification exceeds 1024, and does not support the LBA functions, only the Large mode will be displayed on the screen.
- c. With a hard disk drive supporting cylinders below 1024, only the Normal mode will appear on the screen. The Normal mode will also be shown on the screen under conditions a & b above.
- d. Hard disk drives with less than 528MB total capacity must be set to Normal mode when combined with either old BIOS versions or the Award BIOS.



LBA and Large modes are new specifications which may not be fully supported by all operating systems. An example of which is the current version of UNIX System (R3.2.4) which is still unable to support the LBA function. Therefore, determine the specifications of your hard disk drive and operating system before selecting the drive's mode.

After pressing the <Enter> key on this item of the main menu, the display screen will show the following screen.

```
ROM PCI/ISA BIOS <<P6FX1-B>>
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

HARD DISKS      TYPE  SIZE  CYLS HEAD PRECOMP LANDZ SECTOR  MODE
-----
Primary Master :

          Select Primary Master  Option (N=Skip) : N
  OPTIONS  SIZE  CYLS HEAD PRECOMP LANDZ SECTOR  MODE
  -----
    1       0    0  0  0    0    0    0  NORMAL

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

Figure 3 -8. IDE HDD Auto Detection Screen

Once the program detects the type of hard disk installed, it will display the relative information such as the type, cylinders, heads, write pre-compensation, landing zone, number of sectors per track, size and mode. A message asking you to accept the IDE HDD detected will also be flashed on the screen.

QuittingSETUP

After making all modifications in the SETUP program, go to the option "Save & Exit SETUP" then press the <Enter> key. The program will display the following screen.

Press <Y> to confirm the changes made, and the <N> or the <ESC> keys if further modifications are still necessary before exiting the SETUP program. Once the <Y> key is pressed, the system will automatically exit the program and reboot. However, if you want to cancel all changes made under the SETUP program, go to the option "Exit Without Saving".

Press <Y> and the system will exit the SETUP program then reboot without saving any of the changes made.



You may also use the <F10> key to save the new settings.