

P/I-P6RP4

*PCI/ISA/MediaBus, 150/166 /180/200
Pentium® Pro Processor Mainboard
With Super Multi-I/O*




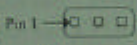


III. INSTALLATION

Installation Procedures

1. Set Jumpers on the Motherboard
2. Install DRAM Modules
3. Install the CPU and VRM
4. Install Expansion Cards
5. Connect External Cables and Wires
6. Setup the BIOS Software

1. Jumpers

Several hardware settings are made through the use of jumper **caps** to connect jumper **pins** (JP) on the motherboard. (Please see the motherboard diagram for locations of the jumpers.) The jumpers settings will be described numerically such as [---], [1-2], [2-3] for no connection, connect pins 1 & 2, and connect pins 2 & 3 respectively. Pin 1 for our motherboards is always on

top  or on the left  when holding the motherboard with the keyboard connector away from yourself. The jumpers will also be shown graphically such as  to connect pins 1 & 2 and  to connect pins 2 & 3. For manufacturing simplicity, the jumpers may be sharing pins from other groups. Use the diagrams in this manual instead of following the pin layout on the board.

Settings with two jumper numbers require two jumper caps to be moved together. Settings in **bold face** represent default settings. To connect the pins, simply place a plastic jumper cap over the two pins as needed. Jumper pins without connection numbers are external connectors for LEDs or switches, not for jumper caps.

CAUTION: Computer motherboards and components contain very delicate IC chips. To protect the motherboard and other components against damage from static electric, you should follow some precautions whenever you work on your computer:

1. Unplug your computer when working on the inside.
2. Hold components by the edges and try not to touch the IC chips.
3. Use a grounded wrist strap before handling computer components.
4. Place components on a grounded antistatic pad or the bag that came with the component whenever you work on them outside the computer.

III. INSTALLATION

Jumper Settings

1. PS/2 Mouse

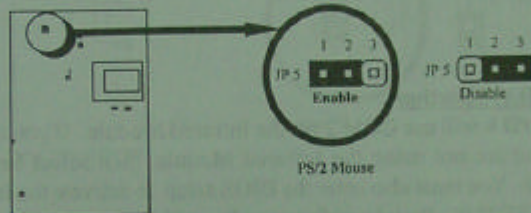
* This is enabled for a PS/2 mouse (see map for location) on IRQ 12.
You need to purchase an adapter to connect your PS/2 mouse to the motherboard. Disable this jumper if you need IRQ 12 and are not planning to use a PS/2 mouse.

Selections

Enable
Disable

JP5

[1-2] (Default)
[2-3]



2. The following is for Legacy (non PnP) PCI Cards

* If you use a Plug & Play compliant card, then use the default of auto interrupt routing. If you are not using a Plug & Play compliant card, you must manually choose either IRQ 14 or IRQ 15 for your card.

PCIINT

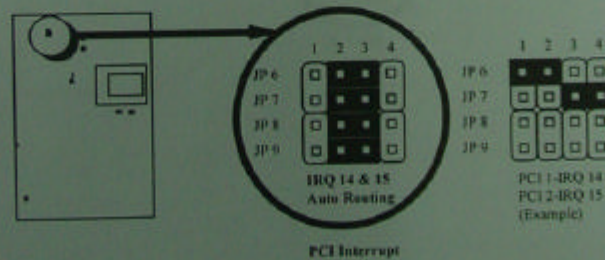
PCI 1
PCI 2
PCI 3
PCI 4

IRQ 14

JP6 [1-2]
JP6 [3-4]
JP8 [1-2]
JP8 [3-4]
JP6&8 [2-3]

IRQ 15

JP7 [1-2]
JP7 [3-4]
JP9 [1-2]
JP9 [3-4]
JP7&9 [2-3] (Def)



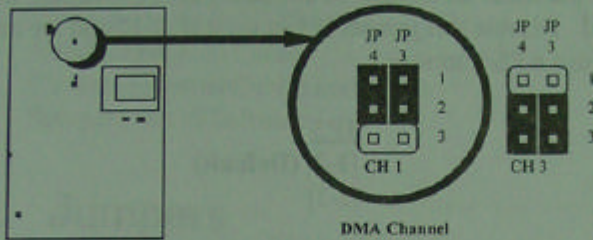
III. INSTALLATION

3. ECP DMA Channel

DMA Channel 1
DMA Channel 3

JP3,JP4

[1-2] (No Default)
[2-3] (No Default)



4. Infrared (IrDA) Selection

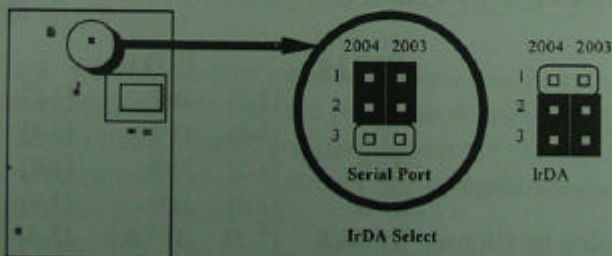
* Choosing IrDA will use COM 2 for the Infrared Module. If you need COM 2 and are not using the Infrared Module, then select **Serial Port**. Note: You must also enter the BIOS setup to activate the IrDA (See BIOS SETUP - Peripheral Setup on Page 35)

Selections

Serial Port
IrDA

JP2003, JP2004

[1-2] (Default)
[2-3]



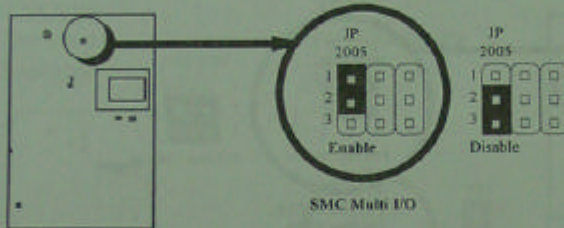
III. INSTALLATION

5. **SMC Multi I/O Selection**

* If you wish to use your own Multi-I/O expansion card, you can disable the on-board Multi-I/O (floppy, serial, parallel, and IrDA controller) by choosing **Disable**.

Selections
Enable
Disable

JP2005
[1-2] (Default)
[2-3]

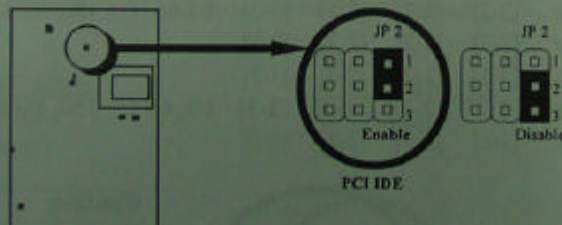


6. **On-Board PCI IDE**

* Enable this in order to use the on-board IDE controller. If you wish to use your own IDE controller, then choose **Disable**.

Selections
Enable
Disable

JP2
[1-2] (Default)
[2-3]



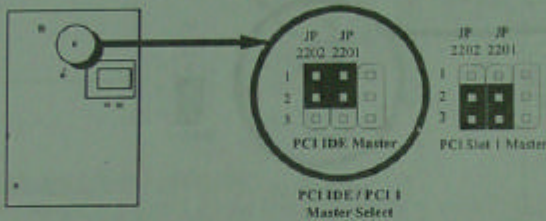
III. Installation
(Jumpers)

III. INSTALLATION

7. PCI Slot & PCI IDE (Slave/Master)

* PCI Slot 1's request and grant is in use by the on-board IDE controller, therefore only slots 2, 3, and 4 can be used as masters. To use PCI Slot 1 as master, you need to set the PCI IDE as SLAVE as shown.

Master	Slave	JP2201 & 2202
PCIIDE	PCI Slot 1	[1-2] (Default)
PCISlot 1	PCIIDE	[2-3]

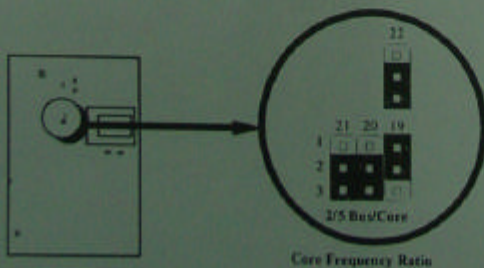


III. Installation (jumpers)

8. Core Frequency Ratio Configuration

* The BUS must be a fraction that is less than 66MHz of the CPU Core speed. Follow the table to determine what Ratio to select. The BUS frequency is controlled by the oscillator (between the two voltage regulators marked OSC1). The oscillator can be changed by a licensed vendor only.

Ratio	JP19	JP20	JP21	JP22	BUS :	CPU (Core)
1:2 BUS:Core	[2-3]	[2-3]	[2-3]	[2-3]	60, 66	: 120, 133MHz
1:3 BUS:Core	[2-3]	[2-3]	[2-3]	[1-2]	60, 66	: 180, 200MHz
1:4 BUS:Core	[2-3]	[1-2]	[2-3]	[2-3]		
1:5 BUS:Core	[2-3]	[1-2]	[2-3]	[1-2]		
2:5 BUS:Core	[1-2]	[2-3]	[2-3]	[2-3]	60, 66	: 150, 166MHz
2:7 BUS:Core	[1-2]	[2-3]	[2-3]	[1-2]		



Caution:

If you set these jumper incorrectly, you can damage the CPU.

III. INSTALLATION

9. CMOSRAM

* Discharge clears the user-entered information stored in the CMOS RAM Data such as hard disk information and passwords. Simply connect a jumper cap over JP23 for a few seconds then remove. **Make sure that your computer is turned off.** You must enter the BIOS setup (by holding down during power-up) after this is done to re-enter BIOS information (see BIOS SETUP).

Selections

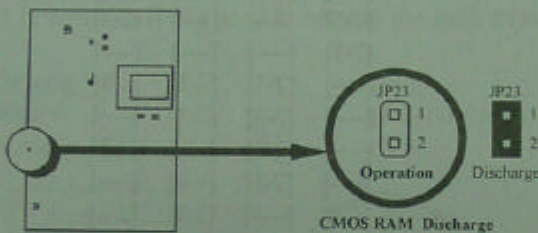
Operation

Discharge

JP23

[—] (Default)

[1-2]



Note: Some Dallas chips require that you (1) Connect JP23, (2) Power on, (3) Power off, (4) Remove JP23, (5) Power on, (6) Setup BIOS (hold down)

10. Voltage Identification Pull High

* The Voltage Regulator Module (VRM) may require a Pull High Lead depending on the manufacturer. The current VRM for this board is made by VXI and does not require this lead.

Pull High

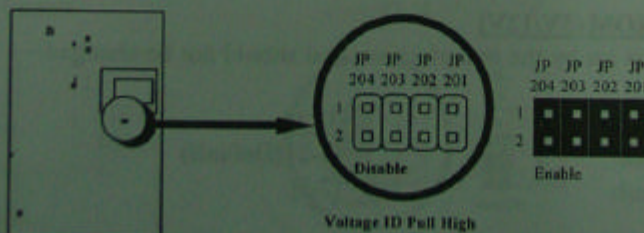
Disable

Enable

JP201, 202, 203, 204

[—] (Default)

[1-2]



Caution:

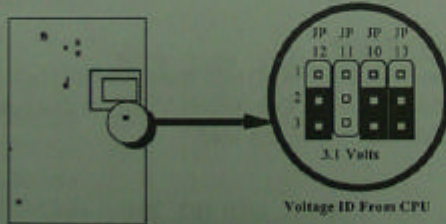
If you set these jumper incorrectly, you can damage the CPU.

III. INSTALLATION

11. Voltage ID From CPU

* CPUs may use different voltages but will be identified by the CPU (called VID support). When this CPU (marked Pentium Pro) is used, set JP12, 11, 10, 13 to all [1-2].

<u>Voltage</u>	<u>JP12</u>	<u>JP11</u>	<u>JP10</u>	<u>JP13</u>
3.5V	[2-3]	[2-3]	[2-3]	[2-3]
3.4V	[2-3]	[2-3]	[2-3]	[---]
3.3V	[2-3]	[2-3]	[---]	[2-3]
3.2V	[2-3]	[2-3]	[---]	[---]
3.1V	[2-3]	[---]	[2-3]	[2-3] (Default)
3.0V	[2-3]	[---]	[2-3]	[---]
2.9V	[2-3]	[---]	[---]	[2-3]
2.8V	[2-3]	[---]	[---]	[---]
2.7V	[---]	[2-3]	[2-3]	[2-3]
2.6V	[---]	[2-3]	[2-3]	[---]
2.5V	[---]	[2-3]	[---]	[2-3]
2.4V	[---]	[2-3]	[---]	[---]
2.3V	[---]	[---]	[2-3]	[2-3]
2.2V	[---]	[---]	[2-3]	[---]
2.1V	[---]	[---]	[---]	[2-3]
VID Support	[1-2]	[1-2]	[1-2]	[1-2]



Caution:

If you set these jumper incorrectly, you can damage the CPU.

12. Flash ROM (5V/12V)

* This is set by the manufacturer and should not be changed.

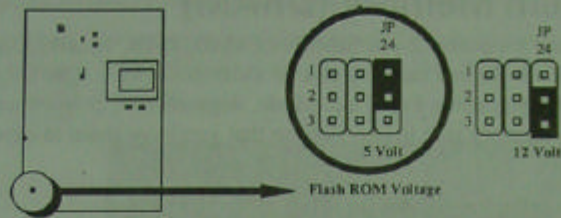
Selections

5V Flash
12V Flash

JP24

[1-2] (Default)
[2-3]

III. INSTALLATION



13. Flash ROM Write

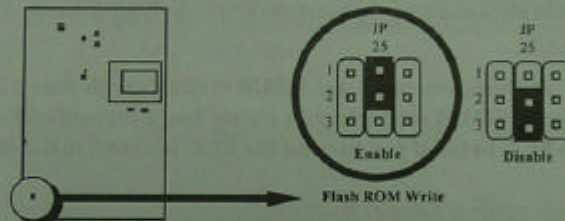
* Enable this if you need to write to the flash ROM.

Selections

Enable
Disable

JP25

[1-2] (Default)
[2-3]



III. Installation
(Jumpers)

14. Boot Block Write

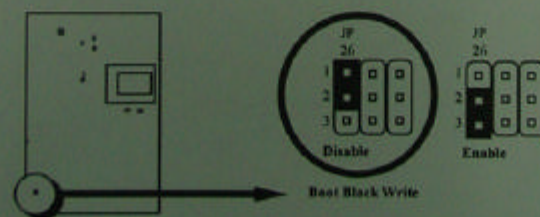
* Enable this if you need to write to the boot block.

Selections

Disable
Enable

JP26

[1-2] (Default)
[2-3]



III. INSTALLATION

2. System Memory (DRAM)

This motherboard supports 72-pin SIMMs of 4MB, 8MB, 16MB, 32MB, 64MB, or 128MB to form a memory size of 8MB to 512MB. The DRAM must be 60ns or faster using Fast Page Mode, Asymmetric, or Symmetric. Choose a larger memory size in two slots so that you have room to expand later.

Memory Combinations Available (in MBs)

Slot 1	4	4	8	8	16	16	32	32	64	64	128	128
Slot 2	4	4	8	8	16	16	32	32	64	64	128	128
Slot 3		4		8		16		32		64		128
Slot 4		4		8		16		32		64		128
Memory	8	16	16	32	32	64	64	128	128	256	256	512

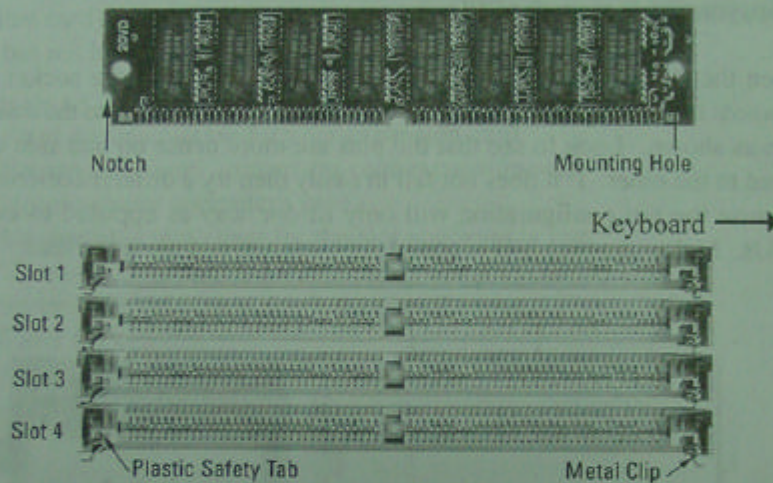
Important: Two modules must be installed each time as shown. If installing DRAM modules in all four slots, you must use DRAM of the same size in all four slots as shown.

To use the ECC feature, you must use SIMM modules with true parity support (36bit bus). SIMM modules with Parity Logic instead of Parity RAM will cause ECC to fail if you turn on the ECC function in the BIOS SETUP.

III. INSTALLATION

DRAM Memory Installation Procedures:

1. The SIMM memory module will only fit with the notch over the "Plastic Safety Tab". Check to see what side the "Plastic Safety Tab" is on before installing.



2. Press the memory module firmly into place starting from a 45 degree angle.
3. Press the memory module forward so that it clicks into place.
4. The plastic guides should go through the two "Mounting Holes" on the sides and the "Metal Clips" should snap on the other side.
5. To release the memory module, squeeze both "Metal Clips" outwards and rock the module out of the "Metal Clips".

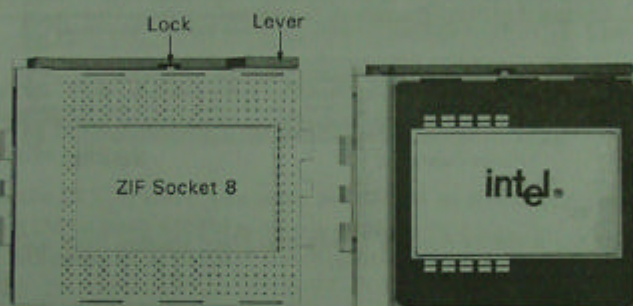
III. INSTALLATION

3. Central Processing Unit (CPU)

The CPU should have a fan attached to it to prevent overheating, if not then purchase a fan before you turn on your system. Apply thermal jelly to the CPU top and install the fan as shown on top of the CPU. **Warning: Without a fan, you can damage the CPU.**

Open the ZIF socket by first pulling the lever away from the socket then upwards to a 90 degree right angle. Insert the CPU according to the orientation as shown. Look to see that the pins are more dense on one side compared to the other. If it does not fall in easily then try a different orientation because the pin configuration will only fit one way as opposed to earlier CPUs. Make sure the CPU is completely inserted and close the lever.

III. Installation
(CPU / VRM)



Voltage Regulator Module (VRM)

This motherboard comes with a VRM (Voltage Regulator Module) to regulate the voltage to the CPU. Insert the VRM into the VRM socket on the motherboard as shown. To remove, press down on the lock firmly until the VRM raises.



III. INSTALLATION

4. Expansion Cards

First read your expansion card documentation on any hardware and software settings that may be required.

NOTE: PCI slot 4 has an extension for a MediaBus card (optional multi-function card) that can only allow the installation of a PCI card or a MediaBus card but not both.

Expansion Card Installation Procedures:

1. Read documentation for your expansion card.
2. Set any necessary jumpers on your expansion card.
3. Unscrew your computer's case.
4. Unscrew the slot-cover for the slot you want to use.
5. Carefully align the card's connectors and press firmly.
6. Screw the card's mounting bracket to the case.
7. Close the case.
8. Setup the computer's BIOS if necessary.
9. Install necessary software drivers for your expansion card

Assigning IRQs for Expansion Cards

Some expansion cards need to use an IRQ to operate. Generally an IRQ must be exclusively assigned to one use. In a standard design there are 16 IRQs available but some of them are already in use by parts of the system such as the keyboard or mouse. Expansion cards that need to use an IRQ then draw from the unused group of System IRQs.

Both ISA and PCI expansion cards may need to use IRQs. System IRQs are available to cards installed in the ISA expansion bus first, and any remaining IRQs are then used by PCI cards. Currently, there are two types of ISA cards. The original ISA expansion card design, now referred to as "Legacy" ISA cards, requires that you configure the card's jumpers manually and then install it in any available slot on the ISA bus. You may use Microsoft's Diagnostic (MSD.EXE) utility included in the Windows directory to see a map of your used and free IRQs. Make sure that no two devices use the same IRQs or your computer will experience problems when those two devices are in use at the same time.

To simplify this process our motherboards have complied with the Plug and Play (PNP) specification which was developed to allow automatic system configuration whenever a PNP-compliant card is added to the system. For PNP cards, IRQs are assigned automatically from those available.

III. INSTALLATION

If the system has both Legacy and PNP ISA cards installed, IRQs are assigned to PNP cards from those not used by Legacy cards. If you have an ISA configuration utility (ICU), you can use it to indicate which IRQs are in use by Legacy cards. If you do not have an ICU program, you can use the PCI and PNP configuration of the BIOS setup utility to indicate which IRQs are being used by Legacy cards.

An IRQ number is automatically assigned to PCI expansion cards after those used by Legacy and PNP ISA cards. In the PCI bus design, the BIOS automatically assigns an IRQ to a PCI slot that has a card in it that requires an IRQ. To install a PCI card, you need to set something called the INT (interrupt) assignment. Since all the PCI slots on this motherboard use an INTA #, be sure that the jumpers on your PCI cards are set to INT A.

Assigning DMA Channels for ISA Cards

Some ISA cards, both Legacy and PNP may also need to use a DMA (Direct Memory Access) channel. DMA assignments for this motherboard are handled the same way as the IRQ assignment process described above. If you don't use an ICU program, you can also select a DMA channel in the PCI and PNP configuration section of the BIOS Setup utility.

5. External Connectors

The connectors on the motherboard is similar to that of jumper pins. The CPU Processing speed is regulated internally and therefore the Turbo Switch is not supported. **Note:** Ribbon cables should always be connected with the red stripe on the Pin 1 side of the connector. The four corners of the connectors are labeled on the motherboard. Pin 1 is the side closest to the power connector on hard drives and floppy drives. **Note:** IDE ribbon cable must be less than 18in. (46cm), with the second drive connector no more than 6in. (15cm) from the first connector.

1) Keyboard Connector (5 Pin Female Plug)

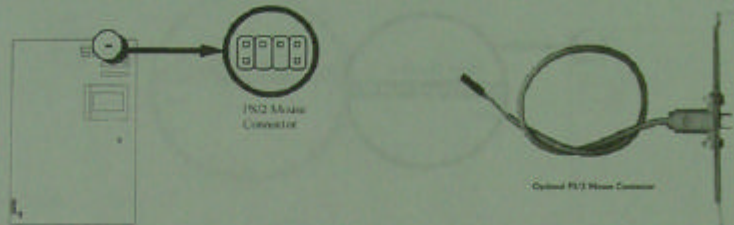
Connection for a standard IBM-compatible keyboard. May be known as a 101 enhanced keyboard



III. INSTALLATION

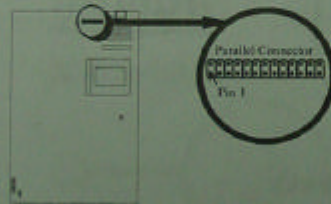
2) **PS/2 Mouse Connector (6 Pin Block)**

If you are using a PS/2 mouse, you must purchase an optional adapter which connects to the 6 pin block and mounts to an open slot on your computer's case.



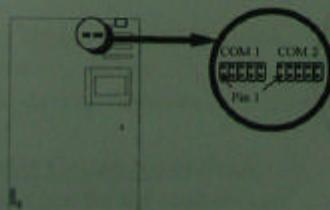
3) **Parallel Port Connector (26 Pin Block)**

Connection for the included parallel port ribbon cable with mounting bracket. Connect the ribbon cable to this connection and mount the bracket to the case on an open slot. It will then be available for a parallel printer cable. Note: Serial printers must be connected to the serial port.



4-5) **Serial Port COM 1&2 Connectors (Two 10 Pin Blocks)**

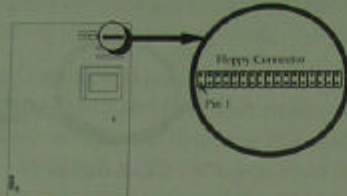
Connection for the included serial port ribbon cables with mounting bracket. Connect the ribbon cable to these connections and mount the bracket to the case on an open slot. Two ports will then be available for a pointing device or other serial devices.



III. INSTALLATION

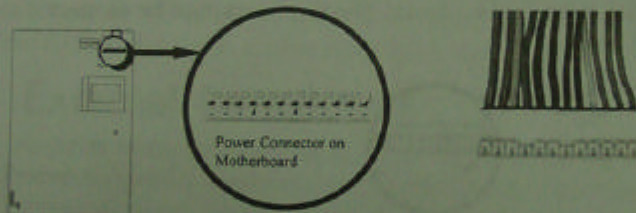
6) **Floppy Drive Connector (34 Pin Block)**

Connection for the included floppy drive ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to your floppy drives with the red stripe towards the power connectors.



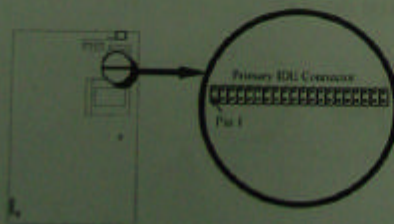
7) **Power Connector (12 Pin Block)**

Connection for a standard 5-volt power supply with two leads. Place the power supply's two plugs together so that the black wires are next to each other as shown and insert both plugs onto the board's power connectors.



8) **Primary IDE Connector (40 Pin Block)**

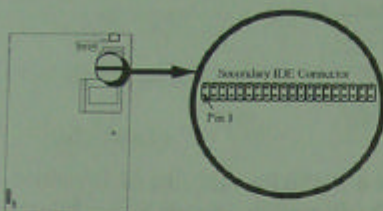
Connection for the included IDE hard disk ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to your hard disk 1 (Master) (and hard disk 2 (Slave) if you have a second hard disk) again with the red stripe towards the power connector. Note: You must set the second drive to SLAVE by moving the jumper caps as specified in the hard disk's documentation.



III. INSTALLATION

9) **Secondary IDE Connector (40 Pin Block)**

Connection for a second set of Master and Slave hard disks. Follow the same steps as in the Primary IDE Connector.



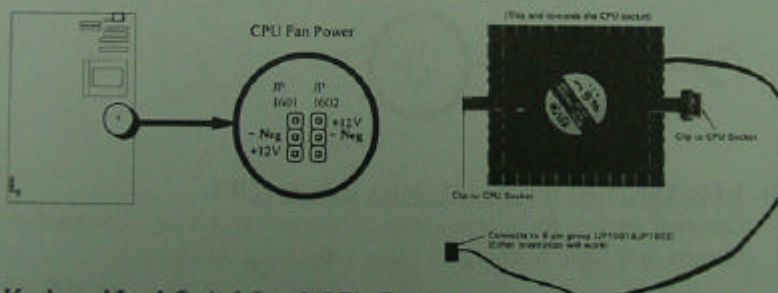
10) **CPU Fan Connector**

Depending on the manufacturer, the wiring may be different. The red wire should be positive and the black wire should be negative. Connect the plug on the appropriate connector as shown. Motherboards with an included CPU will have a fan similar to the one shown which can be connected in either orientation.

PIN1=O, PIN2=GND(N), PIN3=+12V(P)
PIN1=+12V(P), PIN2=GND(N), PIN3=O

(JP1601)

(JP1602)



11) **Keyboard Lock Switch Lead (5 Pin Row)**

Connection for the case-mounted key switch in order to lock the keyboard for security reasons. (See next page.)

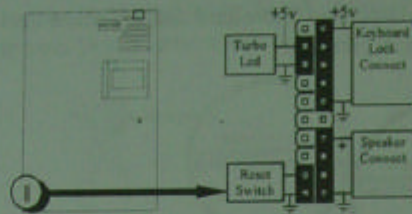
12) **Reset Switch Lead (2 Pin Row)**

Connection for the case-mounted reset switch in order to soft boot your computer if necessary. (See next page.)

13) **Speaker Connector (4 Pin Row)**

Connection for the case-mounted speaker. (See next page.)

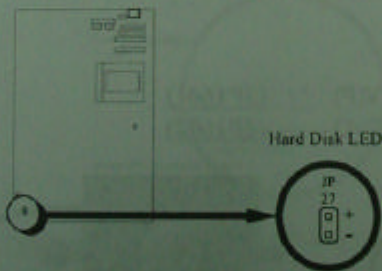
III. INSTALLATION



* This motherboard does not have a Turbo function, the LED connection is labeled here but the LED will remain constantly on while the system is powered on.

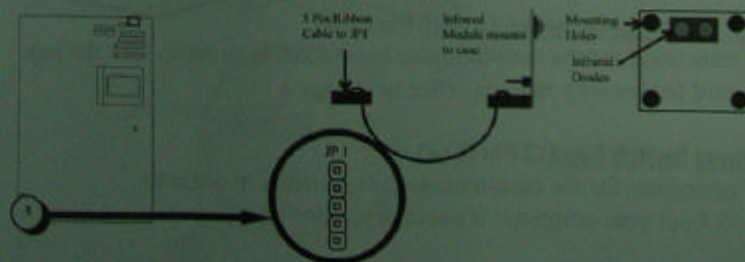
14) On board Hard Disk LED (JP 27)

Connection for the hard disk activity indicator light on the case.



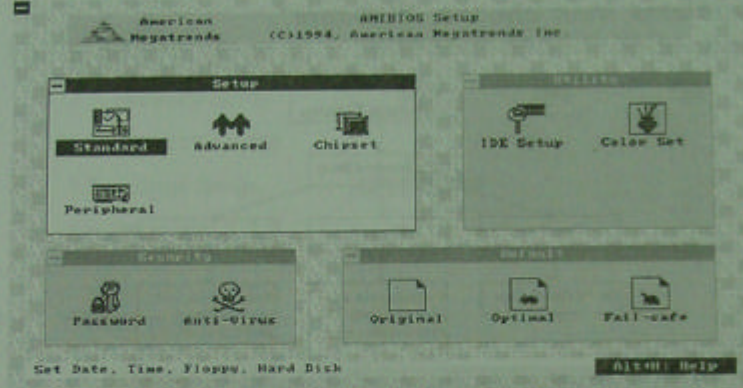
15) IrDA-Compliant Infrared Module Connector (JP1)

Optional module for wireless transmitting and receiving. The module mounts to a small opening on cases supporting this feature.



IV. BIOS SETUP

Main Screen for AMIBIOS



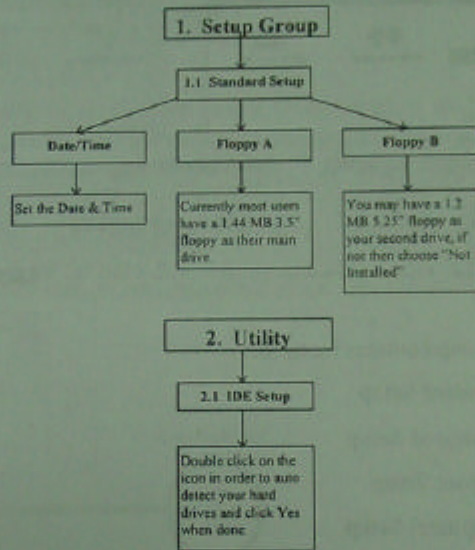
1. **Setup** Group contains icons for:
 - 1.1 Standard Setup
 - 1.2 Advanced Setup
 - 1.3 Chipset Setup
 - 1.4 Peripheral Setup
2. **Utility** Group contains icons for:
 - 2.1 IDE Setup
 - 2.2 Color Set
3. **Security** Group contains icons for:
 - 3.1 Password Setup
 - 3.2 Anti-Virus Setup
4. **Default** Group contains icons for:
 - 4.1 Original Setup
 - 4.2 Optimal Setup
 - 4.3 Fail-Safe Setup

IV. BIOS SETUP
(Main Screen)

IV. BIOS SETUP

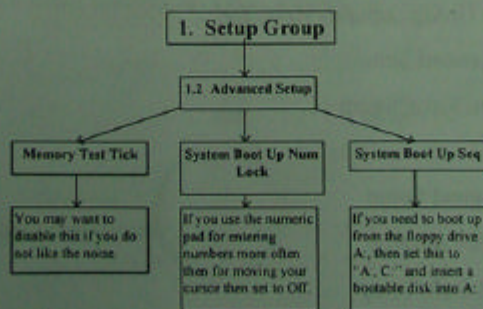
Quick Start of the AMIBIOS Setup

Double click the "Optimal" icon from the Default Group and follow the next two steps. If you experience any problems then choose "Fail-safe".



IV. BIOS SETUP
(Quick Start)

Some Advanced Setups you may also want to change:

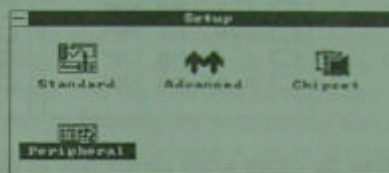


IV. BIOS SETUP

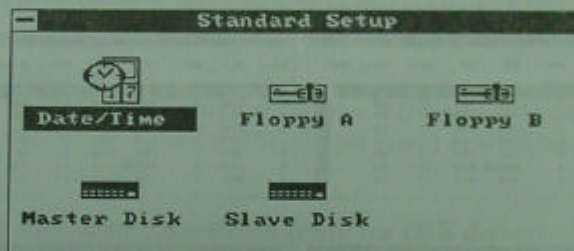
This chapter walks you through each feature of the AMIBIOS setup. The bold faced selections represent default settings.

1. Setup Group

- 1.1 Standard Setup
- 1.2 Advanced Setup
- 1.3 Chipset Setup
- 1.4 Peripheral Setup

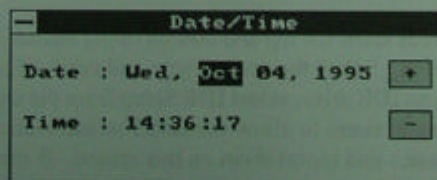


1.1 Standard Setup



Date / Time

Select the Standard option and select the Date and Time icon. The current date and time are displayed.



Enter new values through the keyboard. For convenience, you may use the "+" and "-" keys to increase or decrease the values.

IV. BIOS SETUP

Floppy A / Floppy B

Floppy A		Floppy B	
<input checked="" type="checkbox"/>	Not Installed	<input checked="" type="checkbox"/>	Not Installed
<input type="checkbox"/>	360 KB 5¼"	<input type="checkbox"/>	360 KB 5¼"
<input type="checkbox"/>	1.2 MB 5¼"	<input type="checkbox"/>	1.2 MB 5¼"
<input type="checkbox"/>	720 KB 3½"	<input type="checkbox"/>	720 KB 3½"
<input type="checkbox"/>	1.44 MB 3½"	<input type="checkbox"/>	1.44 MB 3½"
<input type="checkbox"/>	2.88 MB 3½"	<input type="checkbox"/>	2.88 MB 3½"

Move the cursor to the correct type of floppy drive using the up and down keys and select the correct size by pressing <ENTER>.

Master Disk / Slave Disk

Select one of the hard drive icons to configure the master disk or the slave disk. A scrollable screen that lists all valid disk drive types are displayed.

Master Disk							Slave Disk						
Type	Cyl	Hd	UP	LD	Sec	Size (MB)	Type	Cyl	Hd	UP	LD	Sec	Size (MB)
Not Installed							Not Installed						
1	396	4	120	285	17	10	1	396	4	120	285	17	10
2	615	4	300	615	17	20	2	615	4	300	615	17	20
3	615	4	300	615	17	31	3	615	4	300	615	17	31
4	940	8	512	940	17	62	4	940	8	512	940	17	62
5	940	8	512	940	17	47	5	940	8	512	940	17	47
6	615	4	65535	615	17	20	6	615	4	65535	615	17	20
7	662	8	336	761	17	31	7	662	8	336	761	17	31

Master Disk							Slave Disk						
Type	Cyl	Hd	UP	LD	Sec	Size (MB)	Type	Cyl	Hd	UP	LD	Sec	Size (MB)
42	991	5	991	991	17	41	42	991	5	991	991	17	41
43	838	7	512	838	17	48	43	838	7	512	838	17	48
44	838	10	65535	838	17	67	44	838	10	65535	838	17	67
45	917	15	65535	917	17	114	45	917	15	65535	917	17	114
46	1224	15	65535	1224	17	152	46	1224	15	65535	1224	17	152
USER	0	0	0	0	0	0	USER	0	0	0	0	0	0
ESDI	0	0	0	0	0	0	ESDI	0	0	0	0	0	0
ESDI	0	0	0	0	0	0	ESDI	0	0	0	0	0	0

IV. BIOS SETUP
(Standard Setup)

The previous screens show the top and bottom of the Master Disk setup and the Slave Disk setup. Select the correct type and press <ENTER>. If the hard disk drive is an IDE drive, select IDE Setup from the Utility section of the BIOS Setup main menu to allow the BIOS to automatically detect the IDE drive parameters and report them on this screen. If the parameters of the hard disk drive in your computer do not match any parameter list on the screen, choose USER and enter the hard disk drive parameter manually. Read your hard disk drive documentation or call your dealer for the proper information. The next page describes the parameters of the hard disk.

IV. BIOS SETUP

Description of Disk Parameters

Type The number for a drive with certain identification parameters

Cyl (Cylinders) The number of cylinders in the disk drive

Hd (Heads) The number of heads

WP (Write Precompensation) The size of a sector gets progressively smaller as the track diameter diminishes. Yet each sector still holds 512 bytes. Write precompensation circuitry on the hard disk compensates for the physical difference in sector size by boosting the write current for sectors on inner tracks. This parameter is the track number where write precompensation begins.

LZ (Landing Zone) This number is the cylinder location where the heads will normally park when the system is shut down.

Sec (Sectors) The number of sectors per track. MFM drives have 17 sectors per track. RLL drives have 26 sectors per track. ESDI drives have 34 sectors per track. SCSI and IDE drives may have even more sectors per track.

Size The formatted capacity of the drive is (Number of Heads) x (Number of Cylinders) x (Number of Sectors per Track) x (512 bytes per Sector)

Using auto detect hard disk (only for IDE drives)

If you select IDE Setup from the Utility section of the BIOS Setup main menu, the BIOS automatically finds all the IDE hard disk parameters set up all the parameters for the IDE hard drives installed in your system.

IV. BIOS SETUP

1.2 Advanced Setup

Advanced Setup	
Typematic Rate (Chars/Sec)	: 30
System Keyboard	: Present
Primary Display	: UGA/EGA
Mouse Support	: Enabled
Memory Test Tick Sound	: Enabled
Hit "DEL" Message Display	: Enabled
Extended BIOS RAM Area	: 0:300
Wait For "F1" If Any Error	: Enabled
System Boot Up Num Lock	: On
Floppy Drive Seek At Boot	: Disabled

Typematic Rate (Chars/Sec)

Typematic Rate sets the rate at which characters on the screen repeat when a key is pressed and held down. The settings are: *Disabled, 15, 20, 30.*

System Keyboard

This option does not specify if a keyboard is attached to the computer, rather it specifies if error messages are displayed if a keyboard is not attached. This option permits you to configure workstations with no keyboards. The settings are: *Absent or Present.*

Primary Display

Select this icon to configure the type of monitor attached to the computer. The settings are: *Absent, VGA/EGA, CGA40x25, CGA80x25, Mono.*

Mouse Support

When this option is enabled, the BIOS memory test is performed on all system memory. The settings are: *Disabled or Enabled.*

Memory Test Tick Sound

This option enables (turns on) or disables (turns off) the ticking sound during the memory test. The settings are: *Enable or Disable*

Hit "DEL" Message Display

Disabling this option prevents:

Hit if you want to run Setup

from appearing when the system boots. Settings are: *Disabled or Enabled.*

IV. BIOS SETUP

Extended BIOS RAM Area

Specify this option if the top 1KB of the system programming area beginning at 639K or 0:300 in the system BIOS area in low memory will be used to store hard disk information. The settings are: *0:300* or *DOS 1K*.

Wait for "F1" If Any Error

BIOS runs system diagnostic tests that can generate a message followed by:

Press <F1> to continue

If this option is enabled, the BIOS waits for the end user to press <F1> before continuing. If this option is disabled, the BIOS continues the boot process without waiting for <F1> to be pressed. The settings are: *Disabled* or *Enabled*.

System Boot Up Num Lock

When On, this option turns off Num Lock when the system is powered on so the end user can use the arrow keys on both the numeric keypad and the keyboard. The settings are: *Off* or *On*.

Floppy Drive Seek At Boot

When this option is enabled, the BIOS performs a Seek command on floppy drive A: before booting the system. The settings are: *Disabled* or *Enabled*.

Advanced Setup		
Floppy Drive Swapping	: Disabled	↑
System Boot Up Sequence	: C:, A:	
Password Checking	: Setup	
Internal Cache	: Enabled	
Internal Cache Mode	: UB	
Video BIOS Shadow Cacheable	: Enabled	
Adapter BIOS Shadow Cacheable	: Disabled	
System BIOS Shadow Cacheable	: Enabled	
Bottom 1/2 UGA Memory A000	: UC	
Top 1/2 UGA Memory B000	: UC	↓

IV. BIOS SETUP
(Advanced Setup)

Floppy Drive Swapping

Use Enable if you want to change the position of your two floppy drives. For example to switch between a 3.5" drive and a 5.25" drive. The settings are: *Disabled* (uses the physical position of the floppy drives on the ribbon cable) or *Enabled* (to switch the two drives).

IV. BIOS SETUP

System Boot Up Sequence

This option sets the sequence of boot drives (either floppy drive A: or hard disk drive C:) that the BIOS attempts to boot from. The settings are: *C:, A: or A:, C:*.

Password Checking

This option enables the password check option every time the system boots or the end user runs Setup. If Always is chosen, a user password prompt appears every time the computer is turned on. If Setup is chosen, the password prompt appears if the BIOS is executed. See instructions on changing the password. The Optimal and Fail Safe settings are both: *Setup or Always*.

Internal Cache

This option enables secondary cache memory. Instructions will be stored in the level 2 256KB/512KB (depending on the CPU) cache of the CPU for faster execution. The settings are: *Disabled or Enabled*.

Internal Cache Mode

The settings are *WT* (write through; reads data in lines and caches read data) or *WB* (write back; this memory is the most cacheable and the highest performance memory type).

Video BIOS Shadow Cacheable

This option allows the BIOS Shadow to be cached for faster operation of the video area. The settings are: *Disabled or Enabled*.

Adapter BIOS Shadow Cacheable

This option allows the BIOS Shadow to be cached for faster operation of the adapter area. The settings are: *Disabled or Enabled*.

System BIOS Shadow Cacheable

This option allows the BIOS Shadow to be cached for faster operation of the system area. The settings are: *Disabled or Enabled*.

Bottom 1/2 VGA Memory A000

The settings are: *USWC* (uncacheable, speculatable, write-combining for higher write throughput; make sure your video driver support this function or you may experience problems) or *UC* (uncacheable; all reads and writes appear on the bus, no speculative accesses are made).

Top 1/2 VGA Memory B000

When this option is set to Enabled, the ROM area is copied (shadowed) to RAM for faster execution. The settings are: *USWC or UC*.

IV. BIOS SETUP

Advanced Setup		
ISA Video Shadow C000,32K	: Enabled	↑
ISA Adaptor Shadow C800,16K	: Disabled	
ISA Adaptor Shadow CC00,16K	: Disabled	
ISA Adaptor Shadow D000,16K	: Disabled	
ISA Adaptor Shadow D400,16K	: Disabled	
ISA Adaptor Shadow D800,16K	: Disabled	
ISA Adaptor Shadow DC00,16K	: Disabled	
IDE Block Mode	: Auto	
Primary Master IDE PIO Mode	: Auto	
Primary Slave IDE PIO Mode	: Auto	↓

ISA Video Shadow C000, 32K

ISA Adapter Shadow C800, 16K

ISA Adapter Shadow CC00, 16K

ISA Adapter Shadow D000, 16K

ISA Adapter Shadow D400, 16K

ISA Adapter Shadow D800, 16K

ISA Adapter Shadow DC00, 16K

When these option is set to Enabled, the ROM area is copied (shadowed) to RAM for faster execution. The ROM area that is not used by ISA adapter cards will be allocated to PCI adapter cards. Some of these addresses are not available on certain cards and therefore will not benefit from enabling the shadow feature. The settings are: *Disable* or *Enable*.

IDE Block Mode

This option enables multiple sector reads and writes for IDE drives. The settings are for number of sectors per block: *Disable*, *2 S/B*, *4 S/B*, *8 S/B*, *16 S/B* *32 S/B* *64 S/B*, or *Auto*.

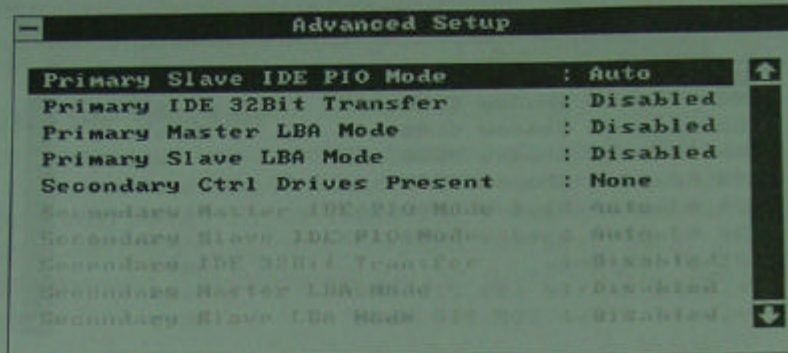
Primary Master IDE PIO Mode

This is for the programmable input/output mode for the master drive. Higher mode devices are faster. The settings are: *Auto*, *Mode 0*, *Mode 1*, *Mode 2*, *Mode 3*, *Mode 4*, *Mode 5*.

Primary Slave IDE PIO Mode

This is for the programmable input/output mode for the slave drive. Higher mode devices are faster. The settings are: *Auto*, *Mode 0*, *Mode 1*, *Mode 2*, *Mode 3*, *Mode 4*, *Mode 5*.

IV. BIOS SETUP



Primary IDE 32Bit Transfer

Original IDE cards are 16bit and therefore will not function properly using 32bit transfer. 32bit transfers are only available in enhanced IDE cards. The settings are: *Disable or Enable*.

Primary Master LBA Mode

Set this option to enabled to enable IDE LBA (Logic Block Address) Mode for the first IDE drive attached to the primary IDE channel. LBA Mode is an advanced method for accessing data on IDE drives. Data is accessed by block address rather than the traditional Cylinder-Head-Sector scheme. Data transfer rates can be much higher in LBA mode. Either *Disable or Enable*.

Primary Slave LBA Mode

Same as the previous but for the slave. The settings are: *Disable or Enable*.

Secondary Ctrl Drives Present

This option specifies the number of IDE drives controlled by the chipset for the secondary IDE channel. The settings are: *None, 1, or 2*.

Secondary Ctrl Drives Present

Secondary Slave IDE PIO Mode

Secondary IDE 32Bit Transfer

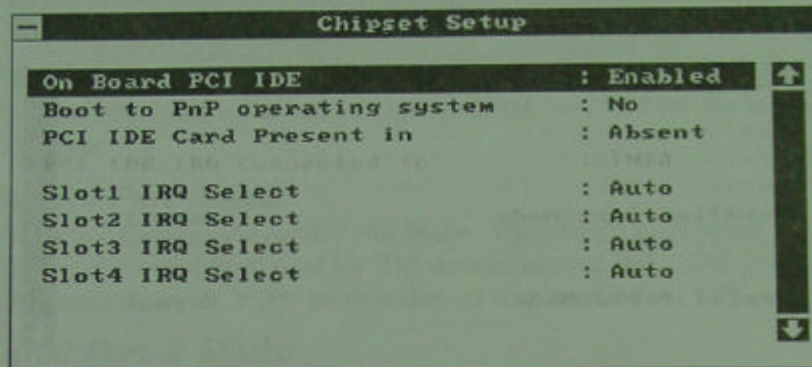
Secondary Master LBA Mode

Secondary Slave LBA Mode

The above five selections only appear when the Secondary Ctrl Drives are set to 1 (except Slave) or 2. The settings are the same as the Master selections but refer to the IDE drives connected a second ribbon cable connected to the secondary IDE connection on the motherboard.

IV. BIOS SETUP

1.3 Chipset Setup



On Board PCI IDE

This allows the user to disable the on-board IDE so that an external IDE controller can be used. The settings are: *Disabled or Enabled*.

Boot to PnP operating system

Disabling this function prevents the BIOS to automatically assign an IRQ number to the Plug and Play (PnP) cards. The settings are: *No or Yes*.

PCI IDE Card Present in

If using an external PCI IDE controller card, you must tell the computer where the card is located so that your drives can boot-up properly. The settings are: *Absent, Slot 1, Slot 2, or Slot 3*.

PCI IDE IRQ Connected to

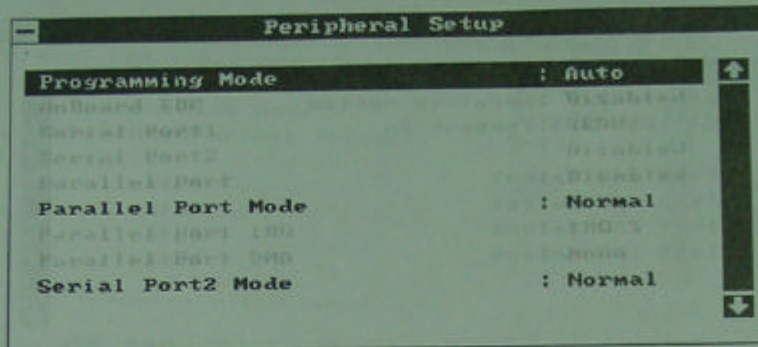
Only active when the previous is set to a specific slot number. This allows the user to select the Interrupt assignment for the PCI card. Most cards use *INTA* but if necessary you may choose *INTB, INTC, INTD*.

Slot 1 IRQ Select, Slot 2..., Slot 3..., Slot 4...

Slot 1, 2, 3, and 4 refers to the PCI Slots 1 through 4. An IRQ number is automatically assigned but if necessary you can manually change the assignment (*IRQ 3, 4, 5, 7, 9, 10, 11, 12, 14, 15*) to fit any software or hardware requirements. The defaults are all set to *Auto*.

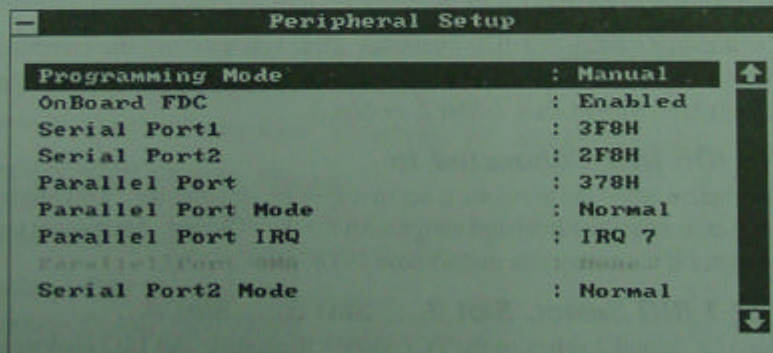
IV. BIOS SETUP

1.4 Peripheral Setup



Programming Mode:

This option specifies the Multi I/O mode. The settings are *Auto* or *Manual*. When set to *Auto*, the manual settings are inactive. The inactive settings do not represent the settings chosen by the *Auto* configuration but instead the default settings. The following shows the settings that the *Auto* Mode uses (appears when you switch from *Auto* to *Manual*)



OnBoard FDC

You can deactivate the on-board Floppy Disk drive controller with *Disabled* or use the default of *Enabled* (with Programming Mode set to *Auto*)

Serial Port1

You can select address *Disabled*, *3F8H*, *3E8H*, or *2E8H* for the first COM port.

IV. BIOS SETUP

Serial Port2

You can select address *Disabled*, *2F8H*, *3E8H*, or *2E8H* for the second COM port.

Parallel Port

You can select address *Disabled*, *3BCH*, *378H*, or *278H* for the second COM port.

Parallel Port Mode:

This option specifies the parallel port Mode. The settings are *Normal*, *EPP* (Enhanced Parallel Port; used for IDE devices such as IDE CD-ROMs or IDE Scanners), or *ECP* (for printers such as certain models of HP).

Serial Port 2 Mode:

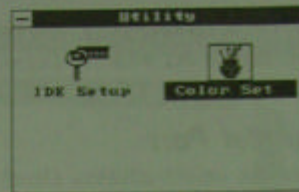
This option specifies whether the COM 2 port is used for: *Normal* (COM 2), *IrDA* (American standard - must also set JP2003 & JP2004), *ASK IR* (Japanese standard for use with organizers - must also set JP2003 & 2004).

IV. BIOS SETUP

2. Utility Group

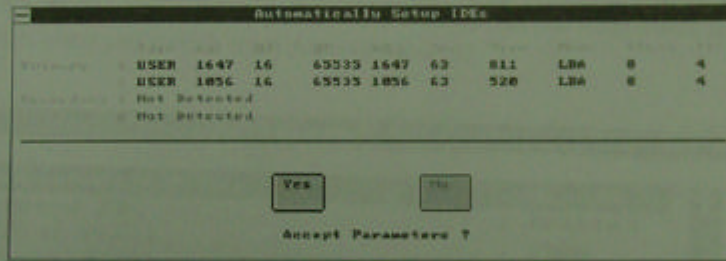
2.1 IDE Setup

2.2 Color Set



2.1 IDE Setup

When chosen, "Auto Detection in Progress" begins. If your system hardware is not compatible and the search goes on for too long, you may press enter or use the mouse to "cancel" the operation. If you cancel, it would send a "Not Detected" message to the utility and it would skip to asking whether you wish to accept the parameters. Simply answer no and check your hard drive installation or enter the parameters manually by looking in your hard drive documentation or calling your dealer. If the search is successful, something like this follows:



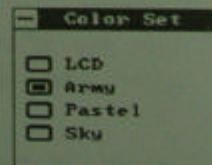
IV. BIOS SETUP

A question appears on the bottom asking whether you wish to accept the parameters. Answer "Yes" to accept the values.

Slave Drive

The Slave drive is detected along with the master drive but must first be configured by setting the "jumper" on the hard drive as instructed by your hard drive documentation. The two hard drives can be connected in any order on the ribbon cable.

2.2 Color Set



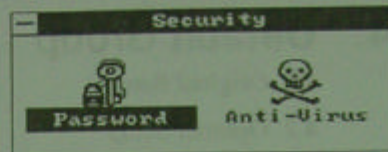
The choices for the utility screen colors are as follows: *LCD* (for black & white and monochrome screens), *Army*, *Pastel*, *Sky*

IV. BIOS SETUP

3. Security Group

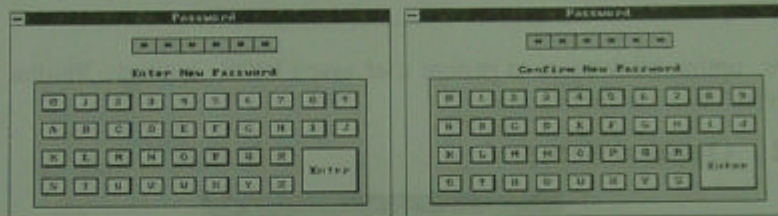
3.1 Password Setup

3.2 Anti-Virus Setup



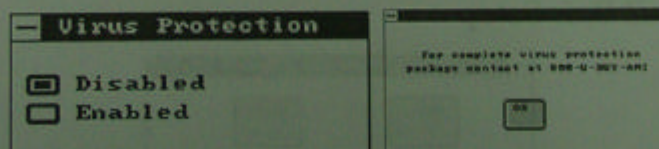
3.1 Password Setup

The BIOS Setup has an optional password feature. The system can be configured so that all users must enter a password every time the system boots or when the BIOS Setup is executed. The following screen appears when you select the password icon.



You can enter the password by typing or choosing each digit with the mouse. The password check option is enabled in Advanced Setup by choosing either Always (the password prompt appears every time the system is powered on) or Setup (the password prompt appears only when attempting to enter the BIOS Setup). The password is stored in BIOS RAM.

3.2 Anti-Virus Setup



IV. BIOS SETUP

4. Default Group

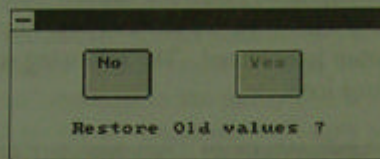
4.1 Original Setup

4.2 Optimal Setup

4.3 Fail-Safe Setup

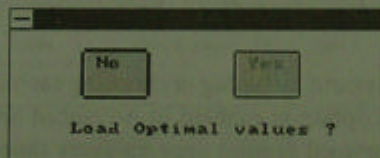


4.1 Original Setup



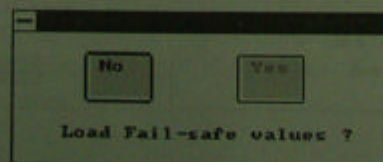
This option allows you to restore user saved BIOS settings. Similar to "revert" in some applications.

4.2 Optimal Setup



You can load the optimal default settings for the BIOS setup options by selecting the optimal icon. The optimal default settings are the best-case values that should optimize system performance. If CMOS RAM is corrupted, the Optimal settings are loaded automatically.

4.3 Fail-Safe Setup



You can load the Fail-Safe BIOS setup option settings by selecting the Fail-Safe icon from the Default section of the BIOS setup main menu. The Fail-Safe settings provide far from optimal system performance, but are the most stable settings. Use this option as a diagnostic aid if the system is behaving erratically.