

**TI6NF**  
**Pentium Pro ATX Motherboard**  
**User's Manual**  
Version 2.0

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# 0Contents

## Chapter 1 Specifications.....

## Chapter 2 Hardware Description.....

- 2.1 Processor and VRM.....
- 2.2 L2 Cache.....
- 2.3 Main Memory.....
- 2.4 BIOS.....
- 2.5 I/O Port Address Map.....
- 2.6 DMA Channels.....
- 2.7 Interrupt Request (IRQ).....
- 2.8 Onboard PCI-IDE.....
- 2.9 Onboard Multi-I/O.....

## Chapter 3 Configuring the TI6NF.....

- 3.1 CPU Frequency: DSW1, DSW2.....
- 3.2 Multi-I/O.....

## Chapter 4 Installation.....

- 4.1 Power Supply Connector: J2.....
- 4.2 Mouse and Keyboard Connectors: J4, J5.....
- 4.3 I/O Connectors.....
- 4.4 Serial Port Connectors: J1, J7.....
- 4.5 Primary and Secondary IDE Connectors: J12, J11.....
- 4.6 Parallel Printer Connector : J6.....
- 4.7 Floppy drive connector: J8.....
- 4.8 Universal Serial Bus Connector: J9, J10.....
- 4.9 ATX Power ON-OFF Switch: JP17.....
- 4.10 Front Bezel Connectors: J21.....
- 4.11 IrDA Connector: J22.....
- 4.12 CPU Cooling Fan Connector: JP27.....

## Chapter 5 BIOS and System Setup.....

## Chapter 1 Specifications

The TI6NF is a high performance Pentium Pro Baby AT motherboard. It's highly flexible in CPU frequency and main memory type and size. The main features of the motherboard are listed as follows:

### **Main Processor**

Supports one 150-200MHz Pentium Pro CPU on a ZIF Socket 8.

### **Processor Upgrade**

Intel P6T based Over Drive

### **L2 Cache**

Integrated 256KB or 512KB, non-blocking level two cache (depending on CPU), so that no external SRAM chips are needed.

### **Main Memory**

Supports six 72-pin SIMMs of 4MB, 8MB, 16MB, 32MB, 64MB to form a memory size between 8MB to 384MB. Supports both Fast Page Mode (FPM), Extended Data Output (EDO) SIMMs, and Burst Extended Data Output (BEDO).

### **Chipset**

Intel 82440FX PCIset with built-in PCI-IDE

### **BIOS**

Licensed BIOS with additional features:

- ÿ ISA Plug and Play (PnP) extension
- ÿ Power management

### **Expansion Slots**

Four PCI slots  
Four ISA slots

### **PCI Bus Master IDE Controller**

Onboard PCI Bus Master IDE controller with two connectors that support four IDE devices in two channels

Provides faster data transfer rates, and supports Enhanced IDE devices such as Tape Backup and CD-ROM drives.

Supports PIO Modes 3 and 4 and Bus Master IDE DMA Mode 2. BIOS supports IDE CD-ROM boot-up.

### **PS/2 Mouse Connector and IrDA headers**

Supports PS/2 mouse connector and infrared headers for the optional IrDA module for wireless interface.

### **ATX Power-ON from remote via COM2 (Modem ring-on)**

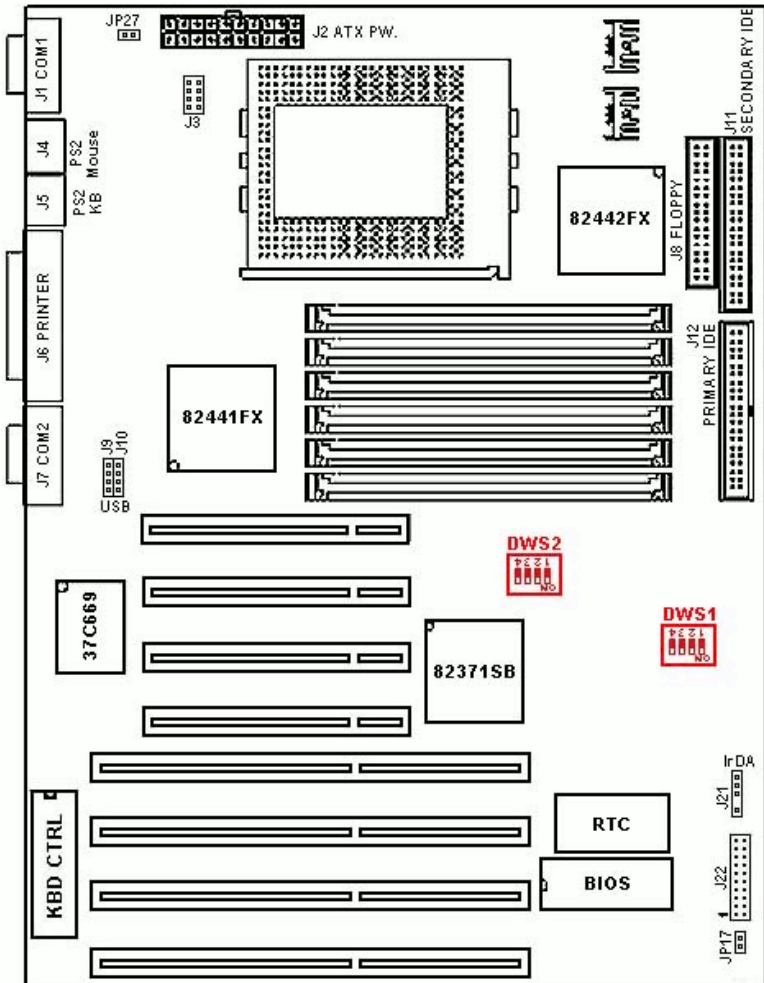
When system is turned off, you can turn on the system via an external modem connected to COM2 from remote.

## Chapter 2 Hardware Description

This chapter briefly describes each of the major features of the TI6NF system board. The layout of the board is shown in *Figure 1* which shows the locations of key components. The topics covered in this chapter are as follows:

- ∠ **2.1 PROCESSOR AND VRM**
- ∠ **2.2 L2 CACHE**
- ∠ **2.3 MAIN MEMORY**
- ∠ **2.4 BIOS**
- ∠ **2.5 I/O PORT ADDRESS MAP**
- ∠ **2.6 DMA CHANNELS**
- ∠ **2.7 INTERRUPT REQUEST (IRQ)**
- ∠ **2.8 ONBOARD PCI-IDE**
- ∠ **2.9 ONBOARD MULTI-I/O**

Figure 1: Layout of the TI6NF



## 2.1 Processor and VRM

The TI6NF is designed to take a Pentium Pro processor with a bus speed of 60 and 66 MHz. Since the internal clock of the CPU can be multiples from 2 to 4 ratio of the internal bus clock, the CPU frequency can be 150MHz to 200MHz. The TI6NF provides an onboard Voltage Regulator to automatically detect the voltage from 2.1 to 3.5V and supply the necessary voltage to the CPU. The VRM (Voltage Regulator module) socket also provides power consumption higher than 35 watts.

## 2.2 L2 Cache

The L2 cache is Pentium Pro built-in 256KB or 512KB.

The private L2 cache bus is not connected to Package Pins, rather its signals are routed between the two cavities using standard package techniques. It can be driven at the full CPU core speed .

The high performance bandwidth is used by CPU to serve all L1 cache misses, the characteristics of a CPU-cache bus and is utilized 90-95 percent of the time.

## 2.3 Main Memory

The TI6NF provides three 64-bit memory banks for up to 384MB of main memory. Each bank consists of two SIMMs, **SIMM1/SIMM2**, **SIMM3/SIMM4**, and **SIMM5/SIMM6**. Burst Extended Data Output (BEDO), Extended Data Output (EDO), and Fast Page Mode DRAM are supported. The size of the SIMM can be 4MB, 8MB, 16MB, 32MB, and 64MB, and can be configured to support for ECC (Error Checking and Correction) or parity.

The following are the important factors for populating the SIMM sockets:

1. Either SIMM1/SIMM2 or SIMM3/SIMM4 or SIMM5/SIMM6 bank can be populated first.
2. Each bank should consist of the same size SIMMs
3. Each bank should consist of the same type SIMMs.  
ex: SIMM1 and SIMM2 should be BEDO EDO or page mode.
4. SIMMs can be mixed by the bank.  
ex: SIMM1/SIMM2 are page mode and SIMM3/SIMM4 are EDO.

5. SIMMs can be with or without parity. If you need ECC or parity support, you need it utilize SIMMs with parity bits.

Install memory in any or all of the banks in any combination as follows:

Bank	Memory Module		Total Memory
Bank 0 SIMM SLOTS 1 & 2	4MB, 8MB, 16MB, 32MB, 64MB 72-pin FPM, EDO, BEDO, SIMM	x2	
Bank 1 SIMM SLOTS 3 & 4	4MB, 8MB, 16MB, 32MB, 64MB 72-pin FPM, EDO, BEDO, SIMM	x2	
Bank 2 SIMM SLOTS 5 & 6	4MB, 8MB, 16MB, 32MB, 64MB 72-pin FPM, EDO, BEDO, SIMM	x2	
Total System Memory		=	

Available memory configurations are shown in the following table:

Bank 0 (SIMM1, SIMM2)	Bank 1 (SIMM3, SIMM4)	Bank 2 (SIMM5, SIMM6)	Total Memory
4MB×2	----	----	8MB
8MB×2	----	----	16MB
16MB×2	----	----	32MB
32MB×2	----	----	64MB
4MB×2	4MB×2	----	16MB
4MB×2	4MB×2	4MB×2	24MB
4MB×2	8MB×2	----	24MB
4MB×2	8MB×2	8MB×2	40MB
4MB×2	16MB×2	----	40MB
4MB×2	16MB×2	16MB×2	72MB
4MB×2	32MB×2	----	72MB
4MB×2	32MB×2	32MB×2	136MB
8MB×2	8MB×2	----	32MB
8MB×2	8MB×2	8MB×2	48MB
8MB×2	16MB×2	----	48MB
8MB×2	16MB×2	16MB×2	80MB
8MB×2	32MB×2	----	80MB
8MB×2	32MB×2	32MB×2	144MB
16MB×2	16MB×2	----	64MB
16MB×2	16MB×2	16MB×2	96MB
16MB×2	32MB×2	----	96MB
16MB×2	32MB×2	32MB×2	160MB
32MB×2	32MB×2	----	128MB
32MB×2	32MB×2	32MB×2	192MB
64MB×2	64MB×2	----	256MB
64MB×2	64MB×2	64MB×2	384MB

**Note:** Bank0 designates the memory bank populated first which can be SIMM1/SIMM2 or SIMM3/SIMM4 or SIMM5/SIMM6.

## 2.4 BIOS

The BIOS on the TI6NF motherboard provides the standard BIOS functions plus the following additional features:

### 1. ISA Plug and Play (PnP) Extension

Unlike PCI cards that are plug and play, ISA cards require setting jumpers to resolve hardware conflict. To make a computer system PnP, an ISA PnP standard is established and supported by new OSes, such as Windows 95. Under Windows 95, the motherboard BIOS must have an ISA PnP extension to support the new ISA PnP cards.

### 2. Power Management

The power management feature provides power savings by slowing down the CPU clock, turning off the monitor screen and stopping the HDD spindle motor. The BIOS fully conforms to APM 1.2 specifications.

## 2.5 I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port address which also becomes the identity of the device. There are a total of 1K port address space available. The following table lists the I/O port address used on the motherboard.

Address	Device Description
000h - 01Fh	DMA Controller #1
020h - 03Fh	Interrupt Controller #1
040h - 05Fh	Timer
060h - 06Fh	Keyboard Controller
070h - 07Fh	Real Time Clock,, NMI
080h - 09Fh	DMA Page Register
0A0h - 0BFh	Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h	Clear Math Coprocessor Busy Signal
0F1h	Reset Math Coprocessor
1F0h - 1F7h	IDE Interface
2F8h - 2FFh	Serial Port #2 (COM2)
378h - 3FFh	Parallel Port #1 (LPT1)
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1 (COM1)



## 2.6 DMA Channels

There are seven DMA channels available on the motherboard. Only DMA2 is used by the floppy controller. In the case that ECP mode on parallel port is used, DMA1 or DMA3 will be used.

## 2.7 Interrupt Request (IRQ)

There are a total of 15 IRQ lines available on the motherboard. Peripheral devices use an interrupt request to notify the CPU for the service required. The following table shows the IRQ lines used by the devices on the motherboard:

<u>Level</u>	<u>Function</u>
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ8	Real Time Clock
IRQ9	Software Redirected to Int 0Ah
IRQ10	Reserved
IRQ11	Reserved
IRQ12	Reserved
IRQ13	Co-Processor
IRQ14	Primary IDE
IRQ15	Secondary IDE
IRQ3	INTERRUPT
IRQ4	Serial Port #1
IRQ5	INTERRUPT
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port #1

## 2.8 Onboard PCI-IDE

The PCI IDE controller is a part of the 82440FX PCIset. It supports PIO mode 3/4 and bus mastering. The peak transfer rate of PIO mode 3/4 can be as high as 17MB/sec. Using HDDs that support bus mastering, the peak transfer rate can reach 22MB/sec. There are two IDE connectors, primary IDE and secondary IDE. With two devices per connector, up to four IDE devices can be supported.

## **2.9 Onboard Multi-I/O**

The onboard multi-I/O chip, SMC37C66X, provides two serial ports, one parallel port, and one floppy controller. The serial ports are 16550 UART compatible. The parallel port supports high speed EPP/ECP mode. The floppy controller supports up to 2.88 MB format.

## **Chapter 3 Configuring the TI6NF**

The following sections describe the necessary procedures and proper jumper settings to configure the TI6NF system board. For the locations of the jumpers, refer to Figure 2.

∠ **3.1 CPU FREQUENCY: DSW1, DSW2**

∠ **3.2 MULTI-I/O**

∠

Figure 2: Jumper location of the TI6NF

### 3.1 CPU Frequency: DSW1, DSW2

**DSW1:** set the clock generator frequency to be 50, 60, or 66MHz., which is the frequency of the CPU, to the bus clock. **DSW2:** sets the ratio of bus clock to CPU internal clock.

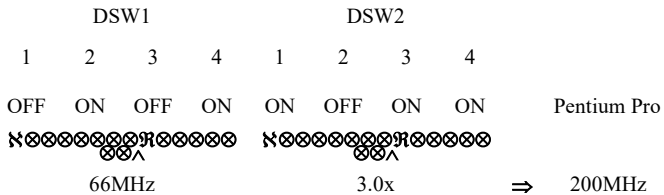
Refer to the following table for the correct setting to match the CPU frequency.

DSW1 ( 1 )	DSW1 ( 2 )	DSW1 ( 3 )	DSW1 ( 4 )	Clock Gen.
ON	OFF	ON	OFF	60MHz
OFF	ON	OFF	ON	66MHz

DSW2 ( 1 )	DSW2 ( 2 )	DSW2 ( 3 )	DSW2 ( 4 )	Multiplier
ON	ON	ON	ON	2.0x
OFF	ON	ON	ON	2.5x
ON	OFF	ON	ON	3.0x
OFF	OFF	ON	ON	3.5x
ON	ON	OFF	ON	4.0x
OFF	ON	OFF	ON	5.0x

Set the DSWX by the internal speed of the INTEL CPU

Example:



DSW1				DSW2				Pentium Pro CPU FREQ.
1	2	3	4	1	2	3	4	
ON	OFF	ON	OFF	OFF	ON	ON	ON	Pentium Pro 150MHz
OFF	ON	OFF	ON	OFF	ON	ON	ON	Pentium Pro 166MHz
ON	OFF	ON	OFF	ON	OFF	ON	ON	Pentium Pro 180MHz
OFF	ON	OFF	ON	ON	OFF	ON	ON	Pentium Pro 200MHz

### 3.2 Multi-I/O

CMOS Clear Selector: JP19

<b>JP19</b>	<b>Function</b>
OFF	Normal
ON	Clear CMOS

For factory test: J3

The jumper  default is **OFF**.

## Chapter 4 Installation

This chapter describes the interface that the TI6NF provides for creating a working system. Refer to Figure 3 for the location of the connectors.

The following items are covered in this chapter:

- ∠ **4.1 POWER SUPPLY CONNECTOR: J2**
- ∠ **4.2 MOUSE AND KEYBOARD CONNECTORS: J4, J5**
- ∠ **4.3 I/O CONNECTORS**
- ∠ **4.4 SERIAL PORT CONNECTORS: J1, J7**
- ∠ **4.5 PRIMARY AND SECONDARY IDE CONNECTORS: J12, J11**
- ∠ **4.6 PARALLEL PRINTER CONNECTOR : J6**
- ∠ **4.7 FLOPPY DRIVE CONNECTOR: J8**
- ∠ **4.8 UNIVERSAL SERIAL BUS CONNECTOR: J9, J10**
- ∠ **4.9 ATX POWER ON-OFF SWITCH: JP17**
- ∠ **4.10 FRONT BEZEL CONNECTORS: J21**
- ∠ **4.11 IRDA CONNECTOR: J22**

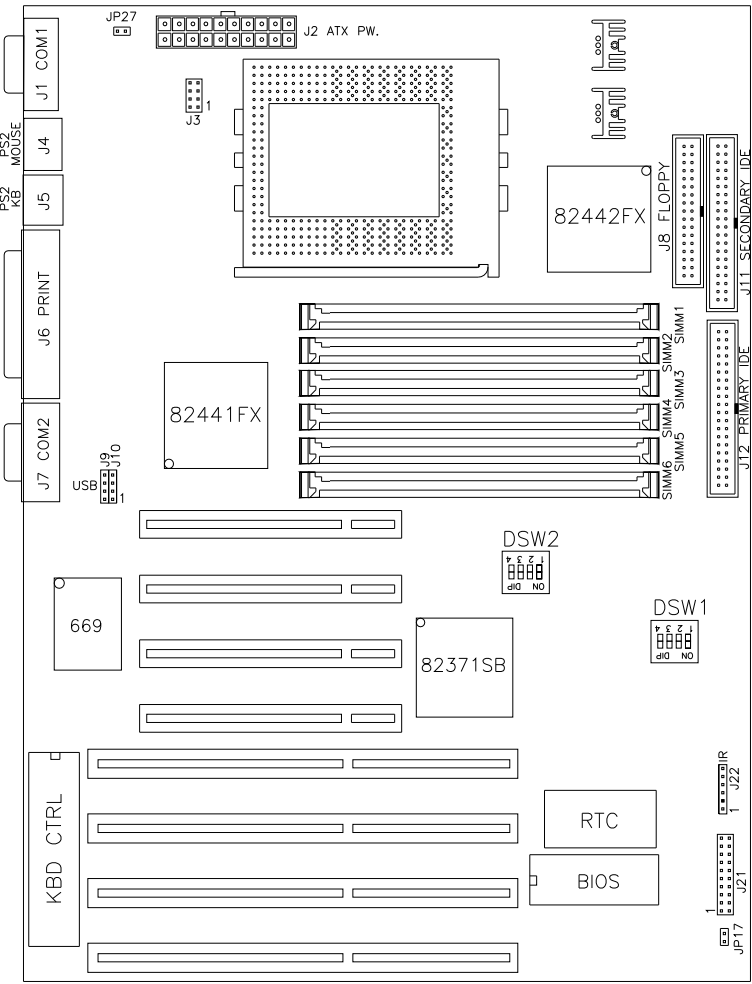


Figure 3: Connector location of the TI6NF



#### 4.1 Power Supply Connector: J2

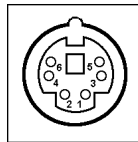
When using an ATX mode (20-Pin) power supply, plug both of the power supply connectors into J2.

The following table indicates the pin-out assignments of the power supply connectors.

11	1	Signal Name	Pin #	Pin #	Signal Name
		3.3V	11	1	3.3V
		-12V	12	2	3.3V
		Ground	13	3	Ground
		PS-ON	14	4	+5V
		Ground	15	5	Ground
		Ground	16	6	+5V
		Ground	17	7	Ground
		-5V	18	8	Power good
		+5V	19	9	5VSB
20	10	+5V	20	10	+12V

#### 4.2 Mouse and Keyboard Connectors: J4, J5

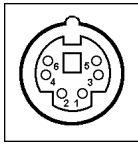
There are two configurations available on the TI6NF, an AT keyboard or a PS/2 keyboard and a PS/2 mouse.



J4 Pin #	Signal Name
1	Mouse data
2	N.C.
3	GND
4	5V
5	Mouse clock
6	GND

#### PS/2 Mouse Connector: J4

J5 Pin #	Signal Name
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1	Keyboard data
2	N.C.
3	GND
4	5V
5	Keyboard clock
6	N.C.

**PS/2 Keyboard Connector: J5**

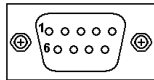
### 4.3 I/O Connectors

The I/O connectors connect the TI6NF to the most common peripherals. To attach cables to these connectors, carefully align the Pin 1 of the cables to that of the connectors. Refer to Figure 4 for the location and orientation of the connectors.

**Figure 4: Orientation of the I/O connector**

### 4.4 Serial Port Connectors: J1, J7

The onboard serial ports of the TI6NF are DB-9 connectors. **J1** is **COM1** and **J7** is **COM2**. The table below shows the pin-out assignments.



Pin #	Signal Name
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND, ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator

### 4.5 Primary and Secondary IDE Connectors: J12, J11

This connector supports the provided IDE hard disk ribbon cable. After connecting the single end to the board, connect two plugs at the other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers accordingly. Refer to the documentation of your hard disk for the jumper settings. You may also configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector. The following tables show their pin-out assignments.

J12: Primary IDE Connector

Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Key
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK0	29	30	Ground
IRQ14	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

## J11: Secondary IDE Connector

Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Key
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK1	29	30	Ground
MIRQ0	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

## 4.6 Parallel Printer Connector : J6

The onboard Parallel port of the TI6NF is a DB-25 connector. The pin-out assignments of this connector is as follows:

Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
PD7, parallel data 7	9	22	Ground
ACK, acknowledge	10	23	Ground
Busy	11	24	Ground

*Chapter 4 Installation*

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Paper empty	12	25	Ground
Select	13	N/A	N/A

#### 4.7 Floppy drive connector: J8

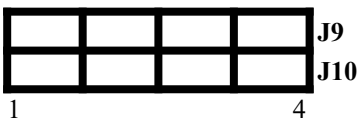
This connector supports the provided floppy drive ribbon cable. The following table shows the pin-out assignments of J8:

Signal Name	Pin #	Pin #	Signal Name
Ground	1	2	RM/LC
Ground	3	4	No connect
Ground	5	6	No connect
Ground	7	8	Index
Ground	9	10	Motor enable 0
Ground	11	12	Drive select 1
Ground	13	14	Drive select 0
Ground	15	16	Motor enable 1
Ground	17	18	Direction
Ground	19	20	Step
Ground	21	22	Write data
Ground	23	24	Write gate
Ground	25	26	Track 00
Ground	27	28	Write protect
Ground	29	30	Read data
Ground	31	32	Side 1 select
Ground	33	34	Diskette change

#### 4.8 Universal Serial Bus Connector: J9, J10

Universal Serial Bus offers Plug and Play capabilities for □outside the Boxperipherals. It is optimized for high-integration up to support 127 logical connections

1                                      4                      PIN1: Vcc (5V) (**Red**)  
 PIN2: USBP0–  
 PIN3: USEP0+  
 PIN4: GND (**Black**)



**WARNING:**

Make sure the USB cable connector is connected in the right orientation, PIN1 mapping to (Red wire) Vcc.

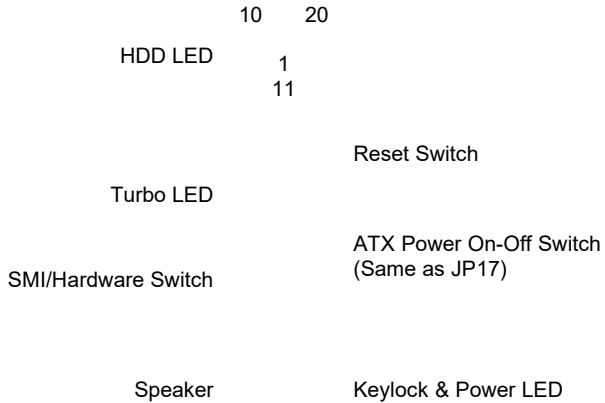


#### 4.9 ATX Power ON-OFF Switch: JP17

This 2-pin connector is for Power Supply ON/OFF Switch on the main board. When the switch be pressed, it will force the motherboard to power on. When pressed again, it will force the system board to power off.

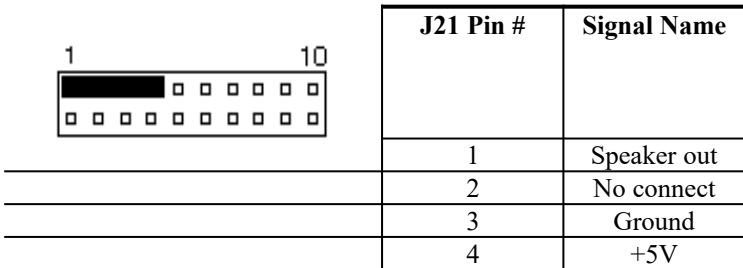
#### 4.10 Front Bezel Connectors: J21

The front bezel of the case has a control panel which provides light indication of the computer activities and switches to change the computer status.



#### Speaker: Pins 1 - 4

This connector provides an interface to a speaker for audio tone generation. An 8-ohm speaker is recommended.



**Power LED and Keylock: Pins 11 - 15**

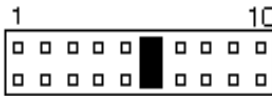
The power LED indicates the status of the main power switch. The keylock switch, when closed, will disable the keyboard function.



J21 Pin #	Signal Name
11	Power LED
12	No connect
13	Ground
14	Keylock
15	Ground

**SMI Hardware Switch: Pins 6 and 16**

This connector supports the reen Switch on the control panel, which, when pressed, will force the motherboard into the power-saving mode immediately.



J21 Pin #	Signal Name
6	Sleep
16	Ground

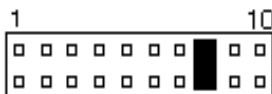
**ATX Power On-Off Switch: Pins 7 and 17**

This is the ower Supply On/Off Switch on the motherboard. When pressed, the power switch will force the motherboard to power on. When pressed again, it will force the motherboard to power off.



**Turbo LED Connector: Pins 8 and 18**

There is no turbo/deturbo function on the motherboard. The Turbo LED on the control panel will always be On when attached to this connector.



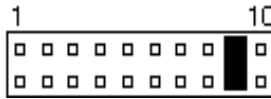
J21 Pin #	Signal Name
8	Turbo LED
18	Ground

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8	5V
18	Ground

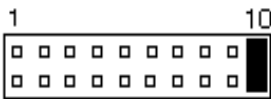
**Reset Switch: Pins 9 and 19**

The reset switch allows the user to reset the system without turning the main power switch Off and then On.



**Hard Disk Drive LED Connector: Pins 10 and 20**

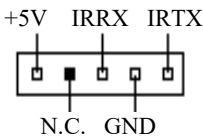
This connector connects to the HDD activity LED on the control panel. This LED flashes when the HDD is being accessed.



J21 Pin #	Signal Name
10	Ground
20	5V

**4.11 IrDA Connector: J22**

The IrDA headers supports the optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system cases that support this feature. You must also configure the setting through BIOS setup to select whether UART2 is directed for use with COM2 or IrDA. Use the five pins as shown on the figure below and connect a ribbon cable from the module to the motherboard according to the pin definitions. The following table shows the pin-out assignment of J22.



J22 Pin #	Signal Name
1	+5V
2	No connect
3	Ir RX
4	Ground
5	Ir TX

#### 4.12 CPU Cooling Fan Connector: JP27

This 2-pin connector supports a CPU cooling fan of 500mAMP (6Watts) or less. Depending on the fan manufacturer, the wiring may be different. The red wire should be positive, while the black should be ground. Connect the fan to the board taking into consideration the polarity of the connector.

**WARNING:** Damage may occur to the motherboard and/or the CPU fan if these pins are incorrectly used.

## Chapter 5 BIOS and System Setup

### Invoking the System Setup Program

Power up the system and the screen will display:

Hit <Del> to enter Setup

Hit the <Del> key and screen will display the main Setup screen.

ROM PCI/ISA BIOS (2A69HM2B)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

<b>STANDARD CMOS SETUP</b>	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...	

### Running the Setup

#### Point and Click Interface

The Setup uses the familiar point and click navigation technique. You can point with mouse anywhere on the screen, click the left mouse button, and Setup control is transferred to the new location.

The previous window is closed. All parameters that have been changed will automatically be saved, pending the selection on the exit screen.

## Using a Mouse with Setup

Setup can be accessed via a keyboard, mouse, or pen. The mouse click functions are:

- Single click to change or select both global and current fields and
- Double-click to perform an operation in the selected field.

## Using the Keyboard with Setup

Use the following keys to modify and move around in the Setup:

Keystroke	Function
<Tab>	Move to the next window or field.
→, ←, ↑, ↓	Move to the next field to the right, left above, or below.
<Enter>	Select in the current field.
+	Increments a value.
-	Decrements a value.
<Esc>	Close the current operation and return to previous level.
<PgUp>	Returns to the previous page.
<PgDn>	Advances to the next page.
<Home>	Returns to the beginning of the text.
<End>	Advances to the end of the text.
<Alt><H>	Access a help window.
<Alt><Spacebar>	Exit WINBIOS Setup.
Alphabetic Keys	A to Z are used in the Virtual Keyboard and are not case-sensitive.
Numeric Keys	0 to 9 are used in the virtual Keyboard and Numeric Keypad.

## Setup Main Menu

### Default Values

The icons in this section permit you to select a group of settings for all the Setup options. Not only can you use these icons to quickly set system configuration parameters, you can choose a group of settings that have a better change of working when the system is having configuration-related problems.

### Original

Choose the Original icon to return to the system configuration values present in WINBIOS Setup when you first began this WINBIOS Setup session.

ROM PCI/ISA BIOS (2A69HM2B)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

<b>STANDARD CMOS SETUP</b>	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...	



ROM PCI/ISA BIOS (2A69HM2B)  
 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
<b>LOAD SETUP DEFAULTS</b>	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Load Setup Defaults except Standard CMOS Setup	

ROM PCI/ISA BIOS (2A69HM2B)  
 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
<b>LOAD BIOS DEFAULTS</b>	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Load BIOS Defaults except Standard CMOS Setup	

**Optimal**

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

**Note: The optimal values are for regular use.**

### Fail safe

You can load the Fail-Safe BIOS Setup option setting by selecting the Fail-Safe icon from the Default section of the 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.

ROM PCI/ISA BIOS (2A69HM2B)  
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	<b>SAVE &amp; EXIT SETUP</b>
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Save Data to CMOS & Exit Setup	

### Save Changes and Exit

Select this option to save into the CMOS RAM all modifications you specify during the current session, to save the configuration changes.

*Note: If you would like to review or modify the configuration more detailed, you could select the ontinueoption to go to next page before you decide to choose the ave Changes and Exitoption.*

**Setup Menu Categories**

ROM PCI/ISA BIOS (2A69HM2B)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

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

Your Setup program can have up to six separate screens. Different types of system configuration parameters are set on each screen.

Type	Description
Standard Setup	Set the time and date. Configure disk drives.
Advanced Setup	Configure basic system performance parameters.
Chipset Setup	Configure features specific to the chipset used in the computer.
Power Management Setup	Configure power conservation features.
PCI/PnP Setup	Configure PCI and Plug-and-Play features.
Peripheral Setup	Configure I/O support.

## Standard Setup Menu

Standard Setup options are displayed by choosing the Standard icon from the Setup menu. All Standard Setup options are described below.

ROM PCI/ISA BIOS (2A69HM2B)  
STANDARD CMOS SETUP  
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : <b>Mon</b> , Aug 19 1996									
Time (hh:mm:ss) : 00 : 00 : 00									
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE	
Primary Master	Auto	0	0	0	0	0	0	0	Auto
Primary Slave	None	0	0	0	0	0	0	0	----
Secondary Master	None	0	0	0	0	0	0	0	----
Secondary Slave	None	0	0	0	0	0	0	0	----
Drive A	: 1.44M, 3.5in				Base Memory		:	640K	
Drive B	: None				Extended Memory		:	15360K	
Floppy 3 Mode Support	: Disabled				Other Memory		:	384K	
Video	: EGA / VGA				Total Memory		:	16384K	
Halt On	: All Errors								
ESC : Quit			↑ ↓ → ← : Select			Item		PU / PD / + / - : Modify	
F1 : Help			(Shift) F2 : Change Color						

### Date/Time

Select the Date/Time option to change the date or time. The current date and time are displayed. Enter new values through the displayed window.

### Floppy Drive A, B

Choose the Floppy Drive A or B icon to specify the floppy drive type. The settings are *360KB 5 1/4"*, *1.2MB 5 1/4 720KB 3 1/2"*, *1.44MB 3 1/2"*, or *2.88MB 3 1/2"*

### Pri Master

### Pri Slave

### Sec Master

### Sec Slave

Choose these icons to configure the hard disk named in the option. When you click on an icon, the following parameters are listed: Type, LBA/Large Mode, Block Mode, 32Bit Mode, and PIO Mode.

### Configuring an MFM Drive

In configuring an old MFM hard disk drive, you must know the drive parameters (number of heads, number of cylinders, number of sectors the starting write precompensation cylinder, and drive capacity). Choose **Type** and choose the appropriate hard disk drive type (1-46).

### User-Defined Drive

If you are configuring a SCSI drive, an MFM, RLL, ARLL or ESDI drive with drive parameters that do not match drive types 1-46, you must select *User* in the **Type** field. You must then enter the drive parameters on the screen that appears. The drive parameters include:

- Cylinder (number of cylinders),
- Hd (number of heads),
- WP (starting write precompensation cylinder),
- Sec (number of sectors),
- Size (drive capacity).

### Configuring IDE Drives

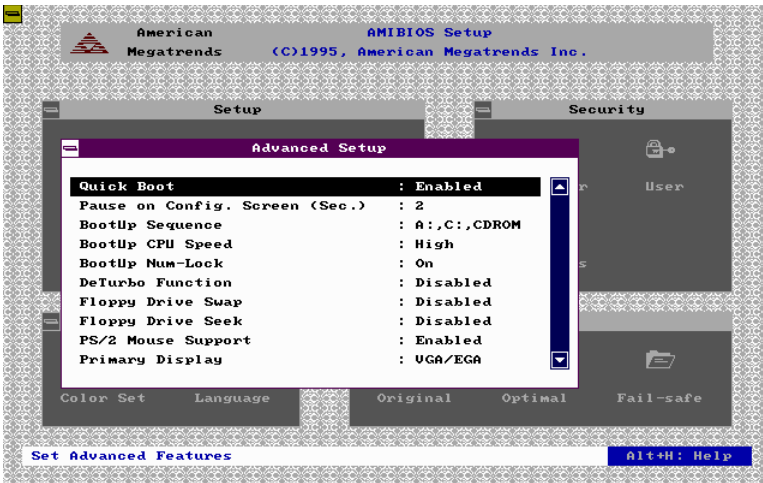
If the hard disk drive to be configured is an IDE drive, select the appropriate drive icon (Pri Master, Pri Slave, Sec Master, or Sec Slave). Choose the **Type** parameter and select *Auto*.

The BIOS automatically detects the IDE drive parameters and displays them. Click on the OK button to accept these parameters.

### Configuring a CD-ROM Drive

Select the appropriate drive icon (Pri Master, Pri Slave, Sec Master, or Sec Slave). Choose the **Type** parameter and select *CDROM*. You can boot the computer from a CD-ROM drive.

## Advanced Setup Menu



### Quick Boot

Set this option to *Enabled* to instruct AMIBIOS to boot quickly when the computer is powered on. This option replaces the old **Above 1 MB Memory Test** Advanced Setup option.

### BootUp Sequence

This option sets the sequence of boot drives (floppy drive A:, hard disk drive C:, or a CD-ROM drive) that the AMIBIOS attempts to boot from after AMIBIOS POST completes. The settings are C:, A:, CDROM; CDROM, C:, A:, or A:, C:, CDROM. The default settings are A:, C:, CDROM.

### Boot From SCSI

This option sets of boot driver from SCSI primary, then sequence by bootup sequence ITEM. The default setting is *Disabled*.

### Bootup CPU Speed

This option lets you specify the CPU speed at system boot. The settings are *Low* or *High*. The Optimal and Fail-Safe default settings are *High*.

### BootUp NumLock

Set this option to *Off* to turn the Num Lock key off when the computer is booted so you can use the arrow keys on both the numeric keypad and the keyboard. The settings are *On* or *Off*. The default settings are *On*.

### **Deturbo Function**

Set this option to control the Deturbo Function. The settings are *Disabled* or *Enabled*. The Optimal and Fail-Safe default settings are ***Disabled***.

### **Floppy Drive Swap**

Set this option to *Enabled* to permit drives A: and B: to be swapped. The settings are *Enabled* or *Disabled*. The default settings are ***Disabled***.

### **Floppy Drive Seek**

Set this option to *Enabled* to specify that floppy drive A: will perform a Seek operation at system boot. The setting is *Disabled* or *Enabled*. The Optimal and Fail-Safe default settings are ***Disabled***.

### **Mouse Support**

When this option is set to *Enabled*, AMIBIOS supports a PS/2-type mouse. The settings are *Enabled* or *Disabled*. The default settings are ***Enabled***.

### **Primary Display**

This option specifies the type of display monitor and adapter in the computer. The settings are *Mono*, *CGA40*, *CGA80*, *EGA/VGA*, or *Absent*. The Optimal and Fail-Safe default settings are ***EGA/VGA***.

### **Password Check**

This option enables password checking every time the computer is powered on or every time BIOS Setup is executed. 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 BIOS is executed. The Optimal and Power-On defaults are ***Setup***.

### **Parity Check**

Set this option to *Enabled* to check the parity of all system memory. The settings are *Disabled* or *Enabled*. The Optimal and Fail-Safe default setting are ***Disabled***.

### OS/2 Compatible Mode

Set this option to *Enabled* to permit AMIBIOS to run with IBM OS/2. The settings are *Enabled* or *Disabled*. The default settings are *Disabled*.

### Internal Cache

This option specifies the caching algorithm used for L1 internal cache memory. The settings are:

Setting	Description
<i>Disabled</i>	Neither L1 internal cache memory on the CPU or L2 secondary cache memory is enabled.
<i>Write Back (default)</i>	Use the write-back caching algorithm.
<i>Write Thru</i>	Use the write-through caching algorithm.

### System BIOS Shadow cacheable

When this option is set to *Enabled*, the contents of the F0000h system memory segment can be read from or written to L2 secondary cache memory. The contents of the F0000h memory segment are always copied from the BIOS ROM to system RAM for faster execution.

The settings are *Enabled* or *Disabled*. The Optimal default setting is *Enabled*. The Fail-Safe default setting is *Disabled*.

**C000, 16K Shadow**

**C400, 16K Shadow**

**C800, 16K Shadow**

**CC00, 16K Shadow**

**D000, 16K Shadow**

**D400, 16K Shadow**

**D800, 16K Shadow**

**C000, 16K Shadow**

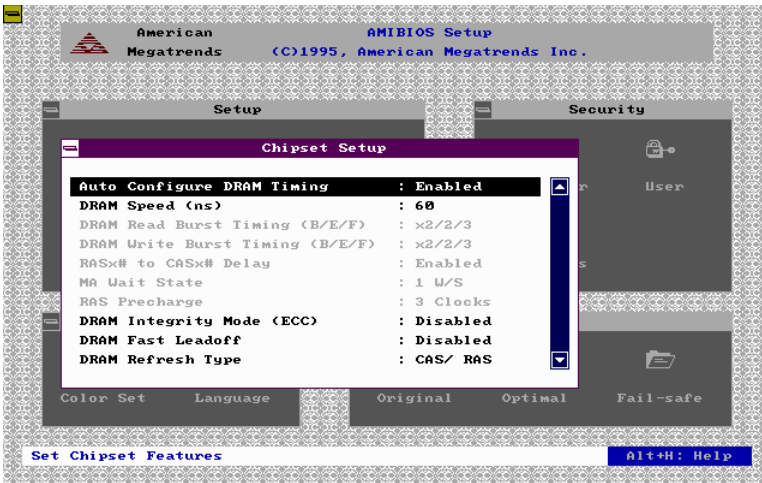
These options control the location of the contents of the 16KB of ROM beginning at the specified memory location. If no adapter ROM is using the named ROM area, This area is made available to the local bus. The settings are as follows:



<b>Setting</b>	<b>Description</b>
<i>Shadow</i>	The contents of C0000h - C3FFFh are written to the same address in system memory (RAM) for faster execution.
<i>Cache</i>	The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adapter ROM will be using the named ROM area. Also, the contents of the RAM area can be read from and written to cache memory.
<i>Disable</i>	The video ROM is not copied to RAM. The contents of the video ROM cannot be read from or written to cache memory.

The C000~C7FF 32K default setting is **Enable**; for other segments, it is **Disable**.

## Chipset Setup Menu



### Auto configure DRAM Timing

Use this option to specify an area in memory that setting read/write and precharge timing on the memory Bus. The default setting is **Enabled**.

### DRAM Speed

Specify the RAS access speed of the SIMMs installed in the motherboard as system memory. The settings are *60ns* or *70ns*. The default is *70ns*.

### Fixed Memory Hole

Enabling this features reserves (15MB to 16MB or 512KB to 640KB) memory address space to ISA expansion cards that specifically require this setting. This makes the memory from (15MB or 512KB) and up unavailable to the system. Expansion cards can only access memory up to 16MB. The default is **Disabled**.

### CPU-to-PCI IDE Posting

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

### USWC Write Posting

Leave on the default setting of **Enabled** to allow USWC write posting during I/O bridge access.

### **CPU-to-PCI Write Post**

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

### **PCI-to DRAM Pipeline**

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

### **PCI Burst Write Combining**

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

### **Read-Around-Write**

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

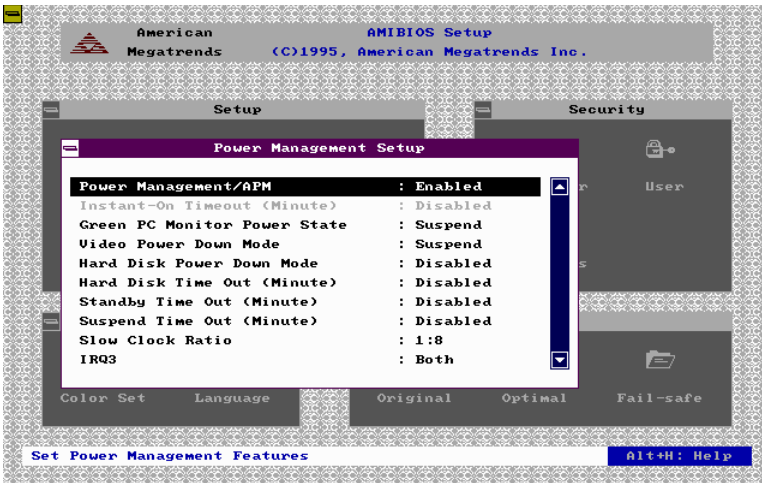
### **8-bit I/O Recovery Time (SYSCLK)**

This option specifies the length of the delay (in SYSCLKs) inserted between consecutive 8-bit I/O operations. The settings are *1, 2, 3, 4, 5, 6, 7, or 8*. The Optimal and Fail-Safe default settings are **3**.

### **16-Bit I/O Recovery Time (SYSCLK)**

This Option specifies the length of the delay (in SYSCLKs) inserted between consecutive 16-bit I/O operations. The settings are *1, 2, 3, 4, 5, 6, 7, or 8*. The Optimal and Fail-Safe default settings are **3**.

## Power Management Setup



### Power Management/APM

Set this option to *Enabled* to enable the power management and APM (Advanced Power Management) features. The settings are *Enabled* or *Disabled*. The default settings are *Enabled*.

### Instant On Support

Set this option to *Enabled* to allow the computer to go to full power on mode when leaving a power-conserving state. *This option is only available if supported by the computer hardware.* AMIBIOS uses the RTC Alarm function to wake the computer at a pre-specified time. The settings are *Enabled* or *Disabled*. The default settings are *Disabled*.

### Green PC Monitor Power State

This option specifies the power management state that the Green PC-compliant video monitor enters after the specified period of display inactivity has expired. The settings are *Disabled*, *off Standby*, or *Suspend*. The default settings are *Suspend*.

### **Video Power Down Mode**

This option specifies the power management state that the video subsystem enters after the specified period of display inactivity has expired. The settings are *Disabled*, *Standby*, or *Suspend*. The default are *Suspend*.

### **Hard Disk Power Down Mode**

This option specifies the power management state that the hard disk drive enters after the specified period of display inactivity has expired. The settings are *Disabled*, *Standby*, or *Suspend*. The default settings are *Disabled*.

### **Hard Disk Timeout (Min)**

This option specifies the length of a period of hard disk inactivity. When this period expires, the hard disk drive enters the power conserving mode specified in the Hard Disk Power Down Mode option described on the previous page. The settings are *Disabled*, *1Min (minutes)*, and all one minute intervals up to and including *15 Min*. The default settings are *Disabled*.

### **Full-On to Standby Timeout**

This option specifies the length of the period of system inactivity when the computer is in Full-On mode before the computer is placed in Standby mode. In Standby mode, some power use is curtailed. The settings are *Disabled*, *1 Min*, *2 Min*, and all one minute intervals up to and including *15 Min*. The default settings are *Disabled*.

### **Standby to Suspend Timeout**

This option specifies the length of the period of system inactivity when the computer is already in Standby mode before the computer is placed in Suspend mode. In Suspend mode, nearly all power use is curtailed. The settings are *Disabled*, *1 Min*, *2 Min*, and all one minute intervals up to and including *15 Min*. The default settings are *Disabled*.

### **Slow Clock Ratio**

This option specifies the speed at which the system clock runs in power saving modes. The settings are expressed as a ratio between the normal clock speed and the power down clock speed. The settings are *1:1*, *1:2* (half as fast as normal), *1:4* (the normal clock speed), *1:8*, *1:16*, *1:32*, *1:64*, or *1:128*. The default setting is *1:8*.

### Display Activity

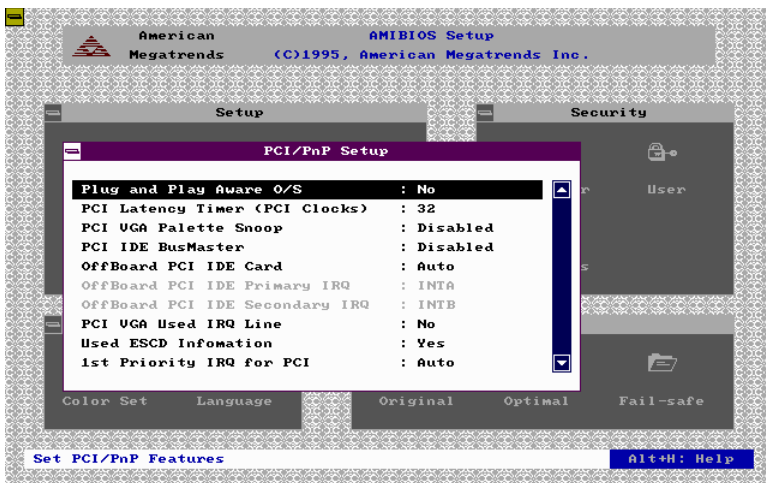
This option specifies if AMIBIOS is to monitor activity on the display monitor for power conservation purposes. When this option is set to Monitor and there is no display activity for the length of time specified in the value in the *Full-On to Standby Timeout (Min)* option, the computer enters a power saving state. The settings are *Monitor*, *Wakeup*, *Ignore*, or *Both*. The default settings are **Ignore**.

<b>IRQ3</b>	<b>IRQ9</b>	<b>IRQ13</b>
<b>IRQ4</b>	<b>IRQ10</b>	<b>IRQ14</b>
<b>IRQ5</b>	<b>IRQ11</b>	<b>IRQ15</b>
<b>IRQ7</b>	<b>IRQ12</b>	

These options enable event monitoring. When the computer is in a power saving mode, activity on the named interrupt request line is monitored by AMIBIOS. When any activity occurs, the computer enters Full On mode.

Each of these options can be set to *Monitor* or *Ignore*. The default setting for all options is **Ignore**. Except IRQ3, IRQ4, IRQ14, IRQ15, is **Both**.

## PCI/PnP Setup Menu



### Plug and Play Aware OS

Set this option to *Yes* if the operating system installed in the computer is Plug and Play-aware. AMIBIOS only detects and enables PnP ISA adapter cards that are required for system boot. The Windows 95 operating system detects and enable all other PnP-aware adapter cards. Windows 95 is PnP-aware.

Set this option to *No* if the operating system (such as DOS, OS/2, Windows 3.x) does not use PnP. You must set this option correctly or PnP-aware adapter cards installed in your computer will not be configured properly. The settings are *No* or *Yes*. The Optimal and Fail-Safe default settings are *No*.

### PCI Latency Timer (in PCI Clocks)

This option sets latency of all PCI devices on the PCI bus. The settings are in units equal to PCI clocks. The settings are *32, 64, 96, 128, 160, 192, 244, or 248*. The Optimal and Fail-Safe default settings are *32*.

### PCI VGA Palette Snoop

This option must be set to *Enabled* if any ISA adapter card installed in the computer requires VGA palette snooping. The settings are *Disabled* or *Enabled*. The Optimal and Fail-Safe default settings are *Disabled*.

### PCI IDE BusMaster

Set this option to Enabled to specify that the IDE controller on the PCI local bus has bus mastering capability. The settings are *Disabled* or *Enabled*. The Optimal and Fail-Safe default settings are *Disabled*.

### Offboard PCI IDE Card

This option specifies if an offboard PCI IDE controller adapter card is used in the computer. You must also specify the PCI expansion slot on the motherboard where the offboard PCI IDE controller card is installed. If an offboard PCI IDE controller is used, the onboard IDE controller on the motherboard is automatically disabled. The settings are *Disabled*, *Auto Slot1*, *Slot2*, *Slot3*, or *Slot4*.

If *Auto* is selected, AMIBIOS automatically determines the correct setting for this option. The Optimal and Fail-Safe default settings are *Auto*.

### Offboard PCI IDE Primary IRQ

The Optimal and Fail-Safe default settings are *INTA*.

### Offboard PCI IDE Secondary IRQ

The Optimal and Fail-Safe default settings are *INTB*.

<b>IRQ3</b>	<b>IRQ9</b>	<b>IRQ14</b>
<b>IRQ4</b>	<b>IRQ10</b>	<b>IRQ15</b>
<b>IRQ5</b>	<b>IRQ11</b>	
<b>IRQ7</b>	<b>IRQ12</b>	

These options specify the bus that the named interrupt request lines (IRQs) are used on. These options allow you to specify IRQs for use by legacy ISA adapter cards.

These options determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to BIOS configurable devices. The available IRQs pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these PCI/PnP Setup options to remove the IRQ by assigning the option to the ISA/EISA setting. Onboard I/O is configurable by AMIBIOS. The IRQs used by onboard I/O are configured *PCI/PnP*.

The settings are *PCI/PnP* or *ISA/EISA*. The Optimal and Fail-Safe default settings are *PCI/PnP*.



### **Reserved Memory Size**

This option specifies the size of the memory area reserved for legacy ISA adapter cards.

The settings are *Disabled*, *16K*, *32K*, or *64K*. The Optimal and Fail-Safe default settings are ***Disabled***.

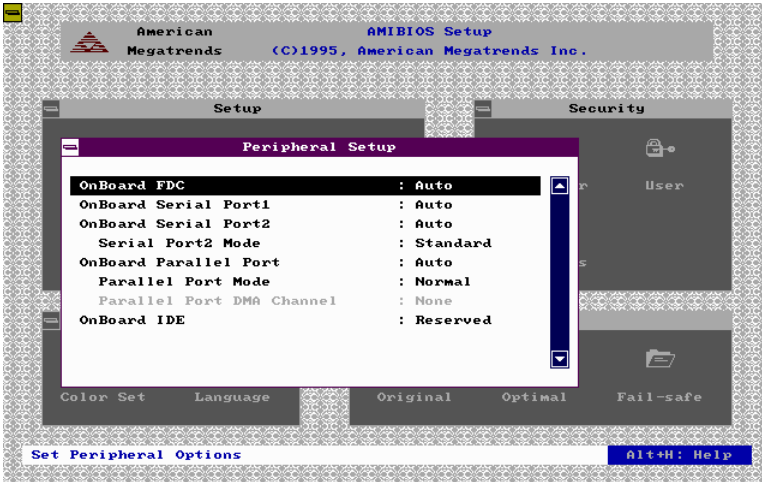
### **Reserved Memory Address**

This option specifies the beginning address (in hex) of the reserved memory area. The specified ROM memory area is reserved for use by legacy ISA adapter cards.

The settings are *C0000*, *C4000*, *C8000*, *CC000*, *D0000*, *D4000*, *D8000*, or *DC000*. The Optimal and Fail-Safe default settings are ***C0000***.

## Peripheral Setup Menu

Peripheral Setup options are displayed by choosing the Peripheral Setup icon from the Setup main menu. All Peripheral Setup options are described in this section.



### Onboard FDC

This option enables the floppy drive controller on the motherboard. The settings are *Enabled* or *Disabled*. The Optimal default setting is *Enabled*. The Fail-Safe default setting is *Disabled*.

### Onboard Serial Port1

This option enables serial port 1 on the motherboard and specifies the base I/O port address for serial port 1.

The settings are *3F8h*, *3E8h*, *Auto*, or *Disabled*. The Optimal default setting is *Auto*. The Fail-Safe default setting is *Disabled*.

### Onboard Serial Port2

This option enables serial port 2 on the motherboard and specifies the base I/O port address for serial port 2.

The settings are *2F8h*, *2E8h*, *Auto*, or *Disabled*. The Optimal default setting is *Auto*. The Fail-Safe default setting is *Disabled*.

### Onboard Parallel port

This option enables the parallel port on the motherboard and specifies the parallel port base I/O port address. The settings are *378h*, *278h*, *Auto*, or *Disabled*.

The Optimal default setting is *Auto*. The Fail-Safe default setting is *Disabled*.

### Parallel Port Mode

This option specifies the parallel port mode. ECP and EPP are both bi-directional data transfer schemes that adhere to the IEEE P1284 specifications. The settings are:

Setting	Description
<i>Normal</i>	The normal parallel port mode is used. This is the default setting.
<i>Bi-Dir</i>	Use this setting to support bi-directional transfers on the parallel port.
<i>EPP</i>	The parallel port can be used with devices that adhere to the Enhanced Parallel Port (EPP) specification. EPP uses the existing parallel port signals to provide asymmetric bi-directional data transfer driven by the host device.
<i>ECP</i>	The parallel port can be used with device that adhere to the Extended Capabilities Port (ECP) specification. ECP uses the DMA protocol to achieve transfer rates of approximately 2.5MBs. ECP provides symmetric bi-directional communications.

### Parallel Port DMA

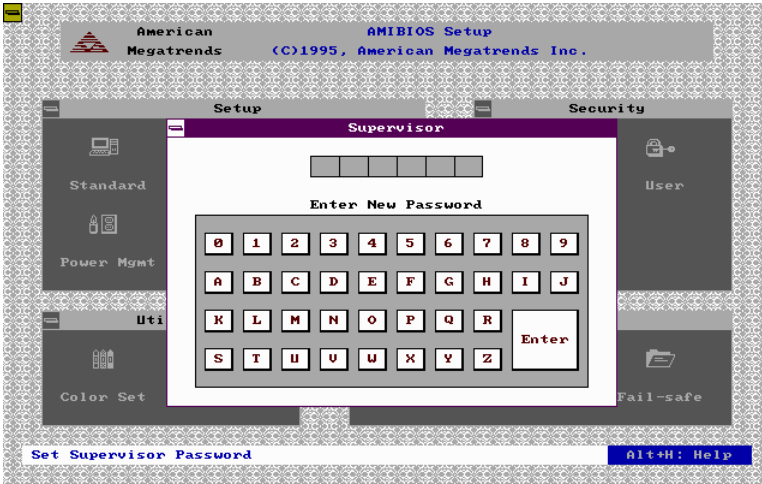
This option is only available if the setting for the **Parallel Port Mode** option is ECP.

The settings are *Disabled*, *DMA CH (channel) 0*, *DMA CH 1*, or *DMA CH 3*. The default setting is *Disabled*.

### Onboard IDE

This option specifies the onboard IDE controller channels that will be used. The settings are *Primary*, *Secondary*, *Both*, or *Disabled*. The Optimal and Fail-Safe default settings are *Both*.

## Password



### If You Do Not Want to Use a Password

Just press <Enter> when the password prompt appears.

### Setting a Password

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 BIOS is run). The password is stored in CMOS RAM.

You can enter a password by:

- typing the password on the keyboard,
- selecting each letter via the mouse, or
- selecting each letter via the pen stylus.

Pen access must be customized for each specific hardware platform

When you select Supervisor or User, AMIBIOS prompts for a password. You must set the Supervisor password before you can set the User password. Enter a 1 - 6 character password. The password does not appear on the screen when typed. Make sure you write it down. If you forget it, you must drain CMOS RAM and reconfigure the system.

## Anti-Virus

When this icon is selected from the Security section of the Setup main menu, AMIBIOS issues a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. The settings are *Enabled* or *Disabled*. If enabled, the following appears when a write is attempted to the boot sector. You may have to type N several times to prevent the boot sector write.

```
          Boot Sector Write!!!  
Possible VIRUS: Continue (Y/N)? _
```

The following appears after any attempt to format any cylinder, head, or sector of any hard disk drive via the BIOS INT 13 Hard Disk Drive Service:

```
          Format!!!  
Possible VIRUS: Continue (Y/N)? _
```