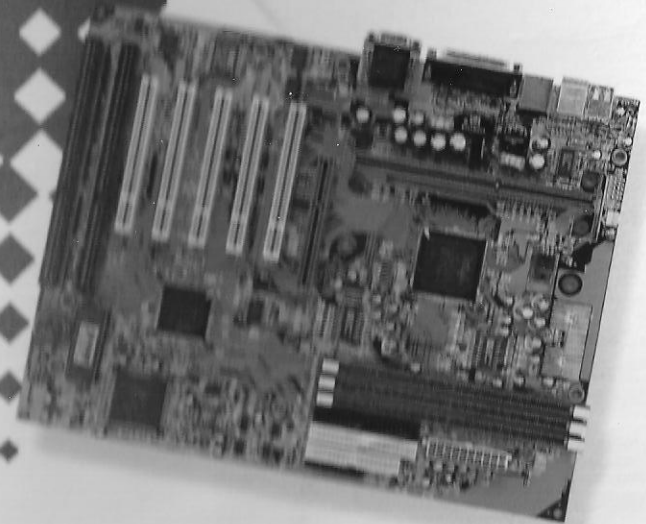


M6TBD

SYSTEM BOARD



User's Manual

Federal Communications Commission (F.C.C) Statement

This device complies with Part 15 of the FCC Rules. Operation of this device is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Accessories: This device has been tested and found to comply with the limits of a Class B digital device, the accessories associated with this equipment are as follows:

1. Shielded serial cable. (Can be obtained from multiple retail outlets)
2. Shielded printer cable. (Can be obtained from multiple retail outlets)
3. Shielded video cable. (Can be obtained from multiple retail outlets)
4. Shielded power cord. (Provided by manufacturer)

These accessories are required to be used in order to ensure compliance with FCC Rules. It is the responsibility of the user to provide and use these accessories properly.

This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient / Relocate the receiving antenna.
 2. Increase the separation between the equipment and receiver.
 3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 4. Consult the dealer or an experienced radio/TV technician for help.
-

Caution: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Disclaimer

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Canadian D.O.C. Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

And

Le present appareil numerique n'emet pas de bruits radioelectriques depressant less limits appliques aux appareils numeriques de Class B prescripts Dan le regalement usr le brouillage radioelectrique edict par le minister Des Communications du Canada.

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Introduction

System Overview

Thanks for buying this product! This manual was written to help you start using this product as quickly and smoothly as possible. Inside you will find adequate explanations to solve most problems. In order for this reference material to be of greatest use, refer to the “expanded table of contents” to find relevant topics.

The board incorporates the system board, ISA I/O and PCI IDE into one board that provides a complete PC solutions. The motherboard is a Pentium II processor based PC/AT system, with ISA Bus and PCI Local Bus to support upgrade your system performance. It is ideal for multi-tasking and fully supports MS-DOS, Windows, Windows NT, Novell, OS/2, Windows9x, UNIX, SCO UNIX, etc. This manual also explains how to install the motherboard for operation and how to setup your CMOS configuration with BIOS setup program.

1 Motherboard Description

1.1 Features

1.1.1 Hardware

CPU

- Pentium II™ microprocessor provide the newest generation of power processing for high-end workstations and servers.
- Provides a SEC slot for a Pentium II CPU card.

Speed

- Supports 233MHz to 500MHz core speed CPUs.
- Supports 33 MHz PCI Bus speed.
- I/O clock 8 MHz for ISA Bus.
- Supports 66 / 133 MHz AGP Bus speed.
- 66/100MHz Host Bus.

DRAM Memory

- Supports 8/16/32/64/128.....MB DIMM module sockets.
- Supports EDO (3.3V) & Synchronous DRAM (3.3V).
- Supports a maximum memory size of 512MB with SDRAM or 1024MB with EDO.

Flash Memory

- Supports flash memory.
- Supports ESCD Function.

Shadow RAM

- A memory controller that provides shadow RAM and supports 8-bit ROM BIOS.

Green Function

- Supports Power Management operation via BIOS.
- Power-down timer from 1 minutes to 1 hour.
- Wakes up by pressing any key or mouse activity.

BUS Slots

- Provides two 16-bit ISA Bus slots, four Master PCI Bus slots, one Slave PCI Bus slot, and one AGP Bus slot.

PCI Enhanced IDE Built-in On Board

- Supports 4 IDE hard disk drives.
- Supports PIO Mode 4, Master Mode, high performance hard disk drives.
- Supports Ultra DMA/33, Bus Master Mode.
- Supports IDE interface with CD-ROM.
- Supports high capacity hard disk drives.
- Supports LBA mode.
- Supports PIO modes up to Mode 4 Timings and Multiword DMA Mode 0,1,2 with Independent Timing of up to 4 Drives.
- Supports booting from LS-120 "Super Disk" or IOMEGA 100MB ZIP disk.

PCI Fast Ethernet Built-in On Board

- Supports PCI local bus Master high speed data transfer.
- Complies with the Ethernet/IEEE 802.3 / 802.3u 10BASE-T and 100BASE-TX industry standard.
- RJ-45 connector for twisted-pair cables.
- 10 Mbps or 100Mbps Ethernet data transfer rate
- Supports BOOT ROM function
- 3 LED indicators: LINK, ACT, 100TX

ISA I/O Built-in Onboard

- Supports one multi-mode Parallel Port:
 - (1) Standard & Bi-directional Parallel Port (SPP).
 - (2) Enhanced Parallel Port (EPP).
 - (3) Extended Capabilities Port (ECP).
- Supports two serial ports, 16550 UART with 16 byte FIFO.
- Supports one Infrared transmission (IR) port.
- Supports PS/2 Mouse and PS/2 Keyboard.
- Supports 360KB, 720KB, 1.2MB, 1.44MB, and 2.88MB floppy disk drives.

Universal Serial Bus

- Supports two Universal Serial Bus (USB) Ports.
- Supports 48MHz USB.

Platform

- ATX.

Dimension

- 30.5 cm X 24.5 cm (W x L)

1.1.2 Software**BIOS**

- AWARD legal friendly BIOS.
- Supports PnP functions.
- Supports APM 1.2
- Supports USB functionality.

Operating System

- Offers the highest performance for MS-DOS, OS/2, Windows, Windows NT, Windows 9x, Novell, UNIX, SCO UNIX, etc.

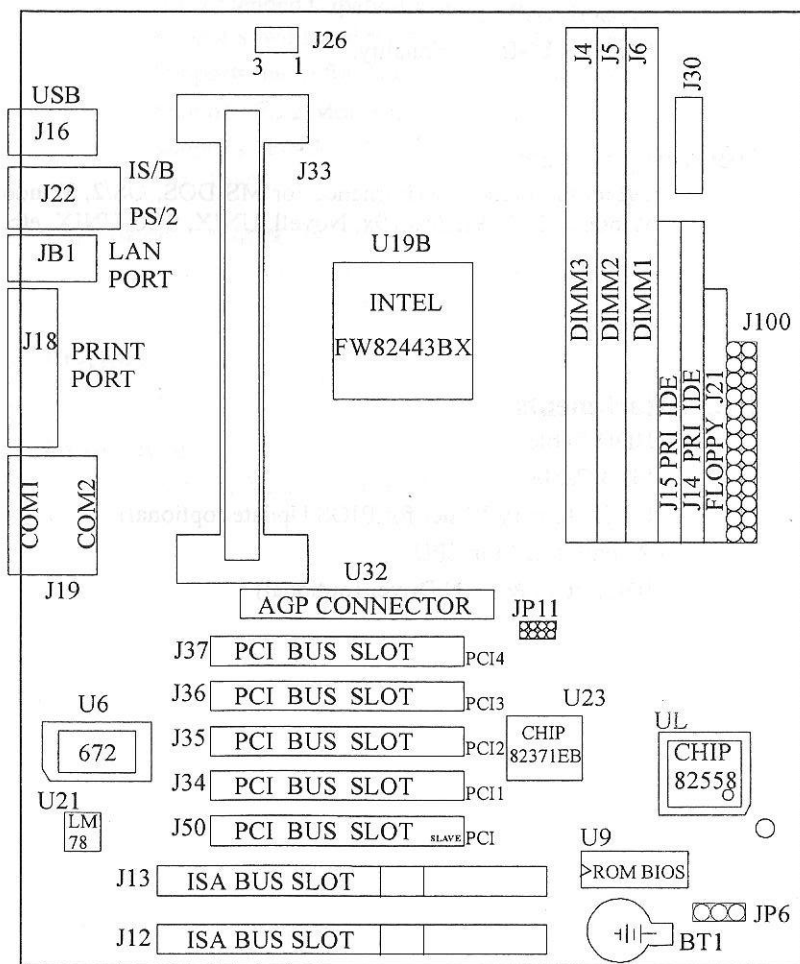
1.1.3 Attachments

- HDD Cable
- FDD Cable
- Flash Memory Writer for BIOS Update (optional)
- Retention Kit for CPU
- IDE Driver & LAN Driver (optional)

1.2 Motherboard Installation

1.2.1 Layout of Motherboard

Model No.M6TBD

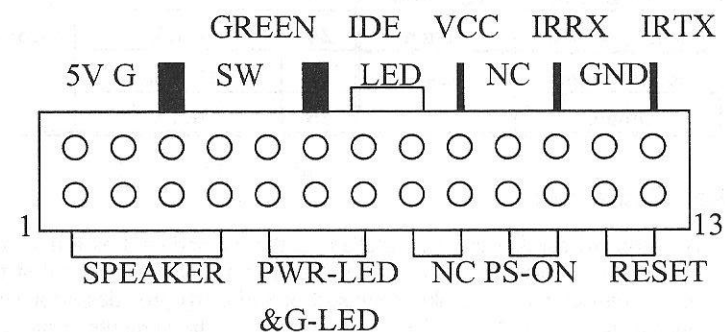


1.3 Motherboard Connectors

1.3.1 Front Panel Connectors (J100)

The front panel connector includes connections for the following I/O devices:

- Offboard speaker
- Reset switch
- Power LED
- Hard drive activity LED
- Infrared port
- Sleep switch
- Power switch



Front Panel I / O Connectors

Pin No.	Assignment	Function	Pin No.	Assignment	Function
1	Speaker	Speaker Connector	14	+5V	VCC
2	NC		15	Ground	Ground
3	NC		16	NC	
4	+5V		17	Green Control	GREEN SW
5	Power LED(+)	Power LED & G LED	18	Ground	
6	NC		19	NC	
7	Ground		20	HDD LED(-)	HDD LED
8			21	HDD LED(+)	
9			22	+5V	
10	Power Switch	ATX Power	23	NC	IrDA Connector
11	Standby Voltage	Button	24	IRRX	
12	Reset Control	Reset	25	Ground	
13	Ground		26	IRTX	

Speaker Connector

An offboard speaker can be installed on the motherboard as a manufacturing option. An offboard speaker can be connected to the motherboard at the front panel connector. The speaker (onboard or offboard) provides error beep code information during the POST in the event that the computer cannot use the video interface. The speaker is not connected to the audio subsystem and does not receive output from the audio subsystem.

Reset Connector

This connector can be connected to a momentary SPST type switch that is normally open. When the switch is closed, the motherboard resets and runs the POST.

Power LED Connector

This connector can be connected to a LED that will light when the computer is powered on.

Hard Drive LED Connector

This connector can be connected to a LED to provide a visual indicator that data is being read from or written to a hard drive. For the LED to function properly, an IDE drive must be connected to the onboard hard drive controller.

Infrared Connector

After the IrDA interface is configured, files can be transferred to or from portable devices such as laptops, PDAs, and printers using application software.

Sleep/Resume Switch Connector

When APM is enabled in the system BIOS, and the operating system's APM driver is loaded, the system can enter sleep (standby) mode in one of the following ways:

- Prolonged system inactivity using the BIOS inactivity timer feature
- Optional front panel sleep/resume button

The 2-pin connector located on the front panel I/O connector supports a front panel sleep/resume switch, which must be a momentary SPST type that is normally open.

Closing the sleep/resume switch sends a System Management Interrupt (SMI) to the processor, which immediately goes into SMM. While the computer is in sleep mode, it is fully capable of responding to and servicing external interrupts, such as an incoming fax. The monitor will only turn on if a keyboard or mouse interrupt occurs. To reactivate or resume system operation, the sleep/resume switch must be pressed again, or the keyboard or mouse must be used.

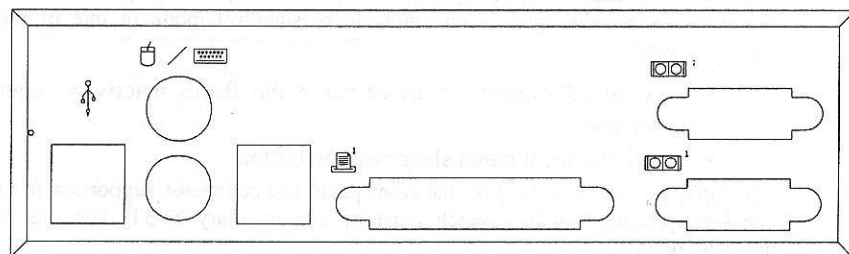
Power On Connector

This connector can be connected to a front panel power switch. The switch must pull the SW_ON# pin to ground for at least 50 ms to signal the power supply to switch on or off. (The time requirement is due to internal debunk circuitry on the motherboard.) At least two seconds must pass before the power supply will recognize another on/off signal.

1.3.2 Back Panel Connectors

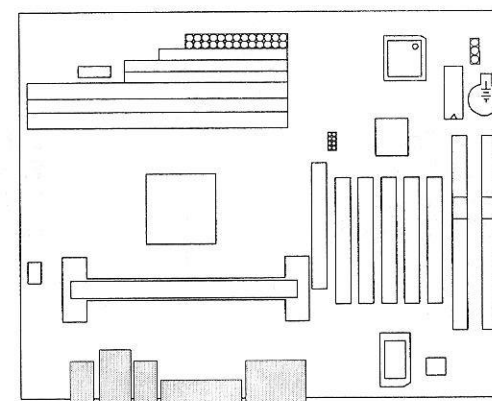
The back panel I/O shield for the motherboard must meet specific dimension and material requirements. Systems based on this motherboard need the back panel I/O shield to pass certification testing. The figure below shows the critical dimensions of the chassis-independent I/O shield.

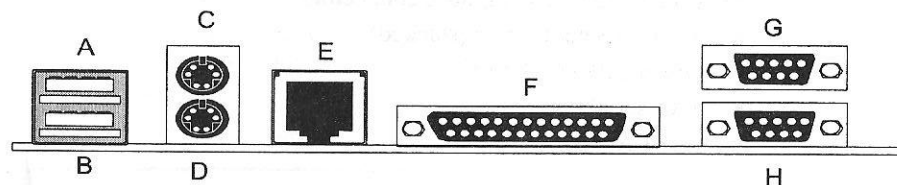
NOTE: A chassis-independent I/O shield designed to be compliant with the ATX chassis specification 2.01 is available from Intel.



The figure below shows the location of the back panel I/O connectors, which include:

- PS/2 keyboard and mouse connectors
- Two USB connectors (stacked)
- One parallel port
- Two serial ports
- One LAN port

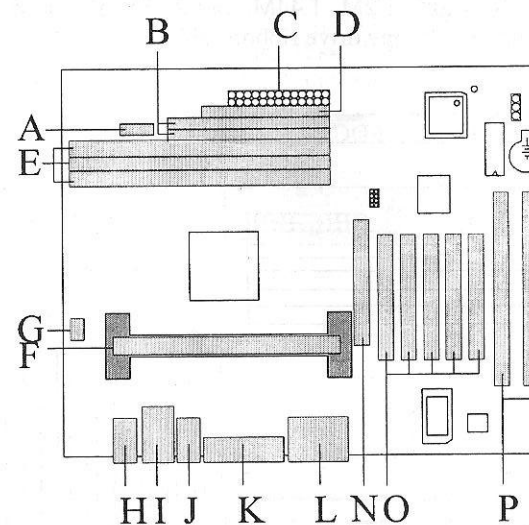




- A. USB Port 1
- B. USB Port 0
- C. PS/2 mouse
- D. PS/2 keyboard

- E. LAN Port
- F. Parallel Port
- G. COM 2
- H. COM 1

1.3.3 Motherboard connector

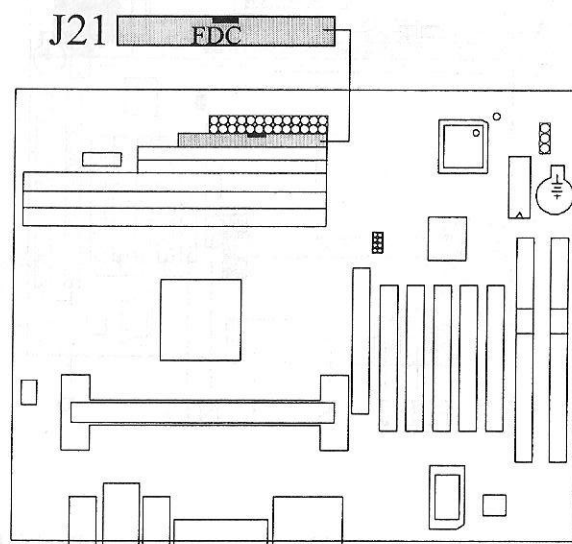


- A. ATX Power Connector (J30)
- B. IDE Connectors (J14/J15)
- C. Front Panel Connectors (J100)
- D. Floppy Disk Connector (J21)
- E. DIMMs (J4-J6)
- F. Slot 1 (J33)
- G. CPU FAN Connector (J26)
- H. USB Connector (J16)
- I. Mouse / Keyboard Connector (J22)

- J. LAN Port (JB1)
- K. Parallel Port Connector (J18)
- L. COM Port (J19)
- N. AGP Connector (U32)
- O. PCI Slots (J34 – J37&J50)
- P. ISA Slots (J12 – J13)

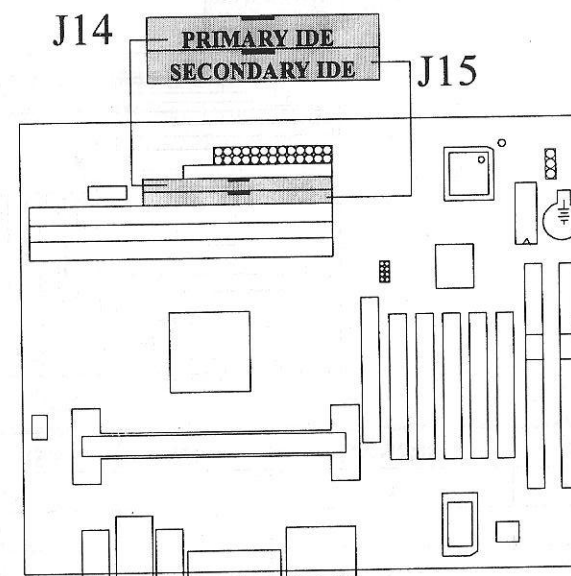
1.3.4 Floppy Disk Connector : J21

The motherboard also provides a standard Floppy Disk Connector (FDC) that supports 360K, 720K, 1.2M, 1.44M, and 2.88M floppy disk types. This connector supports floppy drive ribbon cables.



1.3.5 Hard Disk Connector : J14 / J15

The motherboard has a 32-bit Enhanced PCI IDE Controller that provides PIO Mode 0~4, Bus Master, and Ultra DMA / 33 functionality. It has two HDD connectors IDE1 (primary) and IDE2 (secondary). You can connect up to four hard disk drives, a CD-ROM, a 120MB Floppy (reserved for future BIOS) and other devices to IDE1 and IDE2. These connectors support the IDE hard disk cable provided.



- IDE1 (Primary IDE Connector)

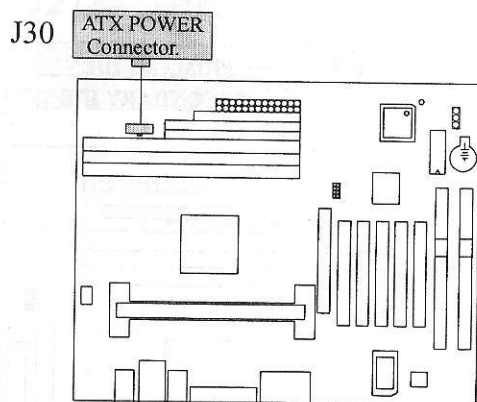
The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure the second hard drive on IDE1 to Slave mode by setting the jumper accordingly.

- IDE2 (Secondary IDE Connector)

The IDE2 controller can also support a Master and a Slave drive. The configuration is similar to IDE1. The second drive on this controller must be set to slave mode.

1.3.6 ATX 20-pin Power Connector : J30

This connector supports the onboard power button. Using the ATX power supply, functions such as Modem Ring Wake-Up and Soft Power-Off are supported by this motherboard. This power connector supports Instant Power-On functionality, which means that the system will boot up instantly when the power connector is inserted on the board.



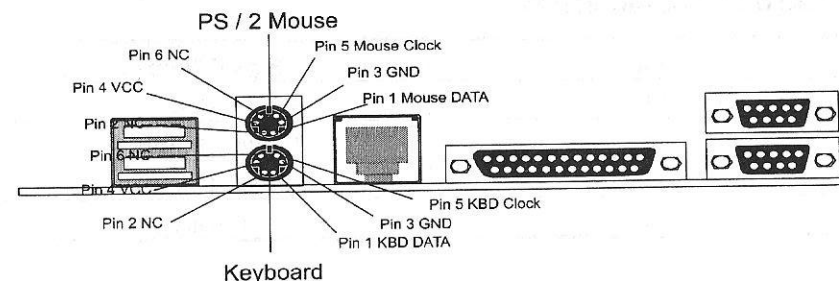
PIN	SIGNAL	PIN	SIGNAL
1	3.3 V	11	3.3 V
2	3.3 V	12	-12 V
3	GND	13	GND
4	5 V	14	PS ON
5	GND	15	GND
6	5 V	16	GND
7	GND	17	GND
8	PW_OK	18	-5 V
9	5V_SB	19	5 V
10	12 V	20	5 V

Warning:

Since the motherboard has the Instant Power-On function, make sure that all components are installed properly before inserting the power connector to ensure that no damage will be done.

1.3.7 Mouse / Keyboard Connector : J22

The motherboard provides standard PS/2 mouse and Keyboard mini-DIN connectors. You can plug a PS/2 mouse and keyboard directly into these connectors. The connector location and pin definitions are shown below:

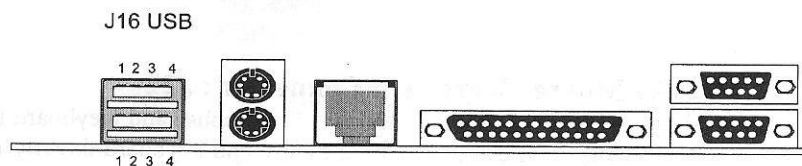


PS/2 Mouse / Keyboard Connectors

Pin	Signal Name
1	Data
2	No connect
3	Ground
4	+5 V (fused)
5	Clock
6	No connect

1.3.8 USB Connector : J16

The motherboard provides an UHCI (Universal Host Controller Interface) Universal Serial Bus ports for attaching USB devices like keyboard, mouse and other USB devices. You can plug USB devices directly into this connector.

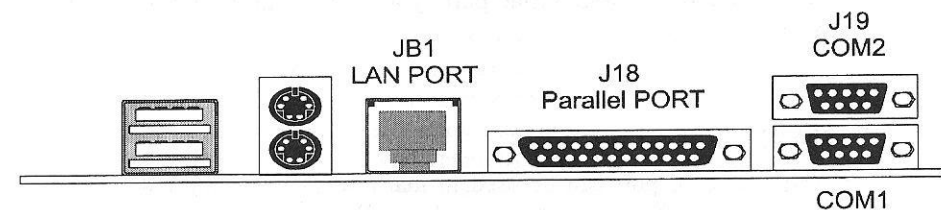


Stacked USB Connectors

Pin	Signal Name
1	+5 V (fused)
2	USBP0- [USBP1-]
3	USBP0+ [USBP1+]
4	Ground

Signal names in brackets ([]) are for USB port 1.

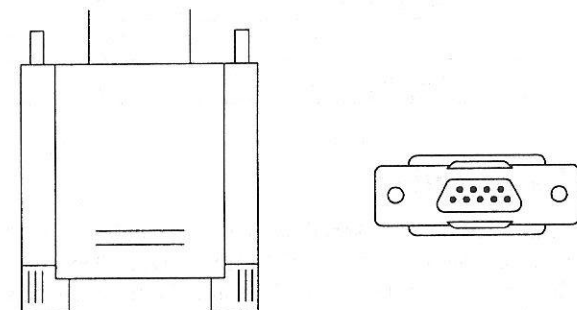
1.3.9 Serial and Parallel Interface Ports (J19/J18) LAN Port (JB1)



This system comes equipped with two serial ports and one parallel port. Both types of interface ports are explained in this chapter.

The Serial Interface Port

The serial interface port is sometimes referred to as an RS-232 port or an asynchronous communications port. Mice, printers, modems, and other peripheral devices can be connected to a serial port. The serial port can also be used to connect your computer with another computer system. If you wish to transfer the contents of your hard disk to another system it can be accomplished by using each machine's serial port.



The serial ports on this system have two types of connectors, (one) 9-pin and (one) 25-pin. Some older computer systems and peripherals have only one 25-pin connector. Should you need to connect your 9-pin serial port to an older 25-pin serial port, you can purchase a 9-to-25-pin adapter.

Connectivity

Because a serial port can be used in many ways, you may need to be familiar with the pinout diagram. The following chart shows you the function of each pin on the 9-pin connector. This information can be used when configuring certain software programs to work with the serial port.

Signal	Name	DB9 PIN	DB25 PIN
DCD	Data Carrier Detect	1	8
RX	Receive Data	2	3
TX	Transmit Data	3	2
DTR	Data Terminal Ready	4	20
GND	Signal Ground	5	7
DSR	Data Set Ready	6	6
RTS	Request to Send	7	4
CTS	Clear to Send	8	5
RI	Ring Indicator	9	22

Special Applications

There are two types of serial devices that can be connected to a serial port. One of the devices is called "DTE" (Data Terminal Equipment) and another device is called "DCE" (Data Communications Equipment). If a modem is connected to a computer, for example, the modem is called the DCE and the computer is called the DTE. In situations such as this, the pins on the serial ports can be connected straight through.

In instances when there are two DTE devices connected together, such as a computer and a printer, a special adapter called a "Null Modem" is needed to make communication between the two devices possible.

When using the serial port to communicate between devices one problem in particular may arise. Some manufacturers use one set of signals to begin communication with another device while other manufacturers may not. If you encounter a communication problem that cannot be resolved using a null modem, it can generally be assumed that one device is using the initialization signals and the other device is not. This can usually be resolved by wiring the RTS, CTS, and DCD pins together.

Serial Ports/COM Ports

The two serial ports on the computer are called COM1 and COM2, respectively. If you wish, two additional serial ports can be added onto the computer using optional hardware. Should you choose to add the extra Serial ports (COM ports) they would be called COM3 and COM4.

When using serial ports to communicate with a peripheral device be sure to assign only one COM port number to each device. For example, if a printer and a scanner are both connected to your computer through serial ports the printer must be assigned to one COM port (i.e. COM1) and the scanner must be assigned to the other COM port (i.e. COM2). No two devices can be assigned to the same COM port. Each peripheral must have its own COM port.

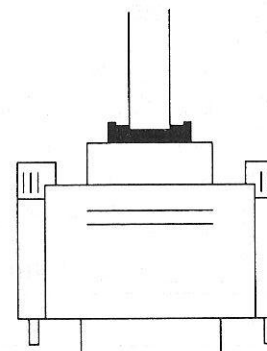
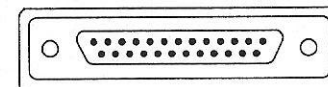
NOTE: Four serial ports may be installed on the computer. However, no more than two ports can be used simultaneously.

*When you have install an internal modem be sure not to assign a COM port number that has already been assigned to another device. This is a common error.

When install a device that is going to require the use of a serial port, please use a diagnostic program to find out which ports are available. It may be necessary to remove expansion cards that have serial ports in order to check their jumper settings. The jumper settings will indicate which COM port the card has been assigned. Checking the expansion card will eliminate mistakes in overlapping COM ports. Once you have completed the installation of peripheral devices using the serial ports, be sure that the communication parameters such as baud rate, parity bit, etc. are matching. If your computer is set for a baud rate of 9600 and your modem is set for a baud rate of 2400 you will not be able to send messages. The manuals that accompany the peripheral devices will inform you on the procedure for setting their parameters. Software manuals will also have instructions on setting parameters.

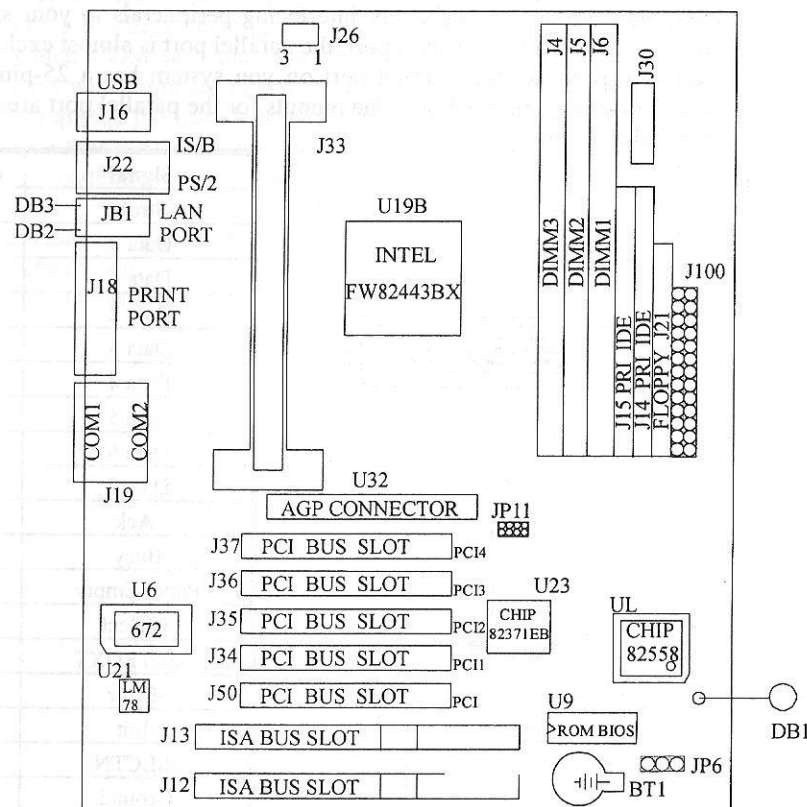
Parallel Interface Ports

Unlike the serial port, parallel interface ports have been standardized and should not present any difficulty interfacing peripherals to your system. Sometimes called a Centronics port, the parallel port is almost exclusively used with printers. The parallel port on your system has a 25-pin, DB5 connector (see picture below). The pinouts for the parallel port are shown in the table below.



Signal	Pin
-Strobe	1
Data 0	2
Data 1	3
Data 2	4
Data 3	5
Data 4	6
Data 5	7
Data 6	8
Data 7	9
-Ack	10
Busy	11
Paper Empty	12
+Select	13
-Auto FDXT	14
-Error	15
-Init	16
-SLCTN	17
Ground	18
Ground	19
Ground	20
Ground	21
Ground	22
Ground	23
Ground	24
Ground	25

1.3.10 Ethernet indicate LED



NO.	ASSIGNMENT
DB1 (100TX)	Ethernet 100Mbps speed LED
DB2 (LINK)	Ethernet link integrity LED
DB3 (ACT)	Ethernet Activity LED

1.4 CPU Installation/Jumper Setting

1.4.1 CPU Installation Procedure

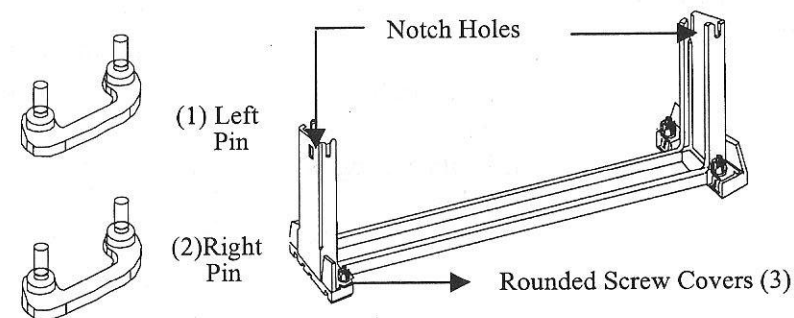
The M6TBD motherboard provides one Single Edge Contact (SEC) slot. This slot allows you to install a Pentium II CPU.

Before you use:

Please look on your motherboard and locate the CPU fan and the CPU fan power supply. Please verify that this fan is directly used to cool the CPU and its heat sink, as well as to cool the motherboard and circulate the air.

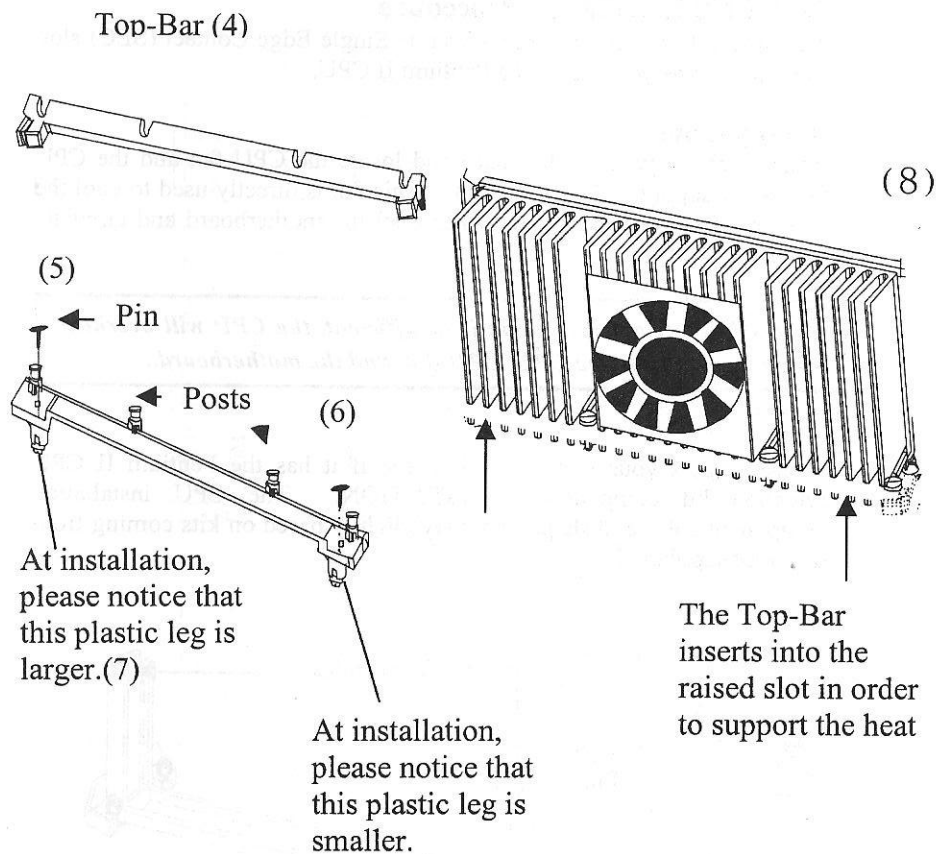
WARNING : If air circulation is insufficient, the CPU will overheat, which may damage the CPU, CPU slot, and the motherboard..

Please inspect your motherboard to see if it has the Pentium II CPU retention kit components. (ATTENTION: The CPU installation component color and shape may vary slightly based on kits coming from different suppliers.)



Pentium II Heat Sink Pins

Pentium II Heat Sink Bracket

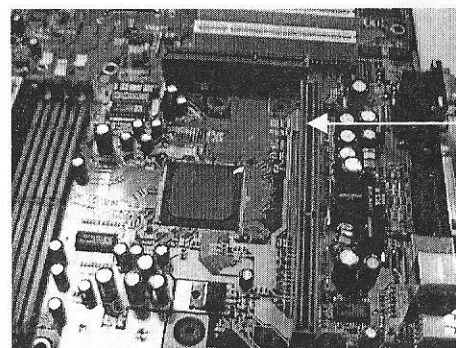


**Heat Sink Support Base
Frame**

Heat Sink Support

M6TBD Pentium II CPU Special Installation and Setup :

Around Pentium II CPU SEC slot

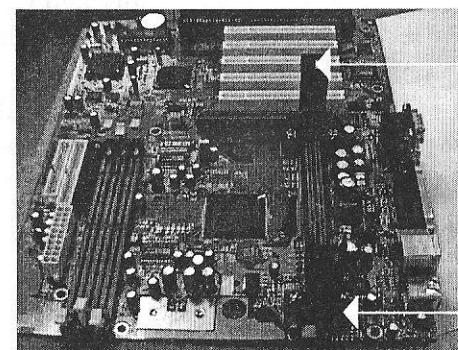


Single Edge Contact
(SEC) slot.

Install Pentium II:

1. Installing the Pentium II Heat Sink Support Frame :

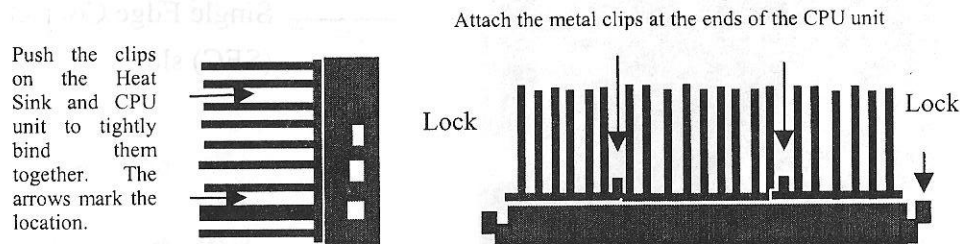
The Heat Sink Support Base can only be inserted one-way. Please match the leg sizes on the Heat Sink Support Base to the holes on the motherboard. Please remember the notch holes align with the Intel Chip AGP Support Frame. After gently and snugly inserting the Intel Chip AGP Support Frame into the motherboard, please insert the H screws from the bottom of the motherboard and tighten into the rounded screw covers.



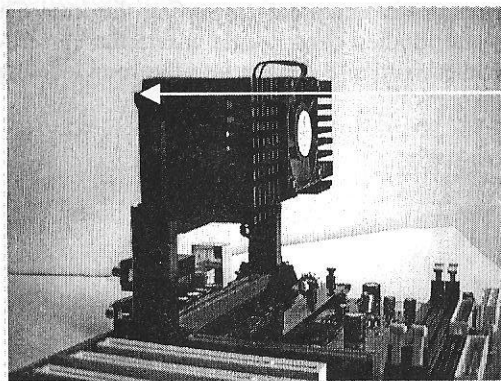
Notch holes

Rounded screw covers

2. Installing the CPU Heat sink : Take the smooth side of the Heat Sink and bound it closely together with the Pentium II CPU. Next, at the ends of the Heat Sink, clip the CPU together with the Heat Sink. Please verify that there is zero space between the Heat Sink and CPU unit. **WARNING:** If there is any space between the CPU and Heat Sink, the CPU will over-heat severely and may damage the cpu.

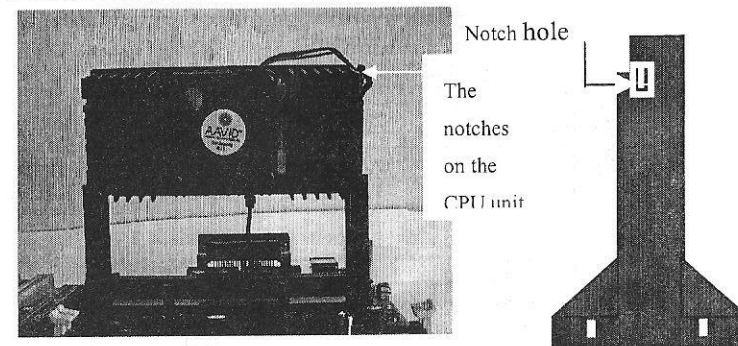


3. Insert the Pentium II into the SEC Slot. First, press the CPU unit into the Frame until it fits snugly into the notch holes. Then, clip the Heat Sink and CPU together with the Heat Sink Support Frame.

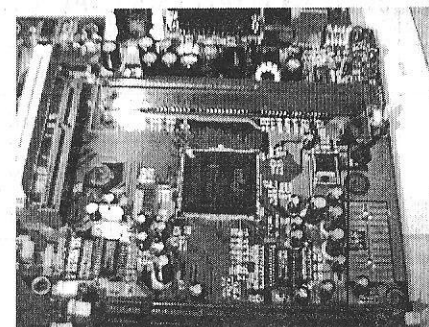


The correct direction to insert the Heat Sink and CPU into the Heat Sink Support Frame should allow you to easily insert them.

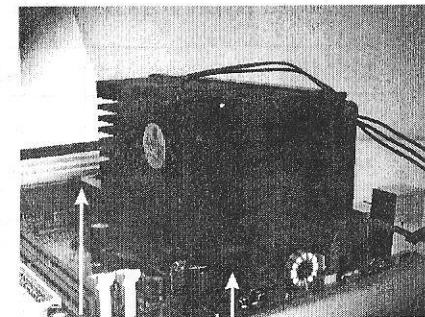
4. Pushing the CPU unit into the frame, wait until the CPU unit is firmly in position before securing. The notches are pushed out. They will fit tightly into the Heat Sink Frame Notch holes.



5. Firmly secure the Heat Sink by attaching the Heat Sink Frame TOP-Bar. Please verify that the Heat Sink and CPU are tightly pressed together. Please check that the entire Frame, Heat Sink, and CPU unit are tightly installed and that there is no possible movement or looseness in the assembly.



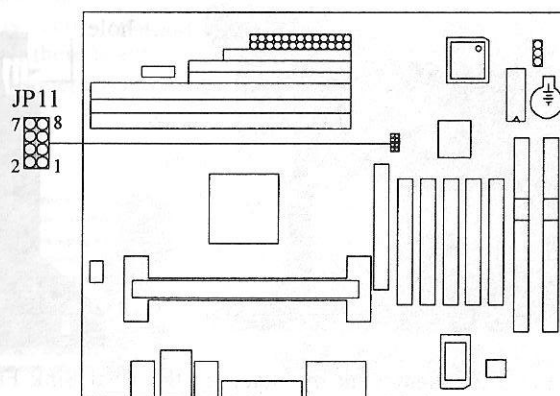
Heat Sink Support



Place the Top-Bar over the Support Frame

The Top-Bar should conveniently lock out the plastic notches at the end of the Support Frame.

1.4.2 CPU Clock Selection (JP11)



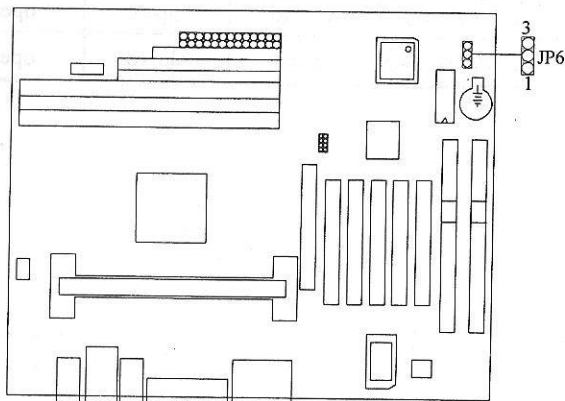
CPU Speed	CLK RATIO	JP11(1-2)	JP11(3-4)	JP11 (5-6)	JP11 (7-8)
233MHz	66MHz x 3.5	closed	open	open	closed
266MHz	66MHz x 4	open	closed	closed	closed
300MHz	66MHz x 4.5	open	closed	open	closed
333MHz	66MHz x 5	open	open	closed	closed

CPU Speed	CLK RATIO	JP11(1-2)	JP11(3-4)	JP11 (5-6)	JP11 (7-8)
300MHz	100MHz x 3	closed	open	closed	open
400MHz	100MHz x 4	open	closed	closed	open
500MHz	100MHz x 5	open	open	closed	open
250MHz	100MHz x 2.5	closed	closed	open	open
350MHz	100MHz x 3.5	closed	open	open	open
450MHz	100MHz x 4.5	open	closed	open	open

1.5 Jumper Settings

A jumper is a two or more pin that may be covered by a plastic jumper cap, allowing you to select different system options.

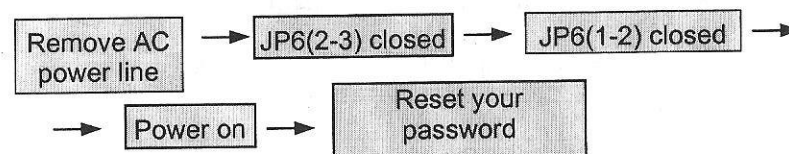
1.5.1 CMOS Function Selection (JP6)



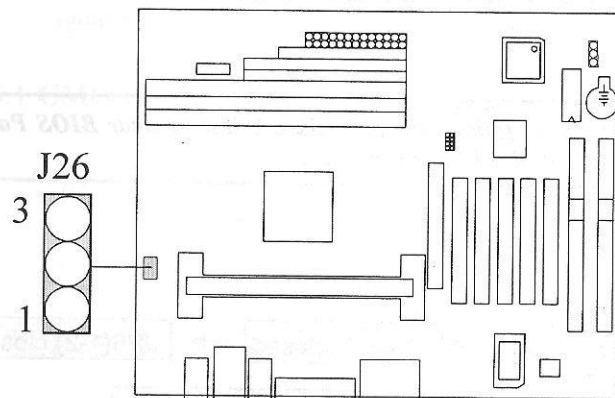
JP6	Assignment
<p>1-2 Closed</p>	Normal Operation (default)
<p>2-3 Closed</p>	Clear CMOS Data (*Note)
<p>Open</p>	Onboard Battery Disabled

Note : Please follows the procedure below to clear CMOS Data.

Note : Please follows the procedure below to clear BIOS Password if your password is lost or forgotten.

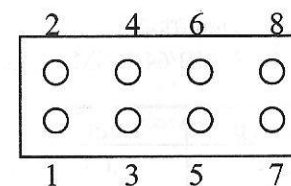


1.5.2 CPU Cooling Fan Power Connector (J26)



Pin No.	Assignment
1	Ground
2	+12 V
3	Sense

1.5.3 M6TBD JUMPER SETTING (JP11)



RATIO	JP11 5-6	JP11 3-4	JP11 1-2
3	ON	OFF	ON
4	ON	ON	OFF
5	ON	OFF	OFF
2.5	OFF	ON	ON
3.5	OFF	OFF	ON
4.5	OFF	ON	OFF

JP11 (7,8) : L 66MHz (ON)

H 100MHz (OFF)

1.6 DRAM Installation

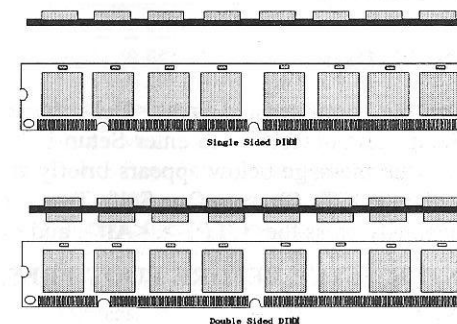
1.6.1 DIMM

DRAM Access Time : 3.3V Unbuffered SDRAM 10ns required.

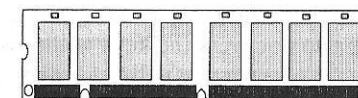
DRAM Type : 8MB/16MB/32MB/64/128MB DIMM Module (168pin)

Total	Bank 0	Bank 1	Bank 2
Memory Size (MB)	J 4	J 5	J 6
16M	8M x 1 pc	8M x 1 pc	----
32M	16M x 1 pc	16M x 1 pc	----
64M	32M x 1 pc	32M x 1 pc	----
128M	64M x 1 pc	64M x 1 pc	----
24M	8M x 1 pc	8M x 1 pc	8M x 1 pc
40M	16M x 1 pc	16M x 1 pc	8M x 1 pc
72M	32M x 1 pc	32M x 1 pc	8M x 1 pc
136M	64M x 1 pc	64M x 1 pc	8M x 1 pc
32M	8M x 1 pc	8M x 1 pc	16M x 1 pc
48M	16M x 1 pc	16M x 1 pc	16M x 1 pc
80M	32M x 1 pc	32M x 1 pc	16M x 1 pc
144M	64M x 1 pc	64M x 1 pc	16M x 1 pc
48M	8M x 1 pc	8M x 1 pc	32M x 1 pc
64M	16M x 1 pc	16M x 1 pc	32M x 1 pc
96M	32M x 1 pc	32M x 1 pc	32M x 1 pc
160M	64M x 1 pc	64M x 1 pc	32M x 1 pc
80M	8M x 1 pc	8M x 1 pc	64M x 1 pc
96M	16M x 1 pc	16M x 1 pc	64M x 1 pc
128M	32M x 1 pc	32M x 1 pc	64M x 1 pc
192M	64M x 1 pc	64M x 1 pc	64M x 1 pc
384M	128M x 1 pc	128M x 1 pc	128M x 1 pc

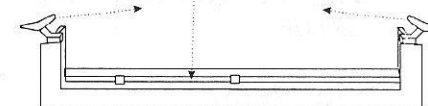
1.6.2 How to install a DIMM Module



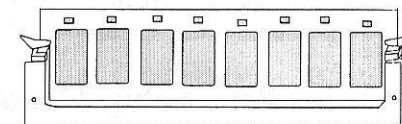
- A. The DIMM slot has a “Plastic Safety Tab” and the DIMM memory module has an “asymmetrical notch”, so the DIMM memory module can only fit in one direction.



- B. Push the tabs out. Insert the DIMM memory modules into the socket at 90-degree angle, then push down vertically so that it will fit into place.



- C. The Mounting Holes and plastic tabs should fit over the edge and hold the DIMM memory modules in place.



2. BIOS Setup

Entering Setup

Power on the computer and press immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, and when the message below appears briefly at the bottom of the screen during the POST (Power On Self Test), press the key or simultaneously press the <CTRL>, <Alt>, and <Esc> keys.

TO ENTER SETUP BEFORE BOOT PRESS CTRL-ALT-ESC OR DEL KEY

If the message disappears before you respond and you still wish to enter Setup, restart the system again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing the <CTRL>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed, and you will again be asked to:

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

Main Menu

The online description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/Option Page Setup Menu

Press <F1> to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

Control Keys

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left
Right arrow	Move to the item on the right
Esc key	Quit Main Menu and do not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu. Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift) F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Reserved
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

2.1 Main Menu

Once you enter AWARD BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select among the items and press <Enter> to accept or enter the sub-menu.

■ Figure 1. Main Menu

ROM PCI/ISA BIOS (xxxxxxxx)
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 SETUP DEFAULTS	EXIT WITHOUT SAVING
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Time, Date, Hard Disk Type...	

Standard CMOS Setup

This setup page includes all the items in standard compatible BIOS.

BIOS Features Setup

This setup page includes all the items of the BIOS special enhanced features.

Chipset Features Setup

This setup page includes all the items for the chipset special features.

Power Management Setup

This setup page includes all the items for the power management features.

PnP / PCI Configuration

This category specifies the value (in units of PCI bus clocks) of the latency timer for this PCI bus master and the IRQ level for PCI device.

Load Setup Defaults

Chipset defaults indicate the values required by the system for maximum performance. The OEM manufacturer may change to defaults through MODBIN before the binary image burn into the ROM.

Integrated Peripherals

This setup page includes all the items for Integrated Peripherals features.

Supervisor Password / User Password Setting

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

IDE HDD Auto Detection

Automatically configure hard disk parameters.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

2.2 Standard CMOS Setup Menu

The item in Standard CMOS Setup Menu is divided into categories. Each category includes name, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

■ Figure 2. Standard CMOS Setup Menu

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

Date (mm:dd:yy) : wed Oct 7 1998																
Time (hh:mm:ss) : 11 : 37 : 30																
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LAND	SECTOR	MODE								
Primary Master :	Auto	0	0	0	0	0	0	Auto								
Primary Slave :	Auto	0	0	0	0	0	0	Auto								
Secondary Master :	Auto	0	0	0	0	0	0	Auto								
Secondary Slave :	Auto	0	0	0	0	0	0	Auto								
Drive A : 1.44MB, 3.5 in.			<table border="1"> <tr> <td>Base Memory :</td> <td>0K</td> </tr> <tr> <td>Extended Memory :</td> <td>0K</td> </tr> <tr> <td>Other Memory :</td> <td>512K</td> </tr> <tr> <td>Total Memory :</td> <td>512K</td> </tr> </table>						Base Memory :	0K	Extended Memory :	0K	Other Memory :	512K	Total Memory :	512K
Base Memory :	0K															
Extended Memory :	0K															
Other Memory :	512K															
Total Memory :	512K															
Drive B : None																
Video : EGA/VGA																
Halt On : All, But Keyboard																
Esc : Quit ↑ ↓ → ← : Select Item PU/PD/+/-: Modify F1 : Help (Shift) F2 : Change Color																

Date

The Date format is <day><month><date><year>.

day	The day, from Sun to Sat, determined by the BIOS and is display-only
date	The date, from 1 to 31 (or the maximum allowed in the month)
month	The month, Jan through Dec
year	The year, from 1994 through 2079

Time

The time format is <hour><minute><second>. The time is calculated based on the 24-hour military-time clock. For example, 2 p.m. is 14:00:00.

Hard Disk Type

This category identifies the types of hard disk(s) that have been installed in the computer. There are 46 predefined types and a user definable type. Type 1 to Type 45 are predefined. Type User is user-definable. Type Auto is automatically defined by BIOS.

Press <PgUp> or <PgDn> to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select Type User, related information is asked to be entered for several items. Enter the information directly from the keyboard and press <Enter>. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

CYLN	number of cylinders
HEAD	number of heads
WPCOM	write precom
SEC	number of sectors
LBA MODE	type of LBA mode
BLK MODE	type of Block mode
PIO MODE	type of PIO
32BIT MODE	type of 32-Bit transfer mode

If a hard disk has not been installed, select NOT Installed and press <Enter>.

Drive A Type/Drive B Type

The category identifies the types of floppy disks, drive A or drive B that is installed in the computer.

None	No floppy drive installed
360K, 5 1/4	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5 1/4	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3 1/2	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3 1/2	3-1/2 inch double-sided drive; 1.44 megabyte capacity
2.88M, 3 1/2	3-1/2 inch double-sided drive; 2.88 megabyte capacity

Video

This category selects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitor is supported, you do not have to select the type in Setup.

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

Halt On

The category determines whether the computer will stop if an error is detected during power up.

No errors	Whenever the BIOS detects a non-fatal error the system will be stopped and you will be prompted.
All errors	The system boot will not stop for any error that may be detected.
All, But Keyboard	The system boot will not stop for a keyboard error, it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error, it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error, it will stop for all other errors.

Memory

This category is display-only which is determined by POST (Power On Self-Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for system with 512K memory installed on the motherboard, or 640K for system with 640K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

Other Memory

This refers to the memory located in the 640K address space. This is the memory that can be used for different applications. DOS uses this area to load device drivers to keep as much base memory free application programs. The most common use for this area is Shadow RAM.

2.3 BIOS Features Setup

! WARNING! The information about BIOS defaults in the manual (Figure 3.4.5.6.8) is just for reference, please refer to the BIOS installed on board, for update information.

■ Figure 3. BIOS Features Setup Menu

ROM PCI/ISA BIOS (xxxxxxxx)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
CPU L2 Cache ECC Checking	: Disabled	D0000-D3FFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D4000-D7FFF Shadow	: Disabled
Boot from LAN First	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	DC000-DFFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled		
Boot Up Floppy Seek	: Enabled		
Boot Up NumLock Status	: On		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled		
OS Select For DRAM > 64MB	: Non-OS2		
Report No FDD For WIN 95	: No		

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

Virus Warning

This category flashes on the screen. During and after the system boot up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and an error message will appear. In the mean time, you can run an anti-virus program to locate the problem.

Disabled (default)

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

Enabled

Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

CPU Internal Cache

Enabled (default)	Enable cache
Disabled	Disable cache

External Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). Most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU.

Enabled (default)	Enable cache
Disabled	Disable cache

CPU L2 Cache ECC Checking

This item allows you to select between two methods of L2 Cache error checking.

Enabled

Disabled (default)

Quick Power On Self Test

This option enables the level 2 external cache memory.

Enabled

Enable quick POST

Disabled (default)

Normal POST

Boot From Lan First

During Enabled, if there's a LAN card onboard, the priority from booting will be from the LAN.

Boot Sequence

This option determines which drive the computer searches the OS at boot-up. The settings are "A, C, SCSI", "C, A, SCSI", "C, CDROM, A", "CDROM, C, A", "D, A, SCSI", "E, A, SCSI", "F, A, SCSI", "SCSI, A, C", "SCSI, C, A" or "C only", etc. **The default is "A, C, SCSI".**

Swap Floppy Drive

Switches the floppy disk drive between being designated as A and B.

Default is Disabled.

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 720K, 1.2M, and 1.44M are all 80 tracks.

Enabled (default) BIOS searches for the floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS cannot tell from 720K, 1.2M or 1.44M drive type, as they are all 80 tracks.

Disabled BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K.

Boot Up NumLock Status

On (default) Numpad are number keys.
Off Numpad are arrow keys.

Gate A20 Option

Gate A20 refers to the way the system addresses memory above 1MB (extended memory). When set to Fast, the system chipset controls Gate A20. When set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to fast improve system speed, particularly with OS/2 and Windows.

Fast (default)

Typematic Rate Setting

This determines the typematic rate.

Enabled Enable typematic rate and typematic delay programming.
Disabled (default) Disable typematic rate and typematic delay programming. The system BIOS will use default value of these 2 items and the default is controlled by keyboard.

Typematic Rate (Chars/Sec)

6	6 characters per second
8	8 characters per second
10	10 characters per second
12	12 characters per second
15	15 characters per second
20	20 characters per second
24	24 characters per second
30	30 characters per second

Typematic Delay (Msec)

Choose the length of delay from the time you press a key and the character repeating. (Units are mil-sec)

Security Option

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

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

PCI / VGA Palette Snoop

Choose Disabled or Enabled. Some graphic controllers which are not VGA compatible take the output from a VGA controller and map it to their display as a way to provide boot information and VGA compatibility.

However, the color information coming from the VGA controller is drawn from the palette table inside the VGA controller to generate the proper colors, and the graphic controller needs to know what is in the palette of the VGA controller. To do this, the non-VGA graphic controller watches for the Write access to the VGA palette and registers the snoop data. In PCI based systems, where the VGA controller is on the PCI bus and a non-VGA graphic controller is on an ISA bus, the Write Access to the palette will not show up on the ISA bus if the PCI VGA controller responds to the Write.

In this case, the PCI VGA controller should not respond to the Write, it should only snoop the data and permit the access to be forwarded to the ISA bus. The non-VGA ISA graphic controller can then snoop the data on the ISA bus. Unless you have the above situation, you should disable this option.

Disabled (default)
Enabled

Disables the function.
Enables the function.

OS Selection for DRAM > 64MB

Allows OS/2 to be used with > 64MB of DRAM. Settings are Non-OS/2 (default) and OS/2. Set to OS/2 if using more than 64MB and running OS/2.

DEFAULT is Non-OS2.

Report No FDD For WIN 95

This function is only used when you are testing SCT for Windows 95 Logo.

Video BIOS Shadow

Determines whether video BIOS will be copied to RAM for faster execution.

Enabled (default)
Disabled

Optional ROM is enabled.
Optional ROM is disabled.

C8000 - CFFFF Shadow / E8000 - EFFFF Shadow

Determines whether the optional ROM will be copied to RAM for faster execution.

Enabled
Disabled (default)

Optional ROM is shadowed.
Optional ROM is not shadowed.

Note : For C8000 - DFFFF option - ROM on PCI BIOS, BIOS will automatically enable the shadow RAM. User does not have to select the item.

2.4 Chipset Features Setup

The Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

■ Figure 4. Chipset Feature Setup Menu

ROM PCI/ISA BIOS (xxxxxxx)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

SDRAM CAS latency Time	: 3	Onboard PCI LAN (82558)	: Enabled
DRAM Data Integrity Mode	: Non-ECC		
System BIOS Cacheable	: Enabled		
Video BIOS Cacheable	: Enabled		
Video RAM Cacheable	: Disabled		
8 Bit I/O Recovery Time	: 1		
16 Bit I/O Recovery Timing	: 1		
Memory Hole At 15M-16M	: Disabled	Current System Temp.	:
Passive Release	: Enabled	Current CPU FAN1 Speed	:
Delayed Transaction	: Enabled	IN0(V):	IN1(V):
AGP Aperture Size (MB)	: 64	IN2(V):	IN3(V):
		IN4(V):	IN5(V):
		IN6(V):	
ESC : Quit ↑↓ → ← : Select Item			
F1 : Help PU/PD/+/- : Modify			
F5 : Old Values <Shift> F2 : Color			
F6 : Load BIOS Defaults			
F7 : Load Setup Defaults			

SDRAM CAS latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.

3 (default)

DRAM Data Integrity Mode

Select Parity or ECC (error-correcting code), according to the type of installed DRAM.

Non-ECC (default)

System BIOS Cacheable

When enabled, accesses to the system BIOS ROM addressed at F0000H-FFFFFH are cached, provided that the cache controller is enable.

Enabled (default)
Disabled

BIOS access cached
BIOS access not cached

Video BIOS Cacheable

As with caching the System BIOS above, enabling the Video BIOS cache will cause access to video BIOS addressed at C0000H to C7FFFH to be cached, if the cache controller is also enabled. Data from the CPU to the PCI bus can be posted (buffered by the controller).

Enabled (default)
Disabled

Video BIOS access cached
Video BIOS access not cache

Video RAM Cacheable

Select Enabled allows caching of video RAM resulting in better system performance. However, if any program writes to this memory area, a system error may result.

8 Bit I / O Recovery Time

The recovery time is the length of time, measured in CPU clocks, which the system will delay after the completion of an input / output request. This delay takes place because the CPU is operating so much faster than the input / output bus that the CPU must be delayed to allow for the completion of the I / O.

The item allows you to determine the recovery time allowed for 8 bit I / O. Choices are from NA 1 to 8 CPU clocks.

1 (default)

16 Bit I / O Recovery Time

This item allows you to determine the recovery time allowed for 16 bit I/O. Choices are from NA 1 to 4 CPU clocks.

1 (default)

Memory Hole At 15M-16M

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

Disabled (default)

Passive Release

When Enabled, CPU to PCI bus access is allowed during passive release. Otherwise, the arbiter only accepts another PCI master access to local DRAM.

Enabled (default)

Delayed Transaction

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

Enabled (default)

AGP Aperture Size (MB)

Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

64 (default)

Onboard PCI LAN

Enabled (default)

Current System Temperature

Detect System Temperature automatically.

Current CPU FAN1 Speed

Detect CPU Fan speed status automatically.

IN0(V),IN1(V),IN2(V), IN3(V),IN4(V),IN5(V),IN6(V)

Detect system's voltage status automatically.

2.5 Power Management Setup

■ Figure 5. Power Management Setup Menu

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

Power Management	: Disabled	** Reload Global Timer Events **
PM Control by APM	: Yes	IRQ [3-7, 9-15], NMI : Enabled
Video Off Method	: DPMS	Primary IDE 0 : Enabled
Video Off After	: Standby	Primary IDE 1 : Enabled
MODEM Use IRQ	: 3	Secondary IDE 0 : Disabled
		Secondary IDE 1 : Disabled
Doze Mode	: Disabled	Floppy Disk : Enabled
Standby Mode	: Disabled	Serial Port : Enabled
Suspend Mode	: Disabled	Parallel Port : Enabled
HDD Power Down	: Disabled	
Throttle Duty Cycle	: 62.5 %	
VGA Active Monitor	: Disabled	
Soft-Off by PWR-BTTN	: Instant - Off	
Power on by Ring	: Disabled	ESC : Quit ↑ ↓ → ← : Select Item
Resume by RTC Alarm	: Disabled	F1 : Help PU/PD/+/- : Modify
		F5 : Old Values <Shift> F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults
IRQ 8 Break Suspend	: Disabled	

Power Management

Disable (Min. Saving)	Global Power Management will be disabled.
User Define (Max. Saving)	Users can configure their own power management.
Min Saving	Pre-defined timer values are used such that all timers are at their MAX value.
Max Saving	Pre-defined timer values are used such that all timers are at their MIN value.

PM Control by APM

No	System BIOS will ignore APM when Power Management is on.
Yes (default)	System BIOS will wait for APM's prompt before it enters any PM mode.

Video Off Method

Blank Screen	The system BIOS will only blank the screen when disabling video.
V/H SYNC+Blank	In addition to the above, BIOS will also turn off the V-SYNC & H-SYNC signals from VGA card to monitor.
DPMS (default)	This function is enabled only for a VGA card supporting DPMS.

Video Off After

As the system moves from lesser to greater power-saving modes, select the mode in which you want the monitor to blank:

Standby (default)

MODEM Use IRQ

Set the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

3 (default)

Doze Mode

This option specifies how long the CPU is continuously idle before entering the doze mode. When the system is in Doze mode, the screen will be blank.

Standby Mode

After selected period of system inactivity, the fixed disk drive and video shut-off while all other devices still operate at full speed.

Disabled (default)

Suspend Mode

This options allows the user to indicate how long the system will be idle before entering the suspend mode, which turns off the CPU and saves the energy of the system.

HDD Power Down

After the selected period of drive inactivity, the hard disk drive powers down while all other devices remain active.

Disabled (default)

Throttle Duty Cycle

When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

62.5 % (default)

VGA Active Monitor

When enabled, any video activity restarts the global timer for Standby mode.

Disabled (default)

Soft-Off by PWR-BTTN

This item allows you to set the off function of power button by software control.

Instant-Off (default)

PWR On by Ring

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

Disabled (default)

Resume by RTC Alarm

When set to Enabled RTA Alarm Resume, you could set the date (of month) and timer (hh:mm:ss), any event occurring will awaken a system which has been powered down.

Disabled (default)

IRQ 8 Break Suspend

You can turn On or Off monitoring of IRQ 8 (the Real Time Clock) so it does not awaken the system from Suspend mode.

Disabled (default)

IRQ [3-7,9-15],NMI

The default value is "Legacy ISA" OR "PCI/ISA PnP".

Enabled (default)

Primary IDE 0,1

The default value is Disabled.

Enabled (default)

Enable monitor Primary IDE 0/1 for Green event.

Disabled

Disable this function.

Secondary IDE 0,1

The default value is Disabled.

Enabled

Enable monitor Secondary IDE 0/1 for Green event.

Disabled (default)

Disable this function.

Floppy Disk

The default value is Enabled.

Enabled(default)

Enable monitor Floppy Disk for Green Event.

Disabled

Disable this function.

Serial Port

The default value is Enabled.

Enabled(default)

Enable monitor Serial Port FOR Green event.

Disabled

Disable this function.

Parallel port

The default value is Disabled.

Enabled (default)

Enable monitor Parallel Port for Green event.

Disabled

Disable this function.

2.6 PNP / PCI Configuration Setup

■ Figure 6. PNP / PCI Configuration Setup Menu

ROM PCI/ISA BIOS (xxxxxxxx)
PNP / PCI FUNCTION SETUP
AWARD SOFTWARE, INC.

PNP OS Installed	: No	Assign IRQ For VGA	: Enable
Resources Controlled By	: Manual	Assign IRQ For USB	: Enable
Reset Configuration Data	: Disabled		
IRQ-3 assigned to	: PCI / ISA PnP		
IRQ-4 assigned to	: PCI / ISA PnP		
IRQ-5 assigned to	: PCI / ISA PnP		
IRQ-7 assigned to	: PCI / ISA PnP		
IRQ-9 assigned to	: PCI / ISA PnP		
IRQ-10 assigned to	: PCI / ISA PnP		
IRQ-11 assigned to	: PCI / ISA PnP		
IRQ-12 assigned to	: PCI / ISA PnP		
IRQ-14 assigned to	: PCI / ISA PnP		
IRQ-15 assigned to	: PCI / ISA PnP		
DMA-0 assigned to	: PCI / ISA PnP		
DMA-1 assigned to	: PCI / ISA PnP		
DMA-3 assigned to	: PCI / ISA PnP		
DMA-5 assigned to	: PCI / ISA PnP		
DMA-6 assigned to	: PCI / ISA PnP		
DMA-7 assigned to	: PCI / ISA PnP		
		ESC : Quit	↑↓→← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	<Shift> F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

PnP OS Installed

When set to YES, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows™95. When set to NO, BIOS will initialize all the PnP cards. Therefore for non-PnP operating system (DOS, Netware™), this option must set to "NO".

Resources Controlled By "Auto" or "Manual"

By Choosing "Auto", the system BIOS will detect the system resource and automatically assign the relative IRQ and DMA channel for each peripheral.

By Choosing "Manual"(default), the user will need to assign IRQ & DMA for add-on cards. Be sure that there is no IRQ/DMA and I/O ports conflict.

Resources Configuration Data

The system BIOS supports the PnP feature so the system needs to record which resource is assigned and protects resources from conflict. Every peripheral device has a node, which is called ESCD. This node records which resources are assigned to it. The system needs to record and update ESCD to the memory locations. These locations (4K) are reserved at the system BIOS.

If Disabled (default) are chosen, the system's ESCD will update only when the new configuration varies from the last one.

If Enabled is chosen, the system is forced to update ESCDs and then is automatically set to the "Disabled" mode.

IRQ-3	assigned to : PCI / ISA PnP
IRQ-4	assigned to : PCI / ISA PnP
IRQ-5	assigned to : PCI / ISA PnP
IRQ-7	assigned to : PCI / ISA PnP
IRQ-9	assigned to : PCI / ISA PnP
IRQ-10	assigned to : PCI / ISA PnP
IRQ-11	assigned to : PCI / ISA PnP
IRQ-12	assigned to : PCI / ISA PnP
IRQ-14	assigned to : PCI / ISA PnP
IRQ-15	assigned to : PCI / ISA PnP
DMA-0	assigned to : PCI / ISA PnP
DMA-1	assigned to : PCI / ISA PnP
DMA-3	assigned to : PCI / ISA PnP
DMA-5	assigned to : PCI / ISA PnP
DMA-6	assigned to : PCI / ISA PnP

DMA-7 assigned to : PCI / ISA PnP

The above settings will be shown on the screen only if "Manual" is chosen for the Resources Controlled By function.

Legacy is the term, which signifies that a resource is assigned to the ISA Bus and provides for non-PNP ISA add-on cards. PCI / ISA PnP signifies that a resource is assigned to the PCI Bus or provides for ISA PnP add-on cards and peripherals.

Assign IRQ For VGA

Lets the user choose which IRQ to assign for VGA card.

Assign IRQ For USB

Set to Enabled when USB port will be used. Set to Disable if the USB port will not be used.

Enabled Assign a specific IRQ for USB.
Disabled No IRQ is assigned for USB.

2.7 Load Setup Defaults

Chipset defaults indicate the values required by the system for maximum performance.

■ **Figure 7. Load Setup Defaults Screen**

ROM PCI/ISA BIOS (xxxxxxx)
 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
PCI & PCI CONFIGURATION	LOAD SETUP DEFAULTS (Y/N) ? N
LOAD SETUP DEFAULTS	SAVING

Esc : Quit
 F10 : Save & Exit Setup

↑ ↓ → ← : Select Item
 (Shift) F2 : Change Color

Load SETUP Defaults except Standard CMOS SETUP

If you wish to load the SETUP Defaults, change the prompt to <Y> and press <ENTER>.

2.8 Integrated Peripherals Setup

■ Figure 8. Integrated Peripherals Setup Menu

ROM PCI/ISA BIOS (xxxxxxx)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Enabled	Onboard Parallel Port	: 378/IRQ7
IDE Primary Master PIO	: Auto	Parallel Port Mode	: SPP
IDE Primary Slave PIO	: Auto		
IDE Secondary Master PIO	: Auto		
IDE Secondary Slave PIO	: Auto		
IDE Primary Master UDMA	: Auto		
IDE Primary Slave UDMA	: Auto		
IDE Secondary Master UDMA	: Auto		
IDE Secondary Slave UDAM	: Auto		
On-Chip Primary PCI IDE	: Enabled		
On-Chip Secondary PCI IDE	: Enabled		
USB Keyboard Support	: Disabled		
Onboard FDC Controller	: Enabled		
Onboard Serial Port 1	: 3F8/IRQ4		
Onboard Serial Port 2	: 2F8/IRQ3		
ESC : Quit ↑ ↓ → ← : Select Item			
F1 : Help PU/PD/+/- : Modify			
F5 : Old Values <Shift> F2 : Color			
F6 : Load BIOS Defaults			
F7 : Load Setup Defaults			

IDE HDD Block Mode

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

Enabled (default)

IDE Primary / Secondary Master / Slave PIO

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

Auto (default)

IDE Primary / Secondary Master / Slave UDMA

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

Auto (default)

On-Chip Primary IDE / Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.

Enabled (default)

USB Keyboard Support

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

Disabled (default)

Onboard FDC Controller

Enabled / Disabled The system has an onboard Super I/O chip with a FDD controller that supports 2 FDDs for 360K / 720K / 1.2M / 1.44M / 2.8M. Choose "Enabled" to use the onboard FDD controller for accessing the FDD. Otherwise choose "Disabled" to use the off-board FDD controller.

Onboard Serial Port 1

Disabled / (3F8 / IRQ4) / (2F8 / IRQ3) / (3E8 / IRQ4) / (2E8 / IRQ3)

Onboard Serial Port 2

Disabled / (3F8 / IRQ4) / (2F8 / IRQ3) / (3E8 / IRQ4) / (2E8 / IRQ3)

The system has an Onboard Super I/O chipset with 2 serial ports.
The Onboard serial ports can be selected as:

Disabled

3F8 / IRQ4	COM1 uses IRQ4
2F8 / IRQ3	COM2 uses IRQ3
3F8 / IRQ4	COM3 uses IRQ4
2F8 / IRQ3	COM4 uses IRQ3

Onboard Parallel Port

**Disabled/
(3BC/IRQ7)/
(278 / IRQ5)/
(378 / IRQ7)**

There is a built-in parallel port on the onboard Super I/O chipset that provides standard, ECP, and EPP features.
It has the following options:

Disable

(3BC/IRQ7)Line Printer port 0
(278 / IRQ5)Line Printer port 2
(378 / IRQ7)Line Printer port 1

Parallel Port Mode

SPP : Standard Parallel Port

EPP : Enhanced Parallel Port

ECP : Extended Capability Port

To operate the onboard parallel port as Standard Parallel Port only, choose "SPP." To operate the onboard parallel port in the ECP and SPP modes simultaneously, choose "ECP/SPP." By choosing "ECP" the onboard parallel port will operate in ECP mode only. Choosing "ECP/EPP" will allow the onboard parallel port to support both the ECP and EPP modes simultaneously. The ECP mode has to use a DMA channel so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear "ECP Mode Use DMA". At this time the user can choose between DMA channels 3 or 1. The onboard parallel port is EPP Spec. Compliant so after the user chooses the onboard parallel port with the EPP function, the following message will be displayed on the screen: "Parallel port EPP Type." At this time either EPP 1.7 spec. Or EPP 1.9 spec. Can be chosen.

2.9 Supervisor / User Password Setting

■ Figure 9. Supervisor Password Setting

ROM PCI/ISA BIOS (xxxxxxxx)
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 SETUP D	SAVING

Enter Password:

Esc : Quit
F10 : Save & Exit Setup

↑ ↓ → ← : Select Item
(Shift) F2 : Change Color

Change / SCT / Disable Password

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

ENTER PASSWORD

Type the password, up to eight characters, and press <Enter>. The password you type now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the

password again and press <Enter>. You may also press <ESC> to abort the selection and not enter a password. To disable password, just press <Enter> when you are prompted to enter password. A message will confirm that you wish to disable the password. Once the password is disabled, the system will boot and you can enter setup freely.

PASSWORD DISABLED

If you select "System" at the Security Option of BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup. If you select "Setup" at Security Option of BIOS Feature Setup Menu, you will be prompted only when you try to enter Setup.

2.10 IDE HDD Auto Detection

Automatically configure hard disk parameters. The parameters shown below are only examples.

■ **Figure 10. Auto Configuration with Optimal Settings Screen**

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

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LAND	SECTOR	MODE
Primary Master	:User	343	665	16	65535	664	63	NORMAL

Select Primary Slave Option (N=Skip) N

OPTIONS	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
1(Y)	0	0	0	0	0	0	NORMAL

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

When you enter this utility, the screen asks you to select a specific hard disk for Primary Master. If you accept a hard disk detected by the BIOS, you can enter **"Y"** to confirm and then press **<Enter>** to check next hard disk. This function allows you to check four hard disks and you may press the **<Esc>** after the **<Enter>** to exit this function and go back to the Main Menu.

2.11 Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

■ **Figure 11. Save & Exit Setup Screen**

ROM PCI/ISA BIOS (xxxxxxxx)
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	ETUP
LOAD SETUP DEFAULTS	SAVING

SAVE to CMOS and Exit (Y/N)?N

Esc : Quit
F10 : Save & Exit Setup

↑ ↓ → ← : Select Item
(Shift) F2 : Change Color

Save Data to CMOS & Exit SETUP

Pressing <N> and <ENTER> will return you to the Main Menu.

Pressing <Y> and <ENTER> will save the system parameters and continue with the booting process.

2.12 Exit Without Saving

Abandon all CMOS value changes and exit setup.

■ **Figure 12. The Save Settings and Exit Screen**

ROM PCI/ISA BIOS (xxxxxxxx)
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	LOAD SETUP DEFAULTS
<div style="background-color: #cccccc; padding: 10px; text-align: center;"> Quit Without Saving (Y/N)?N </div>	
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Abandon All Data & Exit SETUP	

Pressing <N> and <ENTER> will return you to the Main Menu.

Pressing <Y> and <ENTER> will continue with booting process without saving any system parameters.

2.13 Application Software

- Please use the “BIOS Utility” diskette to setup Flash Memory.
- The diskette contains the intelligent installation utility **AWDFLASH.EXE**, displayed below.

■ **Figure 13. Flash Memory Writer**

FLASH MEMORY WRITER Vxx	
Copyright (C) 1992-1994 Award Software, Inc.,	
For xx-xxxxxxxxxxxxxxxxxxxx	DATE: xx/xx/xxxx
Flash Type -	
File Name to Program:	<input type="text"/>
Error Message :	Do You Want To Save Bios (Y/N)?

3 Driver Setup

3.1 PIIX4 Patch Files Setup

This program is designed for following versions of BIOSSTAR Motherboard to fix the problem that IDE BUS Master, USB and Power management entries cannot be configured correctly in the device manager.

This section describes how to install the software on a system where **Windows 95*** is installed.

"**Windows 95***" means the following versions of Windows 95 operating system:

Version 950	Windows 95 (Retail Release)
Version 950A	Windows 95 OEM Service Release 1 (OSR1)
Version 950B	Windows 95 OEM Service Release 2.0 (OSR2) Or Windows 95 OEM Service Release 2.0 plus USB Supplement (OSR2.1)

1. Check the System Requirements. Windows 95* must be fully installed and running on the system prior to running this software.
2. Close any running applications.
3. Remove references to installed real-mode IDE device drivers in the **AUTOEXEC.BAT** and **CONFIG.SYS** files (especially any drivers that control ATAPI CD-ROM and special IDE features). Use the Notepad utility to do this.
4. The driver files are stored in an integrated application setup

program. This program is a Windows 95* program that allows the driver files to be **INSTALLED**.

Execute the driver setup program.

*** Run **BSFIX.EXE**.

5. Click '**Start**' on Main Screen to begin the install procedure.

NOTE: If you click '**Cancel**', program will terminate.

6. After the install procedure completed, click '**OK**' to restart the system when prompted to do so. If you don't want to reboot immediately, you must remember to reboot your system later!
7. Follow the screen instructions and use default settings to complete the setup when Windows 95* is re-started. Upon re-start, Windows 95* will display that it has found an **Intel PCI Bus Master IDE controller hardware** and also installing hardware for it. If a "**New Hardware Found**" dialog box is displayed requesting the location of the drivers, use the mouse to click on the scrollbar and click on the **<Windows 95* directory> \ System \ IOSubSys path:**

For example:
Click on 'C:\WINDOWS\SYSTEM\IOSUBSYS\
Click '**OK**'.
8. Select '**Yes**', when prompted to re-start Windows 95*.
9. Select '**Yes**' again, when you prompted to re-start Windows 95*.

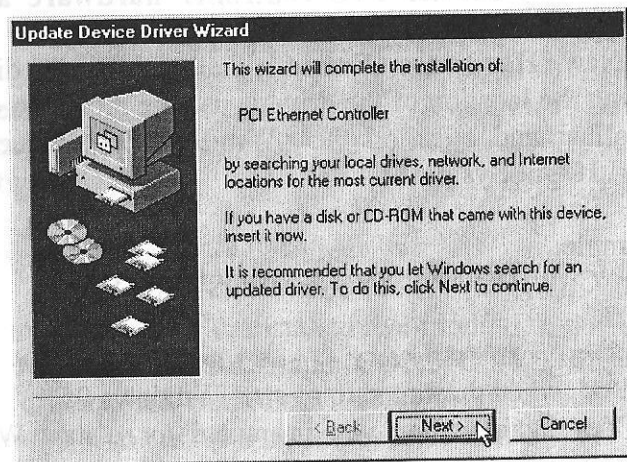
3.2 LAN Software Installation

For the Driver Installation notes for other operation systems, please refer to the README comes with the corresponding drivers on Driver CD

Windows* 95 Installation notes for Intel PRO / 100+ PCI LAN Adapters:

3.2.1 General Instructions

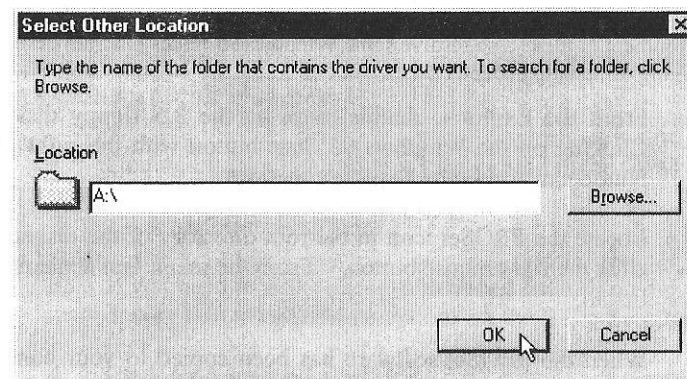
1. Install the adapter in the computer and turn on the power. Have the Windows 95 CD-ROM available, as you will need it to copy additional files. While Windows 95 is starting, it will detect the new hardware.
2. When Windows 95 starts, a NEW HARDWARE FOUND dialog box appears. It identifies the adapter as a PCI Ethernet Controller. Select the option "Driver from disk provided by Hardware Manufacturer".



➤ NOTE:

If the New Hardware Found dialog box doesn't appear, you'll need to manually configure the adapter. See the section on alternative ways to add a network adapter to Windows 95.

3. Insert the EtherExpress PRO/100+ Configuration and Drivers disk in drive A and click OK.
4. A dialog box prompts for a location with "A:\". Click OK.



5. A dialog may appear requesting Windows 95 system network files. If so, follow the instructions.

➤ Note:

The Windows 95 system-files are typically available on the Windows 95 CD in the win95 directory (D:\win95). If Windows 95 requests the E100B.DOS file, it can be found on the Intel Configuration and Drivers disk, typically in A:

6. The System Setting Change dialog appears indicating you should restart the system for changes to become effective. Remove the PRO/100+ adapter disk from the drive and click <yes> for the changes to take effect.

➤ **NOTE:**

Windows 95 will refer this adapter's driver as "Intel 82557-based PCI Ethernet" not "Intel EtherExpress PRO/100+ adapter".

2.15.2 Installing Intel PROSet adapter diagnostic and configuration software

Intel PROSet software allows you to test the adapter in the Windows 95 environment. It can also resolve some Windows 95 issues that may result from changing or updating adapter hardware.

- 1 From the Explorer, double click on the 3.5 floppy disk icon. Clicking on the Windows 95 Start button with the right mouse button can access the Explore function.
- 2 Locate the PROSet icon in the root directory of the diskette and click the right mouse button. From the menu that appears, click Install.
- 3 When the PROSet software has been copied to your computer, go to the control panel and click on the PROSet icon. PROSet examines your computer and displays the PROSet Window. This window shows the adapter's I/O address, interrupt, and Ethernet address.

➤ **Note:**

The adapter's interrupt is set by the computer's BIOS. If you have to change the interrupt, some computers allow you to change this setting, and some don't. Check your computer's documentation for details. PROSet will inform you of any problem with the current setting.

- 4 Click Test to begin diagnostics.

3.3 Advanced Configuration Parameters

The defaults work correctly for most configurations. Please use caution when changing these parameters. To make a change, follow the steps listed below.

➤ **Note:**

Be sure to use PROSet to configure these settings rather than the Advanced Configuration tab under Properties. Since this driver also supports all 82557-based adapters, some parameters have different values depending on which adapter is installed. PROSet will display the proper values for the adapter you are configuring. The Properties screen may not.

- 1 Double-click on the PROSet icon located in the Control Panel.
- 2 Click on Change button.
- 3 If you need to make changes to Speed and/or you are using a full duplex hub, change these options on the Basic Settings menu.
- 4 Click on Advanced.
- 5 For the highlighted Property on the left, the Value is displayed on the right.

Duplex Mode - Default Setting: Auto Duplex Detect

A performance options lets you choose how the adapter sends and receives packets over the network. A regular adapter can perform only one operation at a time (half-depleting). The PRO/100+ adapter has the ability to send and receive packets at the same time (full depleting).

In order to reap the benefits of full depleting, you **MUST** have a full duplex operation hub.

EtherExpress PRO/100+ TX adapter: Supports auto-negotiate, full and half duplex at 10 or 100 Mbps.

EtherExpress PRO/100B T4 adapter: Supports full and half duplex at 10 Mbps; supports only half duplex at 100 Mbps. Auto-negotiate is not a valid option at either speed.

Auto Duplex: The adapter negotiates with the hub how to send/receive packets, either full or half duplex. You must use a hub that supports Auto-negotiation (also known as NWay)

Full Duplex: The adapter sends and receives packets at the same time. This improves the performance of your adapter. Set duplex mode to full duplex, ONLY if you have a full duplex hub.

Half Duplex: The adapter performs one operation at a time. It either sends or receives.

➤ **Note:**

If you select full duplex you must manually set the Speed parameter to 100. Do not leave speed set to auto-detect.

The PRO/100 adapter has the added ability to "talk" to the hub and determines at which mode to communicate (either full or half duplex). This is called auto-negotiation. You must have an auto-negotiating hub (a NWay* hub) to get full duplex support with the Duplex mode set to Auto Duplex Detect. If you don't have an auto-negotiating hub, set Duplex mode to Full Duplex. And if you are operating at 100Mbps, you must set the Speed parameter to 100. Auto-speed detect will not work at 100mb.

Coalesce Buffers - Recommended setting: 8

Number of memory buffers available to the driver in case the driver runs out of available Map Registers. This packet area is also used when a packet consists of many fragments.

Map Registers - Recommended Setting: 64

Map registers are system resources used in physical to virtual address conversion with bus mastering cards. The Map Registers parameter specifies how many registers should be allocated to the driver.

Receive Buffers - Recommended setting: 16

Specifies the number of buffers used by the driver when copying data to the protocol memory.

Transmit Control Blocks - Recommended setting: 16

Specifies how many transmit control buffers the driver allocates for adapter use. This directly corresponds to how many outstanding packets the driver can have in its "send" queue.

Speed - Default setting: Auto Detect

This parameter lets the EtherExpress PRO/100+ adapter know what speed to use on the Ethernet wire. The choices are 10 Mbps, 100 Mbps, and Auto Detect. In Auto Detect mode, the adapter detects if its environment can support 100 Mbps speed. It then sets the speed to 100 if it can, or 10 if it can't. If you are using a crossover cable connected to another adapter, set the speed to either 10 Mbps or 100 Mbps.

3.4 Alternatives for adding network cards to Windows 95

Windows 95 automatically detects Plug and Play devices when they are added to the system, and either loads drivers for the new device, or prompts the user for the location of the drivers. However, this feature does not work the same on all computers and with all cards.

This text provides alternatives for adding drivers for newly installed hardware. One of these should work in cases where the general instructions above don't work.

Some of these methods arrive at the same dialog boxes, but yield different results because of the path taken.

3.5 Control Panel ... SYSTEM (Recommended Method)

- 1 Double-click My Computer.
- 2 Double-click Control Panel.
- 3 Double-click System.
- 4 Click the Device Manager tab.
- 5 Double-click Other Devices (question mark icon).
- 6 Double-click PCI Ethernet Controller.
- 7 Click the Driver tab.
- 8 Click Change Driver.
- 9 Select Network Adapters and click OK.
- 10 Click Have Disk, insert the Intel Configuration and Drivers disk in the appropriate drive, and click OK.

If you get into Device Manager and do not have an Other Devices icon in the device list, Windows 95 does not detect your card at all. This condition indicates a problem with the adapter itself, or with the system BIOS, rather than a Windows 95 Plug and Play problem.

3.6 Control Panel ... Add New Hardware

- 1 Double-click My Computer.
- 2 Double-click Control Panel.
- 3 Double-click Add New Hardware.
- 4 Click Next.
- 5 Select the No option and click next.
- 6 Select Network Adapters and click next.
- 7 Click Have Disk, insert the Intel Configuration and Drivers disk in the appropriate drive, and click OK.
- 8 Select the Intel 82557-based adapter and click OK.
- 9 Click next and click Finish.

3.7 Hints and Tips

1. Multiple Adapters in Windows 95:

If you have multiple Intel PRO adapters installed in the system, be sure to install and run PROSet. It will automatically detect that you have multiple adapters and update the EID (Ethernet ID) field, which is required by Windows 95 for card identification.

Background: If multiple network adapters are installed in a Windows 95 system, the last 8 digits of the Ethernet address must identify each card. However, Windows 95 requires decimal numbers, which makes it necessary to perform a hex to decimal conversion. For example, an adapter with the Ethernet address of 00AA00123456 would require putting 1193046 as the Ethernet ID value (00123456 converted to decimal is 1193046). The Windows Calculator, in scientific mode, is a tool you can use for the conversion if you need to do this conversion manually.

2. Windows 95 Push Installation:

Intel has created some support files and Readme information in an archive name 100PPUSH.EXE to help with Windows 95 Push installations using the PRO/100+ adapter. Download 100PPUSH.EXE by visiting the web at support.intel.com or dialing the Intel BBS at 503-264-7999.

3. Using NDIS 2 driver and Full Duplex:

Installing the NDIS 2 driver through Windows 95 does not properly set the driver to Full Duplex. In order for you to use Full Duplex with E100B.DOS, you must edit the PROTOCOL.INI file in the Windows 95 directory to include:

```
[E100B_NIF]
Drivername = E100B$
FORCEDUPLEX = 2
```

4. Moving adapters to different slots:

When removing a PCI adapter and placing it in a different slot, Windows 95 retains the old instance of the driver and adds a new one for the new slot/card combination. This behavior is common to any adapter. The driver stops functioning when the number has accumulated old drivers reaches 2 (for a total of 3 installed drivers, including the current driver). The workaround is to remove the old driver before changing slots, or to run PROSet and allow it to associate the card with the appropriate instance of the driver.

5. Swapping 82557-based adapters in the same slot

In order for Windows 95 to properly recognize a different 82557-based adapter in the same slot, the EID must be updated. This update can be achieved in a few different ways. Perform one of the following items for the update to happen.

The easiest method is to run PROSet after swapping the adapters.

- Or, remove the adapter by performing a Remove Device in the Device Manager or Remove Adapter in Network Control Panel. Then, shut down the computer and install the other 82557-based adapter.
- Or, shut down the computer, remove the adapter, turn on the computer and start Windows 95 without any adapter. At this point, Windows 95 detects that the adapter was removed and deletes the obsolete registry entries. Shut down the computer, install the adapter, start Windows 95, and perform a regular adapter installation.

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4. Trouble Shooting

PROBLEM

No power to the system at all. Power light does not illuminate; fan inside power supply does not turn on. Indicator light on keyboard does not turn on.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Power cable is unplugged.	Visually inspect power cable	Make sure power cable is securely plugged in
Defective power cable.	Visual inspection, try another cable.	Replace cable.
Power supply failure.	Power cable and wall socket are OK, but system is still dead.	Contact technical support.
Faulty wall outlet; circuit breaker or fuse blown.	Plug in device known to work in socket and test	Use different socket, repair outlet, reset circuit breaker or replace fuse.

PROBLEM

System inoperative. Keyboard lights are on, power indicator lights are lit, and hard drive is spinning.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Expansion card is partially dislodged from expansion slot on the motherboard.	Turn off computer. Take cover off system unit. Check all expansion cards to ensure they are securely seated in slots.	Using even pressure on both ends of the expansion card, press down firmly on expansion card.
Defective floppy disk drive or tape drive.	Turn system off. Disconnect the cables from one of the floppy drives. Turn on the system, check to see if the keyboard operates normally. Repeat until you have located defective unit.	Contact Technical Support.
Defective expansion card.	Turn computer off. Remove an expansion card	Make sure expansion card is secure in expansion socket.

PROBLEM

System does not boot from hard disk drive, can be booted from floppy disk drive.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Connector between hard drive and system board unplugged.	When attempting to run the FDISK utility described in the HARD DISK section of this manual you get a message, INVALID DRIVE SPECIFICATION.	Check cable running from disk to disk controller board. Make sure both ends are securely plugged in; check the drive type in the Standard CMOS Setup (see HARD DISK section of this manual).
Damaged Hard Disk or Disk Controller.	Format hard disk; if unable to do so the hard disk may be defective.	Contact Technical Support.
Hard Disk directory or FAT is scrambled.	Run the FDISK program, format the hard drive (see HARD DRIVE section of manual). Copy data that was backed up onto Hard Drive.	Backing up the hard drive is extremely important. All Hard Disk are capable of breaking down at any time.

PROBLEM

System only boots from floppy Disk. Hard disk can be read and applications can be used but booting from Hard Disk is impossible.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Hard Disk boot program has been destroyed.	A number of causes could be behind this.	Back up data and applications files. Reformat the Hard Drive as described in the Hard Drive section of this manual. Re-install applications and data using backup disks.

PROBLEM

Error message reading "SECTOR NOT FOUND" or other error messages not allowing certain data to be retrieved.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
A number of causes could be behind this.	Use a file by file backup instead of an image backup in order to backup the Hard Disk.	Back up any salvageable data. Then low level format, partition, and high level format the hard drive (see Hard Disk section of this manual for instructions). Re-install all saved data when completed.

PROBLEM

Disk formatted on IBM PS/2 will not operate with this system.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
The IBM PS/2 uses a different format than other computers.	IBM PS/2 disk format will not work in an AT type computer.	Format disk in the AT type computer insert disk into the IBM PS/2 and copy the files you wish.

PROBLEM

After installing an expansion card (network card, tape drive card, etc.) the system no longer works properly.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
No power to monitor.	All or part of the system may be inoperable. The new card may work but a mouse or COM port may not work	Change the interrupt or RAM address on the new expansion card. See the documentation that came with the new card in order to change pin settings. Many expansion devices come with proprietary software that will assist you in doing this.

PROBLEM

Screen message says "Invalid Configuration" or "CMOS Failure."

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Incorrect information entered into the configuration (setup) program.	Check the configuration program. Replace any incorrect information.	Review system's equipment. Make sure correct information is in setup.

PROBLEM

Screen is blank.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
No power to monitor.		Check the power connectors to monitor and to system. Make sure monitor is connected to display card, change I/O address on network card if applicable
Monitor not connected to computer.		See instructions above.
Network card I/O address conflict.		See instructions above.

PROBLEM

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Memory problem, display card jumpers not set correctly.		Reboot computer. Reinstall memory, make sure that all memory modules are installed in correct sockets. Check jumper and switch settings on display card. See display card section for information on settings.
Computer virus.		Use anti-virus programs (McAfee, E-Prot, etc) to detect and clean viruses.

PROBLEM

Screen goes blank periodically.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Screen saver is enabled.		Disable screen saver.

PROBLEM

Keyboard failure.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Keyboard is disconnected.		Reconnect keyboard. Check keys again, if no improvement replace keyboard.

PROBLEM

No color on screen.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Faulty Monitor.		If possible, connect monitor to another system. If no color replace monitor.
CMOS incorrectly set up.		Call technical support.

PROBLEM

Floppy drive light stays on.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Floppy Drive cable not connected correctly.		Reconnect floppy cable making sure PIN1 on the Floppy Drive corresponds with PIN1 on Floppy cable connector.

PROBLEM

Error reading drives A:

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Bad floppy disk.		Try new floppy disk
Floppy disk not formatted		Format floppy disk (type FORMAT A: type ENTER)>

PROBLEM

C: drive failure.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
SETUP program does not have correct information.		Boot from drive A: using DOS system disk. Input correct information to SETUP program.
Hard Drive cable not connected properly.		Check Hard Drive cable.

PROBLEM

Cannot boot system after installing second hard drive.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Master/Slave jumpers not set correctly.		Set Master/Slave jumpers correctly.
Hard Drives not compatible / different manufacturers.		Run SETUP program and select correct drive types. Call Drive manufacturers for compatibility with other drives.

PROBLEM

Missing operating system on hard drive.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
CMOS setup has been changed.		Run setup and select correct drive type.

PROBLEM

Certain keys do not function.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Keys jammed or defective.		Replace keyboard.

PROBLEM

Keyboard is locked, no keys function.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Keyboard is locked.		Unlock keyboard