

Advanced/ML

ATX Baseboard

User's Manual

FCC Notice:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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. If not installed and used properly, in strict accordance with the manufacturer's 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 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 :

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/television technician for help and for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock 004-000-00345-4

FCC Warning

The user is cautioned that changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Note : In order for an installation of this product to maintain compliance with the limits for a Class B device, shielded cables and power cord must be used.

NOTICE

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Manual Ver 1.0

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1 Basebaord Description

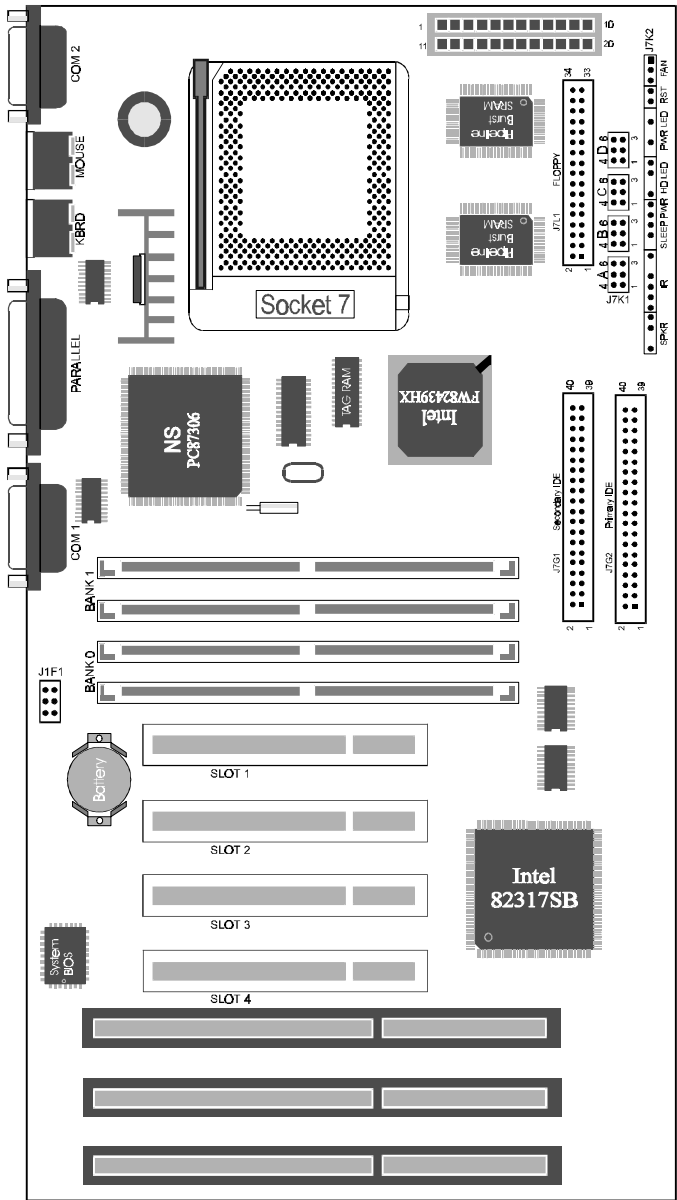
1.1 Overview

The ATX baseboard integrates the Pentium microprocessor, memory, and I/O technologies into a standard ATX form factor.

The baseboard design supports Pentium processors operating at 75, 90, 100, 120, 133, 150, and 166, and 200MHz. The other baseboard features include:

- ☐ Supports up to 128 MB of EDO DRAM or standard Fast Page DRAM in standard 72-pin SIMM sockets, either parity, non-parity, or ECC.
- ☐ Type 7 Pentium OverDrive socket provides an upgrade to future OverDrive processors
- ☐ Intel's 82430HX PCIset
- ☐ PC87306B Super I/O controller
- ☐ Bus mastering IDE
- ☐ Supports Plug and Play and Advanced Power Management (APM)

1.1.1 The baseboard layout

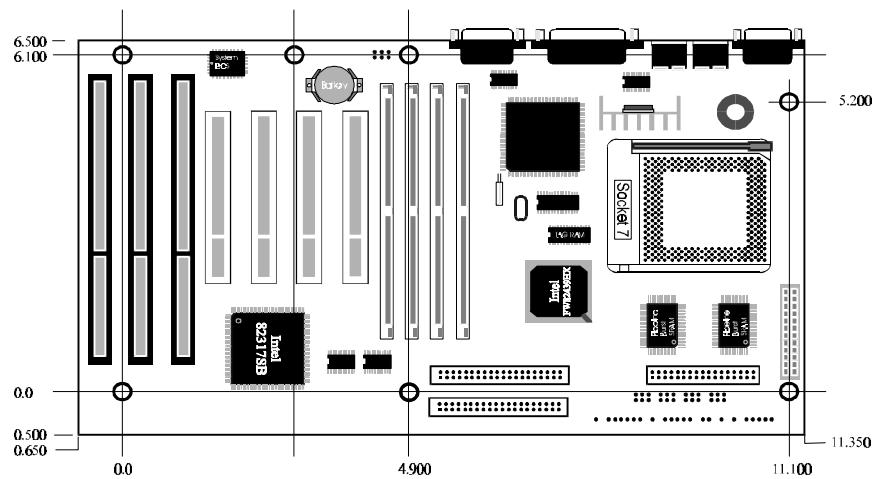


1.2 Baseboard Manufacturing Options

- ☐ 256 or 512 KB pipeline burst SRAM cache
- ☐ Support for Universal Serial Bus (USB)

1.3 Form Factor

The baseboard is designed to fit into a standard ATX form factor chassis. The ATX form factor does not adhere to the standard ATX guidelines in that the outer dimensions are 12" x 7". Location of the I/O connectors, riser slot, and mounting holes are in strict compliance with the ATX specification.



1.4 Microprocessor

The baseboard is designed to operate with 3.3volt Pentium Processor. An onboard linear voltage regulator circuit provides the required 3.3 volts from the 5.0 volt tap of the power supply. An on-board jumper enables use of VRE specified processors. Pentium processors that run internally at 75, 90, 100, 120, 133, 150, 166 and 200 MHz are supported.

1.5 Memory

Second-level Cache

The Intel 82430HX Xcelerated Controller PCIsset supports a second level cache that uses the Synchronous Pipeline Burst SRAM. Pipeline Burst (PB) SRAM provides performance similar to Synchronous Burst SRAMs for only a slight cost premium over slower performing Asynchronous SRAMs.

Main System Memory

The baseboard provides four 72-pin SIMM sockets that make it possible to install up to 128 MB of RAM. The socket support 4MB, 8MB, 16MB and 32MB single- or double-sided modules. Memory timing requires 70 ns fast page devices or , for optimum performance, 60 ns EDO DRAM. If the maximum external CPU clock speed is 60 MHz or slower, 70 ns EDO DRAM may be used. Both parity and non-parity memory are supported as well as ECC.

The four sockets are arranged in two banks of two sockets each. The sockets are designated Bank A and Bank B. Each bank provides a 64/72-bit wide data path. Both SIMMs in a bank must be of the same memory size and type, although the different types of memory may differ between banks. It is even possible to have 70 ns Fast Page DRAM in one bank and 60 ns EDO DRAM in the other, in that case each bank is independently optimized for maximum performance. Bank A only, Bank B only, or both of the banks may be populated. There are no jumper settings required for the memory size or type, that is automatically detected by the system BIOS. Use only tin lead SIMMs when adding DRAM.

EDODRAM

Extended Data Out (or Hyper Page) DRAM is designed to improve the DRAM read performance. EDO DRAM holds the memory data valid until the next memory access cycle.

1.6 Chipset

The Intel 82430HX PCIsset consists of the 82439HX Xcelerated Controller (TXC) and one 82371SB PCI ISA/IDE Xcelerator (PIIX3) bridge chip.

82439HX Xcelerated Controller (TXC)

The Intel 82439HX provides all control signals necessary to drive a second level cache and the DRAM array, including multiplexed address signals. The TXC also controls system access to memory and generates snoop controls to maintain cache coherency. The TXC comes in a 324-pin BGA package.

82371SB PCI ISA/IDE Xcelerator (PIIX3)

The PIIX3 provides the interface between the PCI and ISA buses and integrates a dual channel fast IDE interface capable of supporting up to 4 devices. The PIIX3 integrates seven 32-bit DMA channels, one 16-bit timer/counters, two eight-channel interrupt controllers, PCI -to-AT interrupt mapping circuitry, NMI logic, ISA refresh address generation, and PCI/ISA bus arbitration circuitry together onto the same device. The PIIX3 comes in a 208-pin QFP package.

IDE Support

The baseboard provides two independent high performance bus-mastering PCI IDE interfaces capable of supporting PIO Mode 3 and Mode 4 devices. The system BIOS supports Logical Block Addressing (LBA) and Extended Cylinder Sector Head (ECSH) translation modes as well as ATAPI (e.g. CD-ROM) devices on both IDE interfaces. Detection of IDE device transfer rate and translation mode capability is automatically determined by the system BIOS.

1.7 I/O Controller

Control for the integrated serial ports, parallel port, floppy drive, RTC and keyboard controller is incorporated into a single component, the National Semiconductor 306B. This component provides :

- ☐ Two NS16C550-compatible UARTs with send/receive 16 byte FIFO
- ☐ Support for an IrDA compliant Infra Red interface
- ☐ Multimode bidirectional parallel port
 - Standard mode; IBM and Centronics compatible
 - Enhanced Parallel Port (EPP) with BIOS/Driver support
 - High Speed mode; Extended Capabilities Port (ECP) compatible
- ☐ Industry standard floppy controller with 16 byte data FIFO (2.88 MB floppy support)
- ☐ Integrated real-time clock accurate within +/- 13 minutes /yr
- ☐ Integrated 8042 compatible keyboard controller

Real-Time Clock, CMOS RAM and Battery

The integrated real-time clock (RTC) is DS1287 and MC146818 compatible and provides a time of day clock, 100-year calendar with alarm features and is accurate to within 13 minutes per year. The RTC can be set via the BIOS SETUP program. The RTC also supports 242-byte battery-backed CMOS RAM in two banks which is reserved for BIOS use. The CMOS RAM can be set to specific values or cleared to the system default values using the BIOS SETUP program. Also, The CMOS RAM values can be cleared to the system defaults by using a configuration jumper on the baseboard.

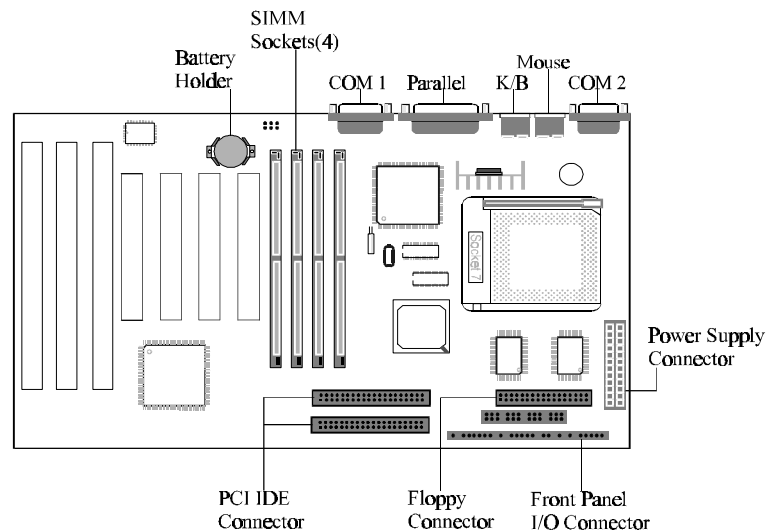
An external coin-cell style battery provides power on the RTC and CMOS memory. The battery has an estimated lifetime of three years if the system is not plugged into the wall socket. When the system is plugged in power is supplied from the ATX power supply's 5v standby current to extend the life of the battery.

IrDA (Infra-red) Support

A 5-pin header connector is provided to allow connection to a Hewlett Packard HSDSL-1000 compatible Infra-red (IrDA) transmitter/receiver. Once the module is connected to the header, Serial port 2 can be redirected to the IrDA module. Once configured for IrDA, the user can transfer files to or from portable devices such as laptops, PDA's and printers using application software such as LapLink. The IrDA specification provides for data transfers at 115Kbps from a distance of 1 meter.

1.8 Baseboard Connectors

There are connectors on-board for Power supply, Floppy, IDE, battery holder, back panel connector, and front panel I/O.



Power Supply Connector

When used with a power supply that supports remote power on/off, the baseboard can turn off the system power via software control ("soft-off" is a manufacturing option). The Powerman utility supplied for Windows 3.1x allows for soft-off as does the shutdown icon in Windows 95 Start menu. The system BIOS will turn the system power off then it receives the proper APM command from the OS. For example, Windows 95 will issue this APM command when the user selects "Shutdown the computer" option. APM must be enabled in the system BIOS and OS in order for the soft-off feature to work correctly. In order for the system to recognize the presence of a "soft-off" power supply, the supply must tie pin 14 of the PWS Control connector to ground. If power to system is interrupted due to a power outage or the power cord being unplugged, when power is reapplied, the system will return to the state it was in when the power was disconnected. If the system was turned on when power was disconnected, the system will turn back on when power is reapplied.

Front panel Connector

The baseboard provides header connectors to support function typically located on the chassis bezel. Front panel features support include :

- * System Reset
- * Power LED
- * Hard Drive activity LED
- * System Speaker
- * CPU Fan
- * Infra-red (IrDA) port
- * Sleep/Resume



Speaker

The external speaker provides error beep code information during the Power-on Self Test, if the system cannot use the video interface.

Sleep / Resume

When Advanced Power Management (APM) is activated in the system BIOS and the Operating System's APM driver is loaded, Sleep mode (Standby) can be entered in one of three ways: an optional front panel "Sleep/Resume" button, a user defined keyboard hot key, or prolonged system inactivity. The Sleep/Resume button is supported by a 2-pin header located on the front panel I/O connector. Closing the "Sleep" switch will generate an SMI (System Management Interrupt) to the processor which immediately goes into System Management Mode (SMM), the so called "Sleep" mode.

The front panel "Sleep mode" switch must be a momentary two pin SPST type that is normally open. The function of the Sleep/Resume button can also be achieved via a keyboard hot-key sequence, or by a time-out of the system inactivity timer. Both the keyboard hot-key and inactivity timer are programmable in the BIOS setup. To reactivate the system, or "Resume", the user must simply press the sleep/resume button again, or use the keyboard or mouse. Mouse activity will only "wake up" the system if a mouse driver is loaded. While the system is in Stand-by or "sleep" mode it is fully capable of responding to and servicing external interrupts (such as incoming FAX) even though the monitor will only turn on if a user interrupt (keyboard/mouse) occurs as mentioned above.

Infra-red (IrDA) connector

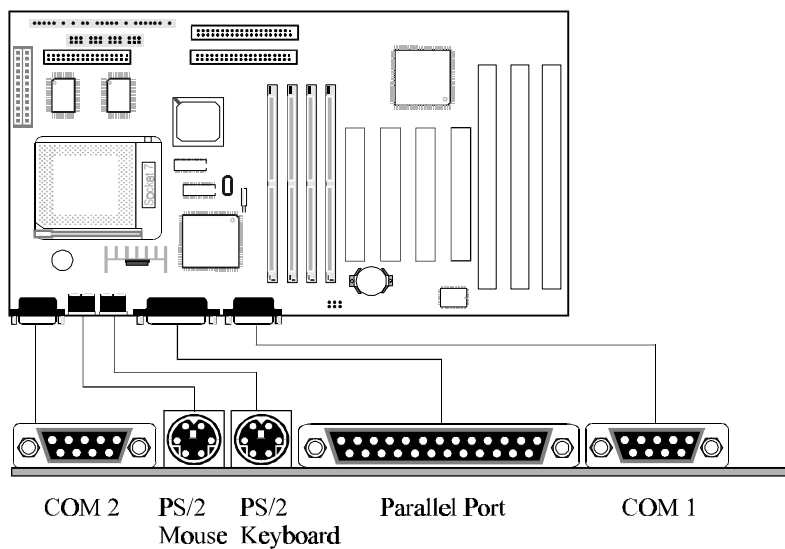
Serial port 2 can be configured to support an IrDA module via a 5-pin header connector. Once configured for IrDA, the user can transfer files to or from portable devices such as laptops, PDA's and printers using application software such as LapLink. The IrDA specification provides for data transfers at 115Kbps from a distance of 1 meter.

Reset

This 2-pin header can be connected to a momentary SPST type switch that is normally open. When the switch is closed, the system will hard reset and run POST.

Back Panel Connectors

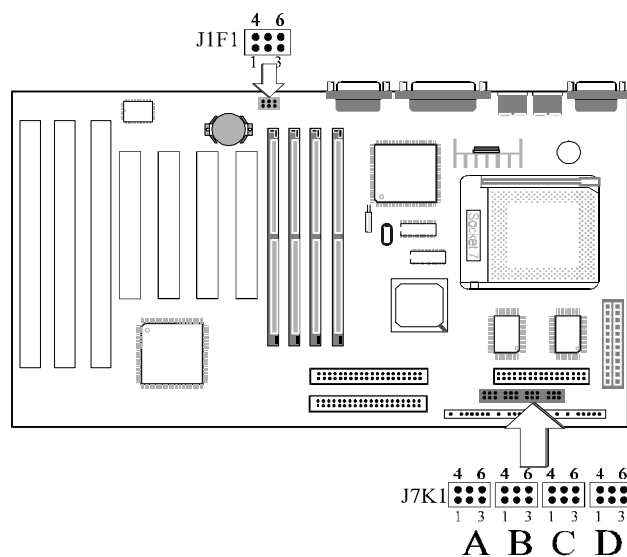
The back panel provides external access to PS/2 style keyboard and mouse connectors as well as two serial and one parallel port, which are integrated on the baseboard.



1.9 Add-in Board Expansion Connectors

Expansion Slots support up to four PCI and up to three ISA add-in boards. The PCI bus is fully compliant with the PCI 2.1 specification and supports up to four bus master through the four PCI connectors.

2 Jumper Settings



2.1 Jumper Block Overview

The baseboard contains configuration jumpers that make it possible to change the system configuration. For instance, you can prevent access to the system Setup program by moving a jumper. If you forget your system password, you can clear the password by moving a jumper. The system has been properly configured at the factory. Normally, the only time you will ever change a jumper is if you need to:

- ☐ Change the system operating speed
- ☐ Clear the User or Administrator password
- ☐ Reset the CMOS RAM settings to the default values
- ☐ Disabled or enable access to the Setup program
- ☐ Upgrade the BIOS
- ☐ Recover from a corrupted BIOS during a BIOS upgrade

Table 1-1. Configuration Jumper Settings

Function	Jumper	Configuration
Host Bus Speed (Note: These jumpers also set PCI and ISA clock speeds)	J7K1-C	See Table 1-2
CPU Speed Ratio	J7K1-D	See Table 1-2
CMOS Clear	J7K1-A	4 - 5 Keep (Default) 5 - 6 Clear
Password Clear	J7K1-A	1 - 2 Password Enabled (Default) 2 - 3 Password Clear/Disabled
CMOS Setup Access	J7K1-B	1 - 2 Access Allowed (Default) 2 - 3 Access Denied
VRE/STD	J7K1-B	4 - 5 VRE 5 - 6 OverDrive
Flash EEPROM Setup	J1F1	1 - 2, 4 - 5 Normal 2 - 3, 5 - 6 Recovery

2.2 CPU Configuration (J7K1-B, C, D)

These allow the baseboard to be switched between different speeds of the Pentium processor. These jumpers also affect the PCI and ISA clock speeds according to the following table.

Table 1-2. CPU/System Speed Settings

CPU Freq. (MHz)	J7K1-C	Host Bus Freq. (Mhz)	J7K1-D	CPU Clock Multiplier	J7K1-B
200	1-2, 5-6 close	66	1-2, 5-6 close	3	The VRE/OVD setting is dependent on the 4-5 for VRE, 5-6 for OVD.
166	1-2, 5-6 close	66	2-3, 5-6 close	2.5	
150	2-3, 4-5 close	60	2-3, 5-6 close	2.5	
133	1-2, 5-6 close	66	2-3, 4-5 close	2	
120	2-3, 4-5 close	60	2-3, 4-5 close	2	
100	1-2, 5-6 close	66	1-2, 4-5 close	1.5	
90	2-3, 4-5 close	60	1-2, 4-5 close	1.5	
75	2-3, 5-6 close	50	1-2, 4-5 close	1.5	

Clear CMOS (J7K1-A, Pins 4,5,6)

Allows CMOS settings to be reset to default values by moving the jumper from pins 4-5 to pins 5-6 and turning the system on. When the system reports that "NVRAM cleared by jumper", the system can be turned off, and the jumper should be returned to the 4-5 position to restore normal operation. This procedure should be done whenever the system BIOS is updated.

Password Clear (J7K1-A, Pins 1,2,3)

Allows system password to be cleared by moving the jumper from pins 1-2 to pins 2-3 and turning the system on. The system should then be turned off the the jumper should be returned to the 3-5 position to restore normal operation. The procedure should only be done if the user password has been forgotten. The password function is effectively disabled if this jumper is in the 1-3 position.

CMOS Setup Access (J7K1-B, Pins 1,2,3)

Allows access to CMOS Setup utility to be disabled by moving this jumper from the 1-2 position to the 2-3 position.

3 Baseboard BIOS and Setup Utility

3.1 Introduction

The baseboard uses an Intel BIOS, which is stored in Flash EEPROM and easily upgraded using a floppy disk-based program. In addition to the Intel BIOS, the Flash EEPROM also contains the Setup utility, Power-on Self Tests (POST), APM 1.1, the PCI auto-configuration utility, and Windows 95 ready Plug and Play. This baseboard also supports system BIOS shadowing, allowing the BIOS to execute from 64-bit on-board write-protected DRAM.

The BIOS displays a sign-on message during POST identifying the type of BIOS and a five-digit revision code. The initial production BIOS in the baseboard will be identified as 1.00.01.xxx.

3.2 BIOS Flash Memory Organization

The Intel Pa28FB100BX 1Mb Flash component is organized as 128K x 8 (128KB). The Flash device is divided into four areas, as described in Table 3-1.

Table 3-1. Flash Memory Organization

System Address	FLASH Memory Area
FE000H	FFFFFH
FD000H	FDFFFFH
FC000H	FCFFFFH
E0000H	FBFFFFH

3.3 BIOS Upgrades

Flash memory makes distributing BIOS upgrades easy. A new version of the BIOS can be installed from a diskette. BIOS upgrades are available to be down loaded from the secure section on the Intel bulletin board, or Intel's FTP site.

The disk-based Flash upgrade utility, FMUP.EXE, has three options for BIOS upgrades:

- ☐ The Flash BIOS can be updated from a file on a disk;
- ☐ The current BIOS code can be copied from the Flash EEPROM to a disk file as backup in the event that an upgrade cannot be successfully completed; or
- ☐ The BIOS in the Flash device can be compared with a file to ensure the system has the correct version.

The upgrade utility ensures the upgrade BIOS extension matches the target system to prevent accidentally installing a BIOS for a different type of system.

3.4 PCI Auto-configuration

The PCI auto-configuration utility operates in conjunction with the system Setup utility to allow the insertion and removal of PCI cards to the system without user intervention. When the system is turned on after adding a PCI add-in card, the BIOS automatically configures interrupts, I/O space, and other parameters. PCI interrupts are distributed to available ISA interrupts that have been not been assigned to an ISA card, or system resource. Those interrupts left set to "available" in the CMOS setup will be considered free for PCI add-in card use. It is nondeterministic as to which PCI interrupt will be assigned to which ISA IRQ.

The PCI auto-configuration function complies with version 2.10 of the PCI BIOS specification. System configuration information is stored in ESCD format. The ESCD data may be cleared by setting the CMOS clear jumper to the ON position.

3.5 ISA Plug and Play

The BIOS incorporates ISA Plug and Play capabilities as delivered by Plug Play Release 1.0A. When used in conjunction with ISA Configuration Utility (ICU) for DOS or Windows 3.x, the system allows auto-configuration of Plug and Play ISA cards, PCI cards, and resource management for legacy ISA cards. Because the BIOS supports configuring devices across PCI bridges, release 1.41 or greater of the ICU must be used with the baseboard to properly view and change system settings. System configuration information is stored in ESCD format. The ESCD data may be cleared by setting the CMOS clear jumper to the ON position.

The BIOS also has a setup option to support the Windows 95 run time plug and play utilities. When this option is selected, only devices critical to booting are assigned resources by the BIOS. Device Node information is available for all devices to ensure compatibility with Windows 95.

3.6 Advanced Power Management

The BIOS has support for Advanced Power Management (APM version 1.1). The energy saving Stand By mode can be initiated by a keyboard hot key sequence set by the user, a time-out period set by the user, or by a suspend/resume button tied to the front panel sleep connector.

3.7 Setup Enable Jumper

A baseboard configuration jumper controls access to the BIOS setup utility. By setting the jumper to the disable position, the user is prevented from accessing the Setup utility during the Power-on Self Test or at any other time. The message prompting the user to press <F1> to enter setup is also disabled.

3.8 BIOS Setup Utility

The ROM-based Setup utility allows the configuration to be modified without opening the system for most basic changes. The Setup utility is accessible only during the Power-on Self Test (POST) by pressing the <F1> key after the POST memory test has begun and before boot begins. A prompt may be enabled that informs users to press the <F1> key to access Setup. A jumper setting on the baseboard can be set to prevent user access to Setup for security purpose.

3.9 Overview of the Setup menu Screen

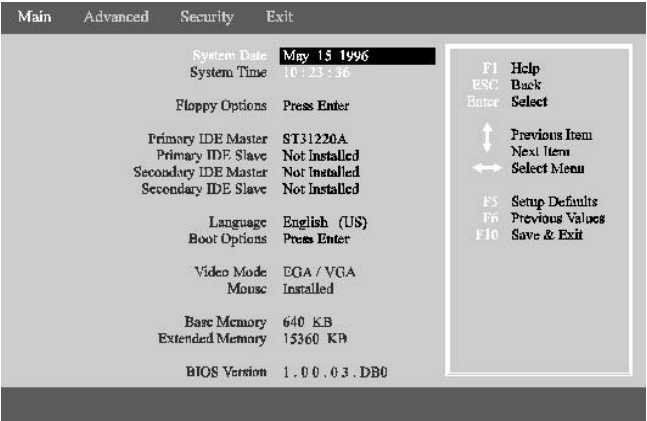
The Setup program initially displays the Main menu screen. In each screen there are options for modifying the system configuration.

Table 3-2. Overview of the Setup Menu Screens

Setup Menu Screen	Description
Main	For setting up and modifying some of the basic options of a PC, such as time, date, diskette drives, hard drives.
Advanced	For modifying the more advanced features of a PC, such as peripheral configuration and advanced chipset configuration
Security	For specifying passwords that can be used to limit access to the system.
Exit	For saving or discarding changes.
Setup Subscreen	Description
Floppy Options	For configuring your diskette drives.
Hard Disk Configuration	For configuring your hard drives.
Boot Options	For modifying options that affect the system boot up, such as the boot sequence.
Peripheral Configuration	For modifying options that affect the serial ports, the parallel port, and the disk drive interfaces.
Advanced Chipset Configuration	For modifying options that affect memory and system busses.
Power Management Configuration	For accessing and modifying Advanced Power Management (APM) options.
Plug and Play	

3.10 Main BIOS Setup

This section describes the Setup options found on the main menu screen. If you select certain options from the main screen, the Setup program switches to a subscreen for the selected option.



System Date

Specifies the current date. Select the month from a pop-up menu.

System Time

Specifies the current time.

Floppy Options

When selected, this pops up the Floppy Options menu.

Hard Disk C:, D:, E:, F:

Reports if a hard disk is connected to the system. When selected, this brings up the Hard Disk Configuration subscreen.

Language

Specifies the language of the text strings used in the Setup program and the BIOS. The options are any installed languages.

Boot Options

When selected, this brings up the Boot Options subscreen.

Video Mode

Reports the video mode. There are no options.

Mouse

Reports if a mouse is installed or not. There are no options.

Base Memory

Reports the amounts of base memory. There are no options.

Extended Memory

Reports the amount of extended memory. There are no options.

3.10.1 Floppy Options

Floppy A: / B:

Reports if a diskette / second diskette drive are connected to the system. There are no options.

Floppy A: / B: Type

Specifies the physical size and capacity of the diskette drive. The options are Disabled, 360 KB, 5.25"; 1.2 MB, 5.25"; 720 KB, 3.5"; 1.44/1.25 MB, 3.5"; 2.88 MB, 3.5". The default is 1.44/1.25 MB, 3.5".

3.10.2 Hard Disk Configuration

Hard Disk Type

Used to manually configure the hard drive or have the system auto configure it. The options are Auto Configured and User Definable. The default is Auto Configured. If you select User Definable then the Number of Cylinders, Number of Heads, and Number of Sectors items can be modified.

Number of Cylinders

If Hard Disk Type is set to User Definable, you must type the correct number of cylinders for your hard disk.

Number of Heads

If Hard Disk Type is set to User Definable, you must type the correct number of heads for your hard disk.

Number of Sectors

If Hard Disk Type is set to User Definable, you must type the correct number of sectors for your hard disk.

Maximum Capacity

Reports the maximum capacity of your hard disk. It is calculated from the number of cylinders, heads, and sectors. There are no options here.

IDE Translation Mode

Specifies the IDE translation mode. The options are Standard CHS (standard cylinder head sector-less than 1024 cylinders), Logical Block, Extended CHS (standard cylinder head sector-greater than 1024 cylinders), and Auto Detected (BIOS detects IDE drive support for LBA).

Multiple Sector Setting

Sets the number of sectors transferred by an IDE drive per interrupt generated. The options are Disabled, 4 Sector/Block, 8 Sector/Block, or Auto Detected. Check the specifications for your hard disk drive to determine which setting provides optimum performance for your drive.

Fast Programmed I/O Modes

Sets how fast transfers on the IDE interface occur. The options are Disabled or Auto Detected.

3.10.3 Boot Options

This section describes the options available on the Boot Options subscreen.

First, Second, Third, Fourth Boot Device

Sets which drives the system checks to find an operating system to boot from. The following options are available:

First Boot Device: Select Disabled, Floppy, Hard Disk, CD-ROM, Network.

Second, Third, Fourth Device: Select Disabled, Floppy, Hard Disk, Network.

System Cache

Enables or disables both the primary and secondary cache memory.

Boot Speed

Sets the system's boot speed. The options are Deturbo and Turbo. If Turbo is selected, boot-up occurs at full speed. If Deturbo is selected, the board operates at a slower speed.

Num Lock

Sets the beginning state of the Num Lock feature on your keyboard. The options are On and Off .

Setup Prompt

Turns on (or off) the "Press <F1> Key if you want to run Setup" prompt during the power-up sequence. The options are Enabled and Disabled.

Hard Disk Pre-delay

Sets the hard disk drive pre-delay. The options are Disabled, 3, 6, 9, 12, 15 seconds. When enabled, this option causes the BIOS to wait the specified time before it accesses the first hard drive. If your system contains a hard drive, and you don't see the drive type displayed during boot-up, the hard drive may need more time before it is able to communicate with the controller. Setting a pre-delay provides additional time for the hard drive to initialize.

Typematic Rate Programming

Sets the typematic rates. The options are Default and Override. The default is Default. Choosing Override enables Typematic Rate Delay and Typematic Rate.

Typematic Rate Delay

Sets how long it takes for the key-repeat function to start when you hold down a key on the keyboard. The options are 250, 500, 720, and 100 millisecond delays. If Typematic Rate Programming is set to Default, this option will not be visible.

Typematic Rate

Sets the speed at which characters repeat when you hold down a key on the keyboard. The higher the number, the faster the characters repeat. The options are 6, 8, 10, 12, 15, 20, 24, and 30 characters per second. If Typematic Rate Programming is set to Default, this option will not be visible.

3.11 Advanced Screen

This section describes the Setup options found on the Advanced menu screen. If you select certain options from the Advanced screen, the Setup program switches to a subscreen for the selected option.

Processor Type

Reports the CPU type. There are no options.

Processor Speed

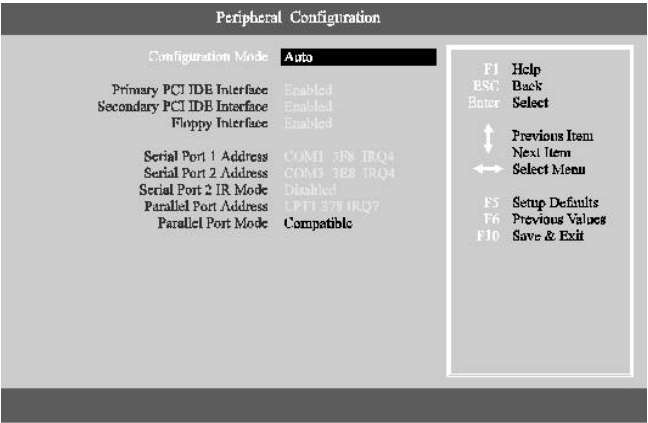
Reports the CPU clock speed. There are no options.

Cache Size

Reports the size of the secondary cache. There are no options. If your system contains no L2 cache, this item will not appear.

3.11.1 Peripheral Configuration

This section describes the screens for the peripheral configuration subscreen.



Configuration Mode

Enables you to choose between setting the peripheral configuration yourself, or having the system do it. The options are Auto and Manual.

When Auto is selected, the system peripherals are automatically configured during power up. The options below for PCI IDE Interface, Floppy Interface, Serial Port 1 and Serial Port 2 Address, Serial Port 2 IR Mode, and the Parallel Port Address cannot be modified. The settings displayed for those options reflect the current state of the hardware.

PCI IDE Interface

Enables or disables the PCI IDE hard disk interface. The options are Enabled and Disabled. If Configuration Mode is set to Auto, this option cannot be modified.

Floppy Interface

Enables or disables the diskette drive interface. The options are Enabled and Disabled. If Configuration Mode is set to Auto, this option cannot be modified.

Serial Port 1/2 Address

Selects the address of the serial port. The options are Disabled; COM1, 3F8h; COM2, 2F8h; COM3, 3E8h; and COM4, 2E8h. If the Configuration Mode is set to Auto, the Setup program assigns the first free COM port as the serial port address, regardless of what is selected under the Serial Port Address option.

Serial Port 2 IR Mode

Makes Serial Port 2 available to infrared applications. The options are Enabled and Disabled.

Parallel Port Address

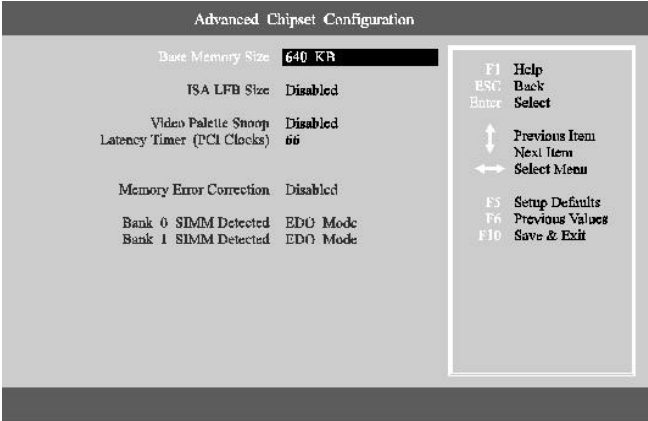
Selects the address and IRQ of the parallel port. The options are Disabled; LPT3, 3BCh, IRQ7; LPT1, 378h, IRQ7; LPT1, 387h, IRQ5; and LPT2, 278h, IRQ5. If the Configuration Mode is set to Auto, the setup program assigns LPT1, 378h, IRQ7 as the parallel port address, regardless of what is selected under the Parallel Port Address option.

Parallel Port Mode

Selects the mode for the parallel port. The options are Compatible, Bidirectional, EPP, and ECP. Compatible means the parallel port operates in AT-compatible mode. Bidirectional means the parallel port operates in bidirectional PS/2-compatible mode. EPP and ECP mean the parallel port operates high-speed, bidirectional. This option is not affected by the Configuration Mode field above.

3.11.2 Advanced Chipset Configuration

This section describes the options available on the Advanced Chipset Configuration Subscreen



Base Memory Size

Sets the size of the base memory. The options are 512KB and 640KB.

ISALFB Size

Sets the size of the linear frame buffer. The options are Disabled and 1 MB. If this is set to 1 MB, then the ISA LFB Base Address field will appear.

ISA LFB Base Address

Reports the base address of the LFB. There are no options. This field will not appear if the ISA LFB Size is set to Disabled.

Video Palette Snoop

Controls the ability of a primary PCI graphics controller to share a common palette with an ISA add-in video card. The options are Enabled and Disabled. The default is Disabled.

Latency Timer (PCI Clocks)

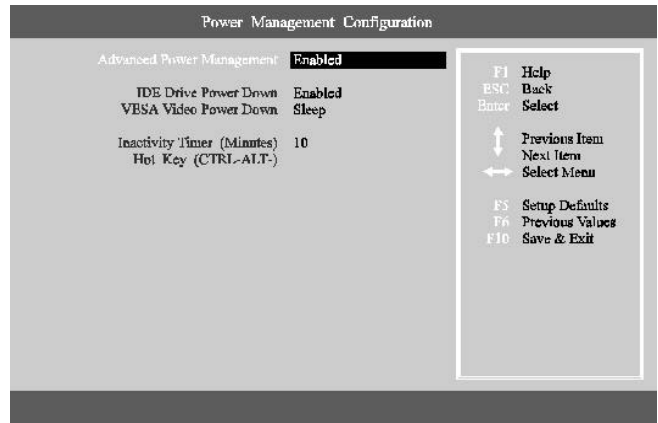
Sets the length of time an agent on the PCI bus can hold the bus when another agent has requested the bus. Valid numbers are between 0 and 256. The default is 66.

Bank 0/1 SIMM Detected

Reports the type of memory found in the bank 0/1 SIMM slots. There are no options.

3.11.3 Power Management Configuration

This section describes the options available on the Power Management Subscreen.



Advanced Power Management

Enables or disables the Advanced Power Management (APM) support in your system's BIOS. The options are Enabled and Disabled. Power Management will only work with APM-capable operating systems to manage power consumption in your system. If Advanced Power Management is set to Disabled, none of the fields in the Advanced Power Management subscreen will be visible.

IDE Drive Power Down

Sets any IDE drives to spin down when the system goes into power managed mode. The options are Enabled and Disabled.

Inactivity Timer

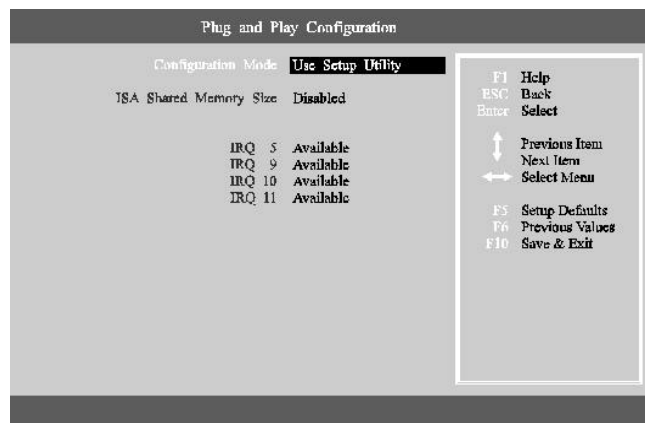
Sets how long the system must be inactive before it enters power managed mode. Enter the number of minutes. The range is 0 to 255 minutes.

Hot Key

Sets the hot key that, when pressed while holding down the <Ctrl> and <Alt> keys, causes the system to enter power managed mode. All alphabetic keys are valid.

3.11.4 Plug and Play Configuration

This section describes the options found on the Plug and Play configuration subscreen.



Configuration Mode

Sets how the BIOS gets information about ISA cards that do not have Plug and Play capabilities. The options are Use Setup Utility and Use ICU (ISA Configuration Utility). The default is Use Setup Utility.

If Use ICU is selected, the BIOS will depend on run-time software to ensure that there are no conflicts between ISA boards with Plug and Play capabilities and those without. Only Boot With PnP OS will be visible.

Boot with PnP OS

Enables the PC to boot with an operating system capable of managing Plug and Play add-in cards. The options are None, Other, and Windows 95. The default is Windows 95.

ISA Shared Memory Size

Enables you to "unshadow" a block of the upper memory area. The options are Disabled, 16 KB, 32 KB, 48 KB, 64 KB, 80 KB, and 96 KB. If this is set to Disabled, the ISA Shared Memory Base Address will not be visible.

Shadowing is a technique that copies a block of memory from an add-in card's ROM to the same address in system memory. This provides faster access and achieves higher performance. By default, all upper memory is shadowed.

ISA Shared Memory Base Address

Sets the base address for the ISA Shared Memory. The options are C8000h,

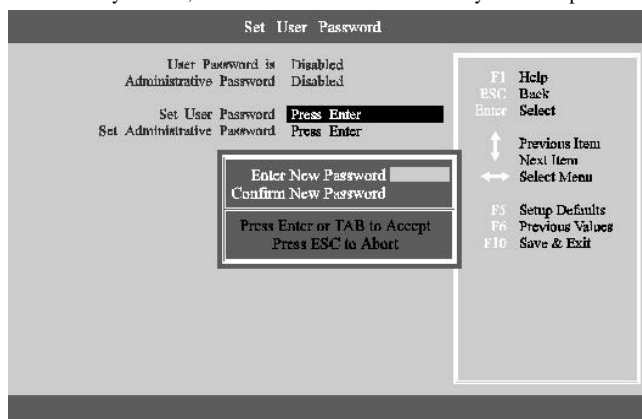
CDC000h, D0000h, D4000h, D8000h, and DC000h. This setting could affect the ISA Shared Memory Size item. The value entered in the ISA Shared Memory Size item cannot extend to the E0000h address. For example, if a size of 64K was selected, options D4000h, D8000h, and DC000h will not be available.

IRQ 3, 4, 5, 7, 9, 10, 11, 12, 14, 15

Sets the status of the IRQ. The options are Available and Used By ISA Card. The PCI auto-configuration code looks here to see if there interrupts are available for use by a PCI add-in board. If an interrupt is available, the PCI auto-configuration code can assign the interrupt to be used by the system. If your system contains an ISA agent that uses one of these interrupts, select Used By ISA Card for that interrupt.

3.11.5 Security Screen

This section describes the two access modes that can be set using the options found on the Security screen, and then describes the Security screen options themselves.



Administrative and User Access Modes

The options on the Security screen menu make it possible to restrict access to the Setup program by enabling you to set passwords for two different access modes: Administrative mode and User mode.

In general, Administrative mode has full access to the Setup options, whereas User mode has restricted access to the options. Thus, by setting separate Administrative and User passwords, a system administrator can limit who can change critical Setup values. The actual limitations depend on whether either the Administrative or User passwords or both are set.

To limit access to who can boot the system, set the User password. This is the password that the system asks for before booting. If only the Administrative password is set, the system boots up without asking for a password. If both passwords are set, you can enter either password to boot the system.

3.11.6 Security Screen Options

User Password is

Reports if there is a User password set. There are no options.

Administrative Password is

Reports if there is a Administrative password set. There are no options.

Set User Password

Sets the User Password. The password can be up to seven alphanumeric characters.

Set Administrative Password

Sets the Administrative Password. The password can be up to seven alphanumeric characters.

Unattended Start

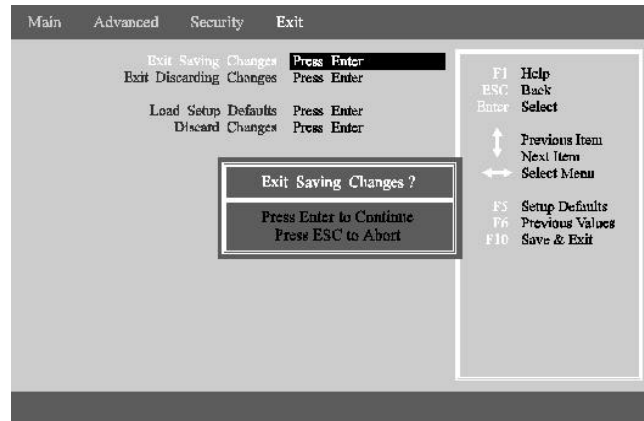
Controls when the security password is requested. The options are Enabled and Disabled. The User password must be enabled before you can enable this option. If Enabled is selected, the system boots, but the keyboard will be locked until the User password is entered.

Security Hot Key (CTRL-ALT-)

Sets a hot key that, when pressed, locks the keyboard until the User password is entered. The Keyboard LED flash to indicate that the keyboard is locked. When you enter the User password, you do not have to press the <Enter> key.

3.12 Exit

This section describes the different ways to exit and save or not save changes made in the Setup program.



Exit Saving Changes

Saves the changes to CMOS RAM and exits the Setup program. You can also press the <F10> key anywhere in the Setup program to do this.

Exit Discarding Changes

Exits the Setup program without saving any changes. This means that any changes made while in the Setup program are discarded and NOT SAVED. Pressing the <Esc> key in any of the four main screens will do this.

Load Setup Defaults

Resets all of the setup options to their defaults. You can also press the <F5> key anywhere in the Setup program to do this.

This selection loads the default Setup values from the ROM table.

Discard Changes

Discard any changes you made during the current Setup session without exiting the program. You can also press the <F6> key anywhere in the Setup program to do this.

This selection loads the CMOS RAM values that were present when the system was turned on.