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# Model 586MBHP Series Product Manual

MANUAL NUMBER : 41209-003-2A





## FOREWARD

This product manual provides information to install, operate and or program the referenced product(s) manufactured or distributed by ICS Advent. The following pages contain information regarding the warranty and repair policies.

Technical assistance is available at: **1-800-480-0044**.

**Manual Errors, Omissions and Bugs:** A "Bug Sheet" is included as the last page of this manual. Please use the "Bug Sheet" if you experience any problems with the manual that requires correction.

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*Mission Critical Applied Computing Solutions*

## Return Procedure

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To reduce risk of damage, returns of product must be in an ICS Advent shipping container. If the original container has been lost or damaged, new shipping containers may be obtained from ICS Advent Customer Service at a nominal cost.

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Some *Sales Items* and *Customized Systems* are **not** subject to the guarantee and limited warranty. However, in these instances any deviations will be disclosed prior to sales and noted in the original invoice. ***ICS Advent reserves the right to refuse returns or credits on software or special order items.***

## Advisories

Three types of advisories are used throughout the manual to stress important points or warn of potential hazards to the user or the system. They are the Note, the Caution, and the Warning. Following is an example of each type of advisory:

**Note:** The note is used to present special instruction, or to provide extra information which may help to simplify the use of the product.



### CAUTION!



A Caution is used to alert you to a situation which if ignored may cause injury or damage equipment.

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### WARNING!



A Warning is used to alert you of a situation which if ignored will cause serious injury.

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Cautions and Warnings are accented with triangular symbols. The exclamation symbol is used in all cautions and warnings to help alert you to the important instructions. The lightning flash symbol is used on the left hand side of a caution or a warning if the advisory relates to the presence of voltage which may be of sufficient magnitude to cause electrical shock.

Use caution when servicing any electrical component. We have tried to identify the areas which may pose a Caution or Warning condition in this manual; however, ICS Advent does not claim to have covered all situations which might require the use of a Caution or Warning.

You must refer to the documentation for any component you install into a computer system to insure proper precautions and procedures are followed.

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**Current Revision 1B**

**December 1996**

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# Introduction

Thank you for your purchase of the 586MBHP system board. The 586MBHP system board design was based on the Intel Triton™ chipset providing the ideal platform for getting the most power of the Intel Pentium™ processor. With proper installation and maintenance, your 586MBHP will provide Years of high performance and trouble free operation.

This manual provides a detailed explanation into the installation and uses of the 586MBHP system board. This manual is written for the novice PC user/installer. However, as with any major computer component installation, previous experience is helpful and should you not have prior experience, it would be prudent to have someone assist you in the installation. This manual is broken into 3 chapters and 4 appendix.

## **Chapter 1 - System Board Pre-Configuration**

This chapter provides all the necessary information for installing the 586MBHP. Topics discussed include: Installing the CPU (if necessary), DRAM installation, jumper settings for CPU, cache and standard I/O. Connecting all the cables from the system board to the chassis and peripherals.

## **Chapter 2 - BIOS Configuration**

This chapter discusses the final step in getting your system up and running - running the BIOS SETUP program.

## **Chapter 3 - Upgrading**

The 586MBHP provides a number of expansion options including memory and cache. All aspects of the upgrade possibilities are covered.

## **Appendix A - Technical Specifications**

A complete listing of all the major technical specifications of the 586MBHP is provided.

## **Appendix B - Glossary of Terms**

Glossary of most used technical terms.

## **Appendix C - Flash BIOS Programming**

Provides all the information necessary to program your optional AMIBIOS Flash BIOS.

## **Appendix D - Troubleshooting**

This chapter lists the solutions for the most common questions on the 586MBHP operation.

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## **STATIC ELECTRICITY WARNING!**

The 586MBHP has been designed as rugged as possible but can still be damaged if jarred sharply or struck. Handle the motherboard with care. The 586MBHP also contains delicate electronic circuits that can be damaged or weakened by static electricity. Before removing the 586MBHP from its protective packaging, it is strongly recommended that you use a grounding wrist strap. The grounding strap will safely discharge any static electricity built up in your body and will avoid damaging the motherboard. Do not walk across a carpet or linoleum floor with the bare board in hand.

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## **586MBHP - An Overview**

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The 586MBHP represents the ultimate in system board technology. No other system board available today provides such an impressive list of features:

### **CPU Support**

Intel P54C Pentium™ Processor  
Cyrix 6x86™ Processor

### **CPU Clock Speeds**

75, 90, 100, 120, 133, 150 and 200 MHz.

### **Supported Bus Clocks**

50, 60 and 66 MHz.

### **Memory**

32 or 36-bit JEDEC standard FPM or EDO SIMMS-70ns minimum access speed memory capacity: 1 to 128MB.

### **High Speed DRAM Cache**

256K expandable to 512k of write-back direct-mapped asynchronous cache.

### **ROM BIOS**

AMI WinBios™ BIOS with optional FLASHROM for easy field upgrades.

## **On-Board I/O**

- Up to 4 enhanced IDE drives: two PCI IDE controllers
- 2 Floppies up to 2.88 Mb
- Two high speed RS-232 serial ports 16Byte FIFO (16550)
- One Centronics™ compatible bi-directional parallel port EPP/ECP mode compatible
- PS/2 mouse port

## **Conventions Used in this Manual**

When instructed to enter keyboard keystrokes, the text will be noted by:

Enter Keystroke

Information displayed on the screen other than figure is displayed as:

Enter Password

Information presented in a text box denotes special interest. There are two types:

---

### **IMPORTANT**

Information - such as static warnings, or very important instructions.

---

Reminder: Notes - Such as a brief discussion of memory types.

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# Chapter 1: Pre-Configuration

This chapter provides all the necessary information for installing the 586MBHP into a standard PC chassis. Topics discussed include: installing the CPU (if necessary), DRAM installation, jumper settings for CPU, cache and standard I/O.

## Handling Precautions

The 586MBHP has been designed to be as rugged as possible but it can be damaged if dropped, jarred sharply or struck. Damage may also occur by using excessive force in performing certain installation procedures such as forcing the system board into the chassis or placing too much torque on a mounting screw.

Take special care when installing or removing the system memory SIMMs. Never force a SIMM into a socket. Screwdrivers slipping off a screw and scraping the board can break a trace or component leads, rendering the board unusable. Always handle the 586MBHP with care.

---

### IMPORTANT

Products returned for warranty repair will be inspected for damaged caused by improper installation and misuse as described in the previous section and the static warning below. Should the board show signs of abuse, the warranty will become void and the customer will be billed for all repairs and shipping and handling costs.

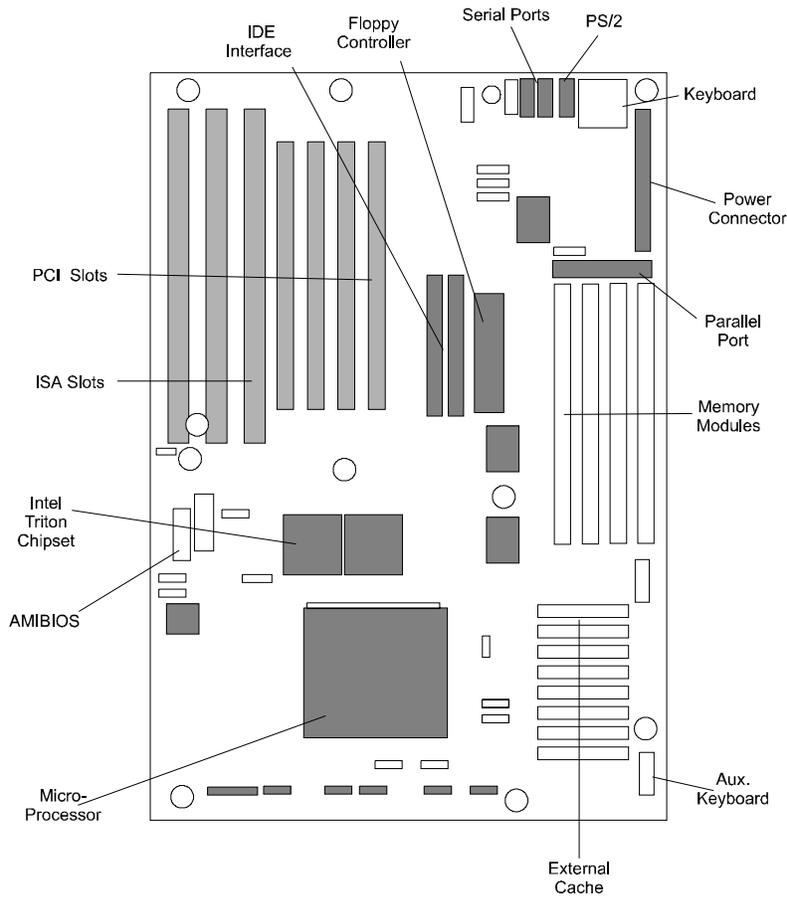
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## Static Warning

The 586MBHP contains delicate electronic semiconductors that are highly sensitive to static electricity. These components, if subjected to a static electricity discharge, can be weakened thereby reducing the serviceable life of the system board. **BEFORE THE BOARD IS REMOVED FROM ITS PROTECTIVE ANTISTATIC PACKAGING TAKE PROPER PRECAUTIONS!** Work on a conductive surface that is connected to ground. Before touching any electronic device, ground yourself by touching an unpainted metal object or, and highly recommended, use a grounding strap.

## Step 1 - Setting the Jumpers

---



**Figure 1-1: 586MBHP System Board**

Your 586MBHP is equipped with a large number of peripherals and has the ability to run at a variety of speeds without the need to change any crystals or oscillators. As such, there is a large number of configuration jumpers on the board. Taken step by step, setting these jumpers is easy. We suggest you review each section and follow the instructions.

## Jumper Types

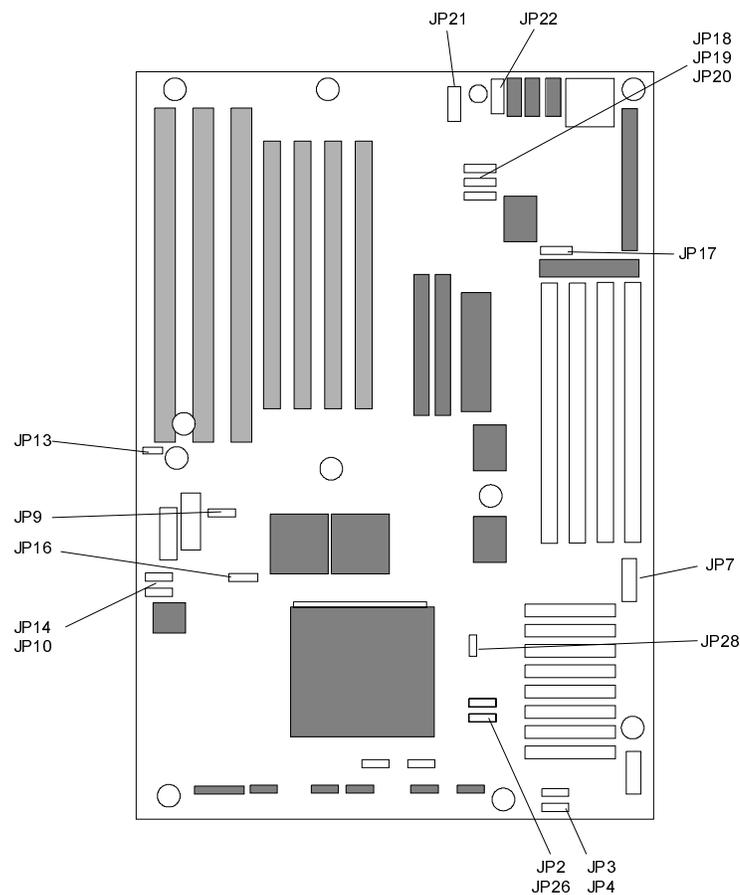
Jumpers are small copper pins attached to the system board. Covering two pins with a shunt closes the connection between them. The 586MBHP examines these jumpers to determine specific configuration information. There are three different categories of jumpers on the 586MBHP.

- A: Two pin jumpers are used for binary selections such as enable or disable. Instructions for this type of jumper are open, for no shunt over the pins or closed, when the shunt covers the pins.
- B: Three or four pin jumpers are used for multiple selection. Instructions for these jumpers will indicate which two pins to cover. For example: for JPx2-3 the shunt will be covering pins 2 and 3 leaving pins 1 and 4 exposed.
- C: Grouped Jumpers are used when a certain function has multiple selections. There are two grouped jumpers on the board and careful attention should be given when setting these jumpers. Instructions for grouped jumpers are similar to those above Jumper Location and Pin Numbers.

## Jumper Locations

Use the diagram below and the tables on the following pages to locate and set the on-board configuration jumpers.

**Note:** Jumpers JP3 and JP4 are factory set and should not be changed.



**Figure 1-2: Jumper Locations**

## Standard I/O Enable

The 586MBHP standard I/O consists of the two serial ports, the parallel port and floppy disk controller. Jumper JP17 is used to enable or disable these ports.

**Table 1-1: Standard I/O Enable**

## Mouse IRQ Enable

The PS/2 type mouse port on your 586MBHP uses IRQ 12 as its interrupt request line. To enable the interrupt (default) leave Jumper JP10 on pins 2-3. To disable the interrupt and subsequently the mouse controller, move the jumper to pins 1-2.

**Table 1-2: Mouse IRQ Enable**

## CMOS Reset

This option is provided as a convenience for those who need to reset the CMOS registers. It should always be set to “Normal” for standard operation. If the CMOS needs to be reset turn off the system, move JP9 to 2-3, turn the system on, move JP9 back to 1-2 and reset the motherboard.

RTC	Normal	Reset
JP9	1-2*	2-3

**Table 1-3: CMOS Reset**

## I/O Port IRQ Selection

The parallel port and both serial ports must have their IRQs. Normally, these settings can be left in their default settings and only when conflicts arise should they be changed. Jumper JP20 is used to select the parallel port IRQ. Jumper JP19 is used to select the first serial port's IRQ. Jumper JP18 is used to select the second serial port's IRQ. Use Table 1-8 to select the IRQs for these options.

**Table 1-4: I/O Port IRQ Selection**

## IDE Drives Selection

The 586MBHP supports up to 4 IDE drives:

- 2 IDE drives on the primary PCI IDE controller
- 2 IDE drives on the secondary PCI IDE controller

The IDE interfaces can be configured in the BIOS.

## Clock Speed Selection

The jumpers JP2, JP7 and JP26 allow you to choose the appropriate CPU speed, without changing crystals and oscillators.

**Table 1-5: Clock Frequency**

**Table 1-6: Clock Speed Selection**

**Table 1-7: DMA Configuration for EPP Parallel Port**

**Display Selection**

Select the type of display through JP14, 1-2 for color and 2-3 for monochrome.

**Table 1-8: Display Selection**

## Cache Size

The jumper JP28 allows you to choose the cache size desired.

**Table 1-9: Cache Size Selection**

## Flash BIOS

The jumper JP13 allows you to choose the Flash BIOS setup.

**Table 1-10: Flash BIOS Selection**

## Step 2 - DRAM, CPU and Cables Installation

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Depending upon how your 586MBHP is configured you may need to install the following:

- DRAM (SIMMs)
- CPU

### 586MBHP Configuration

The 586MBHP uses standard or EDO 70ns access speed or faster SIMMs. It is very important that the quality of the SIMMs is good. Undesirable operation of the system may result if poor quality SIMMs are used. Always purchase your memory from a reliable source.

---

### IMPORTANT

The 586MBHP uses standard 32 or 36-bit SIMMs. They are slightly larger than other 9-bit SIMMs that are also commonly used on systems boards. They are configured into four, 8-bit (or 1 Byte) sections. Thus, a total of 32 Bits (no parity) or 36 Bits (with parity) are stored. This is often confusing because these SIMMs are commonly referred to as 256K, by 32 or 36 or 1MB by 32 or 36. To determine the actual capacity of the SIMM, simply multiply the 256K, 512K or 1MB by 4. Thus the actual SIMMs capacity is 1MB, 2MB and 4MB respectively.

---

## Installing Memory Modules

The 586MBHP has 4 memory module sockets. The order in which they should be populated is from the inside of the board outward. Note that each socket is labeled: SM1,SM2,SM3,SM4. Refer to figure 1-4.

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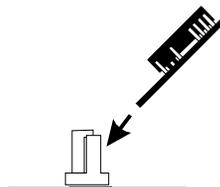
### IMPORTANT

At least TWO memory modules MUST be installed at a time.

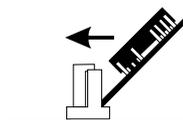
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When inserting the memory modules, note the notch on the edge of each module. This notch is designed to permit insertion in only one way. This notch must be pointed towards the keyboard connector.

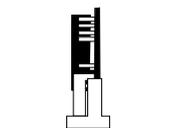
Start with the innermost socket (SM1). Gently place the module into the desired socket at a 30-45-°angle. Then gently rotate or rock the module into an upright position. Never force a memory module into its socket. Rather, double check the notch and gently rock it into place. When the module has been properly installed, the metal latches on either side of the memory module will “click” into place. (See figure 1-3). Repeat the mentioned steps until all memory modules are installed. No jumpers are involved in DRAM configuration.



Gently place the SIMM into the desired socket at 30°-45° angle.

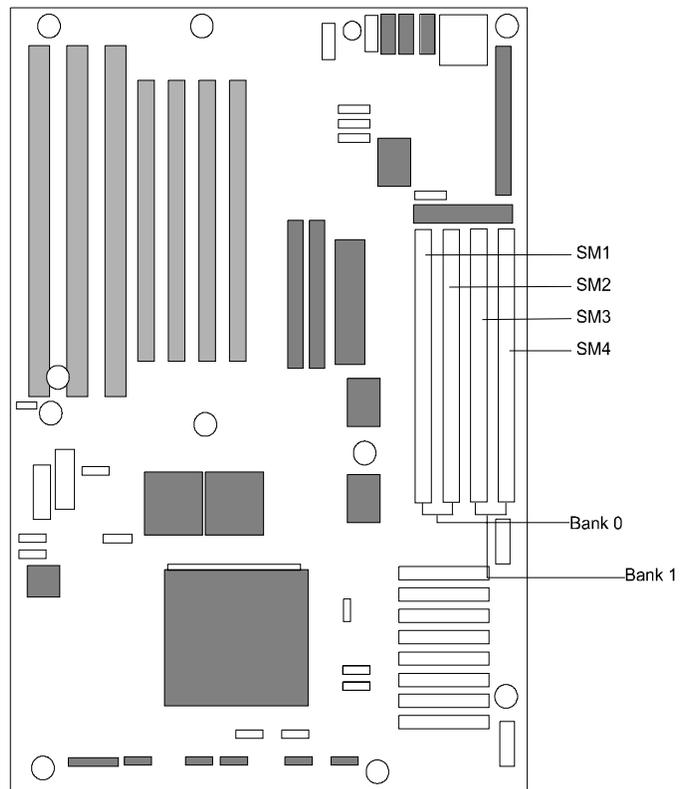


Then gently rotate or rock the SIMM into an upright position. Never force a SIMM into its socket.



Double check the notch and gently rock it into place if properly installed the SIMM will “click”.

**Figure 1-3: SIMM Insertion**



**Figure 1-4: Memory Modules Socket Locations**

## CPU Installation

The 586MBHP currently supports the following CPUs:

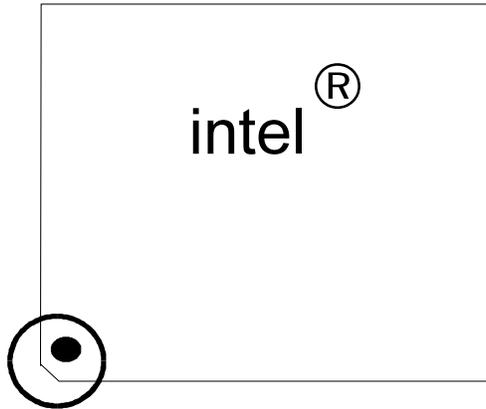
- Intel P54C Pentium 75,90,100,120,150,166,200 MHz
- Cyrix 6x86 100,120MHz
- AMDK5 75,90,100MHz

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## IMPORTANT

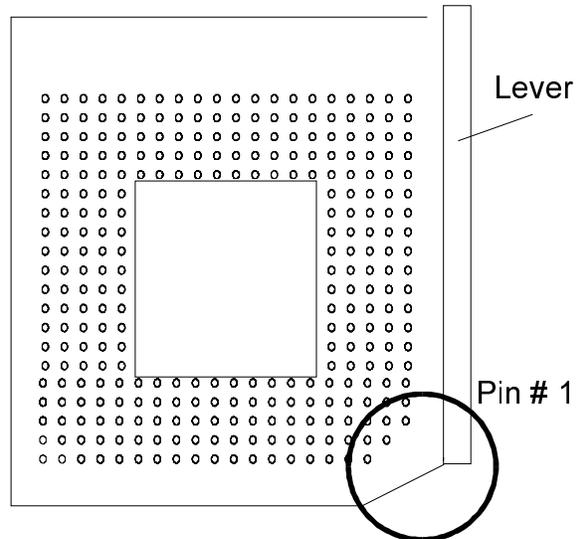
1. Improper installation of the CPU may cause permanent damage to both the system board and the CPU. – Void of warranty
  2. Always handle the CPU by the edges, never touch the pins.
  3. Always use a heatsink and CPU fan.
- 

Using figure 1-5, locate the diagonal notch on the CPU chip. This notch represents pin one. The Pentium processor also has a small dot indicating pin 1. **DO NOT USE THE CHIP LOGO OR LETTERING TO LOCATE PIN ONE.** Locate the CPU socket on your 586MBHP system board. Pin 1 on the socket is located in the lower left hand corner of the socket.



**Figure 1-5: CPU Alignment**

To install the Pentium processor lift the lever of the ZIF socket and gently insert the CPU. Make sure the CPU is inserted all the way. Lower the lever. See figure 1-6.

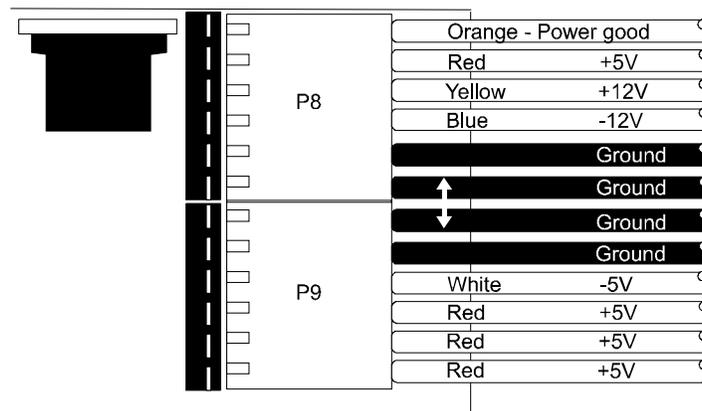


**Figure 1-6: CPU Socket Alignment**

This completes the installation of the CPU. Now is a good time to double check both the CPU and SIMM installation to make sure that these devices have been properly installed.

## Installing Cables

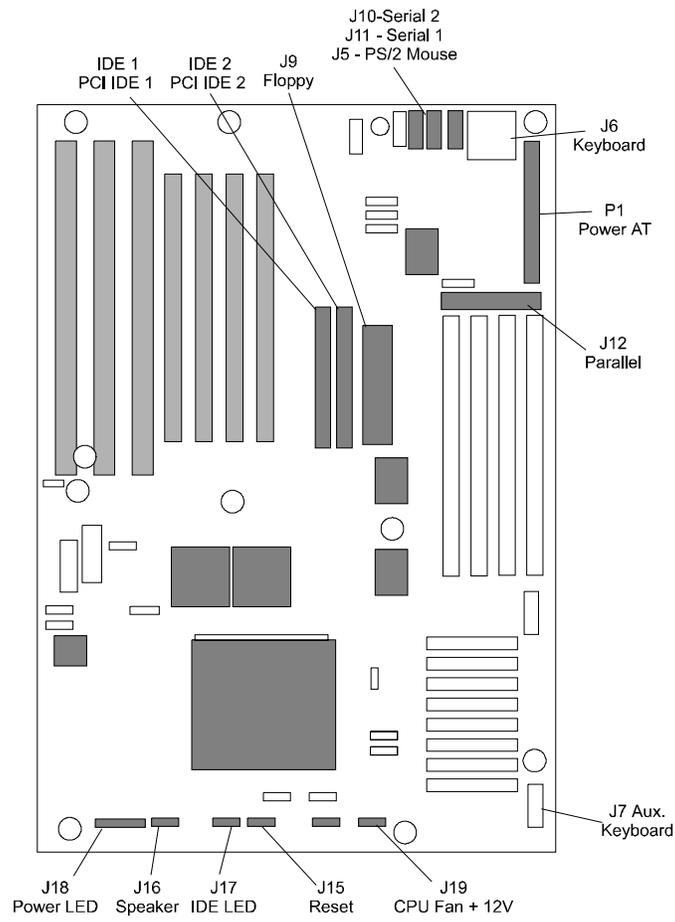
### Power and Control Panel Cables



**Figure 1-7: Power and Control Panel Cables**

Connect the power supply cables to the system board. There is no formal convention for color coding the wires on power supplies except for ground wires which are black. Use figure above to determine the proper cable locations.

Next install the control panel cables for each of the control panel headers. These headers are located along the bottom of the board. Again, there is no standard convention for color coding these cables. However, the connectors for “Key lock/Power LED” and “Speaker” are keyed. While the actual connector on the cable harness may not be keyed, there will probably be a wire missing.



**Figure 1-8: On-Board Connectors Location**

**Table 1-11 Control Panel Connectors**

## Installing Peripheral Cables

Begin with the top of the 586MBHP system working left to right. Refer to Figure 1-1 for the locations of each of the peripheral connectors.

Now it is a good time to install the internal peripherals such as floppy and hard disk drives. Do not connect the power cable to these peripherals as it is easier to attach the bulky ribbon cables before the smaller power connectors. If you are installing more than one IDE drive double check your master/slave jumpers on the drives. Review the information supplied with your drive for more information on this subject.

Connect the floppy cable (not included) to the system. Then connect the remaining ends of the ribbon cable to the appropriate peripherals. This concludes the hardware installation of your 586MBHP system. Now it is a good time to recheck all of the cable connections to make sure they are correct. It is also a good idea to label each of the external peripheral connectors - COM1, COM2, Mouse and Parallel.

## FCC Compliance Statement for FCC Class A Devices

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This device complies with part 15 of the FCC Rules. Operation 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.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Note:** The assembler of a personal computer system may be required to test the system and/or make necessary modifications if a system is found to cause harmful interference or to be non-compliant with the appropriate standards for its intended use.

## How to remain CE Compliant

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This device complies with CE Directives 72/23/EEC and EMC 89/336/EEC. CE compliance is based on the interaction of all the components of a system. Any modifications made to the equipment may affect the CE compliance and must be approved in writing by Industrial Computer Source. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to claim CE compliance.

The Models 586MBHP Series are designed to be CE Compliant when used in an CE compliant chassis. Maintaining CE Compliance also requires proper cabling and termination techniques. The user is advised to follow proper cabling techniques from sensor to interface to ensure a complete CE Compliant system. Industrial Computer Source does not offer engineering services for designing cabling or termination systems. Although Industrial Computer Source offers accessory cables and termination panels, it is the user's responsibility to ensure they are installed with proper shielding to maintain CE Compliance.

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# Chapter 2: WinBIOS Setup

Your 586MBHP features an AMI BIOS available with a new type of system BIOS Setup utility. WinBIOS Setup has a graphical user interface that permits mouse access, and is so compact that it can reside on the same ROM as the system BIOS. The system configuration parameters are set via WinBIOS Setup. Since WinBIOS Setup resides in the ROM BIOS, it is available each time the computer is turned on.

## Starting WinBIOS Setup

As POST executes, the following appears:

Hit <DEL> if you want to run SETUP

## Using a Mouse with WinBIOS Setup

WinBIOS Setup has a built-in mouse driver and can be accessed by either a serial or PS/2-type mouse.

## Using the Keyboard with WinBIOS Setup

WinBIOS Setup has a built-in keyboard driver that uses simple keystroke combinations:

### Keystroke Function

<Tab>	Move to the next window or field.
Arrow Keys	Move to the next field to the right, left, above, or below.
<Enter>	Select in the current field.
+	Increments a value.
-	Decrements a value.
<Esc>	Closes the current operation and returns to previous level.
<PgUp>	Returns to the previous page.
<PgDn>	Advances to the next page.
<Home>	Returns to the beginning of the text.
<End>	Advances to the end of the text.
<Alt> <Spacebar>	Exit WINBIOS Setup.
Alphabetic keys	A to Z are used in the Virtual Keyboard, and are not case-sensitive.
Numeric keys	0 to 9 are used in the Virtual Keyboard and Numeric Keypad.

## WinBIOS Setup Main Menu

---

The WinBIOS Setup main menu is organized into four windows. Each window corresponds to a section in this chapter.

Each section contains several icons. Clicking on each icon activates a specific function. The WinBIOS Setup icons and functions are described in this chapter. Some options may not be available in your BIOS. The sections are:

Setup:	Described in Section 1. This section has five icons that permit you to set system configurations: standard setup, advanced setup, chipset setup, power management setup and peripheral setup.
Utility:	Described in Section 2. This section has two icons that perform system functions.
Security:	Described in Section 3. This section has three icons that control WinBIOS security features.
Default:	Described in Section 4. This section has three icons that permit you to select a group of settings for all WinBIOS Setup options.

### Default Settings

Original:	Returns settings to previous settings.
Optimal:	These settings provide the best performance characteristics.
Fail-Safe:	These settings are more likely to configure a workable computer when something is wrong. If you cannot boot the computer successfully, select the <i>fail-safe WinBIOS Setup</i> options and try to diagnose the problem after the computer boots. These settings do not provide optimal performance.

## Section 1 - Setup

---

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

### Standard Setup

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

#### Date/Time

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

#### Floppy Drive A, B

Choose the Floppy Drive A or B icon to specify the floppy drive type. The settings are *Not Installed*, *360 KB 5 ¼*, *1.2MB 5 ¼*, *720KB 3 ½*, *1.44MB 3 ½* or *2.88MB 3 ½*.

**Pri Master    Pri Slave**

**Sec Master    Sec Slave**

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

### **Configuring an MFM Drive**

If configuring an old MFM hard disk drive, you must know the drive parameters (number of heads, number of cylinders, number of sectors, the starting write precompensation cylinder, and drive capacity). Choose Type and choose the appropriate hard disk drive type (1-46). If the drive parameters of your MFM drive do not match any drive type listed, select *User* in the Type field and enter the drive parameters on the screen that appears.

### **User-Defined Drive**

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

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

### **Configuring IDE Drives**

If the hard disk drive to be configured is an IDE drive, select the appropriate drive icon (Pri Master, Pri Slave, Sec Master, or Sec Slave). Select the IDE Detect icon to automatically detect all drive parameters.

AMBIOS automatically detects the IDE drive parameters (including ATAPI-ROM drives) and display them. Click on the OK button to accept these parameters or you can set the parameters manually if you are absolutely certain that you know the correct IDE drive parameters.

- Click on *LBA/Large Mode* and choose *On* to enable support for IDE drives with capacities greater than 528 MB.
- Click on *Block Mode* and choose *On* to support IDE drives that use Block Mode.
- Click on *32 Bit Mode* and click *On* to support IDE drives that permit 32-bit accesses.
- Click on *PIO Mode* to select the IDE programmed I/O mode. PIO programming also works with ATAPI CD-ROM drives. The settings are *Auto, 0, 1, 2, 3, 4 or 5*. Click on *Auto* to allow AMIBIOS to automatically find the PIO mode that the IDE drive being configured uses. If you select *0-5* then you must make absolutely certain that you are selecting the PIO mode supported by the IDE drive being configured.

## Configuring a CD-ROM Drive

Select the appropriate drive icon (Pri Master, Pri Slave, Sec Master or Sec Slave). Choose the Type parameter and select CDROM. You can boot the computer from a CD-ROM drive. You can also choose *Auto* and let the AMIBIOS will automatically set the correct drive parameters.

## Advanced Setup

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

### Quick Boot

Set this option the *Enabled* to instruct AMIBIOS to boot quickly when the computer is powered on. This option replaced the old Above 1 MB Memory Test Advanced Setup option. The settings are *Enabled* or *Disabled*. The optimal and Fail-Safe default settings are *Enabled*.

### BootUp Sequence

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

### BootUp NumLock

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

### Floppy Drive Swap

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

### Mouse Support

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

### Primary Display

This option specifies the type of display monitor and adapter in the computer. The settings are *Absent*, *VGA/EGA*, *CGA 40x25*, *CGA 80x25* or *Mono*. The Optimal and Fail-Safe settings are *VGA/EGA*.

**Password Check**

This option enables password checking every time the computer is powered on or every time WINBIOS Setup is executed. If *Always* is chosen, a user password prompt appears every time the computer is turned on. If *Setup* is chosen, the password prompt appears if WINBIOS is executed. The Optimal and Power-On defaults are *Setup*.

**OS/2 Compatible Mode**

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

**Internal Cache**

This option specifies the caching algorithm used for L1 internal cache memory. The settings are *Disabled* or *Write Back* (default).

**External Cache**

This option specifies the caching algorithm used for L2 secondary (external) cache memory. The settings are *Disabled*, *Write Thru*, or *Write Back*. The default settings are *Write Back*.

**System BIOS Shadow Cacheable**

When this option is set to *Enabled*, the contents of F0000h system memory segment can be read from or written to L2 secondary cache memory. The contents of the F0000h memory segments are copied from the BIOS ROM to system RAM for faster execution. The settings are *Enabled* or *Disabled*. The Optimal default setting is *Enabled*. The Fail-Safe default is *Disabled*.

**C000, 16K Shadow****C400, 16K Shadow****C800, 16K Shadow****CC00, 16K Shadow****D000, 16K Shadow****D400, 16K Shadow****D800, 16K Shadow****DC00, 16K Shadow**

These options control the location of the 16KB of ROM beginning at the specified memory locations. If no adapter ROM is using the named ROM are, this area is made available to the local bus. The settings are *Enabled*, *Disabled* and *Cached*.

In the AMIBIOS for the Intel Triton chipset, the E000h page is used as ROM during POST, but shadowing is disabled to make the E000h page available on the local bus.

## Chipset Setup

### Memory Hole

Use this option to specify an area in the memory that cannot be addressed on the ISA bus. The settings are *Disabled*, *512-640K* or *15M-16M*. The default setting is *Disabled*.

### DRAM Speed

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

### IRQ12/M Mouse Functions

Set the option to *Enables* to specify that IRQ12 will be used for the mouse. The settings are *Disabled* or *Enabled*. The Optimal and Fail-Safe default settings are *Enabled*.

### 8-Bit I/O Recovery Time (SYSCLK)

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

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

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

## Power Management Setup

Power Management Setup options are displayed by choosing the Power Management icon from the WINBIOS Setup main menu. All power Management Setup options are described in this section.

### Power Management/APM

Set this option to *Enabled* to enable the power management and APM (Advanced Power Management) features. AMIBIOS uses the RTC Alarm function to wake the computer at a pre-specified time. The settings are *Enabled* or *Disabled* or *Inst-On*. The default setting is *Disabled*.

### Instant-On Timeout (minute)

This option allow the stand by feature. Set the time from *Disabled* up to *15* minutes. The default setting is *Disabled*.

**Green PC Monitor Power State**

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

**Video Power Down Mode**

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

**Hard Disk Power Mode**

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

**Hard Disk Timeout (Minute)**

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

**Standby Timeout (Minute)**

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

**Suspend Timeout (Minute)**

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

**Slow Clock Ratio**

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

**Display Activity**

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

**IRQ 3- Monitor****IRQ 4- Monitor****IRQ 5- Monitor****IRQ 7- Monitor****IRQ 9- Monitor****IRQ 10- Monitor****IRQ 11- Monitor****IRQ 12- Monitor****IRQ 13- Monitor****IRQ 14- Monitor****IRQ 15 - Monitor**

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

Each of these options can be set to *Monitor* or *Ignore*. The default setting for all options are as above indicated.

**PCI/PnP Setup**

PCI/PnP Setup options are displayed by choosing the PCI/PnP Setup icon from the WINBIOS Setup main menu. All PCI/PnP Setup options are described in this section..

**Plug and Play Aware O/S**

Set this option to *Yes* if the operating system installed in the computer is Plus and Play-aware. AMIBIOS only detects and enables PnP ISA adapter cards that are required for system boot. The Windows 95 operating system detects and enables all other PnP-aware adapter cards. Windows 95 is PnP-aware. Set this option to *No* if the operating system (such as DOS, OS/2, Window 3.x) does not use PnP. *You must set this option correctly or PnP-aware adapter cards installed in your computer will not be configured properly.* The settings are *No* or *Yes*. The Optimal and Fail-Safe default settings are *No*.

**PCI Burst Mode**

Set this option to *Enabled* to enable PCI burst mode. The settings are *Disabled* or *Enabled*. The Optimal default setting is *Enabled*. The Fail-Safe default setting is *Disabled*.

**PCI Latency Timer (in PCI Clocks)**

This option sets latency of all PCI devices on the PCI bus. The settings are in units equal to PCI clocks. The settings are *32,64,96,128,160,192,224,248*. The Optimal and Fail-Safe default settings are *64*.

**PCI VGA Palette Snoop**

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

**PCI IDE Bus Master**

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

**Offboard PCI IDE Card**

This option specifies if an offboard PCIIDE controller adapter card is used in the computer. You must also specify the PCI expansion slot on the motherboard where the offboard PCI IDE controller card is installed. If an offboard PCI IDE controller is used, the onboard IDE controller on the motherboard is automatically disabled. The settings are *Auto, Slot1, Slot 2, Slot 3,Slot4, Slot 5, or Slot 6*. If *Auto* is selected, AMIBIOS automatically determines the correct setting for this option. The Optimal and Fail-Safe default settings are *Auto*. In the AMIBIOS for the Intel Triton chipset, this option forces IRQ 14 and 15 to a PCI slot on the PCI local bus. This is necessary to support non-compliant PCI IDE adapter cards.

**Offboard PCI IDE Primary IRQ**

This option specifies the PCE interrupt used by the primary IDE channel on the offboard PCI IDE controller. The settings are *Disabled, INTA, INTB, INTC, INTD, or Hardwired*. The Optimal and Fail-Safe default settings are *Disabled*.

**Offboard PCI IDE Secondary IRQ**

This option specifies the PCI interrupt used by the secondary IDE channel on the offboard PCI IDE controller. The settings are *Disabled, INTA, INTB, INTC, INTD* or *Hardwired*. The Optimal and Fail-Safe default settings are *Disabled*.

**DMA Channel 0**

**DMA Channel 1**

**DMA Channel 2**

**DMA Channel 3**

**DMA Channel 4**

**DMA Channel 5**

**DMA Channel 6**

**DMA Channel 7**

The settings are *PnP* or *ISA/EISA*. The default settings are *PnP*.

**IRQ3**

**IRQ4**

**IRQ5**

**IRQ7**

**IRQ9**

**IRQ10**

**IRQ11**

**IRQ13**

**IRQ14**

**IRQ15**

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

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

### Reserved Memory Size

This option specifies the size of the memory area reserved for legacy ISA adapter cards. The settings are *Disabled*, *16k*, *32k*, or *64k*. The Optimal and Fail-Safe default settings are *Disabled*.

## Peripheral Setup

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

### Onboard FDC

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

### Onboard Serial Port1

This option enables serial port 1 on the motherboard and specifies the base I/O port address for serial port 1. The settings are *Auto*, *Disabled*, *3F8h*, *2F8h*, *3E8h*, or *2E8h*. The Optimal and Fail-Safe default settings are *Auto*.

### Onboard Serial Port2

This option enables serial port 2 on the motherboard and specifies the base I/O port address for serial port2.

The settings are *Auto*, *disabled*, *3F8h*, *2F8h*, *3E8h*, or *2E8h*. The Optimal and Fail-Safe default settings are *Auto*.

### On-board Parallel Port

This option enables the parallel port on the motherboard and specifies the parallel port base I/O port address. The settings are *Auto*, *Disabled*, *378,278*, or *3Bc*. The Optimal and Fail-Safe default setting are *Auto*.

### Parallel Port Mode

This option specifies the parallel port mode. ECP and EPP are both bi-directional data transfer schemes that adhere to the IEEE1284 specifications. The settings are: *Normal*, *EPP*, *ECP*.

### Parallel Port DMA

This option is only available if the setting for the Parallel Port Mode option is *ECP*. The settings are *Disabled*, *DMA CH (channel) 0*, *DMA CH 1*, or *DMA CH 3*. The default setting is *DMA CH 3*.

---

## IMPORTANT

Refer to Hardware Jumper settings on Chapter one for JP21 and JP22 when setting for these options.

---

### Onboard PCI IDE

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

---

## Section 2 - Utility

---

The following icons appear in this section:

Detect IDE and  
Language

### Detect IDE

This option allows the detection of an IDE hard drive automatically.

### Language

English support only.

---

## Section 3 - Security

---

### AMIBIOS Password Support

Three icons appear in this part of the WINBIOS Setup screen:

Supervisor,  
User,  
Anti-Virus.

### Two Levels of Passwords

Both the Supervisor and the User icons configure password support. If you use both, the Supervisor password must be set first. The system can be configured so that all users must enter a password every time the system boots or when WINBIOS Setup is executed, using either or both the Supervisor password or User password.

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

Just press <Enter> when the password prompt appears.

### Setting a Password

The password check option is enabled in Advanced Setup by choosing either *Always* (the password prompt appears every time the system is powered on) or *Setup* (the password prompt appears only when WINBIOS is run). The password is stored in CMOS RAM. The following screen appears when you select the password icon from the WINBIOS Setup main menu. You can enter a password by : Typing the password on the keyboard or Selecting each letter via the mouse. When you select Supervisor or User, AMIBIOS prompts for a password. You must set the Supervisor password before you can set the User password. Enter a 1-6 character password. The password does not appear on the screen when typed. Make sure you write it down. If you forget it, you must drain CMOSRAM and reconfigure the system.

### Changing a Password

Select the appropriate password icon (Supervisor or User) from the Security section of the WINBIOS Setup main menu. Enter the password and press <Enter>. The screen does not display the characters entered. After the new password is entered, retype the new password as prompted and press <Enter>. If the password confirmation is incorrect, an error message appears. If the new password is entered without error, press<Esc> to return to the WINBIOS completes. The next time the system boots, you are prompted for the password if the password function is present and is enabled.

### Remember the Password

Keep a record of the new password when the password is changed. If you forget the password, you need to reset the CMOS memory (refer to JP 9 on jumper settings - chapter 1)

### Anti-Virus

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

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

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

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

## Section 4 - Default

---

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

### **Original**

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

### **Optimal**

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

### **Fail-Safe**

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

# Chapter 3: Upgrading

## Upgrading the System Memory

The 586MBHP allows an upgrade of the system memory up to 128MB, using SIMM memory modules. Please refer to chapter one for proper memory installation.

## Upgrading the Microprocessor

The 586MBHP currently supports the following CPUs:

- Intel P54C Pentium 75, 90, 100, 120, 150, 166, 200MHz.
- Cyrix 6x86, 100, 120MHz
- AMD K5 Pentium Processor 75, 90, 100MHz

To upgrade the Microprocessor, please refer to Chapter 1 for proper installation and jumper settings.

## Upgrading the Cache Memory

Your 586MBHP Motherboard allows an upgrade of the cache memory up to 512K.

To upgrade the cache memory on your 586MBHP:

- Remove the old cache memory chips.
- Install 8 of 64k x 8 - 12ns chips, and
- Set jumper JP28 to 2-3 position.

---

### IMPORTANT

Watch for polarity when replacing the Cache chips.

---

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# Appendix A: Technical Specifications

## Chip Sets

---

### Core Logic

Intel Triton 430FX Chip Set

### Peripheral I/O

Chips & Technologies 82C735A or  
Standard Microsystems FDC37C665

### Micro Processor Support

Intel 3.3V Pentium processors 75, 90, 100, 120, 133, 150, 166MHz  
Cyrix 6x86  
AMD K5 Pentium processors 75, 90, 100MHz

## System Memory

---

### Memory Capacity

1 to 128MB of FPM or EDO DRAM memory.

### Memory Type

Four sockets for JEDEC compatible (72 pin) 32 bit SIMMs, 70ns access speed or faster. All memory configurations is automatic through BIOS. Supports FPM and EDO memories. 36 bit SIMMS can be used, but parity is not supported.

## Bios

---

### System BIOS

AMI WinBIOS with standard CMOS Setup, Peripheral Setup, Power Management, Automatic Hard Disk Detection and advanced Chip-set Setup.

### Flash BIOS

Optional feature for System BIOS. Flash programming done through BIOS.

## **Embedded I/O**

---

### **IDE**

Two PCI EIDE controllers. Supports up to 4 devices.

### **Floppy**

Up to two floppy disk drives. Sizes supported are: 5.25" 360K and 1.2MB; 3.5" 720K, 1.44MB. Floppy Tape and CDROM compatible 34 pin header on-board.

### **Serial Ports**

Two high speed 16550 compatible UARTS. BIOS configurable as COM1-4.

### **Parallel Port**

One Centronics compatible, bi-directional (PS/2 compatible). Microsoft/HP EPC/EPP high speed.

### **Mouse Port**

One PS/2 compatible mouse controller with 6 pin mini-din connector cable.

### **Expansion Slots**

Three 16 bit ISA slots and Four PCI slots.

## **Miscellaneous**

---

### **CMOS/Battery**

RTC with lithium battery. No external battery is required.

### **Control Panel Connections**

Reset, Keylock ,Speaker, CPU fan (12v). LEDs for power and IDE.

### **CPU Socket**

Standard ZIF (Zero Insertion Force), socket 7.

### **Form Factor**

Baby AT Size-8.6" x 13"

### **PCB Construction**

Four Layer, dry film mask.

**Manufacturing Process**

Automated surface mount.

**Reliability**

MTBF: Higher than 48,000 hours

**Agency Approvals**

FCC Class A

UL Recognized Component

CE Compliance 73/23/EEC, EMC 89/336/EEC

**Table A-1: Standard PC-AT I/O Map**

**Table A-2: DMA Page Register and I/O address**

**Table A-3: DMA Assignments**

**Table A-4: DMA Controller Register**

**Table A-5: Interrupts**

**Table A-6: Serial Connectors**

**Table A-7: Floppy Disk Drive Connector**

**Table A-8: Parallel DB25 Connector**

**Table A-10: PS/2 Mouse Connector**

**Table A-9: IDE Connector**

**Table A-11: Serial Port Cable Wire List**

**Table A-12: Parallel Port Connector**

Pin#	Assign.	Pin#	Assign.	Pin#	Assign.	Pin#	Assign.
A01	TRST#	A32	AD16	B01	-12V	B32	ad17
A02	+12V	A33	+3.3V	B02	TCK	B33	C/BE2#
A03	TMS	A34	FRAME#	B03	GND	B34	GND
A04	TDI	A35	GND	B04	TDO	B35	IRDY#
A05	+5V	A36	TRDY#	B05	+5V	B36	+3.3V
A06	INTA#	A37	GND	B06	+5V	B37	DEVSEL#
A07	INTC#	A38	STOP#	B07	INTB#	B38	GND
A08	+5V	A39	+3.3V	B08	INTD#	B39	LOCK#
A09	CLKC	A40	SDONE	B09	REQ3#	B40	PERR#
A10	+5V	A41	SB0#	B10	REQ1#1	B41	+3.3V
A11	CLCKD	A42	GND	B11	GNT3#	B42	SERR#
A12	GND	A43	PAR	B12	GND	B43	3.3V
A13	GND	A44	AD15	B13	GND	B44	C/BE1#
A14	GNT1#	A45	+3.3V	B14	CLKA	B45	AD14
A15	RST#	A46	AD13	B15	GND	B46	GND
A16	+5V (I/O)	A47	AD11	B16	CLKB	B47	AD12
A17	GNT0#	A48	GND	B17	GND	B48	AD10
A18	GND	A49	AD09	B18	REQ0#	B49	GND
A19	REQ2#	A50	KEY	B19	+5V(I/O)	B50	KEY
A20	AD30	A51	KEY	B20	AD31	B51	KEY
A21	+3.3V	A52	C/BE0#	B21	AD29	B52	AD08
A22	AD28	A53	+3.3V	B22	GND	B53	AD07
A23	AD26	A54	AD06	B23	AD27	B54	+3.3V
A24	GND	A55	AD04	B24	AD25	B55	AD05

Table A-13: PCI Connector Pin Assignments

Pin#	Assign.	Pin#	Assign.	Pin#	Assign.	Pin#	Assign.
A01	IOCHCHK#	B01	GND	C01	SBHE#	d01	EMCS16#
A02	SD7	B02	RESETDRV	C02	LA23	D02	IOCS16#
A03	SD6	B03	+5V	C03	LA22	D03	IRQ10
A04	SD5	B04	IRQ9	C04	LA21	D04	IRQ11
A05	SD4	B05	+5V	C05	LA20	D05	IRQ12
A06	SD3	B06	DRQ2	C06	LA19	D06	IRQ15
A07	SD2	B07	-12V	C07	LA18	D07	IRQ14
A08	SD1	B08	ENDXFR#	C08	LA17	D08	DACK0#
A09	SD0	B09	+12V	C09	MEMR#	D09	DRQ0
A10	IOCHRDY	B10	GND	C10	MEMW#	D10	DACK5#
A11	AEN	B11	SMEMW#	C11	SD8	D11	DRQ5
A12	SA19	B12	SMERW#	C12	SD9	D12	DACK6#
A13	SA18	B13	IOW#	C13	SD10	D13	DRQ6
A14	SA17	B14	IOR#	C14	SD11	D14	DACK7#
A15	SA16	B15	DACK3#	C15	SD12	D15	DRQ7
A16	SA15	B16	DRQ3	C16	SD13	D16	+5V
A17	SA14	B17	DACK1#	C17	SD14	D17	MASTER#
A18	SA13	B18	DRQ1	C18	SD15	D18	GND
A19	SA12	B19	REFRESH#				
A20	SA11	B20	SYSCLK				
A21	SA10	B21	IRQ7				
A22	SA9	B22	IRQ6				
A23	SA8	B23	IRQ5				
A24	SA7	B24	IRQ4				

Table A-14: ISA Connector Pin Assignments

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## Appendix B: Flash BIOS programming

If your board has the optional FLASH BIOS installed, you will be able to update your BIOS without having to replace the EPROM. The WinBios will read the new BIOS file from a floppy disk, replace the old BIOS and reboot your computer.

When updating your BIOS, make sure you have a disk with the correct BIOS file (it's size should be 128K). Rename the file to "AMIBOOT.ROM". Turn your computer off. Insert the disk in Drive A:, turn the computer on while pressing <CTRL> <HOME>. Your computer will show no screen, but will beep to indicate what is being done.

If the programming is successful, you should hear the 4 beeps and your computer will reboot with the new BIOS.

Please never turn the power off while reprogramming a FLASH BIOS.

Refer to the table on the next page for beep errors.

**Table B-1: Flash Bios Beep Errors**

# Appendix C: Troubleshooting

## Power-On Self Test

The AMIBIOS featured in the 586MBHP provides all IBM standard Power-On Self Test (POST) routines as well as enhanced AMIBIOS POST routines. AMIBIOS POST supports CPU internal diagnostics. AMIBIOS POST checkpoint codes are accessible via the manufacturing Test Port (I/O port 80h).

## Post Phases:

Every time the system is powered on, AMIBIOS executes two types of POST routines.

*System Test and Initialization* (test and initialize AMIBIOS for normal operations).

*System Configuration Verification* (compare defined configuration with hardware actually installed).

## BIOS Error Reporting:

If the error occurs before the display device is initialized a series of beeps sound. Beep codes indicate that a fatal error has occurred. AMIBIOS beep codes are described on the next page.

If the error occurs after the display device is initialized the error message is displayed. A prompt to press <F1> can also appear power is on.

Fatal errors, which halt the boot process, are communicated through a series of audible beeps.

**Table C-1: Beep Errors**

# Appendix D: Glossary of Terms

## **Bidirectional Parallel Port:**

An eight-bit port that can be used for an input as well as an output device.

## **BIOS (Basic Input/Output Systems):**

The on-board firmware which communicates with the display, keyboard, printers and other peripheral devices.

## **Bus:**

One or more electrical conductors that transmit power or binary data to the various sections of a computer.

## **CMOS (Complementary Metal Oxide Semiconductor):**

A technique of fabricating transistors which uses very low power.

## **CMOS RAM:**

Random Access Memory made from CMOS transistors.

## **DMA (Direct Memory Access Channel):**

A channel for transferring data from host main memory to and from peripherals without direct involvement of the CPU resources.

## **DRAM (Dynamic Random Access Memory):**

The main memory in your computer. It needs to be refreshed by a memory or it will lose its information.

## **EPROM (Erasable Programmable Read Only Memory):**

A programmable device which stores information regardless of power. The information can be erased and new information written.

## **Floating Point Unit (FPU):**

A device which can perform calculations on numbers in floating point format as opposed to simple integers.

## **IDE (Integrated Drive Electronics):**

A standard of signalling and communicating with a device.

**Interleave:**

Multiple banks of memory that overlap to reduce the access time and eliminate wait states.

**Interrupt:**

Temporarily halting the operation of a digital computer to respond to service an external event.

**Interval Timer:**

A device that can generate a pulse at a defined interval for background tasks.

**IRQ (Interrupt Request):**

A signal channel used to trigger the CPU to temporarily change tasks.

**Kilobyte (KB):**

1024 bytes.

**ns (nano seconds):**

1x10<sup>-9</sup> seconds. (There are one billion nanoseconds in one second)

**Page Mode:**

The ability to read a whole line (page) of memory to reduce access time.

**Parity:**

A way to detect corrupted data in DRAM.

**Parallel Port:**

An eight-bit port usually used for connecting a printer.

**PCI (Peripheral Component Interconnect):**

Local bus for PCs provide a high-speed data path between the CPU and peripherals (video, disk, network, etc.). The PCI bus coexists in the PC with the ISA or EISA bus. ISA and EISA boards still plug into an ISA or EISA slot, while high-speed. PCI controllers plug into a PCI slot. The PCI bus runs at 25, 30 or 33 MHz, supports 32-bit and 64-bit data paths and bus mastering. The first PCs with PCI buses became available toward the end of 1993.

**Port:**

Ports are used to connect peripheral devices such as external drives and printers to your computer.

**RAM (Random Access Memory):**

The memory used to execute applications while your computer is turned ON. When you turn your computer OFF, all data stored in RAM is lost.

**Real-Time Clock (RTC):**

A CMOS counter used to maintain local time.

**Retaining Bracket:**

The bracket on the end of the board that attaches to the back of the chassis and contains connectors, usually keyboard, mouse, serial port, and/or parallel port.

**Serial Port:**

A two channel port, one channel used for “In” transmissions and one for “Out” transmissions.

**SCSI (Small Computer System Interface):**

A high speed, general purpose interface to storage devices.

**SRAM (Static Random Access Memory):**

As opposed to DRAM, this memory does not need to be refreshed by a controller and holds its information as long as the power is on.

**Tag Comparator:**

A memory that tells whether an address is available in the cache.

**Wait State:**

Extra time inserted to allow access to slower devices (e.g. DRAM) or EPROMs.

**Write-Back Cache:**

The process where the CPU updates the cache and the DRAM simultaneously but does not wait for the DRAM to complete the update.

**Write-Thru Cache:**

The process where the CPU updates the cache and DRAM simultaneously but the CPU waits for the DRAM to complete the update, resulting in more time being consumed than in write-back.

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# *Declaration of Conformity*

(according to ISO/IEC Guide 22 and EN 45014)



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ICS Advent declares under its own and full responsibility that the following products are compliant with the protection requirements of the 89/336/EEC and 73/23/EEC directives.

**Only specific models listed on this declaration and labeled with the CE logo are CE compliant.**

**586MBHP100 586MBHP133 586MBHP166 586MBHP200**

Conformity is accomplished by meeting the requirements of the following European harmonized standards:

**EN 50081-1:1992** Emissions, Generic Requirements.

-EN 55022 Measurement of radio interference characteristics of information technology equipment.

**EN 50082-2:1995** Immunity, Generic Requirements.

-EN 61000-4-2 Immunity to Electrostatic Discharge.

-ENV 50140 Immunity for radiated RF electromagnetic fields.

**EN 50082-1:1992** Immunity, Generic Requirements.

-IEC 801-3:1984 Immunity for radiated electromagnetic fields.

-IEC 801-4:1988 Immunity for AC and I/O lines, fast transient common mode.

-IEC 65A/77B Immunity for AC lines, transients, common, and differential mode.

**EN 60950:1992** Safety of Information Technology Equipment.

Mr. Jim Jameson  
President & Chief Executive Officer

January 8, 1999  
San Diego, CA

Information supporting this declaration is contained in the applicable Technical Construction file available from:



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