

Classic/PCI Expandable Desktop BIOS Setup & Upgrades

PLEASE NOTE

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The BIOS Setup utility has four major menus: Main, Advanced, Security and Exit. Each of these menus occupies the left and center sections of the screen. Selecting certain fields within the menus will drop the user into sub-menus. On the right side of the display is a Command Screen for interacting with the Setup utility. In each of the following sections, the field which is being displayed is in **bold** type. If there are user selectable options for that field they are displayed in *italic* type. Explanations and comments about the fields and options are contained within boxes.

COMMAND SCREEN NAVIGATION

The right side of the Setup screen contains a list of commands which are available to the user and are displayed at all times, for each menu and sub-menu.

F1 Help

Help is provided for a subset of the fields. It can not be invoked when parameter options are being displayed.

ESC Back

The ESC key provides a mechanism for backing out of any field. When the ESC key is entered from the top level of any field, the field options cease to be displayed. When the ESC key is entered from the top level of any sub-menu, the parent menu is re-entered. When the ESC key is entered from the top level of any major menu the following screen is displayed:

Exit Discarding Changes

Press Enter to Continue

Press ESC to Abort

At this point pressing the Enter key will cause the user to leave the Setup Utility without saving any changes they might have made. Pressing the ESC key will bring them back to the top level of the current menu.

Enter Select

The Enter key is used to activate sub-menus, change parameters and select parameter options.

↑ Previous Item

The up arrow is used to move to the menu item above the current item. It does not wrap around.

↓ Next Item

The down arrow is used to move to the menu item below the current item. It does not wrap around.

↔ Select Menu

The left and right arrow keys are used to move between the 4 major menus. They do not wrap around.

F5 Setup Defaults

The F5 key is used to set all Setup Parameters to default values. When this key is pressed the following message appears:

Load Setup Defaults?

Press Enter to Continue

Press ESC to Abort

If the Enter key is selected then all Setup Parameters will be set to their default values. If the ESC key is selected, then the user is returned to where they were before F5 was pressed without effecting any change.

F6 Previous Values

The Previous Values key is used to set all parameters to their previous values. When pressed, the following message appears:

Discard Changes?

Press Enter to Continue

Press ESC to Abort

If the Enter key is selected then all Setup Parameters will be return to the values selected when Setup was entered. If the ESC key is selected, then the user is returned to where they were before F6 was pressed without effecting any change.

F10 Save & Exit

The Save & Exit key is used to exit the Setup Utility saving the current state of all parameters When this key is pressed the following message appears:

Exit Saving Changes?
Press Enter to Continue
Press ESC to Abort

If the Enter key is selected then the Setup Utility will be exited with all parameters set to their current values. If the ESC key is selected, then the user is returned to where they were before F10 was pressed without effecting any change.

MAIN MENU NAVIGATION

Each menu contains a number of parameters. Most parameters can be changed by the user, although some are only informative. Parameters which can be changed by the user are displayed in black, informative only parameters are displayed in blue. Depending on the security option chosen and in effect (via password), a parameter can be either changeable or non-changeable. A parameter which is non-changeable due to insufficient security privilege or other reasons will be grayed out. Parameters which have no effect based on the value other parameters are not displayed.

MAIN MENU LEVEL

System Date
Month-Day-Year

The **System Date** field specifies the current date .

System Time
Hour:Minute:Second

The **System Time** field specifies the current time.

Floppy A:
Floppy B:
Disabled
360 Kb, 5.25"
1.2 Mb, 5.25"
720Kb, 3.5"
1.44 Mb, 3.5"
2.88 Mb, 3.5"

The **Floppy A: Type** and **Floppy B: Type** fields specify the physical size and maximum supported media size of the floppy drives attached to the floppy interface.

Hard Disk C:
Hard Disk D:
Identification string returned from drive
Not Installed

The **Hard Disk C:** through **Hard Disk F:** fields report the presence of, and identification string reported by, up to 4 physical IDE drives. When the cursor is placed on one of these fields and it is selected by hitting the *Enter* Key, the **Hard Disk Sub-Menu** appears (see below) allowing parameters which affect the drives to be set.

Disk drive assignments
Drive letters will be assigned to physical drives as follows:

Primary IDE Interface Only	
Master	C:
Slave	D:
Secondary IDE Interface Only	
Master	C:
Slave	D:
Primary & Secondary Interface, Two Drives Used	
Primary Master	C:
Secondary Master	D:

Primary & Secondary Interfaces, Three Drives Used	
Primary Master	C:
Primary slave	D:
Secondary Master	E:
Primary Master	C:
Secondary Master	D:
Secondary slave	E:
Primary & Secondary Interfaces, Four Drives Used	
Primary Master	C:
Primary Slave	D:
Secondary Master	E:
Secondary Slave	F:

When drives have multiple partitions on them, partitions beyond the primary partition will be assigned in ascending order, based on available drive letters and other installed drives. Partitions are assigned to primary partitions first (across multiple drives), and then to secondary partitions. This means that when there are multiple drives with multiple partitions, the logical drive numbering scheme may result in discontinuous logical partitions on the same physical drive. For instance, if there is a "Drive 1" with two partitions which is a Master on the Primary IDE interface, a "Drive 2" with three partitions which is a Slave on the Primary interface, and a "Drive 3" with two partitions which is a master on the Secondary interface the drive letters will be assigned as follows:

Drive 1		
Primary Partition	C:	
Secondary Partition	F:	
Drive 2		
Primary Partition	D:	
Secondary Partition	G:	
Tertiary Partition	H:	
Drive 3		
Primary Partition	E:	
Secondary Partition	I:	

Hard Disk Sub-Menu

Hard Disk Type

Auto Configured -- default

User Definable

Number of Cylinders

Number of Heads

Number of Sectors

If Hard Disk Type = Auto Configured

Then parameters reported by drive

If Hard Disk Type = User Definable

Then parameters entered by user

The **Number of Cylinders**, **Number of Heads**, and **Number of Sectors** fields display what is reported by the drive if **Hard Disk Type** is set to *Auto Configured*. If **Hard Disk Type** is set to *User Definable* then these fields are entered by the user. **Hard Disk Type** should be set to *Auto Configured* unless the drive was formatted on another system with parameters different than those reported by the drive.

Maximum Capacity

Value calculated from Cylinder, Head, and Sector info above

Initialization Timeout

Disabled

5 Seconds

10 Seconds -- default

31 Seconds

Initialization Timeout selects the number of seconds the BIOS will wait to determine if an IDE drive is present, after initiating a transaction with the drive. If a drive is present and responds to the BIOS before the Initialization Timeout period, then the BIOS will proceed, i.e. there is no boot-time penalty for a large value when a drive is present. If a drive is not present, then the BIOS will wait the Initialization Timeout period before proceeding. If a drive is present, but does not respond to the BIOS within the Initialization Timeout range, then the BIOS will not see the drive and it will not be accessible. This value should be set to *Disabled* for any IDE drives not installed. This parameter works in conjunction with the **Hard Disk Pre-Delay** parameter contained in the **Boot Options** sub-menu of the Main menu.

IDE Translation Mode

Standard CHS -- default

Logical Block

Extended CHS

Auto Detected

The **IDE Translation Mode** parameter controls the way in which the BIOS interacts with the drive in terms of drive geometry. Proper choice is dependent upon the drive's size, capabilities, and the operating system (OS) used.

Standard CHS is the translation mode that has been in use for years. Its use limits IDE capacity to a maximum of 528 Megabytes regardless of the size of the drive used.

Logical Block mode overcomes the 528 MB maximum size limitation imposed by *Standard CHS* mode. It should be used only when the drive supports LBA (Logical Block Addressing), and the OS supports LBA, or uses the BIOS to access the disk.

Extended CHS mode also overcomes the 528 MB maximum size limitation imposed by *Standard CHS* mode. It can be used with drives which are larger than 528 MB, but do not support LBA mode.

Auto Detected allows the BIOS to examine the drive and determine the optimal mode. The first choice is to utilize *Logical Block* mode if it is supported by the drive. The second choice is to utilize *Extended CHS* mode if the drive topology allows. If neither of the above two methods are possible, then *Standard CHS* mode is used. **Important NOTE: When set to Auto Detected the BIOS will detect what the drive is capable of, not the translation mechanism which was used to format the drive. If a drive is run in a mode other than the mode in which it was partitioned and formatted, unpredictable results may occur, including data loss.**

Different operating systems have different abilities regarding IDE Translation Modes:

UNIX operating systems (as currently implemented) do not support either LBA or ECHS and must utilize the Standard CHS method.

UNIX can support drives larger than 528 MB, but does so in its own way.

OS/2 2.1 can support LBA, ECHS or Standard CHS methods . Note that LBA support may require a switch setting on an OS/2 driver in order to operate in that mode. (*)

OS/2 2.0 & Novell Netware can support either ECHS or Standard CHS methods, but not LBA.

DOS & Windows can support LBA, ECHS or Standard CHS methods. If the "Fast 32-bit IDE" option of Windows is utilized, make sure to use the Standard CHS setting only, unless a version of WDCDRV.386 is being used which supports these advanced geometrys. You will get better performance NOT using "Fast 32-bit IDE" if using a drive which employs Mode 3 PIO on the PCI interface, unless using a version of WDCDRV.386 which supports these advanced modes.

Multiple Sector Setting

Disabled

4 Sectors/Block

8 Sectors/Block

Auto Detected -- default

The **Multiple Sector Setting** field controls the number of sectors which are transferred by an IDE drive per interrupt generated. If set to *Disabled*, then an interrupt will be generated for each sector transferred, even if the OS issues a multi-sector transfer. If set to *4 Sectors/Block* or *8 Sectors/Block* then 4 or 8 sectors will be transferred per interrupt (for a request that is as large as, or larger than 4 or 8 sectors). If *Auto Detected* is chosen, then x sectors will be transferred per interrupt, where x is the maximum value supported by the drive. If a drive does not support multiple sectors/block then the BIOS will ignore this setting. If the drive does not support the specific number (4 or 8) of sectors chosen, then the BIOS will default to the largest number of sectors smaller than the chosen value supported by the drive.

Fast Programmed I/O Modes

Disabled

Auto Detected -- default

The **Fast Programmed I/O Modes** field controls the speed in which Programmed I/O (PIO) transfers occur on the PCI IDE interface. If set to *Disabled*, transfers occur at an un-optimized (Mode 0) speed. If set to *Auto Detected*, transfers occur at the rate which the drive reports as its maximum (up to and including the maximum mode 3 timing). This field should only be set to *Disabled* if a drive is being used which incorrectly reports an ability to function with advanced timings.

MAIN MENU LEVEL

Language

English (US)

..

..

The **Language** field controls the language of the text strings used in Setup and the BIOS. Any installed language will appear as an option in its own language (for example, German will appear as Deutsch). Only installed languages will appear as options.

Boot Options

When the cursor is placed the **Boot Options** field and it is selected by hitting the *Enter* Key, the **Boot Options** Sub-Menu appears allowing parameters which affect the boot process to be set.

Boot Options Sub-Menu

Boot Sequence

C: First, Then A:

A: First, Then C: -- default

C: Only

A: Only

The field controls the order in which the BIOS attempts to boot from the hard and floppy drives.

System Cache

Disabled

Enabled -- default

The **System Cache** field controls both the primary and secondary caches. Setting **System Cache** *Disabled* will hurt performance, but might be required when running software which utilizes software timing loops and needs to be slowed down to execute properly.

Boot Speed

Turbo -- default

De-turbo

The **Boot Speed** field controls the system CPU cycles. De-turbo mode slows the CPU by disabling system cache and adding increased refresh cycles. It does not reduce CPU speed to 4.77Mhz or 8Mhz AT class machines.

Num Lock

Off -- default

On

The **Num Lock** field controls whether the keyboard Num Lock function is turned on or off when the system is booted.

Setup Prompt

Disabled

Enabled -- default

The **Setup Prompt** field controls whether the "Press <F1> Key To Enter Setup" message is displayed during POST (Power On Self Test). It does not control access, just the message.

Hard Disk Pre-Delay

Disabled

1 Second

2 Seconds

3 Seconds -- default

4 Seconds

5 Seconds

6 Seconds

7 Seconds

The **Hard Disk Pre-Delay** provides a mechanism which delays the BIOS's attempt to initialize the first IDE drive in the system. It is necessary because certain drives take longer than others to "spin up" and might hang if they are accessed too soon after being powered up or reset. The delay is only honored for the first drive accessed. This parameter works in conjunction with the **Initialization Timeout** parameter contained in the Hard Disk Sub-menu of the **Main** menu. The two are added together.

It should be noted that this new addition to the BIOS Setup is the result of our speeding up the POST process.

Typematic Rate Programming

Default -- default

Override

The parameter controls whether default or user configurable values are used for **Typematic Rate Delay** and **Typematic Rate** (see below). If *Default* is chosen then **Typematic Rate Delay** is set to 500 msec and **Typematic Rate** is set to 15. If *Override* is chosen the following two screens appear allowing the user to customize these values.

Typematic Rate Delay

250 msec -- default

500 msec

750 msec

1000 msec

The **Typematic Rate Delay** field controls how long it takes for the keyboard auto-repeat function to start when a key is held down.

Typematic Rate

6 char/sec -- default

8 char/sec

10 char/sec

12 char/sec

15 char/sec

20 char/sec

24 char/sec

30 char/sec

The **Typematic Rate Delay** field controls the speed characters repeat when you hold down a keyboard key. The higher the number, the faster the repeat.

MAIN MENU LEVEL

Video Mode

The **Video Mode** field is informative only.

Mouse

The **Mouse** field is informative only. If the system supports a PS/2 style mouse, and the mouse is installed, this field will be displayed. If the system does not support a PS/2 style mouse, or if it does and the mouse is not installed, this field will not be displayed.

Base Memory

This **Base Memory** field is informative only. There is another **Base Memory** field which can be changed in the **Advanced Chipset Configuration** Sub-Menu of the Advanced menu.

Extended Memory

The **Extended Memory** field is informative only. Amount of system memory above 1 Megabyte

ADVANCED MENU

Processor Type
Processor Speed
Cache Size

The **Processor Type**, **Processor Speed**, and **Cache Size** fields are informative only and can not be changed by the user. **Cache Size** refers to the L2 cache only.

Peripheral Configuration
Advanced Chipset Configuration
Power Management Configuration
Plug and Play Configuration

The **Peripheral Configuration**, **Advanced Chipset Configuration**, **Power Management**, and **Plug and Play Configuration** fields are used to enter sub-menus where these areas are configured. Press Enter to access.

PERIPHERAL CONFIGURATION SUB-MENU

Configuration Mode
Auto -- default
Manual

The **Configuration Mode** fields controls whether on board resources are manually or automatically set up. When set to *Auto*, on board system peripherals (IDE drives, Floppy Drive, Serial Ports, Parallel Port) are automatically configured during power up. When set to *Manual*, system peripherals must be explicitly configured. The following 6 fields (**PCI IDE Interface** to **Parallel Port Address**) are only user accessible when **Configuration Mode** is set to *Manual*.

PCI IDE Interface
Enabled -- default
Disabled
Floppy Interface
Enabled -- default
Disabled

PCI IDE Interface and **Floppy Interface** allow these drive interfaces to be individually enabled or disabled.

Serial Port 1 Address
Disabled
COM1, 3F8h -- default
COM2, 2F8h
COM3, 3E8h
COM4, 2E8h
Serial Port 2 Address
Disabled
COM1, 3F8h
COM2, 2F8h -- default
COM3, 3E8h
COM4, 2E8h

The **Serial Port 1 Address**, **Serial Port 2 Address** fields allow the user to select the I/O ports used by these interfaces. If a COM port is chosen for one of the Serial Port Addresses, it will not appear in the option list for the other Serial Port Address, i.e. if one of the Serial Port Addresses is set to *Disabled*, then there will be four choices for the other serial port address. Otherwise there will be three choices.

Parallel Port Address
Disabled
LPT3, 3BCh
LPT1, 378h -- default
LPT2, 278h

The **Parallel Port Address** fields allow the user to select the I/O ports used by these interfaces.

Parallel Port Mode
Compatible -- default
Extended

When set to *Compatible*, the parallel port will be set up in a mode compatible with the original AT. When set to *Extended* the parallel port will be set up in the most advanced mode allowed by the chipset (ex. EPP, ECP).

Serial Port 1 IRQ
Interrupt Used
Serial Port 2 IRQ
Interrupt Used
Parallel Port IRQ
Interrupt Used

The **Serial Port 1 IRQ**, **Serial Port 2 IRQ** and **Parallel Port IRQ** fields display the interrupts used by the Serial and Parallel Ports. These values may not be changed by the user. If an interface is disabled via the **Serial Port 1 Address**, **Serial Port 2 Address**, or **Parallel Port Address** fields, then the associated interrupt is not displayed, and is available for use by add in cards.

ADVANCED CHIPSET CONFIGURATION SUB-MENU

Byte Merging

Enabled

Disabled -- default

Byte Merging is a feature which increases performance for older applications which write to video memory in bytes instead of words. However, this feature is not supported on all PCI video cards. For best performance this field should be *enabled* unless a PCI graphics card which does not support this feature is used. If this field is *enabled* and used with a card which lacks support video corruption will be seen in some video modes.

ISA LFB Size

Disabled -- default

1 MB

3 MB

7 MB

The ISA Video Linear Frame Buffer Size provides a mechanism for creating a hole in the system memory map. Accesses made to addresses within this hole will be directed to the ISA bus instead of main memory. This should be set to *Disabled* unless you are using an ISA card which has memory greater than 64K which needs to be accessed by the CPU, and you are not using the Plug and Play run-time utilities (Configuration Manager & ISA Configuration Utility).

ISA LFB Base Address

Dependent upon ISA LFB Size

<i>If</i>	<i>ISA LFB Size</i>	<i>Then</i>	<i>ISA LFB Base Address</i>
	<i>Disabled</i>		<i>N.A.</i>
	<i>1 MB</i>		<i>15 MB</i>
	<i>3 MB</i>		<i>13 MB</i>
	<i>7 MB</i>		<i>9 MB</i>

The **ISA Video LFB Base Address** field displays the starting address of the ISA memory hole if a value other than *Disabled* is chosen for the **ISA Video LFB Size** parameter. If **ISA Video LFB Size** is set to *disabled*, then this field does not appear. This field is informative only, i.e. it cannot be changed by the user.

POWER MANAGEMENT CONFIGURATION SUB-MENU

Advanced Power Management

Enabled

Disabled -- default

The **Advanced Power Management** field enables or disables Advanced Power Management (APM) support in the BIOS. If set to *enabled* the BIOS will work with APM aware Operating Systems to manage the power consumed by the CPU, IDE drives, and graphics cards. If set to *Disabled* then none of the other fields in the Power Management Configuration Sub-Menu are displayed.

IDE Drive Power Down

Enabled

Disabled -- default

The IDE Drive Power Down field controls whether or not a spin down command will be issued to the IDE drives when the system goes into low power mode.

VESA Video Power Down

Disabled -- default

Standby

Suspend

Sleep

The **VESA Video Power Down** field controls the VESA power management command issued to the graphics card when the system goes into low power mode. The proper setting is dependent upon the VESA mode(s) supported by your graphics card.

Inactivity Timer (Minutes)

0 to 255

0 -- default

Inactivity Timer (Minutes) controls the number of minutes that the system will detect no user activity before going into low power mode.

Hot Key

User definable

The **Hot Key** field is used to define a key which when entered will cause the APM BIOS to ask an APM (Advanced Power Management) aware Operating Systems to go into immediate power managed mode. There will be some delay, typically about a minute before the system actually goes into power managed mode, however the speaker will issue 2 descending tones.

If there is a User Password in effect then upon going into power managed mode the Num Lock, Caps Lock, and Scroll Lock LEDs on the keyboard will flash on and off in sequence, indicating to the user that the system is in Secure Mode. In this case the correct password will have to be entered before the user regains control of the system. This password will not be echoed to the screen, whether the screen is active or inactive at the time the password is entered (see **Set User Password** field in Security Menu). The following table describes how the Power Down hot key interacts with the Security Hot Key:

	Power-Down Hot Key Entered	Security Hot Key Entered
Power-Down Hot Key Only Enabled	<ol style="list-style-type: none">1. System powers down \cong1 minute (can include screen blanking if enabled)2. Powers up when any key/mouse activity is detected	N.A.
Security Hot Key Only Enabled	N.A.	<ol style="list-style-type: none">1. System Secure Immediately2. LEDs sequence3. Input accepted when password typed
Both Hot Keys Enabled	<ol style="list-style-type: none">1. System Secure Immediately2. System powers down \cong1 minute (can include screen blanking if enabled)3. LEDs sequence4. Input accepted when password typed5. Powers up when any key/mouse activity is detected	<ol style="list-style-type: none">1. System Secure Immediately2. System powers down \cong1 minute (can include screen blanking if enabled)3. LEDs sequence4. Input accepted when password typed5. Powers up when any key/mouse activity is detected

PLUG AND PLAY CONFIGURATION SUB-MENU

Configuration Mode

Use Setup Utility -- default

Use ICU

The **Configuration Mode** field is used to choose the method in which information about legacy ISA cards (ISA cards which do not have Plug and Play capabilities) is conveyed to the BIOS to allow the BIOS to set up PCI cards and ISA Plug and Play cards without conflicting with the legacy ISA cards.

If *Use ICU* is chosen, then the BIOS will depend upon information provided by run-time Plug and Play software (Configuration Manager and ISA Configuration Utility) to ensure that there are no conflicts with legacy ISA cards. Only choose this method if your system is configured with these utilities and they are used. When *Use ICU* is chosen no other fields are displayed in this Sub-Menu.

If *Use Setup Utility* is chosen, then the BIOS will depend upon information provided by the user in the fields below to prevent conflicts between Plug and Play cards and legacy ISA cards. If the *Use Setup Utility* is chosen then the user should not install and use run-time Plug and Play software (Configuration Manager and ICU).

ISA Shared Memory Size

Disabled -- default

16 KB

32 KB

48 KB

64 KB

The **ISA Shared Memory Size** field is used to set a block of system memory which will not be shadowed (shadowing is a technique which copies a block of memory from an add in card's ROM to the same address in system memory to allow faster access to the code and achieve higher performance). By default all upper memory is shadowed unless a block is un-shadowed using this and the **ISA Shared Memory Base Address** fields.

This field should be set to *Disabled* unless an ISA card is used which communicates with the CPU through a block of shared memory located in the upper memory area. If set to a value other than *Disabled* the **ISA Shared Memory Base Address** field will appear below. Note that if a value of *64 KB* is chosen, then the **ISA Shared Memory Base Address** field can only be set to *D0000h* or below.

ISA Shared Memory Base Address

C000h
C400h
C800h
CC00h
D000h
D400h
D800h
DC00h

The **ISA Shared Memory Base Address** field works in conjunction with the **ISA Shared Memory Size**. See above.

IRQ 3*
IRQ 4*
IRQ 5
IRQ 7*
IRQ 9
IRQ 10
IRQ 11
IRQ 15*

Available
Used By ISA Card

* These options will not be visible if consumed by on-board resources (IRQ4 Serial Port 1, IRQ3 Serial Port 2, IRQ7 Parallel Port, IRQ 15, both IDE interfaces used).

The **IRQ 3 - IRQ 15** fields are used to indicate whether individual interrupts are used by ISA legacy cards. If not used, then they should be set to *Available*. If used they should be set to *Used By ISA Card*. **Note: All but one can be set to *Used By ISA Card*. One must remain available for PCI cards which use interrupts to function.**

SECURITY MENU

There are two types of passwords available, **User Password** and **Administrative Password**. The User password can be used to control access to the Setup Utility, the keyboard upon initial boot, and the keyboard when used in conjunction with the Security Hot Key. The **Administrative Password** is used to control access to the Setup Utility. The following table describes the interaction between these passwords:

Password In Effect	Enter Setup with User Password	Enter Setup with Admin. Password	Boot
User Password Only	Can change all fields	N.A.	User Password Required
Administrative Password Only	N.A.	Can change all fields	No Password Required
Both	Can change limited number of fields	Can change all fields	User or Administrative Password Required

If the **Administrative Password** is in effect and Setup is entered with the **User Password** only the following fields may be changed: **System Date, System Time, User Password, and Security Hot Key.**

User Password is

Disabled -- default

Enabled

Administrative Password is

Disabled -- default

Enabled

The **User Password is** and **Administrative Password is** fields indicate whether the User and Administrative passwords have been set. If neither the **User Password is** or the **Administrative Password is** fields are set to *Enabled* neither the **Unattended Start** or **Security Hot Key (CTRL-ALT-)** fields will be displayed.

Set User Password

When the **Set User Password** field is chosen the user is presented with one of two sub-menus. If there is currently no User Password in effect the following menu appears:

Enter New Password_____
Confirm New Password_____
Press Enter or TAB to Accept
Press ESC to Abort

If there is already a User Password in effect, the following menu appears. To disable the password, use a carriage return as the new password.

Enter Current Password_____
Enter New Password_____
Confirm New Password_____
Press Enter or TAB to Accept
Press ESC to Abort

Set Administrative Password

When the **Set Administrative Password** field is chosen the user is presented with one of two sub-menus. If there is currently no Administrative Password in effect the following menu appears:

Enter New Password_____
Confirm New Password_____
Press Enter or TAB to Accept
Press ESC to Abort

If there is already an Administrative Password in effect, the following menu appears. To disable the password, use a carriage return as the new password.

Enter Current Password_____
Enter New Password_____
Confirm New Password_____
Press Enter or TAB to Accept
Press ESC to Abort

Unattended Start

Disabled -- default

Enabled

The **Unattended Start** field controls the point at which the User Password is required. If set to *Disabled* the User Password is required before the system boots, either from disk or the network. The user will be prompted for the password with the text string "Enter Password (1):"

If set to *Enabled* the system will go through automatic boot activity (for instance running CONFIG.SYS and AUTOEXEC.BAT when booting DOS from disk), however the keyboard will be locked and the User Password must be entered to unlock it. The BIOS does not provide any prompt string so it is suggested that the last thing that the automatic login sequence does is prompt the user for the password.

The **Unattended Start** field can only be set if a User Password is in effect.

Security Hot Key (CTRL-ALT-)

Alpha-Numeric Key

The **Security Hot Key (CTRL-ALT-)** field can be used to define a key which when entered in conjunction with the CTRL and ALT keys puts the system into secure mode (locks the keyboard). When this Hot Key combination is entered the Num Lock, Caps Lock, and Scroll Lock LEDs on the keyboard will flash on and off in sequence, indicating to the user that the system is in secure mode (as opposed to being hung).

EXIT MENU

Exit Saving Changes

The Exit Saving Changes field is used to exit the Setup Utility saving the current state of all parameters.

When the Enter key is entered the following sub-menu is displayed:

Exit Saving Changes?
Press Enter to Continue
Press ESC to Abort

If the Enter key is selected then the Setup Utility will be exited with all parameters set to their current values. If the ESC key is selected, then the user is returned to the Exit menu without effecting any change.

Exit Discarding Changes

The **Exit Discarding Changes** field is used to exit the Setup Utility discarding any changes made to Setup parameters. When the Enter key is entered the following sub-menu is displayed:

Exit Discarding Changes?
Press Enter to Continue
Press ESC to Abort

If the Enter key is selected then the Setup Utility will be exited with changes to Setup parameters lost. If the ESC key is selected, then the user is returned to the Exit menu without effecting any change.

Load Setup Defaults

The **Load Setup Defaults** field is used to load default values into all Setup parameters, except for the passwords. When the Enter key is entered the following sub-menu is displayed:

Load Setup Defaults?
Press Enter to Continue
Press ESC to Abort

If the Enter key is selected then defaults are loaded into all Setup parameters, except for the passwords. If the ESC key is selected, then the user is returned to the Exit menu without effecting any changes.

Discard Changes

The **Discard Changes** field is used undo any changes made to Setup parameters during this Setup session. When the Enter key is entered the following sub-menu is displayed:

Discard Changes?
Press Enter to Continue
Press ESC to Abort

If the Enter key is selected then any changes made to Setup parameters are discarded. If the ESC key is selected, then the user is returned to the Exit menu without effecting any changes.

AMIBIOS Error messages and Beep Codes

Errors can occur during POST (Power On Self Test) which is performed every time the system is powered on. Fatal errors, which prevent the system to continue the boot process, are communicated through a series of audible beeps. Other errors are displayed in the following format:

ERROR Message Line 1

ERROR Message Line 2

For most displayed error messages, there is only one message. If a second message appears, it is "RUN SETUP". If this message occurs, press <F1> to run AMIBIOS Setup.

BEEP CODES

<i>Beeps</i>	<i>Error Message</i>	<i>Description</i>
1	Refresh Failure	The memory refresh circuitry on the baseboard is faulty.
2	Parity Error	Parity error in the first 64 KB of memory.
3	Base 64 KB Memory Failure	Memory failure in the first 64 KB.
4	Timer Not Operational	Memory failure in the first 64 KB of memory, or Timer 1 on the baseboard is not functioning.
5	Processor Error	The CPU on the baseboard generated an error.
6	8042 - Gate A20 Failure	The keyboard controller (8042) may be bad. The BIOS cannot switch to protected mode.
7	Processor Exception Interrupt Error	The CPU generated an exception interrupt.
8	Display Memory Read/Write Error	The system video adapter is either missing or its memory is faulty. This is not a fatal error.
9	ROM Checksum Error	ROM checksum value does not match the value encoded in BIOS.
10	CMOS Shutdown Register Rd/Wrt Error	The shutdown register for CMOS RAM failed.
11	Cache Error / External Cache Bad	The external cache is faulty.

ERROR MESSAGES

<i>Error Message</i>	<i>Explanation</i>
8042 Gate - A20 Error	Gate A20 on the keyboard controller (8042) is not working. Replace the 8042.
Address Line Short!	Error in the address decoding circuitry on the baseboard.
Cache Memory Bad, Do Not Enable Cache!	Cache memory is defective. Replace it.
CH-2 Timer Error	Most AT systems include two timers. There is an error in timer 2.
CMOS Battery State Low	CMOS RAM is powered by a battery. The battery power is low. Replace the battery.
CMOS Checksum Failure	After CMOS RAM values are saved, a checksum value is generated for error checking. The previous value is different from the current value. Run AMIBIOS Setup.
CMOS System Options Not Set	The values stored in CMOS RAM are either corrupt or nonexistent. Run Setup.
CMOS Display Type Mismatch	The video type in CMOS RAM does not match the type detected by the BIOS. Run AMIBIOS Setup.
CMOS Memory Size Mismatch	The amount of memory on the baseboard is different than the amount in CMOS RAM. Run AMIBIOS Setup.
CMOS Time and Date Not Set	Run Standard CMOS Setup to set the date and time in CMOS RAM.
Diskette Boot Failure	The boot disk in floppy drive A: is corrupt. It cannot be used to boot the system. Use another boot disk and follow the screen instructions.
Display Switch Not Proper	Some systems require a video switch on the baseboard be set to either color or monochrome. Turn the system off, set the switch, then power on.
DMA Error	Error in the DMA controller.
DMA #1 Error	Error in the first DMA channel.
DMA #2 Error	Error in the second DMA channel.
FDD Controller Failure	The BIOS cannot communicate with the floppy disk drive controller. Check all appropriate connections after the system is powered down.
HDD Controller Failure	The BIOS cannot communicate with the hard disk drive controller. Check all appropriate connections after the system is powered down.
INTR #1 Error	Interrupt channel 1 failed POST.
INTR #2 Error	Interrupt channel 2 failed POST.
Invalid Boot Diskette	The BIOS can read the disk in floppy drive A:, but cannot boot the system. Use another boot disk.
Keyboard Is Locked...Unlock It	The keyboard lock on the system is engaged. The system must be unlocked to continue.
Keyboard Error	There is a timing problem with the keyboard.
KB/Interface Error	There is an error in the keyboard connector.
Off Board Parity Error	Parity error in memory installed in an expansion slot. The format is: OFF BOARD PARITY ERROR ADDR (HEX) = (XXXX) XXXX is the hex address where the error occurred.
On Board Parity Error	Parity error in baseboard memory. The format is: OFF BOARD PARITY ERROR ADDR (HEX) = (XXXX) XXXX is the hex address where the error occurred.
Parity Error ????	Parity error in system memory at an unknown address.

ISA NMI MESSAGES

<i>ISA NMI Message</i>	<i>Explanation</i>
Memory Parity Error at xxxxx	Memory failed. If the memory location can be determined, it is displayed as xxxxx. If not, the message is <i>Memory Parity Error ?????</i> .
I/O Card Parity Error at xxxxx	An expansion card failed. If the address can be determined, it is displayed as xxxxx. If not, the message is <i>I/O Card Parity Error ?????</i> .
DMA Bus Time-out	A device has driven the bus signal for more than 7.8 microseconds.

BIOS Recovery

The Classic/PCI board incorporates the AMIBIOS in a Flash memory component. Flash BIOS allows easy upgrades without the need to replace an EPROM. The upgrade utility fits on a floppy diskette and provides the capability to save, verify, and update the system BIOS. The upgrade utility can be run from a hard drive or a network drive, but no memory managers can be installed during upgrades.

The latest upgrade utility and BIOS code are available in the *BIOS* section of the iPAN bulletin board.

USING THE UPGRADE UTILITY

If the utility is obtained from the bulletin board, UNZIP the archive and copy the files to a bootable MS-DOS 3.3, 4.01, 5.0, or 6.0 diskette. Reboot the system with the upgrade diskette in the bootable floppy drive and follow the directions in the easy to use menu-driven program.

RECOVERY MODE

In the unlikely event that a FLASH upgrade is interrupted catastrophically, it is possible the BIOS may be left in an unusable state. Recovering from this condition requires the following steps (be sure a power supply and speaker have been attached to the board, and a floppy drive is connected as drive A:):

1. Change Flash Recovery jumper (RCVR FLASH) to the recovery mode position.
2. Install the bootable upgrade diskette into drive A:
3. Reboot the system.
4. Because of the small amount of code available in the non-erasable boot block area, no video is available to direct the procedure. The procedure can be monitored by listening to the speaker and looking at the floppy drive LED. When the system beeps and the floppy drive LED is lit, the system is copying the recovery code into the FLASH device. As soon as the drive LED goes off, the recovery is complete.
5. Turn the system off.
6. Change the Flash Recovery jumper back to the default position.
7. Leave the upgrade floppy in drive A: and turn the system on.
8. Continue with the original upgrade.