CAUTION

1. Please short pins 2-3 on jumper JPl before using this system mainboard.

2. In GREEN CPU inactive mode, the system will stop the DOS timer. To update the DOS timer, please use Microsoft POWER.EXE to put the following line in your config.sys file:

   DEVICE=POWER.EXE STD

3. Please check the Intel CPU type detected by the BIOS in the start-up screen:

   If the detected Intel CPU is a DX4-S, 80486DX2-S, 80486DX-S or 80486SX-S, the CPU jumpers must be set for **a DX-SL** CPU.

   If the detected Intel CPU is a 80486DX, 80486DX2, or 80486SX, the CPU jumpers must be set for a **DX/DX2** CPU.

The information presented in this publication has been carefully checked for reliability; however, no responsibility is assumed for inaccuracies. Specifications are subject to change without notice.

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Contents

Chapter 1
Introduction

The 80486 Deep Green mainboard is a 32-bit high-performance system board. This mainboard is not only compatible with IBM AT systems, but it also provides power-saving features that allow the user to program the timer.

You can configure the 80486 Deep Green mainboard for use with many 486based microprocessors, such as the following:

- Intel P24T
- Intel P24D
- Intel 80486DX4 (P24C)
- Intel 80486DX2 / DX / SX-SL
- Intel 80486DX2 / DX /SX
- CyrixCX486DX2 / DX / S
- AMD AM486DX4 / DX2 / DX
- UMC U5

The 80486 Deep Green mainboard features on-board power management that allows the user to assign system clock rates, hard disk power saving and display power saving when entering doze mode, suspend mode or inactive mode.

Key Features

Advanced features of the 80486 Deep Green mainboard include:

- Supports CPUs running at 25/33/40/50/66/75/80/100 MHz:
  - Intel P24T
  - Intel P24D
  - Intel 80486DX4 (P24C)
  - Intel 80486DX2 / DX / SX - SL
  - Intel 80486DX2 / DX /SX
  - Cyrix CX486DX2 / DX / S
  - AMD AM486DX4 / DX2 / DX
  - u M c u 5
- Ll write back or write through cache
- L2 write back policy for high performance
- Flexible cache RAM size 64/128/256/512/1024 KB in two banks or one bank with 16 bytes line size
- DRAM auto-detection / banking
- Four banks of DRAM with memory size to 64 MB using combinations of 256K, lM, 2M, 4M, 8M, 16M, 32M, 64M SIMM
- Provides green PC power management
- Level 2 cache power saving
- Supports four power management modes for SMM (System Management Mode) CPUs: On, Standby, Inactive, Off.
- Seven 16 bit I/O slots including three 32-bit VL-Bus master slots
- On-board CR2032 3.0 Volt lithium battery
- 237-pin ZIF socket
- Provides flash ROM support
- Fully supports Microsoft APM (advanced power management)
- Supports 3.3 / 4.0 Volts for low voltage CPU

Unpacking the Mainboard

The mainboard comes packed in a sturdy cardboard shipping carton. The carton contains:

- The 80486 Mainboard
- This User's Guide

Note: Do not remove *the mainboard from its original packing until you are ready to install it.*

The mainboard is easily damaged by static electricity. Observe the following precautions while unpacking and installing the mainboard.

1. Touch an unpainted area of the system chassis before handling the mainboard or any component. Doing so discharges the static charge your body may have built.
2. Remove the mainboard from its anti-static wrapping and place it on a grounded surface, component side up.
3. Inspect the mainboard for damage. Shipping may have loosened integrated circuits from their sockets. If any integrated circuit appears loose, press carefully to seat it firmly in its socket.

Do not apply power if the mainboard appears damaged. If there is damage to the board, or items are missing, contact your dealer immediately.

Mainboard Layout

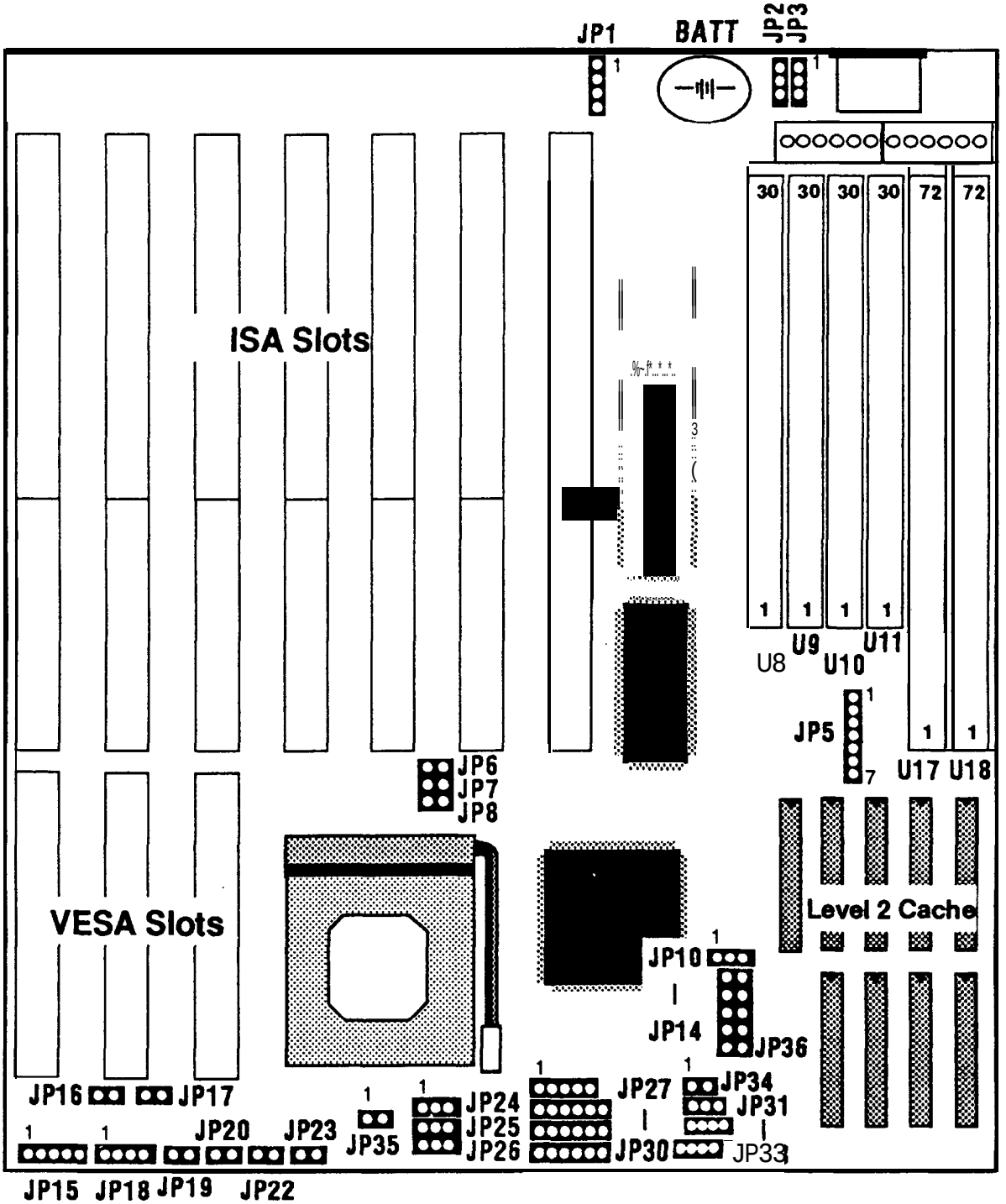


Figure 1-1. Mainboard Layout

-Chapter 2
Hardware Configuration

Before you install the 80486 mainboard into the system chassis, you may find it convenient to first configure the mainboard's hardware. This chapter describes setting jumpers, installing memory modules, and attaching components.

Power Precautions

Before you begin configuration, make sure you are working with an unplugged mainboard. Many components are powered by low-voltage current, but there still may be a dangerous electric current coming from the leads and power supply. Take the following precautions:

- Turn off the power supply, and unplug the power cord before you begin.
- Unplug all cables that connect the mainboard to any external devices.

Jumper Switch Settings

You can configure hardware options by setting jumper switches on the mainboard. See Figure 1-l for jumper locations. Set a jumper switch as follows:

- Short a jumper by placing the plastic jumper cap over two pins of the jumper.
- *Open* the pins of a jumper by removing the jumper cap.

Note: When you open the jumper, attach the plastic jumper cap to one of the pins so you don't lose *it.*

For setting 3-pin jumpers, the symbols below are used:

1-2 Pins 1 and 2 are Shorted with a jumper cap.

2-3 Pins 2 and 3 are Shorted with a jumper cap.

For setting 2-pin jumpers, the following symbols are used:

ON The jumper is Shorted (ON) when the jumper cap is placed over the two pins of the jumper.

OFF **The** jumper is Open (OFF) when the jumper cap is taken off of the jumper.

JP3 - Flash ROM VPP Supply Selector

JP3 is the Flash ROM Program Voltage selector.

Description	JP3
5 volt	1-2
12 volt	2-3

JP27-JP30, JP32, JP33- CPU Type Jumpers

Set jumpers JP27-JP30, JP32, and JP33 so that the mainboard recognizes the type of CPU installed. Set CPU type as below.

Note: *A wrong* setting *may cause the system to hang up.*

Jumper	JP27	JP28	JP29	JP30	JP32	JP33
486SX	OFF	2-3	OFF	OFF	OFF	2-3
486DX/ DX2 / ~~486DX4/ SL~~	OFF	2-3	OFF	OFF	1-2	l-2, 3-4
486DX4/ SL / ~~486DX/ DX2~~	1-2, 3-4	**1-2**	l-2	5-6	1-2	1-2, 3-4
P24D	1-2, 3-4	1-2, 4-5	**l-2, 4-5**	**3-4, 5-6**	1-2	**l-2, 3-4**
P24T	1-2, 3-4	1-2	**l-2**	**5-6**	**2-3**	**1-2, 3-4**
Cyrix M6	**2-3, 4-5**	**l-2, 3-4, 5-6**	**l-2, 3-4, 5-6**	**l-2, 3-4, 5-6**	OFF	**2-3**
Cyrix M7	**2 - 3**	**l-2, 3-4, 5-6**	**l-2, 3-4, 5-6**	**2-3, 4-5**	**l-2**	**l-2, 3-4**
UMC U5	OFF	**2-3**	**2-3**	**l-2**	**3-4**	**2-3**
AMD	OFF	**2-3**	OFF	OFF	**l-2**	**l-2, 3-4**

JP6-JP8 – CPU Clock Setting

CPU **Clock**	**JP6**	**JP7**	**JP8**
25 MHz	OFF	OFF	ON
33 MHz	ON	ON	ON
40 MHz	OFF	ON	ON
50 MHz	ON	OFF	OFF

JP31- Intel 80486DX4 CPU Clock Multiplier Jumper

Clock Multiplier	JP31
3 x	OFF
2.5 X	1-2
2 x	2-3

JP34- AMD 80486DX4 CPU Clock Multiplier Jumper

Clock Multiplier	JP34
3 x	OFF
2 x	ON

JP21-JP24, JP35 – CPU Power Selectors

CPU Power	JP24	JP25	JP26	JP35
5 Volts	2-3	2-3	2-3	OFF
3.3 Volt	1-2	1-2	1-2	ON
4 Volts	1-2	1-2	1-2	OFF

JP16 - VESA Clock Selector

When the CPU clock is less than or equal to 33 MHz take the jumper OFF of JP16. When the CPU clock is greater than 33 MHz put a jumper ON JP16.

Description	JP16
< = 33 MHz	OFF
> 33 MHz	ON

JP17 - VESA Wait State

JP17 sets the VESA wait state.

Description	JP16
O W S	OFF
1 WS	ON

Memory Configuration

The DRAM sub-system contains 4 banks. Four 30-pin SIMM sockets U8-U11 are bank 2; two 72-pin SIMM sockets U17 is bank 1 and 3; Ul8 is bank 0 and 2.

You can not install 30-pin SIMM if you use 2-bank type DRAM in U18, but you can install 30-pin SIMM if you use l-bank type DRAM in U18.

U8-U11 BANK 2	U18 BANK 0,2	U17 BANK 1,3
Installed	l-bank type DRAM or None	2-bank type DRAM or l-bank type DRAM or None
None	2-bank type DRAM or l-bank type DRAM or None	2-bank type DRAM or l-bank type DRAM or None

Chapter 3
Mainboard Installation

Once you have configured the 80486 Deep Green mainboard's hardware, you are ready to install the mainboard into the system chassis This chapter describes what you need to assemble an advanced computer system based on the 80486 mainboard.

What You Need

The following components and tools are the minimum required to build a working computer system.

Components

The following components are recommended:

- Case with standard chassis and hardware. The 80486 fits most AT compatible cases.
- Standard AT power supply
- 8 ohm speaker
- Floppy disk drive(s) (360KB, 1.2MB, 1.44MB or 2.88MB)
- Hard disk drive (optional)
- Hard disk and floppy disk drive controller card
- Flat ribbon cables to connect the disk drive controller and the disk drive(s)

- Serial / parallel interface card
- AT-compatible keyboard
- Video card and Display (monochrome, CGA, EGA, or VGA)

Tools

Installing the 80486 mainboard requires the following tools:

- 1/4-inch Nutdriver
- 3/16-inch Nutdriver

You can also use a Phillips screwdriver with a 6-inch shaft and a flat blade screwdriver instead of the nutdrivers.

Power Supply Requirements

You need a clean, steady power source to get the best performance from your system. For reliable performance, make sure your power supply provides a voltage range of 5.25 volts maximum to 4.75 volts minimum. If your area has noisy power transmission, use a line noise filter between the power source and your computer.

You must make sure the power supply can supply the total power required by all the devices in your system. Check the power requirements of the floppy disk drives, hard disk drives, and any additional boards that you will use. In a system that includes a hard disk drive and installed adapter cards, use a power supply of at least 180 watts.

Installing the Mainboard

Before you begin, check the location of the mounting holes in the case and on the mainboard.

Caution: Static electricity can damage the mainboard.

Install the 80486 mainboard as follows:

1. Review the section on static electricity precautions at the beginning of this manual.

2. Place the case on an anti-static mat and remove the cover. Remove the nylon stand-offs and screws for mounting the mainboard.

3. Put the front of the case to your right and the rear to your left. The mainboard occupies the section of the case nearest you; the power supply goes on the far side.

4. Align the mounting holes on the case to the mounting holes on the mainboard. Make sure you can access the keyboard connector (J1 once the board is installed.

5. From the bottom of the mainboard, insert stand-offs into the proper holes on the board, and attach the mounting screws to the bottom of the case.

Note: Some cases do not use stand-offs and mounting screws; in this case you can fasten the mainboard into the case with regular **screws.**

6. Place the mainboard into the case and fasten the board securely with regular screws.

Connecting the Mainboard

Once you have fastened the mainboard into the system case, the next step is to connect the internal cables. The internal cables are wire leads with plastic female connectors that attach to the connectors. The mainboard connectors have varying numbers of pins and are the points of contact between the mainboard and other parts of the computer.

Note: Before making connections on the board, make sure that power to the system is turned off.

Connectors

J1 - Keyboard Connector

A standard five-pin female DIN keyboard connector is located at the rear of the board (J1). Plug the jack on the keyboard cable into this connector.

Pin	Description
1	Keyboard Clock
2	Keyboard Data
3	Ground
4	Ground
5	+5V DC

J9 - Power Supply Connectors

The power supply connector has two six-pin male header connectors. Plug the dual connectors from the power directly onto the board connectors.

Pin	Description	Pin	Description
12	+5V DC	6	Ground
11	+5V DC	5	Ground
10	+5V DC	4	-12v DC
9	-5v Ix	3	+12V DC
8	Ground	2	+5V DC
7	Ground	1	Power Good

J18 - Speaker Connector

Attach the system speaker to connector J18.

Pin	Description
1	Data Out
2	Not Used
3	Ground
4	+5V

JP1 - External Battery

The 80486 mainboard has a non-rechargeable lithium battery on-board; however, you can also attach an external battery to connector JP1. Using an external battery helps you conserve the on-board battery.

Description	JP1
External Battery	1-4
Internal Battery	2-3
Clear CMOS	3-4

Note 1: The factory default setting has a jumper cap on pins 3-4 to *avoid losing battery power during shipping. For an installed internal battery, place a jumper cap on pins 2-3. When you install an external battery, remove this jumper cap.*

Note 2: *To clear the CMOS configuration, place a jumper cap on pins* 34 *and then place the cap back on pins 2-3 for normal operation.*

JP15-Keylock & Power LED Connector

JP15 is a keylock connector that enables and disables the keyboard and the Power-LED on the case.

Pin	Description
1	LED power
2	Not Used
3	Ground
4	Keyboard Inhibiter
5	Ground

JP19 - Turbo LED Connector

JP19 is usually connected to a Turbo LED on front of the system case. If the system board select is in Turbo mode, the indicator lights during high-speed operation.

Pin	Description
1	+Anode
2	-Cathode

JP20 - Reset Switch Connector

Attach the Reset switch cable to this connector. The Reset switch restarts the system.

Setting	Description
Short	Reset
Open	Not Reset

JP22-Turbo Switch Connector

JP22 connects to the Turbo switch, which is used to select the mainboard's clock speed.

Setting	Description
Open	Turbo Mode
Short	Low speed Mode

In addition to switching clock speed using hardware control via the turbo switch, you can also switch the clock speed using software control via keyboard commands.

The keyboard commands are as follows:

CTRL, ALT, [+] : Press these three keys simultaneously to select Turbo Mode.

CTRL, ALT, [–]: Press these three keys simultaneously to select Low Speed Mode.

Note that hardware control and software control are alternately activated. Before you can activate software control from hardware control, and vice versa, the system must be in High Speed Mode.

JP23 – Suspend Switch Connector

A push button attached to this connector lets you force the system to enter suspend mode.

System Assembly Overview

After you have installed and connected the mainboard, assemble components in the following order:

1. Power Supply: Place the power supply so that it fits the raised tongues on the chassis floor. Insert and fasten the two screws on the back panel of the chassis. Connect the power supply to the power supply connectors, J9.

2. Disk Drives: Slide the disk drives into the chassis. Connect a wide 34-wire ribbon cable to each disk drive; this cable will attach to an adapter card. The power supply has four cables, each with four wires. Connect these cables to the disk drives.

3. Adapter Cards: Insert each adapter card — Disk Controller cards, Video card, Serial/Parallel Interface card, etc. — according to the configuration instructions that come with the card. Connect the disk drives to the Floppy Disk and Hard Disk Controller cards.

4. Keyboard: Connect the keyboard to its connector, J1.

5. Display: Connect the display cable to the Video Card, and the display's power cord into a power outlet.

6. Case: Slide on the case cover and fasten its screws.

Connect the power cord to the power supply and plug it into a wall outlet. Put your boot disk into drive A: and turn on the power. You will then need to run the BIOS setup program.

Chapter 4
BIOS Setup

This chapter explains how to configure the mainboard's BIOS setup program. The setup program provided with the mainboard is either the Award BIOS from Award Software Inc., or the AM1 WinBIOS from American Megatrends Inc.

After you have configured the mainboard, and have assembled the components, you can turn on the completed system. At this point, run the software setup to ensure that the system information is correct.

The software setup of the system board is achieved through Basic Input-Output System (BIOS) programming. You use the BIOS setup program to tell the operating system what type of devices are connected to your system board.

The system setup is also called CMOS setup. Normally, you need to run system setup if either the hardware is not identical with information contained in the CMOS RAM, or if the CMOS RAM has lost power.

Award- BIOS Setup

Enter the Award Setup program's Main Menu as follows:

1. Turn on or reboot the system. The following message appears at the bottom of the screen:

"TO ENTER SETUP BEFORE BOOT PRESS CTRL-ALT-ESC or <DEL> KEY"

2. Press the <DEL> key to enter the Award BIOS setup program and the following screen appears:

ROM ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
Esc : Quit F10 : Save & Exit Setup	t-+44- : Select Item (Shift) F2 : Change Color
Save Data to CMOS & Exit SETUP	

3. Choose an option and press <Enter>. Modify the system parameters to reflect the options installed in the system. (See the following sections for more information.)

4. Press <ESC> at anytime to return to the Main Menu.

5. In the Main Menu, choose "SAVE AND EXIT SETUP" or <F10> to save your changes and reboot the system. Choosing "EXIT WITHOUT SAVING" or <ESC> ignores your changes and exits the program.

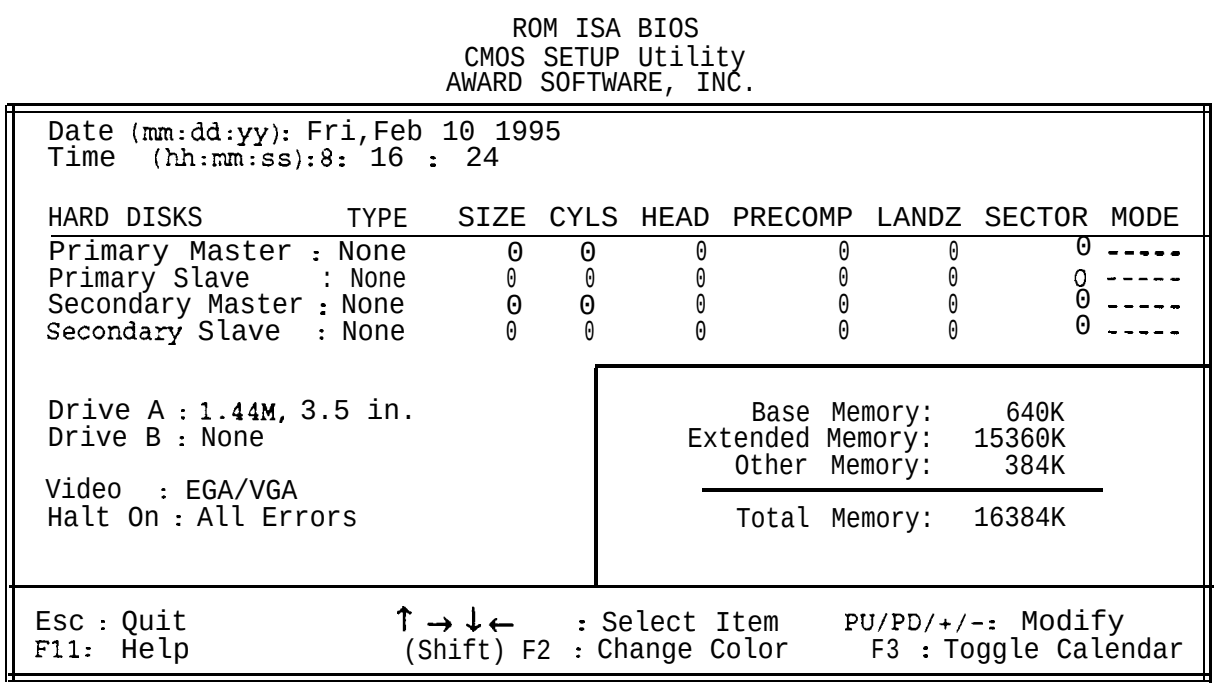
Main Menu Options

The Main Menu options of the Award BIOS are as below.

STANDARD CMOS SETUP

Run the Standard CMOS Setup as follows.

1. Choose "STANDARD CMOS SETUP" from the Main Menu and a screen with a list of items appears.



2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/+/- keys. Some fields let you enter numeric values directly.

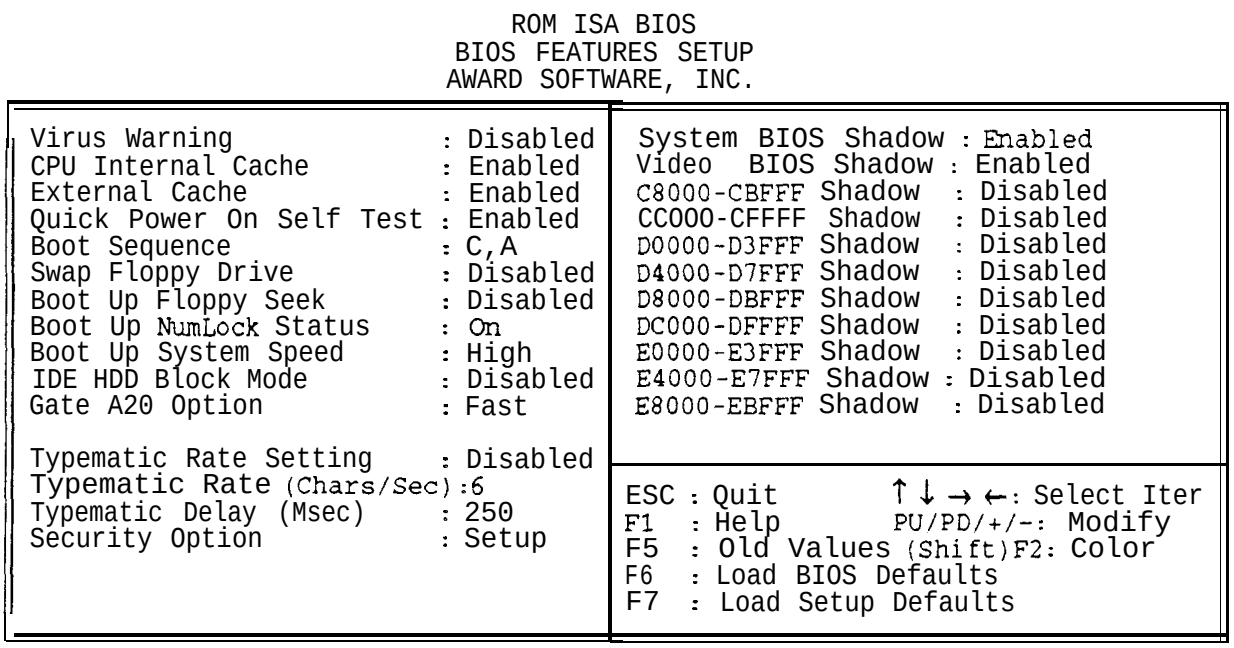
Date (mm/dd/yy)	Type the current date	
Time (hh:mm:ss)	Type the current time	
Primary & Secondary IDE	Choose from the standard hard disk types 1 to 46, type 47 is user defined. If a hard disk is not installed choose "Not installed ."	
DriveA&B	Choose	360KB 5 1/4" 1.2MB 5 1/4" 72OKB 3 1/2" 1.44MB 3 1/2" 2.88MB 3 1/2"or Not installed
Video	Choose	Monochrome, Color 40x25, VGA/PGA/EGA, Color 80x25, or Not installed
Halt On	This item determines whether the computer stops if an error is detected during power up.	

3. After you have finished with the Standard CMOS Setup program, press the <ESC> key to return to the Main Menu.

BIOS FEATURES SETUP

Run the BIOS Features Setup as follows.

1. Choose “BIOS FEATURES SETUP” from the Main Menu and a screen with a list of items appears.



2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/+/- keys. An explanation of <F> keys follows:

   <F1>: “Help” gives options available for each item.

   <F2>: Change color

   <F5> : Get the old values. The user started the current session with these values.

   <F6>: Load all options in the BIOS Features Setup with the BIOS Default values.

   <F7>: Load all options in the BIOS Features Setup with the Setup Default values.

A short description of the screen items follows:

Virus Warning	Choose Enabled or Disabled. Enable this option and a SYSTEM WARNING MESSAGE appears when the system detects a virus.
CPU Internal Cache	Choose Enabled or Disabled. This option lets you enable the CPU's internal cache memory.
External Cache	Choose Enabled or Disabled. This option lets you enable the external cache memory. For better performance, make sure you always choose "Enabled."
Quick Power On Self Test	Choose Enabled or Disabled. Enabled provides a fast POST and boot-up speed.
Boot Sequence	The default setting first attempts to boot from drive A: and then from hard disk C:. You can reverse this sequence with "C: A:", but then drive A: cannot boot directly.
Swap Floppy Driver	Choose Enabled or Disabled. When Enabled Floppy drives A & B are swapped under DOS.
Boot Up Floppy Seek	Choose Enabled or Disabled. "Disabled" provides a fast boot and reduces the possibility of damage to the heads.
Boot Up Num Lock status	Choose On or Off. On puts numeric keypad in Num Lock mode at boot-up. Off puts this keypad in arrow key mode at boot-up.
Boot Up System Speed	Choose High (default) or Low. This option lets you choose system bootup speed.
IDE HDD Block Mode	Choose Enabled or Disabled. If your IDE HDD supports BLOCK MOVE MODE, then you can Enable this function to speed up the HDD Access time. If not, please Disable this function to avoid an HDD Access Error.

Gate A20 Option	Choose Fast or Normal. This item lets you use the GA20 from the chipset or the keyboard controller.
Typematic Rate Setting	Choose Enabled or Disabled. Enable this option to adjust the keystroke repeat rate.
Typematic Rate (Chars/Sec)	Choose the rate a character keeps repeating.
Typematic Delay (Msec)	Choose how long after you press a key that a character begins repeating.
Security Option	Choose Setup, or System. Use this feature to prevent unauthorized system boot-up or unauthorized use of BIOS Setup.
	"System"– Each time the system boots the password prompt appears.
	"Setup"– Password prompt only appears if you attempt to enter the Setup program.
Video BIOS Shadow	BIOS shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM. These 16K segments can be shadowed from ROM to RAM. BIOS is shadowed in a 16K segment if it is enabled and it has BIOS present.

3. After you have finished with the BIOS Features Setup program, press the <ESC> key and then follow screen instructions to save or disregard your settings.

CHIP-SET FEATURES SETUP

The CHIPSET FEATURES SETUP is used to control the values of the chipset registers. These registers control most of the system options in the computer.

'Note: The Default settings shown below are the optimum settings. Change these settings only if you are familiar with the chipset.

Run the Chipset Features Setup as follows.

1. Choose "CHIPSET FEATURES SETUP" from the Main Menu and a screen with a list of items appears.

ROM ISA BIOS
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration : Enabled Alt Bit in Tag SRAM : 7+1 Bits DRAM Wait State Select : 0 WS DRAM Page Mode : Normal L2 Cache Read Wait State : Wr-Back L2 Cache Write Wait State: Wr-Back L1 Cache Update Scheme : 2-2-2-2 System BIOS Cacheable : Disabled Video BIOS Cacheable : Disabled Keyboard Controller Clock: 9.5MHz ISA Bus Clock Option : CLKI/3 I/O Recovery(Bus/Onboard): 5/3 Local REady Delay Setting: 0 WS Signal LDEV# Sample Time : In T3 CPU ADS# Delay 1T or Not : No Delay	ISA Bus Refresh Mode : Fast LOWA20# Select : Chipset RC Reset Select : Chipset DRAM Refresh Method :RAS Only ESC : Quit ↑ ↓ → ←: Select Item F1 : Help PU/PD/+/-: Modify F5 : Old Values (Shift)F2: Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/+/- keys. <F> keys are explained below:

3. After you have finished with the Chipset Features Setup program, press the <ESC> key and then follow screen instructions to save or disregard your settings.

POWER MANAGEMENT SETUP

The Power Management Setup option sets the system's power saving functions.

Run the Power Management Setup as follows.

1. Choose "POWER MANAGEMENT SETUP" from the Main Menu and a screen with a list of items appears.

ROM ISA BIOS
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	User Defined	* Monitor Event In Full On Mode
Video Off Method	Blank Screen	VESA Slave Activity : Disabled
HDD Standby Timer	Disabled	LPT Port Activity : Enabled
Doze Timer Select	0.5 Min	COM Port Activity : Enabled
Standby Timer Select	2 Min	ISA Master Activity : Enabled
Inactive Timer Select	2 Min	IDE Activity : Enabled
		Floppy Activity : Enabled
Control Item	CPU CLK VGA	VGA Activity : Disabled
Doze Mode Control	1/2 CLKI On	Keyboard Activity : Enabled
Standby Mode Control	1/2 CLKI On	
Inactive Mode Control	1/8 CLKI On	
Suspend Switch Select : Enabled		ESC : Quit ↑ ↓ → ←: Select Item
		F1 : Help PU/PD/+/- : Modify
		F5 : Old Values (Shift)F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/+/- keys.

A short description of selected screen items follows:

Power Management — This item controls the HDD power down, system Doze, standby, suspend timer, display ON/OFF and CPU clock feature. There are five options:

User Define allows you to customize all timer settings, define HDD and system power management settings.

Optimize is the recommended setting.

	Max Saving is useful for testing and demonstrating system' performance. Min **Saving** is minimized power saving. Disable will turn off all BIOS power saving functions on operating system.
Video Off Method	Select a method to protect the screen. **"Blank screen" only** makes your screen blank but the display card still works properly. **"V/H** SYNC + Blank" not only makes your screen blank, but also cuts off the display card's SYNC signal.
HDD Standby Time	Causes IDE HDD to "spin down" when not accessed within a specified period. Disk returns to full speed the next time it is accessed. You can select from a range of "1 Min" to "15 Min" or "Disabled."
Doze **Mode Timer Select**	Set a period of time after which no activity causes the system to enter doze mode from full-on mode. In this mode you can control the CPU clock and the display on / off from the control item below. You can set a range of 0.5 to 512 min. **Note:** Non-green CPUs can only enter Doze mode. Green CPUs can enter Doze, Standby, and Inactive modes.
Standby Mode Timer Select	Set a period of time after which no activity causes the system to enter standby mode from doze mode. In this mode you can control the CPU clock and the display on / off from the control item below. You can set a range of 2 to 512 min.

Inactive Mode Timer Select	Set a period of time after which no activity causes the system to enter inactive mode from standby mode. In this mode you can control the CPU clock and the display on/off from the control item below. You can set a range of 2 to 512 min.
Mode Control Item	This item sets the CPU clock and the display on/off for every mode. CPU CLK can change the performance of every mode. You can set from a range of 1/2 to 1/8. VGA can be turned on/of in every mode. If you set VGA off in this mode, the display is turned off.
Suspend Switch Select	Set suspend switch Enabled or Disabled. Push this switch and you can enter Inactive mode directly.
Monitor Even in Full On Mode	Enable those items you wish the BIOS to monitor for activity. Activity on these items cause the system to wake up and work in Full-on mode.

3. After you have finished with the Power Management Setup, press the <ESC> key to return to the Main Menu.

LOAD BIOS DEFAULT

This Main Menu item loads the default BIOS values. These settings are recommended for optimum performance. If the CMOS is corrupted the defaults load automatically.

LOAD SETUP DEFAULT

This Main Menu item loads the default system values. These settings are recommended for optimum performance. If the CMOS is corrupted the defaults load automatically.

PASSWORD SETTING

This Main Menu item lets you configure the system so that a password is required every time the system boots or an attempt is made to enter the Setup program. The password cannot be longer than 8 characters.

Important: Keep a safe record of the new password. If you forget or lose the password, the only way to access the system is to discharge CMOS memory using jumper JP1.

IDE HDD AUTO DETECTION

If your system has an IDE hard drive, you can use this utility to detect its parameters and automatically enter them into the Standard CMOS Setup.

SAVE & EXIT SETUP

Select this item from the main menu and type "Y" to save the values entered during the current session and then exit the BIOS Setup program. Type "N" to return to the Setup program.

EXIT WITHOUT SAVING

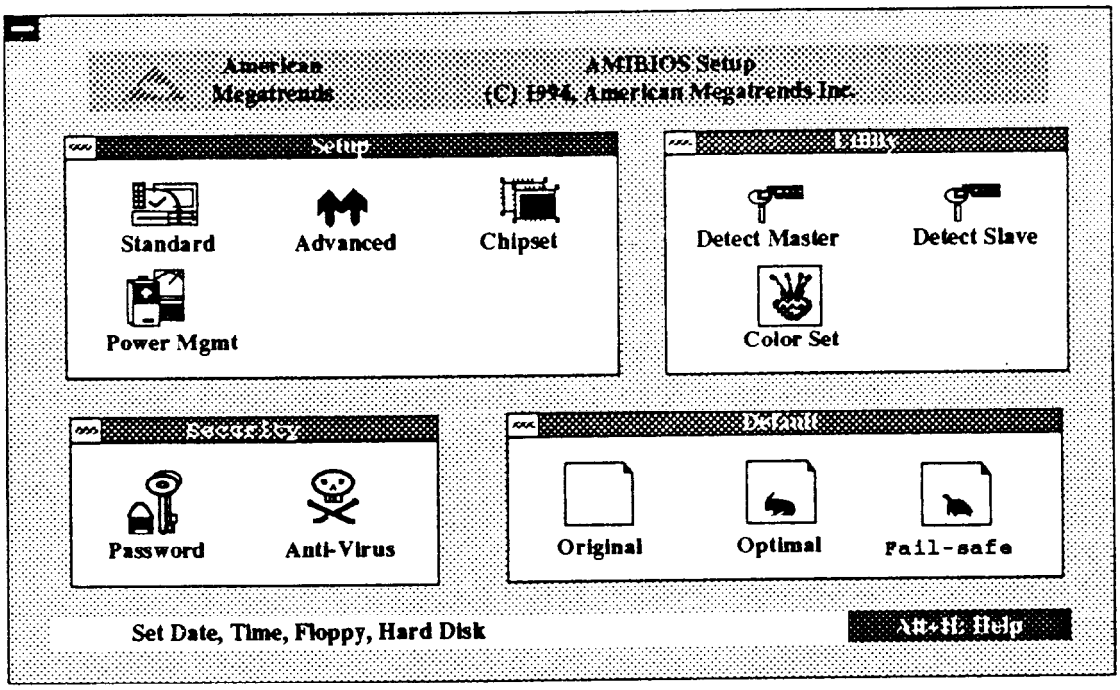
Select this item from the main menu and type "Y" to exit the BIOS Setup program without saving the values entered during the current session. Type "N" to return to the Setup program.

AMI WinBIOS Setup

To enter the WinBIOS Setup program:

1. Turn on or reboot the system. A screen appears with a series of diagnostic checks.

2. When "Hit <DEL> if you want to run SETUP" appears, press the <DEL> key to enter the BIOS setup program. The following screen appears:



3. Choose options with the keyboard or mouse. Modify settings to reflect system options. Press Alt-H for Help.

Using the Keyboard with WinBIOS Setup

If you choose options with a keyboard, use these keyboard commands:

<TAB>	Move to the next window or field.
→, ←, ↑, ↓	Move to the next field, right, left, up, down.
<Enter>	Select in the current field.

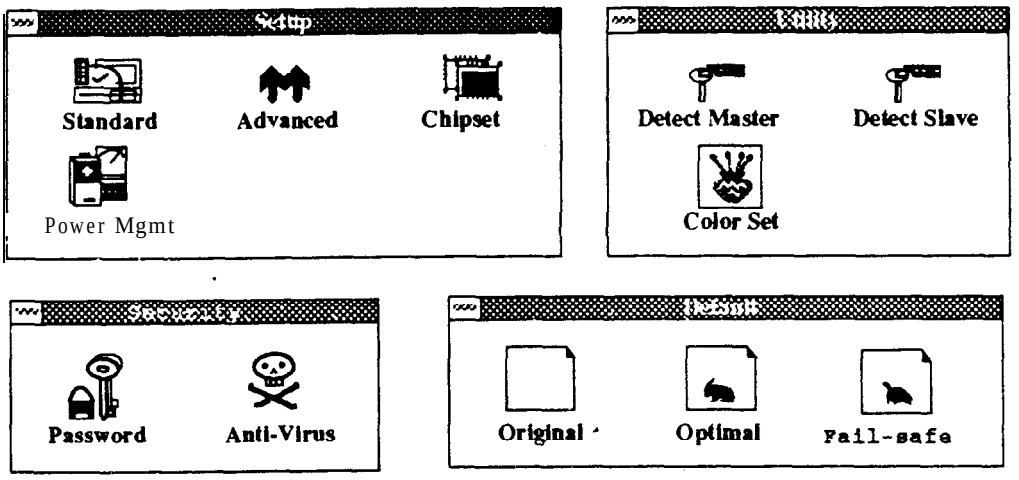
<+>	increment a value
<->	Decrement a value.
<ESC>	Close the current operation and return to the previous level.
<PgUp>	Returns to previous page
<PgDn>	Advances to next page.
<Home>	Returns to the beginning of the text.
<End>	Advances to the end of the text.
<Alt-H>	Access a help window
<Alt-Space>	Exit WinBIOS Setup.

Using a Mouse with WinBIOS Setup

To choose options with a Mouse, point the cursor at an item you wish to modify and double-click the left mouse button. When items appear, use the cursor to select values and press the left mouse button to complete the changes. To leave the current operation and return to the previous level, use the cursor to press the exit box in the Window group's upper left corner .

WinBIOS Setup Main Menu

The WinBIOS Setup main menu has four windows: the Setup, Utilities, Security and Default windows.



Setup

The Setup_ window has five icons that let you set system configuration bptions such as date, time, hard disk type, floppy type, and many others.

Utilities

This window has four icons that perform system functions.

Security

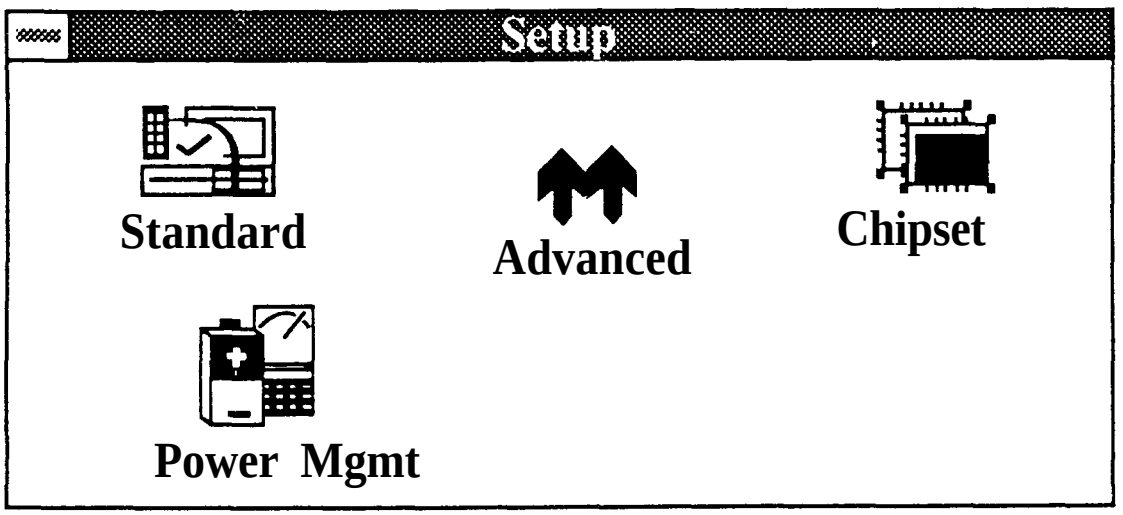
This window's two icons control WinBIOS security features.

Default

This window's three icons let you select default settings for all WinBIOS Setup options. Choose the Optimal settings for best performance characteristics.

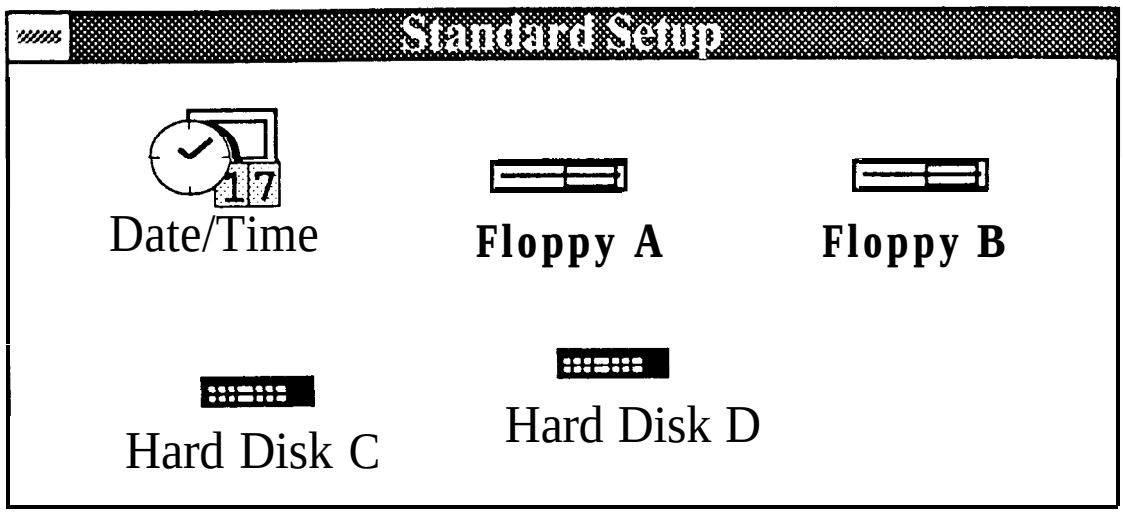
Setup Window

The Setup window has four icons that allow you to set system configuration options.



Standard Setup

Double-click on the Standard icon and the Standard Setup screen appears:



Select the icon of the items you wish to change, and modify them using the keyboard or mouse.

Date/Time	Current values are displayed. Enter new values using the keyboard.
Hard Disk C: Hard Disk D:	A screen listing all valid disk types appears. Select the correct type and press <Enter>. If the hard disk is an IDE drive, go to the Utility window of the main menu and select Detect C: or Detect D: The WinBIOS auto-detects the IDE drive parameters, which appear on the screen and then places them in the Drive Type fields in the Standard Setup.
Floppy Drive A: **Floppy** Drive B:	Select the floppy type with the ↑↓ keys. Settings are: *360 KB 5-1/4 inch* *1.2 MB 5-l/4 inch* *720 KB 3-l/2 inch* *1.44 MB 3-1/2 inch* *2.88MB 3-l/2 inch*

Advanced Setup

Double-click on the **Advanced** icon and the Advanced Setup screen appears, displaying the items below. Select items you wish to change, and modify them using the keyboard or mouse.

Typematic Rate (Chars/Sec)	Typematic Rate sets the rate at which the characters on the screen repeat when a key is pressed and held down. The settings are 15,20, **24, and 30 characters** per second.
System Keyboard	This item specifies if error messages are displayed when a keyboard is not attached. This option lets you configure workstations that do not have keyboards.
Primary Display	Select this icon to configure the type of monitor attached to the computer.
Above lM Memory Test	Enabled uses the WinBIOS memory test on all system memory. Disabled only uses the memory test on first 1MB of system memory.
Memory Test Tick Sound	This item enables or disables the ticking sound during the memory test.
Hit "Del" Message Display	Disabling this option prevents **Hit <DEL> if you want to run Setup** from appearing when the system boots.
Extended ROM RAM Area	This option specifies if hard disk data is stored in the top 1KB of the system programming area, starting at 639K or 0:300 in the system BIOS area low memory.
Wait for "Fl" If Any **Error**	If this option is enabled, WinBIOS waits for the user to press <Fl> before continuing.
System Boot Up NUMLock	When ON, this option turns off Num Lock when the system is powered on.
Floppy Drive Seek at Boot	When this option is enabled, WinBIOS performs a seek command on floppy drive A: before booting the system.

System **Boot Up CPU Speed**	This option sets the sequence of boot drive that WinBIOS attempts to boot from after POST completes.
External Cache	Enables/disables secondary cache memory.
Internal Cache	Enables/disables CPU internal cache memory.
Internal Cache WB or WT	This item sets internal cache to write through or write back.
Password Checking	This option enables the password check option every time the system boots or the end user runs Setup. If Always is chosen, a user password prompt appears every time the computer is turned on. If Setup is chosen, the password prompt appears when Setup is run.
Shadow setting	Enables/disables the Shadow function.
Primary 32 Bit Transfers Mode	This item enables/disables the Primary IDE 32 bit transfer function.
Primary Block Mode	This item enables/disables the Primary IDE Block mode function.
Primary IDE LBA Mode	This item enables/disables Primary IDE LBA mode function.
Secondary IDE Present	This item selects the number of IDE on secondary controller to 1, 2, or None.
Secondary 32 Bit Transfers Mode	This item enables/disables the Secondary IDE 32 bit transfer function.
Secondary Block Mode	This item enables/disables the Secondary IDE Block mode function.
Secondary IDE LBA Mode	This item enables/disables Secondary IDE LBA mode function.

When you finish with the **Advanced Setup,** press <ESC> or click the exit box to return to the Setup Window.

Chipset Setup

Select the **Chipset** icon and the Chipset Setup screen appears, displaying the items below.

Select the items you wish to change, and modify them using the keyboard or mouse.

Base Memory Size	This option sets the size of the base system memory. The settings are 512KB or 640 KB.
Auto Config Function	If the Auto Config is enabled, WinBIOS loads Auto Table to configure the system.
Local Ready Delay Setting	Set Local Ready signal No Delay, 1T, 2T, or 3T.
Signal LDEV# Sample Time	Set LDEV# to be sampled at T2, T3, T4, T5.
CPU ADS# Delay 1T or Not	Set ADS# delay or Not
ROM Cacheable	Select a range of cacheable ROM addresses.
LOWA20# Select	Select LOWA20# signal generated by Chipset or KB controller.

When you finish with the **Chipset Setup**, press <ESC> or click the exit box to return to the Setup Window.

Power Management Setup

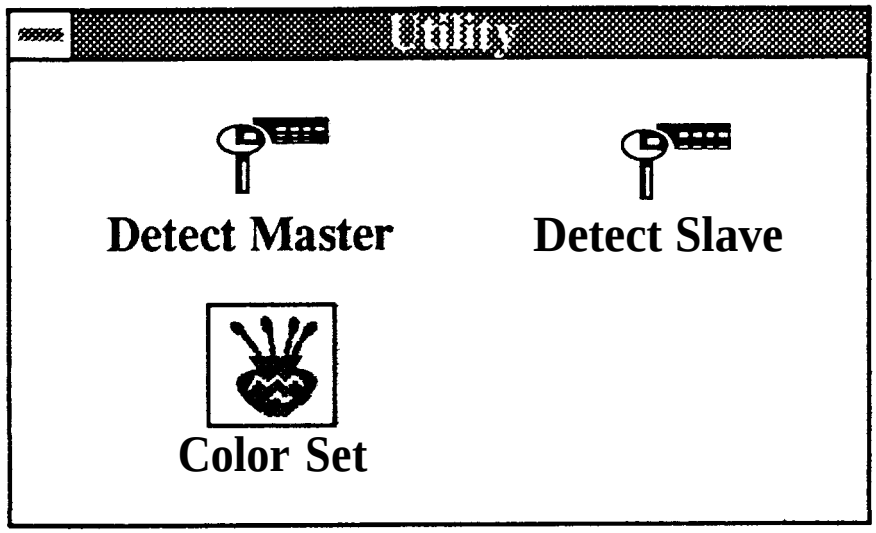
Select the Power **Management** icon and the Power Management screen appears, displaying the items below. Select items you wish to change, and modify them with the keyboard or mouse.

IDE Standby Power Down Mode	This option specifies the length of time of hard disk drive inactivity that must expire before the IDE hard disk drive is placed in IDE Standby Power Mode.
Power Manager Mode Select	This item enables / disables the Power Manager function.
Standby Timer Value	This option specifies the length of time of the Full On mode to Standby mode.
Inactive Timer Value	This option specifies the length of time of Standby mode to Inactive mode.
Monitor * Activity**	This option enables WinBIOS to monitor activity of different events.
Suspend/Resume Switch	This option enables or disables the external Suspend/Resume switch. Use this switch to enter Inactive mode directly.
Clock Out **on Standby Mode**	This option sets the CPU clock to Standby mode
VGA Power Control	**When** this option is Normal, DPMS, or SMART, the display is clear in Inactive Mode.
IDE Power Control	When this option is enabled, the hard disk will "Spin down" in inactive mode.

When you finish with the **Power Management Setup,** press <ESC> or click the exit box to return to the Setup Window.

Utility Window

The Utility window has three icons that allow you to set following options.



Detect Master: and Detect Slave:

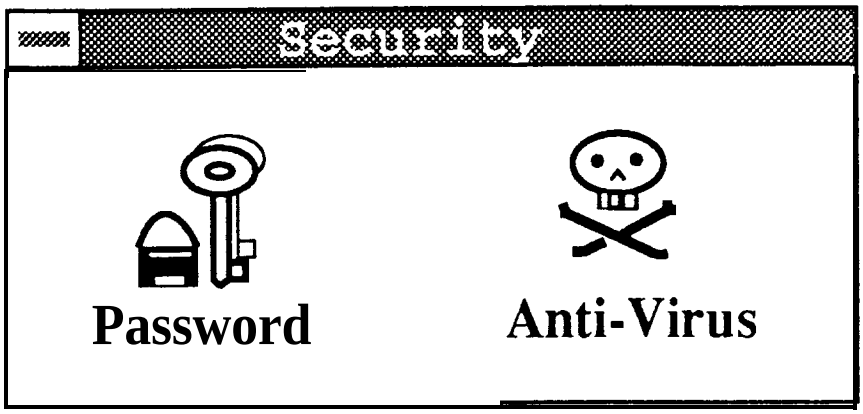
If Drive C: or Drive D: is an IDE drive, the BIOS automatically detects the hard disk drive parameters, which appear in this screen, allowing you to configure the drive.

Color Set

This utility lets you set the WinBIOS Setup screen colors.

Security Window

The Security window has two icons with security functions.



Password

1. Select this icon and the Password keyboard appears.
2. Enter a 1~6 character password using either a mouse or pen stylus, or typing your keyboard. The password does not appear on the screen when typed.

   If you do not type any characters, and just press the "Enter" key twice, the password is disabled.
3. The BIOS prompts you to re-enter the password to confirm.
4. Make sure "Password Checking" in the Advanced Setup is configured for "Always" or "Setup." See the section above on "Advanced Setup."

Anti-Virus

Double-click this icon and a list box appears, allowing you to enable or disable the Virus Protection feature. When Enabled the BIOS issues a warning when any program or virus sends a Disk Format command or tries to write to the boot sector of a hard disk drive.

Formatting the Hard Disk Drive

You should not enable anti-virus protection when formatting a hard disk drive.

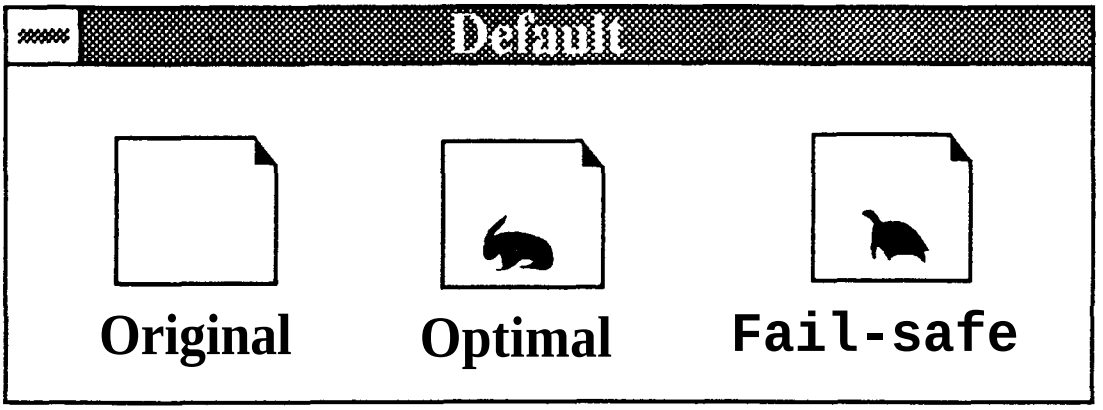
The DOS hard disk Format utility does not use INT 13h function AH=05h to format the hard disk. It only verifies the hard disk using the INT 13h Verify function (AH=04h). The virus warning message is not displayed during DOS hard disk drive formatting.

If the anti-virus feature is enabled, a virus warning message is displayed when you attempt to format the hard disk drive.

If you select Continue, formatting proceeds as normal. If you do not want to continue formatting, you may have to press N several times (depending on how many retries are performed by the upper-level software% DOS, for example, does at least five retries before the Format utility is actually aborted.

Default Window

The Default window has three BIOS default settings.



Original

Select this icon to return to the system configuration values present in the WinBIOS Setup when you first began this WinBIOS Setup session.

Optimal

Select this icon for settings that provide the best performance characteristics. If CMOS RAM is corrupted, the Optimal settings are loaded automatically.

Fail-Safe

Select this icon for the most stable settings but do not provide optimal system performance. Use this option as a diagnostic aid if the system is behaving erratically.

Exiting WinBIOS Setup

To exit the WinBIOS Setup program:

1. Press <ESC> with the **keyboard** until the Exit Setup window appears, or use the mouse to click the exit box in the screen's upper left comer.

2. When the Exit Setup window appears, choose one of the following:

   "Save Changes and Exit" saves your changes and reboots the system.

   "Do not save changes and exit" ignores your changes and exits the program

   "Continue" continues with the CMOS Setup.