

## 4 Firmware

4

This chapter is about the notebook's built-in software:

- the *POST* (Power-On Self Test) and
- the *Setup* utility.

If your computer has never been set up, or you are making important changes to the system (i.e. power management features), then you should review this chapter first and note the original settings found in *Setup*. Even if you are a beginner, keep a record of the settings you find and any changes you make. This information could be useful if your system ever needs servicing.

There is one general rule: *Don't make any changes unless you are sure of what you are doing.* Many of the settings are required by the system, and changing them could cause it to become unstable or worse. If you have any doubts, consult your system dealer.

## THE POWER-ON SELF TEST (POST)

Each time you turn on the computer, several things happen:

- BIOS information flashes on the screen.
- the system takes a few seconds to conduct a *POST*, including a quick test of the on-board RAM.

As the POST proceeds, the computer will tell you if there is anything wrong. If there is a problem which prevents the system from booting, it will tell you to run *Setup*. If there are no problems, the system will present a summary, and announce that it is starting the operating system. Once that message appears, you can no longer get into *Setup*.

### STARTUP SCREEN: THE POST

FIG. 4 – 1

1. BIOS information.
  2. CPU type
  3. memory status
  4. HDD identification notice
  5. error notice (example)
  6. Enter *Setup* cue
  7. Enter *Setup* cue
- appears if there is an error
- appears only during POST (#6 is *not* present)

```

Phoenix BIOS 4.0 Release 6.0
Copyright 1985-1998 Phoenix Technologies Ltd.
All Rights Reserved.
Notebook Computer Model 665 Version 1.00.1.01
} 1

(05.02-04-665)
CPU = Pentium II 266 MHz
640K System RAM Passed
31M Extended RAM Passed
0512K Cache SRAM Passed
System BIOS shadowed
Video BIOS shadowed
UMB upper limit segment address: FB82
Mouse initialized
Fixed Disk 0: IBM-DKLA-23240-(PM)
ATAPI CD-ROM: TOSHIBA CD-ROM XM-1802B-(SM)
ERROR
Com A configuration changed
Press <F1> to resume, <F2> to Setup
Press <F2> to enter SETUP

```

2

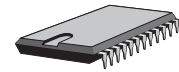
3

4

5

6

7



## ***FAILING THE POST***

Errors can be detected during the *POST*. There are two categories, “fatal” and “non-fatal”.

**Fatal Errors** These stop the boot process and usually indicate there is something seriously wrong with your system. Take the computer to your dealer or authorized service center as soon as possible.

**Non-Fatal Errors** This kind of error still allows you to boot. You will get a message identifying the problem (make a note of this message!) followed by the cue:

**Press <F1> to resume, <F2> to enter Setup**

Press **F1** to see if the boot process can continue. It may work, without the correct configuration.

Press **F2** to run the *Setup* program and try to correct the problem. If you still get an error message after you change the setting, or if the “cure” seems even worse, call for help.

## THE SETUP PROGRAM

The Phoenix *Setup* program tells the system how to configure itself and manage basic features and subsystems (e.g. port configuration and power management).

### ENTERING SETUP

To enter *Setup*, turn on the computer and press **F2** during the *POST*. The prompt seen in Fig. 4 – 1 is usually present for a few seconds after you turn on the system. If you get a “Keyboard Error” (usually because you pressed **F2** too quickly) just press **F2** again.

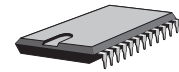
If the computer is already on, reboot using the **Ctrl + Alt + Delete** combination and then hold down **F2**. *Setup*’s main menu will appear.

### SETUP SCREENS

The *Setup* interface looks like a “windows” screen:

Along the top of the screen is a menu bar with five (5) menu headings. When you select a heading, a new screen appears. Scroll through the features listed on each screen to make changes to *Setup*.

Instructions on how to navigate each screen are in the box along the bottom of the screen. If these tools are confusing, press **F1** to call up a *General Help* screen. Then use the arrow keys to scroll up or down this page.



Phoenix BIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
System Time:	[13 43:12]	Item Specific Help  <Tab>, <Shift-Tab>, or <Enter> selects field.			
System Date:	[09/12/1998]				
Legacy Diskette A:	[1.44/1.25MB 3 1/2"]				
▶ Primary Master	[4327MB]				
Primary Slave	None				
Secondary Master	TOSHIBA CD-ROM XM-1802B				
Secondary Slave	[none]				
▶ I/O Device Configuration					
Memory Cache					
Memory Cache:	512 KB				
System Memory:	640 KB				
Extended Memory	31744 KB				
Language:	[English (US)]				
F1 Help    ↑↓ Select Item    -/+ Change Values    F9 Setup Defaults					
ESC Exit    ↔ Select Menu    Enter Select ▶ Sub-Menu    F10 Save and Exit					

#### SETUP MAIN MENU

FIG. 4 – 2

The *Setup* menus shown in this section are for reference only. Your computer's menus will indicate the configuration appropriate for your model and options.

The “Item Specific Help” on the right side of each screen explains the highlighted item and has useful messages about its options.

If you see an arrow (“▶”) next to an item, press **Enter** to go to a sub-menu on that subject. The sub-menu screen which appears has a similar layout but the **Enter** key may execute a command.

## *MORE ON SETUP*

Following is additional advice on portions of the *Setup*, not covered in the Item Specific Help.

### *TIME AND DATE* (MAIN MENU)

The hour setting uses the 24-hour system (i.e., 00 = midnight; 13 = 1 pm). If you can change the date and time settings in your operating system, you will also change these settings. Some applications may also alter data files to reflect these changes.

### *LEGACY DISKETTE A* (MAIN MENU)

The floppy drive used in this system should be set to “1.44/1.25MB”. The BIOS supports the 3-mode feature (used mainly in Japan) to automatically detect and read the diskettes without any special configuration.

### *PRIMARY MASTER* (MAIN MENU)

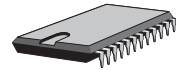
Pressing **Enter** opens the sub-menu to configure the main IDE HDD which fits into the notebook's HDD bay. Refer to *Chapter 3: Modules* for more on these modules.

## TYPE

(MAIN MENU > PRIMARY MASTER)

This setting has several options for choosing which method *Setup* will use to detect the hard disk:

- |                        |  |
|------------------------|--|
| <b>Auto</b>            | ( <i>Default setting</i> ) This is the easiest solution. It allows <i>Setup</i> to determine the hard disk's type and other information when you press <b>Enter</b> . It automatically loads the information into the <i>BIOS</i> .  |
| <b>None</b>            | No hard disk is installed. With this option, the system will require a floppy disk to supply the bootup information.   |
| <b>CD-ROM</b>          | The system expects a CD-ROM or DVD-ROM.  |
| <b>IDE Removable</b>   | The system expects a removable IDE disk drive.   |
| <b>ATAPI Removable</b> | The system expects a removable disk drive.   |
| <b>User</b>            | This allows you to fill in the Cylinders, Heads and Sectors/Track fields. The size (MB) field is automatically calculated based on this information. The information for all these fields should be printed on the hard disk itself, or in its accompanying documentation. |



### Switching Hard Disks

Every time you install a different hard disk in the notebook, it should be (re)configured, unless **Auto** is selected.



### Auto Limitations

The **Auto** feature may provide a different set of parameters for the same hard disk at different times. However, it should be reconfigured with the same parameters you got the first time. If you use a different set of parameters, it may be impossible for you to read any data on the hard disk.

**Make a record the original configuration parameters for your hard disk for future use.**



## Warning

**If you enable LBA mode while setting the HDD parameters manually, be sure to enable it each time you use the same hard disk. If you don't you may encounter read/write errors.**



## When to Use LBA

The “standard” or ATA mode of “seeing” HDDs is inadequate for drives larger than 528MB. LBA mode corrects this and allows for hard disks up to 128GB. ATA and LBA modes overlap. So if LBA mode is not activated when a HDD is first formatted, sections may not be readable under the LBA system. (This does not matter with 528 MB or smaller HDDs).

If you're using a HDD not formatted using LBA mode, do not use the “Auto” setting.

## MULTI-SECTOR TRANSFERS

(MAIN MENU >PRIMARY MASTER >TYPE >CD-ROM, IDE REMOVABLE, ATAPI REMOVABLE &USER)

This feature determines the number of sectors in each block that can be transferred together. The “Auto” Type setting selects the optimum number.

## LBA MODE CONTROL

(MAIN MENU >PRIMARY MASTER >TYPE >CD-ROM, IDE REMOVABLE, ATAPI REMOVABLE &USER)

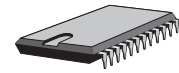
If your hard disk is larger than 528MB (unformatted capacity), enable this feature. The “Auto” Type setting enables this setting if the disk is large enough.

## 32 Bit I/O

(MAIN MENU >PRIMARY MASTER >TYPE >CD-ROM, IDE REMOVABLE, ATAPI REMOVABLE &USER)

This setting allows you to enable or disable 32 bit IDE data transfers. The default setting is set to “Disabled”.





## I/O DEVICE CONFIGURATION (MAIN MENU)

Press **Enter** to open the sub-menu to configure port connections.

PhoenixBIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
I/O Device Configuration			Item Specific Help		
Serial port A:	[Auto]	Configure serial port A using options:			
Serial port B:	[Auto]				
Mode:	[Normal]	[Disabled]			
Parallel port:	[Auto]	No configuration			
Mode:	[Bi-directional]				
Floppy disk controller:	[Enabled]	[Enable]			
Local Bus IDE adapter:	[Both]	User configuration			
TV port:	[NTSC]	[Auto]			
		BIOS or OS chooses configuration			
F1 Help    ↑↓ Select Item    ~/+ Change Values    F9 Setup Defaults					
ESC Exit    ←→ Select Menu    Enter Select    ▶ Sub-Menu    F10 Save and Exit					

SETUP MAIN MENU,  
I/O DEVICE CONFIGURATION  
SUB-MENU  
FIG. 4 – 3

### SERIAL PORT A

(MAIN MENU > I/O DEVICE CONFIGURATION)

The “Auto” type setting allows *Setup* or *OS* to configure this port. If you don’t plan to use this port, you can set this line to “Disabled” to conserve power.

### SERIAL PORT B

(MAIN MENU > I/O DEVICE CONFIGURATION)

The “Auto” type setting allows *Setup* or *OS* to configure this port. If you don’t plan to use this port, you can set this line to “Disabled” to conserve power.

### MODE (NORMAL)

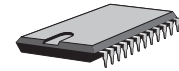
(MAIN MENU > I/O DEVICE CONFIGURATION > SERIAL PORT B)

There are several modes available if you set the serial port B to “Enabled”. Make sure the mode you choose is supported by the device with which you want to communicate. “Normal” mode assigns it to be COM2 port. Fast IR (FIR), as the name implies, is the most powerful option followed by IrDA(SIR) and then ASK-IR.



### Serial Resources

If you are not planning to use these serial ports, you can disable them (by choosing “Disabled”). This way you can assign resources to another device, e.g. a PC Card device.



### Parallel Modes

Although most devices on the market use Standard mode (i.e. Output only mode); the default “Bi-directional” setting also supports Standard mode.

## PARALLEL PORT

(MAIN MENU > I/O DEVICE CONFIGURATION)

The “Auto” type setting allows *Setup* or OS to configure this port. If you don’t plan to use this port, you can set this line to “Disabled” to conserve power.

## MODE (LPT)

(MAIN MENU > I/O DEVICE CONFIGURATION > PARALLEL PORT)

There are several modes available once you have enabled the parallel port.

- Output only (Standard)

- Bi-directional

- EPP (version 1.9)

- ECP (Extended)

You should check your parallel device’s documentation to see which one it can use.

## ADVANCED MENU

### PLUG & PLAY O/S

(ADVANCED MENU)

As this manual went to press, only *MS Windows 9x* family supported Plug & Play function.



### Plug & Play OSs

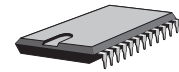
Most operating systems do not support Plug & Play. This includes Microsoft's DOS, Windows 3.1x, Windows NT 4.0 and IBM's OS/2 Warp. However, future versions of these systems may include Plug & Play. So you should check your O/S documentation to be sure.

If the operating system doesn't support Plug & Play, this switch must be set to "No" or your audio system and other features may not work.

## ADVANCED MENU

FIG. 4 – 4

PhoenixBIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
<b>Plug &amp; Play O/S:</b> [Yes] Reset Configuration Data: [No] Large Disk Access Mode: [DOS]		Item Specific Help  Select 'Yes' if you are using a Plug & Play capable operating system.  Select 'No' if you need the BIOS to configure non-boot devices.			
F1 Help    ↑↓ Select Item    ~/+ Change Values    F9 Setup Defaults ESC Exit    ⇐ Select Menu    Enter Select    ▶ Sub-Menu    F10 Save and Exit					



## SECURITY MENU

### SET SUPERVISOR PASSWORD & SET USER PASSWORD (SECURITY MENU)

Passwords can be up to seven (7) characters and/or numbers (but not symbols). When creating a password it must be entered twice, the second time for confirmation.

If you forget or lose a password, consult your dealer or service center.

PhoenixBIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
<div>Set Supervisor Password [Enter]</div> <div>Set User Password [Enter]</div> <div>Password on boot: [Disabled]</div> <div>Fixed disk boot sector: [Normal]</div>			<div>Item Specific Help</div> <div>Supervisor Password controls access to the setup utility</div>		
<div>F1 Help    ↑↓ Select Item    -/+ Change Values    F9 Setup Defaults</div> <div>ESC Exit    ⇌ Select Menu    Enter Select    F10 Save and Exit</div>					

SECURITY MENU  
FIG. 4 – 5

## *SET SUPERVISOR PASSWORD* (SECURITY MENU)

Supervisors have unrestricted access to the system and can assign a “User” password.

Only a supervisor can change a “Supervisor” password. If you leave the field empty, both the Supervisor and User passwords are disabled and erased.

## *SET USER PASSWORD* (SECURITY MENU)

To use this feature, a Supervisor password must be set first. Only the supervisor (using the Supervisor password) can set and change the User password. To disable the User password, enter the existing password first and leave the new password fields blank.

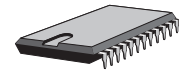
If you enter the system with the User password, you are denied access to:

- specific disk & drive information
- I/O device configuration (peripheral & port)
- the “Advanced” menu
- the “Security” menu (except for user password)

## *PASSWORD ON BOOT* (SECURITY MENU)

When this is “Enabled”, the system will ask for a password each time you turn on the system or reboot. Type either password and then press **Enter**.

The system allows three attempts. If the wrong password is entered again, the system locks and must be restarted.



### *FIXED DISK BOOT SECTOR* (SECURITY MENU)

If this feature is active, you will get a warning message

```
Hard drive not installed
If operating system not found,
re-install hard drive.
Hit any key to exit.
```

whenever Boot Sector 0 is different from the one recorded. This includes re-partitioning or reformatting the hard disk. You must turn off the “Write Protect” feature to preform those functions or install a different hard disk.

If boot sector protection is not enabled (i.e. set to “Normal”), make sure that the new hard disk is not infected with viruses.

## POWER MENU

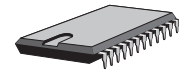
In this menu, you can choose among the preset power saving schemes or customize your desired settings.

Before you adjust the settings in this menu, we suggest a review of the power management system in *Chapter 5: Power*.

**Note:** The **Fn+F10** combination activates *Suspend (to RAM)* or *Save to Disk*.

PhoenixBIOS Setup Utility			
Main	Advanced	Security	Power
Power Savings:		[Disabled]	Item Specific Help
Idle Timeout:		[Off]	Select Power Management Mode. Choosing modes changes system power management settings. Maximum Power Savings conserves the greatest amount of system power while Maximum Performance conserves power but allows greatest system performance. To alter these settings, choose Customize. To turn off power management, choose Disable.
Standby Timeout:		[Off]	
Auto Suspend Timeout:		[Off]	
Suspend Mode:		[Suspend]	
Hard Disk Timeout:		[Disabled]	
Video Timeout:		[Disabled]	
Battery Low:		[Suspend]	
Resume On Modem Ring:		[Off]	
Resume On Time:		[off]	
Resume time:		[00:00:00]	
F1 Help	↑↓ Select Item	-/+ Change Values	F9 Setup Defaults
ESC Exit	↔ Select Menu	Enter Select ▶ Sub-Menu	F10 Save and Exit





### *POWER SAVING* (POWER MENU)

This is the “master switch” for the power savings system. If you want to turn the power management off, set it to “Disabled”. However, you still can make some changes to the scheme even if it is disabled.

### *SUSPEND MODE* (POWER MENU)

Use this menu to control the **Suspend** power management system. If you want to use the “Save to Disk” method, you must have set up a Save to Disk file or partition as described in *Chapter 5: Power*.

### *BATTERY LOW* (POWER MENU)

Use this menu to select if the system will give you a “beep” sound or goes into Suspend mode when the battery power becomes low.

### *RESUME ON MODEM RING, RESUME ONTIME & RESUME TIME*(POWER MENU)

Use these menu to control how the system will be reactivated from *Suspend (to RAM)* mode. This does not apply to *Save to Disk* mode.

If you want to resume from a ring-in (i.e. a modem signal), make sure the “Resume On Modem Ring” is set to “On”. If you want to specify a specific period of time for the system to wake up, make sure to turn on the “Resume On Time” switch and specify a time period to your preference in the “Resume Time” menu.

# Firmware

*NOTES:*

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