Network Computer
User's Guide

June, 1998

5728889801   **TDA1022/TTC1022**

Copyright Notice

Trademark Acknowledgement

Federal Communications Commission (FCC) Statement
FCC Notice - Part 15

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- ♦ Reorient or relocate the receiving antenna.
- ♦ Increase the separation between the equipment and the receiver.
- ♦ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ♦ Consult the dealer or an experienced radio/TV technician for help.

A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.

Use only shielded cables to connect I/O devices to this equipment.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

THIS DEVICE COMPLIES WITH PART 15 OF FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE. AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED. INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

Safety And Maintenance Precautions

1. Read all of these instructions.
2. Save these instructions for future use.
3. Follow all warnings and instructions marked on the products.
4. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
5. Do not use this product near water.
6. Do not place this product on an unstable surface. If the product should fall, it may become seriously damaged and, more importantly, may cause injuries to the user.
7. Slots and openings in the cabinet and the back or bottom are provided for ventilation to ensure reliable operation of the product and to protect it from overheating. These openings should never be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surfaces. This product should never be placed near or over any object which produces heat. This product should not be placed in a built-in installation unless proper ventilation is provided.
8. This product should be operated from the type of power source indicated on the label. If you are not sure of the type of power available, consult your dealer or local power company.
9. Do not allow anything to rest on the power cord. Do not put this product where the cord could be stepped on.
10. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or cause short circuits, risking the possibility of a fire or electric shock. Never spill liquid of any kind onto this product.
11. Please turn off power of all equipment when it is not used for a long time.
12. For pluggable equipment, the socket-outlet should be installed near the equipment and should be easily accessible.
13. **CAUTION:** (English)

    Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

ATTENTION: (French)

II y a danger d'explosion s'il y a remplacement incorrect de la batterie.Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

VORSICHT! (German)

Explosionsgefahr bei unsachgemäßen Austausch der Batterie Ersetz nur durch denselben oder einem vom Hersteller empfehlenem ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

14. Do not attempt to service this product yourself. If you have the suspicion that the product is not in proper working order, unplug the unit and seek assistance from qualified service personnel, especially under the following conditions:
    a. When the power cord or plug is damaged or frayed.
    b. If liquid has been spilled onto the product, or if the product has been exposed to rain or water.
    c. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in further damage or complications.
    d. If the product has been dropped or the cabinet has been damaged.
    e. If the product exhibits a distinct deterioration in performance, indicating a need for service.

Canadian Department of Communication Radio Frequency Interference Statement

(English)

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

(French)

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le materiel brouilleur du Canada.

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Chapter 1: Getting Started

Congratulations on your purchase of this new computer system! Your computer is designed to give you high integration, high performance/cost ratio and best multimedia support. Its slim size, LPX form factor and optional AV, S-video outputs offer you space saving features combined with real ease of use, – it's easy to setup, easy to use, and easy to expand - the right choice for your Home PC system. This manual will guide you through the setup procedure, tell you how to expand your computer, and provide many tips on using your new system.

Choosing A Location

Before you start, you need to find a place for your computer. Like any other delicate electronic device, your PC should be placed in a suitable location.

- Your PC should be placed on a flat, sturdy surface where you plan to work. Dropping it may cause serious damages.

- There must be enough ventilation for proper heat dissipation. Make sure there is enough spaces (at least two to three inches) on all sides except the bottom.

⌨ The main unit, keyboard, mouse, and all other peripheral devices should be located in a relatively dry and cool place. These should be kept away from direct sunlight or any other sources of extreme heat. Exposing to high temperature may cause internal overheating, and may blemish the exterior of your computer system.

⌨ Do not place your PC near water. Accidentally pouring liquid into your system may damage it.

⌨ Keep your PC away from devices that generate radio frequency interference such as stereo equipment. This should also be kept at least three feet from sources of strong magnetic fields since these may destroy information stored on your diskette and hard disk.

Unpacking Your Computer System

After finding a suitable location, you can remove your PC from the box. Please check to see if there is anything missing. Main items in your package should include:

1	Desktop Mini-tower	Main unit either in desktop or mini-tower form factor (integrates a 3.5" FDD, a 5.25" CD-ROM drive, and a 3.5" IDE type HDD)

2		Win95 PS/2 enhanced keyboard
3		PS/2 mouse
4		AC Power Cord
5		This User's Guide
6		Microsoft Windows 95 software package (includes a 3.5" boot disk, a CD-ROM disc, and a user's guide)
7		Device Drivers and Utility Disks
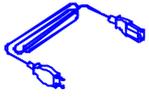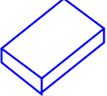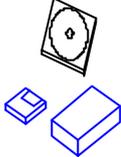
There may be some optional devices or items included in the package. These shall depend on the model and the configuration that you have ordered. If there is anything missing, contact your dealer immediately.

Keep the original carton and packing materials. If you need to move your PC to another location in the future, the original packaging materials best protect your PC.

Functions of Controls

Before going on, familiarize yourself first with the different parts and locations of your system.

Desktop Model

Front Panel

CD-ROM Drive
Reads data from CD-ROM discs.

Earphone Jack
Connects to an earphone or headphone.

Power Button
Press this button to turn on your computer. Be sure that the main power switch at the back of your system is already switched on.

3.5″ Floppy Disk Drive
Stores and retrieves data from a floppy

Mic In Jack
Connects to an external microphone.

IR Receiver
This function is available only if optional IR daughterboard is installed. This receiver allows infrared communication between your system and another IR device.

Power On LED
Lights up when system power is on.

HDD Access LED
Lights up when system is storing or retrieving data from the hard disk.

Suspend Task Switch
This switch functions only if Power Savings feature on your system is enabled. Press this switch to enter suspend state. Suspend state turns off some components of your system and stays in low power mode. To continue using your system, press any key on the keyboard.

Rear Panel

PS/2 Keyboard Jack
Connects to the PS/2 keyboard that
comes with your system.

Main Power Switch
This has to be switched on before
you are able to turn on the power of
your system.

PS/2 Mouse Port

Connects to the PS/2 mouse
that comes with your system.

Serial Port
Connects to an
external modem or
other serial devices.

AC Power In
The female end (with
holes) of the power cord
is connected to this
socket.

Expansion Slots
Connectors from add-on
cards are accessible
through these slots.

Game Port
Connects to a
joystick or MIDI
device.

S-video Out Jack
This jack is available only if the
optional TV daughterboard is
installed. You can connect your
system to an S-Video TV
through this.

Line-out Jack
Connects to external
speakers or the audio
input of audio peripheral
devices such as
CD/cassette player.

Parallel Port
Connects to a printer or
other parallel devices.

USB Ports
These two ports allow you to
connect USB (Universal
Serial Bus) devices.

Composite
Video Out Jack
This jack is available only if
optional TV daughterboard
is installed. You can
connect TV sets with
composite output through
this jack.

VGA Port
Connects to an SVGA/VGA monitor.
If you are connecting to a TV tuner,
this port is connected to the TV
tuner through the computer
extension cable provided with the
TV tuner.

Line-in Jack
Accepts audio
signals from external
sources through this
jack.

Mini-tower Model

Front Panel

Power On LED
Lights up when system power is on.

Power Button
Press this button to turn on your computer.

HDD Access LED
Lights up when system is storing or retrieving data from the hard disk.

3.5" Floppy Disk Drive
Stores and retrieves data from a floppy disk.

CD-ROM Drive
Reads data from CD-ROM discs.

Rear Panel

Expansion Slots
Connectors from add-on cards are accessible through these slots.

Serial Port
Connects to an external modem or other serial devices.

USB Port
This port allows you to connect a USB (Universal Serial Bus) device.

Parallel Port
Connects to a printer or other parallel devices.

Mic In Jack
Connects to an external microphone.

Game Port
Connects to a joystick or MIDI device.

Line-in Jack
Accepts audio signals from external sources through this jack.

Line-out Jack
Connects to external speakers or the audio input of audio peripheral devices such as CD/cassette player.

115V/220V AC Power Switch
Sets the correct AC power voltage.

PS/2 Mouse Port
Connects to the PS/2 mouse that comes with your system.

PS/2 Keyboard Jack
Connects to the PS/2 keyboard that comes with your system.

AC Power In
The female end (with holes) of the power cord is connected to this socket.

VGA Port
Connects to an SVGA//VGA monitor.

Making the Connections

You are now ready to connect the devices to get the system working. You can refer to the User's Guide for the locations of the connectors mentioned herein. For installation of devices that are not covered in this section, please refer to their respective manuals.

💣 **Warning:**   Make sure that your computer is turned **OFF** before connecting any devices. Connecting devices with the power on may result in severe damages.

For installation instructions on devices that are not covered in this manual, please refer to their respective manuals.

Keyboard

The keyboard is an input device. You use this to enter your commands or data to the computer. Connect the keyboard to your system by inserting the connector of its cable to the PS/2 keyboard jack found at the rear of your system. The connector is designed to fit into the keyboard jack in only one way. Do not forcibly insert the connector. Be sure to align the pins into the holes accordingly before inserting.

Mouse

The mouse is another input device. This is also known as a pointing device. You use this to point to the required items, confirm or cancel your commands, or select items from a given list. Connect the mouse to your system by inserting the connector of its cable to the PS/2 mouse port at the rear of your system. The connector is designed to fit into the PS/2 mouse port in only one way. Do not forcibly insert the connector. Be sure to align the pins into the holes accordingly before inserting.

SVGA/VGA Monitor

The monitor is an output device. This is also known as the screen display. You need this to see the results of the computer operations and other information required from the system. You will need a video cable to connect a monitor to your system. This is usually supplied with the monitor.

There are monitors that come with video cable attached to the monitor. In such case, just align the connector from the video cable to the VGA port of your system. Locate the VGA port at the back of your system. If you are using an add-on VGA card instead of the built-in VGA feature, find this port at the graphics card inserted on your expansion slot. You will recognize the port easily as only this type of connector can be fit into it.

Other monitors bundle a separate video cable. After inserting a connector to the VGA port, connect the other end of the video cable to the monitor. Refer to the user's guide of the monitor for more information. Check also if you need to perform driver installation for this particular monitor.

If you are using a TV tuner, the video cable is connected between the TV tuner and monitor. The tuner is connected to the system via a special cable provided with the tuner.

Printer

The printer is another output device. You use this to provide hardcopies of the documentation required. This is also called an LPT device, or, a parallel printer. Parallel refers to the type of communication method used to transmit the signals between your system and the printer. This type of transmission is faster, but is limited by the distance of the communicating devices.

To connect a parallel printer to your system, you shall need a printer cable. This type of cable is supplied with your printer. Connect an end of this cable to the parallel port of your system. This port is located at the rear panel.

Check the printer's manual for any driver installation required to maximize its performance. Then, make sure that you have designated your print destination properly in your applications program before issuing a print command.

AC Power

Now, get the AC power cord and insert the female end (with holes) into the AC Power In at the rear of your system. The other end of the power cord is plugged into an AC wall outlet. Next, check if the power cords of all other devices (monitor, printer, ...) are all plugged to an AC wall outlet.

Warning: Check if your system is switched to the right **AC voltage**. Power supplies that do not have automatic voltage switching feature have to be set to the AC voltage of your power outlet. You can check the system simply by looking at the rear panel. Usually, non-automatic switching power supply has a switch near the AC Power In socket of your system. If these do not match, set the switch to the correct voltage.

We strongly suggest that you use a multiple-outlet surge protector (sometimes called a "power strip") so as to prevent damage to your system and its peripherals caused by electrical surges in the power line. Connect the power of all other devices or peripherals to this, too. Be sure to have the surge protector plugged to a wall outlet all to itself.

It is also greatly recommended that your computer and its peripherals be plugged into a grounded outlet. Do not use any device to convert the three-prong (grounded) plug of your power cord for use with a two-prong (non-grounded) outlet.

Turning the System On/Off

By this time, everything is already connected and you are ready to power on your PC. For the desktop model, there is a main power switch located at the rear panel, open this switch first. Then, find the power button on the front panel and press this to turn your system on. For mini-tower model, press the power button located in the front panel to turn your system on. Your computer will boot and will automatically enter Windows 95 operating system. The Power On LED of your computer will be lit.

💣 **Warning:**   Check if your system is switched to the right **AC voltage**. Power supplies that do not have automatic voltage switching feature have to be set to the AC voltage of your power outlet. You can check the system simply by looking at the rear panel. Usually, non-automatic switching power supply has a switch near the AC Power In socket of your system. If these do not match, set the switch to the correct voltage.

Desktop model comes with a suspend button, or suspend task switch, aside from the power button. Pressing this button allows you to enter "suspend mode" when your computer will not be used for a short period of time. This means that your computer will be placed in an energy-saving state to reduce power consumption. This also means that some components of your system will be automatically turned off. Usually, you can "wake up" or get back to where you left off by pressing any key.

To turn off your system, perform Windows 95 shut down operations first:

1   Press ⊞ (Windows) key

2   Click "Sh<u>u</u>t Down..."

3   Confirm by clicking "Yes" button

4   Wait for the message "It's now safe to turn off your computer."

5   Press the power button.

6   For desktop model, press main power switch, if necessary.

You are now ready to power on your PC. Simply press the power switch. Your computer will then automatically enter into the Windows 95 environment.

If you are a first-time computer user, you may continue reading this chapter for more information and tips on basic computing.

If you need to enter Setup mode to change settings of your computer system, please refer to *Chapter 2: Setting Up* for detailed information.

If you need to install additional devices such as adapter cards; or, to replace some of the internal devices such as HDD, FDD or CD-ROM drive; or, to upgrade system memory, please refer to *Chapter 3: Installing Devices* for detailed information.

If you need to install device drivers in your system, please refer to *Chapter 4: Installing Device Drivers* for detailed information.

Using the Keyboard

Keyboard works like a typewriter. There are, however, a number of keys that are specific to a computer keyboard that you won't find on a typewriter. These are shown and listed below:
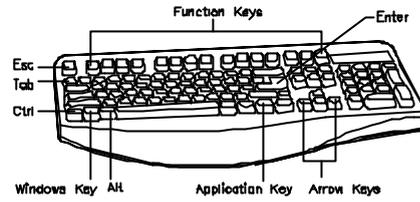
| ↵ Enter | Tells the PC you have finished entering a command and you want the PC to execute it.
Confirms your selection and tells the PC to go ahead. |

| Esc | This usually returns you to the previous screen. Also used to exit a program. |

| ↑ ↓ → ← | Moves the cursor in the direction of the arrow. |

| Tab | Moves the cursor to the next field or menu item. |

| ⊞ | Windows key → Displays the Microsoft Windows 95 Start menu. Pressing this has the same effect as clicking Start button at the bottom left of the screen. |

| ▤ | Application key → Opens a shortcut menu for the current program. Pressing this has the same results as pressing the right button of the mouse. |

| F1 ~ F12 | Function keys → These are shortcut keys for various operations, depending on the instructions set by the applications program. |
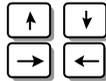
Special Key Combinations

Ctrl + ☐ — Holding down this key and another key at the same time gives a command to the current program. The commands are dependent on the preset values of that application program.

Alt + ☐ — Pressing this key with an ASCII code returns the ASCII character. Some application programs also assign preset commands to this key.

Ctrl + Alt + Del — Displays the close program. This allows you to select a specific program to be terminated.

Pressing this combination two times consecutively resets your computer without performing shut down operations. Doing so may result to data loss.

Using the Mouse

With most software programs, you use a mouse to select options and move around the screen.

You may want to place a mouse pad under your mouse to make it move more smoothly. You can buy mouse pads at computer and office supply stores.
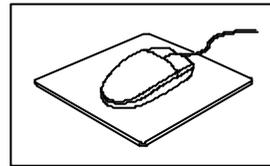
Pointing with the Mouse

Slide the mouse on a flat surface and watch the pointer on your screen move in the same direction. You point to an item by positioning the pointer over the item. If you run out of space on the mouse pad, lift the mouse to reposition it.

Clicking the Mouse

The mouse has either two or three buttons: a left and a right button, and sometimes a middle button. You will use the left button most often. Press the left button to highlight items, to select items, or to run your software programs. The right button has different uses depending on the software. In most software programs, pressing the right button will display a shortcut menu. The center button is rarely used.

To "click" on an item, point to the item on the screen, and press the left mouse button once. To "double-click" on an item, press the left button twice quickly.
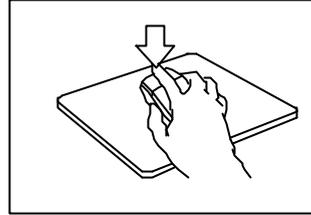
Using the Floppy Disk Drive

Your floppy disk drive uses 3.5" floppy disks. Maximum capacity of each disk is 1.44MB. Floppy disks are designated by your operating system as drive A. Often, it is represented by **A:**. Some systems can accommodate two floppy disk drives. In such case, the other floppy disk is designated as drive B, and represented by **B:**. Presence of floppy disk drives are automatically detected by your system and the operating system.

Inserting a Floppy Disk

Hold the disk with the label and the arrow facing up. Then, slide the disk into the drive until it clicks into place.
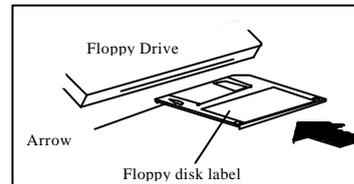
Removing a Floppy Disk

First, make sure the drive indicator light is *off*. Then, press the Eject button located at the bottom right side of the drive.

💣 **Warning:**   If you remove a disk while the indicator light is on, you may damage the information on the disk.

Using the Hard Disk

Hard disk is a storage medium that allows you to store programs and data. Aside from the Windows operating system, your PC is supplied with a number of system programs installed on the hard disk.

💣 **Warning:**   When the HDD LED is flashing, do not reset or turn off your system. Doing so may cause loss of, or damage to, hard disk data.

Like any other types of disks, it is essential that you make backup copies of your hard disk data periodically.

First hard disk drive in a system is designated as drive C, symbol is **C:**. Next hard disk drive is drive D, and so on.

Your system automatically detects your hard disk drives. If a hard disk is not detected, enter your BIOS Setup Utility to see if it is properly registered.

Using the CD-ROM Drive

Before you insert a CD, check for dust or fingerprints on the side of the CD without the title. Dust or smudges may cause the drive to read the CD incorrectly. You can use a clean, dry, non-abrasive cloth to wipe it clean.

CD-ROM is short for Compact Disc - Read Only Memory. As the name implies, it is "read-only", you cannot save information on CD-ROM discs.

Windows operating system can automatically detect most CD-ROM drives. If your drive is not detected, you need to install the device drivers that come with that drive. Refer to the drive's manual for the procedures.

CD-ROM drive is assigned a drive letter next to the last assigned hard disk drive of the system. For example, if your system has one hard disk, hard disk drive is C: and CD-ROM drive becomes D:.

Inserting a Disc

Turn on your PC. Press the Eject button usually found at the lower right side of the CD-ROM drive to open the CD drawer. Hold the CD by the edge with the title facing up and place it into the CD drawer. Press the Eject button again, or gently push the front of the CD drawer, to close it.
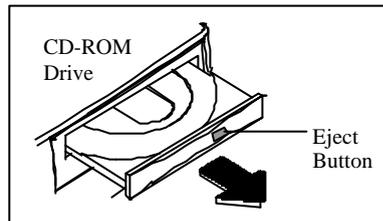
Removing a Disc

Press the Eject button to open the CD drawer. Then, lift the CD by its edge and place it in its protective sleeve or case. Press the Eject button again, or gently push the front of the CD drawer, to close it.

Handling CD-ROM Discs With Care

☆ Dust and smudges on the side of the CD without the title or label may cause the drive to read the CD incorrectly. Use a clean, dry, non-abrasive cloth to wipe it clean.

☆ Do not force the CD drawer open by hand.

☆ Do not place objects (other than CD-ROM disc) in the CD-ROM drawer.

☆ Do not touch the pickup lens of the CD-ROM drive module.

☆ To prevent accidents or collection of dusts, be sure to close the CD drawer when not in use.

☆ Do not scratch or write on discs. Also, do not put tape on discs.

☆ Keep the discs away from direct sunlight or sources of extreme heat.

☆ Keep the discs away from water or liquid.

Chapter 2: Setting Up

Your computer system is already configured to its maximum performance. If this is not the case, please read through this chapter carefully before attempting to change system settings.

Your system configuration data is stored in a special type of circuitry called CMOS RAM. These data, referred to as CMOS data, are sustained by an on-board battery that supplies power to the CMOS RAM even if the system is turned off. During boot, your system automatically performs a power-on self-test and compares CMOS data with your system's actual configuration. If there are discrepancies found, your system will request you to handle this by performing setup. (Actual system configuration should match CMOS data to ensure proper operations.)

Usually, you need to perform setup on your system due to the following circumstances:

- Adding or removing devices to or from your system, such as FDD, HDD, adapter cards, or memory
- Changing the type of video display
- Setting the built-in clock/calendar to the correct time and/or date
- Enabling or disabling special features such as power management functions, system passwords, etc.
- Setting or resetting configuration data if these were accidentally lost or if the on-board battery is changed

If you are not too sure on what changes you need to make, please contact your dealer for assistance.

Enter System Setup

There is only one way to enter the System Setup Utility in order to modify the settings in your CMOS data.   After the power on self test is successfully performed during bootup, the following message will appear on the screen for a very short time:

"**Press <F2> to enter SETUP**"

You have to press <**F2**> key fast enough before your system starts up your operating system. (You can press the <**F2**> key even before the message shows up.) If you are not able to enter the System Setup Utility, you have to reboot your computer to repeat the above procedure.

If the computer detects discrepancies between your configuration data and actual system configuration, it will prompt you with the an error message and request you to run setup:

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

You may press the F1 key to resume the system operation despite of the difference/s or press the F2 key to enter the System Setup Utility.

System Setup Utility is divided into five menus, namely: Main, Advanced, Power, Boot, and Exit. Each of these menus and corresponding sub-menus will be discussed in the succeeding sections.   The options available for each item in a menu or sub-menu will also be provided.

Upon entering the System Setup Utility, use the keys listed at the bottom of each screen and other available key operations to help make your selections. These are listed below:

Key	Function
Left and Right arrow keys	Selects a menu.
Up and Down arrow keys	Selects an item in current menu or sub-menu.
<Tab> or <Shift-Tab>	Selects field within an item.
<Home>	Moves cursor to top of screen.
<End>	Moves cursor to bottom of screen.
<F1> or <Alt-H>	Displays Help screen.
<F5> or <->	Selects next lower value within an item.
<F6>, <+> or <Space>	Selects next higher value within an item.
<F9>	Loads the default configuration for this menu or sub-menu.
<F10>	Saves the current values and exit setup utility.
<Enter>	Selects an option or enters a sub-menu.
<Esc> or <Alt-X>	Exits this menu or sub-menu.

Items on a menu marked with "➤" symbol indicates that it has its own sub-menu. Press <Enter> to enter its sub-menu.

There is an **"Item Specific Help"** on the right side of each screen. The contents of this provides description on the item you have selected.

Main Menu

The following appears on screen upon entering System Setup Utility:

```
                    PhoenixBIOS Setup Utility

  Main    Advanced     Security   Power     Boot    Exit

                                              Item Specific Help

   System Time:     [17:53:05]
   System Date:     [06/17/1998]
   Legacy Diskette A:[1.44/1.25 Mb 3½ "]      Selects floppy type.
   Legacy Diskette B:[Disabled]               Note that 1.25 MB,
 ➤ Primary Master    [560MB]                   3½ " references a
 ➤ Primary Slave     [None]                    1024 byte/sector
 ➤ Secondary Master  [CD-ROM]                  Japanese media
 ➤ Secondary Slave   [None]                    format.   To support
   Video Resolution  [High]                    the 1.25 MB, 3½ "
 ➤ Keyboard Features                           requires a 3½ " "3-
   System Memory:    640   KB                  MODE" Floppy Disk
   Extended Memory:12800   KB                  Drive.


 F1   Help ▲▼ Select Item   -/+  Change Values    F9   Setup Defaults
 ESC Exit ◄► Select Menu  Enter Select ➤Sub-Menu  F10 Save and Exit
```

Use the following chart to configure the system:

Item	Options	Description
System Time	HH:MM:SS	Enters current time to set system clock.
System Date	MM/DD/YYYY	Enters current date to set system clock.
Legacy Diskette A & Legacy Diskette B	Disabled 360 KB 5¼ 1.2 MB 5¼ 720 KB 3½ 1.44/1.25 MB 3½ 2.88 MB 3½	Selects type of first and second floppy drive.

Video Resolution	High Medium Low	Selects the video resolution of your display.
System Memory	N/A	Displays amount of conventional memory detected during boot.
Extended Memory	N/A	Displays amount of extended memory detected during boot.

Primary Master, Primary Slave, Secondary Master, Secondary Slave Sub-menus

"**Primary Master**", "**Primary Slave**", "**Secondary Master**", or "**Secondary Slave**" sub-menus allow you to configure the hard disks and/or CD-ROM drives installed in your system. For most hard disk drives, you may select "Auto" and press <Enter> to automatically detect the drive type you are using.

☞ **Note:** A few hard disk drives may not be detected automatically; in this case, read the User's Manual of the hard disk or contact your dealer for assistance.

Selecting "**Primary Master**" on the Main menu and pressing <Enter> will have the following sub-menu shown. Note that selecting the other sub-menus will also have the same screen, however, the title of the sub-menu is changed accordingly.

```
                    PhoenixBIOS Setup Utility
      Main

   ┌──────────────────────────────────┬──────────────────────────┐
   │    Primary Master [560MB]         │   Item Specific Help      │
   ├──────────────────────────────────┼──────────────────────────┤
   │                                   │  User=  you enter         │
   │  Type:                  [Auto]    │  Parameters of hard-disk  │
   │              CHS Format           │  drive installed at this  │
   │  Cylinders:           [ 1086]     │  connection.              │
   │  Heads:               [ 16]       │  Auto=  autotypes         │
   │  Sectors:             [63]        │  hard-disk drive          │
   │  Maximum Capacity:     560MB      │  installed here.          │
   │              LBA Format           │  1-39=  you select        │
   │  Total Sectors:      1094688      │  pre-determined type of   │
   │  Maximum Capacity:     560MB      │  hard-disk drive          │
   │                                   │  installed here.          │
   │  Multi-Sector Transfers: [16 Sectors] │  CD-ROM=  a CD-ROM    │
   │  LBA Mode Control:    [Enabled]   │  drive is installed here. │
   │  32 Bit I/O:          [Disabled]  │  ATAPI Removable=         │
   │  Transfer Mode:       [Fast PIO 3]│  removable disk drive     │
   │                                   │  drive is installed here. │
   └──────────────────────────────────┴──────────────────────────┘

   F1   Help  ▲▼ Select Item   -/+  Change Values      F9   Setup Defaults
   ESC Exit  ◄► Select Menu  Enter Select ►Sub-Menu   F10  Save and Exit
```

Use the following chart to configure the system. Press <Esc> to exit the menu.

Item	Options	Description
Type	User Auto None CD-ROM	"User" lets you fill in the parameters of the hard disk. "Auto" lets the system automatically detect and fill in the hard disk parameters. "CD-ROM" indicates a CD-ROM is installed.
CHS Format 　Cylinders 　Heads 　Sectors 　Maximum 　　Capacity	1 to 9999 1 to 16 0 to 63 N/A	Indicates the number of cylinders, read/write heads, sectors per track, and maximum capacity of the hard disk drive.

LBA Format Total Sectors Maximum Capacity	N/A N/A	Indicates the total sectors and maximum capacity of the hard disk drive in LBA format.
Multi-Sector Transfers	Disabled 2 sectors 4 sectors 8 sectors 16 sectors	Determines the number of sectors per block for multi-sector transfers.
LBA Mode Control	Enabled Disabled	Enabling LBA causes Logical Block Addressing feature to be used in place of Cylinders, Heads, Sectors
32 Bit I/O	Disabled Enabled	This setting Enables or disables 32 bit IDE data transfers.
Transfer Mode	Standard Fast PIO 1 Fast PIO 2 Fast PIO 3 Fast PIO 4 FPIO 3/DMA 1 FPIO 4/DMA 2	Selects the method for moving data to/from the drive. Autotype the drive to select optimum transfer mode.

Keyboard Features Sub-menu

Selecting **"Keyboard Features"** from the Main menu and pressing <Enter> will give you the following screen:

```
                  PhoenixBIOS Setup Utility
  Main
 ┌──────────────────────────────┬──────────────────────┐
 │       Keyboard Features       │   Item Specific Help  │
 ├──────────────────────────────┼──────────────────────┤
 │ Numlock:                 [Off]│ Selects Power-on state│
 │ Key Click:          [Disabled]│ for Numlock           │
 │ Keyboard auto-repeat rate:   [30/sec]│                │
 │ Keyboard auto-repeat delay: [1/2 sec]│                │
 │                              │                      │
 ├──────────────────────────────┴──────────────────────┤
 │ F1  Help  ▲▼ Select Item   -/+  Change Values     F9   Setup Defaults │
 │ ESC Exit ◄► Select Menu  Enter Select➤Sub-Menu  F10 Save and Exit │
 └──────────────────────────────────────────────────────┘
```

Use the following chart to configure the Keyboard Features. Press <Esc> to exit the menu.

Item	Options	Description
Numlock	Off Auto On	Selects power-on state for Numlock.
Key Click	Disabled Enabled	Enables key click feature.
Keyboard auto-repeat rate	30/sec 26.7/sec 21.8/sec 18.5/sec 13.3/sec 10/sec 6/sec 2/sec	Selects key repeat rate.
Keyboard auto-repeat delay	1/4 sec 1/2 sec 3/4 sec 1 sec	Selects delay before key repeat.

Warning: Leave all items of the above sub-menus to their default values if you are not sure of its settings. Incorrect values may cause system boot failure. (Load setup default values to recover.)

Advanced Menu

Selecting "**Advanced**" from the main menu will have the following displayed on screen:

```
                    PhoenixBIOS Setup Utility
   Main    Advanced    Security    Power    Boot    Exit
┌──────────────────────────────────────┬────────────────────┐
│                                        │ Item Specific Help │
│               Setup Warning            │                    │
│                                        │                    │
│  Setting items on this menu to incorrect values│           │
│  may cause system to malfunction.      │ Peripheral         │
│                                        │ Configuration      │
│                                        │                    │
│  ➤ I/O Device Configuration            │                    │
│  ➤ Audio Options Menu                  │                    │
│  ➤ PCI Configuration                   │                    │
│    Secured Setup Configurations [No]   │                    │
│    Plug & Play O/S:          [Yes]     │                    │
│    Reset Configuration Data:  [No]     │                    │
│    Large Disk Access Mode:    [DOS]    │                    │
├────────────────────────────────────────┴────────────────────┤
│  F1  Help   ▲▼  Select Item  -/+  Change Values    F9  Setup Defaults │
│  ESC Exit  ◄►  Select Menu  Enter Select ➤Sub-Menu  F10 Save and Exit │
└──────────────────────────────────────────────────────────────┘
```

 Warning: Do not try to change the settings of this menu if you are not sure of the specifications. Incorrect setup values will cause your system to malfunction.

Use the following chart to configure the system. Press <Esc> to exit the menu.

Item	Options	Descriptions
Secured Setup Configurations	No Yes	"Yes" prevents a Plug and Play operating system from changing system settings.
Plug & Play O/S	Yes No	Select "Yes" if you are using Plug and Play capable operating system. Select "No" if you need the BIOS to configure non-boot devices.
Reset Configuration Data	No Yes	Select "Yes" if you want to clear the system configuration data.
Large Disk Access Mode	Other DOS	UNIX,NOVELL Netware, or other operating systems, select ' other ' .If you are ins-talling new software and the drive fails, change this selection and try again.Different operat-ing systems require different representations of drive geometries.

I/O Device Configuration Sub-menu

Selecting this sub-menu displays the following screen:

```
                    PhoenixBIOS Setup Utility
           Advanced

    ┌──────────────────────────────────┬───────────────────────┐
    │    I/O Device Configuration      │   Item Specific Help  │
    ├──────────────────────────────────┼───────────────────────┤
    │ Serial port A:        [Enabled]  │ Configure serial port A│
    │   Base I/O address:   [3F8]      │ using options:        │
    │   Interrupt:          [IRQ 4]    │                       │
    │ Parallel Port:        [Enabled]  │ [Disabled]            │
    │   Mode:           [Bi-directional]│   No configuration    │
    │   Base I/O address:   [378]      │                       │
    │   Interrupt:          [IRQ 7]    │ {Enabled}             │
    │ Floppy disk controller: [Enabled]│   User configuration  │
    │ PS/2 Mouse:          [Auto Detect]│                       │
    │ Primary IDE adapter:  [Enabled]  │ [Auto]                │
    │ Secondary IDE adapter: [Enabled] │   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
```
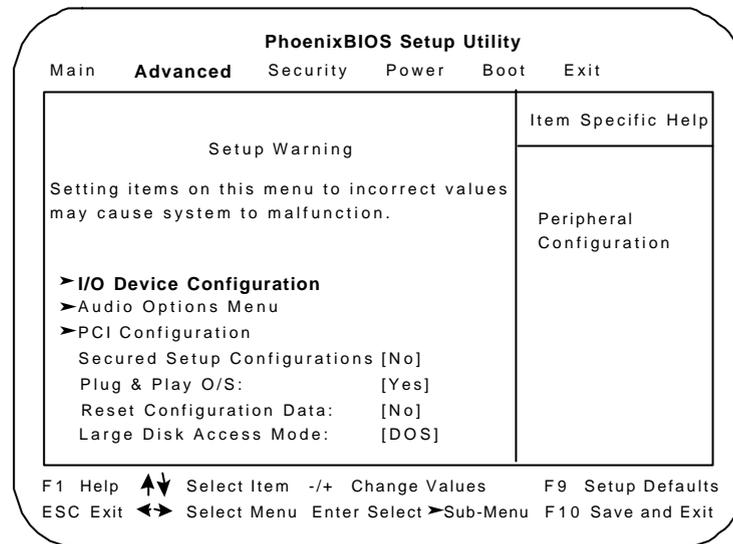
Use the following to configure your system. Press <Esc> to exit this sub-menu.

Item	Options	Descriptions
Serial Port A	Disabled Enabled Auto	Configures serial ports A and B.
Base I/O Address	3F8 2F8 3E8 2E8	Sets the base I/O address and interrupt used by serial port A. These options are available only if "Serial Port A" is "Enabled".
Interrupt	IRQ 4 IRQ 3	
Parallel Port	Disabled Enabled Auto	Configures parallel port.
Mode	Output only	Sets the mode of parallel

	Bi-directional EPP ECP	device connected to the system.
Base I/O Address	378 278 3BC	Sets the base I/O address and interrupt used by parallel port. These options are available only if "Parallel Port" is "Enabled".
Interrupt	IRQ 5 IRQ 7	
Floppy Disk Controller	Enabled Disabled Auto	Enables or disables on-board floppy disk controller.
PS/2 Mouse	Disabled Enabled Auto Detect	"Disabled" prevents any installed PS/2 mouse from functioning, but frees up IRQ12. "Enabled" allows the operating system to determine whether to enable or disable the mouse.
Primary IDE Adapter	Disabled Enabled	Enables the integrated primary IDE adapter using I/O address 1F0h – 1F7h.
Secondary IDE Adapter	Disabled Enabled	Enables the integrated secondary IDE adapter using I/O address 140h – 177h.

Audio Options Menu Sub-menu

Selecting this sub-menu displays the following screen:

```
┌────────────────────────────────────────────────────────────────┐
│                  PhoenixBIOS Setup Utility                      │
│        Advanced                                                 │
│  ┌──────────────────────────────┬──────────────────────────┐   │
│  │     Audio Options Menu       │     Item Specific Help   │   │
│  ├──────────────────────────────┼──────────────────────────┤   │
│  │                              │  Configure sound device  │   │
│  │   Sound:          [Enabled]  │  using options:          │   │
│  │    Base I/O address: [220-233]│  [Disabled]             │   │
│  │    MPU I/O address:  [330-331]│    No configuration     │   │
│  │    Interrupt:       [IRQ 5]  │                          │   │
│  │    8-bit DMA channel: [DMA 1]│  [Enabled]               │   │
│  │    16-bit DMA channel:[DMA 5]│    User configuration    │   │
│  │   Joystick:       [Disabled] │                          │   │
│  │                              │  [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  │
└────────────────────────────────────────────────────────────────┘
```

Use the following to configure your system. Press <Esc> to exit this sub-menu.

Item	Options	Descriptions
Sound	Disabled Enabled Auto	Configures sound device installed in the system.
Base I/O Address	220 - 22F 240 - 24F 260 - 26F 280 - 28F	Sets base I/O address for sound device.
MPU I/O Address	Disabled 300 - 301 330 - 331	Sets I/O address for the MPU.

Interrupt	IRQ 2 IRQ 5 IRQ 7 IRQ 10	Sets interrupt for sound device.
8-bit DMA Channel	DMA 0 DMA 1 DMA 3	Sets the 8-bit DMA channel for sound device.
16-bit DMA Channel	DMA 5 DMA 6 DMA 7	Sets the 16-bit DMA channel for sound device.
Joystick	Disabled Enabled	Enables or disables joystick device.

PCI Configuration Sub-menu

The following is displayed when this sub-menu is selected:

```
                    PhoenixBIOS Setup Utility
              Advanced

        PCI Configuration                Item Specific Help

  ➤ PCI/PNP ISA UMB Region Exclusion     Reserve specific
  ➤ PCI/PNP ISA IRQ Resource Exclusion   upper memory
    ISA graphics device installed:  [No] blocks for use by
                                         legacy ISA devices.


  F1  Help ▲▼ Select Item  -/+ Change Values      F9   Setup Defaults
  ESC Exit ◄►Select Menu  Enter Select➤Sub-Menu  F10 Save and Exit
```

The item "ISA graphics device installed" is usually set to "No" (your system has built-in VGA feature). Set to "Yes" only if you uses an ISA graphics card. (PCI devices may need to know if an ISA graphics device is installed in the system in order to enable it to function correctly.)

PCI/PNP ISA UMB Region Exclusion Sub-menu

This sub-menu allows you to reserve specific upper memory blocks for use by legacy ISA devices. To reserve a specific block, set that block to "Reserved".

```
                    PhoenixBIOS Setup Utility
              Advanced
 ┌──────────────────────────────────────┬─────────────────────┐
 │  PCI/PNP ISA UMB Region Exclusion     │  Item Specific Help │
 ├──────────────────────────────────────┼─────────────────────┤
 │  C800 - CBFF:    [Available]          │  Reserves the       │
 │  CC00 - CFFF:    [Available]          │  specified block of │
 │  D000 - D3FF:    [Available]          │  upper memory for   │
 │  D400 - D7FF:    [Available]          │  use by legacy ISA  │
 │  D800 - DBFF:    [Available]          │  devices.           │
 │  DC00 - DFFF:    [Available]          │                     │
 └──────────────────────────────────────┴─────────────────────┘
 F1  Help  ↑↓ Select Item  -/+  Change Values   F9   Setup Defaults
 ESC Exit  ←→ Select Menu  Enter Select ➤ Sub-Menu  F10 Save and Exit
```

PCI/PNP ISA IRQ Resource Exclusion Sub-menu

This sub-menu allows you to reserve specific interrupt requests for use by legacy ISA devices. To reserve, set the particular IRQ# to "Reserved".

```
                    PhoenixBIOS Setup Utility
              Advanced
 ┌──────────────────────────────────────┬─────────────────────┐
 │  PCI/PNP ISA IRQ Resource Exclusion   │  Item Specific Help │
 ├──────────────────────────────────────┼─────────────────────┤
 │  IRQ3:        [Available]             │                     │
 │  IRQ4:        [Available]             │  Reserves the       │
 │  IRQ5:        [Available]             │  specified IRQ for  │
 │  IRQ7:        [Available]             │  use by legacy ISA  │
 │  IRQ9:        [Available]             │  devices.           │
 │  IRQ10:       [Available]             │                     │
 │  IRQ11:       [Available]             │                     │
 │  IRQ15:       [Available]             │                     │
 └──────────────────────────────────────┴─────────────────────┘
 F1  Help  ↑↓ Select Item  -/+  Change Values   F9   Setup Defaults
 ESC Exit  ←→ Select Menu  Enter Select ➤ Sub-Menu  F10 Save and Exit
```

💣 **Warning:**   Leave all items of the above sub-menus to their default values if you are not sure of its settings. Incorrect values may cause system boot failure. (Load setup default values to recover.)

Security Menu

Selecting "**Security**" from the main menu will have the following displayed on screen:

```
                    PhoenixBIOS Setup Utility
   Main    Advanced    Security    Power    Boot    Exit
  ┌──────────────────────────────────────┬──────────────────┐
  │                                      │  Item Specific Help │
  │                                      │                  │
  │  Supervisor Password Is:   Clear     │                  │
  │  User Password Is:         Clear     │  Supervisor Password │
  │                                      │  controls access to the │
  │  Set Supervisor Password: [Enter]    │  setup utility.   │
  │  Set User Password:       [Enter]    │                  │
  │                                      │                  │
  │  Diskette access:         [Supervisor]│                 │
  │  Fixed disk boot sector:  [Normal]   │                  │
  │  Virus check reminder:    [Disabled] │                  │
  │  System backup reminder:  [Disabled] │                  │
  │  Password on boot:        [Disabled] │                  │
  │                                      │                  │
  ├──────────────────────────────────────┴──────────────────┤
  │  F1  Help   ▲▼ Select Item   -/+  Change Values    F9   Setup Defaults │
  │  ESC Exit  ◄► Select Menu  Enter Select ► Sub-Menu  F10 Save and Exit │
  └──────────────────────────────────────────────────────────┘
```
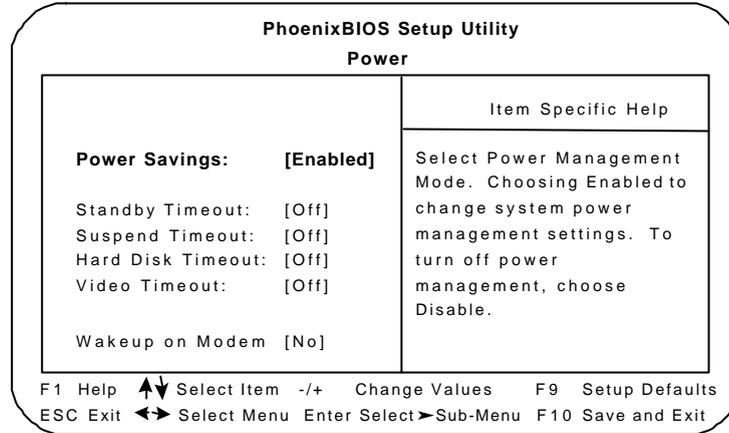
Use the following to configure your system. Press <Esc> to exit this sub-menu.

Item	Options	Descriptions
Set Supervisor Password	Enter	Supervisor Password controls access to the setup utility. Press Enter to key-in the password. You will be requested to enter the password twice for confirmation purposes.
Set User Password	Enter	User Password controls access to the system at boot. You need to set the Supervisor Password first before you are able to set this password.
Diskette Access	Supervisor User	Controls access to diskette drives.
Fixed disk boot sector	Normal	Write protects boot sector on hard disk to protect against viruses.
Virus check reminder	Disabled Daily Every Monday 1st of every month	Displays reminder message for virus check at boot.
System backup reminder	Disabled Daily Every Monday 1st of every month	Displays reminder message for system backup at boot.
Password on boot	Disabled Enabled	Enables password entry on boot.

💣 **Warning:** Leave all items of the above sub-menus to their default values if you are not sure of its settings. Incorrect values may cause system boot failure. (Load setup default values to recover.)

Power Menu

Selecting "**Power**" from the main menu will have the following displayed on screen:

```
                    PhoenixBIOS Setup Utility
                              Power
    ┌──────────────────────────────┬──────────────────────────┐
    │                              │    Item Specific Help    │
    │                              │                          │
    │  Power Savings:   [Enabled]  │ Select Power Management  │
    │                              │ Mode.  Choosing Enabled to│
    │  Standby Timeout:    [Off]   │ change system power      │
    │  Suspend Timeout:    [Off]   │ management settings.  To │
    │  Hard Disk Timeout:  [Off]   │ turn off power           │
    │  Video Timeout:      [Off]   │ management, choose       │
    │                              │ Disable.                 │
    │  Wakeup on Modem    [No]     │                          │
    └──────────────────────────────┴──────────────────────────┘
  F1  Help   ↑↓ Select Item  -/+   Change Values    F9   Setup Defaults
  ESC Exit  ◄► Select Menu  Enter Select➤Sub-Menu   F10 Save and Exit
```

The above screen shows that the power management feature, APM (Advanced Power Management), is enabled. APM allows your system to enter standby state or suspend state. Standby state turns off some individual components in the system (i.e., screen), until you start using your computer. Suspend state saves your current state or condition to disk and turns off your system (save to disk mode); or, saves your current state or condition in memory and remains in low power mode (suspend mode).
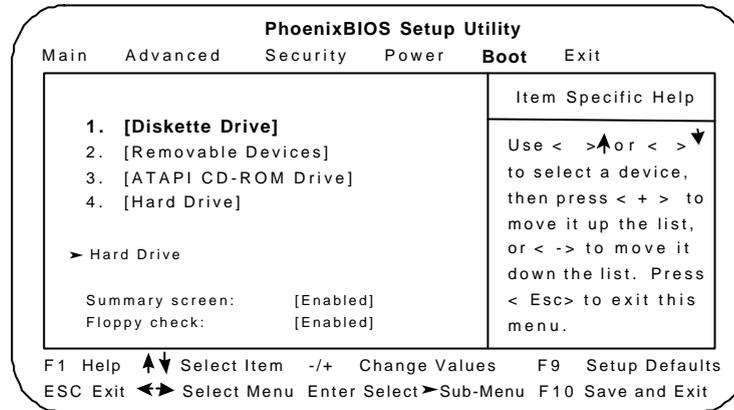
Use the following to configure your system. Press <Esc> to exit this sub-menu.

Item	Options	Descriptions
Power Savings	Disabled Enabled	Selects power management mode.
Standby Timeout	Off 1 Minute 2 Minutes 4 Minutes 5 Minutes 10 Minutes 20 Minutes 30 Minutes 1 Hour	Amount of time the system needs to be in idle mode before entering standby mode. Standby mode turns off various devices in the system until you start using the computer again.
Suspend Timeout		Amount of time the system needs to be in standby mode before entering suspend mode.
Hard Disk Timeout		Amount of time the hard disk needs to be inactive before it is turned off.
Video Timeout		Amount of time the user input devices need to be inactive before the screen is turned off.
Wakeup on Modem	On Off	If a modem is attached, turning this on wakes up the system when ringing tone is detected.

✒ **Warning:**   Leave all items of the above sub-menus to their default values if you are not sure of its settings. Incorrect values may cause system boot failure. (Load setup default values to recover.)

Boot Menu

Selecting "**Boot**" from the main menu will have the following displayed on screen:

```
                    PhoenixBIOS Setup Utility
 Main     Advanced     Security    Power    Boot    Exit

                                              Item Specific Help
   1.  [Diskette Drive]
   2.  [Removable Devices]                  Use <   >▲ or <   >▼
   3.  [ATAPI CD-ROM Drive]                 to select a device,
   4.  [Hard Drive]                         then press < + > to
                                            move it up the list,
 ➤ Hard Drive                               or < -> to move it
                                            down the list.  Press
 Summary screen:       [Enabled]            < Esc> to exit this
 Floppy check:         [Enabled]            menu.

 F1  Help  ▲▼ Select Item   -/+  Change Values    F9  Setup Defaults
 ESC Exit ◄► Select Menu  Enter Select➤Sub-Menu  F10 Save and Exit
```
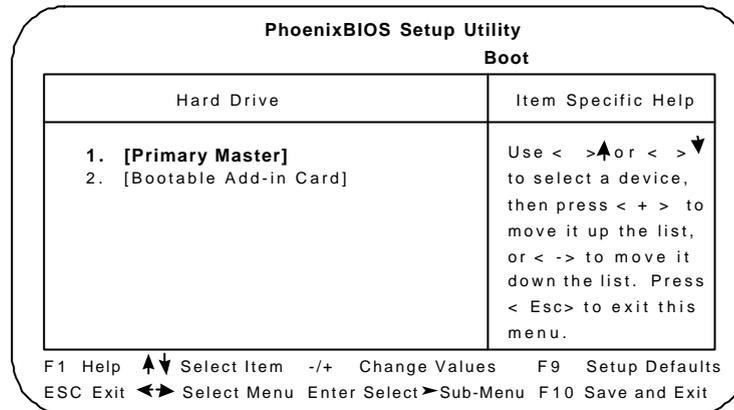
This menu allows you to arrange the priority of boot sequence. The system will boot from the device indicated in 1. If unsuccessful, it will try to boot from device 2. and so forth. Use up and down arrow keys to select a device, and press <+> or <-> key to put its priority higher or lower down the list.

Use the following to configure your system. Press <Esc> to exit this sub-menu.

Item	Options	Descriptions
Summary screen	Disabled Enabled	"Enabled" displays system configuration on boot.
Floppy check	Disabled Enabled	"Enabled" verifies floppy type on boot, disabled speeds boot.

Hard Drive Sub-menu
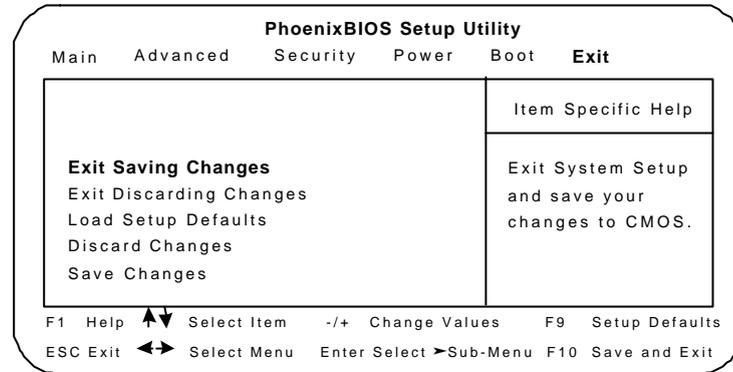
The following is displayed when this sub-menu is selected:

```
                   PhoenixBIOS Setup Utility
                                           Boot
   ┌─────────────────────────────────┬─────────────────────────┐
   │          Hard Drive             │    Item Specific Help   │
   ├─────────────────────────────────┼─────────────────────────┤
   │                                 │                         │
   │  1.   [Primary Master]          │  Use <  >▲or <  >▼      │
   │  2.   [Bootable Add-in Card]    │  to select a device,    │
   │                                 │  then press < + > to    │
   │                                 │  move it up the list,   │
   │                                 │  or < -> to move it     │
   │                                 │  down the list. Press   │
   │                                 │  < Esc> to exit this    │
   │                                 │  menu.                  │
   └─────────────────────────────────┴─────────────────────────┘
    F1  Help  ▲▼ Select Item   -/+   Change Values    F9  Setup Defaults
    ESC Exit  ◄► Select Menu  Enter Select➤Sub-Menu  F10 Save and Exit
```

This menu allows you to arrange the priority of boot sequence of hard drives connected to your system.. The system will boot from the hard drive indicated in 1. If unsuccessful, it will try to boot from drive 2. and so forth. Use up and down arrow keys to select a hard drive, and press <+> or <-> key to put its priority higher or lower down the list.

💣※ **Warning:** Leave all items of the above sub-menus to their default values if you are not sure of its settings. Incorrect values may cause system boot failure. (Load setup default values to recover.)

Exit Menu

Pressing <Esc> or selecting "Exit" from the main menu will have the following displayed on screen:

```
                    PhoenixBIOS Setup Utility
   Main    Advanced    Security    Power    Boot    Exit
  ┌──────────────────────────────────┬──────────────────────┐
  │                                  │   Item Specific Help │
  │                                  │                      │
  │  Exit Saving Changes             │   Exit System Setup  │
  │  Exit Discarding Changes         │   and save your      │
  │  Load Setup Defaults             │   changes to CMOS.   │
  │  Discard Changes                 │                      │
  │  Save Changes                    │                      │
  │                                  │                      │
  └──────────────────────────────────┴──────────────────────┘
   F1  Help  ▲▼  Select Item    -/+  Change Values    F9  Setup Defaults
   ESC Exit  ◄►  Select Menu   Enter Select ➤Sub-Menu  F10 Save and Exit
```

The table below explains the operations of the above items:

Item	Descriptions
Exit Saving Changes	Saves the changes made to CMOS and exit System setup Utility. This is equivalent to pressing <F10> key.
Exit Discarding Changes	Exit Utility without saving Setup data to CMOS.
Load Setup Defaults	Loads default values for all setup items.
Discard Changes	Loads previous values from CMOS for all setup items.
Save Changes	Save setup data to CMOS.

After exiting System Setup Utility, your computer will automatically reboot to reflect the new settings.

♦ **Remark**: Setup menus are subject to change without notice.

Chapter 3:
Installing Devices

If you intend to add some peripherals or upgrade your computer, refer to this manual for information on how to open your computer and install these peripherals or devices:

- Adapter card(s)
- Hard disk drive(s)
- Floppy disk drive
- CD-ROM drive
- Random Access Memory (RAM) upgrade

Warning: Electro-Static Discharge (ESD) - Before installing or touching any exposed printed circuit boards, computer parts, chips, etc., make certain that you are properly grounded. This is extremely important, as most internal computer components are highly susceptible to damage from Electro-Static Discharge (ESD).

Removing the Cover

▲ **Warning**:   Before removing the cover, please **turn off the power** of the main unit and **disconnect all signal cables and power cords**.

Desktop Model

1. Unscrew the three cover mounting screws on the back of the main unit.

Cover Mounting Screws (X3)
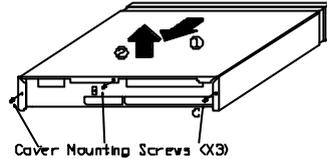
2. Slide the cover towards the back and lift it upward until it clears the unit.

3. Find a suitable position to place your cover and the three mounting screws.

Mini-tower Model

1. Unscrew the six cover mounting screws on the back of the main unit.

2. Slide the cover towards the back until it clears the unit.

3. Find a suitable position to place your cover and the six mounting screws.

▲ **Warning**:   The switching power supply of the main unit may cause electric shock. To prevent this, do not forget to turn off the power and disconnect the power cord before opening the cover of the main unit.

Installing Adapter Cards

Each model comes with a proprietary r**iser card** installed on the motherboard. This riser card enables you to install either ISA or PCI adapter cards into your system for expansion purposes.

▲ **Warning**: Turn off your system and disconnect the power cord before you install adapter cards. Failure to do so may cause severe damages to your system.

Familiarize yourself first with the total number and types of adapter cards that can be installed in your system:

Model	**ISA Slot**	**PCI Slot**
Desktop	1	1
Mini-tower	3	2

Installation procedures as follows:

1. Remove the cover of the system.

2. Remove the screw and bracket of the expansion slot that you intend to use. (The type of expansion slot has to correspond with the type of your adapter card.)

3. Set any necessary switches or jumpers on the adapter card. Refer to its user's guide for more information.

4. Carefully, but firmly, press the adapter card into the expansion slot.

☞ **Note:** Be sure to align the card's connector with the slot. Do not force any connections, this may result in serious damages to your system.

5. Secure the adapter card using the screw for the expansion slot cover.

6. Secure back the cover of the system.

7. Perform BIOS Setup if necessary. Refer to *Chapter 2, BIOS Setup,* for more details.

8. Install software drivers that come with the adapter card if necessary.

Installing Devices on Desktop Model

Your computer comes bundled with one 3.5″ FDD, one 5.25″ CD-ROM drive, and one 3.5″ ATAPI/IDE type high performance HDD. Do not remove these from the system unless it is absolutely necessary.

☞ **Note:** For slim case model, there is no room for the installation of additional storage devices internally.

ATAPI/IDE type HDDs are recommended for the system, since the Local Bus Enhanced IDE interface is a built-in feature of the motherboard.

3.5″ HDD

1. Remove system cover.

2. Unscrew the mounting screw of the support beam. Slide it a little towards the left, then backward, to remove it from the system.

3. Locate the **3.5″ HDD** and/or **HDD bracket**.

4. Unscrew the bracket mounting screw and slide it towards the left until it clears out of the chassis.

5. If HDD is to be replaced, detach the signal and the power cable from the HDD. Then, remove the four screws on the sides.

6. Install the HDD onto the HDD bracket and secure it with four screws, two screws on each side.

7. Re-install the bracket (with the HDD attached) to the system by sliding it back to its original position.

8. Secure back the bracket mounting screw.
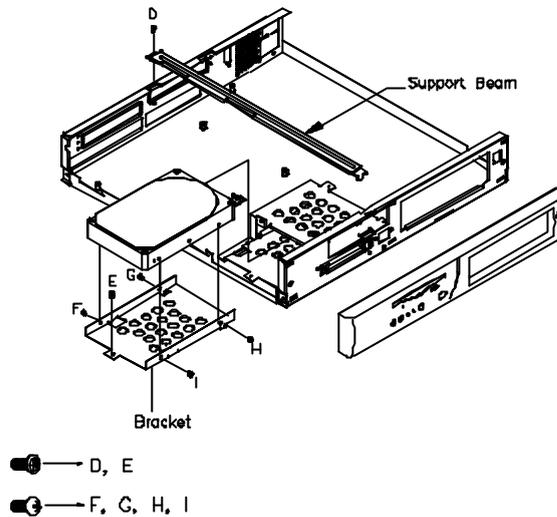
9. Connect a 40-pin Daisy-chained signal cable from the motherboard, and a four-line power cable from the switching power supply to the HDD.

10. Re-install the support beam and secure with its mounting screw.

11. Put back the cover of the system.

12. Connect the power cord and other necessary cables.

13. Turn on your computer and enter the Setup menu to configure the HDD. Refer to *Chapter 2, BIOS Setup*, for more details.

3.5" FDD

1. Remove the cover.

2. Unscrew the mounting screw of the support beam. Slide it a little to the left, then backward, to remove it from the system.

3. Locate the **3.5" FDD** and/or **3.5" FDD bracket**.

4. Unscrew the two bracket mounting screws on the 3.5" FDD bracket. Remove the bracket from the system.
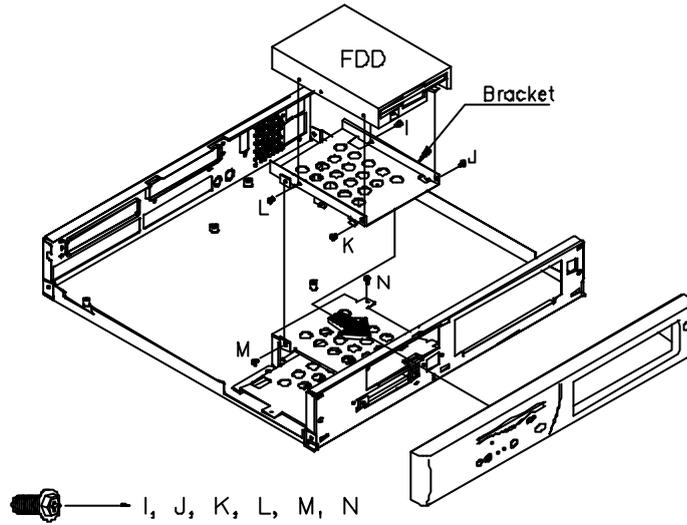
5. If FDD is to be replaced, detach the signal and the power cable from the HDD. Then, remove the four screws on the sides of the FDD.

6. Install the FDD onto the FDD bracket and secure it with four screws, two screws on each side.

7. Re-install the bracket (with the 3.5" FDD attached) and secure it with the two bracket mounting screws.

8. Connect a 34-pin Daisy-chained cable from the motherboard, and a mini-size four-line power cable from the switching power supply to the FDD.

9. Re-install the support beam and secure with its mounting screw.

10. Put back the cover of the system.

11. Connect the power cord and other necessary cables.

12. Turn on your computer and enter the Setup menu to configure the FDD. Refer to *Chapter 2, BIOS Setup*, for more details.

5.25" CD-ROM Drive Installation

1. Remove system cover.

2. Locate the 5.25" CD-ROM drive and/or CD-ROM bracket.

3. Unscrew two bracket mounting screws on the 5.25" CD-ROM bracket to remove it.

4. If CD-ROM drive is to be replaced, detach the signal and the power cable from the drive. Then, remove the four screws on its sides.

```
CLASS 1 LASER PRODUCT
APPAREIL A LASER DE CLASSE 1
LASERCHUTZKLASSE 1 PRODUKT
```
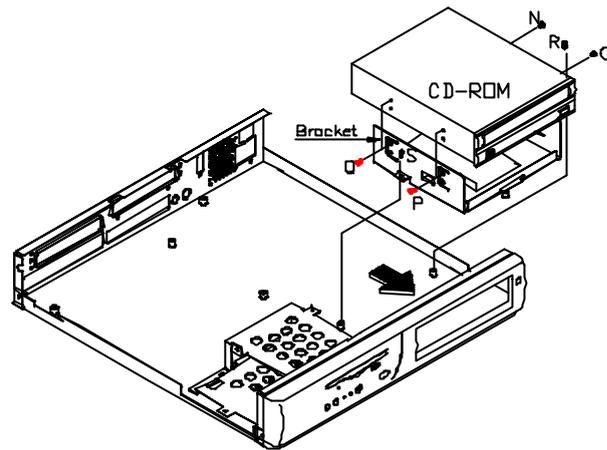
N, O, P, Q, R. S

5. Install the CD-ROM drive onto the CD-ROM bracket and secure it with four screws, two on each side.

6. Re-install the bracket (with the CD-ROM drive attached) and secure it with the two bracket mounting screws.

7. Connect a 40-pin Daisy-chained signal cable from the motherboard, and a 4-line power cable from the switching power supply to the CD-ROM drive.

8. Put back the cover of the system.

9. Connect the power cord and other necessary cables.

10. Turn on your computer system and enter the Setup menu to configure the CD-ROM drive. Refer to *Chapter 2, BIOS Setup*, for more details.

Installing Devices on Mini-tower Model

Your computer comes bundled with one 3.5" FDD, one 5.25" CD-ROM drive, and one 3.5" ATAPI/IDE type high performance HDD. Do not remove these from the system unless it is absolutely necessary.

☞ **Note:** For mini-tower model, spaces for one 5.25" storage device and three 3.5" storage devices are available. However, note that you can install up to four IDE devices only.

ATAPI/IDE type HDDs are recommended for the system, since the Local Bus Enhanced IDE interface is a built-in feature of the motherboard.

FDD, HDD, CD-ROM Devices (front)

There are total of five devices that can be installed in the front portion of the chassis. Exposed bays include two 5.25" drives and one 3.5" drive (for FDD).

1. Remove the cover.

2. Remove the front panel by pulling it towards you.

3. Select the bay that you intend to use. Select an exposed bay for devices such as FDD, CD-ROM drives, or other devices that requires you to insert disks.

4. If a device is to be replaced, remove the two screws on each side of that device. Then, remove the signal and power cables connected to that device. Slide it forward until it clears out of the unit.

5. Slide the device into the selected bay.

6. Secure with two screws on each side.

7. Connect the Daisy-chained signal cable (34-pin for FDD, 40-pin for IDE devices) and power cable to the device.

8. Install back the front panel and the cover.

9. Connect the power cord and other necessary cables.

10. Turn on the computer and enter Setup menu to configure the device. Refer to *Chapter 2, BIOS Setup,* for more details.

3.5" HDD (rear)

1. Remove the cover.

2. Locate the 3.5" HDD bracket. This is mounted at the central part of the rear panel.

3. Unscrew the four bracket mounting screws and detach the bracket out of the chassis.

4. If an HDD is to be replaced, detach the signal and the power cable from the HDD. Then, remove the four screws on the sides.

5. Install the HDD onto the HDD bracket (lower or upper portion) and secure it with four screws, two screws on each side.

6. Re-install the bracket (with the HDD attached) to the system, aligning the holes of the bracket with the holes on the chassis.

7. Secure back the bracket mounting screw.

8. Connect a 40-pin Daisy-chained signal cable from the motherboard, and a four-line power cable from the switching power supply to the HDD.

9. Put back the cover of the system.

10. Connect the power cord and other necessary cables.

11. Turn on your computer and enter the Setup menu to configure the HDD. Refer to *Chapter 2, BIOS Setup,* for more details.

Installing CPU

If you need to install the CPU into your system, please carefully follow the steps below:

1. Remove system cover.

2. Remove adapter cards installed in the system.

3. Remove the riser card by slightly pulling it away from the motherboard. You can now see the CPU's fan and heat sink assembly.
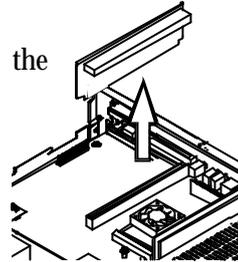
4. Remove the assembly by pressing one side of the latch and push it towards the assembly until it is released   You can use a flathead screw driver, if necessary.

5. Then, push the other end of the latch towards the assembly until it is also released.
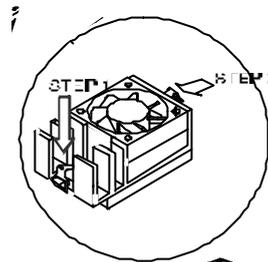
6. Remove the fan and heat sink assembly from the motherboard.

7. Slightly pull the lever of the CPU socket away from the motherboard.

8. If a CPU is installed, remove the CPU.

9. Install the new CPU into this socket, then, slightly push the lever back until it locks onto the motherboard.

10. Install back the fan and heat sink assembly by pushing both latches into place until it clicks properly.
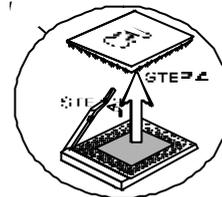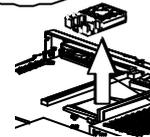
11. Set JCLK and JBF jumpers to the correct CPU frequency. Refer to *Appendix B, Connectors and Jumpers*, for more details.

12. Carefully, but firmly, press the riser card into its slot in the motherboard, then, install back the adapter cards.

13. Restore system cover and secure the cover mounting screws.

14. Turn on your system. It will automatically recognize the CPU.

Installing DRAMs

Your computer system can support up to 128MB of system memory. If you need to add memory to your computer system, please follow the instructions below:

1. Make sure that you are using 3.3V SDRAM DIMMs.

2. Remove system cover.

3. To install DIMMs, make sure that its notch is aligned with the left side of the socket.

4. Insert the module's metal fingers into the socket's grooved slot. Grasp the module on both ends and carefully move it towards you until it "clicks" into place on both ends of the socket.

5. Restore the cover, and secure the cover mounting screws.

6. Turn on your system. It will automatically recognize the new memory configuration.

☞ **Note**: The base memory of the system should be set to 640KB. The remaining amount of memory may be set as "Extended Memory." When you change or upgrade the system memory, the system will automatically fill the correct amount of Extended Memory into the Setup Main Menu.

Chapter 4:
Installing Device Drivers

The 3.5" HDD that comes with your system is already pre-installed with Windows 95 operating system. Aside from this, all the required device drivers were also pre-installed in the factory.

You may need to install or re-install device drivers usually due to the following circumstances:

1. When you re-install your operating system

2. When you reformatted your HDD

3. When you install the fax/modem daughterboard

This chapter provides you with step by step procedures on how to install the following device drivers:

- XpressAUDIO™16-bit Sound
- Cyrix GX VGA

XpressAUDIO™16 -bit Sound

1. Complete the installation of Windows 95 operating system. If you are not so familiar with the installation procedure, please refer to the user's guide of Microsoft Windows 95 software package.

2. Double click on "**My Computer**" icon, located on the top left part of your screen.

3. Choose "**Control Panel**" icon by double clicking on it, then select "**System**" icon. The "System Properties" window will be displayed on the screen.

4. Click on "**Device Manager**" tab and select "**Other** ⟹ **Devices**".

5. Double click on "**Unknown Device**", the "Unknown Device Properties" ⟹ appears on screen. Select "**Driver**" tab and click "**Update Driver**" button.

6. Click on the "**Yes (Recommended)**" option on the message "Do you want Windows to search for the driver?"

7. Put the Device Drivers and Utilities Disk that comes with your system into your floppy drive.

8. Click "**Next**" button, then select "**Other Locations**".

9. Click "**Browse**" button, then select "**A:\Win95\xpaud io**" subdirectory and click the "**OK**" button.

10. After this, you will be prompted to confirm the above information. Click "**Finish**" button.

11. The "Update Device Driver Wizard Screen" will be displayed. Click "**Yes**" to update the device drivers in your hard disk.

12. The following screen will appear asking for the directory of the device drivers. Be sure to insert the Device Drivers and Utilities Disk in drive A. Also, make sure that the directory specified in the "Copy files from:" option points to the right directory. Click "**OK**" button.

13. Windows 95 will then display the registry name "XpressAUDIO™ 16-bit Sound". Click on "**Close**" button to complete the installation.

14. To check your Device Manager entries for the newly installed "**XpressAUDIO™ 16** -**bit Sound**" driver:

   a. Double click "**My Computer**" icon
   b. Select "**Control Panel**"
   c. Choose "**System**"
   d. Click on "**Device Manager**" tab

15. Your audio driver is now properly installed.

Cyrix GX VGA

1. Complete the installation of Windows 95 operating system. If you are not so familiar with the installation procedure, please refer to the user's guide of the Microsoft Windows 95 software package.

2. Double click on "**My Computer**" icon, usually on the top left part of your screen.

3. Choose "**Control Panel**" icon by double clicking on it, then select "**Display**" icon. The "Display Properties" window will be displayed on the screen.

4. Select "**Settings**" ⇒ tab, the following screen is shown.

5. Click on "**Advanced Properties**" button. The "Advanced Display Properties" appears on screen.

6. Put the Device Drivers and Utilities Disk that comes with your system into your floppy drive.

7. Click "**Change**" button, then choose "**Have Disk**" option.

8. Click "**Browse**" button, select "**A:\Win95\VGA**" subdirectory and click "**OK**" button.

9. Windows 95 will then display the registry name "Cyrix GX".

10. Click "**OK**" button to complete the installation. When the following appears on screen, click "**Close**".
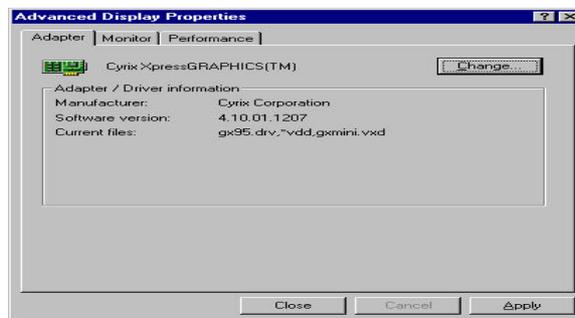
11. Click "**Close**" button again. The system will prompt you to restart your system. Click "**Yes**". You need to restart your system to use the newly installed device driver.

Appendix A: Specifications

Standard Features

- Mini-size motherboard with Cyrix Media Gxm 200/233 MHz CPU, CX5520 chipset, SMC 37C932APM Super I/O Controller), and CH7002 or CH7003 TV-out converter (optional)

- Two 3.3V SDRAM DIMM sockets, supports up to 128MB system memory

- Built-in VSA virtual VGA feature supporting up to 1280 x 1024 x 8bpp and 1024 x 768 x 16bpp

- 2 MB Flash ROM with Phoenix BIOS

- 16 KB unified L1 cache

- Industry standard compatible 16-bit audio built-in

- Real-time clock and system configuration in CMOS RAM with battery backup

- TV-out feature using S-video or video composite output through optional daughterboard

- Wireless keyboard and/or wireless mouse option

- Runs under Windows 95 operating system

Motherboard

CPU (Central Processing Unit)

Cyrix Media GXm 200/233 MHz processor on 350-pin SPGA package. Features include:

- Supports MMX functions
- 16-KByte write-back unified L1 cache
- 64-bit SDRAM controller
- Integrated floating point unit and enhanced re-entrant system management mode (co-processor)
- VSA (Virtual System Architecture) virtual VGA and virtual audio

Chipset

Cyrix CX5520 on 352-pin BGA package. Features include:

- PCI to ISA bridge
- Built-in 8259, 8254, 8237 system controller
- VSA audio hardware and MPEG assist
- Bus mastering IDE-controller, supports PIO Mode 4
- VDAC/Display Interface
- Built-in VSA audio, PC97 compliant
- Supports power management functions such as automated CPU suspend modulation, I/O traps and idle timers for peripheral power management, and software SMI and stop clock for APM support
- Supports two independent USB interface
- Incorporates system clock

Built-in VGA through Cyrix Media GXm and CX5520

- VSA virtual VGA
- UMA implementation with display compression technology

- 2D graphics accelerator
- MPEG1 accelerator
- Supports up to 1280 x 1024 x 8 bpp or 1024 x 768 x 16 bpp

Memory

Flash ROM:

2 MB supported on-board with Phoenix BIOS

RAM:

There are two rows of DIMMs (DIMM1 & DIMM2) mounted on-board. The following table shows you different possible memory configurations:

DIMM1	DIMM2	Total Memory
8M		8MB
8M	8M	16MB
16M		16MB
	16M	16MB
16M	8M	24MB
8M	16M	24MB
16M	16M	32MB
32M		32MB
	32M	32MB
32M	8M	40MB
8M	32M	40MB
32M	16M	48MB
16M	32M	48MB

32M	32M	64MB
64M		64MB
	64M	64MB
64M	8M	72MB
8M	64M	72MB
64M	16M	80MB
16M	64M	80MB
64M	32M	96MB
32M	64M	96MB
64M	64M	128MB

☞ **Notes**: 1. The above table may not contain all possible memory configurations; it is only for reference.

2. DIMMs are 168-pin type. "8M" means "1Mx64"; "16M" means "2Mx64"; "32M" means "4Mx64"; "64M" means "8Mx64".

3. DIMMs must be 3.3 Vdc SDRAM type.

Built-in I/Os

Features of SMC 37C932APM Super I/O Controller are:

- Integrated keyboard controller and real-time clock/ calendar
- Built-in floppy disk controller (FDC)
- Built-in PCI-bus ATAPI/IDE interface
- Built-in serial port
- Built-in parallel port
- Built-in game port interface (optional)
- Supports ACPI

- One ISA and one PCI expansion slot through a proprietary riser card for desktop model; three ISA and two PCI expansion slots through a proprietary riser card for mini-tower model
- Supports 2 USB ports for desktop model; 1 USB port for mini-tower model

Mass Storage

The number of drive bays for storage devices provided by each model are listed below:

Model	3.5" HH Drive Bay/s	5.25" HH Drive Bay/s
Desktop	2	1
Mini-tower	5	2

Your computer comes with one 3.5" high density floppy disk drive, one 5.25" CD-ROM drive, and one 3.5" high performance ATAPI/IDE type hard disk drive as standard. For the desktop model, there is no room for installing other peripherals.

Power Supply

Input Requirement

- The desktop model adopts a universal switching power supply.

- **The mini-tower model should be switched to the right AC voltage before turning on the computer.** The switch is located at the rear panel.

	Voltage (Vac)	Range (Vac)	Current (A)
Desktop	115	100 to 125	1.5 max.
	230	200 to 240	0.7 max.
Mini-tower	115	100 to 125	4.0 max.
	230	200 to 240	2.0 max.

- The recommended voltage and current ratings of the attachment plug and power cord are:

Line Voltage	Recognized Mark (Safety Standard)	Type to be used
110-125 Vac	UL, CSA	125V, 10A
220-240 Vac	TUV, GS	230V, 7.5A

Output DC Load Requirement for Desktop Model

Nominal Load Output	Current (A) Maximum	Regulation Tolerance
+ 5 Vdc	5.0	- 4% to + 5%
+ 12 Vdc	2.5	- 5% to + 5%
-- 12 Vdc	0.5	- 8% to +10%

- Rated Output Power: 60W max.

Output DC Load Requirement for Mini-tower Model

Nominal Load Output	Current (A) Maximum	Regulation Tolerance
+ 5 Vdc	20.0	- 4% to + 5%
- 5 Vdc	0.5	- 8% to +10%
+ 12 Vdc	8.0	- 5% to + 5%
-- 12 Vdc	0.5	- 8% to +10%

- Rated Output Power: 200W max.

Keyboard

- Win95 PS/2-compatible enhanced keyboard
- Low-profile detachable unit
- Twelve function keys
- All keys are typematic
- The keyboard uses a bi-directional serial interface to carry signals between the keyboard and the system
- Three status indicators (LEDs)
- Wireless keyboard optional

Environmental Specifications

Ambient Temperature

Operating	10 °C to 40 °C (50 °F to 104 °F)
Non-operating	- 15 °C to 60 °C (5 °F to 140 °F)

Humidity

Operating	15% to 80%, no condensation
Non-operating	10% to 90%, no condensation

System Unit Dimensions

Desktop Model

Depth (D):	385 mm (15.16")
Width (W):	390 mm (15.35")
Height (H):	70 mm (2.76")

Mini-tower Model

Depth (D):	331 mm (13.03")
Width (W):	180 mm (7.09")
Height (H):	413 mm (16.26")

♦ **Remark:** Specifications are subject to change without notice.

Appendix B:
Connectors and Jumpers

There are a number of connectors and jumpers on the motherboard of your computer which may be selected or set differently to give your computer more flexibility. These, however, have been set to factory default which most often gives the best performance. You should not alter these settings unless you are sure about what you are doing.

In case there is a need to change any of these settings, please make sure that the computer has been turned OFF and make a note of what the original settings are. This way you can always revert to the original settings if the new settings do not work.

Before proceeding, familiarize yourself first with the locations of the connectors and jumpers on the motherboard. The motherboard layout is shown next page, description on each connector and jumper follows after this.

Motherboard Layout
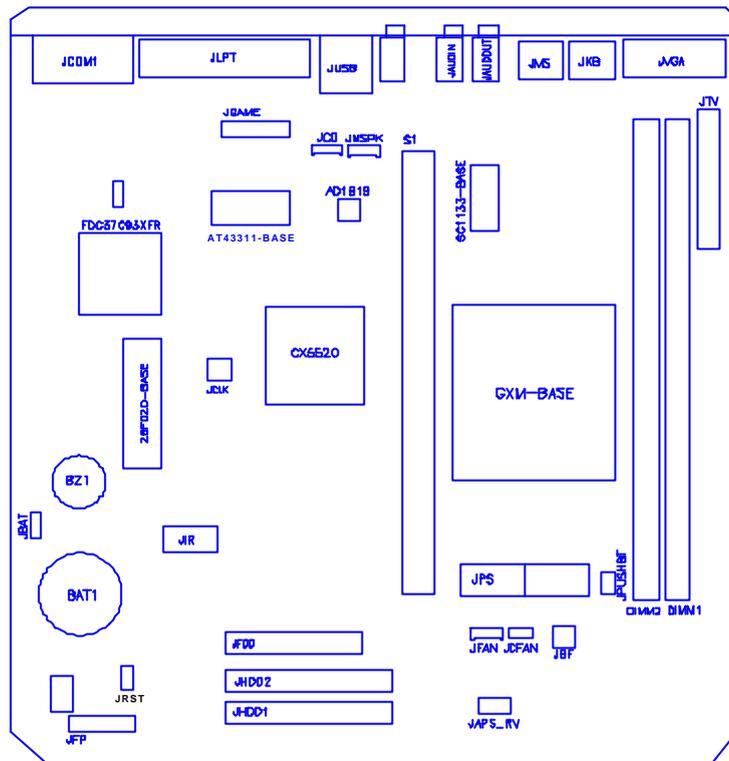
Notes:
1. Due to different system chassis for this design, placement of some components may not be the same, and not all components may be available to all models. However, functions/descriptions of available components are the same.
2. For desktop model: JUSB provides 2 USB ports, JMIC connector is not available since Mic In Jack is located in the front panel.
3. For mini-tower model, JUSB provide 1 USB port, JIR is not available.

Power Supply Connectors

Switching power supplies from different vendors or those with different "Rated Output Power" may have different types of power connector. This section provides information on the connectors of the switching power supply that is used in your system.

Two 6-pin connectors of the power supply are for connection to **JPS** connector on the motherboard. The pin configurations of these connectors are:

Pin No.	Connector 1		Connector 2	
	Wire Color	Signal	Wire Color	Signal
1	Gray	Power Good	Black	GND
2	Red	+5 Vdc	Black	GND
3	Yellow	+12 Vdc	--	-5 Vdc
4	Blue	-12 Vdc	Red	+5 Vdc
5	Black	GND	Red	+5 Vdc
6	Black	GND	Red	+5 Vdc

Four-pin connectors from the switching power supply are for connection to the power input signal of storage devices. All of these connectors have the same pin configurations and carry same voltages. Those connectors that are of standard size are to be used on devices such as 5.25" CD-ROM drive and 3.5" HDD.   The 4-pin mini size connectors are for 3.5" FDD. Pin configurations are:

Pin	Wire Color	Signal	Pin	Wire Color	Signal
1	Yellow	+ 12V	3	Black	GND
2	Black	GND	4	Red	+ 5V

Motherboard Connectors And Jumpers

1. **PS/2 keyboard port connector (JKB)**
   The PS/2 keyboard is connected to the computer through this female mini-DIN connector **JKB**.

2. **PS/2 mouse port connector (JMS)**
   The PS/2 mouse is connected to the computer through this female mini-DIN connector **JMS**.

3. **COM port connector (JCOM1)**
   JCOM1 is a male DB9 (9-pin) connector mounted on the motherboard. You can connect a serial device to this port.

4. **LPT port connector (JLPT)**
   JLPT is a female DB25 (25-hole) connector mounted on the motherboard. You can connect a parallel printer to this port.

5. **FDD connector (JFDD)**
   The FDD is connected to the motherboard through a 34-pin Daisy-chained cable to **JFDD**. All odd pin numbers are grounded, pin assignments for even pin numbers are as follows:

2	Media Sensor	20	- Step
4	Reserved	22	- Write Data
6	Reserved	24	- Write Gate
8	- Index	26	- Track 00
10	- Motor Enable 1	28	- Write Protect
12	- Drive Select 2	30	- Read Data
14	- Drive Select 1	32	- Head One Select
16	- Motor Enable 2	34	Disk Change
18	- Direction		

   The types of floppy drives that are supported include 360KB, 720KB, 1.2MB, 1.44MB, or 2.88M floppy disk drives. 3-mode floppy disk drives are also supported.

6. **Power supply connector (JPS)**
   PS-1 and PS-2 connectors from the power supply is connected to **JPS** of the motherboard.

7. **HDD (IDE) connectors (JHDD1, JHDD2)**
   The PCI-bus IDE type hard disk drive(s) and/or CD-ROM drive can be connected to the motherboard by using the 40-pin Daisy-chained cable(s) to **JHDD1** and/or **JHDD2**.

1	- Host Request	2	GND
3	Host Data 7	4	Host data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	GND	20	Key
21	Reserved	22	GND
23	- Host IOW	24	GND
25	- Host IOR	26	GND
27	Reserved	28	Host ALE
29	Reserved	30	GND
31	Host IRQ14	32	- Host IO16
33	Host ADDR 1	34	GND
35	Host ADDR 0	36	Host ADDR 2
37	Host CS0	38	Host CS1
39	Host SLV/ACT	40	GND

8. **Clear CMOS password jumper (JCPW)**
   JCPW allows you to remember of clear CMOS password.

1-2	Normal
2-3	Clear Password

9. **VGA port connector (JVGA)**
   VGA interface is a built-in feature on the motherboard. You can connect a VGA monitor to **JVGA** connector.

10. **Audio line-out connector (JAUDOUT)**
    The stereo audio signal is outputted to the right and left speakers in the system from **JAUDOUT** connector mounted on the motherboard.

1	GND
2	OUTL
4	OUTR

12. **Audio line-in connector (JAUDIN)**
    The system accepts audio signals from external sources through this **JAUDIN** connector.

1	GND
2	LINEL
4	LINER

13. **Mic-in connector (JMIC)**

    External microphone for mini-tower model is connected to **JMIC**. (For desktop systems, external microphone is connected through Mic In Jack on the front panel.)

14. **Game port connector (JGAME)**
    A female DB15 (15-hole) game port connector **JGAME** is mounted on-board for connecting a joystick device.

15. **Standby power supply connector (JAPS_RV)**

1	PWRON (Active Signal)
2	Standby 5V
3	GND

16. **CPU cooler connector (JFAN)**

1	+ 12V	2	GND
3	+12V	4	GND

17. **CPU fan power connector (JCFAN)**

1	GND
2	+12V
3	GND

18. **CD audio line in connector (JCD)**
    Audio signals from CD-ROM drive are inputted to the system through this **JCD** connector.

1	CD IN R	3	CD IN L
2	GND	4	GND

19. **Hardware reset signal (JRST)**

20. **Front panel connector (JFP)**
    JFP connects to the front panel daughterboard, for output signals to the earphone of your system.

1	+5V	2	PWRLED
3	GND	4	HDLED
5	GND	6	SMISW
7	EARR	8	EARL
9	PHONEL	10	AUDOUTLL
11	PHONER	12	AUDOUTRR
13	KEY#	14	MICFP

21. **Fax/modem speaker connector (JMSPK)**
    JMSPK is for connection to add-on fax/modem's speaker signals.

1	MIC IN	3	MSPK
2	GND	4	GND

22. **USB port connectors (JUSB)**
    Two USB devices can be connected to this motherboard through the two ports provided by **JUSB** connector.

23. **Clear CMOS data jumper (JBAT)**

1-2	CMOS Clear
2-3	Normal

24. **DC switch power on/off connector (JPUSHBT)**

25. **Front panel (LED board) connector (JFPB)**

   JFPB connects to the LED board on the front panel of the system chassis.

1	+5V	2	SMISW*
3	PWRLED*	4	GND
5	--	6	GND
7	+5V	8	HDLED*

26. **PCI clock frequency (JCLK)**

   JCLK sets system clock frequencies.

PCI clock (MHz)	JPCI	
	1-2	3-4
25MHz	ON	ON
30MHz	OFF	ON
31.5MHz	ON	OFF
33MHz	OFF	OFF

27. **CPU internal clock select jumper (JBF)**
    JBF sets the core clock multiplier of the CPU.

CPU clock ratio	JBF	
	1-2	3-4
4X	ON	ON
6X	OFF	ON
7X	ON	OFF
8X	OFF	OFF

JCLK and **JBF** settings for different CPUs as follows:

Frequency (MHz)	JBF		JCLK		Remark
	1-2	3-4	1-2	3-4	
200	OFF	ON	OFF	OFF	33 MHz x6
233	ON	OFF	OFF	OFF	33 MHz x7
266	OFF	OFF	OFF	OFF	33 MHz x8
240	OFF	OFF	OFF	ON	30 MHz x8
220	ON	OFF	ON	OFF	31.5 MHz x7
251.5	OFF	OFF	ON	OFF	31.5 MHz x8

28. **IR daughterboard connector (JIR)**
    JIR connector is for connection of the optional IR daughterboard to your system. This daughterboard allows you to use wireless keyboard and wireless mouse.

✪ **Warning:** If you have installed this daughterboard, use wireless keyboard and mouse for your operations and remove keyboard and mouse cables from the system. The system will not function properly if both connections (cable and wireless connections) are installed.

29. **TV output connector (JTV)**

JTV connector is for connection of the optional TV card to your system. This daughterboard allows you to connect TV to the system through S-video signal output or composite video signal output.

1	+5V	2	+12V
3	CLKTVS	4	TVSDAT
5	CLKTVI	6	CLKTVO
7	THSYNC	8	TVSYNC
9	GND	10	GND
11	TVRG0	12	TVRGB1
13	TVRGB2	14	TVRGB3
15	TVRGB4	16	TVRGB5
17	TVRGB8	18	TVRGB9
19	TVRGB10	20	TVRGB11
21	TVRGB12	22	TVRGB13
23	TVRGB14	24	TVRGB15
25	3.3V	26	3.3V