

Moniputer System User's Manual



FCC & DOC Compliance

Federal Communications Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class 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 manufacturer's 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 off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to 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.

Warning! The use of shielded cables for the connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Version 2.0

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Compliance Statements

Power Cord Selection for 115V AC Supply

Use a UL-listed, or CSA-certified, grounding type parallel blade power cord rated 6A, 125V, with a maximum length of 15 feet (4.6 meters). One end should be terminated with a parallel blade grounding type plug, and the other end terminated with a grounding type appliance coupler. Refer to the diagram below for an example of the configuration. A 115V power cable should adhere to one of the standards shown in the table below.

Table 1. Power Cord Specifications

Rating Rating	Wire Gauge	Cable Type	Temperature
1250W, 10A-125V 105°	18	SVT, SJT	SVT-60°C, 75°C, 105°
1250W, 10A-125V	16	SJT	SJT-60°C, 75°C, 105°

Figure 1. 115V Power Cord



Power Cord Selection for 230V AC Supply

Use a UL-listed or CSA-certified grounding type tandem blade power cord rated 6A, 250V, with a maximum length of 15 feet (4.6 meters). One end should be terminated with a tandem blade grounding type plug, and the other end terminated with a grounding type appliance coupler. Refer to the diagram below for an example of the configuration.

Figure 2. 230V Power Cord



Conventions and Syntax

This manual follows a number of typographic conventions.

- Keys you press appear in the body of the manual enclosed in square brackets. For example, the symbol for pressing the Escape key is [Esc].
- Key combinations are enclosed in square brackets and joined with a plus (+) sign. For example, the symbol [Ctrl+Alt+Del] instructs you to hold down first the [Ctrl] key, then the [Alt] key, and then to press the [Del] key.

Procedure headings and lists of options are marked with a symbol (•) throughout the body of the manual for easy reference. Where they occur, procedural sub-headings are marked with a different symbol (–).

Special notices follow these conventions:



Information icons alert you to a special technique or information that may help you perform a task or better understand a process.



A caution icon alerts you to something that you should avoid doing or that might cause potential damage to hardware or loss of data, and tells you how to avoid the problem.



A warning icon alerts you to something that will cause problems or damage to hardware, software or data.

For the Record

For future reference, please record the following information in the spaces provided below.

The serial number is printed on a sticker located at the rear of the moniputer. You will see the BIOS reference number at the bottom line of the screen when you turn on the system.

Model Number: _____

Serial Number: _____

BIOS Ref. Number: _____

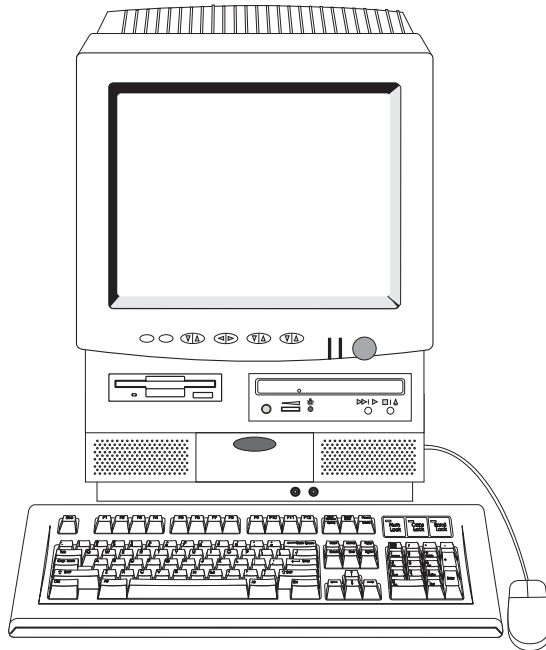
Date of Purchase: _____

Place of Purchase: _____

Introducing the Moniputer

Your new moniputer is an ultra-compact and fully IBM compatible computer, featuring the latest in Plug and Play personal computing technology. Designed for a wide range of multimedia, entertainment, general business and personal productivity applications, the moniputer makes an ideal choice for use in the office or at home. Standard features include a powerful Pentium microprocessor, fast PCI local-bus VGA graphics and integrated high resolution color monitor, state-of-the-art CD-ROM drive and stereo audio, a high performance hard drive and high density floppy drive, infrared communications port, advanced Energy Star-compliant power management capabilities, and support for a wide range of options and peripheral devices.

Figure 3. The Moniputer



Key Features

The moniputer includes a variety of innovative standard features, designed to meet the most demanding computing requirements:

- A powerful Pentium microprocessor
- A mainboard based on the Intel 430TX PCISet.
- Support for up to or 256MB of system memory, utilizing either standard SIMM or DIMM modules and support for Fast Page Mode, EDO and SDRAM memory.
- An advanced PCI bus architecture featuring two 32-bit PCI expansion slots and two 16-bit ISA expansion slots (one slot is a shared PCI/ISA expansion slot)
- A high-performance Enhanced IDE hard disk drive, connected to the PCI local bus for rapid data transfers. Support for Ultra DMA33 hard disk drives. Includes a 1.44MB diskette drive.
- An integrated 15" high resolution color monitor with an ATI Rage II+ DVD display card supporting true color display and resolutions as high as 1280 by 1024 pixels.
- A state-of-the-art high-speed CD-ROM drive, with CD audio controls.
- An integrated #d SRS Surround audio system, fully compatible with the Sound Blaster Pro, with built-in stereo speakers and microphone, plus ports for connecting external speakers, microphone, several external audio sources and headphones.
- Password-protected security features and firmware-based virus protection to safeguard your valuable programs and data against unauthorized access and computer viruses.
- Plug and Play compatibility
- Energy Star compliance with advanced power management capabilities, which conserves power by automatically shutting down inactive peripheral devices and system components.
- Automatic voltage detection, making the moniputer suitable for use virtually anywhere in the world with the appropriate power cord.

Optional Devices

In addition to its full feature set, your moniputer is designed to provide the same expansion and connectivity capabilities found in full-sized desktop systems. An easily accessible system tray allows you to add system and video memory, upgrade the microprocessor, and install standard ISA and/or PCI interface cards. Additionally the system tray can accommodate two special expansion modules which are available from your dealer:

- A fax/modem/voice telephony module, supporting the latest international standards and protocols for fast data communications, access to on-line services, computer facsimile capabilities, and voice telephony.
- A TV Tuner or dedicated MPEG card which works in conjunction with the moniputer's integrated graphics acceleration engine to make unsurpassed multimedia entertainment possible. The TV Tuner card accepts an optional MPEG daughterboard, and includes a remote control unit which allows fingertip control of the the moniputer from a distance.

Energy Star Compliance

In keeping with the environmental protection laws in many countries, your moniputer is designed for low power consumption. It conforms with the U.S. EPA (Environment Protection Agency) limitation of 30W power consumption when the system is not in use. The Energy Star logo certification you see on the packaging and at power-on attests to this conformance.

How to Use this Manual

This manual contains all the information you need to setup and use the moniputer. In addition to this manual, you may also want to consult the included software manual, as well as the manuals for your operating system and software applications.

Whether you are a new or an experienced user, you will benefit more from this manual if you are familiar with its organization. The manual is divided into four chapters, plus appendices.

Chapter 1 provides a brief introduction to the moniputer, summarizing its main features, the organization of the User's Manual, and the safety precautions you should follow.

Chapter 2 provides step-by-step instructions to help you unpack, setup and begin using the moniputer as quickly as possible. This chapter also includes a "Quick Setup" section for advanced users.

Chapter 3 provides important information on the daily use of the moniputer, covering topics such as use of the keyboard and mouse, use of diskettes, hard drives and the CD-ROM drive, and enjoying the moniputer's audio capabilities. Also covered are connecting a printer, attaching a modem or other serial device, infrared communications and power management.

Chapter 4 provides detailed technical information on how to upgrade the moniputer. Topics covered include disassembly, adding system and video memory, microprocessor upgrades, installing adapter cards, as well instructions on how to upgrade the moniputer's hard disk drive.

Various appendices provide advice on the routine care and maintenance of the moniputer plus a guide to troubleshooting problems that may arise in the use of the moniputer. Also included are detailed specifications on your moniputer and the built-in ports, as well as a comprehensive glossary of terms used throughout this manual and tables detailing various technical specifications.

Safety Precautions

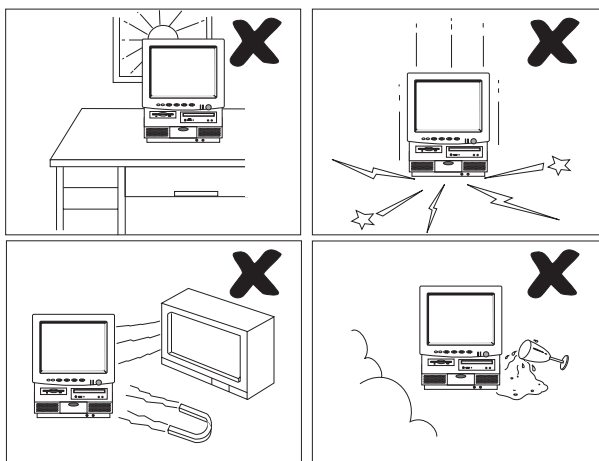


- Follow all warnings and instructions which may be marked on the moniputer.
- Except as described elsewhere in this manual, refer all servicing to qualified personnel. Immediately shut off the moniputer and refer for servicing under the following conditions:
 - when the power cord or plug is damaged or frayed
 - if liquid has been spilled on the moniputer
 - if the Moniputer has been dropped or the cabinet damaged
- Do not attempt to disassemble the moniputer unless you have good reason to do so. Refer all servicing to a qualified service technician or your dealer. Irresponsible use of your system will invalidate your warranties and may cause injury and/or damage to the moniputer.
- Never push objects of any kind into cabinet openings. They may touch dangerous voltage points or short parts that could result in fire or electrical shock.
- Keep all liquids away from the moniputer and its accessories.
- If the line voltage in your area is unreliable, use a voltage regulator to protect your system from possible harmful effects caused by sudden electrical surges.
- Avoid placing your system on an unstable stand or surface subject to bumps and violent shaking.
- Turn off the moniputer before connecting an external device or removing the system tray.
- Turn off the moniputer and disconnect the power cord before cleaning.
- Never place objects on top of the moniputer or otherwise obstruct air flow around the unit.



Make sure you ground yourself before handling system components. Static electricity can easily damage computer components. Note that you must take special precautions when handling the mainboard in dry or air-conditioned environments.

Figure 4. Safety Precautions



Getting Started

Introduction

Your moniputer is designed for easy setup and use. This chapter describes the steps you should follow to get the moniputer up and running as quickly as possible. Detailed explanations and descriptions of the moniputer's features and operating instructions can be found in the next two chapters, but you'll find all the information you need to get started in the sections which follow.

Quick Start for Experienced Users

This section is intended only for experienced computer users who wish to get up and running with a minimum of fuss. New or less experienced users are strongly advised to read this chapter in its entirety.

- Unpack the moniputer from its shipping carton and place it in a suitable workplace near a grounded electrical outlet.
- Connect the keyboard to the keyboard connector at the rear of the moniputer.
- Connect the mouse to the mouse connector at the rear of the moniputer.
- Connect the power cable to the power connector at the rear of the moniputer and to a grounded electrical outlet.
- Turn on the system.

Unpacking the Moniputer

Locate a suitable workplace

Before you begin unpacking your moniputer locate a secure, well-ventilated platform on which to place it. A suitable workplace should be a comfortable environment for you to work in and have the following features:

- A stable, level surface, which can support the weight of the moniputer, as well as any external devices you plan to use (such as a printer).
- Located near a grounded electrical outlet.
- A well-ventilated environment, free from direct sunlight, too much dust or extreme temperatures.

Unpacking procedures

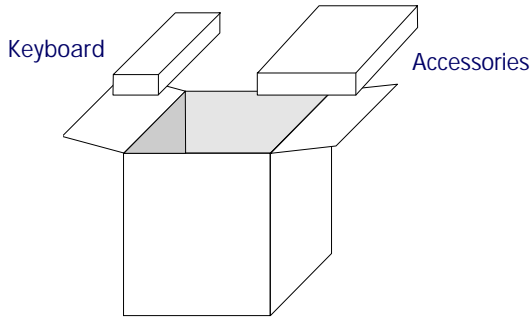
Once you have set up a suitable workspace, you can begin unpacking the moniputer by following the steps below:



Do not unnecessarily damage or throw away the shipping carton or internal packing materials. This material will be required should you need to ship the moniputer or return it for servicing.

- Ensure that the shipping carton is in an upright position and unseal it.
- Carefully open the carton and remove the top two boxes. One box contains the keyboard; the other contains the accessories (power cord, mouse, driver and utility diskettes, and user manuals).

Figure 5. Package Contents



- Remove the next two layers of packaging material to reveal the top of the moniputer.

Despite its compact size, the moniputer is quite heavy. If you have a history of back problems or are having difficulty removing the moniputer please seek assistance.

- Use both hands to carefully lift the moniputer from the shipping carton and place it on a stable, level surface.
- Inspect the package contents. In addition to this User's Manual and the moniputer, the shipping carton should contain the following items:
 - Keyboard
 - Mouse
 - Power cord
 - Utility diskettes or CD-ROM
 - Software User's Manual
 - Mainboard User's Manual
 - Optional software and accessories

Carefully inspect each component to make sure nothing is missing or damaged. If any of these items is missing or damaged, notify your dealer immediately. Be sure to save the shipping materials and carton in case you need to ship or store the moniputer in the future.

Making Connections

Once you have ensured that nothing is missing or damaged, proceed to set up the moniputer by continuing with the steps below:

- Position the moniputer so that the rear of the unit is accessible.
- If you have not already done so, unpack the keyboard and accessories and connect the keyboard cable to the keyboard port at the rear of the moniputer. Ports at the rear of the unit can be identified by the icons appearing above them.
- Remove the mouse from the accessories box and connect the mouse cord to the mouse port at the rear of the moniputer.
- Remove the AC power cord from the accessories box and connect the female plug to the power connector at the rear of the moniputer. Connect the male plug to a grounded electrical outlet.
- Adjust the position of the moniputer, keyboard and mouse so that the moniputer is free of obstructions and arranged in a way with which you will be comfortable when working in front of it..

The moniputer is now ready for use.

- 1 Audio & Display Controls
- 2 Hard Disk & Power Lights
- 3 Power Switch
- 4 Floppy disk drive
- 5 CD-ROM drive
- 6 Infrared Sensor
- 7 Headphone & Mic jacks
- 8 Built-in Microphone

A Quick Tour of the Moniputer

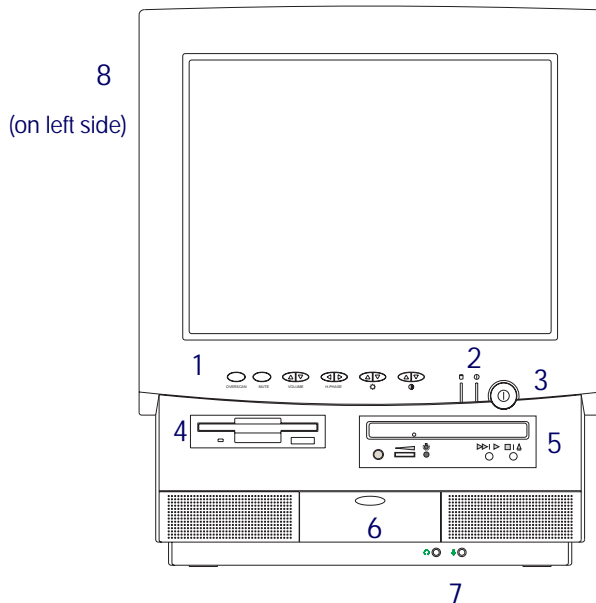
Please take a moment familiarize yourself with the location and purpose of the external controls, connectors and ports on the moniputer, illustrated in the following figures.

The illustrations and descriptions which follow refer to a typically configured moniputer. Your system may be differ slightly.

The Front Side

If you first examine the front of the moniputer you will find that all the most important controls have been conveniently located to allow easy access to its many features. The majority of these controls are clearly marked or require little explanation, but you should read the descriptions which follow and refer to the illustration below to ensure you understand and get the most from your new system.

Figure 6. The Front of the Moniputer



Power Switch

The moniputer features a single power switch. Press this switch to turn the system on or off.

Power and Hard Disk LED Indicators

Two large LED indicators next to the power switch tell you at a glance that the system is powered on, and if hard disk activity is occurring. When the power LED begins blinking, the system has entered a power management mode. You will find a complete discussion of power management in the next chapter.



Never turn off or reset the system while the hard disk activity LED is lit or the power LED is blinking. Doing so can result in loss of data.

Color Display and Digital Controls

The moniputer features a high resolution color integrated display, with a full compliment of digital controls for adjusting brightness, contrast and image size and position. An overscan control is also included for full-screen multimedia viewing.

Disk Drives

A 3.5" 1.44MB diskette drive which is assigned as drive A: is included with the moniputer as standard equipment. A small LED indicator located beneath the diskette drive informs you of drive activity. A hard disk drive is mounted inside the moniputer cabinet and assigned as drive C:.

CD-ROM Drive

The moniputer also features a state-of-the-art CD-ROM drive, which will typically be assigned as drive D: by your operating system. The CD-ROM drive features a motorized tray and a full range of playback controls, a headphone jack and a separate volume control to enhance your audio CD listening pleasure. A small LED indicator located beneath the drive informs you of CD-ROM drive activity.

Audio Speakers, Jacks, Microphone and Controls

The moniputer features a complete stereo sound system which includes 16-bit digital audio playback and record capabilities, built-in stereo speakers, a built-in microphone for voice annotations (the microphone is located on the left side of the moniputer), as well as front-mounted jacks for connecting an external microphone and headphones. Digital volume controls and a mute button are located along side the display controls for easy access. At the rear of the moniputer (see below) you'll also find jacks for line-in from, and line-out to, external sources such as third-party TV tuner cards and voice fax/modems. Software included with the moniputer turns your new computer into a complete stereo sound system.

Infrared Remote Control Sensor

An infrared sensor located in the center of the moniputer allows you to transfer data to and from any device that adheres to the IrDA, HP-SIR or ASK IR standards for wireless communications, such as personal digital assistants (PDAs) and many new notebook computers and printers. The sensor also accepts signals from the remote control unit which is included with the optional TV tuner card; consult your dealer for further information.

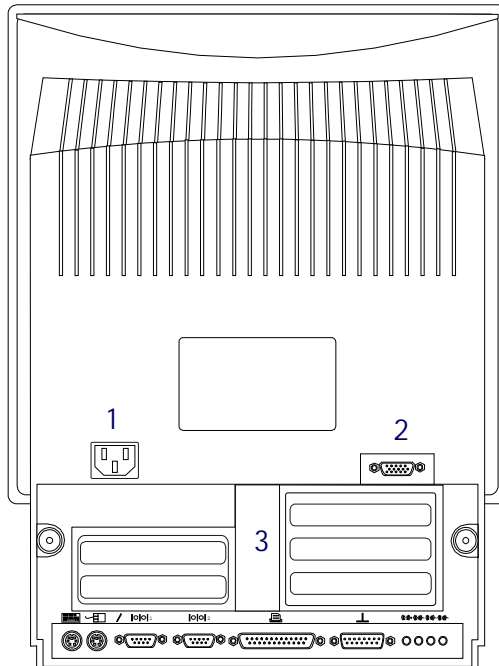
Keyboard and Mouse

A full size PS/2 keyboard and mouse are also included with the moniputer. Special keys and key combinations on the keyboard allow you to control certain aspects of the moniputer's capabilities, while the included mouse provides intuitive point-and-click control over the latest software and multimedia applications, and features software-controlled button swapping to facilitate left- or right-handed use.

The Rear Side

If you next turn to the rear of the moniputer you will find a label with the product identification and serial number, as well as pertinent certification codes and safety notices. You will also find a full compliment of I/O (input-output) ports and jacks which are clearly identified by the etched icons above them.

Figure 7. The Rear of the Moniputer



Keybd., Mouse, COM1, COM2, Parallel, Game/Midi, Audio Ports

Audio Ports: Line-In, Line-Out, Modem, TV Tuner

- 1 AC Power Cord Socket
- 2 External VGA Input
- 3 Expansion Slot Bays

AC Socket

The male AC socket on the moniputer connects the AC power cord that accompanies your system to a ground electrical wall or floor outlet. Be sure to use only approved three-prolonged AC power cords to protect your moniputer against electrical spikes, surges and static electricity.

PS/2 Keyboard Port

The keyboard port is where you plug in the PS/2 cable from the included AT-enhanced keyboard.

PS/2 Mouse Port

The mouse port is where you plug in the cable from the included PS/2 mouse.

Serial Ports

The serial ports on your moniputer allow you to connect up to two serial devices, such as a serial printer, serial pointing device or external modem. Many operating systems and software applications refer to these ports as COM1 and COM2, respectively. You will find a full description of these ports in the next chapter.

Parallel Port

The parallel port allows you to connect a printer to your moniputer. Many operating systems and software applications refer to this port as LPT1.

Game/MIDI Port

The game/MIDI port allows you to connect a joystick, game pad or MIDI-compliant device to your moniputer.

Video Input

The video input port is provided to accept a video output cable for many third-party TV or image capture card you might choose to add to your moniputer, as well as from another computer. This allows you to use the moniputer as a stand alone monitor for connection to, for example, your notebook computer when working at home or in the office. Note that use of this port is unnecessary if you install the moniputer's optional TV tuner or MPEG card; consult your dealer for details. The video input port accepts a standard 15-pin signal cable.

PCI/ISA Expansion Slots

The moniputer can accommodate up to three PCI and/or ISA adapter cards inside the chassis. An additional slot is provided to accept a proprietary fax/modem/voice telephony module; consult your dealer for details.

Audio Jacks

At the far right rear of the moniputer you will find a set of audio line-in and line-out jacks. The line-out jack can be used to feed the moniputer's audio signals out to external speakers or an audio recording device. The three line-in jacks can be used to feed an audio signal, such as from a tape recorder, modem or TV tuner card, into the moniputer's integrated audio system.

Starting the Moniputer

Now that you have set up and are familiar with the moniputer, you can turn on the system and start using the moniputer by following the steps below.



Always wait at least 30 seconds after turning off the moniputer before turning it back on; turning the power on and off in rapid succession can damage the moniputer's electrical circuitry.

- If you have not already done so, connect the keyboard and mouse to the proper ports at the rear of the moniputer, and connect the power cord to the moniputer and a grounded electrical outlet.



Your dealer may have packaged the moniputer with an operating system (and other software) pre-installed on the hard drive. If so, you can skip the next step.

- Insert your operating system diskette into the diskette drive until the drive clicks. If the diskette is inserted correctly, it drops into position and the diskette drive button pops out.
- To power on the system, press the power on switch. You will see the power and hard drive LEDs light up.
- After a few seconds, the moniputer will begin to execute an internal diagnostic program which is automatically run whenever the system is turned on. The Power-On-Self-Test (or POST) checks the memory, keyboard, system board and other components of your moniputer before the system begins normal operation.



If an error message appears on screen, you may need to run the moniputer's Setup program to confirm your system configuration. This additional step may sometimes be necessary if the moniputer has had a prolonged shipping or shelf life. Refer to the subsection below on "Running the Setup program" for instructions.

Adjusting Screen Brightness and Contrast

If you have trouble reading the screen you can adjust the display through the use of the digital brightness and contrast controls located immediately beneath the display.

Running the Setup program

Your moniputer is likely to have been properly setup and configured by your dealer prior to delivery. However, the first time you start the moniputer you may find it necessary to use the built-in BIOS (Basic Input-Output System) Setup program to confirm system configuration information, such as the current date and time or your hard drive type. You will find a complete discussion of the moniputer's Setup program in the included Mainboard User's Manual. However, to get the moniputer up and running as quickly as possible the following steps will suffice.

To enter the Setup program when you first start or reset the moniputer, or when an error message is displayed on screen, press the [Del] key. This will display the Setup program main menu, which is illustrated below (your Setup screens may be slightly different, depending on your moniputer's configuration and BIOS version).

Figure 8. Setup Program Main Menu



- Use the cursor (or arrow) keys on the keyboard to move the selection bar to the menu option Load Setup Defaults, and then press the [Enter] key. You will be prompted for confirmation.
- Next, move the selection bar to the main menu option IDE HDD Auto Detection and press [Enter]. The Setup program will automatically determine your hard disk type and ask you for confirmation. If you are offered more than one choice in the list that appears on screen (a single hard disk can be configured in up to three different ways), choose the first listed option.
- Next, move the selection bar to the main menu option Standard CMOS Setup and press [Enter]. The Standard CMOS Setup screen will appear. Confirm that the date and time are correct, and that your diskette drive type is correctly recorded. The moniputer typically ships with a 1.44M, 3.5" drive.
- Finally, return to the Setup program main menu and select the menu option Save & Exit Setup. You will be prompted for confirmation and the system will "reboot" (or restart).



If the system fails to start at this point (the screen is blank or an error message appears on screen), contact your dealer.

Installing System Software

The hard drive included with the moniputer has been factory low-level formatted and is ready for operating system installation. Your dealer may have packaged the moniputer with an operating system (and other software) pre-installed on the hard drive. If so, your moniputer is ready for use at this time, and you can skip this section.

If an operating system has not been pre-installed, you will need to prepare your hard drive for use by an operating system of your choice. The actual procedure involved depends on which operating system and version you plan to use.

Installing An Operating System

Recent releases of operating systems from major software vendors include setup programs which load automatically, and guide you through hard disk preparation and operating system installation. The guidelines below will help you determine the steps necessary to install your operating system on the moniputer's hard drive.

- If you have not already done so, insert your operating system's installation or setup diskette into the diskette drive until the release button pops out.
- Power on your moniputer or reset the system by pressing the [Ctrl+Alt+Del] keys simultaneously. The moniputer will automatically load the operating system from the diskette.
- If you are presented with the opening screen of a setup or installation program, follow the instructions on screen. The setup program will guide you through preparation of your hard drive, and installation of the operating system.
- If you are presented with an operating system command prompt, such as A:\>, then you must partition and format your hard drive, and copy the operating system files to it, manually. Refer to your operating system User's Manual for instructions on partitioning and formatting a hard drive.



Your moniputer uses an ATA/IDE-type hard drive, which is factory low-level formatted for optimal performance. Under normal circumstances, you should never low-level format this type of hard drive.

Installing moniputer drivers and utilities

After copying an operating system and your application software to the hard drive, you may want to install the enhanced drivers and utility software included with your moniputer. This software includes drivers and utilities which enhance the use of various components of the moniputer under DOS and Microsoft Windows. Refer to Section 5 for more information.

Shutting Down the System

To power off the moniputer, first ensure that the hard disk and diskette activity LEDs are not lit, and that you have exited any open applications, and then press the power switch. The power LED will go out.

Your computer integrates Power Saving features that allow you system to go into a power saving (or “standby”) mode after a set period of system inactivity. Do not be alarmed if the screen suddenly turns off by itself or you hear the hard disk drive spin down. Simply press a key on the keyboard or move the mouse and the system will resume full activity. More information on power management is provided in the following chapters.

How To Reset The System

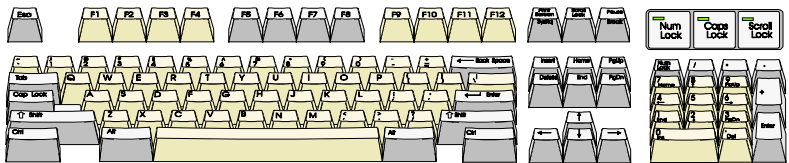
After installing an operating system or a software application package on your hard drive, you may be prompted to reset the system to load the changed operating environment. To reset the system, or “reboot” the operating system, press the [Ctrl+Alt+Del] keys simultaneously.

If the keyboard (or “software”) reset switch fails to function, you can alternatively reset the system by powering the system off, waiting approximately ten seconds, and then powering the system back on.

Introduction

A Tour of the Keyboard

Figure 9. Keyboard Layout



Your moniputer may include, and is fully compatible with, a 104-key keyboard designed for Windows 95. Refer to your Windows 95 documentation regarding the function and purpose of the special Windows 95 logo and application keys.

You will notice that the placement of the normal alphanumeric characters, like [A] or [9], conforms to the conventions of an ordinary typewriter. However, if you are new to computers, you will also notice that some keys, like [Ctrl] and [Ins], have no equivalent on ordinary typewriters. The functions of these keys largely depend on which operating system and software application program you are using at any particular moment, but as a general rule the following conventions apply:

- Press the [Enter] key to execute a command. Within many text editing application programs, the [Enter] key inserts a hard carriage return, just as it does on an ordinary typewriter.
- Press the [Shift] key, in combination with another key, to produce uppercase characters, or to enter symbols like % or # which are marked in the upper left corner of some keys. Some software application programs use the [Shift] key, in combination with other keys, to enter commands.
- Press the [Backspace] key to delete characters as it moves the cursor to the left. As on an ordinary typewriter, the [Backspace] key is used to correct typing mistakes.
- Press the [Esc] (escape) key to cancel or escape from a command or function.
- Press the [Print Screen] key to send the information on screen to a printer connected to the computer's parallel port.
- Press the [Pause] key to temporarily halt execution of a command. Pressing any other key resumes execution.
- Press the [Ins] (insert) key to change keyboard data entry from insert to typeover mode and back. In insert mode data entry made at the current cursor position is inserted into the data stream; in typeover mode, data entry at the current cursor position overwrites data to the right of the cursor.

- Press the [Del] (delete) key to delete the character to the right of the cursor, and move all remaining characters to the right of the cursor one space to the left.
- Press the [Tab] key to move the cursor to the next tab stop on the right, just as you would on an ordinary typewriter. In some software applications, pressing this key in combination with the [Shift] key will move the cursor to the previous tab stop on the left. The [Tab] key is also often used to cycle among dialog boxes and menu buttons.
- Press the [Caps Lock] key to lock entry of upper case characters, just as you would on an ordinary typewriter. Note that number and symbol keys are not affected by [Caps Lock] engagement.
- The [Ctrl] (control) key, in combination with other keys, is used by many software application programs to perform or modify actions, and to access special features and commands of a program. Refer to your software application manual for details.
- The [Alt] (alternate control) key, in combination with other keys, is also used by many software application programs to perform or modify actions, and to access the special features and commands of a program. Refer to your software application manual for details.

The Cursor and Editing Keys

Your keyboard is also equipped with four cursor direction (or arrow) keys, which control the movement of the cursor, and six editing control keys. Note that, unlike when using the [Spacebar] or [Backspace] keys, characters are not affected by the movement of the cursor over them.

The Function Keys

The keys in the top row of the keyboard, marked [F1] through [F12], are called the function keys. The function keys are used by many software application programs to perform or modify actions, and to access special features and commands of a program. Refer to your software application manual for details.

The Numeric Keypad

Your keyboard is also equipped with a separate numeric keypad, which offers an optional method for entering a series of numbers and arithmetic operators, similar to an ordinary adding machine. The numeric keys are engaged by first pressing and engaging the [Num Lock] key. When the numeric keypad is operational, the Num Lock status indicator light is on. To return to normal keyboard operation, press the [Num Lock] key again.

Using the Mouse

The moniputer includes a Microsoft-compatible PS/2 mouse which allows you to conveniently take advantage of software that requires or recognizes a pointing device. The mouse combines high resolution fingertip control and an ergonomic design equally suitable for left-handed and right-handed users.

Drivers and Utilities

The moniputer's integrated pointing device is 100% compatible with the Microsoft Mouse and IBM PS/2 mouse, and as such does not require a device driver to work with application software that directly supports a PS/2 mouse or under Windows.

Mouse Use

If you have never used a mouse before, take a moment to become familiar with how the pointing device works after configuring your software to recognize the mouse.

- Hold the mouse in your hand, resting your forefinger over the left button.
- Move the mouse with your hand. When you move the mouse the pointer moves across the screen.
- Select an object by moving the pointer to the object you want to select, and then press and release (or “click”) the left button with your finger. Another way to select an object is to move the pointer to the object you want to select and then rapidly click the left button twice in a row (or double-click on the object).
- To drag an object from one location on screen to another you first move the pointer to the object you want to drag, then press and hold down the left button while moving the object to a new location. Release the button to drop the object in its new position.

Maintaining the Mouse

The mouse has a self-cleaning ball cage mechanism on the bottom that prevents build up of dust or lint around the ball and tracking mechanisms under normal conditions. If you do need to clean the ball of dust or lint:

- Turn the moniputer off.
- Turn the mouse upside down and remove the ball housing cover after noting the directional arrow etched into the mouse.
- Clean the ball using tap water and a mild detergent, and then dry it thoroughly with a clean, lint-free cloth.
- Remove remaining dust or lint by blowing into the ball cage.
- Put the ball into the cage, and then fit the ball housing cover over the ball until it locks.

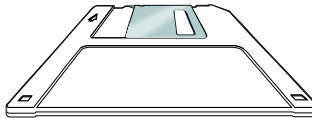
Disabling the PS/2 Mouse

If you wish to disable the moniputer's PS/2 mouse in order to use a serial mouse or for some other reason, you need only disconnect the mouse cord from the PS/2 mouse port at the rear of the moniputer. Most software applications will check the PS/2 port first, before querying the serial ports, for the presence of a pointing device.

Using Diskettes

The diskettes used by the moniputer are made of flexible magnetic material, and enclosed in a protective plastic case. The case protects the magnetic surface of the disk against scratches, bending and dust. A shutter on the case opens automatically when inserted into the moniputer's diskette drive, exposing the disk to the drive's read/write head, which can then retrieve, record or erase data on the disk's magnetic surface. When the system attempts to access a diskette, the disk starts to spin within its plastic casing, and the read/write head locates the proper position on the disk and performs the operation you requested.

Figure 10. 3.5 Inch Diskette



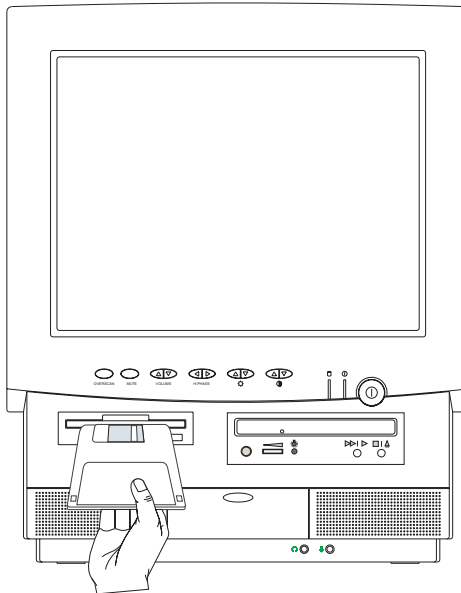
The moniputer is equipped with a high-density 3.5 inch diskette drive, which can read and write to either double-density 720KB diskettes or high-density 1.44MB diskettes. These two types of diskette are sometimes labelled as 1.0-MB and 2.0-MB diskettes, respectively, but these labels refer to their unformatted capacities; your operating system determines their usable formatted capacity. Note that double-density and high-density diskettes are physically very similar, but even in the absence of any identifying mark you can distinguish among them by the presence of a second square cutout in the lower right corner on a high-density diskette. Also notice that both types of diskette have an arrow imprinted on the front upper left corner, and a sliding write-protect tab on the bottom left corner, as illustrated above. When opened, the write-protect tab prevents data from being written to, or erased from, the diskette.

When you purchase software application programs for the moniputer, be sure to specify a 3.5 in. diskette format.

Inserting and Ejecting Diskettes

- To insert a diskette, hold it with the arrow facing up and towards the drive. Slide the disk into the drive until it clicks into place. Note that new diskettes must be prepared by your operating system before you can use them for data storage; see your operating system manual for details.

Figure 11. Inserting a Diskette



- To eject a diskette, first ensure that the drive activity light is off, and then press the eject button on the drive. When the diskette pops out of the drive, remove the diskette and store it properly.

Caring for Diskettes

The 3.5 inch diskettes used by your moniputer are sturdy and reliable, but they are not indestructible. To avoid damaging your diskettes take the following precautions.

- Never turn off or reset the moniputer while the diskette drive activity light is on.
- Never leave a diskette in the drive when the moniputer is powered off, or when you are transporting the moniputer.
- If your diskettes contain valuable programs and data, keep a second, backup copy on hand.
- Always store your diskettes in a safe, clean container, to protect them from the environment and magnetic fields.

Using the Hard Drive

Unlike a “floppy” diskette, a hard disk is rigid and completely sealed in a protective, dust-free environment. A hard disk works very much the same as a diskette, but it can retrieve and record data much faster and has a much larger storage capacity.

The moniputer is equipped with a 3.5" enhanced integrated drive electronics (or EIDE) hard drive, coupled to a PCI local bus controller. This type of drive embodies the latest in fast, reliable mass storage by integrating all the control circuitry necessary for operation directly onto the drive itself. This in turn allows the hard drive manufacturer to carefully optimize drive performance. Once you have installed an operating system on your hard drive, you will want to install all your software applications on it as well, and perform all your work from the hard disk, using diskettes only for backup and archival purposes.

Drivers and Utilities

The moniputer's integrated PCI local bus hard disk controller is 100% compatible with industry standards, and as such does not require a device driver to work properly with today's operating systems. However, certain versions of the moniputer may include special device drivers and utilities on the included utility diskettes which allow certain operating systems and environments to take added advantage of the PCI controller's advanced features; on other versions of the moniputer, these features may be automatically handled by the system BIOS. These advanced features include support for the latest Mode 3 and Mode 4 PIO modes, 32-bit access, and multiple sector transfers (or block mode). Please refer to Section 5 for more information on drivers and utilities that come on the Support Disk.

Hard Drive Precautions

The hard drive included with the moniputer is reliable, but you should be aware that hard drives do fail occasionally. To avoid damaging your drive, and to protect your valuable data, you should take the following precautions:

- Never turn off or reset the moniputer while the hard disk LED is lit.
- Make regular backups of your hard drive and keep a backup copy on hand.

Using the CD-ROM Drive

An integrated state-of-the-art CD-ROM drive makes accessible a wealth of new applications for business, education and home entertainment, and rounds out the mass storage features of your moniputer. CD-ROM has a physical structure which is similar to the common audio compact disk and you can, in fact, play audio CDs on the moniputer; capable of storing over 600MB of data on an expensive compact 4.72" platter, they have become the medium of choice (and necessity) for software publishers and multimedia titles. Unlike a "floppy" diskette or hard disk, however, the moniputer's CD-ROM drive is a "read-only" device; it places a world of information at your fingertips but you cannot save information to a CD-ROM or otherwise use it for your own mass storage purposes. Nevertheless, an increasing number of business, education and entertainment applications now ship on CD, making the CD-ROM drive an essential component of any advanced personal computer today. Your moniputer, in turn, answers this necessity by including one of the most advanced CD-ROM drives in the world.

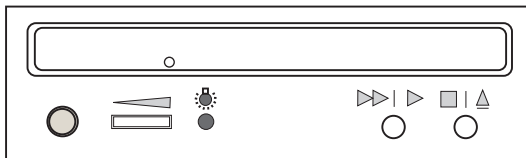
The moniputer's integrated CD-ROM drive has the following features:

- Support for the widest possible range of CD-ROM standards, including CD audio, ISO9660, High Sierra, CD-ROM XA, and Kodak Photo-CDs.
- High speed operation and data transfer.
- Quality audio output playing standard audio compact discs, with a full set of independent front panel controls and a an output jack to a set of stereo headphones.
- An electrically powered tray for ease of use.
- Full MPC-II compliance.

CD-ROM Controls and Audio Features

In addition to control software included with the moniputer, the CD-ROM drive features a full set of easily accessible manual controls which make direct audio playing possible.

Figure 12. CD-ROM Controls



- To load or eject a disc, press the Eject/Load button. The motorized tray will move in or out, allowing you to place a disc on, or remove a disc from, the tray (see the next section).
- To play or pause playing of an audio CD, press the Play button. To advance to the next track of an audio CD, press the button again.

A busy LED indicator lights when the drive is in use. You should avoid pressing the Eject/Load button when the busy indicator is lit.

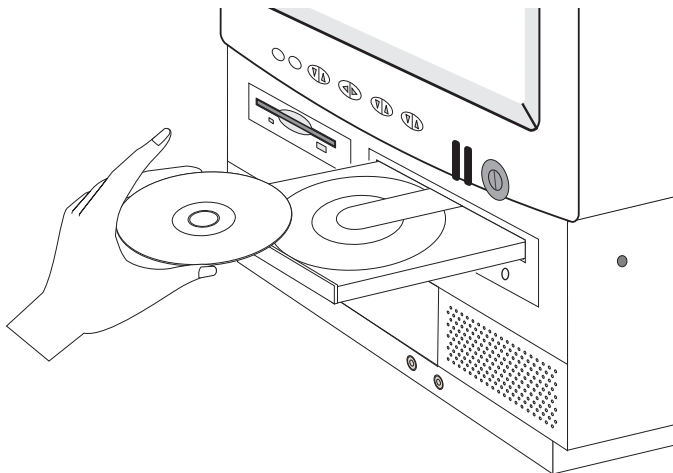
Using the Audio and Headphone Features

A dedicated headphone jack is also provided on the CD-ROM to allow you to listen to audio CDs independently of the moniputer's audio subsystem. The volume control knob controls headphone volume level. When the knob is turned to the right, volume increase; when turned to the left, volume decreases. You will find a complete description of the moniputer's audio subsystem later in this chapter.

Inserting and Ejecting CDs

- To insert a CD, press the Eject/Load button while the moniputer is turned on. The disc tray will eject. Set the CD on to the tray with the label facing up. When an 8 cm disc is used, set it into the lower groove at the center of the tray. After the disc has been placed on the tray, press the Eject/Load button or lightly push the tray for automatic retraction of the tray into the CD-ROM drive.

Figure 13. Handling Compact Discs



- To remove a CD, first confirm that the busy indicator is not lit and then press the Eject/Load button while the moniputer is turned on. The disc tray will eject. Remove the CD from the tray and store it properly. Then press the Eject/Load button to retract of the tray into the CD-ROM drive.



Do not push down on the extended disc tray and do not place heavy objects on it, as this may seriously damage the disc tray or break it off.

Drivers and Utilities

The moniputer's integrated CD-ROM drive is completely compatible with the ATAPI standard for IDE CD-ROM drives. Many of the new operating systems will autodetect your CD-ROM. There is also some CD-ROM performance enhancing software for Windows 95 on the Support Disk. The software is in the Cdxpress folder in the BusMaster folder. Please see Section 5 for more information on the Support Disk.

Compact Disc Precautions

Compact discs and the CD-ROM drive are reliable when handled properly. To ensure long life, you should take the following precautions:

- Avoid pressing the Eject/Load button, and turning off or resetting the moniputer while the CD-ROM busy indicator is lit.
- When handling discs, do not touch the data surfaces (the shiny underside of the disc). Always hold the disc by the edges or by one edge and the center hole.
- Do not affix labels or adhesive tape, and avoid scratching or other damage to either side of a disc.
- Store discs properly when not in use.



Never use damaged, cracked or warped discs. If a disc should break inside the CD-ROM drive, it could damage the drive optics.

Using the Display Subsystem

The moniputer's integrated high-resolution display and graphics acceleration engine deliver sharp, vivid and flicker-free images while providing the photo-realistic color depths, accelerated speed and advanced features. The display features a flat-square screen capable of resolutions as high as 1280 by 1024 pixels, and digital controls for adjusting size, position, and the brightness and contrast settings.

The moniputer's display subsystem includes the following features:

- Conveniently mounted digital controls for full control over brightness, contrast, image size and position.
- Power management conforming to VESA DPMS and EPA Energy Star standards to control energy consumption when the display is not in use.
- An overscan function for full screen viewing and when using a TV tuner or playing the latest multimedia titles.
- Display resolutions from 640 by 480 to 1280 by 1024 pixels, with color depths of 4, 8, 15, 16 and 24/32 bits per pixel.
- The ATi Rage II+ DVD PCI graphic display system.
- Support for a wide range of refresh rate settings for each display mode, allowing you to synchronize video signals to your monitor for optimal viewing comfort. The refresh rate you select determines the number of times per second the display card redraws the screen display. Faster refresh rates are less likely to cause eye fatigue due to screen flicker.
- Upgradeable SODRAM display memory for higher resolutions with more colors. With 2MB of display memory, a maximum resolution of 1280 x 1024 pixels with 256 colors is possible, with photo-realistic 24-bit color at a resolution of 800 x 600, and 65535 colors at resolutions as high as 1024 x 768 pixels.
- Full IBM VGA compatibility, with register-level CGA and EGA backwards compatibility. The display subsystem also features BIOS-level VESA compliance, allowing you to run virtually any application in its native default display mode.

Adjusting the Display

The moniputer's high resolution integrated display can be adjusted for brightness, contrast, image size and position, and set to overscan through the use of easily accessible digital controls, which are illustrated below. Brightness, contrast, overscan and horizontal positioning feature dedicated controls. These same controls allow you to adjust horizontal size, vertical size and vertical positioning after first pressing the overscan control for six (6) continuous seconds.

Figure 14. Display Controls



- To switch between normal and overscan viewing, press the overscan control. When the display is in overscan mode, the power LED will be lit orange; when in normal mode it will be lit green.
- To increase display brightness, press the up brightness control; to decrease brightness, press the down brightness control.
- To increase display contrast, press the up contrast control; to decrease contrast, press the left contrast control.
- To move the horizontal position of the image to the left, press the left H-Phase control; to move the image to the right, press the right H-Phase control.

- To adjust the horizontal size of the display, first press the overscan control for six continuous seconds. When the Power LED begins flashing rapidly (every 0.2 seconds), press the right H-Phase control to increase horizontal size or press the left H-Phase control to decrease horizontal size.
- To adjust the vertical size of the display, first press the overscan control for six continuous seconds (if you have not already done so). When the Power LED begins flashing rapidly (every 0.2 seconds), press the down brightness control to decrease vertical size or press the up brightness control to increase vertical size.
- To adjust the vertical position of the display, first press the overscan control for six continuous seconds (if you have not already done so). When the Power LED begins flashing rapidly (every 0.2 seconds), press the down contrast control to move the image down or press the up contrast control to move the image up.

Enhanced Display Drivers

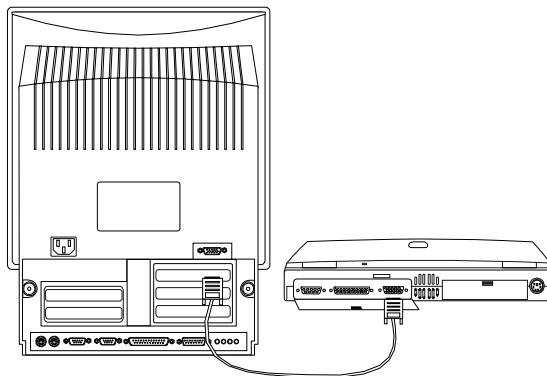
The PCI local bus video display system incorporated into the moniputer is completely compatible with the VGA standard and as such needs no utility software or display drivers to run application software in standard VGA resolution. However, software utilities and enhanced drivers are provided on the support disk to install and use the features of the ATi display. The ATi software offers additional controls and multiple color and resolution combinations. Refer to Section 5 for further information.

Using The Integrated Monitor With Another Computer

The moniputer's integrated display can also be used as a stand alone monitor when connected to another notebook or desktop computer. When you connect, for example, your notebook computer to the moniputer, the moniputer's integrated display automatically switches to display images from your notebook computer. To use the moniputer as a stand-alone monitor, follow the steps below:

- Be sure that both the moniputer and the external computer are turned off.
- Locate the VGA input port at the rear of the moniputer.
- Attach the appropriate end of a standard VGA monitor cable to the VGA input on the moniputer, as illustrated below. If necessary, attach the other end of the monitor cable to the VGA output port on your desktop or notebook computer. If the monitor cable connectors have retaining screws, tighten them down.
- Power on the moniputer, and then turn on your desktop or notebook computer.

Figure 15. Connecting to a Notebook Computer



Using the Audio Subsystem

The audio capabilities of the moniputer bring high quality stereo sound to your software applications, including features like an FM synthesizer, and digital recording and playback. The moniputer's integrated audio subsystem is fully compatible with Microsoft Windows and includes a number of applications which allow you to record, compress, store and playback voice, sound and music under the Windows environment. The Crystal software is located on the Support Disk. Please see Section 5 for more information about the disk.

The moniputer's audio capabilities include the following features:

- Digital audio playback capability, which faithfully plays back and reproduces all kinds of digitized sounds with a 16-bit Digital-to-Analog Converter (DAC).
- Digital audio recording capability allowing recording of any kind of sound through the moniputer's built-in microphone (which is located on the left front side of the integrated display) or an external source.
- High quality sound, dynamically filtered for low noise digital recording and playback. Input from the moniputer's built-in microphone uses Automatic Gain Control (AGC) to compress sound input to adapt dynamically to different recording conditions.
- Audio compression which offers real-time compression and decompression of digital audio. Compression turns large sound files into smaller files that can easily be stored and transferred to a diskette or even sent over a network.
- Built-in power amplifier and stereo speakers, including volume and mute controls, and audio-out ports for connection to a pair of stereo headphones or auxiliary speakers.

Adjusting Volume

Moniputer sound volume can be adjusted through the use of easily accessible controls at the front of the system, which are illustrated below.

Figure 16. Audio Controls



- To increase volume, press the Volume up control; to decrease volume, press the Volume down control.
- To mute audio volume, press the Mute button. Pressing the mute button when volume has been muted restores volume to its previous level.

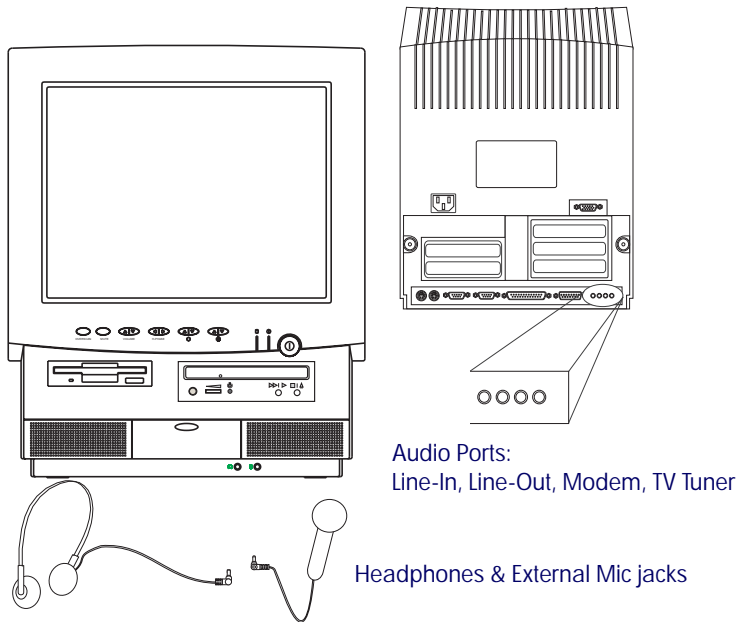
Audio Application Software

The audio subsystem uses the Crystal software that comes on the Support Disk. Software for Windows 3.1, Windows 95, Windows NT and OS/2 is in the Crystal folder on the Support Disk. The software includes audio utilities and support for the 3D Sound feature.

External Audio Connections

The moniputer features an extensive range of jacks for connecting external audio devices to the integrated audio subsystem. These include front-mounted jacks for an external microphone and headphones, and rear-mounted jacks for audio line-in and line-out to an external device (such as a tape recorder or external speakers), as well as additional jacks for connecting a third-party voice/fax/modem and TV tuner card. Refer to the illustration below for the location and descriptions of these jacks. Note that use of the modem and TV tuner jacks is unnecessary if your moniputer is equipped with optional internal fax/modem or TV tuner cards which are available from your dealer; these optional devices are internally wired to the audio subsystem for a cleaner, “wireless” appearance.

Figure 17. External Audio Connections



Connecting a Printer

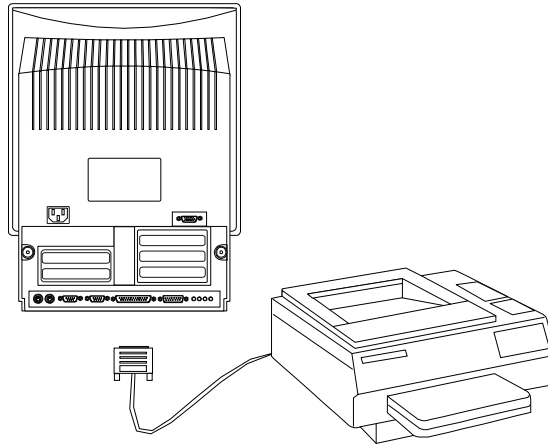
The moniputer has both parallel and serial interfaces, or ports. You can easily connect your moniputer to a printer (or plotter) that has either of these types of interfaces, by following the instructions below.

Before you begin, determine the type of interface required by your printer by referring to its operating manual. If your printer supports both a parallel and a serial interface, it is recommended that you configure your printer to use the parallel interface, which is both faster and easier to configure than a serial interface. Note that the moniputer's parallel port also supports the latest EPP and ECP parallel port protocols for improved performance and versatility with compliant printers; see the included Hardware User's Manual for details on how to configure the parallel port for an advanced protocol.

To connect a printer to the moniputer, follow these steps:

- Be sure both the moniputer and the printer are turned off.
- Locate the parallel and serial ports cover at the rear of the moniputer.
- If you will be using a parallel interface, connect the 25-pin male connector of your printer cable to the 25-pin female parallel port on your moniputer. If you will be using a serial interface, connect the 9-pin female connector of your printer cable to one of the 9-pin male serial port on your moniputer. Note that if your serial printer cable is equipped with a 25-pin connector, you will need an adapter that converts 9-pin output to 25-pin output.
- If necessary, attach the other end of your printer cable to your printer, and tighten down any retaining screws. A typical parallel printer connection is illustrated below.

Figure 18. Connecting a Parallel Printer



- Turn on the printer, and any other peripheral devices you may have connected to the moniputer, and then turn on the moniputer.
- If necessary, run the moniputer's BIOS Setup program to configure the parallel or serial port to respond as required by your printer and software operating environment.

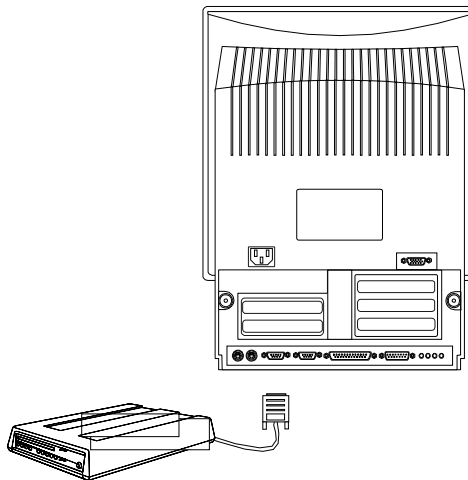
Refer to the manual which accompanied your printer for instructions on configuring your operating environment and application software to use the printer.

Connecting a Serial Device

You can easily attach a serial device to the moniputer, such as an external modem or pointing device, by following the steps below.

- Be sure the moniputer and any other peripheral devices you may have connected to the moniputer are turned off.
- Locate the serial ports at the rear of the moniputer and select one, noting which one you have selected. Your software may need to know the port to which you are connecting your serial device.
- Attach the interface cable from your serial device to selected moniputer serial port. If necessary, attach the other end of the interface cable to your serial device. Tighten down any retaining screws. You may require a 9-to-25 pin adapter which is available from your dealer.

Figure 19. Connecting a Serial Device to COM1



- Turn on the serial device and any other peripheral devices you may have connected to the moniputer, and then turn on the moniputer.

Refer to the manual which accompanied your serial device for instructions on configuring your operating environment to recognize the device.

Reassigning the Serial Port

By default, the moniputer's external serial port are configured as COM1 and COM2, respectively. However, you can change the port assignment by running the BIOS Setup program; refer to the Mainboard User's Manual for instructions.

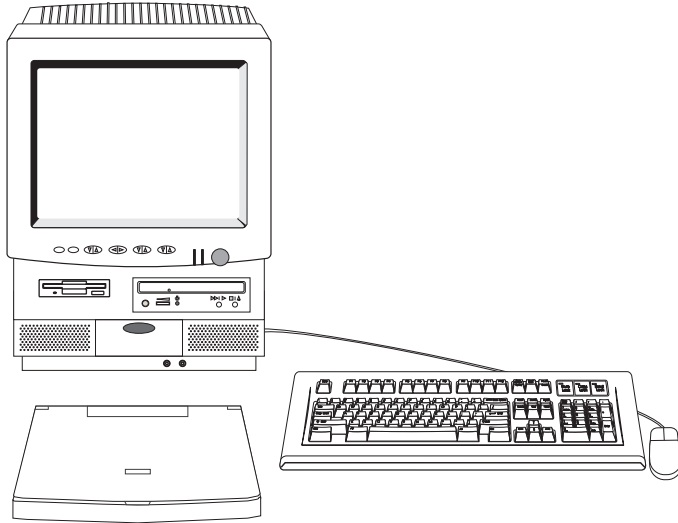
Infrared Communications

The moniputer is equipped with an infrared (or IR) port as standard equipment, allowing you to wirelessly communicate with IrDA or HP SIR infrared equipped computers and printers. If enabled, the IR port is assigned as COM2 and is coupled to the moniputer's infrared remote sensor in the front center of the system, serving the remote control unit included with the optional TV tuner as well. For instructions on how to enable or disable the IR port please refer to the Mainboard User's Manual.

Positioning the Target Device

Before you can establish wireless communications, the target device must be properly positioned in relation to the moniputer. The target device must be placed on a flat surface directly in front of the moniputer, so that the IR ports are in line and within approximately 30 inches (80cm) of each other. Effectively, this means that you may need to move your keyboard off to one side, so that the IR port on the target device is directly in front of the moniputer. A typical arrangement with an IR-equipped notebook computer is illustrated below, where the notebook's IR port is located at the rear of the notebook.

Figure 20. Infrared Communications



Power Management

The moniputer incorporates sophisticated power management features which allow you to reduce power consumption when the system is idle. You should think of your moniputer's power conservation features as being organized into several, sometimes overlapping levels of management, which together provide both manual and automatic control over which components of the moniputer are drawing current at any given time.

Power Saving Modes

The moniputer features three distinct power saving modes which can be programmed using the BIOS Setup program to automatically go into effect after a certain period of moniputer inactivity; see the Hardware User's Manual for details.

- Off mode is the lowest power consumption level your moniputer can sustain, but requires the longest recovery time. When off mode is entered the system becomes inactive, with only memory (and any non-power saving devices you may have installed) receiving current. Power consumption of the integrated display drops to less than 5% of normal consumption. When the system enters off mode, the power LED will blink three times every three seconds.
- Suspend mode is the next lowest power consumption level your moniputer can sustain, and has a medium recovery time. Suspend mode is similar to off mode, but power consumption of the integrated display drops to approximately 30% of normal consumption, allowing for faster recovery. When the system enters suspend mode, the power LED will blink two times every three seconds.
- Standby mode provides the least power savings but allows for almost instantaneous recovery. When standby mode is entered, the system clocks down to a slower speed (which conserves power), and power consumption of the integrated display drops to approximately 85% of normal consumption. When the system enters standby mode, the power LED will blink once every three seconds.

When a resume event occurs (for example, a key is pressed), the system returns to where it was when a power saving mode was entered, e.g., software applications open, the display reappears and the cursor returns, etc. Note that a resume event can also be programmed to occur at a certain time, by using the BIOS Setup program.

Advanced Power Management (APM)

In addition to the power saving features designed into the moniputer's hardware and ROM BIOS firmware, your moniputer is also compliant with the Advanced Power Management (APM) specification. Through an APM device driver supplied with your operating system, the operating system is able to notify the moniputer's BIOS when system resources, such as the keyboard, I/O ports, display and microprocessor, are not in use.

System Upgrades

Before You Begin

This chapter provides you with information on the type of mass storage devices and expansions cards that can (and cannot) be added to the moniputer, instructions on accessing the interior of the moniputer, system upgrades and configuration settings, and generic installation procedures for expansion cards. Whether you are a new or an experienced user, you should read this section carefully before purchasing and attempting to add to or modify the basic configuration of the moniputer.

Unlike a basic desktop computer which typically consists of components from disparate manufacturers, the moniputer is a highly-integrated and substantially configured system, which is already equipped with a fast local-bus graphics accelerator, a high performance IDE hard drive and PCI bus mastering controller, high density floppy drive and controller, an ATAPI CD-ROM drive, stereo audio capabilities, and a full complement of enhanced I/O ports.

The moniputer's intelligent design ensures trouble-free integration of individual components which can be the source of countless configuration problems in desktop systems: you do not need to worry about such matters as serial port assignments, CD-ROM configuration or sound card port addresses and interrupt channels. At the same time, the moniputer's advanced and full standard feature set means that you probably will not want to replace or disable individual components of the system. Although, for example, it is possible to add a third-party sound or graphics card to the system using the moniputer's PCI and ISA expansion bus, there is little reason for you to do so.

The moniputer's full feature set and these caveats aside, there remain a wide range of third-party mass storage devices and expansion cards which can be installed in the moniputer: a SCSI adapter and optical drive subsystem or network interface card are examples. In fact, because the possibilities for expanding the moniputer system are so extensive, when selecting and installing additions to the system, it will be easier for you to keep in mind what need not be added to the moniputer, or what can be added only if certain conditions are met. These components and conditions, as well as alternative solutions, are described below; please read them carefully before obtaining and installing options in the moniputer.

Graphics And Video Adapters

The moniputer features a fast and powerful graphics subsystem, which connects to the system's PCI local bus. The integrated graphics controller can be connected to a third-party MPEG, TV tuner or video capture card. In the unlikely event that you wish to disable the integrated graphics controller and replace it with a third-party graphics card, you can do so by setting configuration jumper on the moniputer's mainboard which is attached to the system tray. See the Mainboard User's Manual for more information on this.

IDE, CD-ROM and SCSI drives

The moniputer features a high-performance Enhanced IDE hard drive and integrated PCI bus master controller. While the moniputer's IDE hard drive can be upgraded to a larger capacity unit, the absence of an empty drive bay means that you cannot add a second IDE drive to the system unless you opt for an "external" solution, e.g. a hard drive that connects to a parallel port. If your mass storage requirements cannot be met by a single IDE hard drive, you might consider a SCSI solution. The moniputer can easily accommodate a SCSI adapter, to which can be connected up to seven external SCSI mass storage devices, including such devices as a tape drive, an optical drive, a second CD-ROM drive and hard disk drives as well as non-storage devices such as a flatbed scanner.

I/O cards

The moniputer has multi-I/O support for an enhanced parallel port and two serial ports. The enhanced parallel port is configured as LPT1 and the serial ports are configured as COM1 and COM2. Although you can disable or re-assign these ports using the moniputer's BIOS Setup Utility program, there is little reason for you to do so. If you need additional I/O support, ensure that the adapter you install in the moniputer provides flexible configuration options. An additional parallel port must be assignable as LPT2 or LPT3 and able to use a hardware interrupt other than IRQ5 or IRQ7 (which is normally reserved by the moniputer for the integrated audio system and LPT1, respectively). Additional serial ports should be assignable as COM3 and/or COM4; most third-party fax/modem cards allow this type of flexible serial port assignment.

Opening the Moniputer

The moniputer is designed to permit easy access to its interior for purposes of maintenance, upgrading mass storage devices and installation of expansion cards. Drive bays are located behind the front bezel of the moniputer, while the highly integrated system tray is accessible at the rear of the unit.

Accessing The Drive Bays

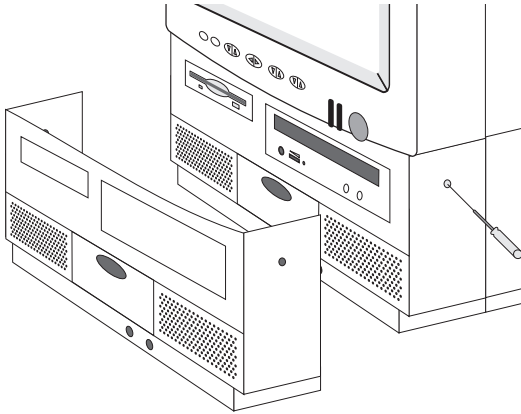
To access the drive bays, follow the steps and refer to the illustration below.



The moniputer's components and connectors can be damaged by static electricity. Observe the normal precautions for handling components while opening the unit.

- Turn off the moniputer and disconnect the AC power cord from the unit.
- Use a small screwdriver to release the two retaining pins at the front left and right sides of the moniputer. When you successfully depress each pin using a small screwdriver, the front bezel should release from the side of the moniputer.
- Once the front bezel is free, raise it gently but firmly away from the moniputer chassis and then disconnect the IR sensor cable. You may notice some slight resistance as the bezel disengages from the chassis.
- Place the front bezel on an anti-static surface to avoid damage to it. The moniputer's drive bays will now be visible and easily accessible.

Figure 21. Removing the Front Bezel

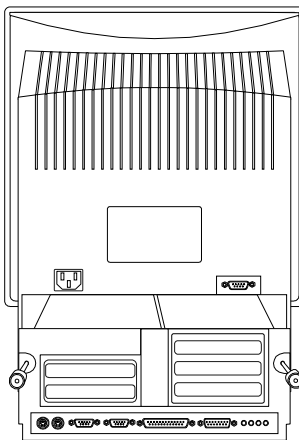


Removing The System Tray

To remove the system tray, follow the steps and refer to the illustration below.

- Turn to the rear of the moniputer chassis and loosen the two retaining thumb screws which secure the system tray to the main chassis.
- After loosening the retaining thumb screws, hold the system tray by the handle and firmly pull it back and away from the rear of the unit as illustrated below. You will notice some resistance as the tray disengages from the front of the unit.

Figure 22. Removing the System Tray



- Place the system tray on a padded anti-static surface to avoid damage to it. The moniputer's microprocessor, memory sockets and expansion slots will now be visible and easily accessible.

Upgrading a Hard Disk Drive

The moniputer features a total of three drive bays which house the 3.5" diskette drive, 3.5" IDE drive and 5.25" ATAPI CD-ROM drive. Each of these devices is mounted on a special drive tray, which permits fast and easy device servicing and replacement. All devices are of industry standard dimensions and use standard power connectors and cabling. Since there is little reason for you to ever want or need to upgrade the diskette drive or probably the CD-ROM, this section will cover a typical hard drive upgrade procedure. Although the cabling is slightly different, the same procedure applies to the diskette drive and CD-ROM.

Handling precautions

To avoid damage to your moniputer and mass storage device, follow the precautions below before attempting installation.

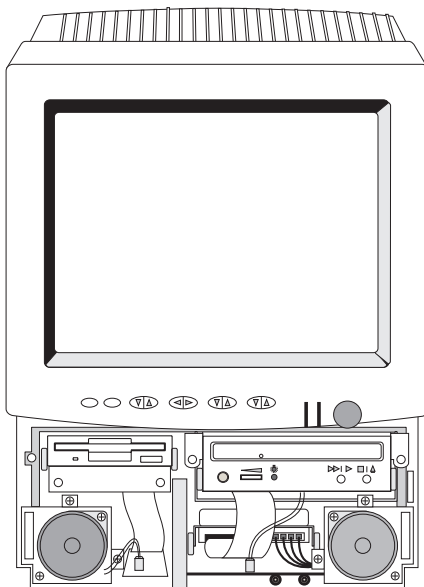
- Disconnect the AC power cord from the moniputer before proceeding.
- Perform the installation in an uncarpeted, static-free environment.
- Before removing the device from its anti-static shipping bag, discharge static electricity by touching an unpainted area of the chassis and the anti-static bag.
- Avoid touching all circuit boards on the device and in the moniputer unless instructed to do otherwise.

Installation guidelines

Before you begin installation of a mass storage device, read the installation instructions which accompanied the device carefully. The procedure outlined below applies to a typical 3.5" IDE hard disk drive; yours may be somewhat different.

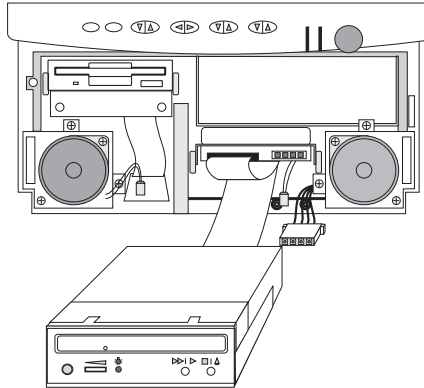
- Remove the front bezel from the moniputer by following the instruction earlier in this chapter. The drive bays will now be exposed and easily accessible, as illustrated below.

Figure 23. Disk Drive Bays



- Remove the hard disk from its anti-static bag and prepare it for installation following the manufacturer's instructions. Some devices have slide rails attached which must be removed; others have configuration jumpers or switches that must be set.
- Once the device is properly prepared and configured, remove the hard drive from the moniputer by pressing in on the side retaining rails. This releases the drive from the chassis, allowing you to slide the unit out and away from the moniputer.

Figure 24. Removing the Hard Disk Drive



You must first remove the CD-ROM drive if its cables obscure the hard disk. Removal and installation of the CD-ROM drive (and diskette drive) is similar to removal and installation of a hard disk. Note that there is no need to disconnect the cabling to the CD-ROM drive in order to access the hard disk.

- Disconnect the data and power cables from the hard drive.
- Now that the hard disk is free and clear of the moniputer, remove the screws which attach the drive rails to the drive, noting their location and attach the rails to your new drive. Be sure to store the old drive in an anti-static bag and place it in a safe place.
- Connect the hard disk power cable from the moniputer's power supply to the power cable connector on the new drive. Note that power cable connectors are shaped to fit only one way.

- Connect the hard disk data cable from the moniputer to the new hard disk. The colored stripe on the data cable connects to pin 1 on the hard disk.
- Slide the new hard disk into the hard disk drive bay of the moniputer. When the side retaining rails snap into place, the drive is secure.
- Make sure that all cable connections are secure and that they will not bind or become crimped when you replace the moniputer's front bevel. You can now attach the front bevel and restart the moniputer.
- After starting the moniputer, run the BIOS Setup program to register the new drive. Refer to the Mainboard User's Manual for instructions.

Installing Expansion Cards

The moniputer expansion bus has two 32-bit PCI expansion slots and two 16-bit ISA expansion slots, one slot position is a shared PCI/ISA expansion slot. You can think of the moniputer's expansion bus as an extension to the moniputer, to which are already "attached" a number of adapter cards, including a display adapter, multi-I/O card, sound card, and floppy and IDE drive controllers. Just as you cannot have two VGA or sound cards in a standard desktop computer, so too can you not install a second display or sound card to the moniputer's expansion bus without first disabling the integrated one. Please read the first section of this chapter carefully before selecting and installing expansion cards in the moniputer.

The remarks which follow offer general guidelines on the installation of PCI and ISA expansion cards, and are in no way intended as a substitute for the installation instructions supplied with a specific card. In particular, note that many expansion cards have configuration jumpers or switches which must be set before installation.

Handling precautions

To avoid damage to your moniputer and expansion card, follow the precautions below before attempting installation:

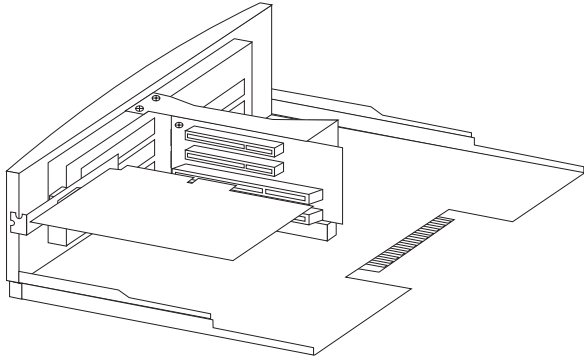
- Disconnect the AC power cord from the moniputer before proceeding.
- If possible, perform the installation in an uncarpeted, static-free environment or use an anti-static grounded wrist strap.
- Before removing the expansion card from its anti-static shipping bag, discharge static electricity by touching an unpainted area of the chassis and the anti-static bag.
- After removing the expansion card from the anti-static bag, put it on a grounded surface with the components facing up.
- Check the expansion card for damage. Avoid touching the components on the expansion card. Handle the card and other system components by the edges.

Installation guidelines

Before you begin installation of a PCI or ISA expansion card, read the installation instructions which accompany the card carefully. The procedure outlined below applies to a typical expansion card; yours may be somewhat different. Note also that the illustration of the system tray may differ somewhat from yours.

- Remove the system tray by following the instructions earlier in this chapter.
- Select an expansion slot appropriate for your card, bearing in mind any plans you may have for future additions.
- Remove the slot cover from the moniputer's system tray and store it for possible later use. Keep the slot cover retaining screw handy for use in securing the expansion card to the chassis after installation.
- Remove the expansion card from its anti-static bag and prepare it for installation following the manufacturer's instructions. Many expansion cards have configuration jumpers or switches that must be set prior to installation; others are configured by software after installation. If your expansion card requires selection of a ROM BIOS address, I/O port address, IRQ request line or DMA channel, remember to exclude from consideration those already assigned to the moniputer's components and those assigned to expansion cards which you may have previously installed on the ISA expansion bus. Refer to the appendix to this manual for details.
- Once the expansion card is properly prepared and configured, pick up the card by grasping the edge bracket with one hand. Avoid pressing on card components.
- Align the card with the expansion slot so that the card is perpendicular to the slot and the hole or indentation on the card's metal bracket lines up with the screw hole on the chassis.
- Insert the card into the expansion slot. Press it firmly to ensure that the card is fully seated. Anchor the card mounting bracket using the retaining screw you set aside previously.

Figure 25. Installing an Expansion Card



- If your expansion card requires software configuration, start the system and configure the card following the manufacturer's instructions. Again, if your expansion card requires selection of a ROM BIOS address, I/O port address, IRQ request line or DMA channel, remember to exclude from consideration those already assigned to the moniputer's components and those assigned to expansion cards which you may have previously installed on the expansion bus. Refer to the IRQ, DMA and memory address tables in Section 5 for available assignments.
- Re-install the system tray.

Microprocessor Upgrades

Pentium-based moniputers are designed to accept any approved member of the Pentium series of microprocessors. Before attempting a microprocessor upgrade, you should consult the included Mainboard User's Manual for information on the types of acceptable microprocessors, and the configuration jumper settings which must be changed. The instructions which follow describe a typical installation.

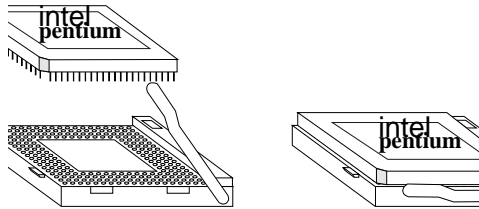
CPU Installation

The mainboard features a ZIF (zero insertion force) socket which permits easy installation and removal of the microprocessor. To install or upgrade the CPU follow the steps below.

Incorrect installation can result in permanent damage to the microprocessor. If installation appears too difficult refer the task to a qualified service technician.

- Review the unpacking and handling precautions, and system tray removal instructions, at the beginning of this chapter.
- Carefully remove the microprocessor from its antistatic packaging, being careful not to touch or bend any of the pins.
- Examine the microprocessor to identify the Pin 1 corner.
- Locate the ZIF socket on the mainboard and identify the Pin 1 corner. It is at the end of the socket's retaining arm.
- Raise the CPU retaining arm to the open position, as illustrated in the next figure.

Figure 26. ZIF (Zero Insertion Force) Socket



- Position the notched corner of the microprocessor in the proper direction and align the pins on the CPU to the socket, and carefully insert the microprocessor into the socket. The CPU should insert easily; if it doesn't, raise the arm higher and double-check the orientation of the CPU over the socket.
- Press the CPU retaining arm downwards. You will feel some resistance about half-way down as the pressure starts to secure the CPU in the socket; this is normal and will not damage the CPU. When the CPU is installed, the arm should snap into place at the side of the socket.
- Examine the installed CPU to ensure it is installed in the correct direction and that the pins are properly aligned.
- After ensuring that the microprocessor is installed correctly, refer to the Mainboard User's Manual for instructions on how to set CPU clock configuration and other jumpers.



It is highly recommended that a CPU cooling fan be attached to the microprocessor to ensure system stability.



Do not set a clock frequency above the rated speed of the microprocessor. Doing so can result in permanent damage to the microprocessor and void your warranty.

System Memory Upgrades

You can expand system memory via the mainboard's DIMM (Dual In-line Memory Module) sockets. The memory specifications and installation procedure are explained in the Mainboard User's Manual that comes with the moniputer. You can install up to 512MB in the DIMM sockets.

Video Memory Upgrades

You can upgrade the video display memory using an SODIMM module via a socket on the mainboard. This allows you to easily upgrade display memory from 2MB to 4MB by following the steps below. The additional memory allows more color depths at higher resolutions. The table below summarizes the additional capabilities made possible by upgrading display memory to 4MB.

Table 2. Display Memory Resolution & Color Options

Resolution	2MB	4MB
1280 x 1024	256 colors	256 colors
1152 x 864	256 colors	65535 colors
1024 x 768	65535 colors	16.7M colors
800 x 600	16.7M colors	16.7M colors
640 x 480	16.7 colors	16.7M colors

To expand display memory, follow the steps below; refer to the Mainboard User's Manual for further information.

- Review the unpacking and handling precautions, and system tray removal instructions, at the beginning of this chapter.
- Insert the connector edge of the upgrade module in the socket and press the module down into the socket retaining arms so that the retaining clips secure the module in the socket.
- Re-install the system tray. The moniputer automatically recognize the additional memory when the system is started.

Appendix

This section contains a variety of information about your Moniputer computer system including information about the software provided on the Support Disk, how to take care of and investigate problems with your computer and some technical specifications. There is also a glossary of computer terms at the end of the section for your reference.

The Support Disk

The Support Disk that comes with the computer has a variety of support software on it. There is software for the integrated ATi display and audio features, IDE Bus Master drivers for the onboard IDE feature, and the software you need to use the infrared feature. There is a complete list of the files on the disk at the root (top) level of the disk's directory.

The software on the Support Disk is separated into directories and sub-directories for each type of software. There are installation instructions and/or programs for all of the software and some of it, particularly the ATi software comes with extensive online help support. You should review the "readme" files for any software you want to install and follow the instructions in any setup or installation programs.

ATi Software

The ATi software includes advanced video display drivers that fully exploit the capabilities of the integrated ATi video display. If the ATi software is not installed on your computer you should install the software for the operating system you are using. Versions for Windows 95 and Windows NT versions 3.5, 3.51 and 4.0 are all on the disk.

Audio Software

Software for the onboard audio is in the Crystal directory. Depending on which operating system you are using, either run the Setup program or consult the readme file for installation instructions. Windows 3.1, Windows 95 and Windows NT are all supported as well as OS/2.

IDE Bus Master Drivers

Bus Master drivers speed up the performance of the computer's integrated IDE feature. Drivers for a comprehensive range of operating systems are in the BusMaster directory on the Support Disk. See the readme file in the directory for the operating system you are using for installation instructions.

Infrared Software

The computer's integrated infrared feature requires some software to operate. This software is in the Tranxit directory on the Support Disk.

PIIX4 Upgrade

If you are running Windows 95 on your computer, please read the readme file in the Piix4.upg folder for instructions on how to install the upgrade to Windows 95 for this hardware component.

Care and Maintenance

This appendix provides you with information on how to maintain the moniputer in top working condition.

Maintenance

The moniputer requires little physical maintenance, but as with any piece of electrical equipment, there are a few simple maintenance routines and precautions you should follow that will help assure that your moniputer provides outstanding performance for many years to come.

- Clean your moniputer occasionally, using a clean, soft, damp cloth. Avoid using spray cleaners and any kind of alcohol or other inflammable solvents.



Never clean your moniputer while it is turned on.

- Do not block the air flow around the moniputer. Try to maintain a distance of at least four inches (10 centimeters) between the moniputer and obstructions.
- Check the cable and power connectors periodically for damage. Replace power cords immediately if damage is found.
- Keep your moniputer away from rain, snow, excessive humidity, direct sunlight, high temperatures, and extreme cold.
- Try not to smoke near your moniputer.
- Try not to eat or drink near your moniputer to avoid spillage.
- If possible, avoid dusty environments since dust can cause damage to your disks and drives.
- Never subject your moniputer to sudden shocks or extreme vibration. Do not drop it or hit it with other equipment.
- If you suddenly move your moniputer from a cold place to a warm place, undesirable moisture may condense inside the unit. After sudden temperature changes, allow the moniputer to come to room temperature before you begin using it. This allows any moisture inside the moniputer to evaporate.

Maintaining the Integrated Display

- Avoid scratching the surface of the screen.
- Use a soft, lint-free cloth to clean the display.
- Do not expose the display to bright sunlight or ultra-violet radiation.

Troubleshooting

This appendix provides information on pinpointing and solving common problems that you may encounter using the moniputer.

Problems with your moniputer can be caused by something as minor as an unplugged power cord or as major as a damaged hard drive. The information in this appendix is designed to help you find and solve minor problems. If you still have a problem after trying all the suggested remedies in this appendix contact your dealer.

The problems that you might encounter can be divided into two basic categories: hardware and software. Hardware problems can be further divided into being of an electrical or a mechanical nature. You will know you have a hardware problem if, for example, the screen is blank, the moniputer cannot recognize the disk drives, or you get an error message during the Power-On Self Test (POST).

Software problems can occur at several levels. Both your operating system and your software application programs are capable of generating errors and error messages. If you encounter a software error, try to determine if the error message is from your operating system or from an application program and refer to the appropriate manual for possible remedies.

Common Problems

Successful troubleshooting is the result of careful observation, deductive reasoning, and an organized approach to problem solving. If you encounter a problem, begin by performing a careful visual inspection. Check the exterior of the moniputer first. If no lights are displayed, check the battery charge or power outlet, the plug and power cord, and any power switches that may affect your moniputer. If the moniputer has been connected to any peripheral devices, look for loose or disconnected cables. You may also need to check the fuses and breakers in your electric box.

A few common problems and suggested solutions are presented in the examples which follow.

Question: Why is the screen blank?

- Press a key to see if any power management feature has blanked the screen to save power.
- Check the power LED to verify that the moniputer is getting power. If the power indicator is not lit, check the power outlet, the plug and power cord, and any power switches that may affect your moniputer.
- Check the brightness and contrast controls for your display. If the controls are turned too far down, the screen will be dark.
- Reset the moniputer by pressing the [Ctrl+Alt+Del] keys.
- Turn the moniputer off, wait a few seconds, and then turn the moniputer back on.

Question: Why are there abnormal patterns on the screen?

- Check your software application to ensure it is configured for a VGA type of display adapter.

Question: Why can't I use a diskette?

- The diskette may not be formatted, or could be corrupted. See your operating system manual for information on formatting and recovering diskettes.
- If you can't write to a disk, the diskette may be write-protected. Eject the diskette and check to ensure that the write-protect tab is off.
- If you can't write to a disk, the diskette may be full. Use another diskette.
- The system BIOS boot settings for diskette drive type is incorrect. Run the Setup program and ensure that Diskette A: is set to the proper type.
- The diskette drive is not working. If you've tried the suggestions above and are still having trouble with diskettes, take the moniputer to your dealer for help.

Question: Why is the date and/or time incorrect?

- Correct the date and time using the Setup program.
- Correct the date and time using your operating system's date and time commands.
- If the date and time are still incorrect, contact your dealer to change the system board battery.

Question: Why do I get a non-system disk or disk error message?

- You may have inserted a non-bootable diskette in Drive A: (either a defective diskette or one without an installed operating system). Replace the disk.
- Check the Setup program to ensure that the drive types are correctly identified.
- If this message is issued when you attempt to boot from your hard drive, insert a bootable diskette and check the integrity of your hard drive. Consult your operating system manual for details.

The POST Error Messages

The moniputer performs the Power-On Self Test (POST) every time you turn on or reset the system. The POST is a series of system checks that verifies the correct operation of your moniputer's hardware.

If the POST detects a critical error (e.g., a system board failure), the moniputer will halt and generate an audible alarm. If a failure is detected in an area other than the system board (such as the keyboard), a non-critical error message is displayed on the screen and testing is stopped. You can continue testing when a non-critical error occurs by pressing the [F1] key.

When the POST encounters an error that requires you to correct something, either a beep code will sound or a message will be displayed in a box in the middle of the screen and a message will be shown on screen. If you need to enter the Setup program to correct a problem, press the [Del] key. Otherwise press [F1] to continue the boot process and ignore the error.

Contacting Your Dealer

If you still have a problem after reading this appendix, the next step is to contact your dealer. Your dealer can determine if the problem requires servicing. However, before you call your dealer prepare the following information:

- How is your moniputer configured? Your dealer will need to know what peripheral devices, if any, you are using.
- What messages, if any, are on the screen?
- Which operating system and application or utility software were you running at the time?
- What have you already done to try to solve the problem?

Technical Specifications

This appendix contains technical information about the physical characteristics of the moniputer, its operating environment, pin connector descriptions, IRQ and other assignments.

System Specifications

The tables below list some of the moniputer's technical specifications which may be useful to you.

Table 3. Moniputer Specifications

Item	Specification
CPU	Pentium & compatible CPUs
Memory	Up to 256MB
Cache	512KB
BIOS	Flash Memory
Exp. Slots	2 PCI, 2 ISA – one shared position
Drive Bays	3
Serial Ports	2 16550-compatible
Parallel Ports	1 EPP/ECP-compatible
HDD Interface	Two -channel PCI EIDE, with UltraDMA-33 support
CD-ROM	IDE/ATAPI interface, 12X-speed or faster
Floppy Drive	One 3.5", 1.44MB floppy disk drive
Intergrated Display	ATi Rage II+ 3D
Display Memory	2MB, expandable to 4MB
Max Resolution	1280x1024
CRT	15", 0.28

Scan Frequency	30-64kHz
Control Panel	Digital
Audio	3D SRS Surround audio onboard
Amplifier	3W
Speakers	Internal bass reflex
Audio Ports	Ext. mic & headphone jacks, stereo Line-in and Line-out jacks, TV tuner and Modem jacks
Audio Controls	Volume and mute digital
Power Management	Built-in (APM compliant), DPMS
Keyboard	PS/2 101/104-key Windows95 keyboard
Pointing device	2 button PS/2 mouse
Power system	90-264V AC Intelligent power management
Dimensions	14"(w) x 17"(d) x 17"(h) 360mm(w) x 433mm(d) x 428mm(h)
Weight	59.47 lbs – 27 kg

Memory Map

The tables below lists the memory map and system interrupt/DMA channel assignments for the moniputer.

Table 4. Upper Memory Address Map

Memory Address	Description	Size
A000-AFFFh	Used - VGA graphics	64KB
B000-B7FFh	Available	32KB
B800-BFFFh	Used - VGA text	32KB
C000-CFFFh	Available	64KB
D000-DFFFh	Available	64KB
E000-EFFFh	Used - Extended ROM area	64KB
F000-FFFFh	Used - System ROM	64KB

DMA Channels

Table 5. DMA Channel Assignments

DMA Channel	Assignment
DMA 0	Used - System Reserved
DMA 1	Used - Audio
DMA 2	Used - Floppy
DMA 3	Used - ECP
DMA 4	Used - Cascade
DMA 5	Available
DMA 6	Available
DMA 7	Used - System Reserved

System Interrupts

Table 6. System Interrupt Assignments \x110011

IRQ	Assignment
IRQ0	Used - System Timer
IRQ1	Used - Keyboard
IRQ2	Used - Slave Interrupt
IRQ3	Used - COM2, COM4
IRQ4	Used - COM1, COM3
IRQ5	Used - Audio
IRQ6	Used - Floppy
IRQ7	Used - LPT1
IRQ8	Used - RTC
IRQ9	Used - Software redirect
IRQ10	Available
IRQ11	Available
IRQ12	Used - PS/2 mouse
IRQ13	Used - NPU
IRQ14	Used - Primary IDE
IRQ15	Used - Secondary IDE

I/O Address Map

Table 7. I/O Address Map

Address	Device
000-01F	DMA Controller 1
020-021	Interrupt Controller 1
022-023	CPU and System Chipset
040-05F	Timer/Counter
060-06F	Keyboard Controller
070-07F	RTC & NMI Mask
080-08F	DMA Page Register
092	System Control Port
0A0-0A1	Interrupt Controller 2
0C0-0DF	DMA Controller 2
0F0-0FF	Math Coprocessor
1F0-1F7	Primary Hard Disk Controller
170-177	Secondary Hard Disk Controller
220-22F	Audio Chip
2F8-2FF	Serial Port 2
378-37A	Parallel Port
3B0-3DF	Video Display Chip
3F0-3F7	Floppy Disk Controller
3F8-3FF	Serial Port 1
474-475	Keyboard Controller

Port Pin Assignments

The tables below lists the pin assignments for the moniputer's various ports.

Table 8. Parallel Port Pin Assignments (Continued)

Pin	Standard	EPP	ECP
1	Strobe	Write	Strobe
2-9	PData <0:7>	PData <0:7>	PData <0:7>
10	Ack	Intr	Ack
11	Busy	Wait	Busy, PeriphAck(3)
12	PE	(NU)	PError,nAckReverse(3)
13	Select	(NU)	Select
14	Autofd	Datastb	AutoFd,HostAck(3)
15	Error	(NU)	Fault(1),PeriphRequest(3)
16	Init	(NU)	Init(1),ReverseBost(3)
17	Selectin	Addrstrb	Selectin(1,3)
18-25	Ground	Ground	Ground

Table 9. Serial Port Pin Assignments

Pin	Signal	Pin	Signal
1	DCD	6	DSR
2	RD	7	RTS
3	SD	8	CTS
4	DTR	9	RI
5	GND		

Table 10. VGA Input and Output Port Pin Assignments

Pin	Signal	Pin	Signal
1	Red	9	NC
2	Green	10	GND
3	Blue	11	NC
4	NC	12	NC
5	CRT DETECT	13	HSYNC
6	GND	14	VSYNC
7	GND	15	NC
8	GND		

Table 11. PS/2 Keyboard Port Pin Assignments

Pin	Signal	Pin	Signal
1	KBDATA4	VCC	
2	NC	5	KBCLOCK
3	GND	6	NC

Table 12. PS/2 Mouse Port Pin Assignments

Pin	Signal	Pin	Signal
1	MSDATA	4	VCC
2	NC	5	MSCLOCK
3	GND	6	NC

Glossary

APM — An abbreviation for the Advanced Power Management specification, an operating system and application level of power management. The moniputer is fully compliant with this specification.

Application program — A software program that performs one or several specific tasks, such as word processing, spreadsheet analysis, or database management.

Backup — A copy of a program, data file or an entire disk, kept in case the original is lost or damaged.

BIOS — An abbreviation for Basic Input/Output System, which refers to programs that are permanently stored in the system's CMOS RAM. Examples for your moniputer include the POST diagnostic and the Setup programs.

Bit — A binary digit, representing the smallest unit of data used by a computer.

Boot — To load a program or an operating system into system memory.

Bus — An electrical circuit within the system, used to transmit data from one device to another.

Byte — A group of eight contiguous bits.

Cache memory — Static column RAM where code and data are stored for fast retrieval by the CPU. Processors in the 80486 and Pentium family used in the moniputer feature a small, integrated high speed cache, which significantly reduces memory accesses by the CPU to the system's slower main DRAM.

Clock — An electrical timer, used to synchronize system operations.

CMOS RAM — A special type of low-power memory that records and stores information about your moniputer's configuration. CMOS RAM is not erased when you power off the moniputer.

COMx — The alias that the operating system and software applications use to identify serial ports, where x refers to the number of the port.

Command — An instruction you issue to your operating system, e.g., to execute a software application.

Configuration — The specific combination of hardware components of the moniputer, and their operating status. The configuration of your moniputer includes so much memory, this type and speed of microprocessor and this type of hard drive, etc.

Conventional memory — The first 1MB of memory which is recognized and used directly by DOS. Under DOS, conventional memory is limited to the first 640KB of installed memory, plus an additional 384KB which is reserved for special functions. More advanced operating systems, like OS/2, Windows NT and UNIX, are not subject to this design limitation.

Connector — A coupling device that provides an electrical and/or mechanical junction between two cables, or between a cable and a chassis or enclosure.

Coprocessor — A processor designed to execute specialized instructions, such as graphic processing or floating point arithmetic, more efficiently than the system's central processing unit (CPU). All Pentiums feature a built-in floating point unit (or "math coprocessor").

CPU — An abbreviation for central processing unit. See Microprocessor.

Cursor — The highlighted marker or image that shows your position on the screen. The cursor moves as you enter and delete data.

Cylinder — A storage area on a hard drive.

Data — The information the system stores and processes.

Default value — The manufacturer's preprogrammed value the system uses if a different value is not specified.

Disk — A general term referring to either a diskette or hard drive.

Diskette — A flat magnetic-coated material used to store programs and data. Unlike a hard disk, which is rigid, a diskette is flexible and therefore often referred to as a “floppy” disk.

Disk drive — The physical device that allows the system to read from, and write to, a disk. A diskette drive allows you to insert and remove diskettes, while a hard disk is permanently sealed inside a disk drive.

DOS — An abbreviation for Disk Operating System.

Driver — Software that allows an application program to communicate with a particular piece of equipment.

Enhanced VGA — A video interface which offers higher resolution and/or deeper color depths than standard VGA.

Expanded memory — Special additional memory designed to extend the 640KB limit imposed by DOS, and recognized by many, but not all, DOS application programs.

Extended memory — Memory beyond the first 1MB of memory recognized by DOS.

Format — The process of preparing a diskette or hard drive for use by an operating system.

Function key — The set of twelve keys on the keyboard, labelled F1 through F12. The purpose of these keys varies from one application program to another.

Hard drive — A sealed mass storage device used for storage and fast retrieval of programs and data.

Hardware — Any physical component of a computer system, such as a printer or CPU.

IDE — An acronym for integrated (or intelligent) drive electronics, a type of hard drive which features integral controller electronics on the drive itself.

I/O — An acronym for Input/Output, which is the process of transferring data between different devices.

I/O port — An acronym for Input/Output port. An input/output connection to which you can attach a peripheral device, such as a modem or printer.

Interface — A software or hardware connection for the transmission of data between hardware or software.

IR — An acronym for Infrared. Similar technology is used on remote controls for audio and video equipment. For computers, it enables data communication between compatible devices.

IrDA — An acronym for InfraRed Data Association, and the infrared communication standard which enables wireless data transfer.

Kilobyte (KB) — A unit of 1024 bytes measuring storage space, typically in memory or on storage media such as a diskette or hard disk.

Local bus — A bus which is electrically coupled to and operates at the same speed as the microprocessor, or local, bus. The moniputer features a variation on the local bus called the PCI bus, which represents the latest industry standard for a high speed bus architecture.

Low-level format — The process of initializing a hard drive. The IDE hard drives used by the moniputer do not require this procedure.

LPT1 — An abbreviation for Line Printer 1. The name given commonly used by operating systems and application software to refer to the first parallel port.

Megabyte (MB) — A unit measuring storage space, typically in memory or on storage media such as a diskette or hard disk, and equal to 1048KB.

Megahertz (MHz) — A unit measuring the oscillation frequency, typically of a computer's internal timing clock. One MHz equals one million cycles per second.

Memory — The area used by a computer to store currently-in-use program code and data.

Memory expansion module — An optional card that increases your moniputer's memory.

Microprocessor — The “brain” of your computer. An integrated circuit, or chip that contains what your computer needs to make calculations and communicate with the other parts of the system. Also called a CPU.

Modem — An anacronym for MODulator/DEModulator. A device that encodes digital information for transmission between computers, usually over telephone lines (modulates) and converts incoming signals into digital format (demodulates). Modems commonly used with computer terminals and microcomputers use the RS-232C standard (see RS-232C). To be used with a modem, a microcomputer must run a program that enables it to act like a communications terminal.

Mouse — A hand-held device that can be used instead of the keyboard to point to objects on a screen to select them.

Network — A group of computers linked together for the purpose of sharing resources such as disk drives, printers and information.

Operating system — A group of control programs which directs the internal operation of a system.

Parallel port — A type of interface through which data is transferred in groups of data bits (a binary unit).

Partition — A logical unit created on a hard drive, which appears to the operating system as a separate drive.

Pentium — A CMOS central processing unit (CPU). The Pentium CPU features 64-bit registers and addresses, and an on chip dual data and instruction cache memory architecture. The Pentium also features a highly optimized built-in floating-point unit and advanced power conservation capabilities.

Peripheral device — A non-essential component of a system, performing a specific task. Examples might include a printer, mouse or modem.

Pixels — Image elements (tiny dots) that compose a screen image.

Port — A data outlet through which your computer communicates with the world outside of it. A port can be compared to a telephone line that the computer can call. For example, your computer communicates with a parallel printer through a parallel port, and with a serial device through a serial port.

Power-On-Self-Test (POST) — A diagnostic program the moniputer performs automatically whenever it is powered on or reset.

PMU — An acronym for the Power Management Unit, which is designed into your moniputer's hardware.

Printer — A device attached to your computer that produces images or text on paper.

Program — An integrated series of coded instructions telling the system what to do and how to do it.

RAM — An abbreviation for random access memory, or dynamic random access memory. A hardware component of your system that temporarily stores active program code and data.

Reset — The act of reloading the operating system. A reset erases all information stored in RAM.

Resolution — The number of pixels displayed on the screen. A higher resolution provides greater clarity and allows more information to be displayed on the screen at once.

Resume — A return to active, operational state of the system.

ROM — An abbreviation for Read Only Memory. The portion of your moniputer's memory that contains permanent instructions, and which cannot be modified.

RS-232C — An industry standard for serial data communications. An RS-232C ports allows your computer to exchange information with the outside world such as sending information to a printer.

Serial port — A type of interface through which data is transferred one bit, or binary unit, at a time.

Shadow RAM — A technique for copying BIOS routines from their permanent location in slower ROM, to a temporary location in faster RAM while the system is powered on. Shadow RAM can enhance system and video performance substantially, and is a standard feature of the moniputer.

SIR — An infrared communications standard used by Hewlett-Packard.

Status indicator — An LED indicator which shows the current status of a particular device or hardware component.

Suspend mode — A power conservation mode in which current is shut down to all components of the system.

System disk — A disk which contains the core files of an operating system, and which can boot the operating system. The creation of a system disk must usually be specified during the initial format process.

VGA — The video display standard originally introduced by IBM with the PS/2 series of personal computers. Your moniputer is fully compatible with this standard.

Write-protect — To prevent a diskette from being overwritten. When a diskette is write-protected, its data cannot be erased or changed.

