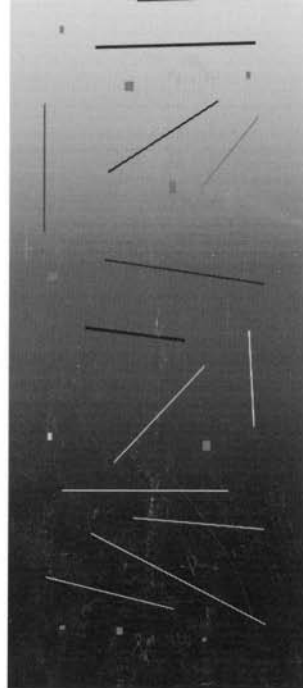


2500 SX/33



User's Guide

TANDY

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This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of *FCC Rules*. These limits are designed to provide reasonable protection against harmful radio and TV interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed in accordance with the instructions, may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular installation.

If this equipment does interfere with radio or television reception, which you can tell by turning the equipment off and on, you are encouraged to try to correct the interference. Use one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the radio/TV.
- Connect the equipment to an outlet that is on a different circuit from the one used for the radio/TV.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded cables must be used with this equipment. If you add or replace any cables, the new cables must have shielding capabilities equal to or higher than those provided by the dealer.

Modifying or tampering with internal components can cause a malfunction and might invalidate the warranty and void your FCC authorization to operate this equipment.

The DOC wants you to know...

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.

Le Ministère des Communications du Canada vous informe que...

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

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About This Manual

This manual describes how to set up and start using your computer.

Conventions

The following conventions differentiate various types of text in this manual:

- Words printed in small bold capital letters represent keys on your computer's keyboard. For example: **ENTER**.
- Groups of keys are printed like this: **CTRL+ALT+DEL**. Press and hold the keys (**CTRL**, **ALT**, and **DEL** in this example) in the order shown.
- Information that you should type or that is shown on the screen is printed as in the following example: Type 3 at the **SELECT THE ACTION DESIRED** prompt.

Abbreviations

The following abbreviations are used in this manual:

DRAM = dynamic random-access memory

Hz = hertz

IDE = integrated drive electronics

ISA = Industry-Standard Architecture

Kb = kilobit

KB = kilobyte

Mb = megabit

MB = megabyte

MHz = megahertz

ns = nanosecond

ROM = read-only memory

SIMM = single in-line memory module

Introduction

Your computer delivers IBM PC/AT compatibility in a high-performance environment. The computer enables you to run popular software packages and add industry-standard expansion options. Many advanced features are standard. Features and options are listed below:

Standard Features

| | |
|--|--|
| Industry-Standard Architecture (ISA) | Ensures compatibility with hardware and software built to the IBM standard for PC/AT. |
| MS-DOS, OS/2, and Novell compatibility | Lets you choose the operating system that best supports your software. |
| MS-DOS 5.0 | Lets you immediately use your computer with this popular operating system. Includes on-line help for all MS-DOS commands. |
| Setup in ROM | Enables you to run the setup utility, used to update the computer configuration, without accessing files on a diskette. |
| High-capacity, 3½-inch diskette drive | Enables you to read and write standard-density (720KB) and high-density (1.44MB), 3½-inch diskettes. |
| Three disk drive bays | Provide space for installing hard drives, diskette drives, and other storage devices. |
| Built-in 16-bit IDE connector and controller | Enables easy connection of convenient, reliable hard disk storage. IDE hard drives provide maximum performance at minimum cost. The controller supports up to two IDE hard drives. |
| On-board VGA-compatible video | Supports all standard VGA, EGA, CGA, and MDA graphics modes through an externally connected analog VGA monitor. |
| Enhanced sound | Enables you to assign sounds to Windows events, using the TDACWAVE sound driver (included) and Windows 3.1. Also supports other sound drivers. |
| Headphone connector | Allows you to connect stereo headphones with a 1/8-inch stereo plug. |
| Volume control | Lets you adjust the level of the sound emitted from the internal speaker or through an optional headphone. The volume control is located on the back of the computer near the serial port. |

| | |
|--|--|
| 2MB of dynamic random access memory (DRAM) | Lets you run a variety of software. This memory is permanently installed on the main logic board. On-board sockets let you increase the amount of memory to 4MB or 10MB. |
| PS/2-style mouse | Lets you quickly select menu options and move the cursor around on the screen. Click-and-drag selection greatly speeds up editing of text and graphics. |
| Built-in mouse port (mini-DIN connector) | Enables you to connect a PS/2-style mouse. |
| Built-in serial port | Enables you to connect a serial mouse, an external modem, or other serial device. |
| Built-in parallel port | Enables you to connect a parallel printer or other parallel device. |
| Battery-backed internal clock | Maintains the system date and time when the computer is turned off. The clock's battery also powers the CMOS RAM, which maintains current configuration settings. |

Options

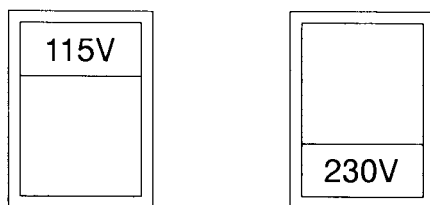
| | |
|-------------------------------|--|
| Additional storage devices | Give you a variety of storage options, including: high-capacity and standard-capacity diskette drives (3½-inch or 5¼-inch), internal hard drives (3½-inch or 5¼-inch), and tape and/or disk cartridge systems (5¼-inch). |
| Memory upgrade kit | Contains 1MB or 4MB SIMMs, rated at 60 ns, to increase system memory on the main logic board. Memory can also be added using SIMMs installed on a memory expansion adapter. |
| Video memory upgrade kit | Increases the video memory on the main logic board from 256KB to 512KB, letting you use more Super VGA modes. |
| 33 MHz 387SX math coprocessor | Increases the numerical processing capability of your computer. A math coprocessor can process numeric data more quickly than the CPU. |
| Modem | Transmits and receives data through a telephone line. |
| Digital scanner | Converts printed text and graphics to a digital form. |
| FAX adapter | Transmits and receives scanned graphic images through a telephone line. |
| CD-ROM drive | Accesses the enormous storage capabilities of read-only discs. |
| Multiple-frequency monitor | Lets you use most Super VGA modes. Connect a multiple-frequency monitor or an 8514/A-compatible, multiple-frequency monitor. To use some Super VGA graphics modes, you must also install additional video memory. |
| IDE hard drives | Can be installed in the 3½-inch or 5¼-inch drive bay. The IDE connector in your computer supports up to two internal hard drives. |

Getting Started

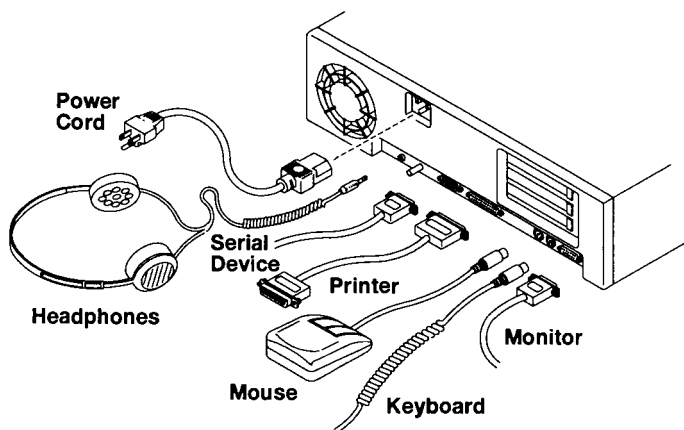
Your computer can be set for use with a 110-120V, grounded AC outlet or a 220-240V, grounded outlet. Before connecting the computer cables, check the temporary label that covers the power connector on the back of the computer. The voltage written on this label must match the voltage of the outlet you will be using.

If the label does not match the outlet, change the setting of the red voltage selector switch inside the computer. Refer to the “Installing Optional Hardware” section before opening the computer.

The switch is located under the carriage, near the back panel. Position the switch so that the voltage you will be using is visible.



After checking the voltage selector switch setting, connect all cables as illustrated. Depending on the monitor you install, a small flat-head screwdriver might be required to secure the monitor cable connector to the video connector on the computer.



Warning: Be careful when using headphones. The sound can permanently damage your hearing if played at full volume.

Connect the power cord to an AC outlet after reading the following information:

- Do not use an outlet that powers heavy machinery. If you must use an extension cord, use a grounded one with multiple outlets.
- For units set at 115V: Use a UL-listed cord set consisting of a minimum 18 AWG, type SVT or SJT three-conductor cord a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 10 A, 125V. The power cord included with the computer meets these requirements.
- For units set at 230V inside U.S.A.: Use a UL-listed cord set consisting of a minimum 18 AWG, type SVT or SJT three-conductor cord a maximum of 15 feet in length and a tandem blade, grounding type attachment plug rated 10 A, 250V.
- For units set at 230V outside U.S.A.: Use a cord set consisting of a minimum 0.75 mm cord and a grounding-type attachment plug rated 10 A, 250V. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed and should be marked HAR.

Connecting a Printer or Other Parallel Device

You can connect a printer or other parallel device to the 25-pin parallel connector on the back of the computer.

The parallel port allows one-way or two-way data transfer. In unidirectional transfer, the computer uses the port only to send data to the parallel device. In bidirectional transfer, the computer uses the port both to send output to the parallel device and to receive input from the device.

After you connect the parallel device, run the setup utility. Refer to the "Setup Utility" section.

Connecting a Modem or Other Serial Device

You can connect a serial device to the 9-pin serial port on the back of the computer. After you connect a serial device, run the setup utility. Refer to the "Setup Utility" section.

Turning On the Computer

To turn on your computer, press the power button on the right side of the front panel. When you turn on the computer, the power indicator on the power button lights. The computer then loads the operating system software from a diskette or a hard drive.

To keep the startup procedure short, no self tests are performed unless requested. You can request the self tests by pressing **CTRL+ALT+D** after the system memory size is displayed.

Using the 3½-Inch Diskette Drive

To insert a 3½-inch diskette, gently slide it (label side up and metal plate first) into the drive until the diskette snaps into place.

To remove a diskette from the drive, press the diskette eject button. When the diskette is partially ejected, pull it out.

Caution: A diskette drive's activity light comes on when the computer is accessing that drive. Removing the diskette from the drive while this light is on can destroy the data on the diskette.

Diskette Types

The type of diskette you use in a diskette drive depends on the drive size and type:

| Drive Size | Drive Type | Diskette Types |
|---|------------|----------------|
| 3½-inch | 1.44MB | 1.44MB, 720KB* |
| | 720KB | 720KB |
| 5¼-inch | 1.2MB | 1.2MB, 360KB* |
| | 360KB | 360KB |
| * Requires specific formatting parameters. Refer to an operating system reference manual. | | |

Resetting the Computer

Press **CTRL+ALT+DEL** when you need to reset the computer. If this key sequence fails, press the reset button.

To request the self-tests, press the reset button; then, press **CTRL+ALT+D** after the system memory size is displayed.

Installing Optional Hardware

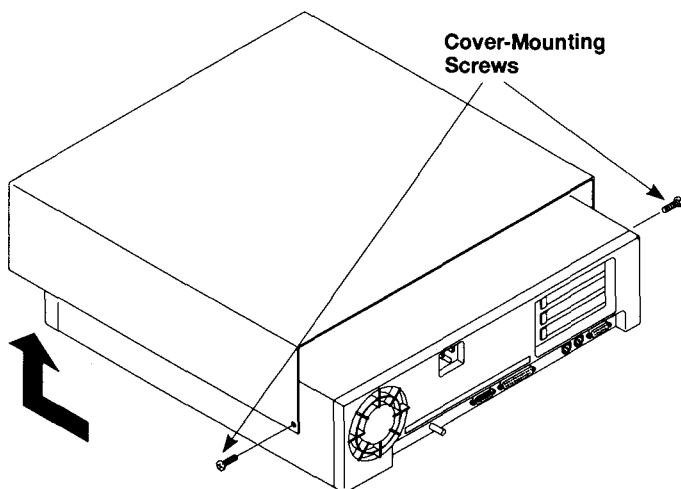
Read the instructions in this section and in the option documentation before installing optional hardware.

Required Tools

When installing options, you will need:

- a #2 Phillips-head screwdriver to remove the computer cover and install or remove expansion adapters
- needle-nose pliers to install or remove jumpers on expansion adapters and drives

Opening the Computer

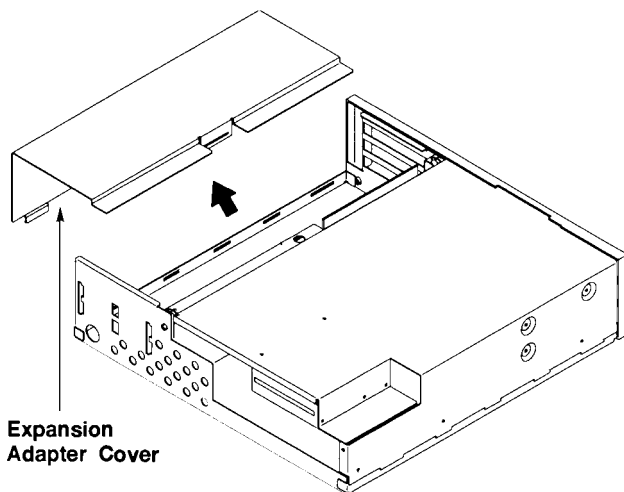


Caution: Before opening the computer, turn off the computer and disconnect all electrical cables. Discharge any accumulated static electricity from your body by touching a grounded metal object.

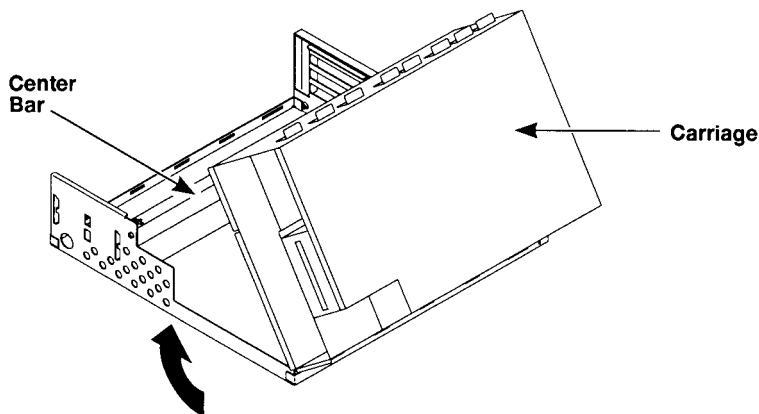
To open the system unit, follow these steps:

1. Remove the two cover-mounting screws from the computer's outer cover.
2. Slide the cover toward the front of the computer until it clears the alignment pins.
3. Lift the cover off the computer.
4. Use a screwdriver to remove the screws on the expansion adapter cover.

5. Remove the expansion adapter cover by swinging it open from the top, and pulling it out of the retaining slots at the bottom of the frame.



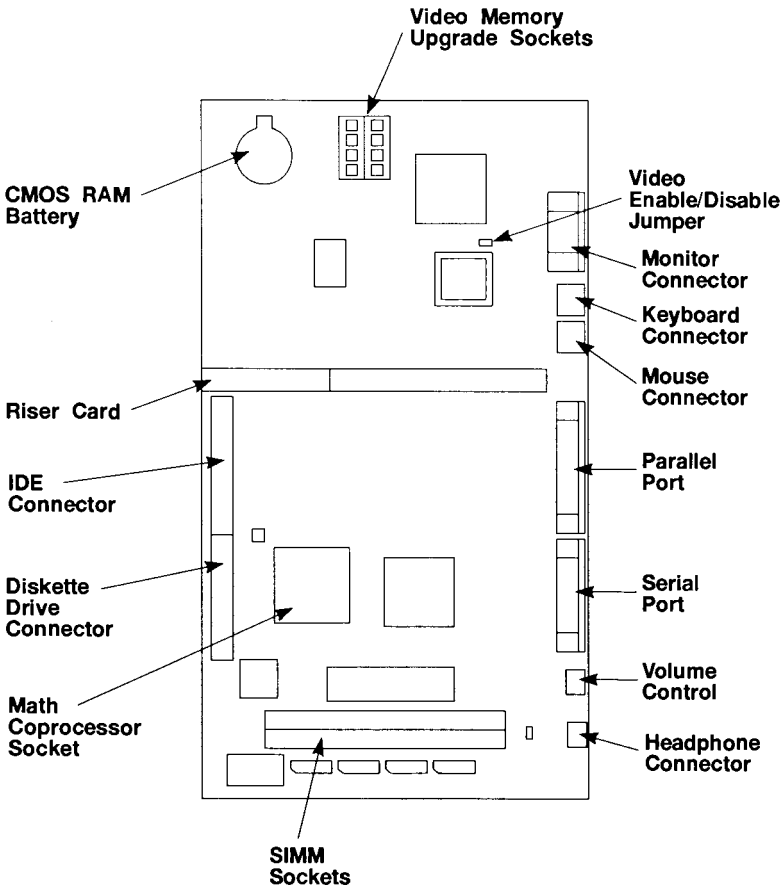
6. Place your hand in the front opening, and rotate the carriage away from the frame. The carriage should rest at a 90-degree angle in the slots on the frame.



Caution: Allowing the carriage to extend backward beyond the 90-degree position can damage the carriage hinge or cables.

Main Logic Board Layout

The following diagram illustrates the components you might need to locate when installing options:



Jumper Settings

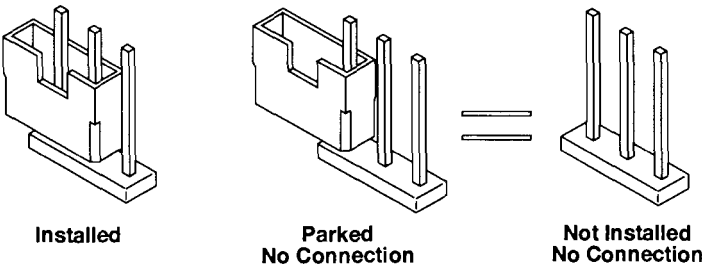
The main logic board of your computer has a Video Enable/Disable Jumper Block consisting of three jumper pins labeled E1, E2, and E3. By default, a jumper connects Pins E1 and E2 to enable VGA-compatible video. If you install a video expansion adapter, you must disable the on-board video by placing the jumper on Pins E2 and E3.

The following table summarizes the settings for the Video Enable/Disable Jumper:

| Setting of Video Enable/Disable Jumper | Status of On-Board VGA-Compatible Video |
|--|---|
| E1-E2* | Enabled |
| E2-E3 | Disabled |
| * Indicates factory (default) setting. | |

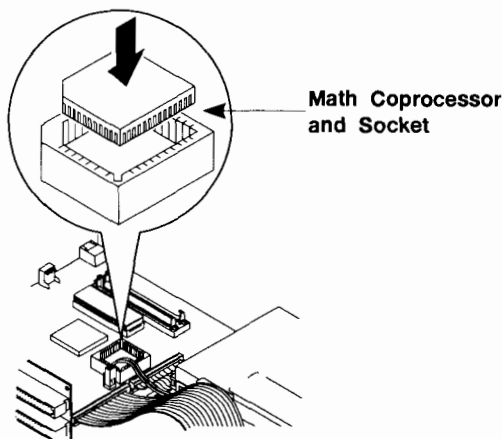
Optional expansion adapters and drives might also have jumper blocks, with either two or three jumper pins. Refer to your option documentation to determine whether you must change the settings of any of those jumpers.

The following illustration shows how a jumper can be installed, parked, or not installed on a three-pin jumper block:



Installing a Math Coprocessor

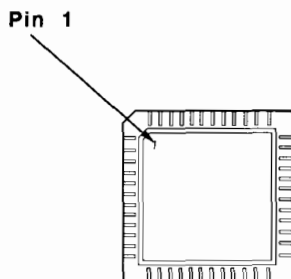
The math coprocessor socket on the main logic board supports a 33 MHz 387SX math coprocessor.



Read the instructions in this section before you install your math coprocessor.

Cautions:

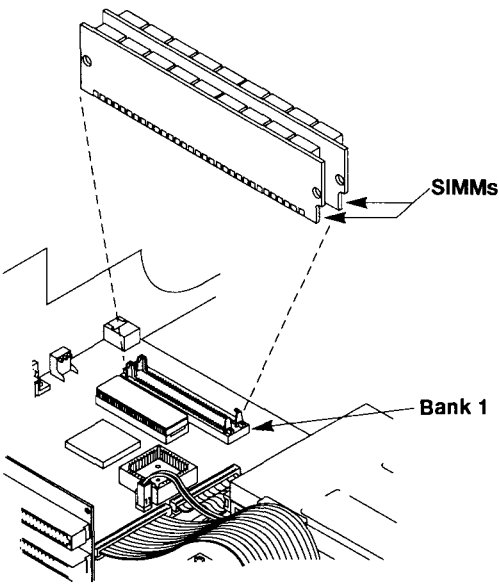
- Incorrect installation of the math coprocessor can cause electrical damage to the main logic board or the coprocessor.
 - Touch a grounded metal object before handling the math coprocessor and other electrical components.
1. Orient the math coprocessor so that the notched corner of the coprocessor aligns with the notched corner of the socket:



2. Taking care not to bend or touch the metal pins, press the coprocessor into the socket.
3. Run the setup utility and press **F2** to save the new system configuration. See the "Setup Utility" section.

Installing Additional System Memory

Bank 0 on the main logic board has 2MB of permanently installed memory. Bank 1 consists of two empty SIMM sockets into which you can install two 60 ns 1MB or 4MB SIMMs.



The following table lists the possible memory configurations:

| Number of SIMMs in Bank 1 | Type of SIMMs in Bank 1 | Permanent Memory in Bank 0 | Total Memory |
|---------------------------|-------------------------|----------------------------|------------------|
| 0 | — | 2MB | 2MB ¹ |
| 2 | 1MB | 2MB | 4MB |
| 2 | 4MB | 2MB | 10MB |

¹Indicates factory (default) configuration.

After installing the SIMMs, run the setup utility to complete the installation. See the “Setup Utility” section.

Installing Additional Video Memory

Your computer has 256KB of video memory permanently installed on the main logic board.

The following video modes require 512KB of video memory:

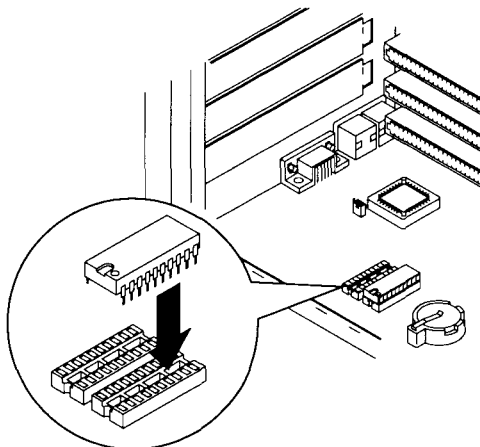
- 640 x 480, 256-color graphics mode
- 800 x 600, 256-color graphics mode
- 1024 x 768 (interlaced and non-interlaced), 16-color graphics mode

To upgrade to 512KB of video memory, you can install two 20-pin memory chips from a 256KB Video Memory Upgrade Kit. These chips fit into the two video memory upgrade sockets on the main logic board.

Before making the upgrade, check your application program documentation to be sure your applications support the Super VGA modes you want to use. Also, refer to the “Video” section to determine which modes require a multiple-frequency monitor and/or video drivers.

Caution: Carefully install the video memory chips as follows. Incorrect installation can damage the chips or main logic board.

1. Refer to “Main Logic Board Layout” to locate the two video memory chip sockets.
2. Remove one chip from the antistatic packaging. Pin 1 of the chip is indicated by a dot and a notch on one end. The Pin 1 end of each video memory socket has a matching notch.
3. Orient the memory chip so that the dot or notch on the chip aligns with the notched end of the socket.

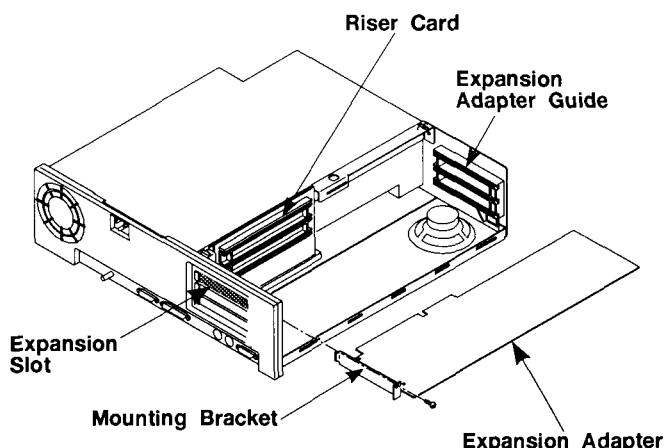


4. Carefully press the memory chip into the socket. Be sure that the pins of the chip do not bend.
5. Repeat Steps 2 through 4 for the second memory chip.

When you restart the computer, it has 512KB of video memory.

Note: The memory amount displayed during the startup diagnostics includes only system memory. Video memory is not checked at startup.

Installing an Expansion Adapter



To install an expansion adapter, follow these steps:

1. Remove the screw from an expansion slot cover at the back of the computer.
2. Slide the metal slot cover out of the expansion slot.
3. Hold the expansion adapter so that the mounting bracket is at the back of the unit. Carefully align the expansion adapter with the riser card. Press the expansion adapter into the expansion slot and the expansion adapter guide. Be sure the adapter is fully seated.
4. Secure the contoured lip of the mounting bracket to the back of the computer, using the screw previously removed from the slot cover.
5. Run the setup utility after installing the expansion adapter. Refer to the "Setup Utility" section.

Installing Additional Drives

The drive bays in your computer provide room for three storage devices. The two upper bays support low-profile (maximum height, 1 inch), 3½-inch devices. The lower bay supports a half-height, 5¼-inch device or a standard-height, 3½-inch device.

The IDE hard drive connector on the main logic board supports up to two internal IDE hard drives. The diskette drive connector on the main logic board supports up to two internal diskette drives.

You can also install tape drives, CD-ROM drives, and ESDI, SCSI, and ST-506 hard drives. Note, however, that ESDI and ST-506 drives cannot coexist with IDE drives.

Caution: Connect non-IDE drives to expansion adapters (available separately from the computer). Do not connect them to the IDE connector. Refer to your drive documentation for instructions on installing and connecting to such expansion adapters.

The following diagram illustrates the types of drives supported by each bay:

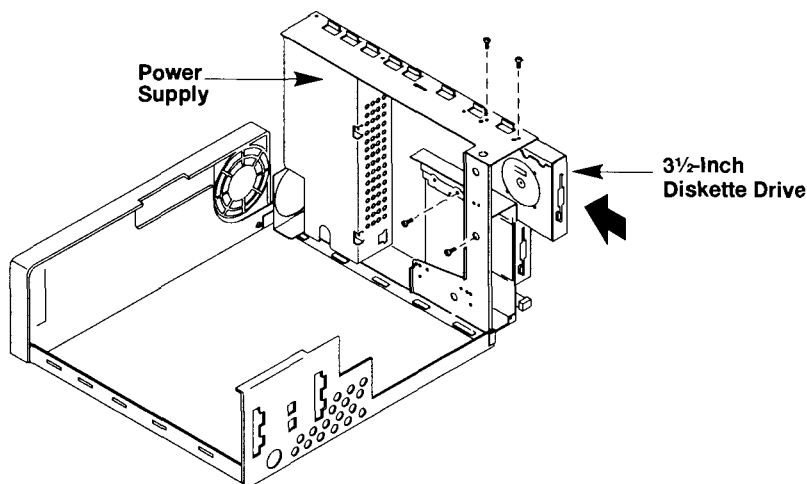
| | |
|---|---|
| 3½-inch diskette drive 3½-inch hard drive | 3½-inch diskette drive (factory installed) |
| 3½-inch diskette drive 3½-inch hard drive 5¼-inch diskette drive | |

Drive installation procedures are provided on the following pages.

Installing a 3½-Inch Diskette Drive in the 3½-Inch Drive Bay

Use the following procedure to install a 3½-inch diskette drive in the 3½-inch drive bay:

1. Record information about the drive on the system worksheet at the end of this manual. This information is printed on the drive or provided in the documentation that comes with the drive.
2. Adjust drive components such as jumpers and switches as necessary. Refer to the drive documentation.
3. Turn off the computer, and disconnect all cables.
4. Discharge any accumulated static electricity from your body by touching a grounded metal object.
5. Open the computer to gain access to the bay.
6. Remove the plastic panel covering the front of the 3½-inch bay. To remove the panel, press down on its center tab from inside the cover.
7. Remove the plastic card from the 5¼-inch bay so that you will be able to insert the screwdriver through the hole in the bottom of the 5¼-inch bay.
8. Select the appropriate mounting holes on the diskette drive. Refer to the drive documentation.
9. Slide the drive into the bay. With the drive resting on the center rail, align the mounting holes on the side of the drive with the two mounting holes on the side of the carriage.



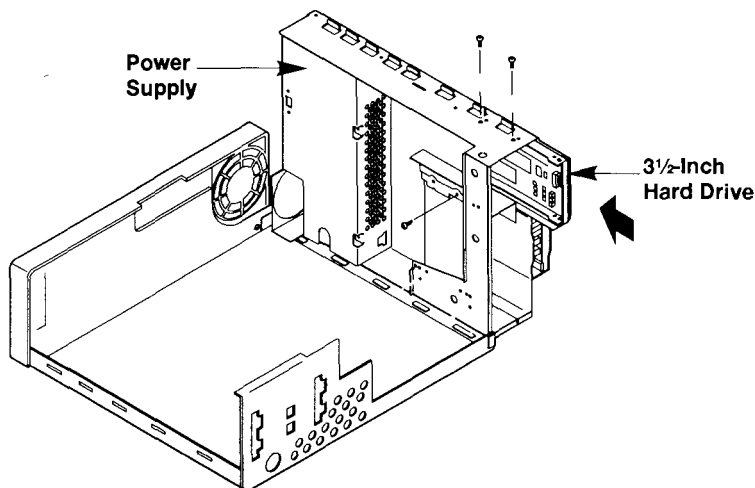
10. Use four screws provided with the computer to mount the diskette drive in the bay as illustrated.
11. A diskette drive cable is attached to the factory-installed diskette drive. Connect the unused connector on the diskette drive cable to the new drive.
Note: Be sure to align Pin 1 of the cable connector with Pin 1 of the drive connector. Pin 1 of the cable connector is indicated by a stripe on the cable. Refer to the drive documentation to locate Pin 1 of the connector on the drive.
12. Select an unused cable extending from the power supply, and connect it to the power connector on the back of the drive.
Caution: The power cables are keyed to fit only one way. Do not force the connection.
13. Run the setup utility, and enter information about the drive. Refer to the "Setup Utility" section and the system worksheet.

Installing a 3½-Inch Hard Drive in the 3½-Inch Drive Bay

Use the following procedure to install a 3½-inch hard drive in the 3½-inch drive bay:

1. Record information about the drive on the system worksheet at the end of this manual. This information is printed on the drive or provided in the documentation that comes with the drive.
2. Adjust drive components such as jumpers, switches, and terminating resistors as necessary. Refer to the drive documentation.
3. Turn off the computer, and disconnect all cables.
4. Discharge any accumulated static electricity from your body by touching a grounded metal object.
5. Open the computer to gain access to the bay.
6. Select the appropriate mounting holes on the drive. Refer to the drive documentation.

- Slide the drive into the bay. With the drive resting on the center rail, align the mounting holes on the side of the drive with the two mounting holes on the side of the carriage.



- Use three screws provided with the computer to mount the drive in the bay as illustrated.
- Make the appropriate drive connections:

First IDE Hard Drive — An IDE cable with two drive connectors is included with the drive. Connect the IDE cable to the drive and to the IDE connector on the main logic board. The IDE connector is keyed so that keyed cable connectors fit only one way.

Note: To connect an *unkeyed* IDE cable, align Pin 1 of the cable connector with Pin 1 of the main logic board connector. Then, press the cable connector onto the main logic board connector. The drive cable might have a stripe to indicate Pin 1. Pin 1 of the main logic board connector is indicated by a dot or a 1 printed on the board.

Second IDE Hard Drive — Connect the unused connector on the IDE drive cable to the new drive.

Non-IDE Hard Drive — Connect the drive to its expansion adapter as directed in the documentation provided with the drive and the expansion adapter.

- Select an unused cable extending from the power supply, and connect it to the power connector on the back of the drive.

Caution: The power cables are keyed to fit only one way. Do not force the connection.

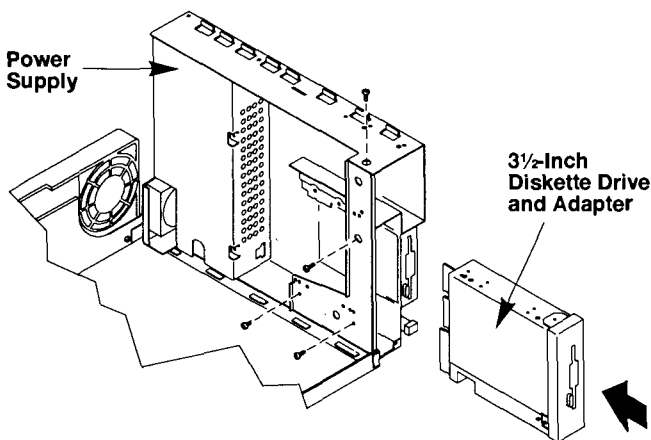
11. Run the setup utility, and enter information about the drive.
Refer to the "Setup Utility" section and the system worksheet.

Installing a 3½-Inch Drive in the 5¼-Inch Bay

Use the following procedure to install a 3½-inch diskette drive or hard drive in the 5¼-inch bay:

1. Record information about the drive on the system worksheet at the end of this manual. This information is printed on the drive or provided in the documentation that comes with the drive.
2. Adjust drive components such as jumpers, switches, and terminating resistors as necessary. Refer to the drive documentation.
3. Turn off the computer, and disconnect all cables.
4. Open the computer to gain access to the bay.
5. If you are installing a diskette drive, remove the plastic panel covering the front of the 5¼-inch bay. To remove the panel, press down on it from outside the cover. Then, install the drive in a 3½-inch to 5¼-inch internal disk drive adapter. Refer to the Internal Disk Drive Adapter documentation for more information.
6. If you are installing a hard drive, slide the drive into the bay. Align the appropriate holes on the drive with the holes on the bay. Refer to the drive documentation.

If you are installing a diskette drive, slide the drive and adapter into the bay as shown:



7. Use the screws provided with the computer to mount the diskette drive and adapter (shown) or the hard drive.
8. Make the appropriate drive connections:

Second Diskette Drive — A diskette drive cable is attached to the factory-installed diskette drive. Connect the unused connector on the diskette drive cable to the new drive.

Note: Be sure to align Pin 1 of the cable connector with Pin 1 of the drive connector. Pin 1 of the cable connector is indicated by a stripe on the cable. Refer to the drive documentation to locate Pin 1 of the connector on the drive.

First IDE Hard Drive — An IDE cable with two drive connectors is included with the drive. Connect the IDE cable to the drive and to the IDE connector on the main logic board. The IDE connector is keyed so that keyed cable connectors fit only one way.

Note: To connect an *unkeyed* IDE cable, align Pin 1 of the cable connector with Pin 1 of the main logic board connector. Then, press the cable connector onto the main logic board connector. The drive cable might have a stripe to indicate Pin 1. Pin 1 of the main logic board connector is indicated by a dot or a 1 printed on the board.

Second IDE Hard Drive — Connect the unused connector on the IDE drive cable to the new drive.

Non-IDE Hard Drive — Connect the drive to its expansion adapter as directed in the documentation provided with the drive and the expansion adapter.

9. Select an unused cable extending from the power supply, and connect it to the power connector on the back of the drive.

Caution: The power cables are keyed to fit only one way. Do not force the connection.

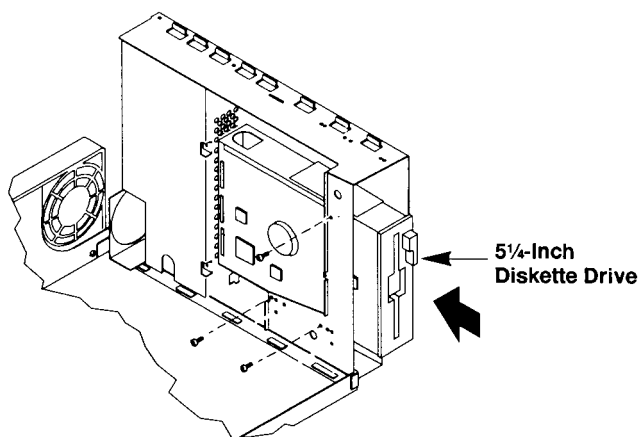
10. Run the setup utility, and enter information about the drive. Refer to the “Setup Utility” section and the system worksheet.

Installing a 5¼-Inch Diskette Drive

Use the following procedure to install a 5¼-inch diskette drive:

1. Record information about the drive on the system worksheet at the end of this manual. This information is printed on the drive or provided in the documentation that comes with the drive.
2. Adjust drive components such as jumpers and switches as necessary. Refer to the drive documentation.
3. Turn off the computer, and disconnect all cables.

4. Open the computer to gain access to the bay.
5. Remove the plastic panel covering the front of the 5¼-inch bay. To remove the panel, press down on it from outside the cover.
6. Remove the plastic card from the bottom of the bay.
7. Select the appropriate mounting holes for the drive. Refer to the drive documentation.
8. Slide the drive into the bay. Align the mounting holes in the drive with the three mounting holes on the bottom of the carriage. Refer to the drive documentation.



9. Use three screws provided with the computer to mount the drive in the bay as illustrated.
10. A diskette drive cable is attached to the factory-installed diskette drive. Connect the unused connector on this cable to the new drive.

Note: Be sure to align Pin 1 of the cable connector with Pin 1 of the drive connector. Pin 1 of the cable connector is indicated by a stripe on the cable. Refer to the drive documentation to locate Pin 1 of the connector on the drive.

11. Select an unused cable extending from the power supply, and connect it to the power connector on the back of the drive.

Caution: The power cables are keyed to fit only one way. Do not force the connection.

12. Run the setup utility, and enter information about the drive. Refer to the "Setup Utility" section and the system worksheet.

Replacing the Battery

The battery powers the CMOS RAM and the system clock, enabling them to maintain the system setup and the correct time and date when the computer power is off.

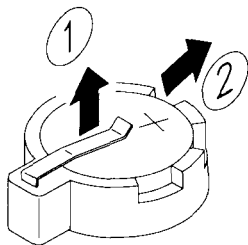
The battery should last at least three years with normal use. When the battery fails, the computer will not retain time and date or configuration information correctly. You can obtain a replacement battery from your computer dealer.

If the computer does not restart when you turn it on or reset it, the battery might be weak or dead. Before replacing the battery, refer to “Main Logic Board Layout” to locate the battery socket.

Warning: There is danger of an explosion if the battery is replaced incorrectly. Replace the battery only with the same type or an equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions. Do not dispose of a battery in a fire. Keep batteries away from children.

To replace the battery:

1. Gently lift the battery clip and remove the old battery from the socket on the main logic board.



2. Insert the new battery, positive (+) side up.
3. Run the setup utility to enter the time and date and the system configuration.

Setup Utility

To run properly, the computer requires information about connected devices and installed options. The computer stores this *system configuration* information and the system date and time in CMOS RAM. The setup utility, SETUP46.COM, lets you review and update the information stored in CMOS RAM.

The setup utility is located in read-only memory (ROM) and on your Utilities & VGA Drivers diskette. If you have a factory-installed hard drive, setup is also on the hard drive.

When to Run Setup

Run the setup utility:

- if the computer prompts you to run setup at startup
The computer has detected a discrepancy between the actual system configuration and the configuration stored in CMOS RAM.
- after adding or removing an option or connecting or disconnecting a peripheral device
- to change the CPU clock speed or the system date and time

CMOS RAM is battery powered when AC power is removed, so it retains the stored information when the computer is turned off. When the battery fails, replace the battery as described in the “Installing Optional Hardware” section. Then, run the setup utility to re-enter the information.

Running Setup from ROM

To run the setup utility from ROM:

1. Restart the computer by pressing the reset button. Then, press **F2** as soon as the system memory size is displayed. The setup utility displays the Setup Program screen.
2. Follow the directions at the bottom of the screen to choose options that reflect your system configuration.
3. Press **F2** to update the information in CMOS RAM and restart the computer.

Press **F1** to display help while running setup.

Running Setup from a Diskette

To run the setup utility from the Utilities & VGA Drivers diskette:

1. Insert the Utilities & VGA Drivers diskette into Drive A.
2. At the MS-DOS operating system prompt, type `a :` and press **ENTER**.
3. At the `A>` prompt, type `setup46` and press **ENTER**. The setup utility displays the Setup Program screen.
4. Follow the directions at the bottom of the screen to choose options that reflect your system configuration.
5. Press **F2** to update the information in CMOS RAM and restart the computer.

Press **F1** to display help while running setup.

Running Setup from a Hard Drive

If you have a factory-installed hard drive, the setup utility is in the `C:\DOS` directory. To run setup from the hard drive:

1. Change to `C:\DOS` if you are not already in that directory.
2. At the operating system prompt, type `setup46` and press **ENTER**. The setup utility displays the Setup Program screen.
3. Follow the directions at the bottom of the screen to choose options that reflect your system configuration.
4. Press **F2** to update the information in CMOS RAM and restart the computer.

Press **F1** to display help while running setup.

The Setup Program Screen

The following list explains the purpose of each field on the Setup Program screen.

Date & Time

- **Date** — Sets the system date in the format *mm/dd/yyyy*.
- **Time** — Sets the time in the 24-hour format *hh:mm:ss*.

To change the date and time, type the new values. Application programs use the system time and date when storing data files.

Memory

- **Remap Shadow RAM** — Remaps 384KB of shadow RAM as extended memory.
- **Base** — Shows the amount of base memory (640KB). This field is for reference only.
- **Extended** — Shows the amount of memory above 1024KB that the system recognized at startup. To store the displayed value and exit the setup utility, press **F2**. If the displayed value is not correct, press the space bar until the correct value is displayed. Then, press **F2**.
- **Total** — Shows the sum of the Base and Extended fields. This field is for reference only.

See the “Managing Memory” section for information about the arrangement of memory in your computer.

Speed

- **CPU Speed** — Press the space bar to toggle the CPU speed between fast and slow.

Hard Drives

- **C:** — Indicates the type of hard drive installed as Drive C. To change the drive type, press the space bar to display the drive type selection screen. Then, use the keys listed at the bottom of the screen to select the appropriate option:
 - Select **AUTO** to automatically configure an IDE drive for use. You do not need to enter the specific configuration parameters. The **AUTO** option does not support all drive types.
 - Press the space bar to display a list of drive types. Select a drive type that matches the drive information you recorded on the system worksheet at the back of this manual.
 - If an exact match to your configuration is not available, choose **Any (Non-standard Hard Disk)** and enter your drive parameters.
 - Specify **None** if no drive is installed.
- **D:** — Indicates the type of hard drive installed as Drive D. The options are the same as for Drive C.

Diskette Drives

- **A:** — Indicates the type of diskette drive installed as Drive A. The factory-installed, 1.44MB diskette drive is installed as Drive A.
- **B:** — Indicates the type of diskette drive installed as Drive B.
- **Startup Drive** — Specifies Drive A or Drive B as the primary diskette drive. Software programs recognize the specified drive as Drive A (or a :).

Options

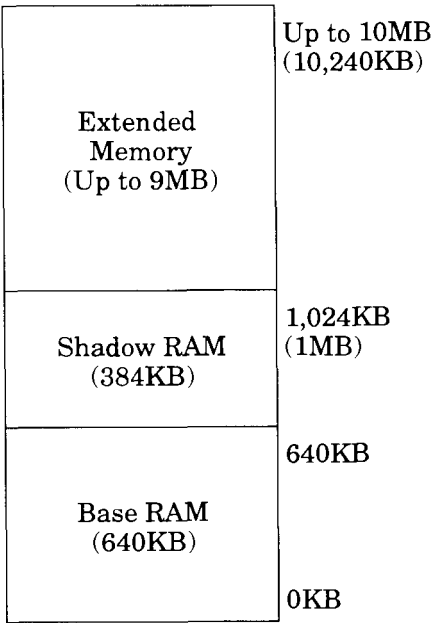
- **Setup in ROM** — Disables or enables the setup utility in ROM.
- **Serial Port** — Disables the serial port or enables it as the primary or secondary serial port.
- **Parallel Port** — Disables or enables the parallel port.
- **Bidirectional** — Enables bidirectional transfer on the parallel port.

Keeping a Record of Your System Configuration

When you install or remove options by running the setup utility, always update the worksheet at the end of this manual.

Managing Memory

Your computer has three areas of memory: base RAM, shadow RAM, and extended memory.



Base RAM

Base RAM is memory below 640KB. This area, also called *conventional memory*, is used by MS-DOS and all MS-DOS applications.

Shadow RAM

Shadow RAM, or the *upper memory area*, comprises memory from 640KB to 1024KB (1MB). Shadow RAM is used by the system BIOS, video BIOS, and other BIOS extensions. The Remap Shadow RAM option in the setup utility enables you to remap the 384KB of shadow RAM as extended memory. (Refer to the “Setup Utility” section.)

Extended Memory

Extended memory is continuous memory above 1MB. This area can be addressed directly by 80286, 386, and 486 microprocessors and is often used for software disk caches, RAM disks, and software print spoolers.

An *extended memory manager*, such as MS-DOS's HIMEM.SYS, can help your applications use extended memory more efficiently. Installing HIMEM.SYS also prevents different programs from using the same part of extended memory at the same time. Refer to an MS-DOS 5.0 manual for instructions on installing and using HIMEM.SYS.

Expanded Memory

Memory that is provided on an expanded-memory adapter is called expanded, or *EMS*, memory. Many of today's MS-DOS applications use this type of memory.

With the aid of an expanded memory emulator, your computer can make extended memory emulate expanded memory. In doing this, it enables you to run programs that use expanded memory but not extended memory.

Emulating expanded memory increases your system's efficiency. When a program requests information that is in expanded memory, the expanded memory emulator maps the necessary *page* of memory (16KB) to a *page frame* below the 1MB boundary.

EMM386.EXE is one expanded memory emulator you can install. Note that you must install HIMEM.SYS before you install EMM386.EXE. Refer to an MS-DOS reference manual for instructions on installing and using EMM386.EXE.

Troubleshooting

This section provides checklists to help correct problems you might encounter while using your computer.

Blank Screen

- Are all system cords plugged in securely?
- Is the computer turned on?
- Is the monitor turned on?
- Do you need to adjust monitor brightness and/or contrast?
- Are all jumpers and switches set correctly?

No Keyboard Action

- Is the keyboard cord plugged securely?
- Is the computer turned on?

No Sound

- Is the volume control properly adjusted?
- If you are using headphones, are they plugged in securely?
- Is your software set to enable sound?

Setup Problems

- Are the system cords plugged in securely?
- Are the expansion adapters properly seated?
- Are all jumpers and switches set correctly?
- Is all hardware information entered with the setup utility correct?
- Is the battery properly installed?
- If you have a hard drive, is it properly configured?

Option Not Working

- Have you run the self-tests? If not, request them by pressing **CTRL+ALT+D** after the system memory size is displayed at system startup.
- Is the option expansion adapter properly seated?
- Are the system cords plugged in securely?
- Are all jumpers and switches set correctly?
- Did you execute the setup utility after installing the option?
- Is all hardware information entered with the setup utility correct?
- Is the CPU clock speed set correctly?

No Printer Response

- Are the printer cable connections secure?
- Was the printer port enabled with the setup utility?
- Is the printer ready? (Check the on-line/off-line control.)
- Are the paper and ribbons properly positioned?
- Are the printer switch settings correct? (Refer to the printer documentation.)
- Is the application program you are using set up for use with your printer type? (Refer to the application program and printer documentation.)

Computer Viruses

A computer virus is a program intended to destroy systems by corrupting data. A virus can be carried by diskettes, networks, and modem transfers. When files from an infected computer are used on another system, the virus spreads.

Problems might occur as soon as the virus invades the system, or the virus might wait for a preset time before becoming active.

Prevention

To protect your system from viruses:

- Use virus-checking software to scan new diskettes and new files before copying or using them.
- Use only write-protected master copies to make backups. Make copies after you start up with a write-protected diskette. Start up by pressing the reset button or the power button, not by pressing **CTRL+ALT+DEL**.
- Always keep a write-protected copy of a startup diskette. If a virus infects your hard drive, you can still start up with this diskette.
- Keep copies of files on write-protected diskettes.
- Be wary of copied or pirated software.
- Do not assume legitimate, packaged software is free of viruses.
- Contact your computer dealer, an electronic bulletin board service, or your public library for more information concerning protection from viruses.

Troubleshooting

Virus symptoms can mimic symptoms of simpler hardware problems, such as bad cable connections or poor SIMM contacts. Follow the suggestions in the "Troubleshooting" section before seeking repairs. If you think your computer has a virus, use current virus-scanning programs that can recognize recent viruses.

Video

The video circuitry for your computer is included on the main logic board. This circuitry features:

- IBM VGA compatibility plus support for Super VGA modes with 132-column text and both 800 x 600 and 1024 x 768 resolution graphics
- 256KB of video memory (RAM), expandable to 512KB to support more Super VGA modes
- a color palette of more than 262,000 possible colors
- compatibility with VGA analog monochrome and color, fixed- and multiple-frequency monitors (including 8514/A-compatible monitors)

In its default mode, the video supports most software designed for the EGA and/or VGA standard. You must use a VGA analog color or monochrome monitor. The video circuitry is also compatible with software written for these video standards:

- VGA (Video Graphics Array)
- VESA (Video Electronics Standards Association)
- MCGA (Multi-Color Graphics Array)
- EGA (Enhanced Graphics Adapter)
- CGA (Color/Graphics Adapter)
- MDA (Monochrome Display Adapter)

Three VGA utilities — ACU.EXE, AVGA2CFG.COM, and SETMODE.EXE — are provided with your computer system.

ACU.EXE and AVGA2CFG.COM work together. ACU.EXE lets you change the video *refresh rate*, the rate at which screen updates are made to the display. It stores the new rate in the file AVGA2CFG.COM. By putting the AVGA2CFG command in your AUTOEXEC.BAT file, you can retain the new refresh rate without having to run ACU.EXE each time you start up the computer.

Use SETMODE.EXE to select a video mode. The modes available are listed in “Super VGA Modes” and “Standard Video Modes.”

Copying the VGA Utilities

To use the VGA utilities, copy them to your startup diskette or hard drive directory. For example, if your operating system is in the root directory of a hard drive (Drive C), insert the Utilities & VGA Drivers diskette into Drive A and type the following commands to copy the files to C:\. Press **ENTER** after each command.

```
copy a:\acu.exe c:\
copy a:\avga2cfg.com c:\
copy a:\setmode.exe c:\
```

Using ACU.EXE

After copying ACU.EXE, you can run it from your startup diskette or directory by typing `acu` and pressing **ENTER**. If you want to use a mouse with ACU.EXE, be sure you have a mouse driver loaded.

Use the up and down arrow keys to select the desired video mode. For each video mode listed, use the mouse or the left and right arrow keys to select a refresh rate. To preview a mode, press **ENTER** or click on the preview button with the mouse. To return from the preview mode, press the **ESC** key or click the left mouse button.

After making your selections, use the mouse or the arrow keys to select **EXIT TO DOS**. Then, click the left mouse button or press **ENTER**.

The three options are displayed. You can:

- return to the program by typing `c` to cancel,
- exit without updating by typing `n` for no, or
- exit and save settings by typing `y` for yes.

Using AVGA2CFG.COM

The selections you make with ACU.EXE are saved in the file AVGA2CFG.COM. If you are using the AVGA2CFG feature, run the AVGA2CFG file each time you start your system. To run the file from the MS-DOS command line, type AVGA2CFG and press **ENTER**.

To run the file automatically at each startup, add the following line to the AUTOEXEC.BAT file in the root directory of your startup drive:

```
avga2cfg
```

Refer to an MS-DOS manual for information about AUTOEXEC.BAT.

Using SETMODE.EXE

Use SETMODE.EXE to set the various standard modes and Super VGA modes of your video chip. Enter the SETMODE command at the MS-DOS prompt in one of two ways:

- If you do not know the number of the mode you want to use, type `setmode` and press **ENTER**. Select from the video configurations that are displayed.
- If you know the number of the mode you want to use, type `setmode nn` and press **ENTER**. (*nn* is the number of the mode desired.)

Check your monitor documentation to determine which modes your monitor supports. If you run SETMODE without specifying a mode number, choose from one of the displayed video modes by using the mouse or arrow keys and pressings. Following are samples of displayed modes:

| Mode | Resolution ¹ | Monitor(s) Supported |
|-----------------|-----------------------------|-----------------------------------|
| 54 ² | 132-column x 43-line text | color, multiple-frequency |
| 55 ² | 132-column x 25-line text | color, multiple-frequency |
| 56 ² | 132-column x 43-line text | mono, multiple-frequency |
| 57 ² | 132-column x 25-line text | mono, multiple-frequency |
| 5F ³ | 640x480, 256-color graphics | color, multiple-frequency |
| 58 | 800x600, 16-color graphics | multiple-frequency |
| 5C ³ | 800x600, 256-color graphics | multiple-frequency |
| 5D ³ | 1024x768, 16-color graphics | color, multiple-frequency, 8514/A |

¹ Resolution is listed as columns x lines for text modes or as dots vertical x dots horizontal with the number of available colors for graphics modes.

² If you select 132-column text, 60Hz, 2 fonts mode on the ACU screen, your monitor will not operate properly.

³ Requires 512KB of video memory.

Note: To use a mouse with SETMODE.EXE, you must have a mouse driver loaded.

Press **H** to display help from the SETMODE screen.

Windows Video Drivers

Your Utilities & VGA Drivers diskette contains Windows drivers for the following video modes:

- 640 x 480, 16-color
- 640 x 480, 256-color²
- 800 x 600, 16-color¹
- 800 x 600, 256-color^{1,2}
- 1024 x 768, 16-color^{1,2}

¹Requires a multiple-frequency monitor.

²Requires 512KB of video memory.

Be sure your system has enough video memory and the correct monitor type before you install a video driver.

With Microsoft Windows 3.1 on a hard drive, you can easily change video modes as follows:

1. Double-click on the Windows Setup icon from the Windows Main Group.
2. From the Options menu, choose Change System Settings.
3. Open the Display list by clicking on the arrow at the right of the list.
4. Scroll to the bottom of the list, and select Other display. SETUP prompts you for the disk containing the video device driver.
5. Insert the Utilities & VGA Drivers diskette into Drive A, and press ENTER.
6. Select the appropriate video driver, and click on OK.
7. If SETUP prompts you to insert the Cirrus Logic disks, insert the Utilities & VGA Drivers diskette and press ENTER.
SETUP copies the appropriate files and displays the updated list of your hardware.
8. Click on OK. A dialog box appears. Click on the Restart Windows button in this box.

Video drivers are also provided for Windows 3.0. For instructions on using these drivers, insert the Utilities & VGA Drivers diskette into Drive A and change to the A:\WIN30 subdirectory; then, type `readme` and press ENTER.

Standard Video Modes

| Mode (Hex) | Video Standard | Type | Colors | Resolution | Columns x Rows | Buffer | Char. Size |
|------------------|----------------|----------|--------|------------|----------------|--------|------------|
| 0,1 ¹ | CGA | text | 16 | 320 x 200 | 40 x 25 | B8000 | 8 x 8 |
| 0,1 | EGA | text | 16 | 320 x 350 | 40 x 25 | B8000 | 8 x 14 |
| 0,1 | VGA | text | 16 | 360 x 400 | 40 x 25 | B8000 | 9 x 16 |
| 2,3 ¹ | CGA | text | 16 | 640 x 200 | 80 x 25 | B8000 | 8 x 8 |
| 2,3 | EGA | text | 16 | 640 x 350 | 80 x 25 | B8000 | 8 x 14 |
| 2,3 ² | VGA | text | 16 | 720 x 400 | 80 x 25 | B8000 | 9 x 16 |
| 4,5 ¹ | CGA | graphics | 4 | 320 x 200 | 40 x 25 | B8000 | 8 x 8 |
| 6 ¹ | CGA | graphics | 2 | 640 x 200 | 80 x 25 | B8000 | 8 x 8 |
| 7 | MDA | text | mono | 720 x 350 | 80 x 25 | B0000 | 9 x 14 |
| 7 ³ | VGA | text | mono | 720 x 400 | 80 x 25 | B0000 | 9 x 16 |
| D ¹ | EGA | graphics | 16 | 320 x 200 | 40 x 25 | A0000 | 8 x 8 |
| E ¹ | EGA | graphics | 16 | 640 x 200 | 80 x 25 | A0000 | 8 x 8 |
| F | EGA | graphics | mono | 640 x 350 | 80 x 25 | A0000 | 8 x 14 |
| 10 | EGA | graphics | 16 | 640 x 350 | 80 x 25 | A0000 | 8 x 14 |
| 11 | VGA | graphics | 2 | 640 x 480 | 80 x 30 | A0000 | 8 x 16 |
| 12 | VGA | graphics | 16 | 640 x 480 | 80 x 30 | A0000 | 8 x 16 |
| 13 ¹ | VGA | graphics | 256 | 320 x 200 | 40 x 25 | A0000 | 8 x 8 |

¹All 200-line modes are double-scanned to display 400 lines.

²Default mode for color monitors.

³Default mode for monochrome monitors.

Super VGA Modes

| Mode Number and Type¹ | Resolution | Columns x Rows | Colors | Video Memory Required | VSYNC Default | VSYNC Options² |
|---|-------------------|-----------------------|---------------|------------------------------|----------------------|----------------------------------|
| 54,T | 1056x387 | 132x43 | 16/256K | 256KB | 70Hz | 60,70Hz |
| 55,T | 1056x400 | 132x25 | 16/256K | 256KB | 70Hz | 60,70Hz |
| 56,M | 1056x387 | 132x43 | Mono | 256KB | 70Hz | |
| 57,M | 1056x400 | 132x25 | Mono | 256KB | 70Hz | |
| 58,G | 800x600 | 100x37 | 16/256K | 256KB | 56Hz | 60,72Hz |
| 5C,G ³ | 800x600 | 100x75 | 256/256K | 512KB | 56Hz | 60Hz |
| 5D,G ³ | 1024x768 | 128x48 | 16/256K | 512KB | 43Hz ⁴ | 60Hz |
| 5F,G ³ | 640x480 | 80x60 | 256/256K | 512KB | 60Hz | 72Hz |

¹ The types are Text (T), Monochrome (M), and Graphics (G).

² The optional VSYNC frequencies can be obtained using ACU.EXE, AVGA2CFG.COM, and SETMODE.EXE on the Utilities & VGA Drivers diskette.

³ Use the Video Memory Upgrade Kit for 512KB of video memory.

⁴ Interlaced.

Video Troubleshooting

This section lists typical symptoms of video problems, along with their solutions:

Blank screen

- Check that all power buttons are on.
- Adjust the monitor's brightness or contrast control knob.
- Check all the cable connections.

F1 Setup error when you start the system

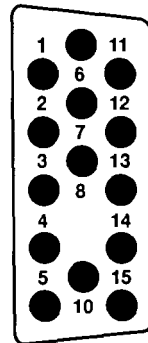
- Run the setup utility.

Distorted images when you start the system

- Check the configuration of your software to ensure that it is set for a mode that is compatible with the video mode you selected with SETMODE.
- Run SETMODE to select a video mode supported by the software you are using.

Video Port Connector Pin Assignments

| Pin | Function |
|-----|-------------------------------|
| 1 | Red Video |
| 2 | Green Video |
| 3 | Blue Video |
| 4 | Monitor ID Bit 2 (diagnostic) |
| 5 | Ground |
| 6 | Red Return (ground) |
| 7 | Green Return (ground) |
| 8 | Blue Return (ground) |
| 9 | Key (no pin) |
| 10 | Sync Return (ground) |
| 11 | Monitor ID Bit 0 (ground) |
| 12 | Monitor ID Bit 1 (ground) |
| 13 | Horizontal Sync |
| 14 | Vertical Sync |
| 15 | Not Used (diagnostic) |



Sound Driver

If the sound driver, TDACWAVE.DRV, has not already been installed into Windows, you can install it as described in this section. Once the sound driver is installed, you can assign sounds to Windows events as desired. Refer to a Windows reference manual for information on assigning sounds to events.

Installing the Sound Driver

To install the sound driver:

1. Select Control Panel from the Windows Main Group.
2. Select the Drivers icon from the Control Panel.

A list of drivers is displayed.

3. Click on Add.

A list of choices is displayed.

4. Select Unlisted or Updated Driver. Click on OK.

The Install Driver window appears, prompting you to insert the diskette containing the driver.

5. Insert the Utilities & VGA Drivers diskette into Drive A, and click on OK.

The Add Unlisted or Updated Driver window appears. This window displays a list of drivers you can install.

6. Select Tandy DAC Wave, and click on OK.

7. Click on Restart Now to load the sound driver.

The sound driver uses Interrupt Request (IRQ) 7 and configures the I/O port in the range 1E4h-1E7h.

Disabling Sound for Windows Events

Follow these steps to disable the sounds assigned to your Windows events.

1. Select Control Panel from the Windows Main Group.
2. Select the Sound icon from the Control Panel.
3. Click on the Enable System Sounds checkbox to uncheck it.
4. Click on OK.

Specifications

Refer to the inside back cover of this manual for system unit specifications.

Environment

Air Temperature

Operating: 10°C to 35°C (50°F to 95°F)

Storage: -40°C to 66°C (-40°F to 149°F)

Humidity

Operating: 20% to 80% (non-condensing)

Storage: 10% to 90% (non-condensing)

Memory

System RAM: 2MB, 60 ns

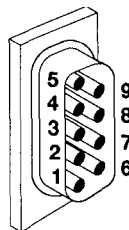
Video RAM: 256KB, 70 ns

Peripheral Interfaces

RS-232C Serial Port

Pin Assignments:

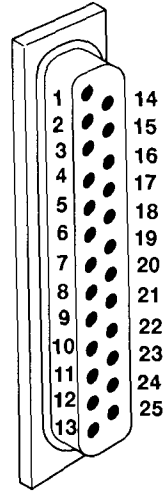
- | | |
|---|---------------------|
| 1 | Carrier Detect |
| 2 | Receive Data |
| 3 | Transmit Data |
| 4 | Data Terminal Ready |
| 5 | Signal Ground |
| 6 | Data Set Ready |
| 7 | Request To Send |
| 8 | Clear To Send |
| 9 | Ring Indicator |



Parallel I/O Port

Pin Assignments:

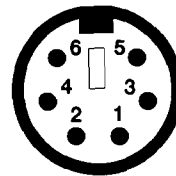
| | |
|-------|-------------|
| 1 | Strobe |
| 2 | Data Bit 0 |
| 3 | Data Bit 1 |
| 4 | Data Bit 2 |
| 5 | Data Bit 3 |
| 6 | Data Bit 4 |
| 7 | Data Bit 5 |
| 8 | Data Bit 6 |
| 9 | Data Bit 7 |
| 10 | ACKNOWLEDGE |
| 11 | BUSY |
| 12 | PAPER END |
| 13 | SELECT |
| 14 | AUTO FEED |
| 15 | ERROR |
| 16 | INITIALIZE |
| 17 | SELECT IN |
| 18-25 | Ground |



Keyboard and Mouse Connectors

Pin Assignments:

| | |
|---|----------|
| 1 | Data |
| 2 | Reserved |
| 3 | Ground |
| 4 | +5 VDC |
| 5 | Clock |
| 6 | Reserved |



1.44MB Diskette Drive

Unformatted Capacity

2.0MB

Formatted Capacity

1.44MB

Number of Tracks

80 per side

Number of Heads

2

Average Access Time

95 ms

Track-to-Track Access Time

3 ms

Motor Starting Time

500 ms (700 ms max.)

Rotation Speed

300 rpm

Media

3½-inch high-density or standard-density

Note: The 1.44MB diskette can read, write, and format standard-density (720KB) diskettes as well as high-density (1.44MB) diskettes. Formatting standard-density diskettes requires a different set of command parameters. See an MS-DOS reference manual.

System Worksheet

Use this system worksheet to record and update information about your system configuration before running the setup utility. Update this list every time you add or remove any of the following: system memory, video memory, hard drives, diskette drives, a video display adapter, or expansion adapters.

Computer

Serial No. _____

Model No. _____

System Memory

Base _____

Extended _____

Video

Monitor Type _____

Model No. _____

Serial No. _____

Diskette Drive 1

Size _____ Capacity _____

Model No. _____

Serial No. _____

Diskette Drive 2

Size _____ Capacity _____

Model No. _____

Serial No. _____

Hard Drive 1

Type _____ Type No. _____

Model No. _____ Serial No. _____

Capacity _____ Heads _____

Cylinders _____ Sectors per Track _____

Landing Zone _____ Defective Tracks _____

Precomp. Cylinder _____

Hard Drive 2

Type _____ Type No. _____

Model No. _____ Serial No. _____

Capacity _____ Heads _____

Cylinders _____ Sectors per Track _____

Landing Zone _____ Defective Tracks _____

Precomp. Cylinder _____

Expansion Adapters Installed

Slot 1 _____

Slot 2 _____

Slot 3 _____

System Unit Specifications

| | |
|-----------|------------------|
| Processor | 386 SX, 33/8 MHz |
|-----------|------------------|

| | |
|-------------------------------|---------------|
| Math Coprocessor Supported | 387SX, 33 MHz |
|-------------------------------|---------------|

Size

| | |
|---------|--------------------|
| Length: | 38.1 cm (15.0 in.) |
|---------|--------------------|

| | |
|--------|--------------------|
| Width: | 39.4 cm (15.5 in.) |
|--------|--------------------|

| | |
|---------|-------------------|
| Height: | 10.7 cm (4.2 in.) |
|---------|-------------------|

| | |
|---------|---------------------|
| Weight: | 10.4 kg (23.0 lbs.) |
|---------|---------------------|

| | |
|--------------------|----------------------------|
| Power Requirements | 105 to 135 VAC, 60 Hz (US) |
|--------------------|----------------------------|

| | |
|-------------|--------------|
| Heat Output | 240 BTU/hour |
|-------------|--------------|

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