TDZ 2000

System Setup

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INTERGRAPH
COMPUTER SYSTEMS

FCC/DOC Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If the equipment is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe A respecte toutes les exigencies du Règlement sur le materiél brouilleur du Canada.

Warnings

Changes or modifications made to the system that are not approved by the party responsible for compliance could void the user's authority to operate the equipment.

To reduce the risk of electrical shock, do not attempt to open the equipment unless instructed. Do not use a tool for purposes other than instructed.

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

There are no user serviceable parts in the power supply. Refer all servicing of the power supply to qualified service personnel.

Notes

This device is designed and manufactured to comply with approved safety standards for information processing and business equipment.

Read all operating instructions before using this device. Keep these instructions for future reference. Follow all warnings on the device or in the operating instructions.

Contents

Returned Goods Authorization (RGA) Form
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Preface

TDZ 2000 System Setup describes setting up and configuring your TDZ 2000 system for use. This document also provides information on operating the system, troubleshooting, and reinstalling system software.

About This Document

TDZ 2000 System Setup is organized as follows:

◆ Chapter 1, "Setting Up the Hardware," describes how to set up the system hardware.

◆ Chapter 2, "Setting Up the Software," describes how to set up the operating system and associated system software.

◆ Chapter 3, "Configuring the System," describes how to configure the system for use.

◆ Chapter 4, "Configuring the BIOS," describes how to use AMIBIOS Setup to configure the system's basic input/output system (BIOS).

◆ Chapter 5, "Operating Notes," describes how to use essential system features and provides other important information.

◆ Chapter 6, "Troubleshooting," describes how to resolve common system problems.

◆ Chapter 7, "Installing System Software," describes how to install the operating system and associated system software, if required.

◆ Chapter 8, "Using System Resources," provides information on using system resources to configure the system for use with additional option boards.

Document Conventions

Bold	Commands, words, or characters that you key in literally.
Italic	Variable values that you supply, or cross-references.
Monospace	Output displayed on the screen.
SMALL CAPS	Key names on the keyboard, such as D, ALT or F3; names of files and directories. You can type filenames and directory names in the dialog boxes or the command line in lowercase unless directed otherwise.
CTRL+D	Press a key while simultaneously pressing another key; for example, press CTRL and D simultaneously.

Finding Operating System Information

For more detailed information on the operating system, see the printed and online Microsoft documentation delivered with the system.

See the *Late-Breaking News* shipped with your system for important software and documentation information not covered in this document.

Finding System Hardware Information

An online introduction to your new system is provided in the *System Introduction*, which covers subjects such as the following:

◆ System features
◆ System controls and connections
◆ Intergraph customer support

You can display the *System Introduction* by using the InterSite Welcome dialog or by opening the SYSINTRO.HLP file on your system.

Detailed reference information for your new system is provided in the *System Reference*, which covers subjects such as the following:

◆ Opening and closing the unit
◆ Precautions against electrostatic discharges
◆ Replacing and upgrading system components
◆ Installing expansion cards
◆ System interrupt requests (IRQs)
◆ External port and system board connectors
◆ System board jumpers
◆ Power supply information

See the *Late-Breaking News* shipped with your system for important hardware and documentation details not covered in this document.

Learning About System Ergonomics

Please read the *Ergonomics Guide* included with your Intergraph computer system. This document provides valuable information on ways to minimize repetitive stress injuries for persons working with a computer.

Customer Support

Intergraph Computer Systems offers an assortment of customer support options.

Hardware and Software Support Services

Intergraph Computer Systems provides a variety of hardware services for Intergraph and third-party equipment. Services include warranty upgrades, repair depot service, on-site hardware maintenance, system administration, and network consulting. Hardware purchased from Intergraph Computer Systems includes a factory warranty ranging from 30 days to three years. A detailed warranty description is available on the World Wide Web; see the Support pages at **http://www.intergraph.com/ics**.

Intergraph Computer Systems provides complimentary software support for 30 or 90 days following shipment of a hardware or software product. This includes World Wide Web access, Intergraph Bulletin Board Service access, FAXLink service, and telephone (Help Desk) support. At the end of the complimentary support period, you can purchase other levels of software support.

World Wide Web

You can visit Intergraph Computer Systems on the World Wide Web at **http://www.intergraph.com/ics**. On these pages, you can get news and product information, technical support information, software updates and fixes, and more.

Intergraph Bulletin Board Service

On the Intergraph Bulletin Board Service (IBBS), you can get technical support information, software updates and fixes, and more.

To connect to the IBBS:

1. Set your system's communications protocol for eight (8) data bits, no parity, one (1) stop bit, and any baud rate up to 14,400.

2. Using a modem, call 1-205-730-8786. Outside the United States, call one of the mirror sites listed on World Wide Web; see the Software Support pages at **http://www.intergraph.com**.

3. At the login prompt, key in your user ID. If you have not connected before, key in **new** to create a user ID.

4. Follow the menus to find what you need. The IBBS provides clear choices and online help.

If you have trouble connecting to or using the IBBS, call the Customer Response Center at 1-800-633-7248 (product entry IBBS) or leave a message for the IBBS System Operator at 1-205-730-1413.

FAXLink

To use the FAXLink:

◆ Call 1-800-240-4300 for information on how to get technical support information using the FAXLink.

◆ Call 1-205-730-9000 to get documents (up to five per call).

Telephone

To get customer support by telephone:

◆ In the United States, call 1-800-633-7248 between the hours of 7:00 a.m. and 7:00 p.m. Central Time, Monday through Friday (except holidays).

◆ Outside the United States, contact your local Intergraph Computer Systems subsidiary or distributor.

Have the following information available when you call:

◆ Your service number, which identifies your site to Intergraph Computer Systems. You use your service number for warranty or maintenance calls.

◆ Your Customer Personal Identification Number (CPIN). You get a CPIN the first time you call the Customer Response Center; it is associated with your service number for future call logging.

◆ The product's name or model number.

◆ The product's serial number. Software product serial numbers are included in the product packaging. Hardware product serial numbers are on a sticker affixed to the hardware product.

◆ Your name and telephone number.

◆ A brief description of the question or problem.

More Support Options

To get information on more customer support options:

◆ Visit the Support pages on the World Wide Web at **http://www.intergraph.com/ics**.

◆ For hardware support questions in the United States, call 1-800-763-0242.

- ◆ For software support questions in the United States, call 1-800-345-4856.

- ◆ Outside the United States, contact your local Intergraph Computer Systems subsidiary or distributor.

1   Setting Up the Hardware

Follow the instructions in this chapter to set up the hardware for your TDZ 2000 workstation.

Unpacking the System

CAUTION Carefully remove items from packaging. Do not drop any items on a hard surface, or damage may result. You may need a helper to assist you in removing and placing heavy items.

Remove everything from the shipping cartons, then look for the following items:

- Workstation and power cord
- Keyboard and mouse
- Intergraph Computer Systems documentation
- Windows NT Workstation 4.0 operating system software (CD-ROM and diskettes) and documentation
- Package containing screws for installing peripheral devices

If you purchased a monitor from Intergraph Computer Systems, its carton contains the following:

- Monitor and power cord
- Video cable
- Monitor documentation

NOTE If any of these items were not delivered, call the Customer Response Center immediately at 1-800-633-7248.

Save the packaging materials. If you need to return equipment for repair, it must be in its original packaging for you to get warranty service.

If you have already unpacked and connected the peripherals to the system, go to Chapter 2 to begin software setup.

Placing System Components

CAUTION Do not use the bottom portion of the face panel or the lip at the top rear of the unit as a hand hold when moving the system. Equipment damage and personal injury can result.

When placing the system's components, remember these guidelines:

- Move and place the TDZ 2000 and monitor carefully.
- Place the TDZ 2000 in a location where air can circulate freely around it. The front and back panels should each have at least a 3-inch clearance.

◆ Avoid exposing the system to high levels of dust, smoke, or moisture.

◆ Maintain a temperature range of 10 °C to 26 °C (50 °F to 80 °F); the optimum operating temperature is 21 °C (70 °F).

◆ Maintain a humidity range from 20 percent to 80 percent (non-condensing); the optimum humidity level is 50 percent.

CAUTION   Do not move the TDZ 2000 without first shutting down the system and turning off the power, or damage to internal components may result. See Chapter 5 for instructions on properly shutting down and powering off the system.

Setting Up the System

Before you connect any cables to the back of the TDZ 2000, note the connector locations in the following illustration.
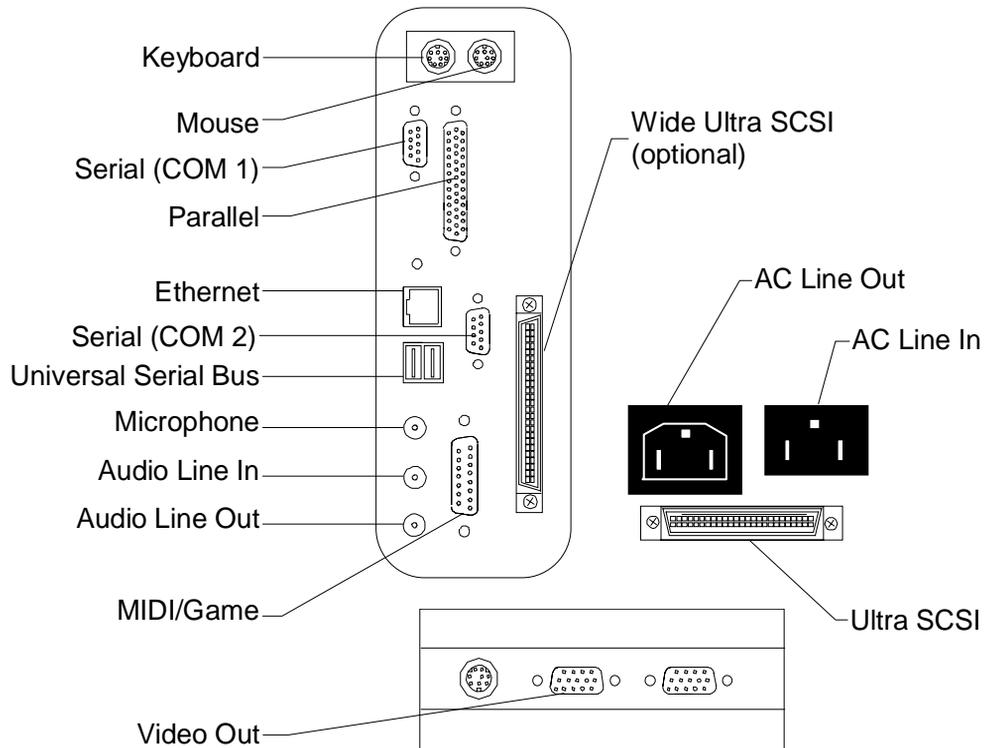
See the *System Reference* for technical details on each port.

To set up the system:

1. Arrange the system base unit, monitor, keyboard, and other peripherals in your workspace.

2. Connect the cables from the various peripherals to the ports on the back of the system.

Connect the cable from this....	To the port labeled....	For this connector....
Mouse		Mouse port
Keyboard		Keyboard port
Modem, printer, or other device	[1] [2]	Serial (COM) port 1 or 2
Printer or other device		Parallel port
Network		Ethernet port
Universal Serial Bus device		Universal Serial Bus port
Stereo speakers or headphones; Multimedia keyboard speaker		Audio Line Out port
External stereo cassette or CD player; radio or other device		Audio Line In port
Multimedia keyboard microphone		Microphone port
Game joystick or MIDI device		MIDI/Game port
Monitor		Video Out port
External SCSI device		SCSI port

WARNING **If you do not use cables supplied by Intergraph Computer Systems, you must use shielded cables to prevent excessive electromagnetic interference (EMI). Intergraph Computer Systems cables are designed to reduce the amount of EMI produced by the system.**

3. Connect any external SCSI devices to the appropriate SCSI port on the back of the system. See "Connecting an External SCSI Device" below for details.

4. Connect the power cords from the monitor, system, and any external optional peripherals, to receptacles on a grounded, three-prong AC wall outlet or an uninterruptible power supply (UPS).

NOTE   When you connect the computer power cord to the AC outlet, power is immediately applied to the system. The system is always powered on when connected to AC power.

5. Open and stow the door on the front of the computer by doing the following:

    − Grasp the lip at the bottom of the door and lift up until the door is even with the top of the system

    − Push the door into the system until the door stops

6. **Stop!** If you are not connecting external SCSI devices at this time, go to the section, "What's Next" at the end of this chapter.

Connecting an External SCSI Device

You may want to connect an external SCSI device, such as a hard disk or tape drive, to the system. The TDZ 2000 features a standard external Ultra SCSI port. An external Wide Ultra SCSI port is optional. Ultra SCSI provides a maximum data transfer rate of 20 MB per second and Wide Ultra SCSI provides a maximum data transfer rate of 40 MB per second. If you use a non-Ultra or non-Wide Ultra SCSI device, data transfer rates are limited to the speed of that device.

Before you connect external SCSI devices to your system, read the following sections carefully.

CAUTION   Using a non-compliant SCSI-1 device with your system may cause your system to stop working or lead to other unpredictable results.

CAUTION   Make sure you shut down the system and unplug the power cord from the AC wall receptacle before connecting or disconnecting any peripherals, including external SCSI devices.

NOTE   See the *System Reference* for additional details on installing SCSI devices.

NOTE   Most SCSI adapters do not recognize a hard disk drive that was formatted using a different brand of adapter. For example, a hard disk drive formatted with an Adaptec SCSI adapter will not work with a Symbios SCSI adapter. You must use only Symbios-formatted hard disk drives with a Symbios SCSI adapter.

See "Configuring SCSI Peripherals," in Chapter 3 for details on using the SCSI Configuration Utility.

SCSI Cable Length Guidelines

The number of drives and length of the cables used to connect the drives is a factor when using SCSI-1, Fast SCSI (SCSI-2), Ultra SCSI, and Wide Ultra SCSI drives. Fast SCSI, Ultra SCSI, and Wide Ultra SCSI impose shorter cable restrictions than SCSI-1. The total length of the SCSI cabling must not exceed the following:

Connecting 1 to 4 Drives

SCSI-1	Fast SCSI-2	Ultra SCSI	Wide Ultra SCSI
19.8 ft (6 meters)	9.9 ft (3 meters)	9.9 ft (3 meters)	9.9 ft (3 meters)

Connecting 5 to 7 Drives

SCSI-1	Fast SCSI-2	Ultra SCSI	Wide Ultra SCSI
9.9 ft (3 meters)	9.9 ft (3 meters)	4.5 ft (1.5 meters)	4.5 ft (1.5 meters)

NOTE The SCSI controller (on the system board or an adapter card) counts as one device.

The total length of the SCSI cabling is the sum of the following:

◆ Wide Ultra SCSI cable inside the system - 52 inches (132 cm)

◆ Ultra SCSI cable inside the system - 14 inches (35.5 cm)

◆ SCSI cable inside each device - 8 inches (20 cm)

◆ SCSI cable between the system and the first device

◆ SCSI cable between each device

SCSI Cable Quality Guidelines

To ensure data integrity and optimum performance, do the following:

◆ Use only Intergraph Computer Systems SCSI cables. Cables from other vendors may not provide adequate shielding.

◆ Use the shortest cables possible to connect SCSI devices to the system and to each other.

Make sure the last device on a chain of external SCSI devices has an active SCSI terminator connected to the open SCSI port. All other external SCSI devices must have SCSI termination disabled or removed.

Device Connection

The following steps provide basic information to connect a SCSI device to the system. See the vendor documentation that came with the SCSI device for additional details on installation, termination, and operation.

CAUTION Make sure you shut down the system and unplug the power cord from the AC wall receptacle before connecting or disconnecting any peripherals, including external SCSI devices.

To connect an external SCSI device:

1. Shut down the system and unplug the power cord from the AC line receptacle.

2. Connect one end of the external SCSI cable to one of the following external ports on the back of the system:

    – The standard Ultra SCSI port, located just under the AC Line Out connector

    – The optional Wide Ultra SCSI port, located on the right side of the I/O panel

3. Connect the other end of the cable to the SCSI device.

4. Set the SCSI ID of the device to an unused number between 1 and 6.

CAUTION Do not use ID 0 or ID 7. Using these IDs can cause system problems, including data loss.

5. Do one of the following:

    – If the device is the *last* or *only* device on the SCSI chain, *enable* SCSI termination

    – If the device is the *first* device or is *between the first and last* device on the SCSI chain, *disable* SCSI termination

NOTE If the last or only SCSI device is not internally terminated, make sure you connect an active SCSI terminator to the open SCSI port. All other external SCSI devices must have termination disabled or removed.

6. Ensure that the power switch on the SCSI device is in the off position, and then connect the power cord to the device and then to an AC receptacle.

7. Connect the TDZ 2000 power cord to the AC receptacle.

8. Turn on the power to the SCSI device and any other devices on the SCSI chain.

9. Press the Standby (power) button on the front panel of the TDZ 2000.

10. If necessary, install the software drivers and configure the drive according to the vendor's instructions.

What's Next?

Intergraph Computer Systems installs the operating system through Phase I of the process. From here, you can do either of the following:

◆ Continue the installation. See Chapter 2, "Setting Up the Software," for instructions on setting up the operating system and associated system software.

◆ Reinstall the operating system. See Chapter 7, "Installing System Software," for instructions to install the software completely from CD-ROM.

NOTE   Before starting the system for the first time, you may want to learn m ore about system power, startup, and shutdown. See Chapter 5, "Operating Notes," for this information.

2   Setting Up the Software

Follow the instructions in this chapter to set up the operating system and associated system software on your TDZ 2000 workstation.

Intergraph Computer Systems installs the operating system through Phase I of the process. From here, you can do one of the following:

◆   Continue the installation, as described in this chapter.

◆   Reinstall the operating system. See Chapter 7, "Installing System Software," for instructions to install the software completely from CD-ROM and diskettes.

Preparing for Setup

Your system is equipped with a partitioned and formatted internal hard disk drive. Any additional disk drives delivered with the system must be partitioned and formatted before you can use them. See the operating system documentation and Help for information on partitioning and formatting disk drives.

Pre-Installed Software

The operating system and associated system software is pre-installed on the primary hard disk drive. Intergraph Computer Systems installed the following system software:

- Driver software for the on-board SCSI adapter

- Driver software for the on-board network adapter

- Driver software for the installed video display adapter

- Driver software for the on-board sound processor

- Operating system network software (TCP/IP and NetBEUI)

- Quick-Fix Engineering (QFE) update software (fixes for operating system problems or limitations, if needed)

- InterSite software

- The default NT File System (NTFS) file system for standard configurations.

Before You Start Setup

Before starting the Setup process, have the following documentation available:

- The Microsoft *Start Here* document

- Documentation for the video display adapter delivered with the system

Get and record the following information:

- Your name, and the name of your company or organization:

- For a system running Windows NT, the CD key from the Windows NT CD case, or the Product ID Number from *Start Here* or the registration card:

If the system is connected to a network, get and record the following general information from your network administrator:

◆   Computer name for your system: _____

◆   Workgroup name (if the system will be
    part of a workgroup): _____

◆   Domain name (if the system will be
    part of a Windows NT domain): _____

If the system is connected to a network that uses the Transmission Control Protocol/Internet Protocol (TCP/IP), get and record the following TCP/IP information from your network administrator:

◆   Internet Protocol (IP) address for your
    system: _____

◆   IP subnet mask for your system: _____

◆   IP domain name for your network: _____

◆   IP address for your network's default
    gateway: _____

◆   IP addresses for your network's
    Domain Name System (DNS) servers,
    if any: _____

◆   IP addresses for your network's
    Windows Internet Name Service
    (WINS) servers, if any: _____

Have several blank, formatted diskettes available to create backup diskettes containing system software.

The Windows NT delivery media contain software and drivers for both Reduced Instruction Set Computing (RISC)- and Intel-based systems. When installing Windows NT distribution files, make sure you install them from the \i386 directory (the Intel software directory) on the delivery media. For example, if you are installing a device driver from the Windows NT CD-ROM, key in the following when prompted for the path:

*drive***:\i386**

where *drive* is the drive letter for the CD-ROM drive.

Starting Operating System Setup

When you start your new TDZ 2000 for the first time, you must configure the operating system software for use. After you first start the system, the Microsoft End User License Agreement (EULA) screen displays.

NOTE Before starting the system for the first time, you may want to learn more about system power, startup, and shutdown. See Chapter 5, "Operating Notes," for this information.

To start the computer and set up the operating system software:

1. Turn on the monitor by pressing its power switch.

2. Open the system's front panel door and press the Standby button (power switch). See Chapter 1 for details. The system starts and the EULA screen displays.

3. Enter the Product Identification Number, found on the Certificate of Authenticity included with your operating system documentation.

NOTE You must enter the Product Identification Number before you can continue Setup. You cannot complete Setup if you do not enter the number.

4. Read the terms of the EULA and then follow the instructions displayed on-screen to complete the Setup process. Accept the default settings provided by Setup, except as follows:

    – Setup asks if you want to install networking. If you choose to install networking, Setup detects the on-board network adapter and asks if you want to install the driver software that it finds on the system disk. Allow Setup to install this driver software.

    – Create an Emergency Repair Disk when prompted.

    – Press ENTER or click OK at the logon dialog to log on to the operating system, if you do not create a user account during Setup.

    – Select the \I386 directory if you are prompted for the location of Windows NT Setup files, such as those for installing the video display adapter driver.

After you configure the video display, the sound processor, and networking, you can set up a user account and join a workgroup or domain. See Windows NT Help for details on setting up a user account and joining a workgroup or domain.

Finishing System Setup

After operating system Setup is completed, an InterSite Welcome icon displays on the operating system desktop. Double-click this icon, or select Programs/InterSite/Welcome from the operating system Start menu, to display InterSite Welcome.

InterSite Welcome helps you do the following:

◆   Create a repair disk for the operating system.

◆   Create backup diskettes of device driver software and other system software products.

◆   Display an online *System Introduction* for your system.

◆   Learn about Intergraph Computer Systems customer support.

You should take advantage of the tools provided by InterSite Welcome to ensure that your system is fully ready for use. See InterSite Welcome for more information. Also see the following sections for information on creating a repair disk and creating backup diskettes.

Creating a Repair Disk

If you did not create an Emergency Repair Disk (Windows NT) or a Startup diskette (Windows 95) during Setup, use the tools provided by InterSite Welcome to do so. The files on these diskettes can restore the original contents of a damaged operating system Registry (that is, at the time the operating system was installed), along with the standard operating system drivers. You should also update an Emergency Repair Disk or a Startup diskette after you finish configuring the system.

See the operating system documentation and Help for information on creating an Emergency Repair Disk or a Startup diskette.

Creating System Software Backup Diskettes

Backup diskettes for some device driver software and system software products are not delivered with the system. Use InterSite Version Manager, available through InterSite Welcome, to create system software backup diskettes.

Version Manager lets you create backup diskettes containing device driver software and system software products that were installed on the system before shipment, and which are not available on the operating system CD-ROM. You may need these backup diskettes later -- for example, if you have to reinstall a device driver or the operating system.

WARNING   **You must create system software backup diskettes after you set up the system hardware and complete the operating system Setup program. If you do not do this,**

you may not be able to reinstall critical system software or the operating system if needed.

NOTE   You may not have to create backup diskettes for all system software. If Version Manager does not list drivers or other system software products, they are available on the operating system software CD-ROM or on backup diskettes delivered with expansion cards.

If the system requires Quick-Fix Engineering (QFE) update software, it is included in the system software available for backup diskette creation. QFE update software contains fixes for operating system problems or limitations, and is only shipped with the system if it is needed. If QFE update software is shipped with the system, you should create a QFE backup diskette for use if you have to reinstall the operating system.

See Version Manager Help for information on creating system software backup diskettes. Visit the Intergraph Computer Systems site on the World Wide Web and vendor bulletin boards for new and updated drivers.

What's Next?

See the online *System Introduction* for information on system features and controls.

See Chapter 3, "Configuring the System," to configure the system for use.

See Chapter 5, "Operating Notes," for related details.

3 Configuring the System

Follow the instructions in this chapter to configure your TDZ 2000 for use. This chapter covers items required for basic operation.

Configuring the Video Display Driver

The first time you start the system, your monitor displays at 1024 x 768 screen resolution. For the system to use the installed video adapter at other display resolutions, you must configure the video display driver as described in this section.

NOTE   RealiZm II is the only graphics system discussed in this docume nt. If you purchased the system with another graphics system, see the separate video display adapter documentation for installation and configuration information.

About RealiZm II Video Display Adapters

RealiZm II video display adapters are 3D graphics accelerators. These graphics accelerators provide a number of advanced graphics features, including hardware acceleration of OpenGL and Windows NT graphics features, texture processing, and geometry acceleration. For more information about RealiZm II graphics, see the video display adapter documentation delivered with the system.

Using the Display Properties Dialog Box

Open Display in the Control Panel to configure the video display driver. Use the Settings tab in the Display Properties dialog box to change the color depth, desktop size, font size, refresh rate, and display type. To determine which video display adapter is installed on your system, click the Display Type button. Use the controls on the Hardware Settings tab to change the monitor type, screen display, and preferences.

For detailed information on configuring the video display driver, see the video display adapter documentation and Help delivered with the system, and the README.TXT files delivered with the video display drivers.

3D Display Performance and Full Drag (RealiZm II)

If you use 3D applications with the RealiZm II video display driver, the video display may update slowly when you drag objects across it. To avoid this inconvenience, turn off full drag before using 3D applications with these video drivers.

To turn off full drag:

1. Open Display in Control Panel.

2. Click the Plus! tab.

3. Click to deselect the Show Window Contents While Dragging checkbox.

4. Click OK.

OpenGL Performance and Custom Cursors

Windows NT features custom cursors, such as decorated or animated cursors, in place of the standard cursor. If you use a custom cursor while running an OpenGL program, performance may decrease whenever you position the cursor in that program's window. For optimum performance of OpenGL programs, Intergraph Computer Systems recommends that you use only the standard cursors.

Multiple Screen Display

If your system is set up for dual- or triple-screen display, the video display driver treats the combined display area as a single canvas that covers all screens. In this Full Canvas style, windows centered on the canvas are split between screens. This includes most system dialog boxes. For details, see the video display adapter documentation and Help delivered with the system, and the README.TXT files delivered with the video display drivers.

RenderGL Run-Time Library

The RenderGL run-time library is delivered with your TDZ 2000. This library is delivered as a Dynamic Link Library (DLL) file. If you run an application that requires or uses the RenderGL run-time library, you need to install the RenderGL DLL on your system.

The RenderGL DLL is delivered as follows:

- Your system may have been delivered with a diskette containing the RenderGL DLL. If so, see the README.TXT file on the diskette for installation instructions.

- If your system was not delivered with a diskette containing the RenderGL DLL, you can use the InterSite Version Manager to create the diskette. Run Version Manager from the Welcome dialog that displays after you set up the operating system. After you create the diskette, see the README.TXT file on the diskette for installation instructions.

For more information on the RenderGL run-time library, point your web browser to **http://www.intergraph.com** and follow the links to the Digital Media home page. See "Finding Intergraph Computer Systems on the Internet" in the Preface of this document for further details.

Configuring RealiZm II Support for Heidi Graphics

The RealiZm II graphics accelerators support Heidi graphics for 3D Studio MAX. The Heidi device driver, which operates in conjunction with the RealiZm II video display driver, provides the support.

The Heidi device driver is installed during installation of the RealiZm II video display driver. After you install 3D Studio MAX on your system, copy the Heidi device driver file GLZIHDD.HDI from the \SYSTEM32 directory to the \3DSMAX\DRIVER directory.

NOTE   Use the version of the Heidi device driver that matches the version of the RealiZm II video display driver.

See the README.TXT file delivered with the Heidi Device Driver for detailed instructions on the driver and any associated files.

Correcting Video Display Problems

If the system's video display is black, not synchronized, or distorted after you restart the system, you may have a video configuration problem. Do not press CTRL+ALT+DELETE to log on to the Windows NT operating system. Instead, try to correct the problem by using the Last Known Good option to return the system to the last know good configuration recorded by Windows NT.

To use the Last Known Good option:

1. Restart the system.

2. Press the space bar at the following prompt:

    ```
    Press space bar NOW to invoke the Last Known Good Menu
    ```

If using the Last Known Good option fails to correct the video display problems, you can obtain a functional video resolution by restarting the system in VGA mode.

To restart the system in VGA mode:

1. Restart the system.

2. At the boot screen, select the VGA mode option appropriate for your system.

After logging on to Windows NT in VGA mode, check for the following common configuration problems and solutions.

◆   A multi-sync monitor is connected to the system, but a multi-sync monitor type is not selected, and the display driver cannot determine this by querying the monitor. Select an appropriate multi-sync monitor type.

◆   A selected resolution, depth, or refresh rate is not supported by the multi-sync monitor. Try using different video display settings.

◆   The Dual Screen option is selected, but only one video board is detected. Deselect the Dual Screen option.

- ◆ A multi-sync monitor is selected, but a monitor with different video timing (such as an InterVue monitor) is connected to the system. Select the monitor that is connected to the system.

- ◆ The monitor selection is inappropriate for the multi-sync monitor attached to the system. Restart the system in VGA mode, then select a new monitor as described previously.

- ◆ A graphics resolution and color depth has been selected that exceeds installed display memory. Restart the system in VGA mode, then open Display in the Control Panel to reinstall and configure the display driver as described in the video display adapter documentation delivered with the system.

Restart the system to use the reconfigured video display driver. If problems persist, contact the Customer Response Center for help.

Configuring the Modem

If you must configure a modem for use with your system, you must ensure the BIOS settings and modem jumpers are set appropriately, depending on which operating system and COM port you want to use with the modem.

To configure the modem:

1. To use the modem with Windows NT, set the COM port jumper pins on the modem to COM2. If that COM port is already in use, set the jumper to use a free COM port.

   To use the modem with Windows 95, set the modem to Plug and Play mode according to the vendor instructions included with the modem.

2. In the PCI/PnP menu in BIOS Setup, set the Boot to PnP Operating System parameter to **NO** if the operating system is Windows NT, or to **YES** if the operating system is Windows 95.

3. The modem requires a specific COM port. You must free system resources for use with the modem in BIOS Setup. Set one of the Onboard Serial Port parameters to **DISABLED** in the Peripheral menu in BIOS Setup, according to the following table:

Modem COM Port	Disable Onboard Serial Port
COM1	COM1
COM2	COM2
COM3	COM1
COM4	COM2

4. Set the remaining Onboard Serial Port parameter to **AUTO** and restart the system, saving your changes.

If configuring the modem under Windows NT, double-click the modem icon in Control Panel. Use the Install New Modem window to automatically detect the installed modem. Windows NT lists the name of the modem found.

If the listed modem is incorrect, you must install the appropriate driver for your modem, located on the CD-ROM or floppy diskette media that accompanied the modem. Click the Change button, then click the Have Disk button, and insert the driver media into the appropriate drive. Follow the prompts to install the new driver.

Configuring Audio

The system is equipped with an on-board sound processor. Double-click the speaker icon in the taskbar tray to display the audio mixer. See "Configuring the Sound Driver" in Chapter 7 for details on configuring the mixer for optimum sound quality.

Click the SRS icon in the taskbar tray to display the Crystal 3D Audio control. Adjust the Center and Space sliders to control the audio effects. Right-click a Preset button to save the settings.

Configuring Networking

The system is equipped with an on-board Ethernet network adapter. Before you configure networking, ensure that the system is connected to the network.

If you did not install networking during Setup, you must install the network adapter driver from a backup diskette to enable network operation. Use InterSite Version Manager to create the INTELNETDRV backup diskette that contains the network adapter driver. See the README.TXT file on the diskette for detailed installation instructions.

To configure Networking, open Network in the Control Panel. Follow the instructions in the dialog boxes to set up the system to use a network. Be sure to set up the appropriate network protocols, such as TCP/IP and NetBEUI, for the network to which the system is connected.

See the operating system documentation and Help for detailed information on setting up the operating system to use a network.

Reassigning Hard Disk Drive Letters

If you have more than one hard disk drive, you may need to reassign system drive letters. You can also reassign the CD-ROM drive letter, if needed.

To change drive letters:

1. From the Start menu, click Programs, Administrative Tools, and then Disk Administrator.

2. Select a hard disk drive.

3. From the Tools menu, click Assign Drive Letter.

NOTE   If you select the current drive or an otherwise locked drive, you must restart the system to complete the drive letter reassignment.

4. Select a new drive letter to assign to the hard disk drive from the list. Click OK, and then click Yes to continue.

5. If necessary, click OK, and then click Yes.

6. Repeat steps 2 through 4 for each hard disk drive letter assignment that you want to change.

7. Click Partition, then click Exit. If necessary, restart the system to complete the drive letter reassignments.

Changing Virtual Memory Settings

If you have more than one hard disk drive, you may need to change size and location of your virtual memory page file. See Windows NT Help for more information.

Consider the following before changing page file settings:

◆ The size of the page file. If your system is equipped with a large amount of RAM, Setup might create a page file that is unnecessarily large.

◆ Drive letter reassignments. If you reassigned your drive letters, you may find it necessary to adjust your page file settings.

To change the size and location of the virtual memory page file:

1. From Start, click Settings, and then click Control Panel.

2. Double-click the System icon.

3. Click the Performance tab and then click Change.

4. Click a drive letter in the list, and then type new values in the Initial Size and Maximum Size text boxes.

5. Click Set.

6. Repeat steps 4 and 5 for any additional drives in the list.

7. Click Close, then click OK. An alert box displays.

8. Do one of the following:

    −   Click Yes to restart the system with the new settings.

    −   Click No to continue with other tasks and use the new settings the next time you restart the system.

Configuring SCSI Peripherals

You may need to use the SCSI Configuration Utility, delivered on the SYSUTIL diskette, to configure your SCSI peripherals under certain conditions. This software is also available from the Intergraph Bulletin Board Service (IBBS) or Intergraph Online. See "Using the Intergraph Bulletin Board Service" and "Finding Intergraph on the Internet" in the Preface of this document for details.

SCSI Configuration Utility Guidelines

The SCSI Configuration Utility allows you to configure the SCSI host adapter, perform a low-level format on a SCSI hard disk drive, select boot order, and verify media. You should change only the synchronous data transfer rate parameter. This parameter defines the rate at which data is transferred among SCSI devices; for example, 40 MB per second (default).

Change the SCSI host parameters on a per-device basis under the following conditions:

◆   If you are advised to do so by Intergraph technical support or instructed to do so by the vendor documentation supplied with the SCSI device.

◆   If the SCSI device does not negotiate properly with the controller. This is common on older drives.

◆   If you exceed the total cable length for connecting SCSI devices to the system, as specified in the section, "Understanding SCSI Guidelines," in Chapter 1.

◆   If you connect non-Ultra or non-Wide Ultra SCSI external devices to the system.

NOTE   Most SCSI adapters do not recognize a hard disk drive that was formatted using a different brand of adapter. For example, a hard disk drive formatted with an Adaptec SCSI adapter will not work with a Symbios SCSI adapter. You must use only Symbios-formatted hard disk drives with a Symbios SCSI adapter.

Using the SCSI Configuration Utility

NOTE   Change the synchronous data transfer rate or the data width parameters for an individual device only. Do not change the parameters for the SCSI host adapter itself. Changes to the SCSI host adapter affect all devices on its bus.

When using the SCSI Configuration Utility, remember the following keyboard tips:

◆ Press the up or down arrow keys to move about in the menus.

◆ Press ENTER to confirm a menu selection.

◆ Press ESC to cancel a selection.

◆ Select Help to display a Help screen with instructions and details.

To change the synchronous data transfer rate:

1. Insert the SYSUTIL diskette in the floppy drive.

2. From the Start menu, click Shut Down. The Shut Down Windows dialog box displays.

3. Click Restart and then click OK. The system restarts and the MS-DOS 6.22 Startup Menu displays.

4. Select SCSI Configuration Utility and press ENTER.

5. From the main menu, select the SCSI host adapter that you want to configure and press ENTER. Two SYMB53C875 SCSI host adapters, one for each channel, are listed. Port EC00 is the external bus; port E800 is the internal bus.

6. From the Utilities menu, select Device Selections and press ENTER.

7. From the Device Selections menu, select the SCSI device that you want to configure and press ENTER.

NOTE Only eight SCSI devices are listed at a time. Select Device Selections 8-15 to list the next eight SCSI devices.

NOTE If the device that you want to configure is not listed, exit the menu, repeat step 5 and select the other host adapter. Then, continue with step 6.

8. Select Sync Rate (Megabytes/sec) and press ENTER.

9. Select the appropriate rate (Off, 10, 20, or 40) and press ENTER, select Exit This Menu, and then press ENTER.

10. From the Device Selections menu, select Exit This Menu and press ENTER.

11. From the Utilities menu, select Exit This Menu and press ENTER. The Save/Cancel menu displays.

12. Select Save Changes and press ENTER.

13. Eject the diskette from the floppy drive and press any key to restart the system.

Getting Operating System Updates

Microsoft Service Packs contain the latest improvements and system fixes for Microsoft operating systems. Service Packs are created by Microsoft for post-release support. You can get Service Packs from the Microsoft World Wide Web and FTP sites free of charge.

CAUTION   If Intergraph Computer Systems provides a Service Pack through the IBBS or with a product or system, it has been certified against Intergraph Computer Systems hardware as described in the announcement of its availability. If you obtain a Service Pack from any other source, be aware that it may not be certified against your Intergraph Computer Systems hardware.

4 Configuring the BIOS

This chapter tells how to use AMIBIOS Setup and the Flash Programming Utility (FPU or FLASHPROG). Use the information in this chapter if you want to configure some aspects of system operation by changing the basic input/output system (BIOS) settings, or by updating the BIOS to take advantage of enhancements provided by Intergraph Computer Systems.

Overview

The BIOS records basic system operating parameters, such as the amount of memory, the boot sequence, and the type of video display. The operating parameters are set in the BIOS before shipment.

The BIOS is stored in flash erasable-programmable memory (EPROM) on the system board, and reads the system parameters in the system's complementary metal-oxide semiconductor (CMOS) random-access memory (RAM). When you power off the system, a lithium battery provides power to CMOS RAM to retain the operating parameters. Each time you power on the system, the BIOS uses stored parameters to configure the system.

The AMIBIOS Setup program, which is also stored in the flash EPROM on the system board, allows you to manually change the system operating parameters. The Flash Programming Utility (FPU or FLASHPROG) allows you to update the BIOS.

The AMIBIOS Setup menus and options discussed in this chapter are for BIOS 841*xx*. ROM, where *xx* is the version. The BIOS version number displays as the system starts. The message is similar to the following:

```
AMIBIOS (C) 1997 American Megatrends Inc.,
(C) 1997 Intergraph Corporation (841xx)
```

For a summary list of all the parameters and their settings, refer to the section "Summary of Default and Fail-Safe Settings" at the end of this chapter.

Starting AMIBIOS Setup

To start AMIBIOS Setup:

1. Restart the system. The following message displays:

    Press DEL to enter Setup

2. Press DELETE. The AMIBIOS Setup Main Menu displays.

This screen allows access to menus for configuring the BIOS to suit your own needs or perform maintenance as needed. The following sections describe the parameters you can access through each menu.

NOTE   You can set a password to prevent unauthorized users from accessing AMIBIOS Setup. See "Security Menu" in this chapter.

While using AMIBIOS Setup, remember these tips:

- ◆ To access Help, press ALT+H. The Keystroke/Mouse Convention list displays, which explains how to select Setup menu items with the mouse pointer and with keys. Press any key to close the list and return to AMIBIOS Setup.

- ◆ To change a parameter's value, move the pointer to a parameter and click the mouse button. An Options menu displays and allows you to select one of the choices.

- ◆ When you are in the main menu in AMIBIOS Setup, press ESC to exit. The Save Changes and Exit option highlights; press ENTER to exit. Any changes you made while in the program will be saved. If you select the Continue option, then you will return to AMIBIOS Setup.

Using AMIBIOS Setup

The AMIBIOS Setup menu allows you to change most of the BIOS settings. The following section describes the parameters grouped in the AMIBIOS Setup menu. Which parameters are available depends on your system configuration and your status as Supervisor or User.

Setup Menu

Standard

The Standard Setup menu allows you to set the IDE drive parameters, set the system date and time, and define floppy disk drive parameters.

Primary Master, Primary Slave, Secondary Master, Secondary Slave

These icons represent parameters for Integrated Device Electronic (IDE) drives. If installing IDE hard drives, use the Detect IDE utility to automatically detect and configure the drives. See "Utility Menu" in this chapter for more information.

To change the Primary/Secondary Master or Primary/Secondary Slave parameters:

1. Select Primary/Secondary Master or Primary/Secondary Slave.

2. Select USER from the list of drive types.

3. Select each of the following parameters and enter the appropriate values. For more information, see the documentation included with the device.

Parameter	Description
CYL	Cylinders
HD	Heads
WP	Write Precompensation
LZ	Landing Zone
SEC	Sectors

4. When complete, press ESC or click the close box at the upper left corner of the window.

Date/Time

Select the Date/Time icon to display the current system date and time values.

To change the system date and time:

1. Click the incorrect value with the mouse pointer or press the TAB key until the value highlights.

2. Click the + or - buttons to change the value, or enter the correct value from the keyboard.

NOTE   The time displays in 24-hour format.

3. Press ESC to save the new values and return to Standard Setup.

Floppy A, Floppy B

The Floppy A and Floppy B icons allow you to specify the type of floppy disk drive installed in the system.

The floppy disk drive A parameter is preset to 1.44 MB 3.5-inch. Do not change the parameter unless you replace floppy drive A with a different capacity disk drive.

The floppy disk drive B parameter is preset to Not Installed, unless an optional drive has been installed before shipment. Do not change the parameter unless you install an optional floppy disk drive.

To change the floppy drive parameters:

1. Select the Floppy A or Floppy B icon.

2. Press the up and down arrow keys or click in a box to select the correct parameter for the floppy disk drive.

3. Press ENTER to accept the change, or click the close icon in the upper left corner of the floppy disk drive configuration menu.

Advanced

The Advanced Setup menu allows you to change details of the system's operation. Each parameter included in the Advanced Setup menu is described below.

1st - 4th Boot Device (Supervisor)

These parameters specify the device sequence for system boot up. The default is SCSI (1st), Floppy (2nd), CDROM (3rd), which means the system attempts to boot from drive C first. If unsuccessful, it attempts to boot from drive A. If unsuccessful, it attempts to boot from the IDE CD-ROM drive. By default, C: is the system hard disk drive and A: is the floppy disk drive. Disable the 1st Boot Device parameter to boot the system from a diskette in the floppy disk drive. To boot from the CD-ROM drive automatically, disable both the 1st *and* 2nd Boot Device parameters. These parameters can be modified only by the Supervisor.

Try Other Boot Devices

This parameter enables the system to boot from the network if attempts to boot from the devices listed in the 1st - 4th Boot Device parameters are unsuccessful. The default is Yes.

Above 1 MB Memory Test

When enabled, this parameter invokes the Power On Self Test (POST) memory routines on the RAM above 1 MB. If disabled, the BIOS will check only the first 1 MB of RAM. The default is Enabled.

Floppy Access Control (Supervisor)

This parameter allows you to set the floppy device to read-only access. The default is Read-Write.

IDE Hard Disk Access Control (Supervisor)

This parameter allows you to set IDE Hard Disk devices to read-only access. The default is Read-Write.

PS/2 Mouse Support

When set to Enabled (default), the BIOS supports a PS/2 mouse using IRQ12. When set to disabled, a serial mouse, using the appropriate serial port IRQ, must be used to provide mouse input.

System Keyboard

This parameter enables or disables BIOS keyboard testing. Acceptable values are Absent and Present. If Present (default) is selected, the BIOS tests for the keyboard when the system boots and provides an error message if the keyboard is not present. If Absent is selected, the BIOS does not test for the presence of a keyboard.

Typematic Rate

This parameter defines the rate at which a keystroke repeats when you press and hold down a key. Accepted values are Slow or Fast (default).

System Boot Up Num Lock

This parameter, when set to On (default), disables the arrow keys on the numeric keypad. The Num Lock option on the keyboard can be turned off and on while the system is operating.

Wait for 'F1' on Error

When set to Enabled (default), the system will display a `Press <F1> to RESUME` message if an error occurs during boot up diagnostic tests. If this setting is Disabled, any non-fatal errors will not generate the statement, but the AMIBIOS will display the appropriate error message.

Hit 'DEL' Message Display

When set to Enable (default), the system provides a message during boot that the AMIBIOS Setup program can be accessed by pressing the DELETE key. Disabling this parameter prevents the message from displaying.

Floppy Drive Seek at Boot

When set to Enabled, AMIBIOS performs a Seek command on floppy disk drive A before booting the system. The default is Disabled.

Password Checking (Supervisor)

This parameter prevents unauthorized system boot up or use of AMIBIOS Setup. Setup (the default) enables the system to prompt for a password before allowing you to enter AMIBIOS Setup. If you select Always, the password prompt appears each time the system is powered on. This parameter can be modified only by the Supervisor.

OS/2 Compatible Mode

When set to Yes, this setting optimizes the system for use with OS/2. The default is No.

Processor Microcode Update (Supervisor)

This parameter allows to you disable an installed processor patch, if the patch causes the system to operate improperly. Any patch installed by Intergraph Computer Systems has been certified for use with the system, so this parameter is set to Enabled by default. Use Disabled if a non-Intergraph Computer Systems certified patch is applied and problems occur. This parameter can be modified only by the Supervisor.

L1 and L2 Cache Mode

Allows you to choose between two processor cache modes: WriteBack (default) and WriteThru.

L2 Cache ECC Mode

This parameter, when enabled, allows error checking and correction in the Level 2 cache in the processor subsystem. Enabling ECC Mode can slow system performance. The default for this parameter is Disabled.

System BIOS Cacheable

Setting this parameter to Enabled (default) makes the BIOS code cacheable, which improves overall system performance.

C*x*000, 16K Shadow

When the system boots, the BIOS code on ISA adapters is used directly from ROM (Disabled), or it is copied from the board's ROM to system RAM. Overall system performance improves when copied to RAM (Enabled). When set to Cached (default), the BIOS is copied to RAM and cached, further improving performance. An ISA board BIOS executes faster from system board RAM than from the ISA board ROM. All of the ISA Adapter ROM parameters are set to Cached by default.

D*x*000, 16K Shadow

When the system boots, the BIOS code on ISA adapters is used directly from ROM (Disabled, the default setting), or it is copied from the board's ROM to system RAM. Overall system performance improves when copied to RAM (Enabled). When set to Cached, the BIOS is copied to RAM and cached, further improving performance. An ISA board BIOS executes faster from system board RAM than from the ISA board ROM. All of the ISA Adapter ROM parameters are set to Disabled by default.

Chipset

The Chipset Setup menu contains the parameters that affect the functionality of some hardware components.

On-Board SCSI Controller (Supervisor)

When set to Enabled (default), this parameter activates the on-board, PCI-based SCSI controller. The SCSI controller can be disabled by changing the value to Disabled. This parameter can be modified only by the Supervisor.

On-Board Network Controller (Supervisor)

This parameter enables or disables the network processor circuitry on the system board. The default is Enabled.

On-Board Sound Controller

This parameter enables or disables the sound processor circuitry on the system board. The default is Enabled.

USB Function

When set to Enabled (default), this parameter activates the system's two Universal Serial Bus (USB) ports.

H/W Monitor, Primary I/O Port

This parameter controls the I/O port used by the Hardware Monitor. The default is 110-119h. Options are 210h-219h and 310h-319h.

H/W Monitor, Secondary I/O Port

This parameter controls the I/O port used by the Hardware Monitor. The default is 210-217h. Options are 110-119h and 310h-319h.

NOTE The Primary and Secondary Ports must be set to separate values. Setting both ports to the same value will disable the Hardware Monitor.

H/W Monitor, IRQ

This parameter controls which IRQ the Hardware Monitor uses. The default is IRQ 15. Options are 5, 7, 10, 11, and 15.

Build MPS Table for Uniprocessor

When this parameter is set to Yes, the BIOS enables single-processor systems to use the multi-processor kernel. The default is No.

Memory Data Integrity Mode

ECC mode (default) provides error correction for data stored in memory. Parity mode provides error detection for data stored in memory. The other setting is None.

Fixed Memory Hole

When set to Enabled, this parameter allows the memory in a RAM option card to be patched into a specific location in the system's memory, to accommodate ISA cards requiring a fixed range of addresses. The default is Disabled. Options are 512KB-640KB and 15MB-16MB.

Generate NMI on System Error

This parameter halts the system when a catastrophic error is detected. This prevents the error from corrupting your data. The default is Enabled.

AGP Aperture Size

The default is 64 MB. Options are 4 MB, 8 MB, 16 MB, 32 MB, 64 MB, 128 MB, and 256 MB.

VGA Frame Buffer USWC Mode

When enabled, the system performs write combining on VGA write commands. This reduction in the amount of data written to the display improves system performance by reducing the amount of bus traffic. The default is Disabled.

First Type F DMA

When set to Enabled, this parameter allows the system to transfer data to an ISA option card at a faster rate than normal. However, the ISA option card must support Type F DMA transfers. The default is Disabled.

First Type F DMA Channel

This parameter selects which DMA channel is used for Type F DMA transfers with the first ISA option card. Not available (grayed) by default.

Second Type F DMA

When set to Enabled, this parameter allows the system to transfer data to an second ISA option card at a faster rate than normal. However, the ISA option card must support Type F DMA transfers. The default is Disabled.

Second Type F DMA Channel

This parameter selects which DMA channel is used for Type F DMA transfers with the second ISA option card. Not available (grayed) by default.

DMA Channel x Type

This parameter specifies the functionality of the selected DMA channel. Select from Normal ISA, PC/PCI, or Distributed modes. The default is Normal ISA.

PCI/PnP

The PCI/PnP Setup menu contains the parameters that affect the DMA channels, IRQs, and PCI and PnP components.

Boot to PnP Operating System

When this parameter is set to No (the default), the BIOS initializes all devices during boot up. When set to Yes, the BIOS only performs the amount of initialization required to load the Plug-and-Play operating system. Any other device initialization must then be performed by the PnP operating system.

PCI 2.1 Latency Compliance

When Enabled (default), this parameter sets the system to be PCI 2.1 compliant.

PCI Latency Timer (PCI Clocks)

This parameter sets the PCI clock latency timing for PCI devices. The default is 40h.

PCI VGA Palette Snoop

This parameter allows palette data from an installed PCI graphics board to be shared with an installed ISA graphics board. Since the graphics delivered with the system are PCI-based, this option is set to Disabled by default.

Allocate IRQ to PCI VGA

When set to No, this parameter frees an IRQ which otherwise would have been allocated to the PCI VGA card. The default is Yes.

PCI IDE Bus Mastering

When set to Disabled, this parameter deactivates the bus mastering capability of the PCI IDE controller. The default setting is Enabled.

Use ESCD for PCI IRQ Assignment

If this parameter is set to Yes, when the system boots, it reads ESCD data to determine how to assign IRQs to system devices and option cards. You can use PnP operating systems to manipulate this ESCD data to assign specific IRQs to specific system devices and option cards on subsequent system boots. When the parameter is set to No (default), you can use the BIOS to assign IRQs to PCI devices regardless of ESCD instructions.

PCI Slot x IRQ Priority

Use this parameter to assign specific IRQs to specific PCI cards when ESCD data is not being used. The default is Auto. Options are 3, 4, 5, 7, 10, 11, 12, 14, and 15.

DMA Channel x Usage

This parameter specifies whether a given DMA channel is to be reserved for an ISA card, or is free to be assigned to another device by the PnP BIOS. The options are PnP (default) and ISA.

IRQ x Usage

This parameter specifies whether a given IRQ is to be reserved for an ISA card, or is free to be assigned to another device by the PnP BIOS. The options are PCI/PnP (default) and ISA.

ISA Reserved Memory Size

Use this parameter in conjunction with the ISA Reserved Memory Address parameter to allocate a fixed amount of memory for ISA cards that require a specific amount of memory and a set memory location. The memory size you select limits the memory addresses available to assign to ISA cards. The default is Disabled.

ISA Reserved Memory Address

Use this parameter in conjunction with the ISA Reserved Memory Size parameter to allocate a fixed amount of memory for ISA cards that require a specific amount of memory and a set

memory location. The memory addresses available depend on the memory size you select.
The default is D0000.

Peripheral

The Peripheral Setup menu has parameters that affect option boards, serial ports, and
parallel port functionality.

OnBoard FDC

When set to Enabled (the default), this parameter enables the system floppy disk drive I/O
controller on the system board. If you install floppy controller cards, then this parameter
must be set to Disabled.

OnBoard Serial Port1

This parameter enables the use of serial port 1 on the system board by selecting a memory
address for the port. The values are Disabled, 3E8H, 3F8H, 2E8H, and Auto. The default is
Auto. The addresses correlate to a COM port number as defined by the following table.

Serial Port	Addresses	Interrupts
COM1	3F8-3FF	IRQ4
COM2	2F8-2FF	IRQ3
COM3	3E8-3EF	IRQ4
COM4	2E8-2EF	IRQ3

OnBoard Serial Port2

This parameter enables the use of serial port 2 on the system board by selecting a memory
address for the port. The values are Disabled, 3E8H, 2F8H, 2E8H, and Auto. The default is
Auto. The addresses correlate to a COM port number as defined by the previous serial port
table.

Serial Port 2 Mode

This parameter enables Infra-Red functionality on serial port 2. Select from Normal, IrDA,
or IR. Normal is the default setting. Use the IR Transmission Mode, Receiver Polarity, and
Transmitter Polarity to control the characteristics of the serial port when using Infra-Red
capability.

OnBoard Parallel Port

This parameter enables the use of the parallel port by selecting a memory address. The values are Disabled, 278H, 378H, 3B8H, and Auto. The default is Auto. The addresses correlate to an LPT port number as defined by the following table.

Parallel Port	Address	Interrupt
LPT1	378-37A	IRQ7 or IRQ5
LPT2	278-27A	IRQ7 or IRQ5
LPT3	3BC-3BE	IRQ7 or IRQ5

Parallel Port Mode

This parameter allows you to change the parallel port mode setting. The values are Normal (default), EPP, and ECP. When set to ECP, the ECP DMA Channel parameter activates.

EPP Version

If the Parallel Port Mode is set to EPP, you can select two EPP protocol versions: 1.7 and 1.9 (default).

Parallel Port IRQ

This parameter allows you to select a base IRQ for the parallel port. The default is IRQ7, or IRQ5 may be selected. Either IRQ can be assigned to any of the LPT port numbers as shown in the previous onboard parallel port table.

Parallel Port DMA Channel

This parameter activates when the Parallel Port Mode is set to ECP. You can select a DMA channel for the parallel port when operating in ECP mode. Values for this parameter are None, and CH 1 through CH 7. When the Parallel Port Mode is set to ECP, the default DMA channel is 3.

On-Board IDE

When set to Disabled, this parameter deactivates the on-board IDE controller, allowing you to use both channels of a PCI IDE controller option card. The default is Primary. Options are Disabled, Primary, Secondary, and Both.

Utility Menu

Use the following utilities to change the language used in BIOS Setup, and to automatically detect and configure any IDE drives you connect to the system. For information on setting an IDE device to master or slave, see the documentation accompanying the device.

Language

The default is English.

Detect IDE

This parameter searches for IDE devices connected to the IDE controller. Any IDE drive found is then made available for you to configure.

Security Menu

The Security Menu allows you to change the system password for the Supervisor and the User.

Supervisor, User

To prevent unauthorized users from accessing the AMIBIOS Setup program, you can enter a password on both of the Supervisor and User menus. If you do not enter a password, then the system will not prompt users for a password when they start AMIBIOS Setup. These passwords do not affect the system logon password.

NOTE The Advanced Setup menu contains the Password Checking parameter that enables the system to use the password you enter.

To enter a password:

1. Select the Password icon from the AMIBIOS Setup Main Menu. The Password menu displays.

2. Type the characters (maximum of six) for the password, and then press ENTER.

3. Re-type the password to confirm it and press ENTER.

To disable a password:

1. Select the Password icon from the AMIBIOS Setup Main Menu.

2. Type in the current password, and press ENTER.

3. Press ENTER twice. A message displays notifying you that the password is disabled.

Anti-Virus

The Anti-Virus setting is only relevant for floppy diskettes. Hard disk drives and RAID disk drives are not checked by the Anti-Virus option. When Anti-Virus is enabled, diskettes cannot be formatted unless a quick format is executed, which does not write to Track 0 on the diskette. A format that writes to Track 0 will not be performed. The default is Disabled to allow formatting of diskettes in all circumstances.

Default Menu

The BIOS contains three configurations stored in CMOS RAM: Original BIOS settings, Optimal BIOS settings, and Fail-safe BIOS settings. The Original BIOS settings are the last current BIOS values used in the system. The Optimal BIOS settings are used in the delivered system. The Fail-safe BIOS settings are recommended when there has been a system failure.

NOTE   Loading the Optimal or Fail-safe BIOS settings overwrites all customized parameter settings. If you have customized any parameters, record them before loading the Optimal or Fail-safe settings.

Original

Selecting the Original icon loads the last current BIOS values. Use this option as a diagnostic aid if the system is unstable.

To load the Original BIOS defaults:

1. Select the Original icon to load the last used BIOS settings. The following message displays:

   Restore Old Values?

2. Select Yes to accept the values, or No to reject them.

3. Exit AMIBIOS Setup. The system restarts and uses the new values if you selected Yes.

Optimal

Selecting the Optimal icon loads the best-case values that optimize system performance. The system is delivered using the Optimal BIOS values. If the CMOS RAM corrupts, the Optimal settings are loaded during reboot.

NOTE   When using the Flash Programming Utility to reprogram the flash EPROM with a new BIOS, you must select this option after running the Flash Programming Utility and then rebooting, to ensure the new BIOS values are used.

To load the Optimal BIOS values:

1.   Select the Optimal icon to load the best case BIOS values. The following message displays:

     ```
     Load Optimal Values?
     ```

2.   Select Yes to accept the values, or No to reject them.

3.   Exit AMIBIOS Setup. The system restarts and uses the new values if you selected Yes.

Fail-safe

Selecting the Fail-safe icon loads settings that will configure a workable system when something is wrong. If you cannot boot the system successfully, select the Fail-safe BIOS options and try to diagnose the problem after the system boots. These settings do not provide optimal performance.

To load the Fail-safe BIOS values:

1.   Select the Fail-safe icon to load the basic BIOS settings. The following message displays:

     ```
     Load Fail-safe Values?
     ```

2.   Select Yes to accept the values.

3.   Exit AMIBIOS Setup. The system restarts using the new values.

NOTE   System performance is poor when the Fail-safe BIOS is selected. Use this mode only to troubleshoot problems with booting the system.

Reprogramming the BIOS

You can use the Flash Programming Utility (FPU) to reprogram the system board's flash EPROM with a new BIOS. When run, the FPU first looks on the diskette in the floppy disk drive for a valid BIOS.

The FPU is an MS-DOS utility that will not run in the Windows NT environment. The system must be set to boot from the floppy disk drive (normally drive A). If necessary, change the boot sequence according to "Changing the System Boot Sequence" in this chapter.

When you reprogram the flash EPROM, resource assignments for ISA option boards and PC Card devices are lost. Your system may have installed ISA option boards or PC Card devices that require specific system resources such as interrupts (IRQs) or input/output (I/O) port addresses. If so, after reprogramming the BIOS, you must run the BIOS Setup again and reallocate the system resources in the PCI/PnP Setup menu.

The FPU is available from the Intergraph Bulletin Board Service or Intergraph Online. See "Using the Intergraph Bulletin Board Service" and "Finding Intergraph on the Internet" in the Preface of this document for details.

CAUTION Reprogramming the flash EPROM erases all the parameter settings in the BIOS. If you customized any BIOS settings, record them before reprogramming the flash EPROM.

To reprogram the BIOS:

1. Do one of the following:

   – From the IBBS login, go to Intergraph Product Centers, then Systems and Networking, select File Libraries, and then select Delivered Drivers

   – From the Intergraph Online home page on the Internet, click Drivers and Updates, and follow the links

2. Select the appropriate operating system and hardware platform. Then, find the FPU (FLASHPROG) product and download it to a directory on your system.

3. Use an unzip utility to open the FLASHPROG product and extract the files from it.

4. Insert a blank 3.5-inch high-density floppy diskette into the floppy disk drive.

5. At the MS-DOS command prompt, in the directory containing the extracted files, key in the following to create a MS-DOS boot diskette that contains the flash utility and the BIOS files:

   md c:\temp
   install.bat

6. Shut down and power off the system; then restart the system.

7. At the MS-DOS command prompt, type in the following to run the FLASHPROG product:

   flash.exe

   The following messages display, depending on the version of your BIOS.

   ```
   Intergraph flash programming utility
   Reading 841xx.ROM .
   Programming flash EPROM
   Flash EPROM updated.
   Reboot the system by turning the power off.
   Do not use ctrl-alt-del for rebooting.
   ```

8. Remove the diskette from the floppy disk drive; then power off and restart the system.

9. When the following message displays, press DELETE:

   ```
   Hit DEL if you want to run Setup
   ```

NOTE It is normal to see a message similar to the following:

```
CMOS SETTINGS WRONG
PRESS F1 TO RUN SETUP
```

10. In the Default menu of AMIBIOS Setup, click the Optimal icon. Select Yes to load the values.

11. If you customized the BIOS for your system, change the necessary parameters to their previous values.

12. Select Exit and Save to exit AMIBIOS Setup.

13. Restart the system.

Assigning System Resources for Option Cards

Some ISA cards, PnP cards, PC cards (PCMCIA), and non-compliant PCI cards include a configuration diskette that you can use to reserve the system resources required for the board. Other option boards and PC Card devices do not include a diskette, but require that you manually enter the configuration information.

Refer to the documentation delivered with the option card to determine the resources that provide the best performance for the adapter. Use AMIBIOS Setup to assign the resources for each option card.

- ◆ To assign resources for ISA option cards, change these parameters under the "PCI/PnP" submenu:

  - DMA Channel x Usage: Change to ISA

  - IRQ x Usage: Change to ISA

  - ISA Reserved Memory Size: Change as appropriate to allocate the required amount of memory for ISA option cards that require a fixed amount of memory.

  - ISA Reserved Memory Address: Change as appropriate to allocate the required memory for ISA option cards that require a set location. The available values depend on the amount of memory allocated in the ISA Reserved Memory Size parameter.

- ◆ To assign resources for PC, PnP, and non-compliant PCI option cards, change the PCI Slot x IRQ Priority parameter under the "PCI/PnP" submenu, as described in the documentation delivered with the option card.

Changing the System Boot Sequence

You can change the system's boot sequence, if necessary. By default, the system boots from the system drive, containing the operating system. You can change the 1st Boot Device parameter in AMIBIOS Setup so that the system attempts to boot from the floppy drive instead.

To change the system boot sequence:

1. Restart the system.

2. Press DELETE when the following message displays:

    ```
    Press DEL if you want to run Setup
    ```

3. The AMIBIOS Setup Main Menu displays.

4. In the Setup menu, click Advanced. A list of parameters displays.

5. Click 1st Boot Device. An Options menu displays.

6. Click Floppy.

7. Press ESC, then click Exit and Save.

8. Restart the system.

Until the boot sequence is changed, the system will check for a bootable diskette in the floppy disk drive before attempting to boot from the system's hard disk drive.

Summary of Default and Fail-Safe Settings

The following table shows all the parameters available in the BIOS with the optimal and Fail-Safe setting for each. The BIOS values are set to optimize system performance. Fail-Safe settings are the minimum settings required to boot the system; these values do not provide optimal performance. If you customize BIOS values, you can reset the settings by selecting the "Optimal" option on the Default menu. See page 39 for details. N/A indicates that a parameter is not available.

Setup Menu, Standard Submenu

Parameter	Optimal	Fail-Safe
Pri Master	CDROM	
Pri Slave	Not Installed	
Sec Master	Not Installed	
Sec Slave	Not Installed	

Parameter	Optimal	Fail-Safe
Date/Time	N/A	N/A
Floppy A	1.44 MB	
Floppy B	Not Installed	

Setup Menu, Advanced Submenu

Parameter	Optimal	Fail-Safe
1st Boot Device	SCSI	Disabled
2nd Boot Device	Floppy	Floppy
3rd Boot Device	CDROM	CDROM
4th Boot Device	Disabled	Disabled
Try Other Boot Devices	Yes	Yes
Above 1 MB Memory Test	Enabled	Disabled
Floppy Access Control	Read-Write	Read-Write
IDE Hard Disk Access Control	Read-Write	Read-Write
PS/2 Mouse Support	Enabled	Enabled
System Keyboard	Present	Present
Typematic Rate	Fast	Fast
System Boot Up Num Lock	On	On
Wait for 'F1' on Error	Enabled	Enabled
Hit 'DEL' Message Display	Enabled	Enabled
Floppy Drive Seek at Boot	Disabled	Enabled
Password Checking	Setup	Setup
OS/2 Compatible Mode	No	No
Processor Microcode Update	Enabled	Enabled
L1 and L2 Cache Mode	WriteBack	Disabled
L2 Cache ECC Mode	Disabled	Disabled
System BIOS Cacheable	Enabled	Disabled
Cx000, 16K Shadow	Cached	Disabled
Dx000, 16K Shadow	Disabled	Disabled

Setup Menu, Chipset Submenu

Parameter	Optimal	Fail-Safe
Onboard SCSI Controller	Enabled	Enabled

Parameter	Optimal	Fail-Safe
Onboard Network Controller	Enabled	Enabled
Onboard Sound Controller	Enabled	Disabled
USB Function	Enabled	Disabled
H/W Monitor, Primary I/O Port	110-119h	Disabled
H/W Monitor, Secondary I/O Port	210-217h	Disabled
H/W Monitor, IRQ	IRQ 15	IRQ 15
Build MPS Table for Uniprocessor	No	No
Memory Data Integrity Mode	ECC	ECC
Fixed Memory Hole	Disabled	Disabled
Generate NMI Upon System Error	Enabled	Disabled
AGP Aperture Size	64MB	64MB
VGA Frame Buffer USWC Mode	Disabled	Disabled
First Type F DMA	Disabled	Disabled
First Type F DMA Channel	Reserved	Reserved
Second Type F DMA	Disabled	Disabled
Second Type F DMA Channel	Reserved	Reserved
DMA Channel x Type	Normal ISA	Normal ISA

Setup Menu, PCI/PnP Submenu

Parameter	Optimal	Fail-Safe
Boot to PnP Operating System	No	No
PCI 2.1 Latency Compliance	Enabled	Disabled
PCI Latency Timer (PCI Clocks)	40h	40h
PCI VGA Palette Snoop	Disabled	Disabled
Allocate IRQ to PCI VGA	Yes	Yes
PCI IDE Bus Mastering	Enabled	Disabled
Use ESCD for PCI IRQ Assignment	No	No
PCI Slot x IRQ Priority	Auto	Auto
DMA Channel x Usage	PnP	PnP
IRQ x Usage	PCI/PnP	PCI/PnP
ISA Reserved Memory Size	Disabled	Disabled
ISA Reserved Memory Address	D0000	D0000

Setup Menu, Peripheral Submenu

Parameter	Optimal	Fail-Safe
Onboard FDC	Enabled	Enabled
Onboard Serial Port1	Auto	Disabled
Onboard Serial Port2	Auto	Disabled
Serial Port 2 Mode	Normal	N/A
IR Transmission Mode	N/A	N/A
Receiver Polarity	N/A	N/A
Transmitter Polarity	N/A	N/A
Onboard Parallel Port	Auto	Auto
Parallel Port Mode	Normal	Normal
EPP Version	N/A	N/A
Parallel Port IRQ	N/A	N/A
Parallel Port DMA Channel	N/A	N/A
Onboard IDE	Primary	Disabled

Security Menu

Parameter	Optimal	Fail-Safe
Supervisor	N/A	N/A
User	N/A	N/A
Virus Detect	N/A	N/A

Utility Menu

Parameter	Optimal	Fail-Safe
Language	English	
Detect IDE		

Default Menu

Parameter	Optimal	Fail-Safe
Original	N/A	N/A
Optimal	N/A	N/A
Fail-safe	N/A	N/A

Power Management

Parameter	Optimal	Fail-Safe
Power Management/APM	Disabled	Disabled
Green PC Monitor Power State	Stand By	Stand By
Video Power Down Mode	Disabled	Disabled
Hard Disk Power Down Mode	Disabled	Disabled
Hard Disk Time Out (Minute)	Disabled	Disabled
Standby/Suspend Timer Unit	4 min	4 min
Standby Time Out	Disabled	Disabled
Suspend Time Out	Disabled	Disabled
Slow Clock Ratio	50-62.5%	50-62.5%
Display Activity	Ignore	Ignore
Device 6 (Serial port 1)	Ignore	Monitor
Device 7 (Serial port 2)	Ignore	Ignore
Device 8 (Parallel port)	Ignore	Ignore
Device 5 (Floppy disk)	Ignore	Ignore
Device 0 (Primary master IDE)	Ignore	Ignore
Device 1 (Primary slave IDE)	Ignore	Ignore
Device 2 (Secondary master IDE)	Ignore	Ignore
Device 3 (Secondary slave IDE)	Ignore	Ignore

5   Operating Notes

This chapter contains important, basic information on using the TDZ 2000. See the online *System Introduction* for details on system features and functions.

Moving the System

WARNING **Do not use the bottom portion of the face panel or the lip at the top rear of the unit as a hand hold when moving the system. Equipment damage and personal injury can result.**
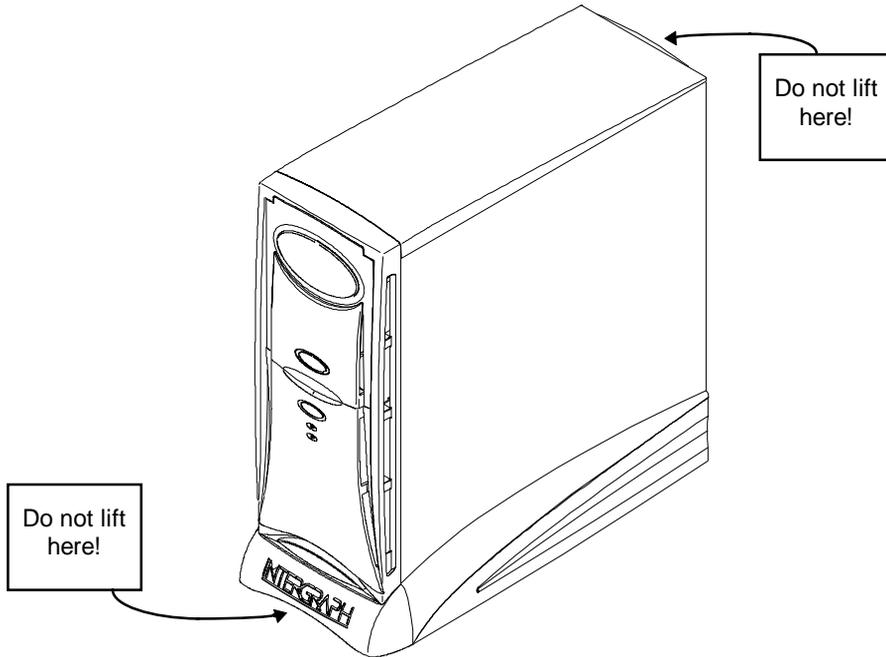
Opening and Closing the Door

Open the door on the face panel to access the floppy drive, CD-ROM, and any optional device installed in the external bay. You can use your system with the door in the open or in the closed position.

To open and stow the door:

1. Grasp the lip at the bottom of the door and lift up until the door is even with the top of the unit.

2. Push the door into the case until the door stops.

To close the door:

1. Grasp the door and pull it straight out of the case until it stops.

2. Lower the door until it stops and then press gently until the door clicks into the closed position.

Push Back

Swing Up

Lift Here

INTERGRAPH
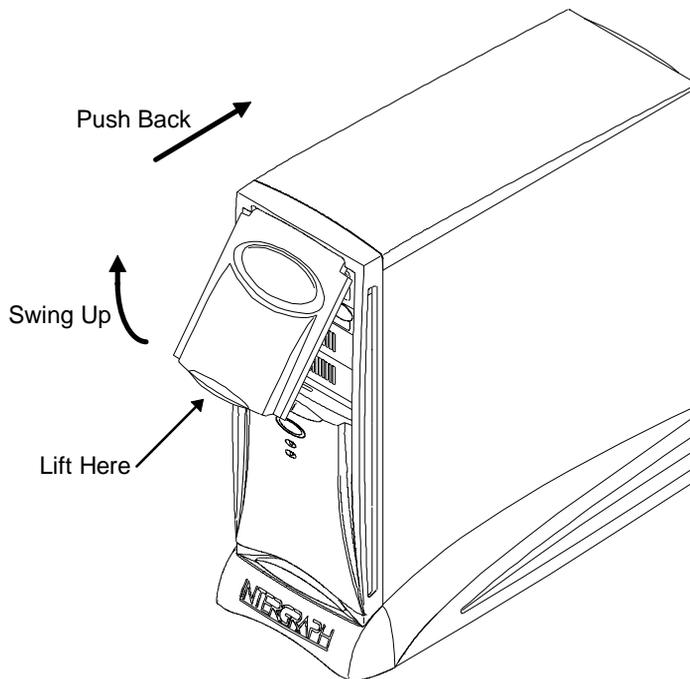
System Power, Startup, and Shutdown

When you connect the power cord from the TDZ 2000 to an AC power outlet, auxiliary power is applied to the system. This auxiliary power is available for the system to monitor, among other things, the Standby button. After connecting the system to AC power, press the Standby button momentarily to start the system.

The Standby button on the front of the system is not a traditional "on or off" power switch. Depending on the system's current power state, you can use the Standby button to start, wake up, or shut down the system.

To shut down the TDZ 2000, use the Automatic Shutdown Utility. Do one of the following to start the Automatic Shutdown Utility:

◆ Double-click the Automatic Shutdown Utility icon in the taskbar tray.

◆ From the operating system Start menu, click Programs, click Intergraph Shutdown Utility, and then click Intergraph Shutdown Utility.

◆ While the system is running, press the Standby button momentarily (for less than 1 second).

NOTE   By default, the Automatic Shutdown Utility is set for a 10-second delay when starting shutdown. You can use the slider under Time Remaining to set the delay up to 30 seconds. You should not set the delay to less than 5 seconds, to ensure that you have time to stop system shutdown if needed.

See the following sections for more detailed information on using the Standby button, starting the system, and shutting down the system.

Using the Standby Button

The Standby button is on the front left side of the TDZ 2000, just below the external drive bay. Open the door to access the Standby button.
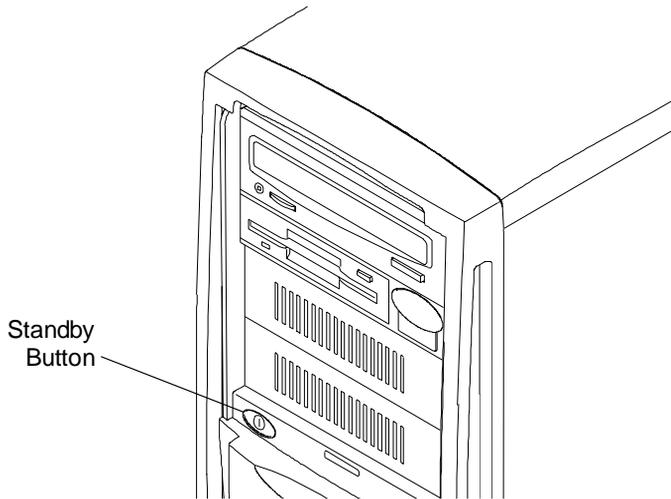
Standby
Button

Although the Standby button affects system power management, it is not an "on or off" power switch in the traditional sense. The Standby button is a momentary contact switch that you push to power up the computer, wake up the computer, or power down the computer. See the following table for details on using the Standby button.

If TDZ 2000 is...	Press Standby button...	To...
Off (no LEDs on)	Momentarily (< 1 sec)	Start up
Working (green LED on)	Momentarily (< 1 sec)	Run Automatic Shutdown Utility
Unresponsive (green LED on)	And hold (> 4 sec)	Power down

Remember the following guidelines for using the Standby button:

◆ To power down during normal operation, do not use the Standby button. Instead, double-click the Automatic Shutdown Utility icon in the taskbar tray.

◆ To power down if the system is unresponsive to mouse or keyboard actions, press and hold the Standby button for four seconds.

For details on using the Automatic Shutdown Utility, refer to the following sections.

Understanding System Power States

The advanced power management features of the TDZ 2000 help you save energy, prolong system life, and provide for future functionality, such as remote system wake up. See the online *System Introduction* for details.

NOTE   Remember that the TDZ 2000 is *always* powered on when it is connected to AC power.

One of the power management features is the implementation of power states. The upper LED on the front panel indicates the system's current power state, as shown in the following table.

LED	Power State	Description	Explanation
Green	Working	On	System is fully usable; power conservation is on a per-device basis.
Off	Mechanical Off	Off	No power consumption. The system is disconnected from AC power.
			To return the system to the Working state, you must reconnect the power cord and perform a full system shutdown and restart using the Automatic Shutdown Utility.

The top green LED indicates that the system is powered on and in the Working power state. If the power cord is plugged in, but the LED is off, then the system has a power voltage problem. Call the Intergraph Computer Systems Customer Response Center for assistance.

Automatic Shutdown Utility

The Automatic Shutdown Utility allows you to select among various shutdown options. This utility provides additional options over the standard shutdown options available from the operating system Start menu. To access Help for this utility, from the operating system Start menu, click Programs, click Automatic Shutdown Utility, and then click Automatic Shutdown Help.

Starting the Automatic Shutdown Utility

Use one of the following methods to start the Automatic Shutdown Utility:

◆   Double-click the Automatic Shutdown Utility icon in the taskbar tray.

◆   From the operating system Start menu, click Programs, click Automatic Shutdown Utility, and then click Automatic Shutdown Utility.

◆ While the system is running, momentarily press the Standby button.

Setting Time in the Automatic Shutdown Utility

By default, the Automatic Shutdown Utility is set for a 10-second delay when starting shutdown. You can use the slider under Time Remaining to set the delay up to 30 seconds. You should not set the delay to less than 5 seconds, to ensure that you have time to stop system shutdown if needed.

Configuring the Automatic Shutdown Utility

Before you use the Automatic Shutdown Utility, you must configure it. Double-click the Automatic Shutdown Utility icon in the taskbar tray. The Automatic System Shutdown dialog box displays.

Choose a shutdown option and click Apply, then click Start Shutdown. After you start the system again, the utility will use the settings you selected.

Select from the following options in the Automatic Shutdown Utility dialog box:

◆ Shutdown the Computer: Starts the standard Microsoft Windows shutdown. This option saves any windows settings that you changed, writes information that is currently in memory to the system's hard drive, and prepares the system to power down.

When the system is shut down, press the Standby button to power down the system, or click the Restart button to restart the system

◆ Power down the Computer: Performs an orderly shutdown of the operating system, and powers down the computer. This option saves any windows settings that you changed, writes information that is currently in memory to the system's hard drive, and then turns off power to the system.

◆ Shutdown System and Restart the Computer: Restarts the system. This option saves any windows settings that you changed, writes information that is currently in memory to the system's hard drive, and powers down and restarts the system.

◆ Close All programs and log on as different user: Closes any open windows or programs, disconnects the system from the network, and returns the system to the Windows logon prompt. This option prepares the system for use by someone else.

In addition to the above shutdown options, the Automatic Shutdown Utility provides the following features:

◆ Force All Processes to terminate: Terminates all programs if checked. If this option is not checked, the system displays an End Task dialog for each process that may still be running.

- ◆ Time Remaining: Configures the amount of time provided before the selected shutdown option occurs. When the Shutdown utility is started, this timer begins counting down. Press Enter or click the Stop Shutdown button to stop the countdown timer.

- ◆ Apply: Makes your selected changes without closing the Shutdown dialog. Use this button to select a different shutdown option, or to change the countdown timer.

- ◆ Cancel: Closes the shutdown dialog without saving changes.

- ◆ Stop Shutdown/Start Shutdown: Stops or starts the countdown timer. This button toggles between Stop and Start.

NOTE   If you select an option while the countdown timer is running, the timer stops automatically.

Using InterSite Programs

TDZ-2000 systems ship with the following InterSite programs:

- ◆ InterSite Version Manager is a tool for creating system software backup diskettes, and for updating device drivers and other system software products installed on the system.

- ◆ InterSite Hardware Monitor is an easy-to-use interface to instrumentation data measured by sensors inside the computer. Event information is reported to the Windows NT Event Log and displayed graphically. For example, temperatures inside the system chassis display on color-coded temperature scales.

- ◆ InterSite DMI Console gives easy access to the system's status and configuration information. The Console is based on the Desktop Management Interface (DMI), through a window containing a graphical information tree view pane, a service provider component information pane, and a message pane. DMI Console works with the Desktop Management Interface (DMI), a technology standard that enables the effective management of personal computers (PCs).

- ◆ InterSite Watchdog is a system monitoring tool with remote monitoring capabilities. You can install Watchdog on a system running the Windows NT, and use it to monitor workstations and servers also running Windows NT.

- ◆ InterSite ECC Memory Monitor is a tool for warning of a potential memory failure. ECC Memory Monitor watches for single-bit memory errors and records them in the Windows NT Event Log, and tracks error counts in the Windows NT Registry.

From the operating system Start menu, go to Programs/InterSite to find the InterSite programs on your system. See the online Help for each InterSite program for more information on how to use the program.

Using Hardware Security Features

The TDZ 2000 provides you with several security features designed to help prevent unauthorized tampering with the internal components.

A security tab is located at the top left of the chassis under the top cover. You can place a small padlock or a security seal in the hole on the tab to prevent removal of the left side panel.

A tamper-indicating Factory Quality Seal is affixed to the main chassis and left side panel security tab. The seal is your assurance that the unit has not been opened since it left the factory. When removed, the word "VOID" appears on the seal. Removing the seal does not void your warranty.

InterSite Hardware Monitor provides a Chassis Intrusion Alert feature. When the left side panel is removed, Hardware Monitor reports the event. See Hardware Monitor Help for details.

See the *System Reference* for details on removing the top cover.

Finding Serial and Model Numbers

The system's serial number is on a permanent label affixed under the top cover at the front left of the chassis.

The system's model number is on a permanent label affixed on the back panel near the top.

Ensuring PC Card Support and Operation

The optional PC Card adapter is used with devices based on standards developed by the Personal Computer Memory Card International Association (PCMCIA). Windows NT provides support for PC Card devices. See the operating system documentation and Help for more information on PC Card device support.

If you will be using a PC Card hard disk device (ATA or AT type) with a system running Windows NT, make sure the device drivers that control PC Card hard disk operation are set to start correctly. Set the **Atdisk** device to start as a System device; set the **Pcmcia** device to start as a Boot device. Do this before inserting a PC Card hard disk device in the PC Card adapter. If you do not, anomalous behavior may result -- for example, the PC Card hard disk drive may not be detected by Windows NT, or may be detected as the system drive (drive C).

NOTE   You must shut down the system before inserting a PC Card device in the PC Card adapter. When you restart the system, Windows NT will recognize the PC Card device.

To change the startup type for device drivers that control PC Card hard disks:

1. Open Devices in the Windows NT Control Panel. The Devices dialog displays.

2. Highlight the **Atdisk** device in the Device list; then select Startup. The Device dialog displays.

3. Under Startup Type, select **System**; then select OK.

4. Highlight the **Pcmcia** device in the Device list; then select Startup. The Device dialog displays.

5. Under Startup Type, select **Boot**; then select OK.

6. In the Devices dialog, select Close.

6   Troubleshooting

Use this chapter to help identify the causes of problems that can occur with your TDZ 2000.

See the *System Reference* for information on opening the case and working with internal components. If you cannot resolve the problem or if the instructions direct you to call the Customer Response Center, contact Intergraph Computer Systems. See the Preface of this document for details.

System Power

ERROR - Fails to power on.

Reason	Solution
Power cord not connected properly.	Verify that the power cord is properly connected to the power receptacle.
Power not available at the outlet.	Verify power to the outlet has not been interrupted. Test the outlet with a known working appliance.
Power not available from the UPS.	Verify the UPS is connected and operating properly.
Internal power cables not connected.	Open case and ensure all power cables are connected properly.
Faulty power cord.	Replace power cord.

System Boot

ERROR - Does not boot from the expected boot device.

Reason	Solution
Boot sequence not correctly set.	Change the boot sequence. See Chapter 4.
Operating system not on the system drive.	Install the operating system as described in Chapter 7.

ERROR - Does not boot from drive A.

Reason	Solution
Corrupt boot disk, or boot disk does not have correct boot utilities.	Replace the boot disk. See *System Reference*.
The boot sequence may be set to C, A, in which case the machine will not boot from A if there is an operating system on C.	Change the boot sequence. See Chapter 4.
Corrupt BIOS on the flash EPROM.	Reprogram the BIOS. See Chapter 4.

ERROR - Series of beeps and error message displays.

Message	Explanation and Solution
Refresh Failure	Bad memory refresh circuitry on the system board. Remove and reinstall DIMM(s). If error persists, replace the DIMM(s).
Parity Error	Parity error in the first 64 KB block of memory. Remove and reinstall DIMM(s). If error persists, replace DIMM(s).
Base 64 KB Memory Error	Memory failure in the first 64 KB. Remove and reinstall the DIMM(s). If error persists, replace the DIMM(s).
Timer Not Operational	Memory failure in the first 64 KB, or Timer 1 on the system board is not functioning. Call the Customer Response Center.
Processor Error	The CPU on the system board generated an error. Call the Customer Response Center.
8042 - Gate A20 Failure	The BIOS cannot switch to protected mode. Call the Customer Response Center.
Processor Exception Interrupt	The CPU generated an exception interrupt. Call the Customer Response Center.
Display Memory Read/Write Error	The sound controller is faulty. Call the Customer Response Center.
ROM Checksum Error	The ROM checksum value does not match the value encoded in the BIOS. Call the Customer Response Center.
CMOS Shutdown Register Read/Write Error	The shutdown register for CMOS RAM failed. Call the Customer Response Center.
Cache Error/External Cache Bad	The external cache is faulty. Call the Customer Response Center.

ERROR - CD-ROM drive is not recognized.

Reason	Solution
CD-ROM drive power cable not attached.	Open case and ensure power cable is properly attached. See *System Reference*.
CD-ROM drive cable not attached.	Open case and ensure cable is properly attached. See *System Reference.*

ERROR - System hard disk drive not recognized.

Reason	Solution
Hard disk drive power cable not attached.	Open the case and ensure power cable is properly attached. See *System Reference*.
Hard disk drive SCSI cable not attached.	Open the case. Ensure the SCSI cable is properly attached at both ends. See *System Reference*.
A SCSI address conflict exists between the hard disk drive you installed and another SCSI device.	Remove the hard disk drive and change SCSI ID to an unused setting. See the documentation shipped with the hard disk drive.
SCSI termination is enabled on the hard disk drive you installed.	Disable the SCSI termination. See the documentation shipped with the hard disk drive.
Some viruses cause the system to not recognize hard disk drives.	Run a virus scan program that checks the Master Boot Record. Clear any viruses detected by the program.

ERROR - "Invalid configuration information for SLOT XX" message displays.

Reason	Solution
System is not properly configured to recognize the new ISA option board.	Use the Chipset menu parameters in AMIBIOS Setup to reserve system resources for the board. See Chapter 4.

ERROR - Total amount of memory does not display.

Reason	Solution
Faulty DIMM(s).	Identify faulty DIMM(s) by swapping DIMM(s) until the faulty one is found. See *System Reference*.
DIMM(s) not properly seated into socket(s).	Ensure DIMM(s) are properly installed. See *System Reference*.

ERROR - I/O card parity error message displays.

Reason	Solution
Faulty option board is installed in ISA slot.	Remove ISA board, then restart the system. See *System Reference*.

Sound

ERROR - Sound cannot be heard.

Reason	Solution
Volume of speakers on multimedia keyboard is low or off.	Adjust volume up, release Mute button or set slider switch to speaker position on multimedia keyboard.
Speaker cable is not properly connected.	Verify cable is properly connected.
Volume is turned off in the Volume Control program.	Double-click the speaker icon in the taskbar tray and increase the master volume.
Headphones are plugged into the multimedia keyboard.	Unplug the headphones.

Video

ERROR - System powered on, but screen remains blank.

Reason	Solution
Monitor not powered on.	Turn on power to the monitor.
Monitor power cord not connected.	Connect monitor power cord to AC outlet and monitor.
Video cable not properly installed.	Ensure video cable is connected to monitor and case.
Graphics card not seated properly.	Open case and re-seat graphics card. See *System Reference*.
Selected resolution is not supported by the monitor.	Select a supported resolution. See the RealiZm II documentation and README.TXT file for resolution details.
Improper video display driver installed.	Remove the driver and install a valid driver. See Chapter 3.

Miscellaneous Hardware

ERROR - CD-ROM drive LED does not light.

Reason	Solution
CD-ROM drive power cable not attached.	Open case and ensure power cable is properly attached. See *System Reference*.

ERROR - Floppy disk drive LED does not light.

Reason	Solution
Floppy disk drive power cable not attached.	Open case and ensure power cable is properly attached. See *System Reference*.

ERROR - Arrow keys or numbers do not work on keyboard number pad.

Reason	Solution
NUM LOCK disabled.	Press the NUM LOCK key.

Network

ERROR - Cannot connect to other systems on LAN.

Reason	Solution
Ethernet cable disconnected.	Reconnect Ethernet cable and ensure proper connection. If cable is properly connected, notify your System Administrator.
Incorrect software configuration.	Notify your System Administrator.

ERROR - Cannot plot to network plotter on LAN.

Reason	Solution
Ethernet cable disconnected.	Reconnect Ethernet cable, ensure proper connection.
Plotter not added to Print Manager on your system.	Notify your System Administrator.
Plot node does not recognize your system.	Notify your System Administrator.

7   Installing System Software

Follow the instructions in this chapter if you need to reinstall the operating system and associated system software on your TDZ 2000. Before you reinstall the software, ensure that you read and understand this entire chapter.

Before You Begin

Have the following items available:

◆ The information that you recorded in Chapter 2, "Setting Up the Software."

◆ Windows NT operating system software CD-ROM, Windows NT Service Pack CD-ROM, associated diskettes, and documentation. Make sure you have the Setup diskettes delivered with the operating system.

◆ Backup diskettes you created according to instructions in Chapter 2, "Setting Up the Software."

◆ Backup diskettes and documentation delivered with any expansion boards or additional peripheral devices purchased from Intergraph Computer Systems.

◆ The *Late-Breaking News* document delivered with the system.

You can find the system software on backup diskettes that you created, on diskettes provided by Intergraph Computer Systems, or on the operating system CD-ROM. If you did not create backup diskettes of drivers or other system software products, they are probably available on the operating system CD-ROM or on backup diskettes delivered with expansion boards.

NOTE   You must install certain drivers from backup or other diskettes. The correct driver versions may not be on CD-ROM.

Driver software is routinely improved and updated. Visit the Intergraph Computer Systems site on the World Wide Web and vendor bulletin boards for new and updated drivers.

Review the *Late-Breaking News* document delivered with your system for any additional tasks you may have to perform during reinstallation.

System Software Products

The following table lists drivers and other system software products installed on various configurations of TDZ 2000 workstations running the Windows NT 4.0 operating system. Names of system software products created by the InterSite Version Manager or available from the Intergraph online services are listed. Products available for your system, but not listed here, are available on an operating system software CD-ROM or are delivered with an expansion board or additional peripheral device.

Product	Description	Delivery Method
3COM3C900	3COM 3C900 Driver	Vendor Diskette
CLSOUND	Crystal Sound Driver	Version Manager
D1SYSIN	Online *System Introduction*	Version Manager
DMI	InterSite DMI Console	Version Manager
ECCMEMTD2000	InterSite ECC Memory Monitor	Version Manager
FLASHPROG	Flash Program Utility	IBBS/Intergraph Online
HP100VG	HP 100base-VG Driver	Vendor Diskette
HW_MON_TD2000	InterSite Hardware Monitor	Version Manager
IKONPCIDRV	IKON Parallel Port Driver	Version Manager
IM	InterSite Manager	Version Manager
INTELNETDRV	Intel 82557-based PCI EtherExpress	Microsoft CD-ROM
INTELPRO100B	Intel Pro 100B Adapter Driver	Vendor Diskette
PCITOKRNG	OLICOM Token Ring Driver	Vendor Diskette
QFE_NTW	Quick-Fix Engineering Update	Version Manager
REALIZM2DRV	RealiZm II Graphics Driver	Version Manager
RENDERGL	RenderGL Run-time Library	Version Manager
RNSFDDI	Rockwell FDDI Driver	Vendor Diskette
SHUTDOWN	Automatic Shutdown Utility	Version Manager
SMARTDRV	InterSite Smart Capable Disk Driver	Version Manager
SP3	Windows NT 4.0 Service Release 3	Microsoft CD-ROM
SYMSCSIDRV	Symbios SCSI Driver	Version Manager
SYSUTIL	System Configuration Utility	Intergraph Diskette
VERMANAGER	InterSite Version Manager	Version Manager
WATCHDOG	InterSite Watchdog	Version Manager
WELCOME	InterSite Welcome	Version Manager

Installing Windows NT Workstation 4.0

System Software

Depending on your system's configuration, you will need some or all of the following system software during the installation process:

◆ SCSI driver

◆ Video display driver

◆ Network adapter driver

◆ Sound processor driver

◆ Mouse driver

◆ QFE update software

Installation Guidelines

Follow the instructions in *Start Here* to install Windows NT.

Do the following *during* installation of the operating system:

◆ When prompted, install the Intel network driver for the on-board 82557-based PCI EtherExpress driver from backup diskette instead of from the operating system software CD-ROM.

◆ Select Custom Setup when prompted to select a Setup type.

◆ Select automatic detection of mass storage devices during Setup.

◆ Do not select automatic detection of network driver and allow Setup to configure the network only if the system is connected to the network.

◆ Create an Emergency Repair Disk when prompted to do so.

Do the following *after* installation of the operating system:

◆ Install drivers—including those for video, sound, and SCSI—and other system software from backup diskettes. System software on backup diskette is usually more current than system software on the operating system CD-ROM.

◆ Install the latest Windows NT Service Pack software from CD-ROM to update the operating system. See "Getting Operating System Updates" on page 74 for details.

◆ Complete additional installation tasks in this chapter as necessary.

◆ Configure the system as described in Chapter 3, "Configuring the System."

Do the following *after* you install the Windows NT Service Pack:

◆ If you created a Quick-Fix Engineering (QFE) backup diskette from Version Manager during any previous initial system configuration, install the QFE update software. See the README.TXT file on the QFE diskette for more information.

Installing QFE Software

Quick-Fix Engineering (QFE) update software contains fixes for operating system problems or limitations. If a system requires Quick-Fix Engineering (QFE) update software, it is installed on the system before it leaves the factory. If QFE update software is installed on the system, you can (and should) create a QFE backup diskette using InterSite Version Manager.

If you reinstall the Windows NT 4.0 operating system and the Service Pack software, be sure to reinstall the QFE update software as well. Install the QFE update software <u>after</u> you reinstall Service Pack software. QFE update software contains post-Service Pack fixes.

Reassigning Hard Disk Drive Letters

If you have more than one hard disk drive, you may need to reassign system drive letters. You can also reassign the CD-ROM drive letter, if needed.

To change drive letters:

1. From the Start menu, click Programs, Administrative Tools, and then Disk Administrator.

2. Select a hard disk drive.

3. From the Tools menu, click Assign Drive Letter.

NOTE If you select the current drive or an otherwise locked drive, you must restart the system to complete the drive letter reassignment.

4. Select a new drive letter to assign to the hard disk drive from the list. Click OK, and then click Yes to continue.

5. If necessary, click OK, and then click Yes.

6. Repeat steps 2 through 4 for each hard disk drive letter assignment that you want to change.

7. Click Partition, the click Exit. If necessary, restart the system to complete the drive letter reassignments.

Changing Virtual Memory Settings

If you have more than one hard disk drive, you may need to change size and location of your virtual memory page file. See Windows NT Help for more information.

Consider the following before changing page file settings:

◆ The size of the page file. If your system is equipped with a large amount of RAM, Setup might create a page file that is unnecessarily large.

◆ Drive letter reassignments. If you reassigned your drive letters, you may find it necessary to adjust your page file settings.

To change the size and location of the virtual memory page file:

1. From Start, click Settings, and then click Control Panel.

2. Double-click the System icon.

3. Click the Performance tab and then click Change.

4. Click a drive letter in the list, and then type new values in the Initial Size and Maximum Size text boxes.

5. Click Set.

6. Repeat steps 4 and 5 for any additional drives in the list.

7. Click Close, then click OK. An alert box displays.

8. Do one of the following:

   – Click Yes to restart the system with the new settings

   – Click No to continue with other tasks and use the new settings the next time you restart the system

Configuring SCSI Host Adapter Settings

If you previously used the SCSI Configuration Utility on the SYSUTIL diskette to change SCSI host adapter settings, you must restore those settings after installing the Windows NT operating system and the Service Pack.

See Chapter 3 for information on configuring SCSI peripherals.

Configuring PCMCIA Settings

If your TDZ 2000 contains a PCMCIA solution, you must adjust settings in the Control Panel before you can use any PC cards. You also must ensure there is a free IRQ for use with the PC Card adapter.

To configure PCMCIA settings:

1. From Start, click Settings, and then click Control Panel.

2. Double-click the Devices icon.

3. Select Atdisk, and then click Startup.

4. Select System, and then click OK.

5. Select PCMCIA, and then click Startup.

6. Select Boot, and then click OK.

7. Click Close.

NOTE   You must have BIOS version 8410E or newer installed to use PCMCIA functionality. Earlier versions of the BIOS do not support PCMCIA adapters.

If there is not a free IRQ for use with the PC Card adapter , you must disable some system resources to free an IRQ; an unused serial port is a good choice. To disable a serial port, see the serial port AMIBIOS Setup parameters in Chapter 4, "Configuring the BIOS."

Restoring a Pre-configured Striped Disk Set

If your TDZ 2000 shipped with the striped disk option, you may need to restore the stripe set to return the disk subsystem to its original performance capabilities. Pre-configured striped disk set options consist of the following:

◆ Two SCSI disk drives of equal size. The system disk has a 1 GB partition that contains the operating system. The remainder of the system disk and an equivalent amount of the second disk are striped together. The remainder of the second disk is unformatted.

◆ Three SCSI disk drives of equal size. The system disk has a 1 GB partition that contains the operating system. The remainder of the system disk is free storage space. The other two disks are striped together.

Use Disk Administrator to restore the stripe set. See Disk Administrator Help for details on using the disk utility.

To restore a stripe set:

1. From the Start menu, click Programs, click Administrative Tools, then click Disk Administrator. Disk Administrator initializes and an alert displays.

2. Click OK.

NOTE The first time you run Disk Administrator or after the disk configuration changes, an alert box displays.

3. Right-click CD-ROM 0 and click Assign drive letter. Select a new drive letter; for example, H.

4. Click Disk 0, press CTRL, and click Disk 1. Disk 0 and Disk 1 are selected.

5. From Partition, click Create Stripe Set. The Create Stripe Set dialog box displays.

6. Click OK.

7. From Partition, click Commit Changes Now.

8. Click Yes to confirm.

9. If prompted, click Yes to confirm that you want to restart the computer. An alert box displays and states that the disks were updated successfully.

10. Click OK to dismiss the alert.

11. Click OK to restart the computer.

12. After the computer restarts, log on as the administrator.

13. Repeat steps 1 and 2 above.

14. Right-click the stripe set, click Format, and click NTFS as the file system type.

15. Click Quick Format.

16. Click Start to begin the format operation and click OK to confirm.

17. After the Format Complete alert box displays, click OK and then close the Format dialog box.

18. For any other optional disk drives, repeat the steps necessary to create a partition, assign the drive letter and format the partition as described in the Disk Administrator Help.

19. From Partition, click Exit.

Configuring IDE/ATAPI Bus Mastering

After you reinstall the Windows NT operating system and update it with the Windows NT Service Pack CD-ROM, you must configure IDE/ATAPI Bus Mastering. If you do not configure Bus Mastering, system performance will significantly degrade when you access the CD-ROM.

To configure IDE/ATAPI Bus Mastering:

1. Use Windows Explorer to navigate to the \SUPPORT\UTILS\I386 directory on the Service Pack CD-ROM.

2. Double-click DMACHECK.EXE. The ATAPI DMA Support dialog box displays. The Current DMA Usage boxes indicate which channels (0, 1, or both) have IDE/ATAPI devices.

3. Click the Enabled button for each channel with IDE/ATAPI devices.

4. Click OK.

5. Restart the system.

Configuring the Sound Driver

If you reinstall Windows NT and the associated system software, you must configure the sound driver to ensure quality recording capability. If you have an MPU-401 device or a joystick, you must also install the appropriate drivers.

To configure the sound driver:

1. Click Start, Programs, Accessories, Multimedia, and then click Volume Control. The Master Out window displays.

2. From Options, click Properties. The Properties dialog box displays.

3. Click Playback. In the Volume Controls list, click Master Out, SRS, Wave, and CD; then click OK.

4. In the Master Out window, set all volume sliders to maximum.

5. From Options, click Properties. The Properties dialog box displays.

6. Click Recording. In the Volume Controls list, click Master Record and Mic; then click Close.

7. In the Master Record window, set all volume sliders to maximum.

8. From Options, click Properties. The Properties dialog box displays.

9. Click Other. In the list, click Mic; then click Close.

10. In the Low Priority Input window, set the volume slider to maximum.

11. From Options, click Exit.

To install a compatible MPU-401 device driver:

1. Click Start, click Settings, and then click Control Panel.

2. Double-click Multimedia and click the Devices tab.

3. Click Add. The Add Driver dialog box displays.

4. In the list, click MPU-401 Compatible Driver and click OK. The Install Driver dialog box displays.

5. Insert the Windows NT operating system installation CD in the CD-ROM drive.

6. Change the drive letter, if needed, to the drive letter of your CD-ROM drive and click OK. The driver is installed and the Generic MPU-401 dialog box displays.

7. Click OK to accept the default values. An alert box displays.

8. Click Restart Now. The system restarts.

To install a compatible joystick driver:

1. Click Start, click Settings, and then click Control Panel.

2. Double-click Multimedia and click the Devices tab.

3. Click Add. The Add Driver dialog box displays.

4. In the list, click Unlisted or Updated Driver and click OK. The Install Driver dialog box displays.

5. Insert the Windows NT operating system installation CD in the CD-ROM drive.

6. Type \DRVLIB\MULTIMED\JOYSTICK\X86 in the Path text box and click OK. The driver is installed.

7. Restart the system.

Getting Operating System Updates

Microsoft Service Packs contain the latest improvements and system fixes for Microsoft operating systems. Service Packs are created by Microsoft for post-release support. You can get Service Packs from the Microsoft World Wide Web and FTP sites free of charge.

CAUTION   If Intergraph provides a Service Pack through its online services or with a product or system, it has been certified against Intergraph hardware as described in the announcement of its availability. If you obtain a Service Pack from any other source, be aware that it may not be certified against your Intergraph hardware.

8   Using System Resources

This chapter provides information on using system resources, such as interrupt requests (IRQs) and basic input/output system (BIOS) parameter settings, to configure the system to use additional option boards. The chapter covers specific Peripheral Component Interconnect (PCI) and Industry Standard Architecture (ISA) devices offered by Intergraph as system options. Intergraph Computer Systems has determined that the devices discussed in this chapter require specific resource settings to ensure proper system operation.

See Chapter 4, "Configuring the BIOS," for information on running the AMIBIOS Setup program and changing BIOS parameter settings.

See the *System Reference* for additional information on system resources.

Available IRQs

If you install an ISA device that requires an IRQ in the system, the BIOS automatically configures the MIDI/Game port as a write-only device and makes IRQ 5 available. If you install additional PCI devices that require additional IRQs, see "Freeing IRQs" below.

In dual-processor systems, the system board has one IRQ available (IRQ 11).

Freeing IRQs

To free IRQs for use by an ISA device or a PCI device that uses drivers that do not comply with the PCI 2.l specification, you can use the system BIOS to disable unused system ports.

To disable an unused system port:

1. Restart the system and press DEL when prompted to enter Setup.

2. Select Setup, and then select Peripheral Setup.

3. Select the port you want to disable (OnBoard Serial Port 1, OnBoard Serial Port 2, or OnBoard Parallel Port).

4. Change the value of the setting to Disabled.

5. Save the changes and exit from AMIBIOS Setup.

PCI Devices

The system's PCI expansion slots comply with the PCI 2.1 specification. Devices that comply with the PCI 2.1 specification are fully plug-and-play. You do not have to configure them after installation.

Some older PCI device drivers cannot share an interrupt, which is a violation of the PCI 2.1 specification. If you install a device that uses such a driver, you must free an IRQ for the device to work in the system.

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INTERGRAPH
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Returned Goods Authorization (RGA) Form

Date Returned _____ **Base Serial No.** _____

(On white bar code ID plate on back of base unit)

RGA No. _____ (From Intergraph Customer Response Center)

From   **Customer Name** _____

       Customer Contact _____ **Phone** _____

       Mail Address _____

       _____

       _____

       _____

Reason for Return _____

_____

_____

_____

_____

_____

NOTE   All returned equipment MUST be shipped in original Intergraph packaging to obtain warranty service.

WARNING   **Back up disk drives before returning equipment. Intergraph is not responsible for data lost in shipping or repair process.**

INTERGRAPH
COMPUTER SYSTEMS

Warranty Procedure

Some malfunctioning equipment cannot be repaired in the field, and you must return it to Intergraph for repair. Follow these steps to obtain a Returned Goods Authorization (RGA) log number and return the malfunctioning equipment.

1. Determine the serial number of the system. The serial number is located on the white bar code identification label on the back of the base unit.

2. Call the Intergraph Customer Response Center at 1-800-633-7248, and identify your call to the operator as a Warranty Call. After giving the operator the serial number of the system, you will be assigned a RGA log number.

3. Complete the RGA Form on the previous page, entering the RGA log number obtained from the Customer Response Center. Ensure that the address in the From section is the location to which you want the equipment to be returned.

4. Place the RGA form in the box containing the equipment. This form must accompany returned equipment.

5. Secure a Repair Depot address label from the next page to the box containing the equipment.

6. Ship the box containing the equipment to Intergraph.

When the service activity has been completed by Intergraph, the repaired or replaced equipment will be shipped to the address listed on the RGA Form.

NOTE   Parts damaged during shipping and parts not covered by the warranty are liable for repair charges.

TO   Repair Depot RGA No. _____

Intergraph Corporation

9805 Kellner Road

Huntsville AL 35894

TO   Repair Depot RGA No. _____

Intergraph Corporation

9805 Kellner Road

Huntsville AL 35894

TO   Repair Depot RGA No. _____

Intergraph Corporation

9805 Kellner Road

Huntsville AL 35894