InterServe 600 Series

System Setup

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INTERGRAPH
COMPUTER SYSTEMS

Warranties and Liabilities

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Power Input Rating

The unit's power input rating can be found in the *InterServe 600 Series System Introduction*.

Product ID Information

Product ID information (serial number and model number) can be found on the back of the base unit.

FCC 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.

DOC Compliance

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

Cautions

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.

THIS PRODUCT CONFORMS TO THE APPLICABLE REQUIREMENTS OF 21 CFR SUBCHAPTER J AT DATE OF MANUFACTURE.

Read all safety and operating instructions before using the equipment. Keep these instructions for future reference. Follow all warnings on the equipment or in the operating instructions.

Warnings

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

Contents

Preface

InterServe 600 Series System Setup describes setting up and configuring your InterServe™ 615, 625, 635, or 645 system for use.

About This Document

InterServe 600 Series System Setup is organized as follows:

- Chapter 1, “Getting Started,” describes how to unpack and set up the server hardware, prepare for software configuration, and start the system.
- Chapter 2, “Configuring the System,” describes how to configure the operating system and other system software.
- Chapter 3, “Configuring the BIOS,” describes how to start and use the AMIBIOS Setup program and reprogram the system’s Basic Input/Output System (BIOS).
- Chapter 4, “Troubleshooting,” describes common system problems and how to resolve them.
- Chapter 5, “Installing System Software,” describes how to re-install the operating system and associated system software, if needed.

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

Detailed information on the Windows NT Server 4.0 operating system can be found in the printed and online Windows NT documentation from Microsoft:

- For basic information on using and installing Windows NT Server 4.0, refer to *Start Here*, delivered in the Windows NT Server software package.
- For detailed information on using Windows NT Server 4.0, refer to Windows NT Server Help.
- Additional online Windows NT Server 4.0 documentation is delivered on CD-ROM with the operating system. You can purchase printed copies of these documents from Intergraph.

Refer to the *Late-Breaking News* shipped with your system for important hardware, 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 system features, system controls and connections, and Intergraph customer support. To view the *System Introduction*, select System Intro in the Welcome dialog that displays the first time you start the system. *System Introduction* is a Windows Help 4.0 document.

Detailed reference information for your new system is available in the *TDZ-x10 RAX and StudioZ RenderRAX System Reference*, which covers subjects such as the following:

- System components
- System wiring diagrams and functional block diagrams
- System board descriptions
- Upgrading and servicing procedures

The *System Reference* is not delivered with the system. You can get the *System Reference* for your system from the Intergraph Bulletin Board Service (IBBS) or from Intergraph's File Transfer Protocol (FTP) site. The *System Reference* is available in Microsoft Word format and PostScript format.

CAUTION The *System Reference* must be used when servicing the system hardware. It contains detailed instructions, warnings, and cautions that must be followed explicitly to avoid personal injury and equipment damage.

To get the *System Reference*:

1. Connect to the IBBS as described in "Using the Intergraph Bulletin Board Service," or connect to Intergraph's FTP site at **ftp.intergraph.com**.
2. From the IBBS login, go to Intergraph Product Centers, Systems and Networking, File Libraries, and Technical Notes. From the FTP login, go to **/bbs/ssd/note**.
3. Look for a self-executing (.EXE) archive file named DHF020*nn*.EXE (*nn* is the document's version number). The file description in the IBBS and FTP index should note the title, date, and part number of the document.
4. Download the file to your system.
5. Open the .EXE file and extract the document files for the *System Reference*. After extracting the document files, you can delete the .EXE file.

Microsoft's Word viewer is available from Microsoft's World Wide Web and FTP sites.

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

Getting Documentation and Training

You can purchase additional product documentation from Intergraph.

- In the United States, contact your sales account representative, call the Intergraph Order Desk at 1-800-543-1054, or send a fax to 1-800-548-3318 to place an order. If you call or fax the Order Desk, have the document numbers ready for the items you wish to purchase.
- Outside the United States, contact the Intergraph subsidiary or distributor from which you purchased your Intergraph product to place an order.

To find information on training for Intergraph products, or to enroll for an available class, contact Intergraph Training Solutions at 1-800-240-3000.

Getting Telephone Support

If you experience problems with your Intergraph product, or have questions about the information in this document, you can contact Intergraph for help.

- In the United States, call the Customer Response Center at 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 the Intergraph subsidiary or distributor from which you purchased your Intergraph system or software.

Have the following information readily available when you call:

- Product’s serial number or your service/CPIN number.
- Product’s name or model number.
- Your name and telephone number.
- A brief description of the question or problem.

Using the Intergraph Bulletin Board Service

Available 24 hours a day, 7 days a week, the Intergraph Bulletin Board Service (IBBS) is an electronic forum for Intergraph customers to exchange information with Intergraph's technical and marketing staff, and with other Intergraph customers. You can use the IBBS to get technical support information, documentation and training information, programs, and software updates and fixes. The IBBS is also available for you to give suggestions, make inquiries, and report problems.

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, dial the IBBS number, 1-205-730-8786. You can dial 1-205-730-6504 if you are using a 2,400 baud connection. Mirror sites are maintained for locations outside the United States. Information on these sites is available on Intergraph Online, Intergraph’s World Wide Web server.
3. When connected, respond to the login request by keying 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. If you are new to computer bulletin boards, the IBBS provides clear choices and plenty of online help. A text file that explains IBBS commands and organization is available for you to download.

If you have trouble connecting to or using the IBBS, log a support request through the Customer Response Center (product entry IBBS), send a fax to 1-205-730-1110, or leave a message for the System Operator (Sysop) at 1-205-730-1413.

Using the Intergraph FAXLink

You can use the Intergraph FAXLink to get technical support information by fax 24 hours a day, 7 days a week. From a touch-tone phone or fax machine phone:

- Call 1-800-240-4300 to get new user instructions, an index listing of available documents, and an overview of the categories of available information.
- Call 1-205-730-9000 to order the documents (up to 5 per call).

Follow the prompts provided to locate and deliver the information you need.

Finding Intergraph on the Internet

You can find Intergraph on the Internet in the following ways:

- If you have a World Wide Web browser, connect to Intergraph Online, Intergraph's World Wide Web server, at **http://www.intergraph.com**. From the home page, follow the links to Customer Services for information on available customer services and support options.
- If you have a File Transfer Protocol (FTP) program, connect to Intergraph at **ftp.intergraph.com**.
- If you have a Gopher program, connect to Intergraph at **gopher.intergraph.com**.
- You can get information from Intergraph's email server at **info@intergraph.com**. Put **help** in the body of the message (the subject line is ignored) to get information on such subjects as Intergraph's online services and where to get World Wide Web browsers.
- You can participate in the Intergraph Customer Forum (ICF), a bi-directional gateway to the USENET newsgroup **comp.sys.intergraph**. Anything posted to that group or sent to **comp-sys-intergraph@ingr.com** is emailed to all subscribers. Incoming email messages are also posted to the newsgroup. You can subscribe to the ICF via Intergraph Online.

Learning About System Ergonomics

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

1 Getting Started

Follow the instructions in this chapter to set up your new InterServe 615, 625, 635, or 645 system.

Unpacking the System

Remove everything from the shipping cartons and verify you have the following items. The InterServe carton contains the following items:

- Server base unit, footstands, and power cord
- Keyboard and mouse
- Operating system and system software carton (if you purchased the operating system from Intergraph)
- RAID disk drive carton (for servers with an internal RAID disk array)

The carton for the operating system and system software contains the following items:

- Windows NT Server operating system software (CD-ROM and diskettes) and documentation
- Intergraph system software (diskettes) and documentation
- InterSite Server Monitor software (diskettes) and documentation (InterServe MP-635 and MP-645).

If you ordered a monitor from Intergraph, its carton contains the following items:

- Monitor and power cord
- Video cable (15-pin, beige, 32 inches)
- Monitor documentation

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

Retain all packaging materials. If you return equipment for repair, it must be in its original packaging for you to obtain warranty service (if provided under your contract agreement).

Placing System Components

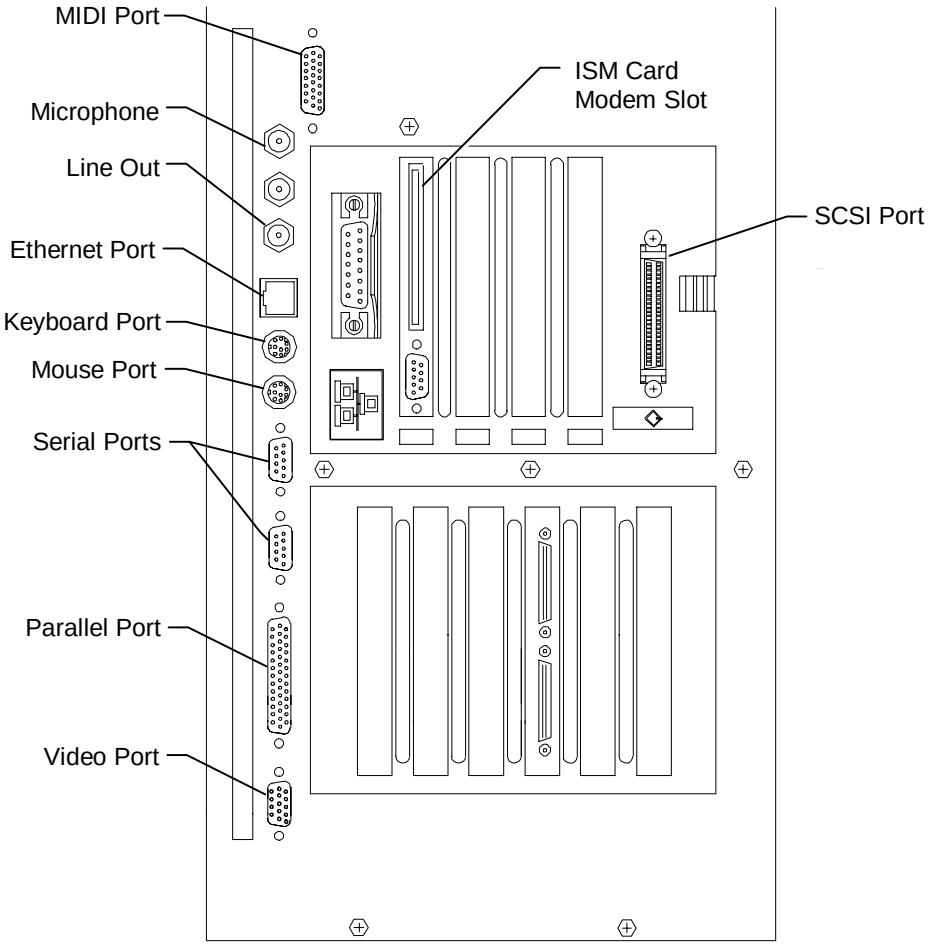
When placing the system components, keep these guidelines in mind:

- Place the base unit in a location where air can circulate freely around it. The front and back panels should each have at least a 3-inch clearance.
- Do not expose the system to high levels of dust, smoke, or moisture.
- The location should maintain a temperature range of 10 °C/50 °F to 26 °C/80 °F (21 °C/70 °F optimum), and a humidity range of 20 percent to 80 percent non-condensing (50 percent optimum).

Setting Up

To set up the server:

1. Place the footstands on the bottom of the base unit.
2. Connect the keyboard cable to the keyboard port on the back of the base unit. Refer to the following figure.
3. Connect the mouse cable to the mouse port on the back of the base unit. Refer to the following figure.
4. Connect the video cable to the monitor and to the video port on the back of the base unit. Refer to the following figure.
5. Connect the remaining cables, such as Ethernet (AUI or 10Base-T ports), printer (parallel port), external SCSI device (SCSI), and modem cables (serial ports), to their ports on the back of the base unit. Refer to the following figure.



WARNING **Do not connect a MIDI or game cable to the Ethernet AUI port. This could short out the local area network on which the system resides.**

CAUTION If you are not using cables supplied by Intergraph, use shielded cables to prevent excessive electromagnetic interference (EMI). Intergraph cables are designed to reduce the amount of EMI produced by the system.

6. If using a PC Card (PCMCIA) modem with the installed InterSite Server Monitor (ISM) card, connect the modem cable to the port in the ISM card modem slot. If the PC Card modem is not installed in the modem slot, refer to the InterSite Server Monitor documentation for instructions on installing and connecting to the PC Card modem.

7. Connect the power cords for the monitor and the base unit to an Uninterruptible Power Supply (UPS) or to a grounded, three-prong wall outlet. Then connect the power cords to the back of the server base unit and to the monitor.

CAUTION If the server is not connected to a UPS, data loss can occur if there is a power failure.

8. If your server does not have an internal RAID disk array, go to "Prepare for Windows NT Setup" later in this chapter to prepare to start and configure the system.

WARNING **Do not turn on system power until you are ready to configure Windows NT Server. If you start the system, and then restart it before completely configuring Windows NT Server, you will have to re-install Windows NT Server as described in Chapter 5, "Installing System Software."**

9. If your server has an internal RAID disk array, install the RAID disk drives as described in "Installing the RAID Disk Drives."

Installing the RAID Disk Drives

To install the RAID disk drives:

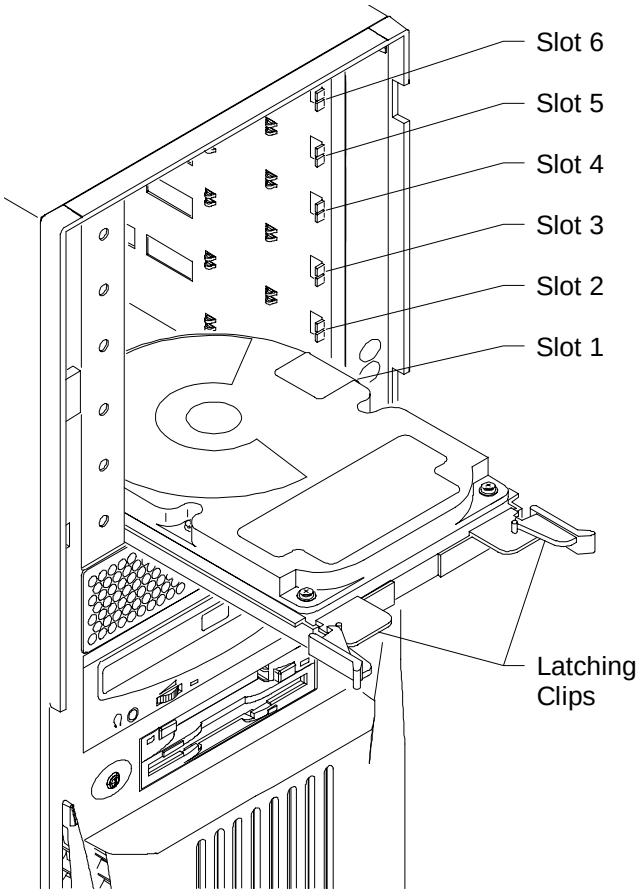
1. Remove the RAID disk drives from the carton labeled "This box contains hard disks loaded with operating system software...." Each of the boot drives (containing the operating system) is labeled with a drive ID number: ID 0, ID 1, and ID 2.
2. Install the boot drives into the internal RAID slots as follows: drive ID 0 into slot 1, drive ID 1 into slot 2, and drive ID 2 into slot 3. Refer to the following figure.
3. For each RAID disk drive, extend the latching clips on the disk drive and align the rails on the side of the drive with the metal slot guides. Push the drive between the latching clips until it slides all the way into the slot and firmly engages the connector. Close the latching clips to lock the drive in the slot. Refer to the following figure.
4. Label the remaining drives and install them into the empty slots as follows: drive ID 4 into slot 4, drive ID 5 into slot 5, and drive ID 6 into slot 6.

NOTE ID 3 is reserved for the entire RAID subsystem, so there is no label for this ID.

5. Go to "Prepare for Windows NT Setup" to prepare to start and configure the system.

WARNING **Do not turn on system power until you are ready to configure Windows NT Server. If you start the system, and then restart it before completely configuring Windows NT Server, you will have to re-install Windows NT Server as described in Chapter 5, "Installing System Software."**

6. If your system includes external InterRAID disk array cabinets, refer to the InterRAID documentation for instructions to connect them to your system. Connect the external disk array cabinets after completing the operating system installation.



Checking the Installation

Before starting the system, review the following items:

- All hardware is properly and securely installed.
- The cables are properly attached from the system to the peripherals.
- If using an Intergraph UPS, the UPS starts automatically when the power cord is connected to the wall outlet and the AC receptacle on the UPS.

Preparing for Windows NT Setup

The Windows NT Server operating system is partially installed on the system disk. After setting up the system, you must start the system and complete Windows NT Setup to configure the system for use. Parts of the installation procedure require information that you must supply.

WARNING **Do not turn on system power until you are ready to configure Windows NT Server. If you start the system, and then restart it before completely configuring Windows NT Server, you will have to re-install Windows NT Server as described in Chapter 5, "Installing System Software."**

Before you begin, have the following available:

- Microsoft's *Start Here* document.
- Documentation for any expansion boards purchased from Intergraph.
- Several blank, formatted diskettes available to create backup diskettes containing system software.
- Intergraph backup diskettes delivered with your system. Depending on your system configuration, these diskettes may include the following:

Software	Diskette Name
Intergraph System Utilities	SYSUTIL
InterSite Application Manager	IAM

Record the following information:

- Your name, and the name of your company or organization: _____
- For a system running Windows NT Server, the CD Key from the Windows NT Server CD case, or the Product ID Number from *Start Here* or the registration card: _____
- A username and password for setting up a user account. _____

If the system is connected to a network, obtain and record the following 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): _____
- Security role for your system in the Windows NT domain -- primary domain controller, backup domain controller, or domain server: _____
- If your system will be acting as a backup domain controller or domain server, username and password of an authorized domain administrator account: _____

NOTE Determine the security role for your server before beginning system configuration. You cannot change a server to a domain controller without re-installing Windows NT Server. A domain controller maintains security policy and performs user authentication for a domain. Servers may be part of a domain, although they do not have to participate in a domain.

Refer to your operating system documentation for a detailed explanation of the differences between domain controllers and servers.

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

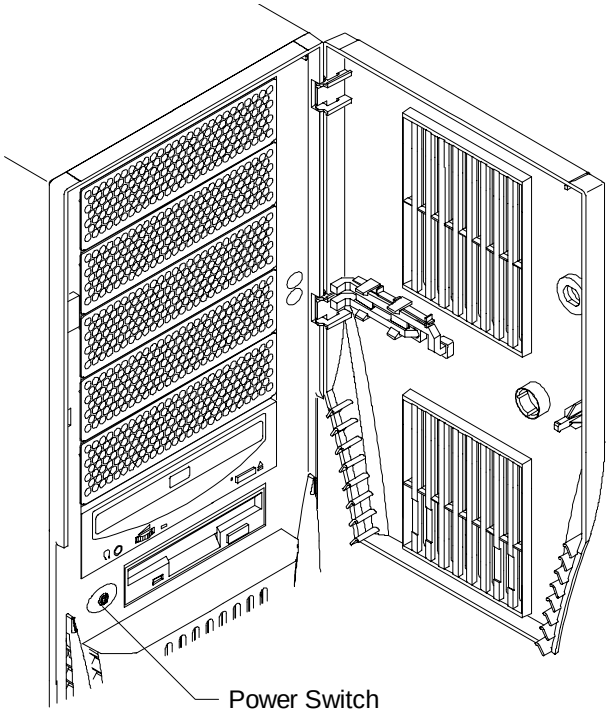
- Internet Protocol (IP) address for your system: _____
- IP subnet mask for your system: _____
- IP domain name for your network: _____
- IP address for your network's default gateway: _____
- IP addresses for your network's Domain Name System (DNS) servers, if any: _____

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 to 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 asked for the path to the file, where *drive* is the drive letter for the CD-ROM drive:

drive:**\i386**

Starting the System

Before you turn on power to the system, be sure you have reviewed "Prepare for Windows NT Setup". To start the system, press the power switch located on the front of the system, as shown in the following figure.



The system displays the Windows NT Setup screen, as described below.

Going Through Windows NT Setup

The first time you start the system, it boots to a Setup screen. Follow the on-screen instructions to complete the Setup process. Take the default settings provided by Setup, except as noted below:

- Allow Setup to configure the network only if you have an installed network adapter, and the system is connected to the network.
- When prompted to create an Emergency Repair Disk or a Startup Diskette, do so.
- If you do not set up a user account during Setup, press ENTER or select OK at the logon dialog to log on to the operating system. You can set up a user account and join a workgroup or domain after you configure the video display, the sound processor, and networking.

For more information on Setup, and on using the interface features of the operating system, refer to the operating system documentation and Help.

Using the Welcome Dialog

After going through Setup, a Welcome dialog displays. This dialog gives you easy access to a few first-time startup tasks you should complete before proceeding.

Creating Backup Diskettes

Select Version Manager to run the InterSite Version Manager utility. Use this utility to create backup diskettes containing drivers and other system software products that were installed on the system before shipment. You may need these backup diskettes later -- for example, if you have to reinstall a device driver or the operating system.

CAUTION If you do not use Version Manager to create backup diskettes for system software, you may not be able to re-install critical system software or the operating system if needed.

NOTE You may not have to create backup diskettes for 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 boards.

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 on your Intergraph system, 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 re-install the operating system.

Refer to Version Manager Help for information on creating Intergraph system software and other diskettes. Check the Intergraph Bulletin Board Service (IBBS) and vendor bulletin boards frequently for new and updated drivers.

Creating a Repair Disk or a Startup Diskette

If you did not create an Emergency Repair Disk during Setup, select Repair Disk to create one. The files on this diskette can restore the original contents of a damaged Registry (that is, at the time the operating system was installed), along with the standard operating system drivers. You should also update a Repair Disk after you finish configuring the system.

Refer to the operating system documentation and Help for information on creating a Repair Disk.

Reviewing the *System Introduction*

Select System Intro to display the *System Introduction*. This document is an online introduction to your new system in Windows Help 4.0 format, covering such subjects as system features, system controls and connections, and Intergraph customer support. Review the information in the *System Introduction* to become more familiar with your system.

What Now?

Follow the instructions in Chapter 2, “Configuring the System,” to configure the system for use.

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

2 Configuring the System

After setting up the system hardware and starting the system, you must configure the system for use. Follow the instructions in this chapter to configure the system.

Installing and Configuring the Video Display Driver

When you start your system for the first time, it uses the installed graphics accelerator running at standard VGA resolution (640 x 480) to run the video display. For the system to use its installed graphics accelerator at other display resolutions, you must install and configure the video display driver for the installed graphics accelerator.

Open Display in the Windows NT Control Panel, and use the Display Properties dialog to install and configure the Intergraph G95 video display driver. Install the driver from the diskette you created using Version Manager (refer to Chapter 1 for information about Version Manager).

Refer to the README.TXT files delivered with the graphics accelerator drivers for detailed configuration instructions. Refer to the operating system documentation and Help for information on using the Display Properties dialog to install and configure the driver.

Changing the Monitor Refresh Rate

By default, the G95 display driver assumes your system has a 60 Hz monitor. If your monitor is capable of higher refresh rates, you should run the MGA Monitor application to select a different monitor with a higher refresh rate.

To change the monitor refresh rate:

1. Open MGA Monitor in the Windows NT Control Panel. The MGA Monitor Selection dialog displays.
2. Select the appropriate monitor from the Monitor List. If your system's monitor is not listed, select one with a maximum refresh rate matching the refresh rate your system uses. An MGA.INF file will be created in the *SystemRoot*\SYSTEM32 directory.

To test the new monitor selection:

1. Open Display Properties in the Windows NT Control Panel.
2. Select the resolution and pixel depth you want to test.
3. Select Test. If the display is satisfactory, go to step 6. If not, continue.
4. If your monitor does not display a stable test screen, the parameters set by the MGA.INF file are not suitable for your monitor. Select Cancel to close Display.
5. Run MGA Monitor again to select a different monitor.
6. Repeat steps 1 through 3 to test the video display with the new monitor selection. When the display is satisfactory, close Display Properties.
7. Restart the system.

No resolution higher than the limit imposed by a monitor selection appears in the Display mode list. Deleting the MGA.INF file removes all monitor limits to the resolution, although the refresh rate defaults to 60 Hz.

Changing the Default Video Display Driver

After configuring the video display and restarting the system, you should configure the system to use the Intergraph video display driver by default.

To change the default video display driver:

1. Open System in the Windows NT Control Panel. The System dialog displays.
2. Under Operating System, select the Startup list; then select the appropriate non-VGA Windows NT Server option from the displayed list.
3. Select OK.

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+DEL to log on to the Windows NT operating system. Instead, use the Last Known Good option to return the system to the last known good configuration recorded by Windows NT.

To use the Last Known Good option:

1. Power down and 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. Power down and restart the system.
2. When the boot menu displays, select `Windows NT Server [VGA mode]`.

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

- A multi-sync monitor is selected, but a graphics display device with different video timings (such as an Intergraph InterVue monitor) is connected to the system. Select the appropriate monitor type as described previously.
- The monitor selection set by the MGA Monitor application is inappropriate for the monitor connected to the system. Select a new monitor as described previously.
- A graphics resolution and color depth was selected that exceeds installed Windows RAM (WRAM) display memory. Install and reconfigure the G95 display driver as described previously.

Restart the system and, when the boot menu displays, select the appropriate non-VGA Windows NT Server to use the reconfigured video display driver. If problems persist, contact the Intergraph Customer Response Center for help.

Configuring the Sound Processor

The system is equipped with an on-board sound processor whose driver requires no configuration. If the system has a microphone and speakers, you can use the operating system's sound control programs to control them. Additional accessories for the on-board sound processor are available from the Intergraph Bulletin Board Service (IBBS) or from vendor bulletin boards pointed to by the IBBS.

Refer to the operating system documentation and Help for information on using sound control programs.

Installing MegaRAID Power Console Software

To monitor and administer the system's RAID disk array while running Windows NT Server, you must install the MegaRAID Power Console software after configuring Windows NT Server. Install the software from the diskette you created using Version Manager (refer to Chapter 1 for information about Version Manager). Refer to the InterRAID documentation for instructions on how to use Power Console.

To install MegaRAID Power Console software:

1. Log on to Windows NT using an administrative account.
2. Insert the diskette containing the MegaRAID Power Console utility into the floppy disk drive.
3. In the Windows NT File Manager, run SETUP.EXE on the diskette.
4. Respond yes or no appropriately to the questions about Windows NT. At the Welcome dialog, select Next. The MegaRAID Install Destination Path dialog displays.
5. If you agree with the destination directory, select Next. Otherwise, select Browse and enter a new directory path. The files are copied in the directory named \MEGARAID (or where you specify) and the MegaRAID program group is created. Setup also displays a message that the driver is already present on the system.
6. To run Power Console, open MegaRAID in the MegaRAID group of Windows NT Program Manager.

For information on configuring and using the RAID disk drives, refer to the InterRAID documentation delivered with the system.

Ensuring Correct PC Card Hard Disk Operation

If you will be using a PC Card hard disk device (ATA or AT type) with a system running Windows NT Server, you should ensure the device drivers that control PC Card hard disk operation are set to start correctly. On a system running Windows NT Server 4.0, the **Atdisk** device and the **Pcmcia** device should be set to start as System devices.

Do this before inserting a PC Card hard disk device in the PC Card drive. If you do not, anomalous behavior may result -- for example, the PC Card hard disk drive may not be detected by Windows NT Server, or may be detected as the system drive (drive C).

To change 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 device in the Device list; then select Startup. The Device dialog displays.
3. Under Startup Type, select the appropriate startup type; then select OK.
4. In the Devices dialog, select Close.

Installing and Configuring LanSafe UPS Software

Systems equipped with a Uninterruptible Power Supply (UPS) are shipped with LanSafe III software to configure and monitor operation of the UPS.

To install LanSafe III UPS software:

1. Insert the LanSafe III CD-ROM into the CD-ROM drive.
2. In the Windows NT File Manager, run SETUP.EXE in the NTWIN directory on the CD-ROM drive.
3. When the Welcome dialog displays, select Install.
4. Select Full Installation to install the software onto the server. If you are installing LanSafe III onto a remote system, select Remote Services. Then select Continue.

NOTE If you select Remote Services, Setup asks for a location to install the files. Select the default location, or enter an alternate pathname; then select Continue. After the software is installed, shut down and restart the system.

5. When asked if the computer is part of a UPS group, select No; then select Continue.
6. Select the Generic UPS Code II for the UPS type; then select Continue.
7. Select the COM port to be used; then select Continue.
8. Enter an access code to safeguard the UPS operation; then select Continue.
9. Select Shutdown Timing Operations; then select Continue.
10. Select Yes for the Autoload Option; then select Continue.
11. A dialog asks for a location to install the files. Accept the default location, or enter an alternate pathname; then select Continue.
12. When the software is installed, shut down the system.
13. Verify that the serial cable is connected as described in the LanSafe III software manual, and that all AC power cables are connected to AC receptacles on the back of the UPS.

14. Restart the system.

Refer to the LanSafe III documentation for instructions on using the LanSafe III software.

Disabling Command Queuing

To improve standalone system performance and to improve performance with some high-performance SCSI peripherals, you should disable command queuing in the Windows NT Registry.

WARNING **Do not change values in the Registry other than as directed. If you introduce incorrect values into the Registry, you may cause serious operating system problems, and you may have to reinstall Windows NT. If you change values in the Registry that make your system unusable, you may be able to restart the system and use the Last Known Good Configuration option to undo the damage. Refer to the *Windows NT Server Installation Guide* for more information on the Last Known Good Configuration option.**

To disable command queuing:

1. Start the Registry Editor (REGEDT32.EXE) to open the Registry.
2. Open the following subkey in the Registry:

   `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\aic78xx`
3. From the Edit menu, select the Add Key.
4. Type **Device** into the Key Name box, and then select OK. Do not set a Class value. Open the following subkey in the Registry:

   `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\aic78xx\Device`
5. From the Edit menu, select Add Value.
6. Type **DisableTaggedQueuing** into the Value Name box.
7. Select REG_DWORD for the Data Type, and then select OK.
8. Type **1** into the Data box.
9. Set the Radix value to Hex, and then select OK.
10. Exit from the Registry Editor and restart the system.

Installing QFE Update Software

If your system was shipped with Quick-Fix Engineering (QFE) update software, you created a QFE diskette using Version Manager (refer to Chapter 1 for information about Version Manager). Insert the QFE diskette into the floppy drive. Refer to the README.TXT file on the QFE diskette for instructions to update the system.

Creating an Emergency Repair Disk

The files on the Emergency Repair Disk can restore a damaged registry to its original contents (that is, at the time Windows NT was installed), along with the standard Windows NT drivers.

CAUTION Once you have created all of your user accounts and have finished configuring the system, Intergraph recommends that you create an Emergency Repair Disk using the RDISK.EXE utility. Use this utility to update the Emergency Repair Disk any time you change your system's configuration. You should also make and keep a backup copy of the Emergency Repair Disk.

Refer to the operating system documentation and Help for information on creating and using an Emergency Repair Disk.

Installing the ECC Memory Driver

After you configure the Windows NT Server operating system, you may install the ECC Memory Driver and its configuration utility for your InterServe server. Install the driver from the diskette you created using Version Manager (refer to Chapter 1 for information about Version Manager).

To install the ECC Memory Driver and configuration utility:

1. Insert the diskette containing the ECC Memory Driver software into the floppy disk drive.
2. In the Windows NT File Manager, run SETUP.EXE on the diskette.
3. When prompted, type the path to install the software; then select OK.
4. When installation completes successfully, select OK.

Restart the system.

Installing the InterSite Server Monitor

Your InterServe server shipped with an installed InterSite Server Monitor (ISM) board. For instructions to install and configure the ISM software, and for information on using the ISM with your server, refer to the InterSite Server Monitor documentation included with your system.

Installing the *System Introduction*

After configuring the operating system, you may install the online *System Introduction*. Once installed, you can use it to learn about the features and basic operation of your system. Install the document from the diskette you created using Version Manager (refer to Chapter 1 for information about Version Manager).

To install the *System Introduction*:

1. Insert the diskette containing the *System Introduction* into the floppy disk drive.
2. In the Windows NT File Manager, copy the files from the diskette to the C:\WIN32APP\SYSINTRO directory.
3. In File Manager, drag the SYSINTRO.HLP file from the C:\WIN32APP\SYSINTRO directory in File Manager to the Main group of Program Manager. This creates an icon for the System Introduction.

To view the *System Introduction*, open the *System Introduction* icon. The *System Introduction* is a Windows Help 4.0 document.

Obtaining Windows NT 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 obtain Service Packs from Microsoft's World Wide Web and FTP sites free of charge.

CAUTION If Intergraph provides a Service Pack through the IBBS 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.

3 Configuring the BIOS

The Basic Input Output System (BIOS) stores various system operating parameters, such as the boot sequence and the type of video display, in non-volatile memory referred to as CMOS RAM. When you power off the system, a lithium battery on the I/O Expansion board provides power to CMOS RAM, which retains the system parameters. Each time the system is powered on, the BIOS uses the stored system parameters to configure the system.

The BIOS can be configured by manually changing system parameters, or by installing a new BIOS.

- The AMIBIOS Setup program allows you to manually change the system operating parameters. This chapter provides the details of using the AMIBIOS Setup program, which is stored, along with the BIOS, in the flash EPROM on the I/O Expansion board.
- When necessary, you can install a new BIOS to the flash EPROM using the Flash Programming Utility (FPU). Refer to "Reprogramming the BIOS" for instructions.

Using AMIBIOS Setup

The AMIBIOS Setup menus and options discussed in this chapter are for BIOS 782*xx*.ROM, where *xx* is the version. The BIOS version displays as the system starts, with a message similar to the following:

```
AMIBIOS (C) 1996 American Megatrends Inc.,
(C) 1996 Intergraph Corporation (782XX)
```

To start AMIBIOS Setup:

1. Restart the system. The following message displays:

   ```
   Press DEL to enter Setup
   ```

2. Press DELETE. AMIBIOS Setup displays with the following menus: Setup, Utility, Security, and Default.

These menus allow access to parameters for configuring the BIOS to suit your own needs or perform maintenance as needed. The following sections describe in detail the parameters you can access through each menu. 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 allowing you to select one of the choices.
- When you are at the main menu in AMIBIOS Setup, press ESC to exit. If the Save Changes and Exit option is highlighted, press ENTER to exit and any changes you made while in the program will be saved. If you select the Continue option, then you will return to AMIBIOS Setup.
- You can set a password to prevent unauthorized users from accessing AMIBIOS Setup. Refer to the section, "Security Menu," later in this chapter for instructions.

Setup Menu

The Setup menu allows you to change most of the BIOS settings. This section describes the parameters grouped in the AMIBIOS Setup menu.

Standard

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

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 on the incorrect value with the mouse pointer or press the TAB key until the value highlights.
2. Click on 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 on the close icon in the upper left corner of the floppy disk drive configuration menu.

Master Disk, Slave Disk

The Master Disk and Slave Disk icons represent parameters for Integrated Device Electronic (IDE) drives. If installing IDE hard drives, use the Detect Master and Detect Slave utilities to automatically detect and configure the drives. Refer to "Utility Menu" for more information.

To change the IDE drive parameters:

1. Select Master Disk or Slave Disk.
2. Select USER from the list of drive types.
3. Select each of the following parameters and enter the appropriate values. For more information, refer to the documentation included with the device.

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.

Advanced

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

System Boot Up Sequence

This parameter specifies the device sequence for system boot up. The default is C:, A:, which means the system attempts to boot from drive C first. If unsuccessful, it attempts to boot from drive A. By default, C: is the system hard disk drive and A: is the floppy disk drive. Change this parameter to A:, C: to boot the system from a diskette in the floppy disk drive. Refer also to Operating System Boot Device parameter in "Chipset Setup."

Password Checking

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. The Change Password value enables you to press ENTER at the password prompt to disable this parameter.

ISA Video Shadow C000, 32K

ROM shadowing is a procedure in which BIOS code is copied from ROM to RAM when the system boots. When set to Enabled (the default) the BIOS then executes from RAM, providing faster access time and improving system performance.

ISA Adaptor Shadow XXXX, 16K

For ISA boards that contain a BIOS on ROM, Enabled allows you to tell the ISA board BIOS to be copied from the ISA board ROM to system board RAM. 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.

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.

NOTE The following Advanced Setup parameters are useful only if an IDE disk drive is connected to the system.

IDE Block Mode

This parameter enables transfer of data in blocks (multi-sector) for both read and write operations. This option is set to Disabled by default.

NOTE To use the following Advanced Setup parameters, the hard disk drive must support LBA mode, and it must be formatted with LBA mode enabled.

IDE Master LBA Mode

This parameter enables Logical Block Addressing (LBA) mode for master hard disks connected to the IDE controller. LBA mode translates the physical parameters of the hard disk to logical parameters, permitting the use of disk space beyond 528 MB.

IDE Slave LBA Mode

This parameter enables LBA mode for slave hard disks connected to the IDE controller. LBA mode translates the physical parameters of the hard disk to logical parameters, permitting the use of disk space beyond 528 MB.

Chipset

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

Sound Controller

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

PCI VGA Palette Snooping

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.

PCI Video Frame Buffer

The PCI Video Frame Buffer parameter allows you to implement the read prefetch support in the linear buffer of the system graphics hardware. System performance increases when set to Enabled (the default).

NOTE If you install a graphics card that does not support read prefetch, you must set this parameter to Disabled for proper display.

PCI Frame Buffer USWC Mode

When enabled, this parameter removes from the buffer polygon data that otherwise would be obscured by other polygons. This reduction in the amount of data written to the display improves video performance by reducing the time required to update the display.

Primary PCI SCSI

This parameter activates the PCI-based SCSI controller on the system board when set to Enabled (the default). The SCSI controller can be disabled by changing the value to Disabled.

Secondary PCI SCSI

This parameter, available only on deskside systems, activates the PCI-based SCSI controller on the riser card when set to Enabled (the default). The SCSI controller can be disabled by changing the value to Disabled.

Operating System Boot Device

This parameter specifies which controller the BIOS will attempt to boot from first. The device that you specify to be the boot device is assigned to drive C. By default, drive C is the system hard disk drive. Refer also to the System Boot Up Sequence parameter in "Advanced Setup."

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 operating system. Any other device initialization must then be performed by the operating system.

PCI IDE Card Present in

Some PCI option boards do not comply with the PCI specification. Use this parameter to indicate the slot number of a noncompliant PCI IDE option board. Some PCI IDE boards are fully compliant, in which case this option is not needed. The settings are Absent, Slot 1, or Slot 2. PCI IDE boards are never supported in slots 3 through 6. The default setting is Absent.

PCI IDE IRQ14 Connected to

When the PCI IDE Card Present In option is used to select a slot number, this parameter is active. The options are Edge and Level. When activated, the default is Level.

PCI IDE IRQ15 Connected to

When the PCI IDE Card Present In option is used to select a slot number, this parameter is active. The options are Edge and Level. When activated, the default is Level.

Installed Memory Speed

InterServe 600 series servers use 60 ns memory SIMMs, so this parameter is set to 60 ns by default. The other choice is 70 ns, which should not be used. If you set this parameter to 70 ns, the system will not boot.

Peripheral

Peripheral contains parameters that affect option boards, serial ports, and parallel port functionality.

Programming Mode

This parameter detects all installed option boards and configures the on-board components accordingly. When set to Auto (the default), the system BIOS automatically detects the installed option boards during boot up. When set to Manual, the next four parameters, plus Parallel Port IRQ, activate.

OnBoard FDC

When set to Enabled (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.

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 Auto (default), Disabled, 3F8h, 2F8h, 3E8h, and 2E8h. When set to Auto, the I/O controller selects an available address. The 3*xx*h and 2*xx*h values correlate to a serial port, address range and interrupt as defined by the following table.

Value	Serial Port	Addresses Range	Interrupts
3F8h	COM1	3F8-3FF	IRQ4
2F8h	COM2	2F8-2FF	IRQ3
3E8h	COM3	3E8-3EF	IRQ4
2E8h	COM4	2E8-2EF	IRQ3

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 Auto (default), Disabled, 3F8h, 2F8h, 3E8h, and 2E8h. When set to Auto, the I/O controller selects an available address. The 3*xx*h and 2*xx*h values correlate to a serial port, address range, and interrupt as defined by the following table.

Value	Serial Port	Addresses Range	Interrupts
3F8h	COM1	3F8-3FF	IRQ4
2F8h	COM2	2F8-2FF	IRQ3
3E8h	COM3	3E8-3EF	IRQ4
2E8h	COM4	2E8-2EF	IRQ3

Parallel Port

This parameter enables the use of the parallel port by selecting a memory address. The values are Disabled, 278h, 378h (default), and 3B8h. The 278h and 3*xx*h addresses correlate to an LPT port number as defined by the following table.

Value	Parallel Port	Address Range	Interrupt
378h	LPT1	378-37A	IRQ-7 or IRQ-5
278h	LPT2	278-27A	IRQ-7 or IRQ-5
3B8h	LPT3	3BC-3BE	IRQ-7 or IRQ-5

Parallel Port Mode

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

Parallel Port IRQ

This parameter allows you to select a base IRQ for the parallel port. The default is IRQ-7, or IRQ-5 may be selected . Either IRQ can be assigned to any of the LPT port numbers as shown in the parallel port table above.

ECP 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 5.

Utility Menu

The Utility Menu allows the system to detect installed IDE drives. If an IDE controller is installed, use DetectMaster and Detect Slave to detect the IDE drives. For information on setting an IDE device to master or slave, refer to the documentation accompanying the drive.

Detect Master

Detect Master searches for the master IDE device. Any IDE drive found is then made available for you to configure.

Detect Slave

Detect Slave searches for the slave IDE device. Any IDE drive found is then made available for you to configure.

Security Menu

The Security Menu allows you to change the system password and enable or disable virus protection.

Password

Use Password to prevent unauthorized users from accessing the AMIBIOS Setup program. If you do not enter a password, the system does not prompt users for a password when they start AMIBIOS Setup. This password does not affect the system logon password.

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

To enter a password:

1. Select the Password icon. The Password menu displays.
2. Key in the characters (maximum of six) for the password.
3. Key in the password to confirm it.

To disable a password:

1. Select the Password icon.
2. Key in the current password.
3. Press ENTER twice. A message displays notifying you that the password is disabled.

Anti-Virus

The Anti-Virus option checks for the presence of a virus on an IDE drive configured as the boot device. If a virus is detected, the BIOS prevents data from being saved to the boot sector and system files on the IDE drive.

NOTE SCSI hard disk drives are not checked by the Anti-Virus BIOS option.

When set to 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 defaults, Optimal BIOS defaults, and Fail-safe BIOS defaults. The Original BIOS defaults are the last current BIOS values used in the system. The Optimal BIOS defaults are used in the delivered system. The Fail-safe BIOS defaults are recommended when there has been a system failure.

NOTE Loading any of the BIOS defaults overwrites all customized parameter settings. If you have customized any parameters, record them before loading the defaults.

Original

Selecting the Original icon loads the last current BIOS values. These values are the most stable values that can be chosen for system performance. Use this option as a diagnostic aid if the system is unstable.

To load the Original BIOS defaults:

1. Select the Original icon from the AMIBIOS Setup Main Menu 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 will automatically restart with the values in effect.

Optimal

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

NOTE When using the Flash Programming Utility to reprogram the flash EPROM with a new BIOS, this option must be selected to ensure the new BIOS values are used.

To load the Optimal BIOS values:

1. Select the Optimal icon from the AMIBIOS Setup Main Menu 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 will automatically restart with the values in effect.

Fail-safe

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

To load the Fail-safe BIOS values:

1. Select the Fail-safe icon from the AMIBIOS Setup Main Menu to load the basic BIOS settings. The following message displays:

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

2. Select Yes to accept the values, or No to reject them.
3. Exit AMIBIOS Setup. The system will automatically restart with the values in effect.

Reprogramming the BIOS

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. Use the SYSUTIL diskette delivered with your system to boot the system into MS-DOS. The system must be set to boot from the floppy disk drive (normally drive A) to use these utilities. If necessary, refer to "Changing the System Boot Sequence" later in this chapter.

Reprogramming the BIOS erases all the parameter settings in the BIOS. If you customized any of the BIOS parameters, record them before installing the BIOS.

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. Reprogramming the BIOS erases the resource assignments for the ISA boards and PC Card devices. After reprogramming the BIOS, you must run the System Configuration Utility (SCU) to reassign those resources. Refer to "Assigning System Resources for Option Boards" later in this chapter.

To reprogram the flash EPROM:

1. Connect to the Intergraph Bulletin Board Service (IBBS) via modem. Refer to the Preface for instructions.
2. From the TOP menu, go to Intergraph Product Centers, Systems and Networking, File Libraries, and Delivered Drivers; then select the appropriate operating system and hardware platform.
3. Choose Find File to search for the FLASHPROG product; then download it to your system.
4. Extract the files bundled in FLASHPROG using an unzip utility. FLASHPROG contains:

   .\BIN
   .\DISK1
   BOOTFLOP.EXE
   INSTALL.BAT
   MANIFEST.TXT
   README.TXT

5. Insert a blank floppy diskette into the floppy disk drive.
6. At the MS-DOS command prompt, change to the directory containing the extracted files, if they are not located in the current directory.

7. Type in the following to create an MS-DOS boot diskettethat contains the flash utility and the BIOS files:

   md c:\temp
   install.bat

8. Shut down and power off the system; then restart the system.
9. At the MS-DOS command prompt, type:

   flash

   The following messages display:

   ```
   Intergraph flash programming utility

   Reading 782XX.ROM .
   Programming flash EPROM

   Flash EPROM updated.
   Reboot the system by turning the power off.
   Do not use ctrl-alt-del for rebooting.
   ```

10. Remove the diskette from the floppy disk drive; then power off and restart the system.
11. Press DEL when the following message displays.

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

12. In the Default menu, click on the Optimal icon. Select Yes to load the values.
13. If you customized the BIOS for your system, change the necessary parameters to their previous values.
14. Exit AMIBIOS Setup and restart the system.
15. If you have ISA boards or PC Card devices installed in your system, run the SCU to reserve the necessary system resources.

Changing the System Boot Sequence

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
   ```

   The AMIBIOS Setup Main Menu displays.

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

4. Click the System Boot Up Sequence parameter. The Options menu displays, with a choice of boot sequences. The default is C:, A:, CDROM, which designates the system hard disk drive (C:) as the initial boot device, followed by the floppy disk drive (A:).
5. Click the A:, C:, CDROM option to reverse the boot sequence; then press ENTER.
6. Select Exit and Save to exit AMIBIOS Setup.
7. Restart the system.

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

Assigning System Resources for Option Boards

Some ISA boards, PC Card devices, and non-compliant PCI boards 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. The next two sections describe how to reserve system resources in both cases.

The SCU is an MS-DOS utility that will not run in the Windows NT environment. Use the System Utilities (SYSUTIL) diskette delivered with your system to boot the system into MS-DOS. The system must be set to boot from the floppy disk drive (normally drive A) to use the SCU. If necessary, refer to "Changing the System Boot Sequence."

NOTE PC Card devices and non-compliant PCI boards that require system resources should be configured as if they are ISA boards.

ISA Boards with a Configuration File

Some ISA boards are shipped with a diskette containing a configuration file. The configuration file can be loaded to the system so that the BIOS reads this file to assign resources during startup. If you install ISA boards that are shipped with a configuration diskette, follow this procedure.

NOTE If a configuration diskette is not delivered with the option board, refer to "ISA Boards without a Configuration File."

To configure ISA boards with a configuration file:

1. Shut down and power off the system.
2. Insert the SYSUTIL diskette into the floppy diskette slot of the combo drive; then restart the system.
3. When the MS-DOS Startup menu displays, select option 1 to run the SCU.

4. Use the arrow keys or the mouse to select Step 2 from the SCU Main Menu. Then press INSERT to add a board that was not detected or has not been installed.

   A prompt displays requesting you to copy the configuration files needed to configure the system. The configuration file is on a diskette provided by the ISA board manufacturer.

5. Press ENTER to accept A:\ as the path to the configuration file.

6. Select the slot where the board will be installed. Only slots 1 through 4 are valid for the system.

   When prompted to insert the source disk, insert the diskette containing the configuration file and press ENTER.

7. When prompted to insert the destination disk, insert the SYSUTIL diskette and press ENTER. The configuration file from the option board manufacturer will be installed to the system and to the SYSUTIL diskette.

8. Press ESC to return to the SCU Main Menu.

9. Select Step 4 to save the configuration, and then select Step 6 to exit the SCU.

10. Remove the diskette from the combo drive and restart the system.

ISA Boards without a Configuration File

Some ISA board vendors do not include configuration files with their boards. For these boards, you must use the SCU to define the ISA board to the system.

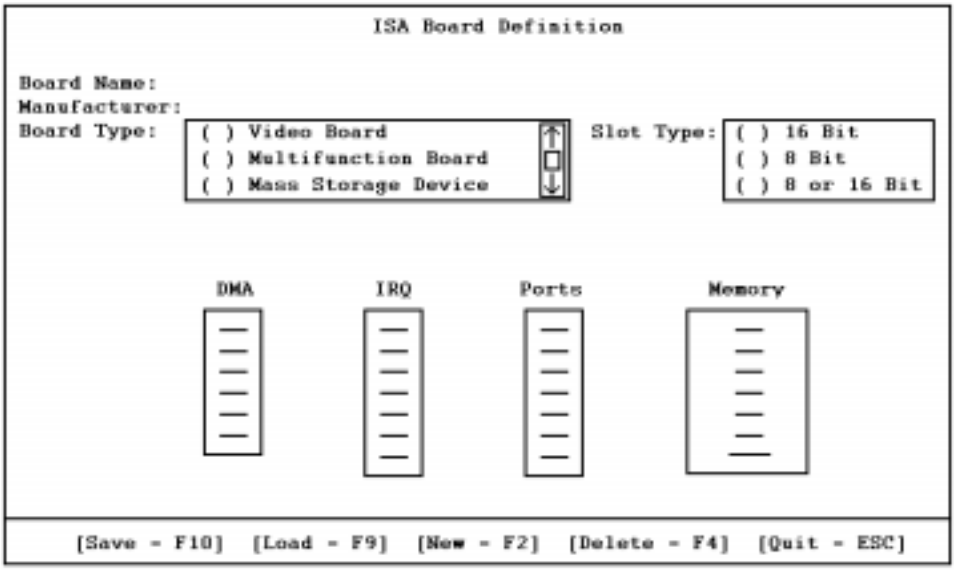
To configure ISA boards without a configuration file:

1. Shut down and power off the system.

2. Insert the SYSUTIL diskette into the floppy diskette slot of the combo drive; then restart the system.

3. When the MS-DOS Startup menu displays, select option 1 to run the SCU.

4. From the SCU Main Menu, select Step 2, then press F6. The ISA Board Definition Menu displays as shown in the following figure.



5. Enter the data specified in the manufacturer's configuration instructions.

NOTE Use the TAB and arrow keys to move the cursor from field to field. Once inside the DMA, IRQ, and Ports fields, press ENTER to display the sub-fields for entering the information.

6. Press F10 to save the data to the system.
7. Press ENTER to return to the ISA Board Definition Menu.
8. Press ESC to return to the SCU Main Menu.
9. Select Step 2. The Add and Remove Boards Menu displays.
10. Select the required slot number and press INSERT.
11. Select INSERT again to add the board. The ISA Board Database Menu displays.
12. Select the correct board name and press ENTER.
13. When the Slot Selection Menu displays, select the required slot and press ENTER.
14. Press ESC to return to the SCU Main Menu.
15. Select Step 4 to save the configuration.
16. Select Step 6 to exit the SCU.
17. Remove the diskette from the combo drive; then restart the system.

4 Troubleshooting

Use this chapter to help determine the causes of some common problems that can occur with the server. This chapter describes the following types of problems:

- System power errors
- System boot errors
- Video errors
- Other hardware errors
- Network errors

NOTE If you need assistance for system problems, the Customer Response Center phone number is 1-800-633-7248.

System Power Errors

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 the 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.
Power switch not in the proper position.	Be sure that the power switch on the front of the base unit is in the ON position.
Internal power cables not connected.	Open the base unit and ensure all power cables are connected properly.
Faulty power cord.	Replace the power cord.

System Boot Errors

Series of beeps and error message displays

Number of Beeps - Message	Explanation and Solution
1 - Refresh Failure	Bad memory refresh circuitry on the system board. Remove and re-install the SIMMs. If error continues, replace SIMMs.
2 - Parity Error	Parity error in the first 64 KB block of memory. Remove and re-install the SIMMs. If error continues, replace SIMMs.
3 - Base 64 KB Memory Error	Memory failure in the first 64 KB. Remove and re-install the SIMMs. If error continues, replace SIMMs.
4 - Timer Not Operational	Memory failure in the first 64 KB, or Timer 1 on the system board is not functioning. Replace the SIMMs. If error continues, call the Customer Response Center.
5 - Processor Error	The CPU on the system board generated an error. Call the Customer Response Center.
6 - 8042 - Gate A20 Failure	The BIOS cannot switch to protected mode. Call the Customer Response Center.
7 - Processor Exception Interrupt	The CPU generated an exception interrupt. Call the Customer Response Center.
8 - Display Memory Read/Write Error	The graphics controller is faulty. Call the Customer Response Center.
9 - ROM Checksum Error	The ROM checksum value does not match the value encoded in the BIOS. Call the Customer Response Center.
10 - CMOS Shutdown Register Read/Write Error	The shutdown register for CMOS RAM failed. Call the Customer Response Center.
11 - Cache Error/External Cache Bad	The external cache is faulty. Call the Customer Response Center.

System hangs after BIOS initializes

Reason	Solution
Incorrect memory speed set in the BIOS.	Change the “Installed Memory Speed,” parameter under Chipset in AMIBIOS Setup to 60 ns. See Chapter 3.

One or more processors is not active

Reason	Solution
The voltage regulator module for the CPU is not correctly installed.	Open the base unit and reseat the voltage regulator modules.

Does not boot from expected boot device

Reason	Solution
Boot sequence is incorrectly set.	Change the “System Boot Up Sequence” parameter under Advanced in AMIBIOS Setup. See Chapter 3.
Operating system not on the system drive.	Install the operating system as described in Chapter 5.

Does not boot from floppy disk drive (drive A)

Reason	Solution
Corrupt boot diskette, or boot diskette does not have correct boot utilities.	Replace the boot diskette.
Boot sequence is incorrectly set.	Change the “System Boot Up Sequence” parameter under Advanced in AMIBIOS Setup. See Chapter 3.
Corrupt BIOS.	Reprogram the BIOS using the Flash Program Utility. See Chapter 3.

Incorrect number of processors displays

Reason	Solution
Faulty CPU	Determine faulty CPU by swapping CPUs until the faulty one is found.
CPU not properly seated into the socket.	Ensure all CPUs are properly installed.
Voltage Regulator Module (VRM) not properly installed.	Ensure all VRMs are properly installed.

Incorrect amount of memory displays

Reason	Solution
Faulty SIMMs.	Determine faulty SIMMs by swapping SIMMs until the faulty one is found.
SIMMs not properly seated into the socket.	Open the base unit and ensure SIMMs are properly installed.

CD-ROM drive is not recognized

Reason	Solution
CD-ROM drive power cable not attached.	Open the base unit and ensure power cable is properly attached.
CD-ROM drive SCSI cable not attached.	Open the base unit and ensure SCSI cable is properly attached.
SCSI termination is not disabled.	Disable SCSI termination. Refer to the CD-ROM drive vendor's documentation.
A SCSI address conflict exists between the CD-ROM drive and another SCSI device.	Set SCSI ID to an unused value. Refer to the CD-ROM drive vendor's documentation.

I/O card parity error message displays

Reason	Solution
Faulty option board is installed in an ISA slot.	Remove the ISA board, then restart the server.
Riser card is faulty.	Call the Customer Response Center.

“Invalid configuration information for SLOT XX” message displays

Reason	Solution
System is not properly configured to recognize the new ISA option board.	Run the System Configuration Utility and set the board to its proper configuration according to manufacturers instructions.

DMA bus time-out message displays

Reason	Solution
Failure in DMA bus logic has occurred.	Call the Customer Response Center.

Video Errors

Video displays during boot up, but not when Windows NT starts

Reason	Solution
Resolution selected is not supported by the installed monitor.	Reboot the server, using the VGA mode of the operating system. Use Video Configuration to select a supported resolution. See Chapter 2.
Improper video display driver is installed.	Remove the video display driver and install a valid driver. See Chapter 2.

System powered on, but screen remains blank

Reason	Solution
Monitor not powered on.	Turn power on to monitor.
Monitor power cord not connected.	Connect the monitor power cord to AC outlet and monitor.
Video cable not properly installed.	Ensure the video cable is installed in monitor and base unit.

Other Hardware Errors

CD-ROM drive LED does not light

Reason	Solution
CD-ROM drive power cable is not attached.	Open the base unit and ensure power cable is properly attached.

Floppy disk drive/combo drive LEDs do not light

Reason	Solution
Disk drive power cable is not attached.	Open the base unit and ensure power cable is properly attached.

Floppy disk drive/combo drive not recognized

Reason	Solution
BIOS is not configured properly.	Configure the Floppy A and B parameters under Standard to the required settings.
Disk drive power cable is not attached.	Open the base unit and ensure the power cable is properly attached.
Floppy data cable is not attached properly.	Open the base unit and ensure the floppy cable is properly attached at both ends.

Unsuccessful connection to serial device

Reason	Solution
Communication parameters between server and serial device do not match.	Change the parameters so the server and serial device match each other.

PC Card does not work, or is not recognized

Reason	Solution
Defective PC Card is installed.	Insert another PC Card to verify the combo drive works.
PC Card is not compatible with operating system.	Replace with compatible PC Card.
PC Card installed or removed improperly.	Verify proper card installation or removal.
Windows NT PCMCIA device not enabled after re-installing Windows NT Server.	Enable Windows NT PCMCIA device. See Chapter 2.

Network Errors

Cannot connect to other systems on LAN

Reason	Solution
Ethernet cable is disconnected.	Re-connect the Ethernet cable, ensure proper connection. If cable is properly connected, notify your network administrator.
Software configuration is set incorrectly.	Notify your network administrator.

Cannot plot to network plotter on LAN

Reason	Solution
Ethernet cable is disconnected.	Re-connect the Ethernet cable, ensure proper connection.
Plotter is not added to the available print queues on your system.	Notify your network administrator.
Plot node does not recognize your system.	Notify your network administrator.

5 Installing System Software

Complete the procedure outlined in this chapter if you must re-install Windows NT Server software on your Intergraph system. Most of these steps are described in more detail in the operating system documentation delivered with your system.

Before You Begin

Have the following items available:

- The information you recorded under “Preparing for Windows NT Setup” in Chapter 1, “Getting Started.”
- Operating system software 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 1, “Getting Started.”
- Backup diskettes and documentation delivered with any expansion boards purchased from Intergraph.
- The *Late-Breaking News* document delivered with your system.

System software required during re-installation may be on backup diskettes, or on the operating system software CD-ROM. If you do not have a backup diskette containing a specific driver or other system software product, look for the driver or system software product on the operating system software CD-ROM or on backup diskettes delivered with an expansion board. Check the Intergraph Bulletin Board Service (IBBS) and vendor bulletin boards frequently 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 re-installation.

Windows NT Server 4.0

CAUTION If your system is equipped with an internal RAID subsystem or an external RAID disk array, and your system drive is part of the RAID set, you must select the RAID level and configure the RAID before you start Windows NT Setup and install Windows NT Server. Refer to the InterRAID documentation for instructions on configuring the RAID disk array. Then return to this document and install Windows NT Server.

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

- G95 video display driver
- Sound processor driver
- Quick-Fix Engineering (QFE) update software
- MegaRAID Power Console driver and utilities

Follow the instructions in *Start Here* to install Windows NT Server 4.0. As you install the operating system:

- Select Custom Setup.

NOTE You must install the Adaptec SCSI driver *before* installing the MegaRAID driver.

- Bypass automatic SCSI detection and install the Adaptec SCSI driver and MegaRAID driver from backup diskette.
- You can safely select the default responses for other options in Setup.
- When prompted to create an Emergency Repair Disk, do so.

After installing the operating system:

- When prompted by Setup to restart the system, do so. When the system restarts, Phase III, the Graphical User Interface (GUI) portion, of Windows NT Setup runs. Go through Windows NT Setup as described in Chapter 1, "Getting Started."
- Configure the system as described in Chapter 2, "Configuring the System."
- Perform any additional installation and configuration tasks described in the *Late-Breaking News* document delivered with your system.
- You can install additional accessories for the sound processor, available from the IBBS or from vendor bulletin boards pointed to by the IBBS.

Updating the Operating System

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 obtain Service Packs from Microsoft's World Wide Web and FTP sites free of charge.

CAUTION If Intergraph provides a Service Pack through the IBBS 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.