

365-301-423

**I-2000 CONTROLLER FOR DACS II INSTALLATION MANUAL -
365-301-423 - ISSUE 1**

Refer to Chapter 19

NOTICE: See the Legal- and Support-Information Module for any notices,
trademarks, ordering information, and other support.

Copyright(c) 1992 AT&T
All Rights Reserved

1. ABOUT THIS MANUAL

1.1 Description

This chapter describes the purpose and use of this manual

1.2 Purpose of This Manual

This manual explains in step-by-step procedures, how to install the I-2000. For related topics, such as details on how to use the I-2000, or how to maintain its hardware, refer to the accompanying documentation.

1.3 Audience

This manual is written for the use of personnel who have some familiarity with DACS operations. Some knowledge of the AT&T UNIX(R) operating system is required for installation of the I-2000.

1.4 How To Use This Manual

CAUTION:

Do not discard any portion of this manual until you are sure that you have identified the system configuration correctly.

This manual is organized in installation sequence.

Detailed installation procedures for hardware and software are contained in the Appendices to this manual. Chapter 3, "Hardware and System Software Installation", identifies the currently recommended system configurations and refers you to the correct installation procedure Appendix. Use only those procedures contained in the Appendix that applies to your system. To prevent future errors, you may remove those appendices that *do not apply* to your system configuration from this manual.

1.5 Other I-2000 Documentation

Table A lists I-2000 documentation required for operation, upgrade and expansion of the I-2000 Controller.

The *I-2000 Controller User's Guide* contains a Glossary and an Acronym List. Refer to these for explanations of DACS terminology and Telephone industry standard abbreviations and acronyms.

1.6 Additional Documentation

Additional DACS II-related documents may be of help in using the I-2000 with DACS II. They would be useful, for example, to an expert user in Passthrough mode. Those documents are listed in the *I-2000 Controller User's Guide*. Other documentation is listed at the appropriate points in this manual.

1.7 Notational Conventions

The following conventions are used in this manual.

- o Key names are shown as they are on a typical keypad, and are enclosed in a box, such as [Name] or [X].
- o Field names are quoted as they appear on the screen, except where they are described. Bolding is used for emphasis.
- o In command formats, literals to be typed are in **bold** type.
- o In command formats, and sometimes in literal examples, value names to be filled in are in *italic* type. (hard copy only)
- o Menu selections are quoted in otherwise unemphasized caps.

The above conventions let you distinguish easily between menu selections, field names, field values and function key names in instructions and field descriptions. Bold and italic (hard copy only) are used in other contexts for table titles, emphasis or document references.

2. PREPARING FOR INSTALLATION

2.1 Description

Describes equipment, tools, documentation and workspace required for installation of the I-2000

2.2 Required Hardware

The I-2000 is supported by a flexible configuration approach. The hardware you receive depends on the configuration you order. All configurations include a computer with a minimum of 8 and a maximum of 32 MB of memory, a 1.4 MB floppy disk drive, a monitor, a keyboard, and an optional 120 MB streaming tape drive. Both monochrome and color VGA Monitors are available. The RAM, hard disk and ports capacity required for a particular application will depend on:

- o The number of users to be supported.
- o The number of DACS frames to be supported.
- o The communication protocol(s) required (X.25 or SNIDER).

The currently supported configurations are described in Chapter 3, "Hardware and System Software Installation" and Appendix A [REF. 8, 9, 10, 11, and 12].

2.3 Required Tools

- o Medium-sized Phillips and flat-blade screwdrivers
- o ESD wrist strap (to protect the I-2000 computer against electrostatic discharge from your person. Wear it)
- o Sharp knife to cut boxes open

2.4 Required Documentation

- o *I-2000 User's Guide*
- o Computer system user's guide(s) (depends on configuration, supplied with computer)
- o Printer user's guide (supplied with printer)
- o *UNIX(R) System V/386 Release 3.2.3 User's Guide and Operations/System Administrator's Reference Manual* (supplied with UNIX(R) software)
- o *AT&T 605 or 705 Asynchronous Terminal Operating Manual* (supplied

with terminal)

NOTE:

A requirement for any of the following I/O documentation depends on the configuration selected. This documentation is supplied with the I/O hardware.

- o Optional *AT&T Intelligent Ports Card Model 1600 (IPC-1600) User's Guide* (305-920)
- o Optional *AT&T Intelligent Ports Card Model 900 (IPC-900) User's Guide* (305-910)
- o Optional *GPSC-AT/E Synchronous Board User's Guide*

2.5 Getting Ready to Install

Confirm that all of the required I-2000 hardware, software and documentation has been received, and that the required tools or their equivalents are at hand.

System installation is a sequential procedure; i.e., you need to start at the beginning with hardware installation and proceed through the various software installation steps.

Although you may need only 5-6 hours for installation, it is best to reserve a full working day (7-8 hours) to set up a system (hardware and software installation) and check it out.

2.6 Workspace Requirements

A 10 ft X 10 ft floorspace is required to store and unpack the various packaged system items. A work surface (desk or workbench) of 36 inches X 48 inches with nearby AC power outlet, is required to safely and comfortably assemble system hardware.

3. HARDWARE AND SYSTEM SOFTWARE INSTALLATION

3.1 Description

Guides you to the correct procedures for your I-2000 system configuration

3.2 Introduction

Installation of the I-2000 hardware and system software is different for each of the possible system configurations. To make the installation instructions as easy as possible to follow, separate instructions are included in the attached Appendices for each configuration.

3.3 Installation Procedure Reference

Follow the instructions in the Appendix which is appropriate for your configuration, as follows:

- Appendix A1 [REF. 8]: AT&T 6386/25 WGS Computer with 8 Mb RAM and an 80 Mb Hard Disk (the configuration used by the U.S. Government for their DCT 2.0 Systems)
- Appendix A2 [REF. 9]: AT&T 6386/25 WGS Computer with 16 Mb RAM, an 80 Mb Hard Disk, and a 125 Mb Tape Drive (the configuration used by the U.S. Government for their Enhanced DCT 2.0 Systems)
- Appendix A3 [REF. 10]: AT&T 6386E/33 WGS Computer with 16 Mb RAM, a 135 Mb Hard Disk, and a 125 Mb Tape Drive
- Appendix A4 [REF. 11]: AT&T Starstation Computer with 16 Mb RAM, a 240 or 340 Mb Hard Disk and a 125 Mb Tape Drive
- Appendix A5 [REF. 12]: Hauppauge 4860 Computer with 32 Mb RAM, a 340 or 535 Mb Hard Disk and a 125 Mb Tape Drive

When the hardware and system software installation described in the appendix is complete, proceed to Chapter 4, "Database and I-2000 Application Software Installation", to install the database and I-2000 software.

4. DATABASE AND I-2000 APPLICATION SOFTWARE INSTALLATION

4.1 Description

Provides procedures for Database and I-2000 Application Software Installation

4.2 Installing the Informix Database Software

This procedure will require the use of the three sets of Informix software. Each set comes with diskettes and a Serial Number/Key card. The key cards are required in order to complete the installation.

NOTE:

The key cards should be stored in a safe place after they are used to ensure that they will be available in the future if the software ever has to be reinstalled.

Step 1: Login in as "root"

Step 2: Create an informix group by typing:
echo "informix::13:root,informix" >> /etc/group
[Enter]

Step 3: Create an informix user:

 -- type face [Enter]

 -- select **System Administration**

 -- select **User Logins**

 -- select **ADD**

 -- type informix in the **Login Name:** field and
 press [Enter]

 -- type informix in the **Full Name:** field and
 press [Enter]

 -- press [F3] to SAVE

 -- press [F3] to CONTinue

 -- type a password followed by "[Enter]" and
 repeat it when asked to

 -- press [Enter] when asked to press RETURN,
 then press [F3] to CONTinue

-- press [F6] twice, then select **Exit** and press [F3]

Step 4: When the "#" prompt reappears, type the following lines:

```
INFORMIXDIR=/usr/informix [Enter]
```

```
export INFORMIXDIR [Enter]
```

```
PATH=$PATH:$INFORMIXDIR/bin [Enter]
```

```
export PATH [Enter]
```

Step 6: Type "installpkg [Enter]" and insert the diskettes for the Informix SE package as requested.

Step 7: When asked to enter the serial number, type it exactly as it appears on the card, including capitalizing letters, and then press [Enter]

Step 8: When asked to enter the key, type it exactly as it appears on the card, including capitalizing letters, and then press [Enter]

Step 9: Repeat steps 6, 7 and 8 using the Informix SQL diskettes and key card.

Step 10: Repeat steps 6, 7 and 8 using the Informix ESQL/C diskettes and key card.

4.3 Installing the I-2000 Software

Step 1: Type "installpkg [Enter]" and insert the diskettes for the I-2000 Program software as requested. The machine will uncompress the diskette files and install the I-2000 software after the last of the diskettes in the set has been read. You can safely ignore the many messages which will appear on the screen as this takes place.

Step 2: When asked what type of printer you have, type "4 [Enter]" if you have an AT&T model 470 printer, or type "5 [Enter]" if you have an AT&T model 570 or a printer compatible with the 570, such as an NCR model 6417 or an Okidata ML320. After a few minutes the machine will begin an automatic reboot. Be sure to remove the last floppy disk

from the diskette drive when you are prompted to do so and then press [Enter] to allow the reboot to proceed.

Step 3: After the machine completes the reboot, login in as "root", type "installpkg [Enter]" and insert the *I-2000 Enable Features* diskette. When the "#" prompt returns, installation of the Database and I-2000 Program software is complete.

This is a good time to collect all of the various spare components, documents and diskettes provided with the I-2000 system and store them in a safe place. Be sure to save the keys provided for the system unit and the spare disk mounting rails (if any) which came with the system unit. All software diskettes which have been installed should be saved, but those which were not used (such as DOS drivers for the I/O boards or versions on 5-1/4" diskettes) may be discarded.

Be sure to save the Serial Number/Key cards which come with the Informix diskettes. Keep all documentation, including that which comes with the I/O boards and the tape drive. Some of these items may be needed in the future if hardware is ever replaced or upgraded. The extra faceplate and mounting rails provided with the tape unit and all packing materials may be discarded. Proceed to Chapter 5, "Connecting the I-2000 to Other Equipment" for instructions on connecting your I-2000 system to terminals and DACS frames.

5. CONNECTING I-2000 TO OTHER EQUIPMENT

5.1 Description

Provides information on connecting I-2000 to other DACS Equipment

5.2 Introduction

This chapter describes how to connect user terminals, DACS frames, and an alarm monitoring device to the I-2000 system. There are many possible ways to make these connections, and each installation will have its own unique configuration, depending on the number and type of communication links to be used. The sections below give information on how to connect some of the more common configurations and should be sufficient for most applications. The approach used is to convert each port to a standard RS-232C interface which uses a DB-25 connector and to interconnect at that level using standard 8 wire "Asynchronous RS-232C" cables or 13 wire "Synchronous RS-232C" cables (see Appendix B [REF. 13, 14, 15, and 16]).

5.3 Identifying Port Connectors

We recommend that you take the time to label the various I/O port connectors on your system consistent with the way the I-2000 software will refer to them in order to make connecting and provisioning your system easier. In Tables B, C, D, and E, the "Board Port ID" is the designation already stamped on the board's I/O connector (except that IMX Port/8 connectors are not labeled). For each port, attach a stick-on label to the connector showing the appropriate "I-2000 Port/Line No." from the tables. This is the numeric value required in the I-2000 Login Port Administration or X.25 Link Administration menu to designate that particular port. If you are uncertain which board is the "first", "second", or "third", refer to Section 3, "Hardware and System Software Installation".

5.4 Asynchronous Terminal Links

Connect remote terminals to I-2000 user login ports as shown in Figure 1.

This type of connection is provided by the 8 or 16 port I/O boards in the I-2000 system unit which implement asynchronous RS-232C serial ports.

Each terminal connection requires an "RJ-45 Cable" plugged into the I/O board with an adapter connected to the other end. This adapter converts the RJ-45 cable to the RS-232C standard DB-25 connector. Two types of adapter are available - one presents a DCE pinout ("Terminal Adapter") for connecting directly to a terminal and the other presents a DTE appearance ("Modem Adapter) for connecting to a modem. Part

numbers and wiring details of the cables and adapters required for each type of serial port board supported by I-2000 are given in Appendix B [REF. 13, 14, 15, and 16].

The terminal should be configured for 1 start bit, 7 data bits, 1 even parity bit, and 1 stop bit. The terminal data rate should be set to match the data rate provisioned for the I-2000 port (typically 9600 b/s), and terminal flow control should be set to "none" or "hardware(RTS/CTS)". *DO NOT* set the terminal for "software (XON/XOFF)" flow control. The terminal types supported by I-2000 are listed in the *I-2000 User's Guide*. Appendix C [REF. 17] gives information about using PC-based terminal emulator programs with I-2000.

When modems are used, they should be configured for asynchronous operation with 10 bits per character (1 start bit, 8 data bits including parity, and 1 stop bit), to ignore DTR and RTS, and for DSR, DCD, and CTS to follow the RS-232C standard. These are the default settings for most modern modems. Modem configuration is usually accomplished by setting switches or jumpers or by connecting a terminal and sending command strings, but will vary from one type of modem to another. See the documentation for the particular modem(s) for more details.

For connections over dedicated "leased lines", both modems should be configured for "leased line" operation and use the same baud rate. One modem should be configured to be in "originate mode" while the other should be in "answer mode". The I-2000 port data rate should be provisioned to be the same as the modem data rate.

For dial-up access, the modem at the I-2000 location should be configured for "Auto Answer" mode. The I-2000 port should be provisioned for the highest rate supported by the modem. The maximum I-2000 data rate is 9600 b/s, however. If a V.42bis or V.32bis type modem which has a higher default data port rate (often 38,400 or 57,600 b/s) is used, it should be reconfigured to a fixed data port rate of 9600 b/s.

Terminal connections which are implemented using a Wide Area Network (such as a DATAKIT(R) Virtual Circuit Switch) arrangement are also shown in Figure 1. The "host" network port connected to the I-2000 is assumed to be an RS-232C DCE appearance and should be configured for asynchronous operation with 10 bits per character (1 start bit, 8 data bits including parity, and 1 stop bit) and to implement (or to force true) DSR, DCD, and CTS. Flow control should be set to "none" or "hardware(RTS/CTS)" - *DO NOT* set it to "software (XON/XOFF)". If appropriate (packet networks only), the network port should be configured to send data after a delay (typically .1 to .5 seconds) and not to wait for certain characters before sending.

5.5 Asynchronous DACS Frame Links

Connect asynchronous (Snider protocol) DACS frame links as shown in

Figure 2. This type of connection is provided by the 8 or 16 port I/O boards in the I-2000 system unit and uses asynchronous RS-232C serial links. Each DACS frame connection requires an "RJ-45 Cable" plugged into the I/O board with an adapter connected to the other end. This adapter converts the RJ-45 cable to the RS-232C standard DB-25 connector. Two types of adapter are available - one presents a DCE pinout ("Terminal Adapter") for connecting to a DACS port which is equipped with a Group 2 adapter. The other presents a DTE appearance ("Modem Adapter") for connecting to a modem or to a DACS port which has a Group 1 adapter. Part numbers and wiring details of the cables and adapters required for each type of serial port board supported by I-2000 are given in Appendix B [REF. 13, 14, 15, and 16]. The DACS frame and the I-2000 port should be configured for the same data rate (typically 9600 b/s).

When modems are used, they should be configured for 10 bits per character (1 start bit, 8 data bits including parity, and 1 stop bit), to ignore DTR and RTS, and for DSR, DCD, and CTS to follow the RS-232C standard. These are the default settings for most modern modems. Since DACS frame links must be available full-time, they should be implemented over dedicated "leased lines" facilities. Both modems should be configured for "leased line" operation and to use the same baud rate. One modem should be configured to be in "originate mode" while the other should be in "answer mode". Modem configuration is usually accomplished by setting switches or jumpers or by connecting a terminal and sending command strings, but will vary from one type of modem to another. See the documentation for the particular modem(s) for more details. The I-2000 port data rate should be provisioned to be the same as the modem data rate.

DACS frame connections which are implemented using a Wide Area Network (such as a DATAKIT(R) Virtual Circuit Switch) arrangement are also shown in Figure 2. The "host" network port connected to the I-2000 is assumed to be an RS-232C DCE appearance and should be configured for asynchronous operation with 10 bits per character (1 start bit, 8 data bits including parity, and 1 stop bit) and to implement (or to force true) DSR, DCD, and CTS. Flow control should be set to "none" or "hardware(RTS/CTS)" - DO NOT set it to "software (XON/XOFF)". If appropriate (packet networks only), the network port should be configured to send data after a delay (typically .1 to .5 seconds) and not to wait for certain characters before sending. In addition, for DACS frame links, the network should be configured to establish a permanent connection between the DACS and the I-2000.

5.6 Asynchronous Link for the Alarm Port

To connect the I-2000 Alarm Reporting Port, use one of the configurations shown in Figure 3. This port is implemented using an RS232C asynchronous serial port built into the I-2000 system unit main board which is labeled "Serial Port B", "Serial Port 2", "COM2", or something similar. The cable for connecting to this port is a standard "PC/AT Modem Cable" which has a female DB-9 connector on the

I-2000 end and a male DB-25 connector on the modem (or printer or OS) end. The internal wiring of this cable is given in Appendix B [REF. 13, 14, 15, and 16]. This link may also be extended by using modems, but, like a DACS link, it must be available full time and should be implemented using a dedicated "leased" line if modems are used. If appropriate, configure the modems as described above for DACS links. The data rate for this I-2000 port is fixed at 9600 b/s and it supplies data with 1 start bit, 7 data bits, 1 even parity bit and 1 stop bit. No flow control is provided. If this port is connected to a printer, a null modem is required and the printer should be configured for the proper data rate and format.

5.7 Direct or PDN X.25 Links For DACS Frames and/or C-2000

Make any required X.25 direct or Packet Data Network (PDN) connections to provide communication to DACS frames and/or a C-2000 Controller as shown in Figure 4. The connectors on the ends of the "Y-Cables" are standard RS-232C male DB-25 which present a DTE appearance appropriate for connecting directly to a synchronous modem, a Synchronous Modem Eliminator, or a PDN port (assumed to be an RS-232C DCE). These cables can be extended for short distances using a 13 wire "Synchronous RS- 232C Cable". A Synchronous Modem Eliminator (SME) is required to supply a clock signal to the DACS when a direct connection with no modems is used. It should be configured to supply external clock and for a data rate of 9600 b/s. Synchronous 9600 b/s modems and a dedicated telephone line may be connected to extend a link beyond the nominal 50 foot limit as shown.

Setting the X.25 link parameters for a DACS link which will be connected to an I-2000 is covered in the *I-2000 User's Guide*. The parameter settings for a packet network port are given in Table F.

6. INITIAL I-2000 ADMINISTRATION

6.1 Description

Provides guidelines to first administering the I-2000

6.2 Introduction

After the I-2000 hardware and software have been installed, some initial administration of the system should be performed. Follow the guidelines in the following sections to initialize user logins, terminal ports, and DACS links for your system. Refer to the appropriate sections of the *I-2000 User's Guide* for more details about any of these procedures. Once these initial administrative actions have been performed, the *User's Guide* will become your reference for day-to-day operation of the I-2000.

6.3 DACSADM Login Administration

After the I-2000 Application Software and Enable Features diskettes have been installed, the system will reboot and present a UNIX(R) "login:" prompt. Type "dacsadm [Enter]" to log on as the I-2000 administrator. When you do this for the first time after an installation, you will be prompted to enter a password for the dacsadm login. Enter your choice of password and enter it again when the system asks you to repeat it. This password should be kept secure since the dacsadm login has full administrative privileges within the I-2000 system. Enter "y [Enter]" or "n [Enter]" as appropriate when the system asks if you have a color monitor and the main I-2000 menu will appear.

6.4 Terminal Port Administration

From the main menu, select *System Administration*, then select *Login Ports* to configure your system for any asynchronous serial ports which are to be used for login terminal operation. Select an action of *RESTORE*, fill in the port number and port speed and *EXECUTE* the form for each port. Test each port by connecting a terminal and attempting to log in to I-2000.

6.5 X.25 Link Administration

From the main menu, select *System Administration* and then select *X.25 Link Administration* to configure your system for any X.25 ports which are connected to it. For each X.25 port, fill in the line number and connection type and select an action of *RESTORE*, then *EXECUTE* the form.

6.6 DACS Frame Administration

From the main menu, select *System Administration* and then select *Frame Administration* to configure your system for the DACS frames which are connected to it. Select an action of *CREATE*, fill in the various fields on the form, then *EXECUTE* the form. Now, select an action of *RESTORE* and *EXECUTE* the form again. Repeat these two steps for each DACS frame. Test the frame connections by selecting *Passthrough* from the main menu, choosing that frame's sitename, and verifying that the connection to the DACS is operational. Be sure that the I/O ports on the DACS frames have been correctly provisioned (see the *I-2000 User's Guide*) first.

6.7 User Login Administration

From the main menu, select *User Administration* to set up login names and assign the privilege level for each login name on your system. Refer to the "*I-2000 User's Guide*".

This completes I-2000 installation, connection and initial administration. Refer to the *I-2000 User's Guide* for continued, day-to-day operation.

To change, upgrade or restore an I-2000 system after installation, refer to Chapter 7, "Modifying an I-2000 Installation".

7. MODIFYING AN I-2000 INSTALLATION

7.1 Description

Describes procedures which may be required to change or restore an I-2000 system after it has been initially installed

7.2 Reinstalling or Upgrading I-2000 Software

The I-2000 Application software may be re-installed at any time by following the steps in Section 4.3, "Install The I-2000 Software". It is not necessary (and not recommended) to uninstall the current I-2000 software first. It is very important to back up all data in the system **BEFORE** re-installing the software, however, because the new installation will cause all data to be lost. See the *I-2000 User's Guide* for details on how to make a backup. After the re-installation is complete, login as dacsadm and restore the data. New releases of the *I-2000 Application Software* will come with Release Notes which will describe the procedure for upgrading older versions. Upgrades may require special procedures to convert existing data to new formats.

7.3 Changing the I/O Hardware Configuration

If it is necessary to install additional I/O hardware in an I-2000, perform the following steps:

- Step 1:* As a precaution, do a complete backup of all I-2000 system data.
- Step 2:* Login to the system as root. For each type of I/O board which will be added, remove the associated I/O software by typing "removepkg" and selecting the number corresponding to that package. See Section 9.14, "Installing the I/O Driver Software". When each removal is complete (after the operating system is rebuilt), press [Esc] to prevent the machine from shutting down.
- Step 3:* Reinstall each I/O driver that was removed in Step 2 by typing "installpkg [Enter]". Follow the directions in Appendix A [REF. 8, 9, 10, 11, and 12] and enter values which will be true after the additional boards have been added. When each installation is complete (after the operating system is rebuilt), press [Esc] to prevent the machine from shutting down.
- Step 4:* Shut the machine down by typing "shutdown -i0 -g0 -y [Enter]".

When the message "Reboot the system now" appears, shut off the power to the system unit and unplug its power cord.

Step 5: Open the system unit case and add the new boards as required. Use the procedures in Appendix A [REF. 8, 9, 10, 11, and 12] as a reference. After all new boards are installed, close up the system, plug the power cord back in, and turn the power back on.

Step 6: Login to the system as "root". Type the following lines:

```
su ems [Enter]
typeset -x DBPATH=/usr/ems/db [Enter]
typeset -x DBDELIMITER=| [Enter]
typeset -x INFORMIXDIR=/usr/informix [Enter]
ksh /usr/ems/bin/devsg > /tmp/devsg.dat [Enter]
/usr/ems/bin/dbgendd -D ems -e devsg -l devsg
    -f /tmp [Enter] (that's a lower-case
                    letter "L", not a number 1)
rm /tmp/devsg.dat [Enter]
exit [Enter]
exit [Enter]
```

Step 7: Login to the I-2000 as an administrator and configure the new ports as necessary.

7.4 Replacing Hardware Components

7.4.1 General

This section gives guidelines for how to make an I-2000 system functional again after replacing various hardware components. This is not intended as a comprehensive description of how to replace these components or of how to determine which components may need to be replaced, but simply a guide to which system installation steps should be repeated after replacing one.

7.4.2 System Power Supply

Does not apply.

7.4.3 Floppy Disk Drive or Floppy/Hard Disk Controller Board

Does not apply.

7.4.4 Tape Drive or Tape Controller Board

Does not apply.

7.4.5 Video Controller Board

Does not apply.

7.4.6 IPC-900 or IPC-1600 Asynchronous Port Board

Does not apply.

7.4.7 GPSC-AT/E Synchronous Port Board

- Shutdown the machine by selecting *Shutdown* from the *System Administration* menu.
- Turn off power to the system unit and unplug the power cord.
- Open the system unit case and replace the appropriate hardware, referring to the hardware installation sections of Appendix A [REF. 8, 9, 10, 11, and 12] and/or the *User's Guide* or other documentation for the system unit.
- Close up the system unit, plug the power cord back in, and turn the power back on.
- Login as an I-2000 administrator and verify that the system is operating properly.

7.4.8 Hard Disk Drive

Follow the steps in Section 7.4.7, "GPSC-T/E Synchronous Port Board", to replace the actual hard disk drive. Since replacing the hard disk will result in losing all software and data for the system, it will be necessary to reinstall these. After the system unit is turned back on, perform the procedure in Section 9.12, "Installing the UNIX(R) Operating System". Complete the rest of the instructions in Appendix A [REF. 8, 9, 10, 11, and 12] and then all of those in Chapter 4, "Database and I-2000 Software Installation". If a recent system backup is available, login as "dacsadm" and immediately restore it. Otherwise, follow the steps in Chapter 6, "Initial I-2000 Administration", to set up the system from scratch.

7.4.9 System Unit Main Board

- Shutdown the system.
- Turn off and unplug the power.
- Open the case.
- Replace the main board.
- Close up the case, and turn power back on.
- Perform the steps in Section 9.11, "Set the Computer CMOS Configuration". After the system reboots, I-2000 should operate

normally.

8. APPENDIX A1 - AT&T 6386/25 WGS COMPUTER WITH 8 MB MEMORY (ORIGINAL DCT 2.0)

8.1 Required Hardware

- o AT&T 6386/25 WGS Computer, equipped with 4 Mb of RAM, 80 Mb Hard Disk, and 1.44 Mb Floppy Disk
- o 4 additional 1MX9 SIMMs installed on system board (8 Mb total memory)
- o 101 Key Keyboard
- o VDC600 Video Display Board
- o 323/324 Monochrome or 329D Color VGA Monitor
- o one IMX Port/8 or IPC-900 Serial Port Board
- o Cables and Adapters for connection to I/O board, as required
- o Optional AT&T 570 Printer and cable

8.2 Required Software

- o *AT&T UNIX(R) Operating System V/386, R 3.2.3, 16 user package, consisting of:*
 - *V 2.2 Base System (7 diskettes)*
 - *Editing Package*
 - *Remote Terminal Package*
 - *Network Support (or Supplemental) Utilities*
 - *FACE Help Package*
 - *FACE Package (2 diskettes)*
 - *FMLI Package*
 - *Version 2.2 to Version 2.3 Upgrade*
- o *ACE Driver Software (for IMX Port/8 board), or IPC UNIX System 802/900 Software (for IPC-900 board)*

NOTE:

Version 4.1 of the *IPC UNIX(R) System 802/900* software may be defective and may not install properly. Use only version 4.2

or newer. Contact your AT&T representative to obtain the new software.

- o Three Informix database packages, each with diskette(s) and Serial Number/Key card:
 - Informix *SE*, V4.10
 - Informix *SQL*, V 4.10
 - Informix *ESQL/C (runtime)*, V 4.10
- o *I-2000 Program* Diskettes
- o *I-2000 Enable Features* Diskette

NOTE:

The following packages may have been delivered with the *UNIX Operating System*, but are **NOT** required and **SHOULD NOT BE INSTALLED:**

- o *Maintenance Upgrade #3*
- o *Remote File Sharing Package*
- o *Remote File Sharing Management Package*
- o *2K File System Package*
- o *Xenix(R) File System Package*
- o *Encryption (or Security Administration)Package*

8.3 Configuring The System Unit

This section covers setting jumpers and installing memory on the main system board of the I-2000 computer.

- Step 1:* Make sure that the computer power cord is NOT connected and that the key lock is in the unlocked position. Remove the cover of the computer system unit by loosening the 5 rear panel screws and sliding the cover forward. Be careful that the top of the cover does not catch on any internal cabling. For more details, see the "Expansion" section of the *6386/25 WGS User's Guide*.
- Step 2:* Install the 4 additional 1 Mb memory modules (SIMMs) on the system board in sockets J13 and J14 per the instructions in the "Expansion" section of the *User's Guide*. Be sure to follow the suggested precautions regarding static electricity. This

will result in a total of 8 Mb of memory on the system board. Arrange the jumper blocks on the system board so that pin E60 is connected to E62 and pin E61 is connected to E63.

Step 3: Remove the jumper which connects system board pin E22 to E23 (Factory Default) and replace it so that it connects pin E23 to E24. This disables the COM1 serial port. Verify that the following system board pins are connected by jumpers (all are Factory Defaults):

- E41 to E42 (selects VGA Display Type)
- E17 to E18 (selects Printer acknowledge)
- E13 to E14 and E20 to E21 (enable printer as LPT1)
- E25 to E26 (enable COM2)
- E38 to E39 (normal password operation)

Step 4: Unpack the VDC600 Video Controller board. Verify that the switches on the rear panel and jumpers on the board are set to the Factory Defaults:

- Switch 1 and 3: OFF
- Switch 2 and 4: ON
- Jumper W1: Installed
- Jumper W2: Connecting pins 1 and 2

Step 5: Install the VDC600 board into slot 1 (J1) of the system per the instructions in the "Installing Your System" section of the *User's Guide*.

8.4 Installing the I/O Board

8.4.1 General

This section describes how to set the configuration switches and jumpers on the I/O board and how to install this board into the system unit. This configuration of I-2000 supports only one I/O board. Original installations used an IMX Port/8 board which is no longer available. The replacement for the IMX Port/8 board is the IPC-900 board. Follow the appropriate procedure below for the board used in your system.

8.4.2 IMX Port/8 Board

There are two versions of the IMX Port/8 board - one uses DIP switches, the other uses jumper pins to set options. See the "Expansion" section of the system unit *User's Guide* and the documentation which came with the IMX Port/8 board for more details on this procedure.

- Step 1:* Set the board memory address to the default of F80000. The switch or pins are located along the top of the board, on the end near the mounting bracket and are marked on the board with A16 on the left and A23 on the right. Set positions A23, A22, A21, A20, and A19 to OPEN (OFF, switch towards top of board, jumper NOT installed), and positions A18, A17 and A16 to CLOSED (ON, switch towards bottom of board, jumper installed).
- Step 2:* Set the board Interrupt to the default of 11. The switch or pins are located along the bottom of the board, on the end opposite the mounting bracket and are marked on the board with E30 on the lower left and E39 on the lower right. Set position E32 (third from the left) to CLOSED (ON, switch towards bottom of board, jumper installed), and all other positions to OPEN (OFF, switch towards top of board, jumper NOT installed).
- Step 3:* Install the board into slot 3 (J3) of the system unit after first removing the screw and cover plate for slot 3 (see the "Expansion" section of the *6386/25 WGS User's Guide*). Replace the screw to secure the board.
- Step 4:* Remove the lower mounting screw on the connector on the rear panel of the IMX Port/8 board and replace it with the L-bracket and screw supplied by AT&T. The L-bracket should protrude on the left side of the connector. Remove the screw in the lower left corner of the board's RJ-45 fan-out unit and push the unit firmly onto the connector on the rear of the board. Tighten the thumb-screw on the fan-out unit and insert the screw through the L-bracket and tighten it into the fan-out unit. For more details on this procedure, see the documentation which was supplied with the L-bracket.

8.4.3 IPC-900 Board

See the "Expansion" section of the *6386/25 WGS User's Guide* and the "Hardware Installation" section of the *IPC-900 User's Guide* for more details on this procedure.

- Step 1:* Set the board I/O address to 2A0 using DIP switch SW1 which is located in the lower section of the board on the end opposite the mounting bracket, as follows:
- positions 1,2,4,6 and 8 to ON
 - positions 3, 5 and 7 to OFF
- Step 2:* Set the board memory address to C8000 using DIP switch SW2 which is located in the lower, center section of the board, as follows:
- positions 1,2,3,5 and 6 to ON
 - positions 4, 7 and 8 to OFF
- Step 3:* Set the board interrupt to 15 by placing a jumper across the corresponding IRQ pins in the lower, center section of the board (only one IRQ jumper should be installed).
- Step 4:* Install the board into slot 3 (J3) of the system unit after removing the slot cover bracket and screw. Replace the screw to secure the board.
- Step 5:* Install the T-adapter for the board by pushing it firmly onto the connector on the rear of the board. Be sure that the locator pins on the T-adapter line up with the holes in the board's connector.

8.5 Reinstall the System Unit Cover

Slide the system unit cover onto the unit from the front, being careful that no internal cabling catches on the cover. Tighten the 5 retaining screws on the rear panel.

8.6 Connect the Monitor

- Step 1:* Connect the monitor's data cable to the connector on the VDC600 board in the system unit. Secure the cable by screwing in the retaining screws on the cable connector.
- Step 2:* Connect the monitor's power cable to the AC power socket on the rear of the system unit.

8.7 Connect the Keyboard

Connect the keyboard cable to the appropriate connector on the rear of the system unit.

8.8 Connect the Printer

If your configuration includes a printer, complete the following steps:

Step 1: Connect the printer data cable to the rear of the printer and to the Parallel connector on the rear of the system unit.

Step 2: Connect the printer power cable to the rear of the printer (if necessary) and to an AC outlet.

8.9 Connect the Computer to AC Power

Make sure that the computer's main power switch is in the OFF position and then connect the computer's power cord to the rear of the system unit and to an AC outlet.

8.10 Set the Computer CMOS Configuration

This section covers setting up the CMOS configuration data for the I-2000 computer.

Step 1: Turn on the power switch of the system unit and wait while the system performs its Power-On-Self-Test (POST) routines. When the tests are complete, the system will beep. Immediately press the [Alt] [Ctrl] [Insert] keys all at the same time to enter the CMOS setup screen.

Step 2: The CMOS parameters should be set as indicated below. If they are not, follow the instructions at the bottom of the screen to change the indicated (**bold**) values.

Time:	<i>Current Time</i>						
Date:	<i>Current Date</i>						
Floppy Disk A:	3.5 Inch, 1.44 Mb						
Floppy Disk B:	Not Installed						
		Cyl.	Hd.	Pre.	LZ	Sec.	Size(Mb)
Hard Disk 1:	Type 33	1021	5	-1	1022	34	84
Hard Disk 2:	Not Installed						
Base Memory:	512KB						
Extended Memory:	7168 KB						
Display:	VGA/EGA						
Keyboard:	INSTALLED						
CPU Speed:	Fast						

Coprocessor: **Not Installed**

Step 3: Press the [Page/Down] key to enter the advanced setup options screen. The parameters on this screen should be set as indicated below. If they are not, follow the instructions at the bottom of the screen to change the indicated (**bold**) values.

Shadow BIOS 30M:	System and Video BIOS	
CACHE Memory:	Enabled	
ROM BIOS Map Address:	1 MB	
Speaker:	Enabled	
Base Memory Above 512K:	Disabled	
Enter SETUP:	Pre-boot	
ConsoleRedirectiontoCOM1:	Disabled	COM2: Disabled
Password:	Not Installed	

Step 4: Press the [F10] key and the system will save the new settings and reboot.

8.11 Installing the UNIX(R) Operating System

This section covers installing the basic UNIX(R) operating system and the various required add-on packages associated with it.

Step 1: Locate diskette #1 of the UNIX(R) System Foundation Set. Be sure that the write protect tab is positioned to cover the notch in the diskette case to allow writing to the diskette. Insert the diskette in the floppy disk drive and press the RESET button on the system unit.

Step 2: When the system requests it, press the [Enter] key then type "y [Enter]" to allow installation of the UNIX System. If you are asked whether this is to be a new installation or a release upgrade, type "n [Enter]" to select new.

Step 3: (If the system's hard disk has never been partitioned before, the system will recommend that the drive be partitioned as 10% DOS and 90% UNIX. If this happens, type "n [Enter]". The system will move on to the Partitioning screen.) When the Partitioning screen appears, do *one* of the following:

-- If there is a single active UNIX partition which uses 100% of the drive's capacity listed on the screen, type "5 [Enter]" to select Option 5 which will cancel and exit the Partitioning screen. Proceed to Step 4.

-- If there are one or more partitions listed on the screen, but not one which is UNIX, active and uses 100% of the drive, for each listed partition type "3 [Enter]" and follow the instructions to delete it, then

-- If there are no partitions listed on the screen, type:
"1 [Enter]" to select Option 1,
"1 [Enter]" for a UNIX partition,
"100 [Enter]" to use 100% of the drive,
"y [Enter]" to make it active,
"4 [Enter]" to select option 4 to exit the partitioning screen and update the system.

- Step 4:* When the system says it will do a surface analysis, type "[Enter]" to allow it to proceed. The analysis will take about 10 minutes.
- Step 5:* When asked if the disk allocations are acceptable, type "n [Enter]".
- Step 6:* When asked if you want separate /root and /usr file systems, type "y [Enter]".
- Step 7:* When asked if you want a separate /usr2 file system, type "n [Enter]".
- Step 8:* When asked if you want a separate crash/dump area, type "n [Enter]".
- Step 9:* When asked how many cylinders to use for swap/paging, type "122 [Enter]"
- Step 10:* When asked how many cylinders to use for /root, type "240 [Enter]".
- Step 11:* When asked if the allocations are acceptable, type "y [Enter]".
- Step 12:* After a few minutes, the machine will ask you to remove the diskette and press a key. Do it.
- Step 13:* The machine will shutdown and say "Reboot the System Now". Press the RESET button on the front of the system unit.
- Step 14:* After rebooting, the machine will request diskette #2 of the Foundation set, then diskette #3, and so on. Follow the instructions on the screen and

insert and remove diskettes as requested.

NOTE:

Some versions of UNIX have the labels on diskettes #6 and #7 interchanged. If diskette #6 is rejected when you insert it, try using #7 instead. If this works, use diskette #6 when you are asked for #7.

Step 15: The machine will request a password for the "root" login. Enter one and repeat it when asked. Do the same for the "install" login when asked. It is important to remember these passwords for future use and also to keep them secure.

Step 16: The operating system will be built and the machine will shutdown. Remove the diskette from the drive and press [Enter] if requested to allow shutdown to proceed. Press the RESET button on the front of the system unit when asked to "Reboot the system now".

Step 17: The "login:" prompt will appear. Type "root [Enter]". When asked for a password, enter the one chosen in step 15, above.

Step 18: For each of the following add-on packages, type "installpkg [Enter]" and follow the prompts on the screen. Be sure to install them in the order shown.

-- *Editing Package*

-- *Remote Terminal Package*

NOTE:

Type "1 [Enter]" to select Option 1
(install files)

Type "all [Enter]" to choose all files

Type "done [Enter]" and "0 [Enter]" to
terminate the installation.

-- *Network Support (or "Supplemental") Utilities*

NOTE:

The operating system will be rebuilt. Press [Enter] when asked to allow the machine to shutdown. When the "Reboot the system now" message appears, press the RESET button on front of the system unit and then login again as "root" and proceed.

-- FACE Help

NOTE:

Type "4 [Enter]" to select all files
Type "5 [Enter]" to terminate the
installation.

-- FACE

NOTE:

Ignore the warning about FMLI not being
installed and press [Enter] to continue.

-- FMLI

-- Version 2.2 to Version 2.3 Upgrade

NOTE:

The operating system will be rebuilt, the
machine will shutdown, and you will be
prompted to reboot the system. Press the
RESET button on front of the system unit
and then login again as "root" and
proceed.

8.12 Configuring the ASY Driver

This section covers reconfiguring the UNIX asy driver so that
interrupt 4 can be used for an IPC-900 board.

Step 1: Open the sdevice file for editing by typing the
following line:
vi /etc/conf/cf.d/sdevice [Enter]

Step 2: The first two lines of the file should look as
follows:

```
asy  Y  1  7  1  4  3f8  3ff  0  0
asy  Y  1  7  1  3  2f8  2ff  0  0
```

Step 3: If the two lines are present, make sure that the
cursor is on the first line - move it with the
arrow keys, if necessary. Delete the line by
pressing the "d" key twice. Then save the file by
holding down the [Shift] key and pressing the "z"
key twice.

Step 4: If only one line is present, make sure that it is
the same as the second line shown above (the line
with "3" and 2f8" in it). Make any necessary

changes by moving the cursor under the character to be changed with the arrow keys and typing "r" and then the correct character. Save the file and exit the editor by holding down the [Shift] key and pressing the "z" key twice.

Step 5: Open the asy file for editing by typing the following line:
vi /etc/conf/sdevice.d/asy [Enter]

Step 6: The first two lines of this file should also look as follows:

```
asy   Y   1   7   1   4   3f8   3ff   0   0
asy   Y   1   7   1   3   2f8   2ff   0   0
```

Step 7: If the two lines are present, make sure that the cursor is on the first line - move it with the arrow keys, if necessary. Delete the line by pressing the "d" key twice. Then save the file by holding down the [Shift] key and pressing the "z" key twice.

Step 8: If only one line is present, make sure that it is the same as the second line shown above (the line with "3" and 2f8" in it). Make any necessary changes by moving the cursor under the character to be changed with the arrow keys and typing "r" and then the correct character. Save the file and exit the editor by holding down the [Shift] key and pressing the "z" key twice.

Step 9: Type the following lines exactly as shown (no spaces before or after [Tab] or [Enter]):

```
rm /dev/tty0* [Enter]
echo "asy [Tab] tty01 [Tab] c [Tab] 0">/etc/conf/node.d/asy [Enter]
echo "asy [Tab] tty01s [Tab] c [Tab] 0">>/etc/conf/node.d/asy [Enter]
echo "asy [Tab] tty01h [Tab] c [Tab] 128">>/etc/conf/node.d/asy [Enter]
```

8.13 Installing the I/O Driver Software

8.13.1 General

This section covers installing the driver software required for the I/O board. The procedures are different for the IMX Port/8 board and the IPC-900 board. Follow the appropriate procedure below.

8.13.2 IMX Port/8 Board

Step 1: Insert the *ACE Driver Software* diskette and type "installpkg [Enter]"

- Step 2: Follow the prompts. The operating system will be rebuilt and the machine will shut down.
- Step 3: Press the RESET button on the front of the system unit when the machine says "Reboot the system now".
- Step 4: After the machine reboots, login again as "root".

8.13.3 IPC-900 Board

- Step 1: Insert the *IPC UNIX System 802/900*, Version 4.2 or newer, diskette and type "installpkg [Enter]"
- Step 2: Follow the prompts. When asked how many boards will be installed, type "1 [Enter]"
- Step 3: When asked what type of board, press [Enter] to select the default IPC-900.
- Step 4: When asked what interrupt to use, type "15 [Enter]"
- Step 5: When asked what I/O address to use, type "2a0 [Enter]".
- Step 6: When asked what memory address to use, type "c8000 [Enter]".
- Step 7: When asked if the values are acceptable, type "y [Enter]":
- Step 8: The operating system will be rebuilt. When prompted, remove the diskette from the drive and press [Enter] to start a shutdown. When the message "Reboot the system now" appears, press the RESET button on the front of the system unit.

Installation of your I-2000 hardware and system software is now complete. Proceed with Chapter 4, "Database and I-2000 Software Installation", to install the Informix Database and I-2000 Application software.

9. APPENDIX A2 - AT&T 6386/25 WGS COMPUTER WITH 16 MB MEMORY (ENHANCED DCT 2.0)

9.1 Required Hardware

- o AT&T 6386/25 WGS Computer, equipped with 4 Mb of RAM, 80 Mb Hard Disk, and 1.44 Mb Floppy Disk
- o 4 additional 1MX9 SIMMs installed on system board
- o Memory Expansion Board with 4 Mb RAM installed
- o 4 additional 1MX9 SIMMs installed on Memory Expansion Board (16 Mb total system memory)
- o 101 Key Keyboard
- o VDC600 Video Display Board
- o 125 Mb Streaming Tape Unit
- o 323/324 Monochrome or 329D Color VGA Monitor
- o One or two IPC-900 Serial Port Board(s)
- o Cables and Adapters for connection to I/O board(s), as required
- o Optional AT&T 570 Printer and cable

9.2 Required Software

- o *AT&T UNIX(R) Operating System V/386, R 3.2.3, 16 user package, consisting of:*
 - *V 2.2 Base System (7 diskettes)*
 - *Editing Package*
 - *Remote Terminal Package*
 - *Network Support (or Supplemental) Utilities*
 - *FACE Help Package*
 - *FACE Package (2 diskettes)*
 - *FMLI Package*
 - *V 2.2 to 2.3 Upgrade (2 diskettes)*

- o *IPC UNIX(R) System 802/900 Software*

NOTE:

Version 4.1 of the *IPC UNIX(R) System 802/900* software may be defective and may not install properly. Use only version 4.2 or newer. Contact your AT&T representative to obtain the new software.

- o Cartridge Tape Utilities Q60/125(supplied with the Tape Unit)
- o Three Informix database packages, each with diskette(s) and Serial Number/Key card:

- Informix *SE, V4.10*

- Informix *SQL, V 4.10*

- Informix *ESQL/C (runtime), V 4.10*

- o *I-2000 Program Diskettes*
- o *I-2000 Enable Features Diskette*

NOTE:

The following packages may have been delivered with the *UNIX(R) Operating System*, but are **NOT** required and **SHOULD NOT BE INSTALLED:**

- o *Maintenance Upgrade #3*
- o *Remote File Sharing Package*
- o *Remote File Sharing Management Package*
- o *Two Kilobyte File System Package*
- o *Xenix(R) File System Package*
- o *Encryption (or Security Administration) Package*

9.3 Configuring The System Unit

This section covers setting jumpers and installing memory on the main system board of the I-2000 computer.

- Step 1:* Make sure that the computer power cord is NOT connected and that the key lock is in the unlocked position. Remove the cover of the computer system unit by loosening the 5 rear panel screws and sliding the cover forward. Be careful that the top of the cover does not catch on any internal cabling. For more details, see the "Expansion"

section of the *6386/25 WGS User's Guide*.

Step 2: Install the 4 additional 1 Mb memory modules (SIMMs) on the system board in sockets J13 and J14 per the instructions in the "Expansion" section of the *User's Guide*. Be sure to follow the suggested precautions regarding static electricity. This will result in a total of 8 Mb of memory on the system board. Arrange the jumper blocks on the system board so that pin E60 is connected to E62 and pin E61 is connected to E63.

Step 3: Unpack the Memory Expansion Board and install the 4 additional 1 Mb memory modules (SIMMs) in sockets U11 and U12 per the instructions in the "Expansion" section of the *User's Guide*. This will result in a total of 8 Mb of memory on the Memory Expansion Board. Arrange the jumper blocks on the Memory Expansion Board so that pin E17 is connected to pin E18 and pin E19 is connected to E20. Install the Memory Expansion Board into slot 7 (J7) of the system according to the instructions in the *User's Guide*.

Step 4: Remove the jumper which connects system board pin E22 to E23 (Factory Default) and replace it so that it connects pin E23 to E24. This disables the COM1 serial port. Verify that the following system board pins are connected by jumpers (all are Factory Defaults):

- E41 to E42 (selects VGA Display Type)
- E17 to E18 (selects Printer acknowledge)
- E13 to E14 and E20 to E21 (enable printer as LPT1)
- E25 to E26 (enable COM2)
- E38 to E39 (normal password operation)

Step 5: Unpack the VDC600 Video Controller board. Verify that the switches on the rear panel and jumpers on the board are set to the Factory Defaults:

- Switch 1 and 3: OFF
- Switch 2 and 4: ON
- Jumper W1: Installed

-- Jumper W2: Connecting pins 1 and 2

Step 6: Install the VDC600 board into slot 1 (J1) of the system per the instructions in the "Installing Your System" section of the *User's Guide*.

9.4 Installing the Tape Drive

Refer to the instructions in the "Expansion" section of the *User's Guide* for more detail on the following procedure.

Step 1: Unpack the Streaming Tape Unit. Verify that the following factory default settings for the tape controller board are correctly set:

-- Switch 1,2,4,5,6 and 8: CLOSED (On)

-- Switch 3,7,9 and 10: OPEN (off)

-- IRQ jumper: 5

-- DRQ jumper: 1

-- DACK jumper: 1

Step 2: Connect the flat data cable to the tape controller board connector J2 and install the controller board into slot 4 (J4) of the system unit.

Step 3: Remove the gray faceplate from the tape drive by removing the two small screws on either side and install the cream colored faceplate using the same two screws.

Step 4: Attach the mounting rails to the sides of the tape drive. Use the screws supplied with the drive but use the spare mounting rails supplied with the system unit, not the rails supplied with the tape drive. Use the J-H and C-B holes in the mounting rails for correct drive alignment.

Step 5: Remove the two screws holding the cover plate over the bottom drive bay of the system unit. Slide the tape drive into the bottom drive bay and fasten it in place with the two screws. Connect a ground wire, a power connector, and the data cable to the tape drive as shown in the *User's Guide*. Remove the plastic filler from the tape drive by pushing it in, then pulling it out.

9.5 Installing the I/O Boards

This section describes how to set the configuration switches and jumpers on each I/O board and how to install these boards into the system unit. Either one or two IPC-900 serial port boards may be used in this configuration of the I-2000 system. Repeat the following procedure once for each board. See the "Expansion" section of the system unit User's Guide and the "Hardware Installation" section of the IPC-900 User's Guide for more details on this procedure.

Step 1: Set the board I/O address, using DIP switch SW1 which is located in the lower part of the board on the end opposite the mounting bracket, as follows:

- First Board (290): positions 1,3,4,6 and 8 to ON, positions 2,5 and 7 to OFF
- Second Board (2A0): positions 1,2,4,6 and 8 to ON, positions 3, 5 and 7 to OFF

Step 2: Set the board memory address, using DIP switch SW2 which is located in the lower, middle part of the board, as follows:

- First Board (CC000): positions 1,2,5 and 6 to ON, positions 3,4, 7 and 8 to OFF
- Second Board (C8000): positions 1,2,3,5 and 6 to ON, positions 4, 7 and 8 to OFF

Step 3: Set the board interrupt by placing a jumper across the appropriate IRQ pins in the lower, middle part of the board (only one IRQ jumper should be installed) as follows:

- First Board (4): IRQ4
- Second Board (15): IRQ15

Step 4: Install the board into the slot of the system unit indicated below after removing the slot cover bracket and screw. Replace the screw to secure the board.

- First Board: slot 3 (J3)
- Second Board: slot 6 (J6)

Step 5: Install the T-adapter for the board by pushing it firmly onto the connector on the rear of the board. Be sure the locator pins on the T-adapter line up with the holes in the board's connector.

9.6 Reinstall the System Unit Cover

Slide the system unit cover onto the unit from the front, being careful that no internal cabling catches on the cover. Tighten the 5 retaining screws on the rear panel.

9.7 Connect the Monitor

Step 1: Connect the monitor's data cable to the connector on the VDC600 board in the system unit. Secure the cable by screwing in the retaining screws on the cable connector.

Step 2: Connect the monitor's power cable to the AC power socket on the rear of the system unit.

9.8 Connect the Keyboard

Connect the keyboard cable to the appropriate connector on the rear of the system unit.

9.9 Connect the Printer

If your configuration includes a printer, complete the following steps:

Step 1: Connect the printer data cable to the rear of the printer and to the Parallel connector on the rear of the system unit.

Step 2: Connect the printer power cable to the rear of the printer (if necessary) and to an AC outlet.

9.10 Connect the Computer to AC Power

Make sure that the computer's main power switch is in the OFF position and then connect the computer's power cord to the rear of the system unit and to an AC outlet.

9.11 Set the Computer CMOS Configuration

This section covers setting up the CMOS configuration data for the I-2000 computer.

Step 1: Turn on the power switch of the system unit and wait while the system performs its Power-On-Self-Test (POST) routines. When the tests are complete, the system will beep. Immediately press the [Alt] [Ctrl] [Insert] keys all at the same time to enter the CMOS setup screen.

Step 2: The CMOS parameters should be set as indicated below. If they are not, follow the instructions at the bottom of the screen to change the indicated (**bold**) values.

```

Time:           Current Time
Date:           Current Date
Floppy Disk A:  3.5 Inch, 1.44 Mb
Floppy Disk B:  Not Installed

Cyl.  Hd.  Pre.  LZ  Sec.  Size(Mb)
Hard Disk 1:   Type 33    1021  5   -1   1022  34    84
Hard Disk 2:   Not Installed
Base Memory:   512KB
Extended Memory: 15360 KB
Display:       VGA/EGA
Keyboard:      INSTALLED
CPU Speed:     Fast
Coprocessor:   Not Installed
    
```

Step 3: Press the [Page Down] key to enter the advanced setup options screen. The parameters on this screen should be set as indicated below. If they are not, follow the instructions at the bottom of the screen to change the indicated (**bold**) values.

```

Shadow BIOS ROM:      System and Video BIOS
CACHE Memory:         Enabled
ROM BIOS Map Address: 1 MB
Speaker:              Enabled
Base Memory Above 512K: Disabled
Enter SETUP:          Pre-boot
Console Redirection to COM1: Disabled      COM2: Disabled
Password:             Not Installed
    
```

Step 4: Press the [F10] key and the system will save the new settings and reboot.

9.12 Installing the UNIX(R) Operating System

This section covers installing the basic UNIX(R) operating system and the various required add-on packages associated with it.

Step 1: Locate diskette #1 of the UNIX(R) System Foundation Set. Be sure that the write protect tab is positioned to cover the notch in the diskette case to allow writing to the diskette. Insert the diskette in the floppy disk drive and press the RESET button on the system unit.

- Step 2:* When the system requests it, press the [Enter] key then type "y [Enter]" to allow installation of the UNIX(R) System. If you are asked whether this is a new installation or a release upgrade, type "n [Enter]" to select new.
- Step 3:* (If the system's hard disk has never been partitioned before, the system will recommend that the drive be partitioned as 10% DOS and 90% UNIX(R). If this happens, type "n [Enter]". The system will move on to the Partitioning screen.) When the Partitioning screen appears, do one of the following:
- *If there is a single active UNIX(R) partition which uses 100% of the drive's capacity listed on the screen, type "5 [Enter]" to select Option 5 which will cancel and exit the Partitioning screen.*
 - *If there are one or more partitions listed on the screen, but not one which is UNIX(R), active and uses 100% of the drive, for each listed partition type "3 [Enter]" and follow the instructions to delete it, then*
 - *If there are no partitions listed on the screen, type:
"1 [Enter]" to select Option 1,
"1 [Enter]" for a UNIX(R) partition,
"100 [Enter]" to use 100% of the drive,
"y [Enter]" to make it active,
"4 [Enter]" to select option 4 to exit the partitioning screen and update the system.*
- Step 4:* When the system says it will do a surface analysis, type "[Enter]" to allow it to proceed. The analysis will take about 10 minutes.
- Step 5:* When asked if the disk allocations are acceptable, type "n [Enter]".
- Step 6:* When asked if you want separate /root and /usr file systems, type "y [Enter]".
- Step 7:* When asked if you want a separate /usr2 file system, type "n [Enter]".
- Step 8:* When asked if you want a separate crash/dump area, type "n [Enter]".

- Step 9:* When asked how many cylinders to use for swap/paging, type "122 [Enter]"
- Step 10:* When asked how many cylinders to use for /root, type "240 [Enter]".
- Step 11:* When asked if the allocations are acceptable, type "y [Enter]".
- Step 12:* After a few minutes, the machine will ask you to remove the diskette and press a key. Do it.
- Step 13:* The machine will shutdown and say "Reboot the System Now". Press the RESET button on the front of the system unit.
- Step 14:* After rebooting, the machine will request diskette #2 of the Foundation set, then diskette #3, and so on. Follow the instructions on the screen and insert and remove diskettes as requested.

NOTE:

Some versions of UNIX(R) have the labels on diskettes #6 and #7 interchanged. If diskette #6 is rejected when you insert it, try using #7 instead. If this works, use diskette #6 when you are asked for #7.

- Step 15:* The machine will request a password for the "root" login. Enter one and repeat it when asked. Do the same for the "install" login when asked. It is important to remember these passwords for future use and also to keep them secure.
- Step 16:* The operating system will be built and the machine will shutdown. Remove the diskette from the drive and press [Enter] if requested to allow the shutdown to proceed. Press the RESET button on the front of the system unit when asked to "Reboot the system now".
- Step 17:* The "login:" prompt will appear. Type "root [Enter]". When asked for a password, enter the one chosen in step 15, above.
- Step 18:* For each of the following add-on packages, type "installpkg [Enter]" and follow the prompts on the screen. Be sure to install them in the order shown.

-- *Editing Package*

-- *Remote Terminal Package*

NOTE:

Type "1 [Enter]" to select Option 1
(install files)
Type "all [Enter]" to choose all files
Type "done [Enter]" and "0 [Enter]" to
terminate the installation.

-- *Network Support (or "Supplemental") Utilities*

NOTE:

The operating system will be rebuilt.
Press [Enter] when asked to allow the
machine to shutdown. When the "Reboot the
system now" message appears, press the
RESET button on front of the system unit
and then login again as "root" and
proceed.

-- FACE Help

NOTE:

Type "4 [Enter]" to select all files
Type "5 [Enter]" to terminate the
installation.

-- FACE

NOTE:

Ignore the warning about FMLI not being
installed and press [Enter] to continue.

-- *FMLI*

-- *Version 2.2 to Version 2.3 Upgrade*

NOTE:

The operating system will be rebuilt, the
machine will shutdown, and you will be
prompted to reboot the system. Press the
RESET button on front of the system unit
and then login again as "root" and
proceed.

-- *Cartridge Tape Utilities Q60/125*

NOTE:

When asked which interrupt to use, type "5
[Enter]". Press "[Enter]" when asked to
allow the operating system to be rebuilt,

and again to allow the machine to shutdown. When the "Reboot the system now" message appears, press the RESET button on front of the system unit, then login again as "root" and proceed.

9.13 Configuring the ASY Driver

This section covers reconfiguring the UNIX(R) asy driver so that interrupt 4 can be used for an IPC-900 board.

Step 1: Open the sdevice file for editing by typing the following line:

```
vi /etc/conf/cf.d/sdevice [Enter]
```

Step 2: The first two lines of the file should look as follows:

```
asy   Y   1   7   1   4   3f8   3ff   0   0
asy   Y   1   7   1   3   2f8   2ff   0   0
```

Step 3: If the two lines are present, make sure that the cursor is on the first line - move it with the arrow keys, if necessary. Delete the line by pressing the "d" key twice. Then save the file by holding down the [Shift] key and pressing the "z" key twice.

Step 4: If only one line is present, make sure that it is the same as the second line shown above (the line with "3" and 2f8" in it). Make any necessary changes by moving the cursor under the character to be changed with the arrow keys and typing "r" and then the correct character. Save the file and exit the editor by holding down the [Shift] key and pressing the "z" key twice.

Step 5: Open the asy file for editing by typing the following line:

```
vi /etc/conf/sdevice.d/asy [Enter]
```

Step 6: The first two lines of this file should also look as follows:

```
asy   Y   1   7   1   4   3f8   3ff   0   0
asy   Y   1   7   1   3   2f8   2ff   0   0
```

Step 7: If the two lines are present, make sure that the cursor is on the first line - move it with the arrow keys, if necessary. Delete the line by

pressing the "d" key twice. Then save the file by holding down the [Shift] key and pressing the "z" key twice.

Step 8: If only one line is present, make sure that it is the same as the second line shown above (the line with "3" and 2f8" in it). Make any necessary changes by moving the cursor under the character to be changed with the arrow keys and typing "r" and then the correct character. Save the file and exit the editor by holding down the [Shift] key and pressing the "z" key twice.

Step 9: Type the following lines exactly as shown (no spaces before or after [Tab] or [Enter]):

```
rm /dev/tty0* [Enter]
echo "asy [Tab] tty01 [Tab] c [Tab] 0">/etc/conf/node.d/asy [Enter]
echo "asy [Tab] tty01s [Tab] c [Tab] 0">>/etc/conf/node.d/asy [Enter]
echo "asy [Tab] tty01h [Tab] c [Tab] 128">>/etc/conf/node.d/asy [Enter]
```

9.14 Installing the I/O Driver Software

This section covers installing the driver software required for the IPC-900 I/O board(s).

Step 1: Insert the *IPC UNIX(R) System 802/900*, Version 4.2 or newer, diskette and type "installpkg [Enter]"

Step 2: Follow the prompts. When asked how many boards will be installed, type "1 [Enter]" or "2 [Enter]", as appropriate.

Step 3: When asked what type of board, press [Enter] to select the default IPC-900.

Step 4: When asked what interrupt to use, type "4 [Enter]":

Step 5: When asked what I/O address to use, type "290 [Enter]".

Step 6: When asked what memory address to use, type "cc000 [Enter]".

Step 7: When asked if the values are acceptable, type "y [Enter]":

Step 8: If a second board has been installed, repeat steps 3 through 7 for the second board, entering the following:

```
-- interrupt 15  
  
-- I/O address 2a0  
  
-- memory address c8000
```

Step 9: The operating system will be rebuilt. When prompted, remove the diskette from the drive and press [Enter] to start a shutdown. When the message "Reboot the system now" appears, press the RESET button on the front of the system unit.

Step 10: After the machine reboots, login again as "root".

Installation of your I-2000 hardware and system software is now complete. Proceed with Chapter 4, "Database and I-2000 Software Installation", to install the Informix Database and I-2000 Application software.

10. APPENDIX A3 - AT&T 6386/33 WGS COMPUTER

10.1 Required Hardware

- o AT&T 6386/33 WGS Computer, equipped with 4 Mb of RAM, 135 Mb Hard Disk, and 1.44 Mb Floppy Disk
- o Four additional 1MX9 SIMMs installed on system board
- o Memory Expansion Board with 4 Mb RAM installed
- o Four additional 1MX9 SIMMs installed on Memory Expansion Board (16 Mb total system memory)
- o 101 Key Keyboard
- o VDC600 Video Controller Board
- o 125 Mb Streaming Tape Unit
- o Monochrome or Color VGA Monitor
- o One or two IPC-900 or one, two or three IPC-1600 Serial Port Board(s)
- o Optional one, two or three GPSC-AT/E X.25 Port Board(s)
- o Cables and Adapters for connection to I/O board(s), as required
- o Optional Parallel Dot Matrix Printer and cable

10.2 Required Software

- o *AT&T (or NCR) UNIX(R) Operating System V/386, R 3.2.3, 16 user package, consisting of:*
 - *V 2.3 Base System (7 diskettes)*
 - *Editing Package*
 - *Remote Terminal Package*
 - *Network Support (or Supplemental) Utilities*
 - *FACE Package*
 - *FACE Help Package*
 - *FMLI Package*

365-301-423

-- Maintenance Disk #1

-- 2 User to 16 User Upgrade Package

- o *IPC UNIX(R) System 802/900 Software* or *IPC-1600 UNIX(R) System V/386 Software, V1.0* or *V1.1* (supplied with the IPC boards)

NOTE:

Version 4.1 of the *IPC UNIX(R) System 802/900* software may be defective and may not install properly. Use only Version 4.2 or newer. Contact your AT&T representative to obtain the new software.

- o *AT&T (or NCR) Network Interface Software* (for GPS-AT/E boards)
- o *Cartridge Tape Utilities Q60/125* (supplied with the Tape Unit)
- o Three Informix database packages, each with diskette(s) and Serial Number/Key card:
 - Informix *SE, V4.10*
 - Informix *SQL, V 4.10*
 - Informix *ESQL/C (runtime), V 4.10*
- o *I-2000 Program* diskettes
- o *I-2000 Enable Features* diskette

NOTE:

The following packages may have been delivered with the *UNIX(R) Operating System*, but are **NOT** required and **SHOULD NOT BE INSTALLED:**

- o *Base System, Diskette 1A*
- o *Remote File Sharing Package*
- o *Remote File Sharing Management Package*
- o *2 Kilobyte File System Package*
- o *Xenix(R) File System Package*
- o *Encryption (or Security Administration) Package*

10.3 Configuring The System Unit

This section covers setting jumpers and installing memory on the main system board of the I-2000 computer.

Step 1: Make sure that the computer power cord is NOT connected and that the key lock is in the unlocked position. Remove the I/O Access cover by pulling up on the top rear of the unit. Remove the system unit cover by loosening the single screw at the bottom front of the unit and sliding the cover forward. Remove the four screws holding the card cage cover in place and slide it up and forward to remove it. Remove the retaining screw for the Disk Controller board in slot 10 and remove the controller board (leave all cables attached). Remove the air deflector by carefully pulling it outward. For more details, see the "Expansion" section of the *6386/33 WGS User's Guide*.

Step 2: Install the 4 additional 1 Mb memory modules (SIMMs) on the system board in sockets J16 and J17 per the instructions in the "Expansion" section of the *User's Guide*. Be sure to follow the suggested precautions regarding static electricity. This will result in a total of 8 Mb of memory on the system board. Arrange the jumper blocks on the system board so that pin E6 is connected to E8 and pin E7 is connected to E9.

Step 3: Unpack the Memory Expansion Board and install the 4 additional 1 Mb memory modules (SIMMs) in sockets U11 and U12 per the instructions in the "Expansion" section of the *User's Guide*. This will result in a total of 8 Mb of memory on the Memory Expansion Board. Arrange the jumper blocks on the Memory Expansion Board so that pin E17 is connected to pin E18 and pin E19 is connected to E20. Install the Memory Expansion Board into slot 8 (J8) of the system according to the instructions in the *User's Guide*.

Step 4: Remove the jumper that connects system board pin E31 to E32 (Factory Default) and replace it so that it connects pin E32 to E33. This disables the COM1 serial port. Verify that the following system board pins are connected by jumpers (all are Factory Defaults):

- E38 to E39 (selects VGA Display Type)
- E47 to E48 (selects Printer acknowledge)
- E25 to E26 and E29 to E30 (enable printer LPT1, disable printer LPT2)
- E34 to E35 (enable COM2)

- E22 to E23 (normal password operation)
- Step 5:* Replace the air deflector by carefully placing it into position. Reinstall the Disk Controller board in slot 10 and fasten it in place with the retaining screw. For more details, see the "Expansion" section of the *6386E/33 WGS User's Guide*.
- Step 6:* Unpack the VDC600 Video Controller board. Verify that the switches on the rear panel and jumpers on the board are set to the Factory Defaults:
 - Switch 1 and 3: OFF
 - Switch 2 and 4: ON
 - Jumper W1: Installed
 - Jumper W2: Connecting pins 1 and 2
- Step 7:* Install the VDC600 board into slot 9 (J9) of the system per the instructions in the "Installing Your System" section of the *User's Guide*.

10.4 Installing the Tape Drive

Refer to the instructions in the "Expansion" section of the User's Guide for more detail on the following procedure.

- Step 1:* Unpack the Streaming Tape Unit. Verify that the following factory default settings for the tape controller board are correctly set:
 - Switch 1,2,4,5,6 and 8: CLOSED (on)
 - Switch 3,7,9 and 10: OPEN (off)
 - IRQ jumper: 5
 - DRQ jumper: 1
 - DACK jumper: 1
- Step 2:* Connect the flat data cable to the tape controller board, connector J2, and install the controller board into slot 5 (J5) of the system unit.
- Step 3:* Remove the gray faceplate from the tape drive by removing the two small screws on either side and

install the cream colored faceplate using the same two screws.

Step 4: Attach the mounting rails to the sides of the tape drive. Use the screws supplied with the drive but use the spare mounting rails supplied with the system unit, not the rails supplied with the tape drive. Use the K and D holes in the mounting rails for correct drive alignment.

Step 5: Remove the two screws that are on either side of the fourth drive bay down from the top, in the front of the system unit (immediately above the hard disk). Slide the tape drive into the drive bay and fasten it in place with the two screws. Connect a ground wire, a power connector, and the data cable from the tape controller to the tape drive as shown in the *User's Guide*. Remove the plastic filler from the tape drive by pushing it in and then pulling it out.

10.5 Installing the I/O Boards

10.5.1 General

This section describes how to set the configuration switches and jumpers on each I/O board and how to install these boards into the system unit. The particular combination of I/O boards to be installed may vary depending on the needs of the application, so the information presented here is generalized in order to cover all possible applications. Before starting this procedure, be sure to determine the exact number of each type of board to be used in your particular installation.

10.5.2 IPC-900 Boards

Either one or two IPC-900 serial port boards may be used in this configuration of the I-2000 system. Repeat the following procedure once for each board. See the "Expansion" section of the system unit *User's Guide* and the "Hardware Installation" section of the *IPC-900 User's Guide* for more details on this procedure.

Step 1: Set the board I/O address, using DIP switch SW1 which is located in the lower part of the board on the end opposite the mounting bracket, as follows:

- First Board (290): positions 1,3,4,6 and 8 to ON, positions 2,5 and 7 to OFF
- Second Board (2A0): positions 1,2,4,6 and 8 to ON, positions 3, 5 and 7 to OFF

365-301-423

- Step 2:* Set the board memory address, using DIP switch SW2 which is located in the lower, middle part of the board, as follows:
- First Board (CC000): positions 1,2,5 and 6 to ON, positions 3,4, 7 and 8 to OFF
 - Second Board (C8000): positions 1,2,3,5 and 6 to ON, positions 4, 7 and 8 to OFF
- Step 3:* Set the board interrupt by placing a jumper across the appropriate IRQ pins in the lower, middle part of the board (only one IRQ jumper should be installed) as follows:
- First Board (4): IRQ4
 - Second Board (15): IRQ15
- Step 4:* Install the board into the slot of the system unit indicated below after removing the slot cover bracket and screw. Replace the screw to secure the board.
- First Board: slot 6 (J6)
 - Second Board: slot 4 (J4)
- Step 5:* Install the T-adapter for the board by pushing it firmly onto the connector on the rear of the board. Be sure the locator pins on the T-adapter line up with the holes in the board's connector.

10.5.3 IPC-1600 Boards

As many as three IPC-1600 serial port boards may be used in this configuration of the I-2000 system. Repeat the following procedure once for each board. See the "Expansion" section of the system unit *User's Guide* and the "Hardware Installation" section of the *IPC-1600 User's Guide* for more details on this procedure.

- Step 1:* Set the board I/O address, using DIP switch DS1 which is located in the upper part of the board on the end opposite the mounting bracket, as follows:
- First Board (100): position 9 to ON, positions 10 and 11 to OFF
 - Second Board (110): position 10 to ON, position 9 and 11 to OFF
 - Third Board (120): positions 9 and 10 to ON,

position 11 to OFF

- Step 2:* Set the board memory address to 90000 (same for all IPC-1600 boards in a system) using DIP switch DS1, which is located in the upper part of the board on the end opposite the mounting bracket, by setting positions 2,3,5,6,7 and 8 to ON and positions 1 and 4 to OFF.
- Step 3:* Set the board interrupt to 4 (same for all IPC-1600 boards in a system) using DIP switch DS2, which is located in the same area of the board, by setting position 2 to ON and positions 1,3,4,5,6,7 and 8 to OFF.
- Step 4:* Connect the two ribbon cables to the 16-Ports Fanout Module, being sure to follow the labeling (*Ports 1-8* and *Ports 9-16*) and keying of connectors. Be sure that the retaining clips are securely attached.
- Step 5:* Remove the screw and slot cover for the appropriate system unit slot:
- First Board: slot 6 (J6)
 - Second Board: slot 3 (J3)
 - Third Board: slot 2 (J2)
- Step 6:* Observe the way the free ends (labeled *P3* and *P4*) of the ribbon cables will connect to the IPC-1600 board at headers *P3* and *P4* and feed them through the slot from the outside to the inside of the system unit so that they will not be twisted when the board is installed. Pull enough cable through to be able to connect them to the board. Install the slot cover plate with the rectangular opening (supplied with the IPC-1600 board) and replace the screw to secure it.
- Step 7:* Connect the cables to board headers *P3* and *P4* according to the labeling on the cables. Be sure to secure the retaining clips on each connector. Install the board into the connector of the system unit, being careful to guide the ribbon cables so they push back out through the slot cover opening and do not catch on the adjacent board. Secure the board by installing the two thumb-screw bolts through the slot cover from the outside of the system unit.

10.5.4 GPSC-AT/E Boards

As many as three GPSC-AT/E X.25 port boards may be used in this configuration of the I-2000 system. Repeat the following procedure once for each board. See the "Expansion" section of the system unit *User's Guide* and the "Hardware Installation" section of the *GPSC-AT/E Installation Guide* for more details on this procedure.

- Step 1:* Set the board I/O address to the appropriate value by installing jumpers on pin pairs 4 through 15 which are located in the center part of the board on the end near the mounting bracket, as follows:
- First Board (240): 4,5,7,8,10,11,12,13,14 and 15 installed, 6 and 9 NOT installed
 - Second Board (250): 5,7,8,10,11,12,13,14 and 15 installed, 4,6 and 9 NOT installed
 - Third Board (260): 4,7,8,10,11,12,13,14 and 15 installed, 5,6 and 9 NOT installed
- Step 2:* Enable Port B operation by installing a jumper on the pins labeled J5 in the upper middle part of the board.
- Step 3:* Configure Port B as DTE by installing the DIP shunt provided into the upper holes of the Port B jumper block in the upper part of the board on the end near the mounting bracket.
- Step 4:* Remove the screw and slot cover for the appropriate system unit slot:
- First Board: slot 1 (J1)
 - Second Board: slot 2 (J2)
 - Third Board: slot 3 (J3)
- Step 5:* Install the GPSC-AT/E board into the slot and replace the screw to secure it.
- Step 6:* Connect the 2-Port Y-cable to the connector on the rear of the GPSC-AT/E board and tighten the two hold-down screws.

10.6 Reinstall the System Unit Cover

Replace the card cage cover by hooking its top edge over the system unit chassis and guiding its bottom edge into the slot in the chassis.

Slide it backwards until the mounting holes line up correctly. Install the four screws to hold it in place. Reinstall the system unit cover by sliding it onto the unit from the front, being sure that the bottom of the cover fits correctly into the slots in the feet on the system unit. Tighten the single retaining screw at the bottom front of the unit. Reinstall the I/O access cover on the top rear of the unit. For more details, see the "Expansion" section of the 6386E/33 WGS User's Guide.

10.7 Connect the Monitor

Step 1: Connect the monitor's data cable to the connector on the VDC600 board in the I/O access area of the system unit. Secure the cable by screwing in the retaining screws on the cable connector.

Step 2: If appropriate, make sure that the monitor's voltage selection switch is correctly set for 110V or 220V. Connect the monitor's power cable to the AC power socket on the bottom, rear of the system unit or to an AC outlet, as appropriate.

10.8 Connect the Keyboard

Connect the keyboard cable to the appropriate connector on the panel in the I/O access area of the system unit.

10.9 Connect the Printer

If your configuration includes a printer, complete the following steps:

Step 1: Connect the printer data cable to the rear of the printer and to the LPT1 ("parallel") port in the I/O access area of the system unit.

Step 2: If appropriate, make sure that the printer's voltage selection switch is correctly set for 110V or 220V. Connect the printer power cable to the rear of the printer (if necessary) and to an AC outlet.

10.10 Connect the Computer to AC Power

Make sure that the computer's main power switch is in the OFF position and then connect the computer's power cord to the rear of the system unit and to an AC outlet.

10.11 Set the Computer CMOS Configuration

365-301-423

This section covers setting up the CMOS configuration data for the I-2000 computer.

Step 1: Turn on the power switch of the system unit and wait while the system performs its Power-On-Self-Test (POST) routines. When the tests are complete, the system will beep. Immediately press the [Alt] [Ctrl] [Insert] keys all at the same time to enter the CMOS setup screen.

Step 2: The CMOS parameters should be set as indicated below. If they are not, follow the instructions at the bottom of the screen to change the indicated (**bold**) values.

Time:	<i>Current Time</i>						
Date:	<i>Current Date</i>						
Floppy Disk A:	3.5 Inch, 1.44 Mb						
Floppy Disk B:	Not Installed						
		Cyl.	Hd.	Pre.	LZ	Sec.	Size(Mb)
Hard Disk 1:	Type 25	1021	8	-1	1023	34	135
Hard Disk 2:	Not Installed						
Base Memory:	512 KB (<i>cannot be changed here</i>)						
Extended Memory:	15360 KB						
Display:	VGA/EGA						
Keyboard:	INSTALLED						
CPU Speed:	Fast						
Coprocessor:	Not Installed						

Step 3: Press the [Page Down] key to enter the advanced setup options screen. The parameters on this screen should be set as indicated below. If they are not, follow the instructions at the bottom of the screen to change the indicated (**bold**) values.

Shadow BIOS ROM:	System and Video BIOS		
CACHE Memory:	Enabled		
ROM BIOS Map Address:	1 MB		
Speaker:	Enabled		
Base Memory Above 512K:	Disabled		
Enter SETUP:	Pre-boot		
Console Redirection to COM1:	Disabled	COM2:	Disabled
Password:	Not Installed		

Step 4: Press the [F10] key and the system will save the new settings and reboot.

10.12 Installing the UNIX(R) Operating System

This section covers installing the basic UNIX(R) operating system and the various required add-on packages associated with it.

- Step 1:** Locate diskette #1 of the UNIX(R) System Foundation Set. Be sure that the write protect tab is positioned to cover the notch in the diskette case to allow writing to the diskette. Insert the diskette in the floppy disk drive and press the RESET button on the front of the system unit.
- Step 2:** When the system requests it, press the [Enter] key then type "y [Enter]" to allow installation of the UNIX(R) System. If you are asked if this is to be a new installation or a release upgrade, type "n [Enter]" to select new.
- Step 3:** (If the system's hard disk has never been partitioned before, the system will recommend that the drive be partitioned as 10% DOS and 90% UNIX(R). If this happens, type "n [Enter]". The system will move on to the Partitioning screen.) When the Partitioning screen appears, do one of the following:
- *If there is a single active UNIX(R) partition which uses 100% of the drive's capacity listed on the screen, type "5 [Enter]" to select Option 5 which will cancel and exit the Partitioning screen. Proceed to Step 4.*
 - *If there are one or more partitions listed on the screen, but not one which is UNIX(R), active and uses 100% of the drive, for each listed partition type "3 [Enter]" and follow the instructions to delete it, then*
 - *If there are no partitions listed on the screen, type:
"1 [Enter]" to select Option 1,
"1 [Enter]" for a UNIX(R) partition,
"100 [Enter]" to use 100% of the drive,
"y [Enter]" to make it active,
"4 [Enter]" to select option 4 to exit the partitioning screen and update the system.*
- Step 4:** When the system says it will do a surface analysis, press "[Enter]" to allow it to proceed. The analysis will take about 10 minutes.

- Step 5:* When asked if the disk allocations are acceptable, type "n [Enter]".
- Step 6:* When asked if you want separate /root and /usr file systems, type "y [Enter]".
- Step 7:* When asked if you want a separate /usr2 file system, type "n [Enter]".
- Step 8:* When asked if you want a separate crash/dump area, type "n [Enter]".
- Step 9:* When asked how many cylinders to use for swap/paging, type "113 [Enter] "
- Step 10:* When asked how many cylinders to use for /root, type "208 [Enter]".
- Step 11:* When asked if the allocations are acceptable, type "y [Enter]".
- Step 12:* After a few minutes, the machine will ask you to remove the diskette and press a key. Do it.
- Step 13:* The machine will shutdown and say "Reboot the System Now". Press the RESET button on the front of the system unit.
- Step 14:* After rebooting, the machine will request diskette #2 of the Foundation set, then diskette #3, and so on. Follow the instructions on the screen and insert and remove diskettes as requested.

NOTE:

Some versions of UNIX(R) have the labels on diskettes #6 and #7 interchanged. If diskette #6 is rejected when you insert it, try using #7 instead. If this works, use diskette #6 when you are asked for #7.

- Step 15:* The machine will request a password for the "root" login. Enter one and repeat it when asked. Do the same for the "install" login when asked. It is important to remember these passwords for future use and also to keep them secure.

Step 16: The operating system will be built and the machine will shutdown. Remove the diskette from the drive and press [Enter] if requested to allow the shutdown to proceed. Press the RESET button on the front of the system unit when asked to "Reboot the system now".

Step 17: The "login:" prompt will appear. Type "root [Enter]". When asked for a password, enter the one chosen in step 15, above.

Step 18: For each of the following add-on packages, type "installpkg [Enter]" and follow the prompts on the screen. Be sure to install them in the order shown.

-- *Editing Package*

-- *Remote Terminal Package*

NOTE:

Type "1 [Enter]" to select Option 1 (install files)

Type "all [Enter]" to choose all files

Type "done [Enter]" and "0 [Enter]" to terminate the installation.

-- *Network Support (or "Supplemental") Utilities*

NOTE:

The operating system will be rebuilt. Press [Enter] when asked to allow the machine to shutdown. When the "Reboot the system now" message appears, press the RESET button on front of the system unit and then login again as "root" and proceed.

-- *FACE Help*

NOTE:

Type "4 [Enter]" to select all files

Type "5 [Enter]" to terminate the installation.

-- *FACE*

NOTE:

Ignore the warning about FMLI not being installed and press [Enter] to continue.

-- *FMLI*

-- *Maintenance Disk No. 1*

NOTE:

The operating system will be rebuilt. Press [Enter] when asked to allow the machine to shutdown. When the "Reboot the system now" message appears, press the RESET button on front of the system unit and then login again as "root" and proceed.

-- *2 User to 16 User Upgrade Package*

NOTE:

The operating system will be rebuilt. Press [Enter] when asked to allow the machine to shutdown. When the "Reboot the system now" message appears, press the RESET button on front of the system unit and then login again as "root" and proceed.

-- *Cartridge Tape Utilities Q60/125*

NOTE:

When asked which interrupt to use, type "5 [Enter]". Press " [Enter]" when requested to allow the operating system to be rebuilt, and again to allow the machine to shutdown. When the "Reboot the system now" message appears, press the RESET button on front of the system unit and then login again as "root" and proceed.

10.13 Configuring the ASY Driver

This section covers reconfiguring the UNIX(R) asy driver so that interrupt 4 can be used for an IPC-900 board.

Step 1: Open the sdevice file for editing by typing the following line:

```
vi /etc/conf/cf.d/sdevice [Enter]
```

Step 2: The first two lines of the file should look as follows:

```
asy    Y    1    7    1    4    3f8    3ff    0    0
asy    Y    1    7    1    3    2f8    2ff    0    0
```

Step 3: If the two lines are present, make sure that the cursor is on the first line - move it with the arrow keys, if necessary. Delete the line by pressing the "d" key twice. Then save the file by holding down the [Shift] key and pressing the "z" key twice.

Step 4: If only one line is present, make sure that it is the same as the second line shown above (the line with "3" and 2f8" in it). Make any necessary changes by moving the cursor under the character to be changed with the arrow keys and typing "r" and then the correct character. Save the file and exit the editor by holding down the [Shift] key and pressing the "z" key twice.

Step 5: Open the asy file for editing by typing the following line:
vi /etc/conf/sdevice.d/asy [Enter]

Step 6: The first two lines of this file should also look as follows:

```
asy   Y   1   7   1   4   3f8   3ff   0   0
asy   Y   1   7   1   3   2f8   2ff   0   0
```

Step 7: If the two lines are present, make sure that the cursor is on the first line - move it with the arrow keys, if necessary. Delete the line by pressing the "d" key twice. Then save the file by holding down the [Shift] key and pressing the "z" key twice.

Step 8: If only one line is present, make sure that it is the same as the second line shown above (the line with "3" and 2f8" in it). Make any necessary changes by moving the cursor under the character to be changed with the arrow keys and typing "r" and then the correct character. Save the file and exit the editor by holding down the [Shift] key and pressing the "z" key twice.

Step 9: Type the following lines exactly as shown (no spaces before or after [Tab] or [Enter]):

```
rm /dev/tty0* [Enter]
echo "asy [Tab] tty01 [Tab] c [Tab] 0">/etc/conf/node.d/asy [Enter]
echo "asy [Tab] tty01s [Tab] c [Tab] 0">>/etc/conf/node.d/asy [Enter]
echo "asy [Tab] tty01h [Tab] c [Tab] 128">>/etc/conf/node.d/asy [Enter]
```

10.14 Installing the I/O Driver Software

10.14.1 IPC-900 Boards

If any IPC-900 boards are installed in this system, follow these steps:

- Step 1:* Insert the *IPC UNIX(R) System 802/900*, Version 4.2 or newer, diskette and type "installpkg [Enter]":
- Step 2:* Follow the prompts. When asked how many boards will be installed, type "1 [Enter]" or "2 [Enter]", as appropriate.
- Step 3:* When asked what type of board, press [Enter] to select the default IPC-900.
- Step 4:* When asked what interrupt to use, type "4 [Enter]":
- Step 5:* When asked what I/O address to use, type "290 [Enter]".
- Step 6:* When asked what memory address to use, type "cc000 [Enter]".
- Step 7:* When asked if the values are acceptable, type "y [Enter]"
- Step 8:* If a second board has been installed, repeat steps 3 through 7 for the second board, entering the following:
 - interrupt 15
 - I/O address 2a0
 - memory address c8000
- Step 9:* The operating system will be rebuilt. When prompted, remove the diskette from the drive and press [Esc] to prevent a shutdown. The machine will be shutdown in a later step.

10.14.2 IPC-1600 Boards

If any IPC-1600 boards are installed in the system, follow these steps:

- Step 1:* Insert the *IPC-1600 UNIX(R) System V/386 Software, V1.0 or 1.1* diskette and type "installpkg [Enter]"

NOTE:

Do not use the *IPC-1600 Software V 2.0* or

higher - it is for use only with UNIX(R) R4.

- Step 2:* Type "1 [Enter]" to install just the driver software.
- Step 3:* Type "y [Enter]" to install using a shared interrupt.
- Step 4:* When asked what interrupt to use, type "4 [Enter]".
- Step 5:* When asked if the same memory address will be used for all boards, type "y [Enter]"
- Step 6:* When asked what memory address to use, type "90000".
- Step 7:* When asked how many boards will be installed, type "1 [Enter]", "2 [Enter]" or "3 [Enter]" as appropriate.
- Step 8:* When asked what I/O address to use, select the following, as appropriate:
- First Board: select I/O address 100
 - Second Board: select I/O address 110
 - Third Board: select I/O address 120
- Step 9:* When asked if the values are acceptable, type "y [Enter]"
- Step 10:* When asked if the configuration is acceptable, type "y [Enter]"
- Step 11:* The operating system will be rebuilt. When prompted, remove the diskette from the drive, but press [Esc] to prevent a shutdown. The machine will be shutdown in a later step.

10.14.3 GPSC-AT/E Boards

If any GPSC-AT/E boards are installed in the system, follow these steps:

- Step 1:* Insert the *Network Interface Software* diskette #1 and type "installpkg [Enter]"
- Step 2:* Follow the prompts and insert diskette #2 when requested. When asked how many boards will be installed, type "1 [Enter]", "2 [Enter]" or "3 [Enter]" as appropriate.

- Step 3:* When asked if various shared memory addresses are acceptable, type "n [Enter]" until the appropriate address below is given, then type "y [Enter] ":
- First Board: memory address D0000
 - Second Board: memory address 80000
 - Third Board: memory address 90000
- Step 4:* When asked what I/O address is acceptable, type "y [Enter]" for the appropriate value:
- First Board: I/O address 240
 - Second Board: I/O address 250
 - Third Board: I/O address 260
- Step 5:* When asked which interrupt is acceptable, type "y [Enter]" for the appropriate value:
- First Board: interrupt 10
 - Second Board: interrupt 11
 - Third Board: interrupt 9
- Step 6:* When asked how many simultaneous X.25 processes will be required, type "50 [Enter]"
- Step 7:* When asked what the maximum packet size should be, type "128 [Enter]"
- Step 8:* Type " [Enter]" to proceed when the board settings are displayed.
- Step 9:* The operating system will be rebuilt. When prompted, remove the diskette from the drive, but press [Esc] to prevent a shutdown. The machine will be shutdown in a later step.

10.15 Shutdown and Reboot the Machine

- Step 1:* Shutdown the machine by typing "shutdown -i0 -g0 -y [Enter]"
- Step 2:* When the "Reboot the system now" message appears, press the RESET button on the front of the system

unit.

Installation of your I-2000 hardware and system software is now complete. Proceed with Chapter 4, "Database and I-2000 Software Installation", to install the Informix Database and I-2000 Application software.

11. APPENDIX A4 - AT&T STARSTATION COMPUTER

11.1 Required Hardware

- o AT&T StarStation Computer, equipped with 4 Mb of RAM and 1.44 Mb Floppy Disk
- o 101 Key Keyboard
- o 240 Mb Hard Disk Unit (Quantum LPS240AT) or 340 Mb Hard Disk Unit (Maxtor LXT340ATA)
- o four 6-32x1/4" round head machine screws (to mount hard disk unit)
- o four 4MX9 SIMMs (to be installed in place of the four 1MX9 SIMMS on system board)
- o 125 Mb Streaming Tape Unit
- o Monochrome or Color VGA Monitor
- o One or two IPC-900 or IPC-1600 Serial Port Board(s)
- o Optional one or two GPSC-AT/E X.25 Port Board(s)
- o Cables and Adapters for connection to I/O board(s), as required
- o Optional Parallel Dot Matrix Printer and cable

11.2 Required Software

- o *AT&T (or NCR) Unix Operating System V/386, R 3.2.3, 16 user package, consisting of:*
 - *V 2.3 Base System (7 diskettes)*
 - *Editing Package*
 - *Remote Terminal Package*
 - *Network Support (or Supplemental) Utilities*
 - *FACE Help Package*
 - *FACE Package*
 - *FMLI Package*
 - *Maintenance Disk #1*

-- 2 User to 16 User Upgrade Package

- o *IPC Unix System 802/900 Software* or *IPC-1600 Unix System V/386 Software, V1.0 or 1.1 (supplied with the IPC boards)*

NOTE:

Version 4.1 of the *IPC UNIX(R) System 802/900* software may be defective and may not install properly. Use only version 4.2 or newer. Contact your AT&T representative to obtain the new software.

- o *AT&T (or NCR) Network Interface Software (for GPSC-AT/E boards)*

- o *Cartridge Tape Utilities Q60/125 (supplied with the Tape Unit)*

- o Three Informix database packages, each with diskette(s) and Serial Number/Key card:

-- *Informix SE, V4.10*

-- *Informix SQL, V 4.10*

-- *Informix ESQL/C (runtime), V 4.10*

- o *I-2000 Program Diskettes*

- o *I-2000 Enable Features Diskette*

NOTE:

The following packages may have been delivered with the Unix Operating System, but are **NOT** required and **SHOULD NOT BE INSTALLED:**

-- *Base System, Diskette 1A*

-- *Remote File Sharing Package*

-- *Remote File Sharing Management Package*

-- *2K File System Package*

-- *Xenix File System Package*

-- *Encryption Package*

11.3 Configuring the System Unit

This section covers installing memory on the main system board of the I-2000 computer.

- Step 1:* Make sure that the computer power cord is NOT connected and that the key lock (on the rear of the unit) is in the unlocked position. Remove the system unit cover by pressing in on the two tabs on the top rear corners of the unit and lifting the cover up and forward. For more details, see the "Installing System Options" section of the *StarStation User's Guide*.
- Step 2:* Remove the memory board (front left corner) from the main system board by opening the two retaining clips and pulling the board up. Remove the four 1Mb SIMMs in sockets J0 through J4 and set them aside. Be sure to follow the precautions against static electricity given in the *User's Guide*. Install the four 4 Mb SIMMs in sockets J0 through J4 per the instructions in the *User's Guide*. This will result in a total of 16 Mb of memory in the system.
- Step 3:* Reinstall the memory board and be sure to fasten the two retaining clips.

11.4 Installing the Hard Disk

This section covers installing the hard disk unit on the right side of the upper peripheral tray of the main system board in the StarStation computer. For more details, see the "Installing System Options" section of the *User's Guide*.

- Step 1:* Remove the upper peripheral tray by pushing the latch on the front of the tray backwards. Slide the tray backwards and up out of the system unit.
- Step 2:* Carefully set the hard disk unit upside-down (circuit board up) and lay the tray upside-down on top of it. The end of the hard drive with the connectors for data and power should be directed to the rear edge of the tray (opposite the latch). Align the holes in the tray labeled "C" with the four mounting holes in the disk drive. Secure the drive to the tray with four 6-32 x 1/4 screws.
- Step 3:* Carefully turn the tray right-side up and set it back onto the guide rails in the system unit. Slide the tray forward until it snaps securely into place.
- Step 4:* Connect the end connector of the HDU data cable (the ribbon cable not already connected to

anything else) to the data connector on the hard disk unit. Pin 1 of the data cable (end with colored stripe) goes toward the power connector.

Step 5: Connect one of the spare power cables to the power connector on the hard disk unit.

11.5 Installing the Tape Drive

Refer to the instructions in the "Installing System Options" section of the *User's Guide* for more detail on the following procedure.

Step 1: Unpack the Streaming Tape Unit. Verify that the following factory default settings for the tape controller board are correctly set:

-- Switch: 1,2,4,5,6 and 8 CLOSED (On), 3,7,9 and 10 OPEN (off)

-- IRQ jumper: 5

-- DRQ jumper: 1

-- DACK jumper: 1

Step 2: Connect the flat data cable to the tape controller board connector J2 and install the controller board into slot 3 (J82) of the system unit.

Step 3: Open the expansion door on the bottom, front of the system unit. Push up on the tray latch and pull it forward and out of the unit.

Step 4: Very carefully twist the two knock-out sections in the lower, left part of the tray panel to break the tabs on their sides. Twist them from the bottom to break the top tabs and remove them. Do the same to remove the two upper, left knock-out sections.

Step 5: Set the tape drive upside-down (circuit board up) and set the tray upside-down on top of it. The front of the drive should go in the opening of the tray's panel. Attach the tape drive to the tray using the four screws supplied with the drive in the tray holes labeled "A".

Step 6: Push the tray with the attached drive back into the opening in the system unit and push down on the latch to be sure it snaps into place and secures the tray. Remove the plastic filler from

the tape drive by pushing it in and then pulling it out.

Step 7: Connect the data cable from the tape controller and a spare power connector to the rear of the drive.

11.6 Installing the I/O Boards

This section describes how to set the configuration switches and jumpers on each I/O board and how to install these boards into the system unit. The particular combination of I/O boards to be installed may vary depending on the needs of the application, so the information presented here is generalized in order to cover all possible applications. Before starting this procedure, be sure to determine the exact number of each type of board to be used in your particular installation.

11.7 IPC-900 Boards

Either one or two IPC-900 serial port boards may be used in this configuration of the I-2000 system. Repeat the following procedure once for each board. See the "Installing System Options" section of the system unit *User's Guide* and the "Hardware Installation" section of the *IPC-900 User's Guide* for more details on this procedure.

Step 1: Set the board I/O address using DIP switch SW1 which is located in the lower, left area of the board, as follows:

- First Board (290): positions 1,3,4,6 and 8 to ON, positions 2,5 and 7 to OFF
- Second Board (2A0): positions 1,2,4,6 and 8 to ON, positions 3, 5 and 7 to OFF

Step 2: Set the board memory address using DIP switch SW2 which is located in the lower, center area of the board, as follows:

- First Board (CC000): positions 1,2,5 and 6 to ON, positions 3,4, 7 and 8 to OFF
- Second Board (C8000): positions 1,2,3,5 and 6 to ON, positions 4, 7 and 8 to OFF

Step 3: Set the board interrupt by placing a jumper across the appropriate IRQ pins in the lower, center area of the board (only one IRQ jumper should be installed) as follows:

-- First Board (4): IRQ4

-- Second Board (15): IRQ15

Step 4: Install the board into the slot of the system unit indicated below after removing the slot cover bracket and screw. Replace the screw to secure the board.

-- First Board: slot 2 (J81)

-- Second Board: slot 1 (J80)

Step 5: Install the T-adapter for the board by pushing it firmly onto the connector on the rear of the board. Be sure the locator pins on the T-adapter line up with the holes in the board's connector.

11.8 IPC-1600 Boards

As many as two IPC-1600 serial port boards may be used in this configuration of the I-2000 system. Repeat the following procedure once for each board. See the "Installing System Options" section of the system unit *User's Guide* and the "Hardware Installation" section of the *IPC-1600 User's Guide* for more details on this procedure.

Step 1: Set the board I/O address to the appropriate value using DIP switch DS1 which is located in the upper, left area of the board, as follows:

-- First Board (100)#position 9 to ON, positions 10 and 11 to OFF

-- Second Board (110)#position 10 to ON, position 9 and 11 to OFF

Step 2: Set the board memory address to 90000 (same for all IPC-1600 boards in a system) using DIP switch DS1 which is located in the upper, left area of the board, by setting positions 2,3,5,6,7 and 8 to ON and positions 1 and 4 to OFF.

Step 3: Set the board interrupt to 4 (same for all IPC-1600 boards in a system) using DIP switch DS2 which is located in the same area of the board, by setting position 2 to ON and positions 1,3,4,5,6,7 and 8 to OFF.

Step 4: Connect the two ribbon cables to the 16-Ports Fanout Module, being sure to follow the labeling (*Ports 1-8* and *Ports 9-16*) and keying of

connectors. Be sure that the retaining clips are securely attached.

Step 5: Remove the screw and slot cover for the appropriate system unit slot:

-- First Board: slot 2 (J81)

-- Second Board: slot 1 (J80)

Step 6: Observe the way the other end (labeled *P3* and *P4*) of the ribbon cables will connect to the IPC-1600 board at headers *P3* and *P4* and feed them through the slot from the outside to the inside of the system unit so that they will not be twisted when the board is installed. Pull the cables through enough to be able to connect them to the board. Install the slot cover plate with the rectangular opening (supplied with the IPC-1600 board) and replace the screw to secure it.

Step 7: Connect the cables to board headers *P3* and *P4* according to the labeling on the cables. Be sure to secure the retaining clips on each connector. Install the board into the connector of the system unit, being careful to guide the ribbon cables so that they push back out through the slot cover opening and do not catch on the adjacent board. Secure the board by installing the two thumb-screw bolts through the slot cover from the outside of the system unit.

11.9 GPSC-AT/E Boards

As many as two GPSC-AT/E X.25 port boards may be used in this configuration of the I-2000 system. Repeat the following procedure once for each board. See the "Installing System Options" section of the system unit *User's Guide* and the "Hardware Installation" section of the *GPSC-AT/E Installation Guide* for more details on this procedure.

Step 1: Set the board I/O address to the appropriate value by installing jumpers on pin pairs 4 through 15 which are located in the center, right area of the board, as follows:

-- First Board (240)#4,5,7,8,10,11,12,13,14 and 15 installed, 6 and 9 NOT installed

-- Second Board (250)#5,7,8,10,11,12,13,14 and 15 installed, 4,6 and 9 NOT installed

- Step 2:* Enable Port B operation by installing a jumper on the pins labeled J5 in the upper middle area of the board.
- Step 3:* Configure Port B as DTE by installing the DIP shunt provided into the upper holes of the Port B jumper block in the upper right area of the board.
- Step 4:* Remove the screw and slot cover for the appropriate system unit slot:
- First Board: slot 1 (J80)
 - Second Board: slot 2 (J81)
- Step 5:* Install the GPSC-AT/E board into the slot and replace the screw to secure it.
- Step 6:* Connect the 2-Port Y-cable to the connector on the rear of the GPSC-AT/E board and tighten the two hold-down screws.

11.10 Reinstall the System Unit Cover

Reinstall the system unit cover by pushing the front of the cover onto the front of the system unit with the rear of the cover raised up a bit. Push the rear of the cover down until the two retaining tabs snap into place. Be sure that the front of the cover is secure and that it won't lift upward away from the unit. This can be a difficult operation - repeat, if necessary until the cover is secure. For more details, see the *User's Guide*.

11.11 Connect the Monitor

- Step 1:* Connect the monitor's data cable to the video connector on the rear of the system unit. Secure the cable by screwing in the retaining screws on the cable connector.
- Step 2:* If appropriate, make sure the monitor's voltage selection switch is correctly set for 110V or 220V. Connect the monitor's power cable to the AC power socket on the rear of the system unit or to an AC outlet, as appropriate.

11.12 Connect the Keyboard

Connect the keyboard cable to the appropriate connector on the rear of the system unit.

11.13 Connect the Printer

If your configuration includes a printer, complete the following steps:

- Step 1: Connect the printer data cable to the rear of the printer and to the LPT1 ("parallel") port on the rear of the system unit.
- Step 2: If appropriate, make sure the printer's voltage selection switch is correctly set for 110V or 220V. Connect the printer power cable to the rear of the printer (if necessary) and to an AC outlet.

11.14 Connect the Computer to AC Power

Make sure that the computer's main power switch is in the OFF position, that the voltage selection switch on the rear of the system unit is set correctly (115V or 230V), and then connect the computer's power cord to the rear of the system unit and to an AC outlet.

11.15 Set the Computer CMOS Configuration

This section covers setting up the CMOS configuration data for the StarStation computer.

- Step 1: Turn on the power switch of the system unit and wait while the system performs its Power-On-Self-Test (POST) routines. When the memory tests are complete, immediately press the [Alt] [Ctrl] [Insert] keys all at the same time to enter the CMOS setup screen. **IF**, however, a message appears saying that the CMOS values don't match the hardware, press the [F2] key instead.
- Step 2: The CMOS parameters should be set as indicated below. If they are not, follow the instructions at the bottom of the screen to change the indicated (**bold**) values.

```

System Time:          Current Time
System Date:          Current Date
Floppy Controller:    Onboard
Floppy Disk A:        3.5 Inch,1.44Mb
Floppy Disk B:        Not Installed
Hard Disk Controller: Onboard

Hard Disk 1:          AutoConfigure   Cyl. Hd. Pre. LZ  Sec. Size(Mb)
                        or AutoConfigure 723  13  -1  723  51   234  (LPS240AT)
Hard Disk 2:          Not Installed   654  16  -1  654  63   321  (LXT340ATA)

```

Base Memory: **512 KB**
Extended Memory: **15360 KB**
Keyboard: **INSTALLED**
CPU Speed: **Fast**
NumLock on at boot: **YES**

Step 3: Press the [Page/Down] key to enter the advanced setup options screen. The parameters on this screen should be set as indicated below. If they are not, follow the instructions at the bottom of the screen to change the indicated (**bold**) values.

Shadow System BIOS:	Enabled	
Shadow Video BIOS:	Enabled at E000:0	
System BIOS Mapping:	1 MB	
Parallel Port:	Enabled - AT	
Serial Port 1:	Disabled	
Serial Port 2:	Enabled	
Console Redirection COM1:	Disabled	
Console Redirection COM2:	Disabled	
CACHE:	Enabled	Video Emulation: VGA/PS2
Speaker:	Enabled	Buffer Access: 16 bit
Mouse:	Disabled	Scan Mode: Interlaced
Base Memory Above 512K:	Disabled	
Enter SETUP:	Always	

Step 4: Press the [Esc] key and then [F4] and the system will save the new settings and reboot.

11.16 Installing the UNIX(R) Operating System

This section covers installing the basic UNIX(R) operating system and the various required add-on packages associated with it.

Step 1: Locate diskette #1 of the UNIX(R) System Foundation Set. Be sure that the write protect tab is positioned to cover the notch in the diskette case to allow writing to the diskette. Insert the diskette in the floppy disk drive and press the RESET button on the front of the system unit.

Step 2: When the system requests it, press the [Enter] key then type "y [Enter]" to allow installation of the UNIX System. If you are asked if this is to be a new installation or a release upgrade, type "n [Enter]" to select new.

Step 3: (If the system's hard disk has never been partitioned before, the system will recommend that

the drive be partitioned as 10% DOS and 90% UNIX. If this happens, type "n [Enter]". The system will move on to the Partitioning screen.) When the Partitioning screen appears, do one of the following:

- *If there is a single active UNIX partition which uses 100% of the drive's capacity listed on the screen, type "5 [Enter]" to select Option 5 which will cancel and exit the Partitioning screen. Proceed to Step 4.*
- *If there are one or more partitions listed on the screen, but not one which is UNIX, active and uses 100% of the drive, for each listed partition type "3 [Enter]" and follow the instructions to delete it, then*
- *If there are no partitions listed on the screen, type:
 "1 [Enter]" to select Option 1,
 "1 [Enter]" for a UNIX partition,
 "100 [Enter]" to use 100% of the drive,
 "y [Enter]" to make it active,
 "4 [Enter]" to select option 4 to exit the partitioning screen and update the system.*

- Step 4:* When the system says it will do a surface analysis, press " [Enter]" to allow it to proceed. The analysis will take about 10 minutes.
- Step 5:* When asked if the disk allocations are acceptable, type "n [Enter]".
- Step 6:* When asked if you want separate /root and /usr file systems, type "y [Enter]".
- Step 7:* When asked if you want a separate /usr2 file system, type "n [Enter]".
- Step 8:* When asked if you want a separate crash/dump area, type "n [Enter]".
- Step 9:* When asked how many cylinders to use for swap/paging, type "100 [Enter]" if you have an LPS240AT hard disk drive, or type "80 [Enter]" if you have an LXT340ATA drive.
- Step 10:* When asked how many cylinders to use for /root, type "100 [Enter]" if you have an LPS240AT hard disk drive, or type "80 [Enter]" if you have an

LXT340ATA drive.

Step 11: When asked if the allocations are acceptable, type "y [Enter]".

Step 12: After a few minutes, the machine will ask you to remove the diskette and press a key. Do it.

Step 13: The machine will shutdown and say "Reboot the System Now". Press the RESET button on the front of the system unit.

Step 14: After rebooting, the machine will request diskette #2 of the Foundation set, then diskette #3, and so on. Follow the instructions on the screen and insert and remove diskettes as requested.

NOTE:

Some versions of UNIX have the labels on diskettes #6 and #7 interchanged. If diskette #6 is rejected when you insert it, try using #7 instead. If this works, use diskette #6 when you are asked for #7.

Step 15: The machine will request a password for the "root" login. Enter one and repeat it when asked. Do the same for the "install" login when asked. It is important to remember these passwords for future use and also to keep them secure.

Step 16: The operating system will be built and the machine will shutdown. Press the RESET button on the front of the system unit when asked to "Reboot the system now".

Step 17: The "login:" prompt will appear. Type "root [Enter]". When asked for a password, enter the one chosen in step 15, above.

Step 18: For each of the following add-on packages, type "installpkg [Enter]" and follow the prompts on the screen. Be sure to install them in the order shown.

-- *Editing Package*

-- *Remote Terminal Package*

NOTE:

Type "1 [Enter]" to select Option 1 (install files)

Type "all [Enter]" to choose all files

Type "done [Enter]" and "0 [Enter]" to terminate the installation.

-- *Network Support (or "Supplemental") Utilities*

NOTE:

The operating system will be rebuilt. Press [Enter] when asked to allow the machine to shutdown. When the "Reboot the system now" message appears, press the RESET button on front of the system unit and then login again as "root" and proceed.

-- FACE Help

NOTE:

Type "4 [Enter]" to select all files
Type "5 [Enter]" to terminate the installation.

-- FACE

NOTE:

Ignore the warning about FMLI not being installed and press [Enter] to continue.

-- *FMLI*

-- *Maintenance Disk No. 1*

NOTE:

The operating system will be rebuilt. Press [Enter] when asked to allow the machine to shutdown. When the "Reboot the system now" message appears, press the RESET button on front of the system unit and then login again as "root" and proceed.

-- *2 User to 16 User Upgrade Package*

NOTE:

The operating system will be rebuilt. Press [Enter] when asked to allow the machine to shutdown. When the "Reboot the system now" message appears, press the RESET button on front of the system unit and then login again as "root" and proceed.

-- Cartridge Tape Utilities Q60/125

NOTE:

When asked which interrupt to use, type "5 [Enter]". Press " [Enter]" when requested to allow the operating system to be rebuilt, and again to allow the machine to shutdown. When the "Reboot the system now" message appears, press the RESET button on front of the system unit and then login again as "root" and proceed.

11.17 Configuring the ASY Driver

This section covers reconfiguring the UNIX *asy* driver so that interrupt 4 can be used for an IPC-900 board.

Step 1: Open the *sdevice* file for editing by typing the following line:
`vi /etc/conf/cf.d/sdevice [Enter]`

Step 2: The first two lines of the file should look as follows:

```
asy   Y   1   7   1   4   3f8   3ff   0   0
asy   Y   1   7   1   3   2f8   2ff   0   0
```

Step 3: If the two lines are present, make sure that the cursor is on the first line - move it with the arrow keys, if necessary. Delete the line by pressing the "d" key twice. Then save the file by holding down the [Shift] key and pressing the "z" key twice.

Step 4: If only one line is present, make sure that it is the same as the second line shown above (the line with "3" and 2f8" in it). Make any necessary changes by moving the cursor under the character to be changed with the arrow keys and typing "r" and then the correct character. Save the file and exit the editor by holding down the [Shift] key and pressing the "z" key twice.

Step 5: Open the *asy* file for editing by typing the following line:

```
vi /etc/conf/sdevice.d/asy [Enter]
```

Step 6: The first two lines of this file should also look as follows:

```
asy Y 1 7 1 4 3f8 3ff 0 0
asy Y 1 7 1 3 2f8 2ff 0 0
```

Step 7: If the two lines are present, make sure that the cursor is on the first line - move it with the arrow keys, if necessary. Delete the line by pressing the "d" key twice. Then save the file by holding down the [Shift] key and pressing the "z" key twice.

Step 8: If only one line is present, make sure that it is the same as the second line shown above (the line with "3" and 2f8" in it). Make any necessary changes by moving the cursor under the character to be changed with the arrow keys and typing "r" and then the correct character. Save the file and exit the editor by holding down the [Shift] key and pressing the "z" key twice.

Step 9: Type the following lines exactly as shown (no spaces before or after [Tab] or [Enter]):

```
rm /dev/tty0* [Enter]
echo "asy [Tab] tty01 [Tab] c [Tab] 0">/etc/conf/node.d/asy [Enter]
echo "asy [Tab] tty01s [Tab] c [Tab] 0">>/etc/conf/node.d/asy [Enter]
echo "asy [Tab] tty01h [Tab] c [Tab] 128">>/etc/conf/node.d/asy [Enter]
```

11.18 Installing the I/O Driver Software

11.18.1 IPC-900 Boards

If any IPC-900 boards are installed in this system, follow these steps:

- Step 1:* Insert the *IPC Unix System 802/900*, Version 4.2 or newer, diskette and type "installpkg [Enter]"
- Step 2:* Follow the prompts. When asked how many boards will be installed, type "1 [Enter]" or "2 [Enter]", as appropriate.
- Step 3:* When asked what type of board, press [Enter] to select the default IPC-900.
- Step 4:* When asked what interrupt to use, type "4 [Enter]"
- Step 5:* When asked what I/O address to use, type "290 [Enter]".
- Step 6:* When asked what memory address to use, type "cc000 [Enter]".

365-301-423

- Step 7:* When asked if the values are acceptable, type "y [Enter]"
- Step 8:* If a second board has been installed, repeat steps 3 through 7 for the second board, entering the following:
- interrupt 15
 - I/O address 2a0
 - memory address c8000
- Step 9:* The operating system will be rebuilt. When prompted, remove the diskette from the drive, but press [Esc] to prevent a shutdown. The machine will be shutdown in a later step.

11.18.2 IPC-1600 Boards

If any IPC-1600 boards are installed in the system, follow these steps:

- Step 1:* Insert the *IPC-1600 Unix System V/386 Software, V1.0 or 1.1 diskette* and type "installpkg [Enter]"

NOTE:

Do not use the *IPC-1600 Software V 2.0* or higher - it is for use only with Unix R4.

- Step 2:* Type "1 [Enter]" to install just the driver software. Press [Enter] when asked to confirm your choice.
- Step 3:* Type "y [Enter]" to install using a shared interrupt.
- Step 4:* When asked what interrupt to use, type "4 [Enter]".
- Step 5:* When asked if the same memory address will be used for all boards, type "y [Enter]"
- Step 6:* When asked what memory address to use, type "90000 [Enter]".
- Step 7:* When asked how many boards will be installed, type "1 [Enter]" or "2 [Enter]", as appropriate.
- Step 8:* When asked what I/O address to use, select the following, as appropriate:
- First Board: select I/O address 100

- Second Board: select I/O address 110
- Step 9:* When asked if the values are acceptable, type "y [Enter]"
- Step 10:* When asked if the configuration is acceptable, type "y [Enter]"
- Step 11:* The operating system will be rebuilt. When prompted, remove the diskette from the drive, but press [Esc] to prevent a shutdown. The machine will be shutdown in a later step.

11.18.3 GPSC-AT/E Boards

If any GPSC-AT/E boards are installed in the system, follow these steps:

- Step 1:* Insert the Network Interface Software diskette #1 and type "installpkg [Enter]"
- Step 2:* Follow the prompts and insert diskette #2 when requested. When asked how many boards will be installed, type "1 [Enter]" or "2 [Enter]", as appropriate.
- Step 3:* When asked if various shared memory addresses are acceptable, type "n [Enter]" until the appropriate address below is given, then type "y [Enter]":
 - First Board: memory address D0000
 - Second Board: memory address 80000
- Step 4:* When asked what I/O address is acceptable, type "y [Enter]" for the appropriate value:
 - First Board: I/O address 240
 - Second Board: I/O address 250
- Step 5:* When asked which interrupt is acceptable, type "y [Enter]" for the appropriate value:
 - First Board: interrupt 10
 - Second Board: interrupt 11
- Step 6:* When asked how many simultaneous X.25 processes will be required, type "50 [Enter]"

- Step 7:* When asked what the maximum packet size should be, type "128 [Enter]"
- Step 8:* The operating system will be rebuilt. Type "[Enter]" to proceed when the board settings are displayed.
- Step 9:* When prompted, remove the diskette from the drive, but press [Esc] to prevent a shutdown. The machine will be shutdown in a later step.

11.19 Shutdown and Reboot the Machine

- Step 1:* Shutdown the machine by typing "shutdown -i0 -g0 -y [Enter] "
- Step 2:* When the "Reboot the system now" message appears, press the RESET button on the front of the system unit.

Installation of your I-2000 hardware and system software is now complete. Proceed with Chapter 4, "Database and I-2000 Application Software Installation", to install the Informix Database and I-2000 Application software.

12. APPENDIX A5 - HAUPPAUGE MODEL 4860 COMPUTER

12.1 Required Hardware

- o Hauppauge Model 4860 Computer, equipped with 32 Mb of RAM, 340 Mb (Maxtor LXT340ATA) or 535 Mb (Maxtor LXT535ATA) Hard Disk, and 1.44 Mb Floppy Disk
- o 101 Key Keyboard
- o VDC600 Video Display Board
- o 125 Mb Streaming Tape Unit
- o Monochrome or Color VGA Monitor
- o One or two IPC-900 or one or two or three IPC-1600 Serial Port Board(s)
- o One or two or three GPSC-AT/E X.25 Port Board(s)
- o Cables and Adapters for connection to I/O board(s), as required
- o Optional Parallel Dot Matrix Printer and cable

12.2 Required Software

- o *Hauppauge Computer Works EISA Configuration Utilities Boot Diskette*
- o *AT&T (or NCR) UNIX(R) Operating System V/386, R 3.2.3, 16 user package, consisting of:*
 - *V 2.3 Base System (7 diskettes)*
 - *Editing Package*
 - *Remote Terminal Package*
 - *Network Support (or Supplemental) Utilities*
 - *FACE Help Package*
 - *FACE Package*
 - *FMLI Package*
 - *Maintenance Disk #1*
 - *2 User to 16 User Upgrade Package*

- o *IPC UNIX System 802/900 Software* or *IPC-1600 UNIX System V/386 Software, V1.0 or 1.1 (supplied with the IPC boards)*

NOTE:

Version 4.1 of the *IPC UNIX(R) System 802/900* software may be defective and may not install properly. Use only version 4.2 or newer. Contact your AT&T representative to obtain the new software.

- o AT&T (or NCR) Network Interface Software (for GPSC-AT/E boards)
- o *Cartridge Tape Utilities Q60/125* (supplied with the Tape Unit)
- o Three Informix(R) database packages, each with diskette(s) and Serial Number/Key card:
 - *Informix SE, V4.10*
 - *Informix SQL, V 4.10*
 - *Informix ESQL/C (runtime), V 4.10*
- o *I-2000 Program* Diskettes
- o *I-2000 Enable Features* Diskette

NOTE:

The following packages may have been delivered with the *UNIX Operating System*, but are **NOT** required and **SHOULD NOT BE INSTALLED:**

- *Base System, Diskette 1A*
- *Remote File Sharing Package*
- *Remote File Sharing Management Package*
- *2K File System Package*
- *Xenix(R) File System Package*
- *Encryption (or Security Administration) Package*

12.3 Configuring the System Unit

This section covers setting jumpers and installing memory on the main system board of the I-2000 computer.

- Step 1:* Make sure that the computer power cord is NOT

connected and that the key lock is in the unlocked position. Remove the six screws on the rear panel of the system unit and slide the cover backwards about 2 inches. Remove the cover by pulling it upward away from the system unit. For more details, see the *4860 Reference Manual*.

Step 2: Remove jumper JP5 which connects two system board pins (Factory Default is for jumper to be installed). This disables the COM1 serial port. Verify that the following system board pins are connected by jumpers (all are Factory Defaults):

- SW1: pins 2 and 3 (selects VGA Display Type)
- JP8: pins 2 and 3 (select printer LPT1)
- JP9: jumper installed (enable printer interrupt)
- JP4: pins 1 and 2 (COM1 address select)
- JP6: pins 1 and 2 (COM2 address select)
- JP7: jumper installed (enable COM2)

Step 3: Unpack the VDC600 Video Controller board. Verify that the switches on the rear panel and the jumpers on the board are set to the Factory Defaults:

- Switch 1, 3: OFF
- Switch 2, 4: ON
- W1: jumper should be present
- W2: jumper should connect pins 1 and 2

Step 4: Install the VDC600 board into slot 7 (seventh up from the bottom) of the system unit.

12.4 Installing the Tape Drive

Step 1: Unpack the Streaming Tape Unit. Verify that the following factory default settings for the tape controller board are correctly set:

- Switch: 1,2,4,5,6 and 8 CLOSED (On)
3,7,9 and 10 OPEN (off)
- IRQ jumper: 5

-- DRQ jumper: 1

-- DACK jumper: 1

Step 2: Connect the flat data cable to the tape controller board connector J2 and install the controller board into slot 6 (sixth up from the bottom) of the system unit.

Step 3: Remove the gray faceplate from the tape drive by removing the two small screws on either side and install the cream colored faceplate using the same two screws. Remove the plastic filler from the tape drive by pushing it in and then pulling it out.

Step 4: Remove the plastic faceplate from the second drive bay (under the floppy disk drive) by pushing it out from the rear. Slide the tape drive into the drive bay and fasten it in place using the four screws supplied with the drive through the slots in the sides of the drive bay. Connect a spare power connector and the data cable from the tape controller to the rear of the tape drive.

12.5 Installing the I/O Boards

12.5.1 General

This section describes how to set the configuration switches and jumpers on each I/O board and how to install these boards into the system unit. The particular combination of I/O boards to be installed may vary depending on the needs of the application, so the information presented here is generalized in order to cover all possible applications. Before starting this procedure, be sure to determine the exact number of each type of board to be used in your particular installation.

12.5.2 IPC-900 Boards

Either one or two IPC-900 serial port boards may be used in this configuration of the I-2000 system. Repeat the following procedure once for each board. See the "Hardware Installation" section of the *IPC-900 User's Guide* for more details on this procedure.

Step 1: Set the board I/O address using DIP switch SW1 which is located in the lower, left area of the board, as follows:

-- First Board (290): positions 1,3,4,6 and 8 to ON, positions 2,5 and 7 to OFF

- Second Board (2A0): positions 1,2,4,6 and 8 to ON, positions 3, 5 and 7 to OFF

- Step 2:* Set the board memory address using DIP switch SW2 which is located in the lower, center area of the board, as follows:
 - First Board (CC000): positions 1,2,5 and 6 to ON, positions 3,4, 7 and 8 to OFF
 - Second Board (C8000): positions 1,2,3,5 and 6 to ON, positions 4, 7 and 8 to OFF

- Step 3:* Set the board interrupt by placing a jumper across the appropriate IRQ pins in the lower, center area of the board (only one IRQ jumper should be installed) as follows:
 - First Board (4): IRQ4
 - Second Board (15): IRQ15

- Step 4:* Install the board into the slot of the system unit indicated below after removing the slot cover bracket and screw. Replace the screw to secure the board.
 - First Board: slot 5 (fifth up from the bottom)
 - Second Board: slot 4 (fourth up from the bottom)

- Step 5:* Install the T-adapter for the board by pushing it firmly onto the connector on the rear of the board. Be sure the locator pins on the T-adapter line up with the holes in the board's connector.

12.5.3 IPC-1600 Boards

As many as three IPC-1600 serial port boards may be used in this configuration of the I-2000 system. Repeat the following procedure once for each board. See the "Hardware Installation" section of the *IPC-1600 User's Guide* for more details on this procedure.

- Step 1:* Set the board I/O address to the appropriate value from Table 2-3 using DIP switch DS1 which is located in the upper, left area of the board, as follows:
 - First Board (100): position 9 to ON,

positions 10 and 11 to OFF

-- Second Board (110): position 10 to ON,
position 9 and 11 to OFF

-- Third Board (120): positions 9 and 10 to ON,
position 11 to OFF

Step 2: Set the board memory address to 90000 (same for all IPC-1600 boards in a system) using DIP switch DS1 which is located in the upper, left area of the board, by setting positions 2,3,5,6,7 and 8 to ON and positions 1 and 4 to OFF.

Step 3: Set the board interrupt to 4 (same for all IPC-1600 boards in a system) using DIP switch DS21 which is located in the upper, left area of the board, by setting position 2 to ON and positions 1,3,4,5,6,7 and 8 to OFF.

Step 4: Connect the two ribbon cables to the 16-Ports Fanout Module, i being sure to follow the labeling (Ports 1-8 and Ports 9-16) and keying of connectors. Be sure that the retaining clips are securely attached.

Step 5: Remove the screw and slot cover for the appropriate system unit slot:

-- First Board: slot 5 (fifth up from the bottom)

-- Second Board: slot 4 (fourth up from the bottom)

-- Third Board: slot 3 (third up from the bottom)

Step 6: Observe the way the other end (labeled P3 and P4) of the ribbon cables will connect to the IPC-1600 board at headers P3 and P4 and feed them through the slot from the outside to the inside of the system unit so that they will not be twisted when the board is installed. Pull the cables through enough to be able to connect them to the board. Install the slot cover plate with the rectangular opening (supplied with the IPC-1600 board) and replace the screw to secure it.

Step 7: Connect the cables to board headers P3 and P4 according to the labeling on the cables. Be sure to secure the retaining clips on each connector.

Install the board into the connector of the system unit, being careful to guide the ribbon cables so that they push back out through the slot cover opening and do not catch on the adjacent board. Secure the board by installing the two thumb-screw bolts through the slot cover from the outside of the system unit.

12.5.4 GPSC-AT/E Boards

As many as three GPSC-AT/E X.25 port boards may be used in this configuration of the I-2000 system. Repeat the following procedure once for each board. See the "Hardware Installation" section of the *GPSC-AT/E Installation Guide* for more details on this procedure.

Step 1: Set the board I/O address to the appropriate value by installing jumpers on pin pairs 4 through 15 which are located in the center, right area of the board, as follows:

-- First Board (240): 4,5,7,8,10,11,12,13,14 and 15 installed, 6 and 9 NOT installed

-- Second Board (250): 5,7,8,10,11,12,13,14 and 15 installed, 4,6 and 9 NOT installed

-- Third Board (260): 4,7,8,10,11,12,13,14 and 15 installed, 5,6 and 9 NOT installed

Step 2: Enable Port B operation by installing a jumper on the pins labeled J5 in the upper middle area of the board.

Step 3: Configure Port B as DTE by installing the DIP shunt provided into the upper holes of the Port B jumper block in the upper right area of the board.

Step 4: Remove the screw and slot cover for the appropriate system unit slot:

-- First Board: slot 1 (first at bottom)

-- Second Board: slot 2 (second up from bottom)

-- Third Board: slot 3 (third up from bottom)

Step 5: Install the GPSC-AT/E board into the slot and replace the screw to secure it.

Step 6: Connect the 2-Port Y-cable to the connector on the rear of the GPSC-AT/E board and tighten the two hold-down screws.

12.6 Reinstall the System Unit Cover

Reinstall the system unit cover by sliding it down onto the unit and then sliding it forward. Be careful that the lower edges of the cover correctly engage the system unit base and that the front edges of the cover correctly align with the front panel. Install and tighten the six retaining screws in the rear panel of the cover.

12.7 Connect the Monitor

Step 1: Connect the monitor's data cable to the connector on the VDC600 board at the rear of the system unit. Secure the cable by screwing in the retaining screws on the cable connector.

Step 2: If appropriate, make sure the monitor's voltage selection switch is correctly set for 110V or 220V. Connect the monitor's power cable to the AC power socket on the rear of the system unit or to an AC outlet, as appropriate.

12.8 Connect the Keyboard

Connect the keyboard cable to the appropriate connector on the rear of the system unit.

12.9 Connect the Printer

If your configuration includes a printer, complete the following steps:

Step 1: Connect the printer data cable to the rear of the printer and to the LPT1 ("parallel") port on the rear of the system unit.

Step 2: If appropriate, make sure the printer's voltage selection switch is correctly set for 110V or 220V. Connect the printer power cable to the rear of the printer (if necessary) and to an AC outlet.

12.10 Connect the Computer to AC Power

Make sure that the computer's main power switch is in the OFF position, that the voltage selection switch on the rear of the system unit is set correctly (115V or 230V), and then connect the computer's power cord to the rear of the system unit and to an AC outlet.

12.11 Set the Computer CMOS Configuration

365-301-423

This section covers setting up the CMOS configuration data for the I-2000 computer.

Step 1: Turn on the power switch of the system unit and wait while the system performs its Power-On-Self-Test (POST) routines. A message may appear in the center of the screen warning that the Diskette Drive type and Memory Size parameters are wrong (if they are) and to press ALT-CTRL-ESC to enter Setup, or a message may appear at the bottom of the screen saying to press ALT-CTRL-ESC to enter the CMOS setup screen. In either case, press [Alt] [Ctrl] [Esc] (all at the same time).

Step 2: The CMOS parameters should be set as indicated below. If they are not, move the cursor with the arrow keys and press the [+] and [-] keys on the numeric keypad to change the indicated (**Bold**) values.

Time: *Current Time*
Date: *Current Date*
Drive A: **1.44 M, 3-1/2 in.**
Drive B: **Not Installed**
Video: **EGA/VGA**
Halt On: **All Errors**

		Cyls.	HEADS	Sectors	Precomp	Landzone
Drive C:	Type 48(321Mb)	654	16	63	0	654 (LXT340ATA)
	or Type 48(504Mb)	1024	16	63	0	1024 (LXT535ATA)
Drive D:	None					

Step 3: Press the [Page/Down] key to enter the advanced setup options screen. The parameters on this screen should be set as indicated below. If they are not, move the cursor with the arrow keys and press the [+] and [-] keys on the numeric keypad to change the underlined values.

Shadow BIOS (F000): **Enabled** Shadow Video (C000): **Enabled**
Base Memory: **Enabled** Default Speed: **High**
Extended Memory: **Enabled** Slow Setting: **Very Fast**
Bios ROM: **Enabled**
Video ROM: **Enabled**

Step 4: Press the [F10] key and then the [F5] key and the system will save the new settings and reboot. Observe the screen while the machine does its POST. Does a message saying "EISA Configuration has not been set" appear towards the middle of the screen? Also note the line further

down the screen which says "Sizing System MemoryxxxK Found". If this line says "512K Found" and no EISA Configuration message was seen, skip the following steps and proceed to the next section, "Installing the Unix Operating System". If it says "640K Found" or if the EISA Configuration message was seen, turn off the machine and perform the following steps.

Step 5: Insert the *EISA Utilities Boot Diskette* and turn the machine back on. After the machine runs its POST, the "A>" DOS prompt will appear (if you are asked to "Enter a new time: " or "Enter a new date:", just press [Enter] each time). Type "cfg4860 [Enter]". Press [Enter] to go to the memory setting screen. Press the [←] key four times until the value in the "Conventional Memory" field is 512. Press [F10] , [F5] and then press the Reset switch on the front of the system unit and the machine will reboot. A message saying that the "Memory Size has changed since last boot" will appear. Press [F1] to proceed.

Step 6: After the "A>" DOS prompt appears, type "cf [Enter] Press [Enter] once to clear the logo screen and again to clear the message box. If the diskette contains a backup configuration file, you will be asked if it is OK to use that file - press [Enter] (if there is no backup file, the system will generate one). The EISA slot configuration screen will appear with the motherboard entry selected. Press [Enter] to open the motherboard setup screen, then once more to display a list of memory size choices. Move the cursor down to the line for "512 K" and press [Enter] to select it. Press [Esc], [F10], [S], [X], and [S] to exit and save the configuration. Remove the diskette from the drive and then Press [Enter] to reboot the system.

12.12 Installing the UNIX(R) Operating System

This section covers installing the basic Unix(R) operating system and the various required add-on packages associated with it.

Step 1: Locate diskette #1 of the Unix(R) System Foundation Set. Be sure that the write protect tab is positioned to cover the notch in the diskette case to allow writing to the diskette. Insert the diskette in the floppy disk drive and press the RESET button on the front of the system unit.

- Step 2:* When the system requests it, press the [Enter] key then type "y [Enter]" to allow installation of the Unix System. When you are asked if this is to be a new installation or a release upgrade, type "n [Enter]" to select "new".
- Step 3:* When the Partitioning screen appears, do one of the following:
- *If there is a single active Unix partition which uses 98 or 100% of the drive's capacity listed on the screen, type "5 [Enter]" to select Option 5 which will cancel and exit the Partitioning screen. Proceed to Step 4.*
 - *If there are one or more partitions listed on the screen, but not one which is Unix, active and uses 98 or 100% of the drive, for each listed partition type "3 [Enter]" and follow the instructions to delete it, then
....*
 - *If there are no partitions listed on the screen, type:
"1 [Enter]" to select Option 1,
"1 [Enter]" for a Unix partition,
"c [Enter]
"0 [Enter]" for the starting cylinder,
"653 [Enter]" if you have an LXT340ATA drive
or
"1023 [Enter]" if you have an LXT535ATA,
"y [Enter]" to make it active,
"4 [Enter]" to select option 4 to exit the partitioning screen and update the system.*
- Step 4:* When the system says it will do a surface analysis, press " [Enter]" to allow it to proceed. The analysis will take about 10 minutes.
- Step 5:* When asked if the disk allocations are acceptable, type "n [Enter]".
- Step 6:* When asked if you want separate /root and /usr file systems, type "y [Enter]".
- Step 7:* When asked if you want a separate /usr2 file system, type "n [Enter]".

- Step 8:* When asked if you want a separate crash/dump area, type "n [Enter]".
- Step 9:* When asked how many cylinders to use for swap/paging, type "80 [Enter]" if you have an LXT340ATA disk drive or type "128 [Enter]" if you have an LXT535ATA drive.
- Step 10:* When asked how many cylinders to use for /root, type "80 [Enter]" if you have an LXT340ATA disk drive or type "128 [Enter]" if you have an LXT535ATA drive.
- Step 11:* When asked if the allocations are acceptable, type "y [Enter]".
- Step 12:* After a few minutes, the machine will ask you to remove the diskette and press a key. Do it.
- Step 13:* The machine will shutdown and say "Reboot the System Now". Press the RESET button on the front of the system unit.
- Step 14:* After rebooting, the machine will request diskette #2 of the Foundation set, then diskette #3, and so on. Follow the instructions on the screen and insert and remove diskettes as requested.
- NOTE:**
Some versions of Unix have the labels on diskettes #6 and #7 interchanged. If diskette #6 is rejected when you insert it, try using #7 instead. If this works, use diskette #6 when you are asked for #7.
- Step 15:* The machine will request a password for the "root" login. Enter one and repeat it when asked. Do the same for the "admin" login when asked. It is important to remember these passwords for future use and also to keep them secure.
- Step 16:* The operating system will be built and the machine will shutdown. Remove the diskette from the drive and press [Enter] if requested to allow the shutdown to proceed. Press the RESET button on the front of the system unit when asked to "Reboot the system now".
- Step 17:* The "login:" prompt will appear. Type "root [Enter]". When asked for a password, enter the

one chosen in step 15, above.

Step 18:

For each of the following add-on packages, type "installpkg [Enter]" and follow the prompts on the screen. Be sure to install them in the order shown.

-- *Editing Package*

-- *Remote Terminal Package*

NOTE:

Type "1 [Enter]" to select Option 1
(install files)

Type "all [Enter]" to choose all files

Type "done [Enter]" and "0 [Enter]" to
terminate the installation.

-- *Network Support (or "Supplemental") Utilities*

NOTE:

The operating system will be rebuilt.
Press [Enter] when asked to allow the
machine to shutdown. When the "Reboot the
system now" message appears, press the
RESET button on front of the system unit
and then login again as "root" and
proceed.

-- *FACE Help*

NOTE:

Type "4 [Enter]" to select all files

Type "5 [Enter]" to terminate the
installation.

-- *FACE*

NOTE:

Ignore the warning about FMLI not being
installed and press [Enter] to continue.

-- *FMLI*

-- *Maintenance Disk No. 1*

NOTE:

The operating system will be rebuilt.
Press [Enter] when asked to allow the
machine to shutdown. When the "Reboot the
system now" message appears, press the

RESET button on front of the system unit and then login again as "root" and proceed.

-- 2 User to 16 User Upgrade Package

NOTE:

The operating system will be rebuilt. Press [Enter] when asked to allow the machine to shutdown. When the "Reboot the system now" message appears, press the RESET button on front of the system unit and then login again as "root" and proceed.

-- Cartridge Tape Utilities Q60/125

NOTE:

When asked which interrupt to use, type "5 [Enter]". Press " [Enter]" when requested to allow the operating system to be rebuilt, and again to allow the machine to shutdown. When the "Reboot the system now" message appears, press the RESET button on front of the system unit and then login again as "root" and proceed.

12.13 Configuring the ASY Driver

This section covers reconfiguring the Unix *asy* driver so that interrupt 4 can be used for an IPC-900 board.

Step 1: Open the *sdevice* file for editing by typing the following line:

```
vi /etc/conf/cf.d/sdevice [Enter]
```

Step 2: The first two lines of the file should look as follows:

```
asy Y 1 7 1 4 3f8 3ff 0 0
asy Y 1 7 1 3 2f8 2ff 0 0
```

Step 3: If the two lines are present, make sure that the cursor is on the first line - move it with the arrow keys, if necessary. Delete the line by pressing the "d" key twice. Then save the file by holding down the [Shift] key and pressing the "z" key twice.

Step 4: If only one line is present, make sure that it is

the same as the second line shown above (the line with "3" and 2f8" in it). Make any necessary changes by moving the cursor under the character to be changed with the arrow keys and typing "r" and then the correct character. Save the file and exit the editor by holding down the [Shift] key and pressing the "z" key twice.

Step 5: Open the asy file for editing by typing the following line:

```
vi /etc/conf/sdevice.d/asy [Enter]
```

Step 6: The first two lines of this file should also look as follows:

```
asy   Y   1   7   1   4   3f8   3ff   0   0
asy   Y   1   7   1   3   2f8   2ff   0   0
```

Step 7: If the two lines are present, make sure that the cursor is on the first line - move it with the arrow keys, if necessary. Delete the line by pressing the "d" key twice. Then save the file by holding down the [Shift] key and pressing the "z" key twice.

Step 8: If only one line is present, make sure that it is the same as the second line shown above (the line with "3" and 2f8" in it). Make any necessary changes by moving the cursor under the character to be changed with the arrow keys and typing "r" and then the correct character. Save the file and exit the editor by holding down the [Shift] key and pressing the "z" key twice.

Step 9: Type the following lines exactly as shown (no spaces before or after [Tab] or [Enter]):

```
rm /dev/tty0* [Enter]
echo "asy [Tab] tty01 [Tab] c [Tab] 0">/etc/conf/node.d/asy [Enter]
echo "asy [Tab] tty01s [Tab] c [Tab] 0">>/etc/conf/node.d/asy [Enter]
echo "asy [Tab] tty01h [Tab] c [Tab] 128">>/etc/conf/node.d/asy [Enter]
```

12.14 Installing the I/O Driver Software

12.14.1 IPC-900 Boards

If any IPC-900 boards are installed in this system, follow these steps:

Step 1: Insert the *IPC Unix System 802/900* diskette and type

- ```
"installpkg [Enter]:
```
- Step 2:* Follow the prompts. When asked how many boards will be installed, type "1 [Enter]" or "2 [Enter]", as appropriate.
- Step 3:* When asked what type of board, press [Enter] to select the default IPC-900.
- Step 4:* When asked what interrupt to use, type "4 [Enter]:"
- Step 5:* When asked what I/O address to use, type "290 [Enter]".
- Step 6:* When asked what memory address to use, type "cc000 [Enter]".
- Step 7:* When asked if the values are acceptable, type "y [Enter]"
- Step 8:* If a second board has been installed, repeat steps 3 through 7 for the second board, entering the following:
- ```
-- interrupt 15
-- I/O address 2a0
-- memory address c8000
```
- Step 9:* The operating system will be rebuilt. When prompted, remove the diskette from the drive and press [Esc] to prevent a shutdown. The machine will be shutdown in a later step.

12.14.2 IPC-1600 Boards

If any IPC-1600 boards are installed in the system, follow these steps:

- Step 1:* Insert the *IPC-1600 Unix System V/386 Software, V1.0* or *1.1* diskette and type "installpkg [Enter]"
- NOTE:**
Do not use the *IPC-1600 Software V 2.0* or higher - it is for use only with Unix R4.
- Step 2:* Type "1 [Enter]" to install just the driver software. Press [Enter] when asked to confirm your choice.
- Step 3:* Type "y [Enter]" to install using a shared

interrupt.

- Step 4:* When asked what interrupt to use, type "4 [Enter]".
- Step 5:* When asked if the same memory address will be used for all boards, type "y [Enter]"
- Step 6:* When asked what memory address to use, type "90000 [Enter]".
- Step 7:* When asked how many boards will be installed, type "1 [Enter]", "2 [Enter]" or "3 [Enter]" as appropriate.
- Step 8:* When asked what I/O address to use, select the following, as appropriate:
- First Board: select I/O address 100
 - Second Board: select I/O address 110
 - Third Board: select I/O address 120
- Step 9:* When asked if the values are acceptable, type "y [Enter]"
- Step 10:* When asked if the configuration is acceptable, type "y [Enter]"
- Step 11:* The operating system will be rebuilt. When prompted, remove the diskette from the drive, but press [Esc] to prevent a shutdown. The machine will be shutdown in a later step.

12.14.3 GPSC-AT/E Boards

If any GPSC-AT/E boards are installed in the system, follow these steps:

- Step 1:* Insert the *Network Interface Software* diskette #1 and type "installpkg [Enter]"
- Step 2:* Follow the prompts and insert diskette #2 when requested. When asked how many boards will be installed, type "1 [Enter]", "2 [Enter]" or "3 [Enter]" as appropriate.
- Step 3:* When asked if various shared memory addresses are acceptable, type "n [Enter]" until the appropriate address below is given, then type "y [Enter]":

```
-- First Board: memory address D0000

-- Second Board: memory address 80000

-- Third Board: memory address 90000

Step 4:      When asked what I/O address is acceptable, type "y
[Enter]" for the appropriate value:

-- First Board: I/O address 24 0

-- Second Board: I/O address 25 0

-- Third Board: I/O address 26 0

Step 5:      When asked what interrupt is acceptable, type "y
[Enter]" for the appropriate value:

-- First Board: interrupt 10

-- Second Board: interrupt 11

-- Third Board: interrupt 9

Step 6:      When asked how many simultaneous X.25 processes
will be required, type "50 [Enter]"

Step 7:      When asked what the maximum packet size should be,
type "128 [Enter]"

Step 8:      The operating system will be rebuilt. Type
"[Enter]" to proceed when the board settings are
displayed.

Step 9:      When prompted, remove the diskette from the drive,
but press [Esc] to prevent a shutdown. The
machine will be shutdown in a later step.

Step 10:     If you installed only one GPSC-AT/E board, skip
the following steps and proceed to the next
section to shut down the machine. If you
installed two or three GPSC-AT/E boards, open the
sdevice file for editing by typing the following
line:

vi /etc/conf/cf.d/sdevice [Enter]

Step 11:     Type "/x25 [Enter]" to move the cursor to the
following lines:

x25   Y   72   5   1   10   240   24F   D0000   DFFFF
x25   Y   72   5   1   11   250   25F   80000   8FFFF
```

Step 12: Move the cursor underneath the "8" in the "80000" in the second line with the arrow keys. Type "rE" to change the "8" to an "E". Move the cursor underneath the "8" in the "8FFFF" on the same line. Type "rE" to change this "8" to an "E", also. Save the file and exit the editor by holding down the [Shift] key and pressing the "z" key twice.

Step 13: Open the x25 file for editing by typing the following line:

```
vi /etc/conf/sdevice.d/x25 [Enter]
```

Step 14: The first two lines of this file will also look as follows:

```
x25  Y  72  5  1  10  240  24F  D0000  DFFFF
x25  Y  72  5  1  11  250  25F  80000  8FFFF
```

Step 15: Move the cursor underneath the "8" in the "80000" in the second line with the arrow keys. Type "rE" to change the "8" to an "E". Move the cursor underneath the "8" in the "8FFFF" on the same line. Type "rE" to change this "8" to an "E", also. Save the file and exit the editor by holding down the [Shift] key and pressing the "z" key twice.

Step 16: Rebuild the operating system by typing the following line:

```
/etc/conf/bin/idbuild [Enter]
```

Wait for the "#" prompt to return, which will take about two minutes.

12.15 Shutdown and Reboot the Machine

Step 1: Shutdown the machine by typing "shutdown -i0 -g0 -y [Enter] "

Step 2: When the "Reboot the system now" message appears, press the RESET button on the front of the system unit.

Installation of your I-2000 hardware and system software is now complete. Proceed with Chapter 4, "Database and I-2000 Software Installation", to install the Informix Database and I-2000 Application software.

13. APPENDIX B1 - IMX PORT/8 CONNECTION INFORMATION

13.1 General

See Figure 5 and Tables G, H, I, and J.

14. APPENDIX B2 - IPC-900 AND IPC-1600 CONNECTION INFORMATION

14.1 General

See Figure 6 and Tables K, L, M, and N.

15. APPENDIX B3 - ALARM PORT CABLE INFORMATION

15.1 General

See Figure 7 and Table O.

16. APPENDIX B4 - RS-232C CABLE INFORMATION

16.1 General

See Figures 8 and 9.

17. APPENDIX C - USING PC TERMINAL EMULATORS WITH I-2000

17.1 General

It is possible to use a personal computer running a terminal emulator program to communicate with an I-2000 Controller. However, I-2000 uses many complex terminal control codes to efficiently draw its menus and forms, and not all terminal emulator programs support them. Details on using a few of the available terminal emulators are given below.

DynaComm(R) (Version 3.0 or 3.10) from Future Soft Engineering, Inc., is a terminal emulator program which runs under Microsoft(R) Windows(R) and provides an emulation of an AT&T 605 or 705 terminal. This program, when configured for 605 or 705 emulation, works correctly with I-2000. Be sure to set the program up so that the function keys are displayed and that at least 24 lines of 80 characters each are visible in the terminal window. When logging in to I-2000, enter "605" or "705" at the "TERM=" prompt.

Crosstalk Mark 4(R) (version 2.1.0) and **Crosstalk Communicator**(R) from Digital Communications Associates, Inc., **Procomm Plus**(R) from Datastorm Technologies, Inc., and **MSKERMIT**(R) (Version 3.01) from Columbia University (free-ware available from many public bulletin board services) all run under DOS(TM). The only emulation which has been found to work with these programs is the vt100 option (the AT&T 513 emulation in **Crosstalk**(R) and the AT&T 605 and 4410 emulations in **Procomm Plus**(R) won't work). To obtain complete functionality, you must use the keyboard remapping capability of the program to redefine the keys as shown in Table P. Keyboard remapping for **Crosstalk**(R) is accessed by pressing "[Alt] -S", then "[Alt] -K" from the Dialing Directory. For **ProComm Plus**(R), press "[Alt] - [F8]", then select *CHANGE* and *Key Mapping*. For **MSKERMIT**, use the *show key* and *set key commands*. For more details, see the documentation for your particular program. Note that in the table, "^F" represents Control-F (ASCII 006), and "^B" represents Control-B (ASCII 002). When logging on to I-2000 using any of these programs, enter "vt100" at the "TERM=" prompt and then enter "y" when the system warns you that this is not a supported choice and asks if you want to really continue.

The communication parameters for any terminal emulator should be set the same as for a terminal - one start bit, 7 data bits, 1 even parity bit, one stop bit and a baud rate to match the I-2000 connection.

It is likely that other terminal emulators will work with I-2000 as well. If a program offers an emulation of one of the supported I-2000 terminal types (see the I-2000 User's Guide), attempt to use it. If the emulation doesn't work, or if none is offered, try the vt100 emulation with the keyboard remapping given in Table P.

18. USER FEEDBACK FORM

How Are We Doing?

Document Title: I-2000 CONTROLLER FOR DACS II - INSTALLATION MANUAL

Document Number: AT&T 365-301-423 Issue Number: 1

Publication Date: November 1992

AT&T welcomes your feedback on this document. Your comments can be of great value in helping us improve our documentation.

1. Please rate the effectiveness of this document in the following areas:

	Excellent	Good	Fair	Poor	Not Applicable
Ease of Use					//////////
Clarity					//////////
Completeness					//////////
Accuracy					//////////
Organization					//////////
Appearance					//////////
Examples					
Illustrations					//////////
Overall Satisfaction					//////////

2. Please check the ways you feel we could improve this document:

- | | |
|--|---|
| <input type="checkbox"/> Improve the overview/introduction | <input type="checkbox"/> Make it more concise/brief |
| <input type="checkbox"/> Improve the table of contents | <input type="checkbox"/> Add more step-by-step procedures/tutorials |
| <input type="checkbox"/> Improve the organization | <input type="checkbox"/> Add more troubleshooting information |
| <input type="checkbox"/> Include more figures | <input type="checkbox"/> Make it less technical |
| <input type="checkbox"/> Add more examples | <input type="checkbox"/> Add more/better quick reference aids |
| <input type="checkbox"/> Add more detail | <input type="checkbox"/> Improve the index |

Please provide details for the suggested improvement. _____

3. What did you like most about this document?

4. Feel free to write any comments below or on an attached sheet.

If we may contact you concerning your comments, please complete the following:

Name: _____ Telephone Number: (____)_____

Company/Organization: _____ Date: _____

Address: _____

When you have completed this form, please fold, tape, and return to address below or Fax to: 910-727-3043.

DOCUMENTATION SERVICES
2400 Reynolda Road
Winston-Salem, NC 27106

19. LEGAL AND SUPPORT INFORMATION

Copyright (c) 1992 AT&T
All Rights Reserved

Notice

Every effort was made to ensure that the information in this document was complete and accurate at the time of development. However, the information is subject to change.

Trademarks

NOTE: The following letters enclosed in parentheses are used to mark the first representation of these trademarks in this data base.

(R) = Registered trademark
(TM) = Trademark
(SM) = Service mark.

Following is a list of trademarks used throughout this data base.

CROSSTALK -- Registered trademark of Digital Communications Associates, Inc.
CROSSTALK COMMUNICATOR -- Registered trademark of Digital Communications Associates, Inc.
CROSSTALK MARK 4 -- Registered trademark of Digital Communications Associates, Inc.
DATAKIT -- Registered trademark of AT&T.
DOS -- Trademark of Applied Data Communications
DYNACOMM -- Registered trademark of Future Soft Engineering, Inc.
INFORMIX -- Registered trademark of Informix Software, Inc.
MICROSOFT -- Registered trademark of Microsoft Corporation.
MSKERMIT -- Registered trademark of Columbia University.
PROCOMM PLUS -- Registered trademark of Datastorm Technologies, Inc.
UNIX -- Registered trademark of UNIX System Laboratories, Inc.
WINDOWS -- Registered trademark of Microsoft Corporation.
XENIX -- Registered trademark of XEL Corporation.

Ordering Information

The ordering number for this document is AT&T 365-301-423.
For ordering information, refer to *About This Manual, Additional Documentation*. [REF. 1.6]

List of Tables

Table A: Other I-2000 Documentation

No.	Title
365-301-422	I-2000 Controller User's Guide
365-301-424	I-2000 Controller Applications, Planning and Ordering Guide

Table B: I-2000 Port Numbers for IMX Port/8 Board

Board Port ID	I-2000 Port/Line No.
A0 (Bottom)	1
A1	2
A2	3
A3	4
A4	5
A5	6
A6	7
A7 (top)	8

Table C: I-2000 Port Numbers for IPC-900 Boards

Board Port ID	I-2000 Port/Line No. (first board in system)	I-2000 Port/Line No. (second board)
1	1	9
2	2	10
3	3	11
4	4	12
5	5	13
6	6	14
7	7	15
8	8	16

Table D: I-2000 Port Numbers for IPC-1600 Boards

Board Port ID	I-2000 Port/Line No. (first board in system)	I-2000 Port/Line No. (second board)	I-2000 Port/Line No. (third board)
1	1	17	33
2	2	18	34
3	3	19	35
4	4	20	36
5	5	21	37
6	6	22	38
7	7	23	39
8	8	24	40
9	9	25	41
10	10	26	42
11	11	27	43
12	12	28	44
13	13	29	45
14	14	30	46
15	15	31	47
16	16	32	48

Table E: I-2000 Port Numbers for GPSC-AT/E Boards

Board Port ID	I-2000 Port/Line No. (first board in system)	I-2000 Port/Line No. (second board)	I-2000 Port/Line No. (third board)
A	1	3	5
B	2	4	6

Table F: X.25 Packet Network Port Parameters for Connection to I-2000

Frame Level Settings	Packet Level Settings
DCE	packet size = 128 bytes
Supply Clock	lowest SVC number = 1
LAPB	Highest SVC number = 20
modulus = 8	window size = 2
window size = 3	modulus = 8
N2 = 20	D_bit = on
T1 = 6 seconds	number of unacknowledged clear packet = 5
T3 = 20 seconds	T20 = 180 seconds
	T21 = 200 seconds
	T22 = 180 seconds
	T23 = 180 seconds
	T27 = 180 seconds

Table G: IMX Connector Pin-out

Function	Pin No.
SHLD	8
GND	2
RTS	1
CTS	7
TXD	6
RXD	4
DTR	5
DCD	3

Table H: RJ-45 Cable Wiring

Pin No. (End #1)	Pin No. (End #2)
8	1
7	2
6	3
5	4
4	5
3	6
2	7
8	1

Table I: IMX Modem Adapter Pin-out

Function	RJ-45 Pin No.	DB-25 Pin No.
SHLD	1	7
GND	7	7
RTS	8	4
CTS	2	5
TXD	3	2
RXD	5	3
DTR	4	20
DCD	6	8

Table J: IMX Terminal Adapter Pin-out

Function	RJ-45 Pin. No.	DB-25 Pin No.
SHLD	1	7
GND	7	7
RTS	8	5
CTS	2	4
TXD	3	3
RXD	5	2
DTR	4	8
DCD	6	6,20

Table K: RJ-45 Connector Pin-out

Function	Pin No.
SHLD	10
GND	5
RTS	9
CTS	8
TXD	7
RXD	6
DTR	4
DCD	3
RI	2
(RES)	1

Table L: IPC RJ-45 Cable Wiring

Pin No. (End #1)	Pin No. (End #2)
10	10
9	9
8	8
7	7
6	6
5	5
4	4
3	3
2	2
1	1

Table M: IPC Modem Adapter Pin-out

Function	RJ-45 Pin No.	DB-25 Pin No.
SHLD	10	1
GND	5	7
RTS	9	4
CTS	8	5
TXD	7	2
RXD	6	3
DTR	4	20
DCD	3	8
RI	2	22
(RES)	1	6

Table N: IPC Terminal Adapter Pin-out

Function	RJ-45 Pin No.	DB-25 Pin No.
SHLD	10	1
GND	5	7
RTS	9	5
CTS	8	4
TXD	7	3
RXD	6	2
DTR	4	8
DCD	3	6, 20
RI	2	-
(RES)	1	-

Table O: PC/AT 9-Pin Modem Cable Pin-out

Function	DB-9 Pin No.	DB-25 Pin No.
SHLD	-	1
GND	5	7
RTS	7	4
CTS	8	5
TXD	3	2
RXD	2	3
DTR	4	20
DSR	6	6
DCD	1	8
RI	9	22
(RES)	1	-

Table P: VT-100 Terminal Emulator Keyboard Mapping for I-2000

Keyboard Key	Remap to Send
F5	^[Ot
F6	^[Ou
F7	^[Ov
F8	^[Ol (lower case l)
Page Up	^F
Page Down	^B
Up Arrow	^[OA
Down Arrow	^[OB

List of Figures

Figure 1: Asynchronous Terminal Connections

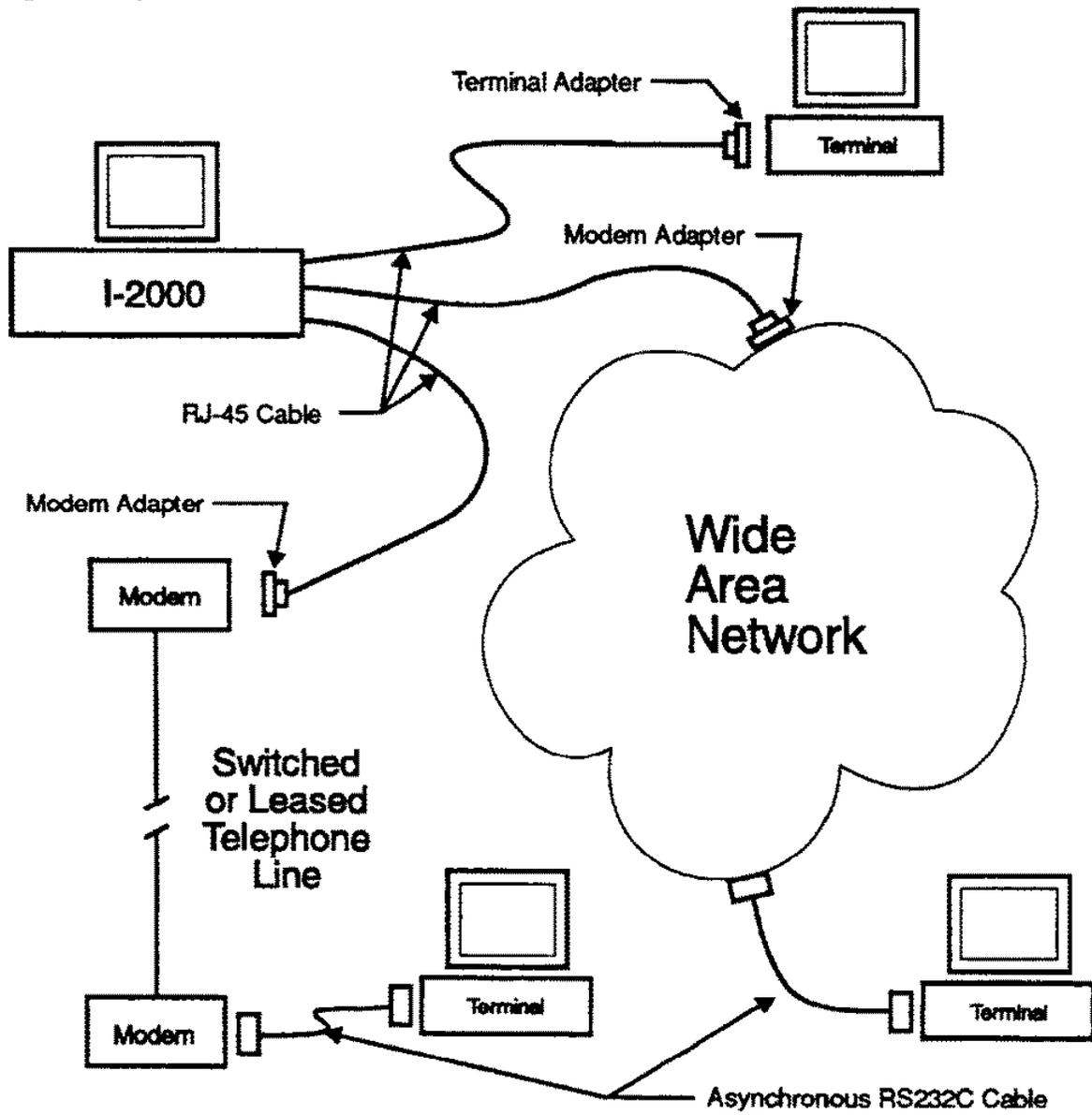


Figure 2: Asynchronous (Snider) DACS Frame Connections

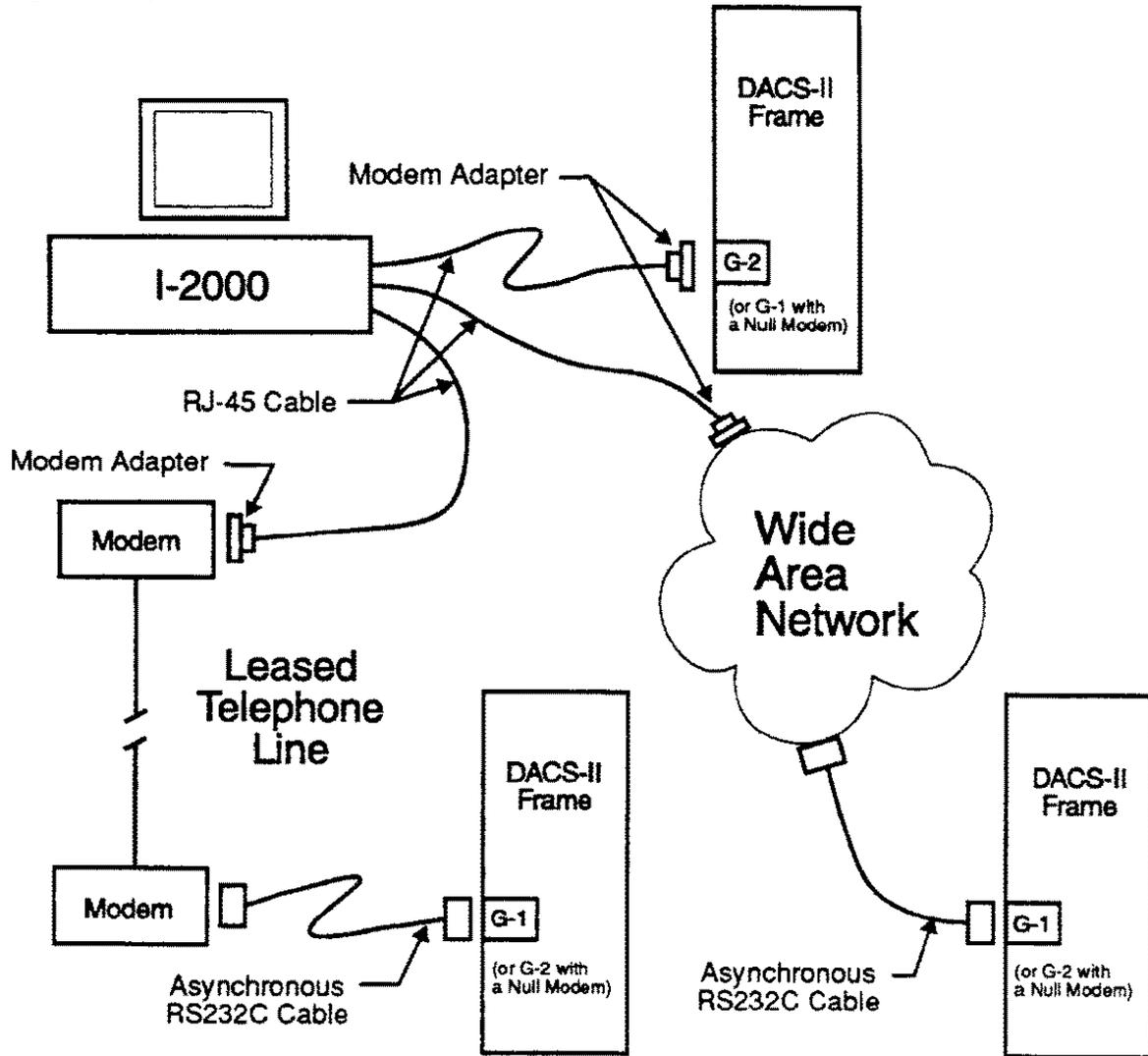


Figure 3: Asynchronous Alarm Port Connections

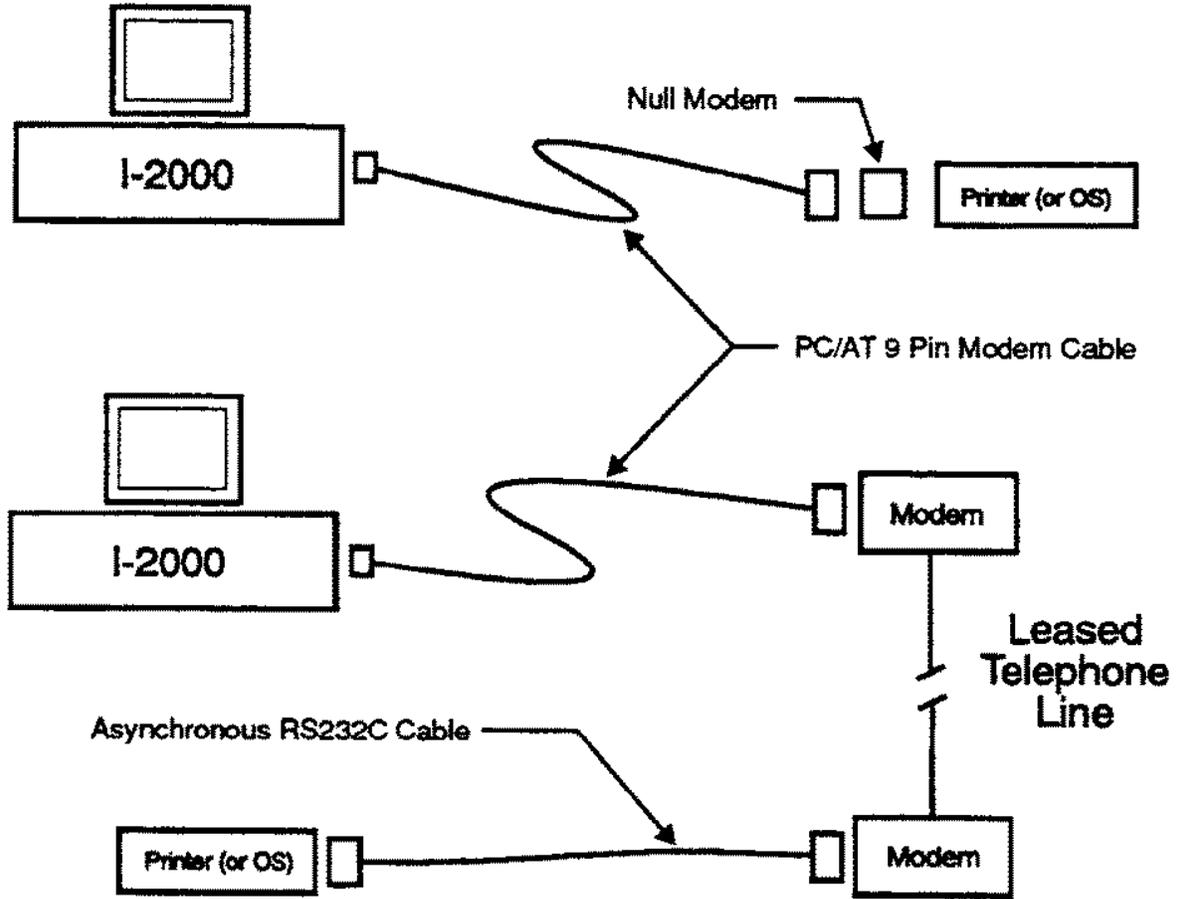


Figure 4: X.25 DACS Frame Connections

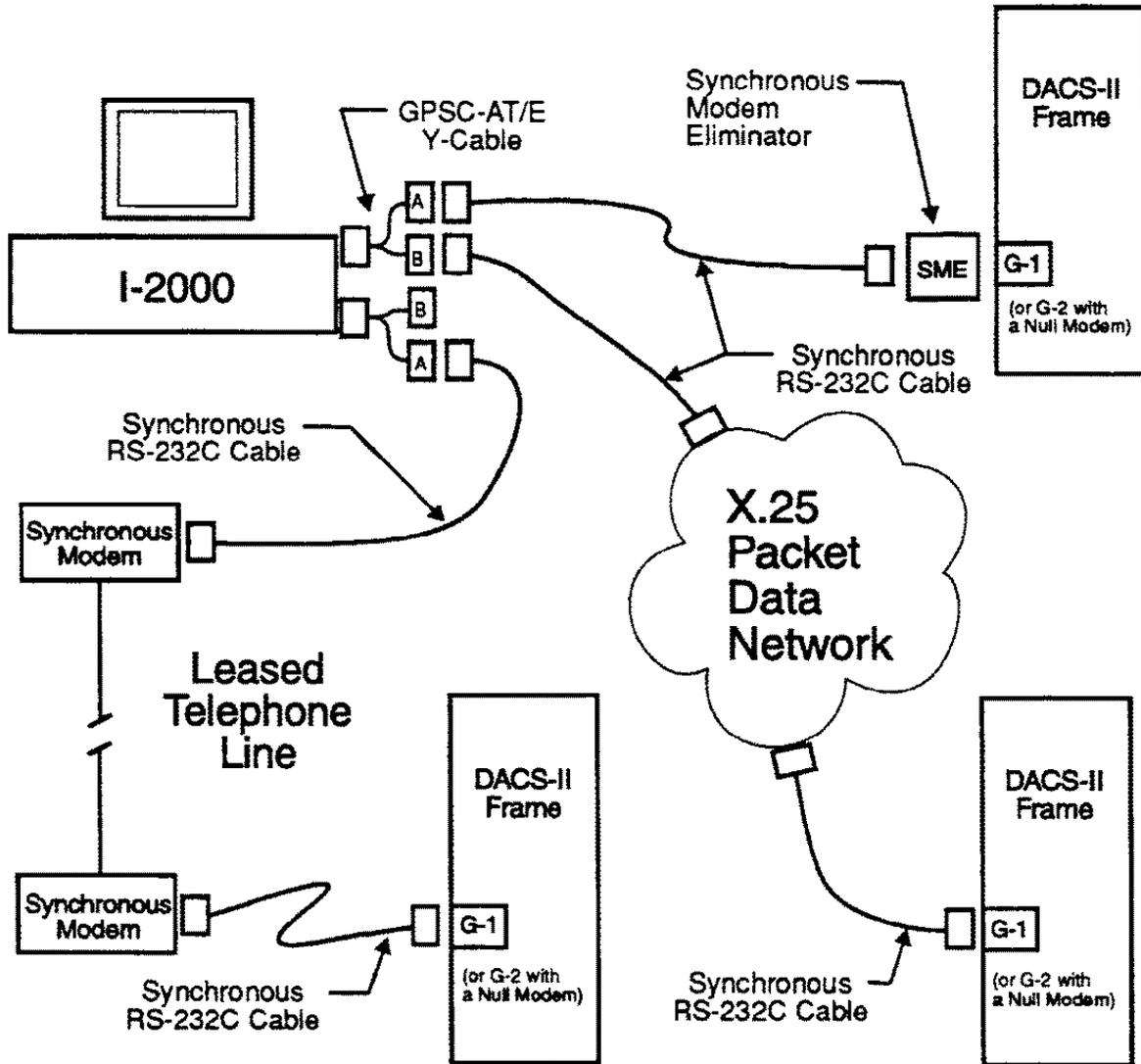


Figure 5: IMX Port Connections

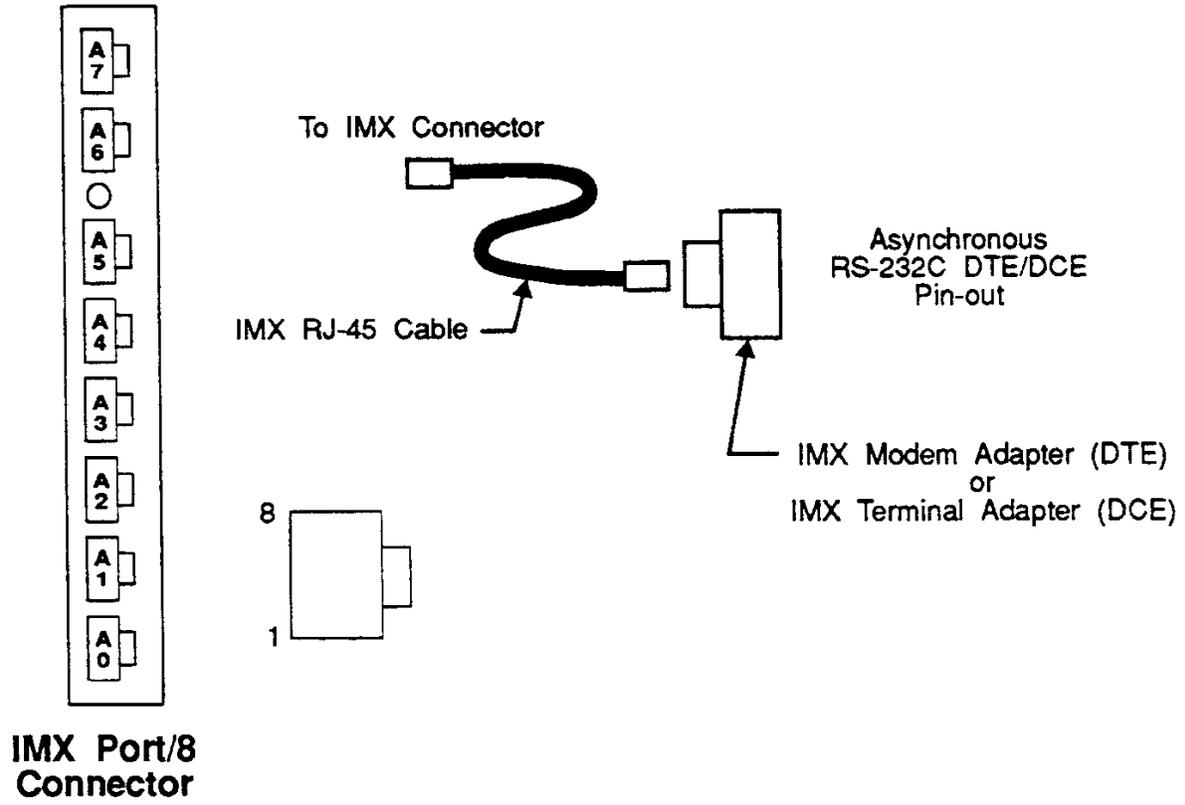


Figure 6: IPC Port Connections

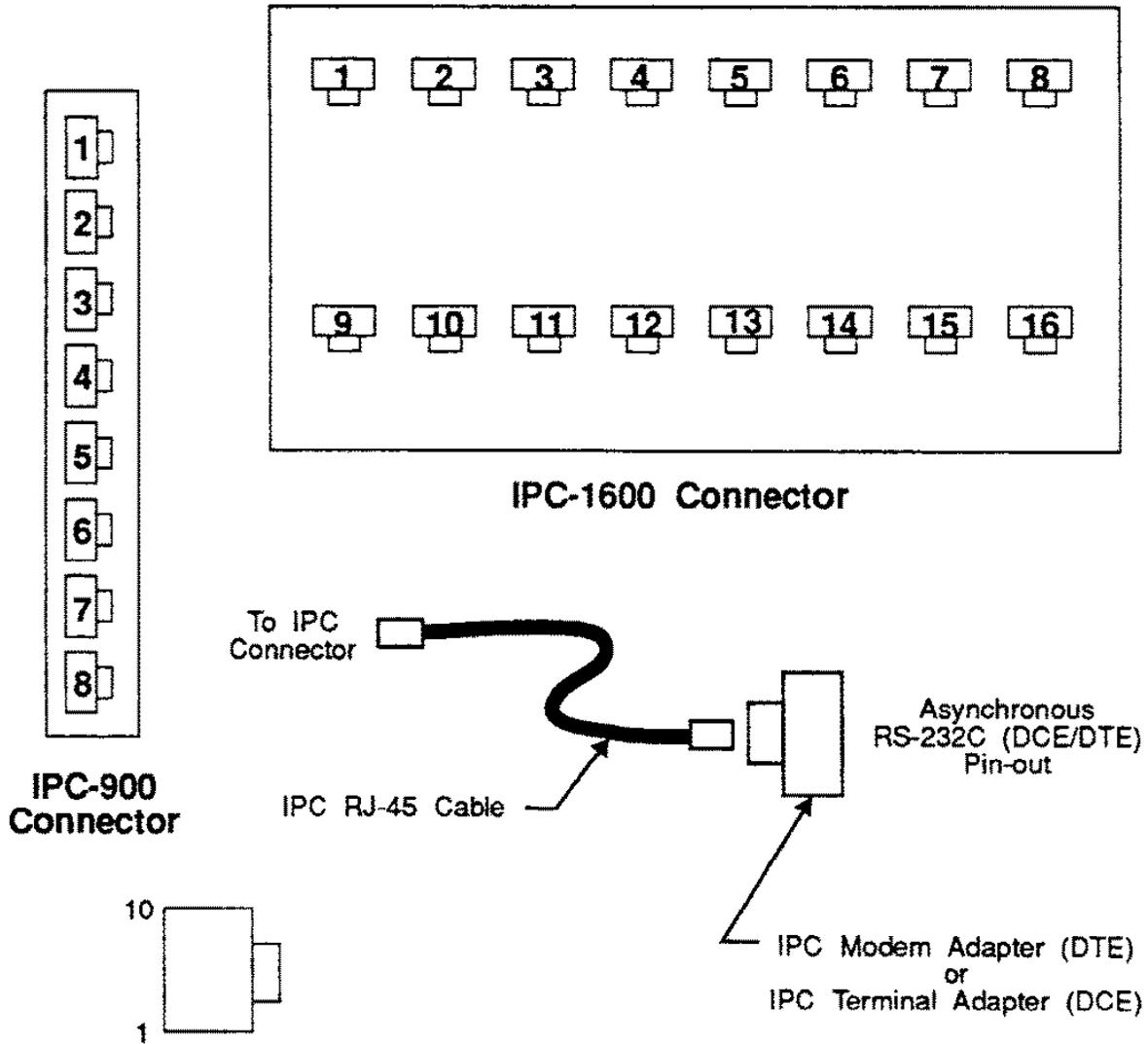


Figure 7: PC/AT 9-Pin Modem Cable

To System Unit
Serial Port B
or Serial Port 2
or COM2
Connector

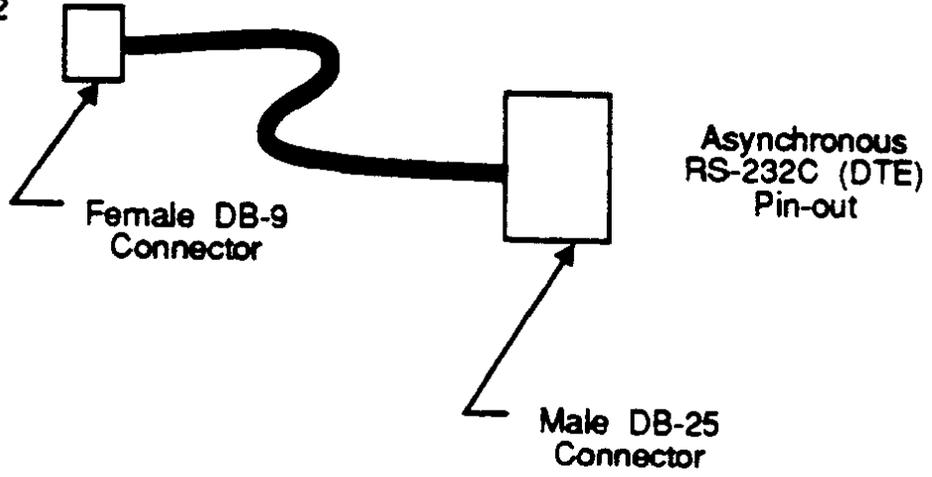


Figure 8: Asynchronous RS-232C Cable

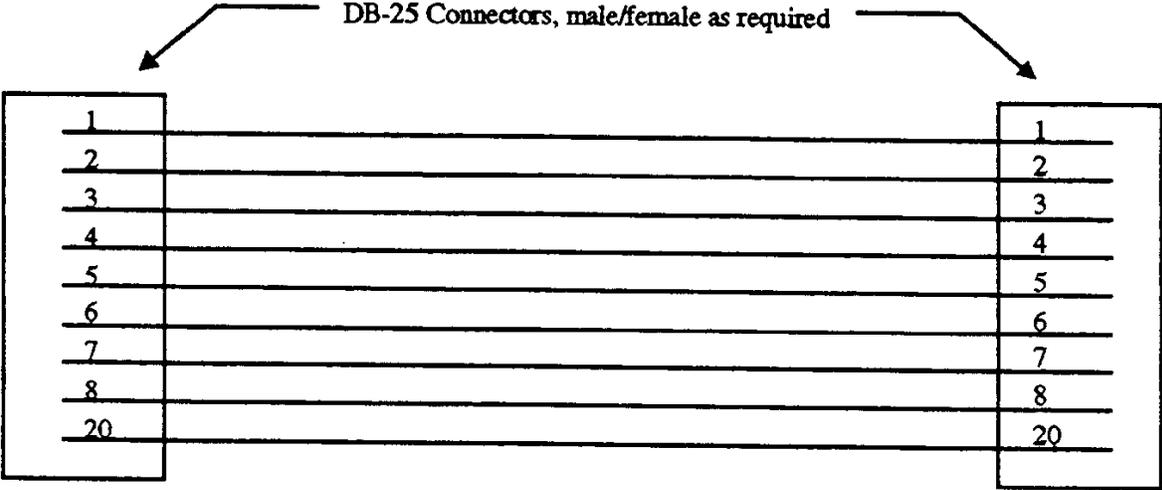
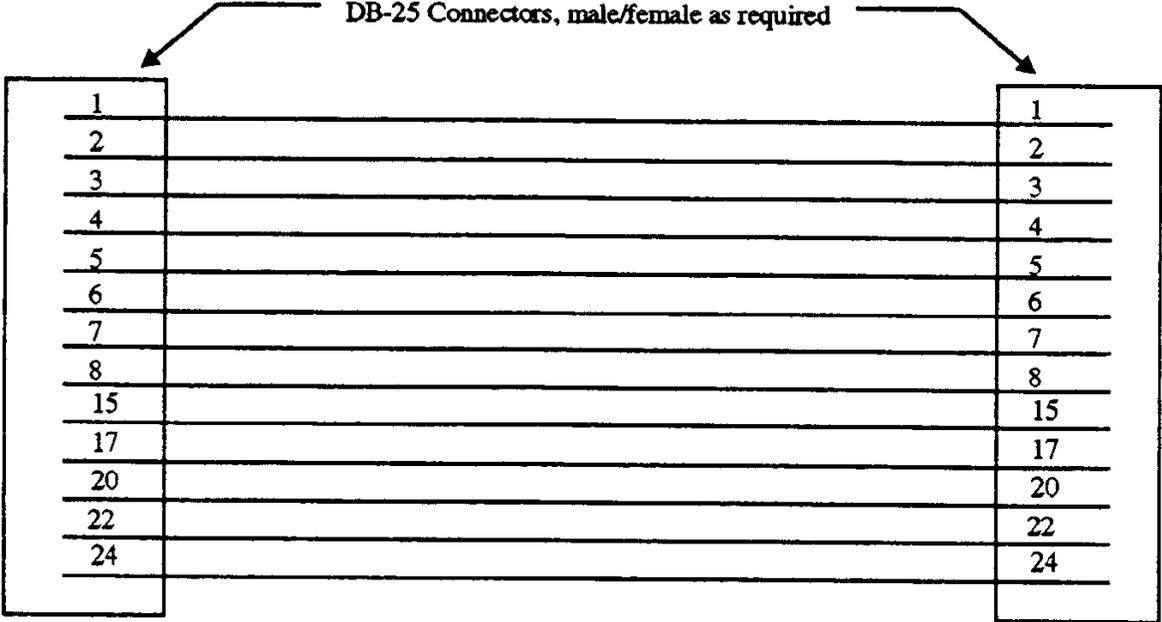


Figure 9: Synchronous RS-232C Cable



Glossary: Acronyms

IPC — T Intelligent Ports Card

PDN — Packet Data Network

POST — Power-On-Self-Test