HP82000 IC Verification System

Configuring and Installing Series700 Workstations

August 1995

The HP 82000 System is a product of Böblingen Instruments Division.

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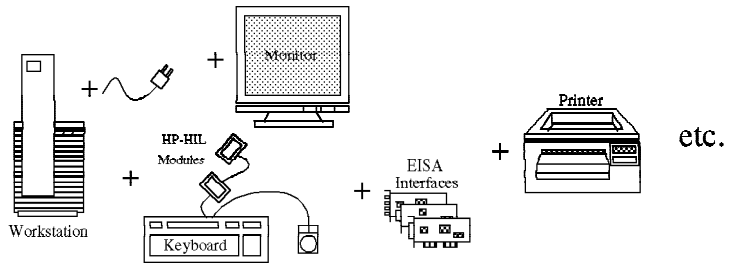


Configuring the Workstation

This procedure tells you how to configure Series700 Workstations for the HP 82000 system .

This chapter contains information about the installation and configuration of the Workstation, Interfaces and Peripherals required by the HP 82000 IC Verification System. The following topics are covered:

- Supported Workstation Configurations
- Installing an High-Speed HP-IB Interface
- Installing an E2790A GPIO Interface
- Installing Additional EISA Interfaces
- Installing HP-HIL ID Modules
- Installing Peripherals

Supported Workstation Configurations

Recommended Workstation from the HP9000 Series 700 family:

- 725/75 PA-RISC

Code compatible platforms are:

- 745 PA-RISC
- 755 PA RISC

NOTE:

This Installation Procedure only covers configuring the 725/75 and the 755 Workstations as the common platforms. For configuration and installation of a 745 Workstation please refer to the appropriate manuals.

Table 1 and Table 2 show which configurations of the 725/75 and 755 Workstations are required/recommended for use with the HP 82000 system.

Table 1 **755 Workstation Configuration**

	Minimum	Recommended
RAM	64 MB	128 MB
HARD-DISK	600 MB	2 GB Standard Configuration
Monitor		19" Color, 1024 x 1280
SCSI DAT Drive		Internal, with Data Compression
CD-ROM Drive		Internal, 600 MB
HP-IB Interface		E2071B

Table 2 **725 Workstation Configuration**

	Minimum	Recommended
RAM	64 MB	128 MB
HARD-DISK	600 MB	1 GB Standard Configuration
Monitor		19" Color, 1024 x 1280
SCSI DAT Drive		External, with Data Compression
CD-ROM Drive		Internal, 600 MB
HP-IB Interface		E2071B

Workstation Interfaces and Ports

The following diagram shows the connection points for standard HP 9000 Series 755 and 725 configurations:

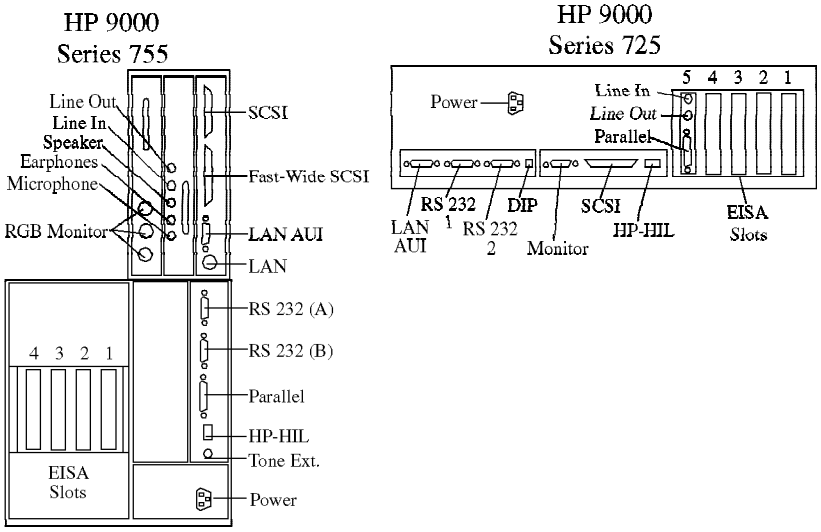


Figure 1 **HP 9000 Series 755 & 725 interfaces and Ports**

The functions of and connections to these ports and interfaces are described in the documentation supplied with the workstation. This chapter only describes procedures and dependencies which are specific to the HP 82000 system.

Installation Procedure

The detailed procedure for installing an HP 900 Series 700 Workstation is included in the documentation provided with the Workstation. The following is an overview of the steps you should take to configure the Workstation for the HP 82000 IC Verification System:

1 Unpack and install the Workstation, Monitor, Keyboard and Mouse, and install them as described in the documentation provided.

2 Connect the Workstation to mains power, and verify that it boots correctly.

3 Switch the Workstation off again.

4 Remove the cover(s) on the workstation, so that you can access the EISA Slots to install Interface Cards. (See also "Owner's Guide" of your Workstation).

CAUTION: Take ESD precautions while installing Interface Cards, to prevent damage to the Workstation and the Interface Cards.

5 Install the EISA Interface Cards supplied, as described in the following sections.

NOTE: Configurations described in this document take precedence over the standard configurations given in the documentation supplied with the EISA Interface Cards. The configuration given here has been tested and works with the HP 82000 software. It can not be guaranteed that other configurations will work first-time.

6 Reboot the Workstation, to verify that the EISA Interface Cards are installed correctly. (Some of the EISA cards like HP-IB and GPIO interface will NOT automatically be recognized by the Workstation. Especially an HP-IB interface card needs to be configured into the kernel).

7 Replace the covers on the Workstation.

8 Install peripherals, such as external drives, printers, etc.

Installing an High-Speed HP-IB Interface

One EISA High-Speed HP-IB Interface is required to control the HP82000 system, HP-IB Device Power Supplies (DPS's) and HP-IB High Speed Width Generators from the Workstation. Supported is only one model of High-Speed HP-IB Interface:

- E2071B High-Speed HP-IB Interface (supported from HP 82000 Software, ***Revision 6.0***).

The installation procedure is as follows:

1. Configure the DIP switches on the HP-IB card.
2. Install the HP-IB Interface in the workstation.
3. Configure the HP-IB Card into the HP-UX Kernel. This is described in the chapter 2.

E2071B DIP-Switch Settings

Before you install the E2071B HP-IB Interface in the workstation, configure the DIP switches as shown in the following Diagram:

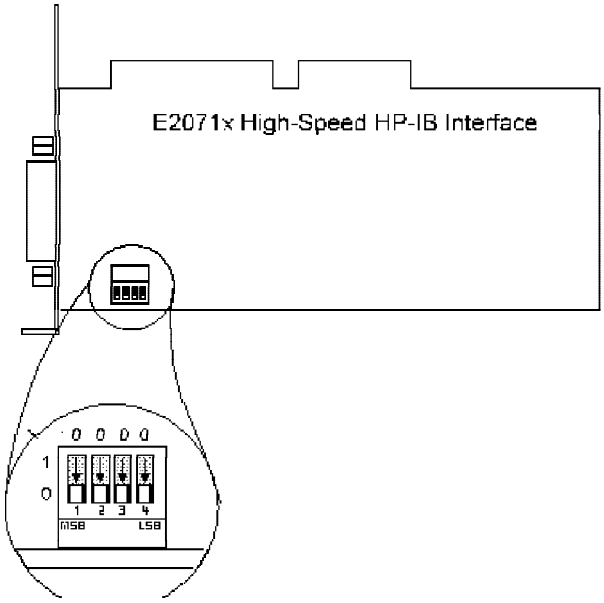


Figure 2 **DIP Switch Settings - E2071B High-Speed HP-IB Interface**

Use the default setting (`0000`), as shown in Figure 2 . Other configurations are possible, but we recommend this configuration for the HP 82000 system. (See also HP E2071B Installation Guide).

EISA Address Area

The Address Area of the E2071B HP-IB Interface is set to `0x250-0x257` for the HP 82000 system (corresponds to DIP Switch setting `0000`). When you install other EISA Cards that have a fixed, or hard-configurable Address Area (via e.g. DIP Switches or Jumpers), ensure that there is no conflict with the E2071B.

EISA Slot Number

Install the High-Speed HP-IB Interface in **EISA slot 1** of the Workstation, as shown in the following diagram:

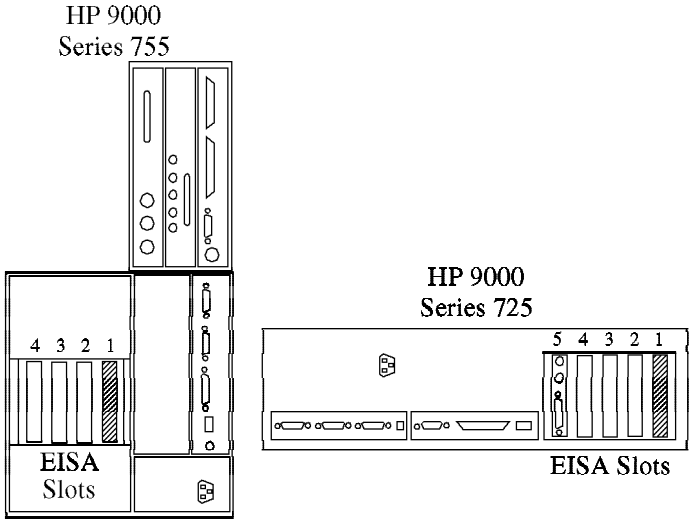


Figure 3 **EISA Slot Number - E2071B HP-IB Interface**

Installing Additional EISA Interfaces

The installation and configuration procedure for each additional EISA Card is supplied with the card. However, you should take care to avoid conflicts with the standard cards.

EISA Slot Assignments

By the definition of EISA, Interface Cards can be installed in any of the EISA slots in the workstation. However, for the HP 82000 system, we recommend that you install EISA Cards in the following order:

Table 3 **EISA Slot Assignments (HP 9000 Series 725 and 755)**

Location	Board Description
Slot 1	E2071I/B High-Speed HP-IB Interface
Slot 2	empty
Slot 3	Other (Printer HP-IB, Network, etc.)
Slot 4[a]	Parallel (Printer) Interface (preconfigured)

a. HP 9000 Series 725 only

The EISA slot numbering in HP 9000 Series 755 and 725 Workstations is illustrated in the following diagram:

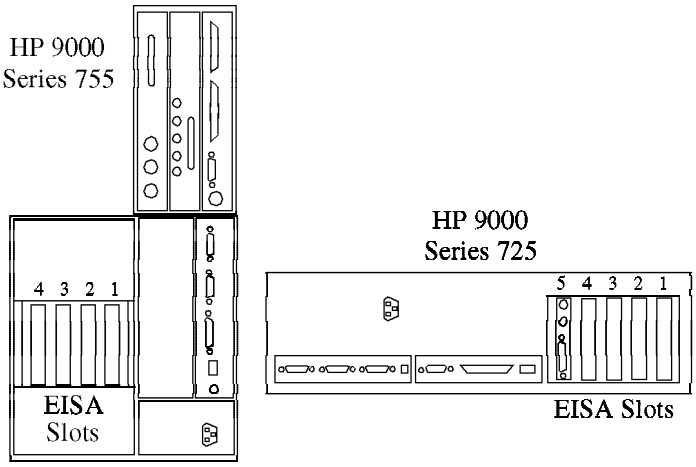


Figure 4 **HP 9000 Series 755/725 EISA Slot Numbering**

NOTE: It is not possible to install two EISA HP-IB Interfaces (of any kind) in adjacent slots, as the standard HP-IB Connectors are too large to fit beside each other. Take care that you take such physical limitations into account when you install extra EISA Cards.

EISA Interrupt Level

The Interrupt Level of the E2071B High-Speed HP-IB Interface is set to *Interrupt Level 3* by default. (See "Configuring the E2071B HP-IB Card into the Kernel"). When you install/configure another interrupt-driven EISA Card, make sure that there is no conflict with the E2071B.

NOTE: If you are required to change the Interrupt Level of the E2071B, refer to the documentation supplied with the card. Note that you will have to take account of this change when you configure the HP-IB Interface in to the HP-UX kernel (described in chapter 2, Installing the Software).

Installing HP-HIL ID Modules

One HP-HIL Module is delivered with every HP 82000 System:

Module : *C/ANSI C Developer's Bundle* .

Note the serial and product number of each ID Module. You will need this information when you install the system software.

The installation of HP-HIL Modules is described in the documentation provided with each module. However, you should note the following:

- You must install ID Modules between the workstation and the keyboard, as shown in Figure 7. Do not attempt to install them between the keyboard and mouse, as this will cause problems while you are booting the software.

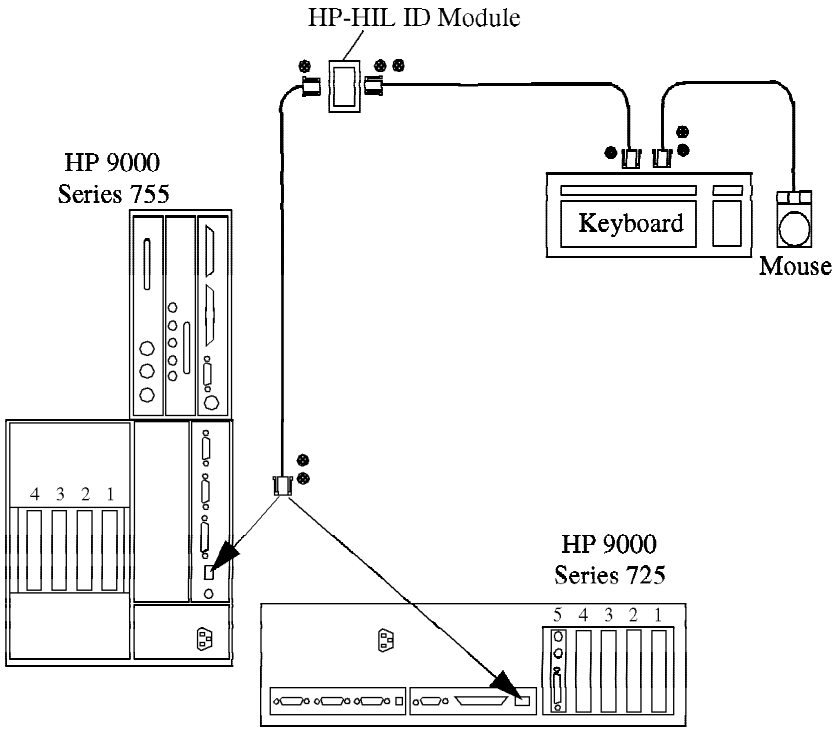


Figure 5 **Installing HP-HIL Modules**

- The C/ANSI C requires a codeword, which is linked to a specific ID Module (referenced by the module's Serial Number). This codeword is *not transferable*, so check that you have the correct ID Module and that the codeword was generated for this module.

Installing Peripherals

Installing a CD-ROM Drive

You need a CD-ROM Drive to install HP-UX and the SICL Software on the Workstation. This can be either an internal CD-ROM Drive, or an external stand-alone type, which is connected to the Workstation's SCSI bus (*not* Fast-Wide SCSI).

Installing a DAT Drive

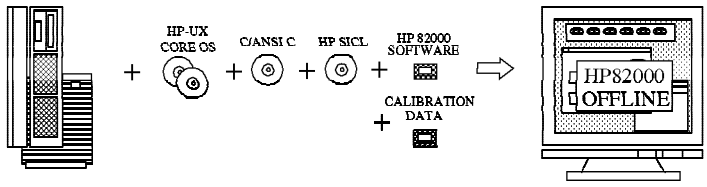
You need a DAT Drive to install the HP 82000 software on the Workstation. This can be either and internal DAT Drive, or an external stand-alone type, which is connected to the Workstation's SCSI bus (*not* Fast-Wide SCSI). The HP 1.3 GB, 2.0 GB and 8.0 GB (Data Compression) DAT Drives are supported for this installation.

Installing Printers

The HP 82000 software directly supports a limited set of printers, but it is possible to use any printer which is supported by HP-UX and the `xpr` command. No hardware modifications to the printer are usually required, but a shell script in the HP 82000 software must be modified for each different type of printer. These modifications are described in Chapter 2, Installing the Software.

Connecting the printer to the Workstation is described in the documentation provided with the printer.

2



Installing the Software

This chapter describes how to install the software for the HP 82000 on Series 700 Workstations.

Software Information

CAUTION: *READ THIS PROCEDURE COMPLETELY BEFORE YOU START WITH THE INSTALLATION!*

NOTE: This procedure directly refers to a HP-UX Rev. 9.05 installation. The procedure may change slightly as the UX revisions are progressing, and described discs and their contents could be altered.

Documentation Required

You will require the manual *Installing and Updating HP-UX 9.0x* for the software installation.

Media Required

You require the following CD-ROMs and DAT Tapes for the installation:

Table 4 **Media Required for the Installation**

Part Number	Media	Description	Revision
B2826-67920	CD	Kit HP-UX Jewel Case (2 CD's: Install Disc, Core OS)	9.05
B2826-67919	CD	Kit HP-UX S700 Application SW Discs (4 CD's)	9.05
E2091-13401	CD	HP SICL Libraries	3.01
E1222-17600	DAT	HP 82000 Software (S700)	6.0.x
	DAT	HP 82000 Calibration Data	

Licences and Codewords Required

The HP 82000 system is always shipped with a licence for the **C/ANSI C Developer's Bundle**. This licence is shipped in the box with a codeword and the appropriate HP-HIL ID Module. You should locate these items before you continue with the installation. As part of the HP-UX installation, you will be required to enter the codeword which is on the licence sheet.

In HP-UX Rev. 9.05, the **C/ANSI C Developer's Bundle** is located on **disc 3 of 4**.

A licence sheet for HP 82000 software is shipped in a separate box, with the User Documentation for the system. Codewords are only required for the HP82000 SW Options (Memory Test, CAE Links etc.). The codewords are noted on a separate license certificate, included if options had been ordered.

In general, you should locate all licences and certificates and put them in a safe place. After the installation has been completed they **must** be stored in a safe place.

Before you continue with the software installation, you should verify that the HP-HIL ID Module required by the **C/ANSI C Developer's Bundle**, is installed on the HP-HIL chain. The serial number of the ID Module required is indicated on each licence certificate.

1: Installing HP-UX

This section refers to Chapter 3 of the manual *Installing and Updating HP-UX*, and only contains notes and information which is relevant for the HP 82000 system. You must read the manual to find out more details about each step, though all steps are listed in this section.

Step 1: Have all Devices Turned OFF

Turn all computer hardware off and go to the next step.

Step 2: Prepare your Installation Media

Ensure that you have the CD-ROMs and DAT Tapes listed in Table 4 on page 20.

Step 3: Start the Drives and Load the Media

If the Workstation has an *internal* CD-ROM Drive, use the following procedure:

1. Switch the workstation and monitor on.
2. Stop the Boot-Device search, by pressing the `ESC` key.
3. Insert the *HP-UX Install Disc* in the Drive. The Workstation will automatically recognize the CD-ROM as a bootable device.
4. Go to **Step 5: Select the Device Having the Source Media.**

If you have an *external* CD-ROM Drive connected to the Workstation, use the following procedure:

1. Switch the CD-ROM Drive on.
2. Insert the HP-UX Install Disc in the Drive.
3. Continue to the next step.

Step 4: Start up the System

Power the Workstation and Monitor on.

Step 5: Select the Device Having the Source Media

Select to boot from the CD-ROM.

Step 6: Account for an EISA Configuration Process

Ignore this step and ignore any error messages from the `eisa_config` routine for the moment. Press `Continue`.

Step 7: The Initial Installation Screen

Step 8: Root Destination Menu

Determine your 'root' destination device: System disc.

Step 9: Choose the Type of Filenames for File Systems

Select `LONG FILENAMES`.

Step 11: The Main Menu Continues the Installation

Step 12: Verify the Swap-Space

If the Workstation is equipped with a 1 GByte hard-disk, or bigger, we recommend that you enter a swap-space of 100 MB (102400 1024 Byte blocks). However, if you must save disk-space, the following table shows you what minimum swap-space you will require, which depends on the number of off-line HP 82000 sessions which will be started simultaneously.

Table 5 **Minimum Swap-Space Requirements**

Number of Off-line Sessions	Minimum Swap-Space (MB)	Swap-Space (1024-Byte Blocks)
none	96	`98304`
1	105	`107520`
2	120	`122880`
3	135	`138240`
4	150	`153600`

The system will round off the value you enter.

Step 13: A Final View of Destination Devices

Step 14: Initial Loading of Partitions Containing Filesets

After about 2 minutes, the system stops and you are prompted to load the next CD-ROM unit.

1. Remove the Install CD-ROM from the Drive and insert the *HP-UX Core OS* CD-ROM.
2. Press `Return` to continue.
3. During the load process, you will be asked for parameter settings such as system name, time zone, time, root password (and network address, if applicable). Make the entries accordingly.

After approximately 40 min. this unit has loaded, the system will then reboot.

4 Check the file **/tmp/update.log** for errors during the installation.

5 Eject the CD-ROM.

Prepare for the Update routines:

6 Login as root.

7 Start the X-windoxs by typing 'x11start' and press **RETURN**.

8 In the 'hpterm'-window, enter `sam &`.

2: Mounting/Un-mounting the CD-ROM Drive as Update Media

In the process of installing or updating the SW from a CD-ROM you will have to mount/un-mount the CD-ROM drive any time you want to change the update media in this drive.

Mounting the CD-ROM drive:

1 Insert the CD-ROM from which you want to update.

2 In **SAM** select `'Disks and File Systems'`.

3 Select `'CDROM,Floppy, and Hard Disks'`.

4 Click on bar with CD-ROM drive .

5 From the `Actions` menu, select `'Add a Hard Disk Drive'`.

6 Select `'Set Disk Usage and Options'`.

7 In the **Mount Directory** field type **'/UPDATE_CDROM'** and click on `OK`.

8 Click on `YES` for *cdfs* file system.

9 Click on `OK` for `'Set Disk Usage and Options'`.

10 Click **FILE** menu and EXIT.

Un-mounting the CD-ROM drive:

After the filesets have loaded, un-mount the CD-ROM with **SAM**:

1 In **SAM** select `'Disks and File Systems'`

2 Click on bar with CD-ROM drive .

3 From the `Actions` menu, select `'Remove a Hard Disk Drive'`.

4 Eject CD-ROM.

3: Set up a DAT Drive

Carry out the following procedure in sequence:

1 If you have an external DAT Drive, check that it is switched-on and connected to the SCSI Bus on the rear of the Workstation.

2 Login as **root**.

3 Enter **sam**.

4 When **SAM** has started, select **Peripheral Devices**.

5 Select **Tape Drives**.

6 Select **DDS Tape Drives**.

The DAT Drive should now be indicated in the window, with it's address and type. Note the address (for example 2.0.1.3.0).

7 Select **Add** in the **Actions** pulldown menu.

8 Confirm all further steps, until **SAM** creates a new kernel and halts the workstation.

9 Create a device file for the DAT drive, using the ***mknod*** command, as follows:

```
/etc/mknod /dev/dds c 121 0x201307
```

Substitute the address for your DAT Drive in the command, instead of 201307 in the example above.

4: Install the HP-UX Applications

HP-UX Rev. 9.05 comes with 4 CD-ROMS containing UNIX applications. You may choose to install them all, or, if disc space is a concern, you will have to look at the different filesets to make your selection. This procedure assumes that you are loading all filesets. Some of the applications will need a codeword, and installing for the HP82000, only **C/ANSI C Developer's Bundle** is an application where you must enter a codeword.

Unless you enter the correct codeword for the **C/ANSI C Developer's Bundle**, the fileset will remain invisible to the update program and can't be installed. In addition, the HP-HIL ID Module referenced on the licence certificate must already be installed on the HP-HIL chain, otherwise the codeword will not be accepted.

1 Insert the CD-ROM.

2 Mount the CD-ROM drive. (See Chapter 2).

3 In the 'hpterm' window, enter `/etc/update`.

4 Select `'Change Source of Destination'`.

5 Select `'From CD-ROM to Local System'`.

6 If a codeword is required, type in the codeword and press '`DONE`'. Otherwise only press '`DONE`'.

7 Select `All Filesets` on the Source Media

8 Start loading.

9 After loading, check the file `/tmp/update.log` for errors during the installation.

10 Un-mount the CD_ROM drive. (See Chapter 2).

11 Eject the CD-ROM from the Drive.

5: Install the SICL Libraries

The SICL CD-ROM is *not* mountable. Follow the procedure *exactly* as it is described here. In this procedure, the CD-ROM is treated exactly like a raw tape device, with no filesystem. You do not require a codeword to install the HP SICL Libraries.

1 Login as `root`.

2 Insert the HP SICL CD-ROM in the Drive.

3 In the 'hpterm' window, enter `/etc/update` to start the update utility.

NOTE: Do not attempt to mount the CD-ROM, as it does not have a filesystem.

4 Select `'Change Source of Destination'`.

5 Select `'From Tape Drive to Local System'`.

6 Change the source device to `/dev/update.src` (the CD-ROM Drive) and press '`DONE`'..

7 Select and load all filesets on the source media. The workstation does not reboot after loading.

8 Check the `/tmp/update.log` file for errors during the installation.

9 Eject the CD-ROM from the Drive.

6: Install the HP 82000 System Software

Carry out the following procedure:

1. Login as `root`.
2. Insert the HP 82000 System Software tape in the DAT Drive and wait for it to load.
3. In the 'hpterm' window, enter `/etc/update`, to start the update utility.
4. Select `'Change Source of Destination'`.
5. Select `'From Tape Drive to Local System'`.
6. Change the source device to `/dev/dds` and press `'DONE'`.
7. In the update utility, we recommend to load all filesets. If disc space is a concern, at least the following filesets have to be selected:
   - `E1200SYS`
   - `E1200DEM`

   These filesets do not require a codeword.
8. Load the selected filesets. This should take a maximum of about ten minutes and the workstation reboots automatically.
9. Check the `/etc/update.log` file for any errors during the installation.
10. Eject the DAT Tape from the Drive.

7: Installing the HP 82000 Calibration Data

Use this procedure to install the HP 82000 Calibration Data supplied with the system. This data consists of the following files:

/hp82000/pws/data/model

/hp82000/pws/data/mainframes

/hp82000/fw/data/bc_cal_dXXX

/hp82000/fw/data/dc_cal_dXXX

/hp82000/dev_tech/cmos/ac_cal_dXXX

/hp82000/dev_tech/ecl/ac_cal_dXXX

- Where: XXX is the I/O board frequency in MHz (50,100,200,400).

NOTE:

The **model** and **mainframes** file are for the system configuration shipped from the factory, and do not include any entries for DPS's, HSWG's or I/O Boards added on site. The section **"Configuring the HP 82000 Software"** describes how to edit these files for the actual system configuration.

The calibration files were generated by calibrating the system in the configuration it was shipped in. They do not include appropriate entries for HSWG's or any configuration changes made on site. This data should only be regarded as default calibration data, and the system should be fully re-calibrated (Base Cal, DC and AC Cal) once it is in its final configuration. On the basis of the Calibration Data shipped, it can not be guaranteed that the systemwill meet its specifications in the final environment and configuration.

Carry out the following procedure:

1 Login as `root`.

2 Insert the HP 82000 Calibration Data tape in the DAT Drive and wait for it to load.

3 In the 'hpterm' window, enter `/etc/update` to start the update utility.

4 Select `'Change Source of Destination'`.

5 Select `'From Tape Drive to Local System'`.

6 Change the source device to `/dev/dds` and press '`DONE`'.

7 In the update utility, select all filesets.

8 Load the selected filesets.

9 Check the `/etc/update.log` file for any errors during the installation.

10 Eject the DAT Tape from the Drive.

8: Enable the HP 82000 Software Options

If you have licences for optional HP 82000 software (EDA links, Memory Test Software, etc), you must enter the codewords corresponding to these products.

Just start the file **/hp82000/com/bin/hp82000_enable**. You are asked for codewords for the different SW options. Enter the appropriate codewords and quit the program.

- The codeword consists of a very long ASCII string, so take special care when entering each codeword.
- Type in the codewords exactly as they are listed on the certificates. Note that spaces and character cases (upper, lower) must be retained.

9: Configure a Printer

First, configure the printer under HP-UX, using SAM. The documentation supplied with the printer will tell you how to do this. Test that the printer works, either using the printer test in SAM, or by printing a file.

The HP 82000 software has it's own printer script, called `hp82000_lp`.This script enables the HP 82000 software to send screen-dumps and other data to a printer which is configured on the workstation (remote, or local). The following list of printers are pre-configured in this script:

- HP Thinkjet
- HP Quietjet
- HP Laserjet Family
- HP Paintjet
- HP Paintjet XL300

Enabling a Printer Which is on the List of Pre-Configured Printers...

Carry out the following procedure in sequence:

1 Edit (`vi`) the `/hp82000/com/lbin/hp82000_lp` script and locate the following lines:

```
Lp=lpr

Model=thinkjet

GraphicLp=$Lp

GraphicModel=$Model
```

The configuration shown here is the default configuration, and you must edit it for the printer you want to use.

2 Substitute `lpr` (in **`Lp=lpr`**) with the name of the printer you want to use to print out listings and ASCII text.

3 If you want to use the same printer to print out text and screen dumps, then you do not have to edit the line **`GraphicLp=$Lp`**. However, if you want to use a different printer for screen-dumps, you must replace **$Lp** with the name of this printer.

4 Substitute **$Model** (in **`GraphicModel=$Model`**) with the model name of the printer which will be used for screen-dumps (the one you defined in **GraphicLp=$Lp**).

10: Set up the Demo User

Carry out the following procedure in sequence.

1 Login as root.

2 Enter **sam**.

3 Set up a new user, with the following settings:

User Name: **demo**

Home Directory: **/users/demo**

Password: **hp82000**

The directory **/users/demo** should already exist. It is created when you install the **E1200DEM** fileset of the HP 82000 software.

4 Logout

11: Configure the HP 82000 Software

Carry out the following procedure in sequence:

1 Login as `root`.

2 Edit the file `/hp82000/pws/data/model`. Valid entries in the model file are:

D50,32k	for E1210A
D50,128k	for E1210B
D50,512k	for E1210C
D100,64k	for E1211A
D100,256k	for E1211B
D100,1024k	for E1211C
D100X,64k	for E1209A
D100X, 256k	for E1209B
D100X, 1024k	for E1209C
D200, 64k	for E1212A or mixed configuration with E1209A
D200, 256k	for E1212B or mixed configuration with E1209B
D200, 1024k	for E1212C or mixed configuration with E1209C
D400, 64k	for E1214A or mixed configuration with E1212A and/or E1209A
D400, 256k	for E1214B or mixed configuration with E1212B and/or E1209B

Ensure that the entries correspond to your hardware. Do not delete the header line in this file. If you make any changes, remember to save the file afterwards. The file **/hp82000/pws/data/model.def** contains a full list of valid entries for the **model** file.

3 Edit the file **`/hp82000/pws/data/mainframes`**.You must make an entry in the mainframes file for every card-cage, DPS and HSWG channel.

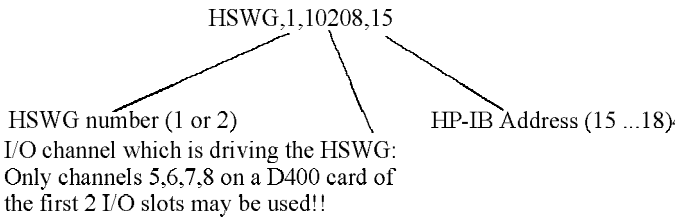
The entry for each **Card-Cage** takes the form 'Mc,h', where:

- 'c' is the number of the Card-Cage (1 to 4).
- 'h' is the HP-IB address of the Clock Board in this Card-Cage.

The entry for each DPS takes the form 'DPSn,h', where:

- 'n' is the number of the DPS.
- 'h' is the HP-IB address of the DPS. (2 and/or 7).

The entry for each HSWG channel takes the form as follows:



Ensure that the entries correspond to your hardware. Do not delete the header line in this file. If you make any changes, remember to save the file afterwards.

4 When working with mixed D100X,D200/D400 configurations, the file **/hp82000/pws/data/offl_tester_co** simulates the system configuration in Offline mode. This is necessary, because in Offline mode the system cannot determine the hardware configuration. This file is not required in configurations where only D50, D100, D200 or D400 boards are installed.

Each line of this text file represents **one** mainframe. The 16 available slots of the mainframe must each be given a number which represents a D100X, a D200 or a D400 board, a PMU or an empty slot. No entry is needed for the Clock Board and Sequencer Board in slots 1 and 2, respectively. The numbers are separated by a comma.

The complete syntax for one mainframe is:

slot3, slot4, slot5, ... slot18

where each slot is either:

400 - represents a 400 MHz board

200 - represents a 200 MHz board

100 - represents a 100X MHz board

1 - representing a PMU board

0 - representing an empty slot

For example:

400,400,200,200,100,100,1,0,0,0,0,0,0,0,0,0

400,400,200,200,100,100,1,0,0,0,0,0,0,0,0,0

This indicates a double mainframe system with

- 400 MHz boards in slot 3 and slot4 of both card-cages.
- 200 MHz boards in slot5 and slot6 of both card-cages.
- 100 MHz (D100X) boards in slot7 and slot8 of both card-cages.
- PMU's in the first free slot.
- all other slots are empty.

12: Configuring the E2071B HP-IB Card into the Kernel

Carry out the following procedure:

1 Login as `root`.

2 Copy (`cp`) the file `/usr/pil/defaults/hwconfig.cf` to the directory `/usr/pil/etc`.

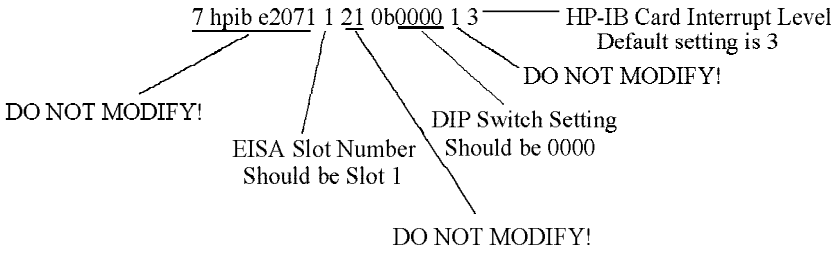
3 Change directory (cd) to `/usr/pil/etc`.

4 Edit (`vi`) the file `/usr/pil/etc/hwconfig.cf`, and locate the following line:

```
#7 hpib e2071 1 21 0b0000 1 3
```

5 Unmask the line, by deleting the hash symbol (`#`).

6 Modify this line only for additional HP-IB cards. For the HP-IB card in slot 1 leave this line unchanged:.



The entry as shown above has our recommended settings and corresponds with the Workstation Configuration described in the chapter *Configuring the Workstation*. With additional EISA cards, the Interrupt Level and the DIP switch setting are the only values which will have to be changed to avoid conflicts with other cards.

NOTE: EISA Cards which will be used to control instruments may require an entry in the `hwconfig.cf` file. Refer to the Installation Guide for the card for details of how the card should be configured. Note that some EISA Cards do not have to be set up in the `hwconfig.cf` file (for example, the E25560A High-Performance HP-IB Card). If an example configuration entry does not exist in the `hwconfig.cf` file, then **DO NOT CONFIGURE THE CARD**!

7 Save the file, and enter `/usr/pil/bin/pilconf`. The `pilconf` utility reconfigures the HP-UX kernel to include the setup data in the `hwconfig.cf` file.

8 Confirm all questions up to the point where you are asked if the workstation should be rebooted now. You can allow the workstation to reboot.

NOTE: If you should choose to have a look at the 'config.log' file (which is offered during 'pilconf'), ignore the given information about 2071B HP-IB card DIP switch setting. This information is incorrect.

13: Configuring a second E2071B HP-IB Card into the Kernel

You may need to use a second E2071B HP-IB Card if the HP82000 Workstation is supposed to control other HP-IB devices than HSWG's and supported DPS's. This may especially be required if a Traceable Calibration is done on the system.

A second HP-IB Card **must** be located in EISA slot 3. Because of the width of the HP-IB connector there is not enough space to locate a second card in slot 2.

Before plugging the the card into EISA slot 3, set the DIP switches on the E2071B HP-IB card to '1000'.

To configure the card into the kernel, carry out the following procedure:

1 Login as `root`.

2 Change directory (cd) to `/usr/pil/etc`.

3 Edit (`vi`) the file `/usr/pil/etc/hwconfig.cf`, and locate the following line:

```
#9 hpib3 e2071 3 21 0b1000 1 5
```

4 Unmask the line, by deleting the hash symbol (`#`).

5 Save the file, and enter `/usr/pil/bin/pilconf`. The `pilconf` utility reconfigures the HP-UX kernel to include the setup data in the `hwconfig.cf` file.

6 Confirm all questions up to the point where you are asked if the workstation should be rebooted now. You can allow the workstation to reboot.

NOTE: If you should choose to have a look at the 'config.log' file (which is offered during 'pilconf'), ignore the given information about E2071B HP-IB card DIP switch setting. This information is incorrect.