HEWLETT-PACKARD

SYSTEMS
CONFIGURATION GUIDE

*FOR DISC
AND
DISC/TAPE
DRIVES*

NOTE

This manual provides information for configuring HP 7907, HP 7941, HP 7942, HP 7945, and HP 7946 Drives into supported operating systems.

The Owner's manuals for these products (07907-90901, 07940-90901, and 07942-90901) may include Appendices with similar information. Use the information in this manual instead of the information in the Owner's manual Appendices.

PRINTING HISTORY

New editions incorporate all update material since the previous edition. Updating Supplements, which are issued between editions, contain additional and revised information to be incorporated into the manual by the user. The date on the title page changes only when a new edition is published.

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NOTICE

The information contained in this document is subject to change without notice.

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CHAPTER 1

INTRODUCTION

OVERVIEW

This manual provides the necessary information for configuring one of the following disc or disc/tape drives into a supported operating system:

- HP 7941 and HP 7945 Disc Drives

- HP 7942 and HP 7946 Disc/Tape Drives

- HP 7907 Disc Drive

The information in this manual is product-specific and is intended to supplement the system documentation, which contains the complete procedure for configuring a disc drive into the operating system. When necessary, references are made to the appropriate system documentation.

This manual does not include any information on the physical installation of the drive. This information can be found in the appropriate drive and/or system documentation.

MANUAL ORGANIZATION

The configuration information is organized into a series of appendices. Each appendix is dedicated to a single drive or group of functionally related drives, and contains configuration information for all operating systems which support that drive. Table 1-1 is a matrix showing the drives covered in this manual and the systems which support each drive.

ADDITIONAL HELP

This manual, when used in conjunction with the appropriate system configuration documentation, should provide all the information necessary to successfully configure a drive into any one of its supported operating systems. However, if further assistance is required on configuring a particular drive into a particular system, contact your local Hewlett-Packard Customer Engineer.

Table 1-1. System Support Matrix

HOST	OPERATING SYSTEM	DRIVE			
		HP 7941 HP 7945 (Appx A)	HP 7942 HP 7946 (Appx B)	HP 7907 (Appx C)	
HP 1000:					
A-Series	RTE-A	X	X	X	
E/F-Series	RTE-6	X	X	X	
HP 9000:					
Series 200	BASIC 3.0	X	X	X	
	PASCAL 3.0	X	X	X	
	HPUX 2.0	X			
	HPUX 2.1		X	X	
Series 300	BASIC 4.0	X	X	X	
	PASCAL 3.1	X	X	X	
	HPUX 5.0	X	X	X	
Series 500	BASIC 2.0	X	X	X	
	HPUX 3.0	X			
	HPUX 4.0		X		
	HPUX 5.0			X	
HP 3000:					
Series 37, 39, 4X, 58, 68	MPE-VE T-MIT	X (7945 Only)			

APPENDIX A

HP 7941 AND HP 7945 CONFIGURATION

APPENDIX A

HP 7941 AND HP 7945 CONFIGURATION

INTRODUCTION

This appendix contains the information necessary for configuring HP 7941 and HP 7945 Disc Drives into their supported systems. These systems include the HP 1000 (A-Series, E-Series, and F-Series), the HP 9000 (Series 200, 300, and 500), and the HP 3000 (Series 37, 39, 4X, 58, and 68). The HP 7941 is not supported on the HP 3000 systems.

HP 1000 A-SERIES SYSTEMS

The following paragraphs describe how to prepare an RTE-A operating system which will support the use of the HP 7941 and HP 7945 Disc Drives on Model A600, A700, and A900 computer systems running standard RTE-A operating systems.

Support

The HP 7941 and HP 7945 are supported as a "system disc" or an "auxiliary disc" on RTE-A systems. RTE-A operating systems can be installed on the HP 7941 and HP 7945 by using the RTE-A utility INSTL and copying system files to the disc, or by using an offline version of ARSTR and a 9144 tape drive to restore a primary system to the disc.

The HP 7941 and HP 7945 require the RTE-A CS/80 disc driver DD.33, revision 2326 or later.

Up to four (4) HP 7941/HP 7945's are supported on a single 12009A HP-IB interface card. The HP 7941 and HP 7945 can be "daisy chained" to any other CS/80 disc drive provided the total number of CS/80 disc drives do not exceed the four disc drives per interface requirement.

Preparing for the Disc Layout

To optimize the disc storage capacity of the HP 7941 and HP 7945 Disc Drives on RTE-A, the user may define the driver parameters which specify LU sizes and starting block location (DP3, DP4, DP5, DP6, DP7). Default generation records are contained in the RTE-A operating system for the HP 7941 and HP 7945 (Rev 2440).

The HP 7941 and HP 7945 have 92,928 and 216,831 disc blocks of usable formatted capacity, respectively.

Note: One disc block equals 256 bytes or 128 words.

To do the generation, the user should have available the following RTE-A Manuals:
* *RTE-A System Generation and Installation Manual*, part no. 92077-90034 . . . . (required)
* *RTE-A User's Manual*, part no. 92077-90002 . . . . (if needed)

- *RTE-A Utilities Manual*, part no. 92077-90004. . . . . (if needed)
- *RTE-A Driver Reference Manual*, part no. 92077-90011 . . . . (if needed)

A procedure to configure an HP 7941 or HP 7945 is described below. Each step in the procedure is accompanied by an example showing how the generation is done.

Considerations

The simplest way to configure the disc drive is to use the default disc configuration for the HP 7941 or HP 7945. The following example illustrates this approach.

If you desire to configure your disc drives in a way other than that shown in the example, refer to pages C-8 through C-13 in the *RTE-A System Generation and Installation Manual* on configuring a CS/80 disc subsystem.

Disc Layout

The disc layout used here will be the same as the RTE-A default sizes for the HP 7941 and HP 7945 Disc Drives. (Refer to the *RTE-A System Generation and Installation Manual*, Appendix C and E, for more information.)

HP 7941 DISC LAYOUT EXAMPLE

A sample disc layout for the HP 7941 is shown below. The example uses an RTE-A default disc configuration for the HP 7941. (Refer to the *RTE-A System Generation and Installation Manual*.)

	LU	16	17	18	19	Range
DP1	HP-IB addr.	0	0	0	0	0-7
DP2	UNIT / VOL.	0	0	0	0	0
DP3	Starting\	0	0	0	0	0
DP4	Block ›	0	0	0	1	0-1
DP5	Number /	0	19200	64750	14592	0-65536
DP6	# Tracks	400	943	320	266	1-1936
DP7	Sect/Track	48	48	48	48	48
DP8	Reserved	0	0	0	0	0

HP 7945 DISC LAYOUT EXAMPLE

A sample disc layout for an HP 7945 is shown below. Refer to the *RTE-A System Generation and Installation Manual* for more information.)

LU	16	17	18	19	20	22	Range
DP1	0	0	0	0	0	0	0-7
DP2	0	0	0	0	0	0	0
DP3	0	0	0	0	0	0	0
DP4	0	0	0	1	1	1	0-3
DP5	0	19200	64750	14592	27392	44288	0-64750
DP6	400	943	320	266	352	2229	1-4517
DP7	48	48	48	48	48	48	48
DP8	0	0	0	0	0	0	0

Edit the Answer File

Now that the disc configuration has been determined, the answer file must be modified to include the HP 7941 or HP 7945. EDIT your answer file to include the following requirements.

DRIVER PARTITION SECTION

Modify the driver partition to include the interface driver (%ID.37::cartridge number) and the CS/80 disc device driver (%DD.33::cartridge number). If these drivers are already genned into your system, skip this step, and proceed to the TABLE GENERATION.

Example:

```
*
RE,%ID.37::17
RE,%DD.33::17
END
*
```

TABLE GENERATION

a. Add an IFT command for the HP-IB interface where the HP 7941 or HP 7945 will be placed.

Note: This command *will not* be required if the HP 7941 or HP 7945 is going to be placed on an existing CS/80 disc channel. (Refer to the *RTE-A System Generation and Installation Manual* for more information.)

Example:

```
*
IFT,%ID.37::17,SC:27B
*
```

Add a DVT command for the device table *immediately* after the IFT command.

Note: This command *will not* be required if the HP 7941 or HP 7945 is being added to an existing CS/80 disc channel. (Refer to the *RTE-A System Generation and Installation Manual* for more on this command.)

Example:

```
*
DVT,,,LU:9,TO:2000,DT:77B,TX:0,DX:1,DP:1:36B,PR:0
*
```

b. Add a comment before the section of driver parameters for the HP 7941 or HP 7945 noting that it is an HP 7941/HP 7945 disc drive.

Example:

```
*
* HP 7945 Disc Drive (LU's 16-20,22,23,29) specifying model number
*    as HP 7912
* HP-IB address of disc is 0
*
```

c. Add the HP 7941 or HP 7945 parameters that have been determined in the DISC LAYOUT paragraph.

If you do not want to specify a disc model number, you can specify the device type as 33B (i.e., DT:33B). (Refer to the DVT command description in the *RTE-A System Generation and Installation Manual.*)

Example: "Table Generation" section for an HP 7945 disc drive

```
*
DVT,%DD.33::17,M7945_CF:0,LU:16,DP:1:0
DVT,%DD.33::17,M7945_CF:1,LU:17,DP:1:0
DVT,%DD.33::17,M7945_CF:2,LU:18,DP:1:0
DVT,%DD.33::17,M7945_CF:3,LU:19,DP:1:0
DVT,%DD.33::17,M7945_CF:4,LU:20,DP:1:0
DVT,%DD.33::17,M7945_CF:5,LU:22,DP:1:0
*
```

THE NODE LIST

Modify the node list to include the LU numbers which are contained on the HP 7941/HP 7945.

Example:

```
*
* SIX 7945 DISC LU'S
node,16,17,18,19,20,22
*
```

Generation

Run RTAGN to do the system generation (refer to the *RTE-A System Generation and Installation Manual*). Provided the correct parameters are specified in the answer file, the generation should complete with 0 errors.

You should now have a bootable operating system which will allow you to use the HP 7941/HP 7945 to its full capacity (refer to the *RTE-A System Generation and Installation Manual* for installing a disc-based system).

Connect the HP-IB cable to the disc drive.

Set the HP-IB address on the disc drive which is specified in Driver Parameter one (DP1).

Power on the disc drive. The disc drive will go through a self-test process.

Booting the New System

Boot the new operating system which includes the HP 7941 or HP 7945.

The HP 7941 or HP 7945 Disc Drive should now be ready for use.

Mount CI and/or Initialize and mount FMGR cartridges (refer to the *RTE-A User's Manual.*)

If the operating system is to be installed on the HP 7941 or HP 7945, refer to the *RTE-A System Generation and Installation Manual* to install an operating system on another disc drive other than the current system disc.

Backup

Backup for files and data which are stored on the HP 7941 and HP 7945 can be accomplished by using a variety of media and RTE-A utilities.

THE MEDIA

Files can be backed up to another disc drive (integrated or stand-alone), an 800 or 1600 BPI tape drive, CS/80 tape cartridge drive (16.7 Mbyte or 65.7 Mbyte tape capacity) or even floppy disc (integrated floppies in Micro-1000's or stand-alone).

The medium chosen depends on the devices which are available to the user, and the amount of data which needs to be copied. Floppy discs should be used only where small amounts of data need to be backed up.

RTE-A BACKUP UTILITIES

File backup can be accomplished with the HP 7941 and HP 7945 using RTE-A utilities such as:

a. TF (tape filer)
b. FC (file copy)

An image backup can be accomplished by using utilities such as:

a. ASAVE and ARSTR

Refer to the *RTE-A Utilities Manual* to determine which utility is best suited for your application and bac-
kup strategy.

HP 1000 E- AND F-SERIES SYSTEMS

The following paragraphs describe how to prepare an RTE-6/VM operating system which will support the
use of the HP 7941 and HP 7945 Disc Drives on HP 1000 E- and F-Series computer systems running stan-
dard RTE-6/VM operating systems.

Support

The HP 7941 and HP 7945 are supported as a "peripheral disc" on RTE-6/VM systems. Since the HP 7941
and HP 7945 do not have a method of restoring Primary operating systems to the disc media, they are not
supported as "system discs". However, RTE-6/VM operating systems can be installed on the HP 7941 and HP
7945 by using the RTE-6/VM utility SWTCH, and copying system files to the disc.

The user must have the 12992J CS/80 loader ROM to boot from the HP 7941 or HP 7945.

The HP 7941 and HP 7945 require the A.85 software release (Rev. 2440) from Data Systems Division of
Hewlett-Packard for use on RTE-6/VM.

Up to four (4) HP 7941/HP 7945's are supported on a single HP 12821 HP-IB interface card. The HP 7941
and HP 7945 can also be "daisy chained" to any other CS/80 disc drive provided the total number of CS/80
disc drives do not exceed the four discs per interface requirement.

Preparing for the Disc Layout

The HP 7941 and HP 7945 have 92,928 and 216,831 disc blocks of usable formatted capacity, respectively.

Note: One disc block equals 256 bytes or 128 words.

To do the generation, the user should have available the following RTE-6/VM manuals:

• *RTE-6/VM On-Line Generator Manual*, part number 92084-90010
• *RTE-6/VM System Manager Manual*, part number 92084-90009
• *Utilities Program Manual*, part number 92084-90007

Disc Layout

Sample Disc Layout

A sample disc layout is shown below. The sample is for an HP 7945 as an auxiliary disc on the system disc interface. The example shows the necessary Answer File entries followed by suggested comments.

```
7945,1,0,0      *Model, HP-IB Address, Unit, Volume
216831          *Blocks On Disc
400,64          *Subchannel 22      191,231  Blocks Remaining
400,64          *Subchannel 23      165,631     "         "
400,64          *Subchannel 24      140,031     "         "
400,64          *Subchannel 25      114,431     "         "
400,64          *Subchannel 26       88,831     "         "
400,64          *Subchannel 27       63,231     "         "
400,64          *Subchannel 28       37,631     "         "
155,64          *Subchannel 29       27,775     "         "
100,64          *Subchannel 30       21,375     "         "
100,64          *Subchannel 31       14,975     "         "
100,64          *Subchannel 32        8,575     "         "
133,64          *Subchannel 33           63  Blocks Unused
```

Edit the Answer File

Once the disc configuration has been determined, the answer file must be modified to include the HP 7941 or HP 7945. Edit your answer file to include the following requirements:

● If the HP 7941/HP 7945 is placed on an existing CS/80 system disc channel, it will use DVM33 and the track map will be called $TM33.

● If the HP 7941/HP 7945 is placed on a separate (and second) CS/80 disc channel, it will use driver DVN33, a user supplied track map table in relocatable form called %$TN33. Relocate %$TN33 in the program load phase.

● If the HP 7941/HP 7945 is not on a CS/80 system disc channel and is the only CS/80 disc on the system, it will use DVM33 and require a user supplied track map table called $TM33. Relocate %$TM33 in the program load phase.

Table Generation Phase

Modify (if required) the Equipment Table to include entries for the HP 7941/HP 7945. This will only be required if you have added an additional HP-IB interface for the HP 7941/HP 7945.

Example of Equipment Table Entry:

```
12,DVM33,D      *EQT1: CS80 DISC, SELECT CODE 12
```

Modify the device reference table to include entries for the HP 7941/HP 7945. In the following example, EQT=1 and subchannels are 22 through 33.

Example of Device Reference Table Entries In the Answer File:

```
1,22          *LU 22
1,23          *LU 23
1,24          *LU 24
1,25          *LU 25
1,26          *LU 26
1,27          *LU 27
1,28          *LU 28
1,29          *LU 29
1,30          *LU 30
1,31          *LU 31
1,32          *LU 32
1,33          *LU 33
```

Modify the interrupt table to include the addition of the HP-IB interface (if required).

Example of Interrupt Table Entry:

```
12,EQT,1              *Select Code 12, EQT=1
```

Generation

Run RT6GN to do the system generation (see the *RTE-6/VM On-Line Generator Manual*). Provided the correct parameters are specified in the answer file, the generation should complete with 0 errors.

You should now have a bootable operating system which will allow you to use the HP 7941/HP 7945 to its full capacity (see the *RTE-6/VM On-Line Generator Manual* for installing a disc-based system).

Connect the HP-IB cable to the disc drive.

Set the HP-IB address on the disc drive which is specified in the system generation.

Apply power to the disc drive. The disc drive will go through a self-test process.

Booting the New System

Boot the new operating system which includes the HP 7941 or HP 7945.

The HP 7941 or HP 7945 should now be ready for use.

Mount CI and/or initialize and mount FMGR cartridges.

Back-up

Backup for files and data which are stored on the HP 7941 and HP 7945 can be accomplished by using a variety of media and RTE-6/VM utilities.

The Media

Files can be backed up to another disc (integrated or stand-alone), an 800 or 1600 BPI tape drive, CS/80 tape cartridge drive (16.7 Mbyte or 65.7 Mbyte tape capacity) or even floppy disc. The medium chosen depends on the devices which are available to the user, and the amount of data which needs to be copied. Floppy discs should be used only where small amounts of data need to be backed up.

RTE-6/VM Back-up Utilities

File back-up can be accomplished with the HP 7941 or HP 7945 using RTE-6/VM utilities such as:

a.   TF (tape filer)

b.   FC (file copy)

An image backup can be accomplished by using utilities such as:

a.   PSAVE and PRSTR

See the *RTE-6/VM Utilities Program Manual* to determine which utility is best suited for your application and back-up strategy.

HP 9000 SYSTEMS

The HP 7941 and HP 7945 are medium-performance fixed (non-removable) CS/80 disc drives with capacities of 23.8 Mbytes and 55.5 Mbytes, respectively. The drives are housed in five-unit high 325 mm-wide *Design-Plus* enclosures. The HP-IB characteristics of the HP 7941 and HP 7945 are listed below.

HP-IB Characteristics

Product Number	Description	Dev Addrs	Addrs Range	Std Loads	Rate* Modes	Internal Bus Cable	Cable Incld
7941/7945	23.8/55.5 Mb Disc Drives	1	0...7	1	N or H	0.0m	1.0m
Opt 550	Delete HP-IB cable	-	-	-	-	-	-1.0m
* N = normal, H = high							

Series 200

The HP 7941 and HP 7945 are supported by three operating systems on the HP 9000 Series 200: BASIC 3.0, HPUX 2.0, and PASCAL 3.0.

Support

The hardware and operating system support for the Series 200 is shown below. For additional information, consult the *HP 9000 Series 200 Configuration Information and Order Guide*, part no. 09800-90020.

HP 7941 and HP 7945 Support

Min Boot ROM	Hardware Support						Earliest Operating System Version		
	216	217	220	226	236	237	BASIC	HPUX	PWS
3.0	Yes	Yes	Yes	Yes	Yes	Yes	3.0	2.0	3.0

Interfacing

Any HP-IB interface is suitable. 98620B DMA will provide significant performance improvement and a 98625A will provide less overhead per transaction than a 98624A interface. The examples which follow assume a built-in HP-IB at select code 7 and an HP 7941 or HP 7945 at bus address 0.

The suggested initial setting of the drives switch(es) is listed below.

Switch	Setting
HP-IB Address	0

BASIC 3.0

```
Recommended Interleave       1
Typical msus                 :CS80,700,0
Binaries Required            CS80 and
                             HPIB or FHPIB (for 98625)
Binaries Optional            MS, TRANSFER
Directories per drive        1
```

HPUX 2.0

```
Recommended interleave         1
Mountable volumes per drive    1
```

```
Driver required                 cs80
Block-mode major number         0
Character-mode major number     4
```

The following are typical *mknods* for an HP 7941 or HP 7945 at select code 7, bus address 0:

```
#mknod /dev/hd7941 b 0 22
#mknod /dev/rhd7941 c 4 22

#mknod /dev/hd7945 b 0 22
#mknod /dev/rhd7945 c 4 22
```

The following special considerations apply to operation with HPUX:

• Neither the HP 7941 nor the HP 7945 is supported as a system. HPUX 2.1 presently requires a single-controller CS/80 disc with 1/4-inch cartridge tape drive for system installation.

PASCAL 3.0

```
Recommended Interleave          1
Mass storage letter specifier   Q
Default volumes - 7941          :11...33(23 total)
                                   22 are 1,032,192 bytes;
                                   last is 1,081,344 bytes
              - 7945            :11...40(30 total)
                                   29 are 1,843,200 bytes;
                                   last is 2,056,192 bytes
Modules required                DISC,HPIB, CS80,
                                and DMA (if using 98620 DMA),
                                and DISC_INTF (if using 98625)
Modules optional                ASC_AM, LIF_AM, TEXT_AM, WS1.0_AM
LIF Directories per drive       1 to 30
```

Add the following lines to the CONFIG:CTABLE.TEXT template:

```
CS80id:=7941;nvols:=23;mp.tpm:=3*968;mp.bpt:=32*256;{7941}
CS80id:=7945;nvols:=30;mp.tpm:=7*968;mp.bpt:=32*256;{7945}
```

Series 300

The HP 7941 and HP 7945 are supported by three operating systems on the HP 9000 Series 300: BASIC 4.0, HPUX 5.0, and PASCAL 3.1.

Support

The hardware and operating system support for the Series 300 is shown below. For additional information, consult the *HP 9000 Series 300 Configuration Information and Order Guide*, part no. 98561-90020.

HP 7941 and HP 7945 Support

Min Boot ROM	Hardware Support		Earliest Operating System Version		
	310	320	BASIC	HPUX	PASCAL
Rev A	Yes	Yes	4.0	5.0	3.1

Interfacing

Any HP-IB interface is suitable. 98620B DMA will provide significant performance improvement and a 98625A or Series 300 built-in HP-IB will provide less overhead per transaction than a 98624A interface. The examples which follow assume a built-in HP-IB at select code 7 and an HP 7941 or HP 7945 at bus address 0.

The suggested initial setting of the drives switches are listed below.

Switch	Setting
HP-IB Address	0

BASIC 4.0

```
Recommended Interleave        1
Typical msus                  :CS80,700,0
Binaries Required             CS80 and
                              HPIB or FHPIB (for 98625)
Binaries Optional             MS, TRANSFER
LIF Directories per drive     1
```

HPUX 5.0

```
Recommended interleave           1
Mountable volumes per drive      1
Driver required                  cs80
Block-mode major number          0
Character-mode major number      4
```

Driver Minor Number

BITS	23-16	15-8	7-4	3-0
FIELDS	Select Code	HP-IB Address	Unit Number	Not Used
VALUES (hex)	07 to 1F	00 to 07	0	0

The following are typical *mknods* for an HP 7941 or HP 7945 at select code 7, bus address 0:

```
#mknod /dev/hd7941   b 0 0x070000
#mknod /dev/rhd7941  c 4 0x070000

#mknod /dev/hd7945   b 0 0x070000
#mknod /dev/rhd7945  c 4 0x070000
```

The following special considerations apply to operation with HPUX:

• The HP 7941 does not have adequate capacity for a system disc.

• The HP 7945 has adequate performance and capacity for a 2-6 user multi-user HPUX system.

PASCAL 3.1

```
Recommended Interleave          1
Mass storage letter specifier   Q
Default volumes - 7941          :11...33(23 total)
                                   22 are 1,032,192 bytes;
                                   last is 1,081,344 bytes
                - 7945          :11...40(30 total)
                                   29 are 1,843,200 bytes;
                                   last is 2,056,192 bytes
Modules required                DISC,HPIB, CS80,
                                and DMA (if using 98620 DMA),
                                and DISC_INTF (if using 98625)
Modules optional                ASC_AM, LIF_AM, TEXT_AM, WS1.0_AM
LIF Directories per drive       1 to 30
```

Series 500

The HP 7941 and HP 7945 are supported by two operating systems on the HP 9000 Series 500: BASIC 2.0 and HPUX 3.0.

Support

The hardware and operating system support for the Series 500 is shown below. For additional information, consult the *HP 9000 Series 500 Configuration Information and Order Guide*, part no. 09050-90050.

HP 7941 and HP 7945 Support

Hardware Support						Earliest Operating System Version	
Min Boot ROM	520	530	540	Min Boot ROM	550	BASIC	HPUX
B	Yes	Yes	Yes	4.0	Yes	2.0	3.0

Interfacing

HPUX software installation requires that both the cartridge tape and system disc be connected to one or more HP 27110A/B HP-IB interfaces. The model 550 built-in HP-IB interface may be used as the system disc HP-IB interface after HPUX installation. It is recommended that the built-in HP-IB interface be used for the system's non-disc devices. The examples which follow assume a 27710 interface at select code 5 and an HP 7941 or HP 7945 at bus address 0.

The suggested initial setting of the drives switch(es) is listed below.

Switch	Setting
HP-IB Address	0

BASIC 2.0

Recommended Interleave	1
Typical msus	:CS80,500,0
Binaries Required	HP27110
LIF or SDF Directories per drive	1

HPUX 3.0

Recommended interleave	1
Mountable volumes per drive	1
Driver required	cs80
Block-mode major number	1
Character-mode major number	1

Appendix A

Driver Minor Number

BITS	23-16	15-8	7-4	3-0
FIELDS	Select Code	HP-IB Address	Unit Number	Not Used
VALUES (hex)	02 to 05 08 to 17	00 to 07	0	0

The following are typical *mknods* for an HP 7941 or HP 7945 (as system disc) at select code 5, bus address 0:

```
#mknod /dev/hd   b 0 0x050000
#mknod /dev/rhd  c 4 0x050000
```

The following special considerations apply to operation with HPUX:

* The HP 7941 has adequate performance and capacity for a single-user HPUX system disc.

* The HP 7945 has adequate performance and capacity for a 2-6 user multi-user HPUX system disc.

HP 3000 SYSTEMS

The HP 7945 is supported when running MPE-V/E T-MIT on the following HP 3000 systems: Series 37, 39, 4X, 58, and 68. On the Series 68, the HP 7945 is not supported as LDEV 1. The HP 7941 is not supported on the HP 3000 systems.

The configurator software will configure the HP 7945 automatically on MPE-V/E T-MIT or greater. Under some circumstances, it may be necessary to provide the type (=3) and the subtype (=5).

APPENDIX B

HP 7942 AND HP 7946 CONFIGURATION

APPENDIX B

HP 7942 AND HP 7946 CONFIGURATION

INTRODUCTION

This appendix contains the information necessary for configuring HP 7942 and HP 7946 Disc/Tape Drives into their supported systems. These systems include the HP 1000 (A-Series, E-Series, and F-Series) and the HP 9000 (Series 200, 300, and 500).

HP 1000 A-SERIES SYSTEMS

The following paragraphs describe how to prepare an RTE-A operating system which will support the use of the HP 7942 and HP 7946 Disc/Tape Drives on Model A600, A700, and A900 computer systems running standard RTE-A operating systems.

Support

The HP 7942 and HP 7946 are supported as a "system disc" or "auxiliary disc" on RTE-A systems. Operating systems can be installed by using an offline utility ARSTR to restore a primary system (tape-to-disc), or by using the RTE-A utility INSTL, and copying system files to the disc.

The HP 7942 and HP 7946 require the RTE-A CS/80 disc driver DD.33, revision 2326 or later.

Up to four (4) HP 7942/HP 7946's are supported on a single 12009A HP-IB interface card. The HP 7942 and HP 7946 can be "daisy chained" to any other CS/80 disc drive provided the total number of CS/80 disc drives do not exceed the four disc drives per interface requirement.

Preparing for the Disc Layout

To optimize the disc storage capacity of the HP 7942 and HP 7946 Disc/Tape Drives on RTE-A, the user may define the driver parameters which specify LU sizes and starting block location (DP3, DP4, DP5, DP6, DP7). Default generation records are contained in the RTE-A operating system for the HP 7942 and HP 7946 (Rev 2440).

The HP 7942 and HP 7946 have 92,928 and 216,831 disc blocks of usable formatted capacity, respectively.

Note: One disc block equals 256 bytes or 128 words.

To do the generation, the user should have available the following RTE-A Manuals:

* *RTE-A System Generation and Installation Manual*, part no. 92077-90034 . . . . (required)
* *RTE-A User's Manual*, part no. 92077-90002. . . . . (if needed)
* *RTE-A Utilities Manual*, part no. 92077-90004. . . . . (if needed)
* *RTE-A Driver Reference Manual*, part no. 92077- 90011 . . . .(if needed)

A procedure to configure an HP 7942 or HP 7946 is described below. Each step in the procedure is accompanied by an example showing how the generation is done.

Considerations

The simplest way to configure the disc drive is to use the default disc configuration for the HP 7941 and HP 7945 Disc Drives. The following example illustrates this approach.

If you desire to configure your disc drives in a way other than that shown in the example, refer to pages C-8 through C-13 in the *RTE-A System Generation and Installation Manual* on configuring a CS/80 disc subsystem.

Disc Layout

The disc and CTD layout used here will be the same as the RTE-A default sizes for the HP 7941 and HP 7945 Disc Drives. (Refer to the *RTE-A System Generation and Installation Manual*, Appendix C and E, for more information.)

HP 7942 DISC LAYOUT EXAMPLE

A sample disc layout for the HP 7942 is shown below. The example uses the RTE-A default disc configuration for the HP 7941. (Refer to the *RTE-A System Generation and Installation Manual*.)

LU	16	17	18	19	Range
DP1 HP-IB addr.	0	0	0	0	0-7
DP2 UNIT / VOL.	0	0	0	0	0
DP3 Starting\	0	0	0	0	0
DP4 Block >	0	0	0	1	0-1
DP5 Number /	0	19200	64750	14592	0-65536
DP6 # Tracks	400	943	320	266	1-1936
DP7 Sect/Track	48	48	48	48	48
DP8 Reserved	0	0	0	0	0

HP 7946 DISC LAYOUT EXAMPLE

A sample disc layout for an HP 7946 is shown below. (Refer to the *RTE-A System Generation and Installation Manual* for more information.)

LU	16	17	18	19	20	22	Range
DP1	0	0	0	0	0	0	0-7
DP2	0	0	0	0	0	0	0
DP3	0	0	0	0	0	0	0
DP4	0	0	0	1	1	1	0-3
DP5	0	19200	64750	14592	27392	44288	0-64750
DP6	400	943	320	266	352	2229	1-4517
DP7	48	48	48	48	48	48	48
DP8	0	0	0	0	0	0	0

DISC CACHE LAYOUT EXAMPLE FOR THE HP 7942 AND HP 7946

The disc cache is an area reserved on the disc for improving the 1/4-inch tape drive performance when copying files between the disc and tape. For more information on the disc cache refer to the *RTE-A System Generation and Installation Manual* and the *RTE-A Driver Reference Manual*. The example shown below is applicable for the HP 7942 and HP 7946.

		LU	24
DP1	HP-IB addr.		0
DP2	UNIT / VOL.		400B
DP3	Cache Bit, Disc U/V		100000B
DP4	Starting Block		0
DP5	Number		64464
DP6	Addr. of Disc		0
DP7	Cache Block		0
DP8	Reserved		0

Edit the Answer File

Now that the disc configuration has been determined, the answer file must be modified to include the HP 7942 or HP 7946. EDIT your answer file to include the following requirements.

DRIVER PARTITION SECTION

Modify the driver partition to include the interface driver (%ID.37::cartridge number) and the CS/80 disc device driver (%DD.33::cartridge number). If these drivers are already genned into your system, skip this step, and proceed to the TABLE GENERATION.

Example:

```
*
RE,%ID.37::17
RE,%DD.33::17
END
*
```

Appendix B

TABLE GENERATION

a. Add an IFT command for the HP-IB interface where the HP 7942 or HP 7946 will be placed.

Note: This command *will not* be required if the HP 7942 or HP 7946 is going to be placed on an existing CS/80 disc channel. (Refer to the *RTE-A System Generation and Installation Manual* for more information.)

Example:

```
*
IFT,%ID.37::17,SC:27B
*
```

Add a DVT command for the device table *immediately* after the IFT command.

Note: This command *will not* be required if the HP 7942 or HP 7946 is being added to an existing CS/80 disc channel. (Refer to the *RTE-A System Generation and Installation Manual* for more information on this command.)

Example:

```
*
DVT,,,LU:9,TO:2000,DT:77B,TX:0,DX:1,DP:1:36B,PR:0
*
```

b. Add a comment before the section of driver parameters for the HP 7942 or HP 7946 noting that it is an HP 7942/HP 7946 disc drive.

Example:

```
*
* HP 7946 Disc Drive (LU's 16-20,22,24) with integrated
* cartridge tape drive
* specifying model number as HP 7945
* HP-IB address of disc is 0
*
```

c. Add the HP 7942 or HP 7946 parameters that have been determined in the Disc Layout paragraph.

If you do not want to specify a disc model number, you can specify the device type as 33B (i.e., DT:33B). (Refer to the DVT command description in the *RTE-A System Generation and Installation Manual.*)

Example: "Table Generation" section for an HP 7946 disc drive

```
*
)VT,%DD.33::17,M7945_CF:0,LU:16,DP:1:0
)VT,%DD.33::17,M7945_CF:1,LU:17,DP:1:0
)VT,%DD.33::17,M7945_CF:2,LU:18,DP:1:0
)VT,%DD.33::17,M7945_CF:3,LU:19,DP:1:0
)VT,%DD.33::17,M7945_CF:4,LU:20,DP:1:0
)VT,%DD.33::17,M7945_CF:5,LU:22,DP:1:0
*
DVT,%DD.33::17,MTAPE,LU:24,DP:1:0
*
```

THE NODE LIST

Modify the node list to include the LU numbers which are contained on the HP 7942/HP 7946.

Example:

```
*
* SEVEN 7946 DISC LU'S including cartridge tape drive
node,16,17,18,19,20,22,24
*
```

Generation

Run RTAGN to do the system generation. (Refer to the *RTE-A System Generation and Installation Manual.*) Provided the correct parameters are specified in the answer file, the generation should complete with 0 errors.

You should now have a bootable operating system which will allow you to use the HP 7942/HP 7946 to its full capacity. (Refer to the *RTE-A System Generation and Installation Manual* for installing a disc-based system.)

Connect the HP-IB cable to the drive.

Set the HP-IB address on the drive which is specified in Driver Parameter one (DP1).

Power on the drive. The disc drive and tape drive will go through a self-test process.

Booting the New System

Boot the new operating system which includes the HP 7942 or HP 7946.

The HP 7942 or HP 7946 Disc/Tape Drive should now be ready for use.

Mount CI and/or Initialize and Mount FMGR cartridges. (Refer to the *RTE-A User's Manual.*)

If the operating system is to be installed on the HP 7942 or HP 7946, refer to the *RTE-A System Generation and Installation Manual* to install an operating system on the disc drive.

BackUp

Backup for files and data which are stored on the HP 7942 and HP 7946 can be accomplished by the use of many RTE-A Utilities or by doing a pushbutton save. A variety of media may be used when performing a backup.

THE MEDIA

Files can be backed up to the integrated 1/4-inch tape drive (16.7 Mbyte or 67 Mbyte tape capacity). If desired, files can also be backed up on another disc drive (integrated or stand-alone), an 800 or 1600 BPI tape drive, or even floppy disc (integrated floppies in Micro-1000's or stand-alone).

The medium chosen depends on the devices which are available to the user, and the amount of data which needs to be copied. Floppy discs should be used only where small amounts of data need to be backed up.

RTE-A BACKUP UTILITIES

File backup can be accomplished with the HP 7942 and HP 7946 using RTE-A utilities such as:

a. TF (tape filer)
b. FC (file copy)

An image backup can be accomplished by using utilities such as:

a. ASAVE and ARSTR

Refer to the *RTE-A Utilities Manual* to determine which utility is best suited for your application and backup strategy.

HP 1000 E- AND F-SERIES SYSTEMS

The following paragraphs describe how to prepare an RTE-6/VM operating system which will support the use of the HP 7942 and HP 7946 Disc/Tape Drives on HP 1000 E- and F-Series computer systems running standard RTE-6/VM operating systems.

Support

The HP 7942 and HP 7946 are supported as an "auxiliary disc" on RTE-6/VM systems. (A future software release will also support the HP 7942 and HP 7946 as a "system disc".) Bootable RTE-6/VM systems can be installed on the HP 7942 or HP 7946 by running the program SWTCH and copying system files to the target disc, or by doing a pushbutton restore of a primary system on the target disc.

The user must have the 12992J CS/80 loader ROM to boot from the HP 7942 or HP 7946.

The HP 7942 and HP 7946 require the A.85 software release (Rev. 2440) from Data Systems Division of Hewlett-Packard for use on RTE-6/VM.

Jp to four (4) HP 7942/HP 7946's are supported on a single HP 12821A HPIB interface card. The HP 7942 nd HP 7946 can also be "daisy chained" to any other CS/80 disc drive, provided the total number of CS/80 .isc drives do not exceed the four discs per interface requirement.

Preparing for the Disc Layout

The HP 7942 and HP 7946 have two units. The disc is unit 0 and the cartridge tape drive is unit 1.

The HP 7942 and HP 7946 have 92,928 and 216,831 disc blocks of usable formatted capacity, respectively. One disc block equals 256 bytes or 128 words.

To do the generation, the user should have available the following RTE-6/VM manuals:

- *RTE-6/VM On-Line Generator Manual*, part number 92084-90010
- *RTE-6/VM System Manager Manual*, part number 92084-90009
- *Utilities Program Manual*, part number 92084-90007

Considerations

- The Tape Drive requires a disc cache for improving the 1/4-inch tape drive performance when copying files between the disc and tape. Optimum size for the cache is 256 blocks.

- The HP 7942 and HP 7946 request release from the system whenever a tape is loaded or unloaded. If you are using the HP 7942 or HP 7946 as a system disc, you need to be especially aware that the entire unit will be "released" for the time it takes to load the tape (30 seconds to 2 minutes).

Disc Layout

Sample Disc Layout

A sample disc layout is shown below. The sample is for an HP 7946 as a system disc. The example shows the necessary Answer File entries and suggested comments.

```
CTD,0,1,0      *Subchannel 0     CTD, HPIB ADDRESS, UNIT, VOLUME
7946,0,0,0     *Model, HP-IB Address, Unit, Volume
216831         *Blocks On Disc
400,64         *Subchannel  1    LU2    191,231  Blocks Remaining
400,64         *Subchannel  2           165,631    "         "
400,64         *Subchannel  3           140,031    "         "
400,64         *Subchannel  4           114,431    "         "
400,64         *Subchannel  5            88,831    "         "
400,64         *Subchannel  6            63,231    "         "
400,64         *Subchannel  7            37,631    "         "
CTD,0          *DISC CACHE DEFAULTS TO 256 BLOCKS    37,375 Blocks Remaining
150,64         *Subchannel 29            27,775  Blocks Remaining
100,64         *Subchannel 30            21,375    "         "
100,64         *Subchannel 31            14,975    "         "
100,64         *Subchannel 32             8,575    "         "
133,64         *Subchannel 33               63  Blocks Unused
```

Edit the Answer File

Once the disc configuration has been determined, the answer file must be modified to include the HP 7942 or HP 7946. Edit your answer file to include the following requirements:

• If the HP 7942/HP 7946 is placed on an existing CS/80 system disc channel, it will use DVM33 and the track map will be called $TM33.

• If the HP 7942/HP 7946 is placed on a separate (and second) CS/80 disc channel, it will use driver DVN33, a user supplied track map table in relocatable form called %$TN33. Relocate %$TN33 in the program load phase.

• If the HP 7942/HP 7946 is not on a CS/80 system disc channel and is the only CS/80 disc on the system, it will use DVM33 and require a user supplied track map table called $TM33. Relocate %$TM33 in the program load phase.

Table Generation Phase

Modify (if required) the Equipment Table to include entries for the HP 7942/HP 7946. This will only be required if you have added an additional HP-IB interface for the HP 7942/HP 7946.

Example of Equipment Table Entry:

```
12,DVM33,D      *EQT1: CS80 DISC, SELECT CODE 12
```

Modify the device reference table to include entries for the HP 7942/HP 7946. In the following example, EQT=1 and subchannels are 0 through 12.

Example of Device Reference Table Entries in Answer File:

```
1,1             *LU 2 - CS/80 Sys. Disc, Subchannel 1

    •
    •

1,0        *LU 09 - CTD ON THE 7946
*1,1 IS LU 2
1,2        *LU 10
1,3        *LU 11
1,4        *LU 12
1,5        *LU 13
1,6        *LU 14
1,7        *LU 15
1,8        *LU 16
1,9        *LU 17
1,10       *LU 18
1,11       *LU 19
1,12       *LU 20
```

Modify the interrupt table to include the addition of the HP-IB interface (if required).

Example of Interrupt Table Entry:

12,EQT,1   *Select Code 12, EQT=1

Generation

Run RT6GN to do the system generation (see the *RTE-6/VM On-Line Generator Manual*). Provided the correct parameters are specified in the answer file, the generation should complete with 0 errors.

You should now have a bootable operating system which will allow you to use the HP 7942/HP 7946 to its full capacity (see the *RTE-6/VM On-Line Generator Manual* for installing a disc-based system).

Connect the HP-IB cable to the disc/tape drive.

Set the HP-IB address on the disc/tape drive which is specified in the system generation.

Apply power to the disc/tape drive. The drive will go through a self-test process.

Booting the New System

Boot the new operating system which includes the HP 7942 or HP 7946.

The HP 7942 or HP 7946 should now be ready for use.

Mount CI and/or initialize and mount FMGR cartridges.

Backup

The data and files stored on the HP 7942 or HP 7946 can be backed up using RTE-6/VM utilities or the pushbutton save operation. A variety of media may be used when performing a backup.

The Media

Disc files can be backed up to the integrated 1/4-inch tape drive (16.7 Mbyte or 65.7 Mbyte tape capacity). If desired, files can be backed up to another disc drive, an 800 or 1600 BPI tape drive, or even floppy disc. The medium chosen depends on the devices which are available to the user, and the amount of data which needs to be copied. Floppy discs should be used only where small amounts of data need to be backed up.

RTE-6/VM Backup Utilities

File backup can be accomplished with the HP 7942 or HP 7946 using RTE-6/VM utilities such as:

a.   TF (tape filer)

b.   FC (file copy)

An image backup can be accomplished by using utilities such as:

a.   PSAVE and PRSTR

Refer to the *RTE-6/VM Utilities Manual* to determine which utility is best suited for your application and backup strategy.

HP 9000 SYSTEMS

The HP 7942 and HP 7946 are medium-performance fixed (non-removable) CS/80 disc drives with a built-in 9144 shared-controller 1/4-inch cartridge tape drive.   The HP 7942 and HP 7946 have disc capacities of 23.8 Mbytes and 55.5 Mbytes, respectively. The drives are housed in eight-unit high 325 mm-wide *Design-Plus* enclosures.

Push-button disc → tape and tape → disc operations are provided. There is no Option to provide a separate-controller tape drive; for this configuration, order a separate disc drive (HP 7941 or HP 7945) and an HP 9144 tape drive.

The HP-IB characteristics of the HP 7942 and HP 7946 are listed below.

HP-IB Characteristics

Product Number	Description	Dev Addrs	Addrs Range	Std Loads	Rate* Modes	Internal Bus Cable	Cable Incld
7942/7946	23.8/55.5 Mb Disc Drives	1	0...7	1	N or H	0.0m	1.0m
Opt 550	Delete HP-IB cable	-	-	-	-	-	-1.0m
*N = normal, H = high							

The disc drive is UNIT 0 and the tape drive is UNIT 1.

Series 200

The HP 7942 and HP 7946 are supported by three operating systems on the HP 9000 Series 200: BASIC 3.0, HPUX 2.1, and PASCAL 3.0.

Support

The hardware and operating system support for the Series 200 is shown below. For additional information, consult the *HP 9000 Series 200 Configuration Information and Order Guide*, part no. 09800-90020.

HP 7942 and HP 7946 Support

Min Boot ROM	Hardware Support						Earliest Operating System Version		
	216	217	220	226	236	237	BASIC	HPUX	PWS
3.0	Yes	Yes	Yes	Yes	Yes	Yes	3.0	2.1	3.0

Interfacing

Any HP-IB interface is suitable. 98620B DMA will provide significant performance improvement and a 98625 will provide less overhead per transaction than a 98624A interface. The examples which follow assume a built-in HP-IB at select code 14 and an HP 7942 or HP 7946 at bus address 0.

The suggested initial setting of the drive switches are listed below.

Switch	Setting
HP-IB Address	0

BASIC 3.0

```
Recommended Interleave        1
Typical msus                  :CS80,1400,0 (disc)
                              :CS80,1400,1 (tape)
Binaries Required             CS80 and
                              HPIB or FHPIB (for 98625)
Binaries Optional             MS, TRANSFER
LIF Directories per drive     1
```

HPUX 2.1

```
Recommended interleave           1
Mountable volumes per drive      1
Driver required                  cs80
Block-mode major number          0
Character-mode major number      4
```

The following are typical *mknods* for an HP 7942 or an HP 7946 (as system disc) at select code 14, bus address 0:

```
#mknod /dev/hd   b 0 0
#mknod /dev/rhd  c 4 0
#mknod /dev/ct   b 0 0
#mknod /dev/rct  c 4 0
```

The following special considerations apply to operation with HPUX:

● The HP 7942 has adequate performance and capacity for a single-user HPUX system disc.

● The HP 7946 has adequate performance and capacity for a 2-6 user multi-user HPUX system disc.

● The shared controller is unavailable for disc I/O for as long as 45 seconds when a tape cartridge is inserted.

● Disc-image tape cartridges are also "mountable" as file systems. Treating the tape as a disc is very slow and accelerates mechanism wear. This should only be done as an emergency procedure (e.g., recovery of purged file).

● When installing HPUX on either the HP 7942 or HP 7946, the install utility will prompt for the number of blocks. The correct response is 21232 for an HP 7942 and 52208 for an HP 7946, assuming a swap area of 2000 blocks in both cases.

● Backup operations available using the cartridge tape: pushbutton, *dd*, *tar*, and *cpio*.

PASCAL 3.0

```
Recommended Interleave         1
Mass storage letter specifier  Q
Default volumes - 7942         :11...33(23 total, disc only)
                                  22 are 1,032,192 bytes;
                                  last is 1,081,344 bytes
                - 7946         :11...40(30 total, disc only)
                                  29 are 1,843,200 bytes;
                                  last is 2,056,192 bytes
Modules required               DISC,HPIB, CS80,
                               and DMA (if using 98620 DMA),
                               and DISC_INTF (if using 98625)
Modules optional               ASC_AM, LIF_AM, TEXT_AM, WS1.0_AM
LIF Directories per drive      1 to 30
```

Add the following lines to the CONFIG:CTABLE.TEXT template:

```
CS80id:=7942;nvols:=23;mp.tpm:=3*968;mp.bpt:=32*256;{7942}
CS80id:=7946;nvols:=30;mp.tpm:=7*968;mp.bpt:=32*256;{7946}
```

Series 300

The HP 7942 and HP 7946 are supported by three operating systems on the HP 9000 Series 300: BASIC 4.0, HPUX 5.0, and PASCAL 3.1.

Support

The hardware and operating system support for the Series 300 is shown below. For additional information, consult the *HP 9000 Series 300 Configuration Information and Order Guide*, part no. 98561-90020.

HP 7942 and HP 7946 Support

Min Boot ROM	Hardware Support		Earliest Operating System Version		
	310	320	BASIC	HPUX	PASCAL
Rev A	Yes	Yes	4.0	5.0	3.1

Interfacing

Any HP-IB interface is suitable. 98620B DMA will provide significant performance improvement and a 98625A or Series 300 built-in HP-IB will provide less overhead per transaction than a 98624A interface. The examples which follow assume a built-in HP-IB at select code 7 and an HP 7942 or HP 7946 at bus address 0.

The suggested initial setting of the drive switches are listed below.

Switch	Setting
HP-IB Address	0

BASIC 4.0

```
Recommended Interleave       1
Typical msus                 :CS80,700,0 (disc)
                             :CS80,700,1 (tape)
Binaries Required            CS80 and
                             HPIB or FHPIB (for 98625)
Binaries Optional            MS, TRANSFER
LIF Directories per drive    1
```

HPUX 5.0

```
Recommended interleave           1
Mountable volumes per drive      1
Driver required                  cs80
Block-mode major number          0
Character-mode major number      4
```

Driver Minor Number

BITS	23-16	15-8	7-4	3-0
FIELDS	Select Code	HP-IB Address	Unit Number	Not Used
VALUES (hex)	07 to 1F	00 to 07	0 (disc) 1 (tape)	0

The following are typical *mknods* for an HP 7942 or an HP 7946 (as system disc) at select code 7, bus address 0:

```
#mknod /dev/hd   b 0 0x070000
#mknod /dev/rhd  c 4 0x070000
#mknod /dev/ct   b 0 0x070000
#mknod /dev/rct  c 4 0x070000
```

The following special considerations apply to operation with HPUX:

● The shared controller is unavailable for disc I/O for as long as 45 seconds when a tape cartridge is inserted.

● Disc I/O can slow to one I/O per second (or worse) during on-line tape operations. For this reason, the recommended configuration is to use a separate disc (HP 7941 or HP 7945) and an HP 9144 tape drive instead of the HP 7942 or HP 7946.

● Disc-image tape cartridges are also "mountable" as file systems. Treating the tape as a disc is very slow and accelerates mechanism wear. This should only be done as an emergency procedure (e.g., recovery of purged file).

● Backup operations available using the cartridge tape: pushbutton, *dd, tar,* and *cpio.*

PASCAL 3.1

```
Recommended Interleave            1
Mass storage letter specifier     Q
Default volumes - 7942            :11...33(23 total, disc only)
                                     22 are 1,032,192 bytes;
                                     last is 1,081,344 bytes
                - 7946            :11...40(30 total, disc only)
                                     29 are 1,843,200 bytes;
                                     last is 2,056,192 bytes
Modules required                  DISC,HPIB, CS80,
                                  and DMA (if using 98620 DMA),
                                  and DISC_INTF (if using 98625)
Modules optional                  ASC_AM, LIF_AM, TEXT_AM, WS1.0_AM
LIF Directories per drive         1 to 30
```

Series 500

The HP 7942 and HP 7946 are supported by two operating systems on the HP 9000 Series 500: BASIC 2.0 and HPUX 4.0.

Support

The hardware and operating system support for the Series 500 is shown below. For additional information, consult the *HP 9000 Series 500 Configuration Information and Order Guide*, part no. 09050-90050.

HP 7942 and HP 7946 Support

Hardware Support						Earliest Operating System Version	
Min Boot ROM	520	530	540	Min Boot ROM	550	BASIC	HPUX
B	Yes	Yes	Yes	4.0	Yes	2.0	4.0

Interfacing

HPUX software installation requires that both the cartridge tape and system disc be connected to one or more HP 27110A/B HP-IB interfaces. The model 550 built-in HP-IB interface may be used as the system disc HP-IB interface after HPUX installation. It is recommended that the built-in HP-IB interface be used for the system's non-disc devices. The examples which follow assume a 27110 interface at select code 5 and an HP 7942 or HP 7946 at bus address 0.

The suggested initial setting of the drive switch(es) is listed below.

Switch	Setting
HP-IB Address	0

BASIC 2.0

Recommended Interleave	1
Typical msus	:CS80,500,0 (disc)
	:CS80,500,1 (tape)
Binaries Required	HP27110
LIF or SDF Directories per drive	1

Appendix B

HPUX 4.0

Recommended interleave   1
Mountable volumes per drive   1
Driver required   cs80
Block-mode major number   1
Character-mode major number   1

Driver Minor Number

BITS	23-16	15-8	7-4	3-0
FIELDS	Select Code	HP-IB Address	Unit Number	Not Used
VALUES (hex)	07 to 05 08 to 17	00 to 07	0 (disc) 1 (tape)	0

The following are typical *mknods* for an HP 7942 or an HP 7946 (as system disc) at select code 5, bus address 0:

```
#mknod /dev/hd   b 1 0x050000
#mknod /dev/rhd  c 1 0x050000
#mknod /dev/ct   b 1 0x050000
#mknod /dev/rct  c 1 0x050000
```

The following special considerations apply to operation with HPUX:

• The shared controller is unavailable for disc I/O for as long as 45 seconds when a tape cartridge is inserted.

• Disc I/O can slow to one I/O per second (or worse) during on-line tape operations. For this reason, the recommended configuration is to use a separate disc (HP 7941 or HP 7945) and an HP 9144 tape drive instead of the HP 7942 or HP 7946.

• Disc-image tape cartridges are also "mountable" as file systems. Treating the tape as a disc is very slow and accelerates mechanism wear. This should only be done as an emergency procedure (e.g., recovery of purged file).

• Backup operations available using the cartridge tape: pushbutton, *dd*, *tar*, and *cpio*.

APPENDIX C

HP 7907 CONFIGURATION

APPENDIX C

HP 7907 CONFIGURATION

INTRODUCTION

This appendix contains the information necessary for configuring the HP 7907 Disc Drive into its supported systems. These systems include the HP 1000 (A-Series, E-Series, and F-Series) and the HP 9000 (Series 200, 300, and 500).

HP 1000 A-SERIES SYSTEMS

The following paragraphs describe how to prepare an RTE-A operating system which will support the use of the HP 7907 Disc Drive on Model A600, A700, and A900 computer systems running standard RTE-A operating systems.

Support

The HP 7907 is supported as a boot device on RTE-A systems. Since the primary operating system is not distributed on the 8-inch removable cartridge, the HP 7907 is not supported as a load device.

To restore an operating system to the disc, the user must have available an HP 7970E, HP 7974A, or CS/80 Tape Drive (HP 9144A). RTE-A operating systems can also be installed on the HP 7907 by using the RTE-A utility INSTL, and copying system files from a source disc to the HP 7907.

The HP 7907 requires the A.85 software release (Rev. 2440) from Data Systems Division of Hewlett-Packard.

Up to four HP 7907's are supported on a single HP 12009 HPIB interface card. The HP 7907 can also be "daisy chained" to any other CS/80 disc drive provided the total number of CS/80 disc drives do not exceed the four discs per interface requirement.

Preparing for the Disc Layout

The HP 7907 has its own default generation records which are contained in Disc Driver DD.33 (Rev. 2440). The user may also configure the disc in some form other than the default logical unit (LU) sizes.

The HP 7907 has 80,256 blocks per unit, or 160,512 blocks per disc drive, of total usable formatted capacity. Note that these numbers are slightly larger than that specified in the *RTE-A System Generation and Installation Manual*, part no. 92077-90034.

Note: One disc block equals 256 bytes or 128 words.

To do the generation, the user should have available the following RTE-A manuals:

- *RTE-A System Generation and Installation Manual*, part no. 92077-90034 . . . . (required)
- *RTE-A User's Manual*, part no 92077-90002 . . . . (if needed)
- *RTE-A Utilities Manual*, part no. 92077-90004 . . . . (required)
- *RTE-A Driver Reference Manual*, part no. 92077-90011 . . . . (if needed)

Considerations

- The HP 7907 comes with a preformatted removable disc cartridge. If additional cartridges are ordered, they must be formatted before use, using the RTE-A utility FORMC. Refer to the *RTE-A Utilities Manual* to run FORMC properly.

- The HP 7907 must have at least two LU's; one LU for unit 0 (fixed disc) and one LU for unit 1 (removable disc). LU's cannot cross unit boundaries.

- The HP 7907 uses block addressing (like previous HP CS/80 disc drives); however, users who have written special CS/80 drivers should note that the HP 7907 is a surface mode disc drive, as opposed to cylinder mode. Surface mode operation will not impact users who are using the standard RTE-A CS/80 Disc Driver DD.33.

- Consider the method of back-up you plan to use with this product. This may influence how the LU sizes of fixed and removable discs are specified.

- The user should dismount all cartridges which are on the removable disc before attempting to remove it. Failure to do so could result in system problems.

- RTE-A does not support write protected system discs. Write protect mode cannot be enabled on an HP 7907 disc surface if it contains the RTE-A Operating System.

Edit the Answer File

This section is provided to aid the user in modifying an existing Answer file to include the HP 7907. Edit your Answer file to include the following requirements.

Driver Partition Section

Modify the driver partition section to include the interface driver (%ID.37::cartridge number) and the CS/80 Disc Device Driver (%DD.33::cartridge number). If these drivers are already generated into your system, skip this step, and proceed to the TABLE GENERATION.

Example:
```
*
RE,%ID.37::17
RE,%DD.33::17
END
*
```

Table Generation

a.   Add an IFT command for the HP-IB interface where the HP 7907 will be placed.

Note: This command *will not* be required if the HP 7907 is going to be placed on an existing CS/80 disc channel. (See the *RTE-A System Generation and Installation Manual*, part no. 92077-90034, for more information.)

Example:
```
*
IFT,%ID.37::17,SC:27B
*
```

Add a DVT command for the device table *immediately* after the IFT command.

Note: This command *will not* be required if the HP 7907 is being added to an existing CS/80 disc channel. (See the *RTE-A System Generation and Installation Manual* for more on this command.)

Example:
```
*
DVT,,,LU:9,TO:2000,DT:77B,TX:0,DX:1,DP:1:36B,PR:0
*
```

b. Add a comment before the section of driver parameters for the HP 7907 noting that it is an HP 7907 disc drive.

Example:
```
*
*HP 7907 Disc Drive (LU's 16, 17, 18, 29, 30, 31)
*HP-IB address of disc is 0
*
```

c. Add the HP 7907 parameters that have been determined in your disc configuration plans.

Example: "Default Table Generation" section for an HP 7907 Disc Drive, using DD.33 Rev. 2440.

```
DVT,%DD.33::17,M7907FXD_CF:0,LU:16,DP:1:0
DVT,%DD.33::17,M7907FXD_CF:1,LU:17,DP:1:0
DVT,%DD.33::17,M7907FXD_CF:2,LU:18,DP:1:0
DVT,%DD.33::17,M7907REM_CF:0,LU:29,DP:1:0:400B
DVT,%DD.33::17,M7907REM_CF:1,LU:30,DP:1:0:400B
DVT,%DD.33::17,M7907REM_CF:2,LU:31,DP:1:0:400B
```

Note: Notice that the removable disc cartridge is specified as Unit 1 (400B).

The Node List

Modify the node list to include the LU numbers which are contained on the HP 7907.

Example:
```
*
*SIX 7907 DISC LU'S
NODE,16,17,18,29,30,31
*
```

Generation

Run RTAGN to do the system generation (see the *RTE-A System Generation and Installation Manual*). Provided the correct parameters are specified in the answer file, the generation should complete with 0 errors.

You should now have a bootable operating system which will allow you to use the HP 7907 (see the *RTE-A System Generation and Installation Manual* for installing a disc–based system).

Connect the HP–IB cable to the disc drive.

Set the HP-IB address on the disc drive which is specified in Driver Parameter one (DP1).

Apply power to the disc drive. The disc drive will go through a self–test process.

Booting the New System

Boot the new operating system which includes the HP 7907.

Mount CI and/or initialize and mount FMGR cartridges (see the *RTE-A User's Manual*).

If the operating system is to be installed on the HP 7907, refer to the *RTE-A System Generation and Installation Manual* to install an operating system on another disc drive other than the current system disc. Operating systems can be installed on either the fixed (unit 0) or removable disc (unit 1).

Back–up

Back–up for data stored on the HP 7907 can be accomplished by the use of many RTE-A utilities, and to many possible types of media.

The Media

Files can be backed up to the 8–inch removable disc, an 800 or 1600 BPI tape drive, CS/80 tape cartridge drive (16.7 Mbyte or 65.7 Mbyte tape capacity) or even floppy disc (integrated floppies in Micro-1000's or stand–alone).

The medium chosen depends on the devices which are available to the user, and the amount of data which needs to be copied. Floppy discs should be used only where small amounts of data need to be backed up.

RTE-A Backup Utilities

File back-up to tape can be accomplished with the HP 7907 using RTE-A utilities such as:

a.   TF (tape filer)

b.   FC (file copy)

An image back-up to tape can be accomplished by using utilities such as:

a.   ASAVE and ARSTR

Fixed disc to removable disc back-up and restore can be accomplished by:

a.   Push button save (F ➔ R)

     Push button restore (R ➔ F)

Refer to the Operation section of this manual.

b.   The RTE-A Utility COPYL

See the *RTE-A Utilities Manual* to determine which utility is best suited for your application and back-up strategy.

HP 1000 E- AND F-SERIES SYSTEMS

The following paragraphs describe how to prepare an RTE-6/VM operating system which will support the use of the HP 7907 Disc Drive on HP 1000 E- and F-Series computer systems running standard RTE-6/VM operating systems.

Support

The HP 7907 is supported as an add-on disc on RTE-6/VM systems. Since the primary operating system is not distributed on the 8-inch removable cartridge, the HP 7907 is not supported as a load device. RTE-6/VM systems can be installed on the HP 7907 by running the program SWTCH, and copying system files to the target disc.

The user must have the 12992J CS/80 loader ROM to boot from the HP 7907.

The HP 7907 requires the A.85 software release (Rev. 2440) from Data Systems Division of Hewlett-Packard for use on RTE-6/VM. The HP 7907 default generation records will be included with the 4.0 software release.

Up to four HP 7907's are supported on a single HP 12821A HP-IB interface card. The HP 7907 can also be "daisy chained" to any other CS/80 disc drive provided the total number of CS/80 disc drives do not exceed the four discs per interface requirement.

Preparing for the Disc Layout

The HP 7907 has two disc units. The fixed disc is unit 0, and the removable disc is unit 1. Each disc unit has 80,256 blocks or 160,512 blocks total of usable formatted capacity.

Note: One disc block equals 256 bytes or 128 words.

To do the generation, the user should have available the following RTE-6/VM manuals:

● *RTE-6/VM On-Line Generator Manual*, part number 92084-90010
● *RTE-6/VM System Manager Manual*, part number 92084-90009
● *Utilities Program Manual*, part number 92084-90007

Considerations

● The HP 7907 comes with a preformatted removable disc cartridge. If additional cartridges are ordered, they must be formatted before use, using the RTE-6/VM utility FORMC. Refer to the *RTE-6/VM Utilities Program Manual* to run FORMC properly.

Note: Currently, FORMC reports that it will destroy data on both units. However, FORMC will format only the unit the user requests. FORMC will be updated in a future release to correct the problem.

● The HP 7907 must have at least two LU's; one LU for unit 0 (fixed disc) and one LU for unit 1 (removable disc). LU's cannot cross unit boundaries.

● The HP 7907 uses block addressing (like previous HP CS/80 disc drives); however, users who have written special CS/80 drivers should note that the HP 7907 is a surface mode disc drive, as opposed to cylinder mode. Surface mode operation will not impact users who are using the standard RTE-6/VM CS/80 Disc Driver DVM33.

● Consider the method of back-up you plan to use with this product. This may influence how the LU sizes of fixed and removable discs are specified.

● It is recommended that the HP 7907 be placed on its own dedicated 12821A HP-IB interface in multiple disc configurations if performance and real time disc availability is critical. This is because DVM33 will grant release to the HP 7907 when the operator spins down the disc drive or executes a pushbutton save/restore. Thus, DVM33 suspends all program I/O on the EQT containing the HP 7907 as long as it is released. A future software release will avoid this situation, thus allowing the HP 7907 to share an interface without degrading system performance.

● RTE-6/VM does not support write protected system discs. Write protect mode cannot be enabled on an HP 7907 disc surface if it contains the RTE-6/VM Operating System.

Edit the Answer File

This section is provided to aid the user in modifying an existing Answer file to include the HP 7907. The following configurations are possible:

● If the HP 7907 is placed on an existing CS/80 system disc channel, it will use DVM33 and the track map will be called $TM33.

• If the HP 7907 is placed on a separate (and second) CS/80 disc channel, it will use driver DVN33, a user supplied track map table in relocatable form called %$TN33. Relocate %$TN33 in the program load phase.

• If the HP 7907 is not on a CS/80 system disc channel and is the only CS/80 disc on the system, it will use DVM33 and require a user supplied track map table called $TM33. Relocate %$TM33 in the program load phase.

Initialization Phase

The example provided below is for the addition of an HP 7907 on an existing CS/80 system disc channel. The select code is 22 (EQT=1), and HP-IB address of the HP 7907 will be 1. Generator responses are shown for clarity.

Example:

```
DEVICE (MODEL,HP-IB ADDR,UNIT,VOLUME)?
7907,1,0,0        * model  -  HPIB  -  Unit  -  Volume

NUMBER OF BLOCKS ON DEVICE?
80256             * total # of blocks for fixed platter

80256      BLOCKS REMAINING (STARTING AT 0        )
SUBCHANNEL 10  (TRACKS,BLOCKS/TRACK)?
627,64            * first cart. fixed disc

40128      BLOCKS REMAINING (STARTING AT 40128    )
SUBCHANNEL 11  (TRACKS,BLOCKS/TRACK)?
627,64            * second cart. fixed disc

DEVICE (MODEL,HP-IB ADDR,UNIT,VOLUME)?
7907,1,1,0

NUMBER OF BLOCKS ON DEVICE?
80256             *total # of blocks for removable platter

80256      BLOCKS REMAINING (STARTING AT 0        )
SUBCHANNEL 12  (TRACKS,BLOCKS/TRACK)?
627,64            * first cart. removable disc

40128      BLOCKS REMAINING (STARTING AT 40128    )
SUBCHANNEL 13  (TRACKS,BLOCKS/TRACK)?
627,64            * second cart. removable disc
```

Table Generation Phase

Modify (if required) the Equipment Table to include entries for the HP 7907. This will only be required if you have added an additional HP-IB interface for the HP 7907.

Modify the device reference table to include entries for the HP 7907. For our example, EQT=1 and sub-channels are 10, 11, 12, and 13.

Example:

```
1,10
1,11
1,12
1,13
```

Modify the interrupt table to include the addition of the HP-IB interface (if required).

Generation and Bootup

Run RT6GN to do the system generation (see the *RTE-6/VM On-Line Generator Manual*). Provided the correct parameters are specified in the answer file, the generation should complete with 0 errors.

You should now have a bootable operating system which will allow you to use the HP 7907 (see the *RTE-6/VM On-Line Generator Manual* for installing a disc-based system). Systems can also be installed on the fixed or removable disc media on the HP 7907.

Connect the HP-IB cable to the disc drive and set the HP-IB address.

Apply power to the disc drive. The disc drive will go through a self-test process.

Boot the new operating system which includes the HP 7907.

Mount CI and/or initialize and mount FMGR cartridges.

Backup

Backup for data stored on the HP 7907 can be accomplished by the use of many RTE-6/VM utilities, and to many possible types of media.

The Media

Files can be backed up to the 8-inch removable disc, an 800 or 1600 BPI tape drive, CS/80 cartridge tape drive (16.7 Mbyte or 65.7 Mbyte tape capacity) or even floppy disc. The medium chosen depends on the devices which are available to the user, and the amount of data which needs to be copied. Floppy discs should be used only where small amounts of data need to be backed up.

RTE-6/VM Backup Utilities

File back-up to tape can be accomplished with the HP 7907 using RTE-6/VM utilities such as:

a.   TF (tape filer)

b.   FC (file copy)

An image back-up to tape can be accomplished by using utilities such as:

a.   PSAVE and PRSTR

Fixed disc to removable disc back-up and restore can be accomplished by:

a.   Push button save (F → R)

      Push button restore (R → F)

b.   The RTE-6/VM Utility PCOPY

See the *RTE-6/VM Utilities Program Manual* to determine which utility is best suited for your application and back-up strategy.

HP 9000 SYSTEMS

The HP 7907 is a 41 Mbyte (20.5 Mbyte fixed/20.5 Mbyte removable-cartridge) CS/80 HP-IB disc drive in a 6.5 unit *Design Plus* cabinet. It is ideal for applications requiring: medium capacity removable media (8-in. disc cartridge), fast (push-button) backup or extreme ruggedness. A cartridge must be installed for the drive to operate.

The HP 7907's HP-IB characteristics are listed below.

HP-IB Characteristics

Product Number	Description	Dev Addrs	Addrs Range	Std Loads	Rate* Modes	Internal Bus Cable	Cable Incld
7907	41 Mbyte disc	1	0...7	1	N or H	0.0m	1.0m
Opt 550	Delete HP-IB cable	-	-	-	-	-	-1.0m
*N = normal, H = high							

The fixed disc is UNIT 0 and the removable cartridge is UNIT 1.

Series 200

The HP 7907 is supported by three operating systems on the HP 9000 Series 200: BASIC 3.0, HPUX 2.1, and PASCAL 3.0.

Support

The hardware and operating system support for the Series 200 is shown below. For additional information, consult the *HP 9000 Series 200 Configuration Information and Order Guide*, part no. 09800-90020.

HP 7907 Support

Min Boot ROM	Hardware Support*						Earliest Operating System Version		
	216	217	220	226	236	237	BASIC	HPUX	PWS
3.0	P	Y	Y	Y	Y	Y	3.0	2.1	3.0
*P = Planned, Y = Yes									

Interfacing

Any HP-IB interface is suitable. 98620B DMA will provide significant performance improvement and a 98625A will provide less overhead per transaction than a 98624A interface. The examples which follow assume a 98625A at select code 14 and an HP 7907 at bus address 7.

The suggested initial setting of the drive switches are listed below.

Switch	Setting
HP-IB Address	7
WRITE PROTECT	OFF
RUN/STOP	RUN
97907A TAB	Write Enabled (installed)

Although the suggested initial use is write enabled, all Series 200 operating systems support access to write-protected media (except the root disc in HPUX).

BASIC 3.0

Recommended Interleave	1
Typical msus	:CS80,1407,0 (fixed disc)

	:CS80,1407,1 (removable disc)
Binaries Required	CS80 and
	HPIB or FHPIB (for 98625A)
Binaries Optional	MS, TRANSFER
LIF Directories per drive	2

HPUX 2.1

Recommended interleave	1
Mountable volumes per drive	2
Driver required	cs80
Block-mode major number	0
Character-mode major number	4

The following are typical *mknods* for an HP 7907 at select code 14, bus address 7:

```
#mknod /dev/hd7907.0 b 0 15
#mknod /dev/rhd7907.0 c 4 15
#mknod /dev/hd7907.1 b 0 15
#mknod /dev/rhd7907.1 c 4 15
```

The following special considerations apply to operation with HPUX:

• The HP 7907 must be used as an add-on mounted volume. it cannot be used as the root disc because the installation requires a shared disc/tape controller device.

• HPUX does acknowledge the RUN/STOP switch of the HP 7907 and grant release. The cartridge should always be dismounted (*umount*) before removing it, or I/O errors and possible file system corruption may occur. When the lower (fixed) platter is mounted, a busy system waits only five minutes for cartridge change (a 1:30 minute operation).

• Backup operations available using the removable cartridge: pushbutton, *dd* (copy platter), *tar* and *cpio*.

PASCAL 3.0

Recommended Interleave	1
Default volumes	:11....
Modules required	DISC,HPIB, CS80,
	and DMA (if using 98620 DMA),
	and DISC_INTF (if using 98625A)
Modules optional	ASC_AM, LIF_AM, TEXT_AM, WS1.0_AM
LIF Directories per drive	2 to 30

The CONFIG:CTABLE.TEXT template should include the following line:

CS80id:=7907;nvols:=20;mp.tpm:=2*627;mp.bpt:=64*256;{7907}

Series 300

The HP 7907 is supported by three operating systems on the HP 9000 Series 300: BASIC 4.0, HPUX 5.0, and PASCAL 3.1.

Support

The hardware and operating system support for the Series 300 is shown below. For additional information, consult the *HP 9000 Series 300 Configuration Information and Order Guide*, part no. 98561-90020.

HP 7907 Support

Min Boot ROM	Hardware Support		Earliest Operating System Version		
	310	320	BASIC	HPUX	PASCAL
Rev A	Yes	Yes	4.0	5.0	3.1

Interfacing

Any HP-IB interface is suitable. 98620B DMA will provide significant performance improvement and a 98625A or Series 300 built-in HP-IB will provide less overhead per transaction than a 98624A interface. The examples which follow assume a 98625A at select code 14 and an HP 7907 at bus address 7.

The suggested initial setting of the drive switches are listed below.

Switch	Setting
HP-IB Address	7
WRITE PROTECT	OFF
RUN/STOP	RUN
97907A TAB	Write Enabled (installed)

Although the suggested initial use is write enabled, all Series 300 operating systems support access to write-protected media (except the root disc in HPUX).

BASIC 4.0

```
Recommended Interleave    1
Typical msus              :CS80,1407,0 (fixed disc)
                          :CS80,1407,1 (removable disc)
Binaries Required         CS80 and
```

```
                            HPIB or FHPIB (for 98625A)
Binaries Optional           MS, TRANSFER
LIF Directories per drive   2
```

HPUX 5.0

```
Recommended interleave          1
Mountable volumes per drive     2
Driver required                 cs80
Block-mode major number         0
Character-mode major number     4
```

Driver Minor Number

BITS	23-16	15-8	7-4	3-0
FIELDS	Select Code	HP-IB Address	Unit Number	Not Used
VALUES (hex)	07 to 1F	00 to 07	0 = lower 1 = upper	0

The following are typical *mknods* for an HP 7907 at select code 14, bus address 7:

```
#mknod /dev/hd7907.0 b 0 0x0e0700
#mknod /dev/rhd7907.0 c 4 0x0e0700
#mknod /dev/hd7907.1 b 0 0x0e0710
#mknod /dev/rhd7907.1 c 4 0x0e0710
```

The following special considerations apply to operation with HPUX 5.0:

o The HP 7907 must be used as add-on mounted volumes. it cannot be used as the root disc because the operating system size is greater than the 20.5 Mbytes of the fixed disc.

o HPUX does acknowledge the RUN/STOP switch of the HP 7907 and grant release. The cartridge should always be dismounted (*umount*) before removing it, or I/O errors and possible file system corruption may occur. When the drive is mounted, a busy system waits only five minutes for cartridge change (a 1:30 minute operation).

o Backup operations available using the removable cartridge: pushbutton, *dd* (copy platter), *tar* and *cpio*.

PASCAL 3.1

```
Recommended Interleave      1
Default volumes             :11....
Modules required            DISC,HPIB, CS80,
                            and DMA (if using 98620 DMA),
                            and DISC_INTF (if using 98625A)
```

```
Modules optional          ASC_AM, LIF_AM, TEXT_AM, WS1.0_AM
LIF Directories per drive  2 to 30
```

Series 500

The HP 7907 is supported by two operating systems on the HP 9000 500 Series: BASIC 2.0 and HPUX 5.0.

Support

The hardware and operating system support for the Series 500 is shown below. For additional information, consult the *HP 9000 Series 500 Configuration Information and Order Guide*, part no. 09050-90050.

HP 7907 Support

Hardware Support						Earliest Operating System Version	
Min Boot ROM	520	530	540	Min Boot ROM	550	BASIC	HPUX
B	Yes	Yes	Yes	4.0	Yes	2.0	5.0

Interfacing

HPUX software installation requires that both the cartridge tape and system disc be connected to one or more HP 27110A/B HP-IB interfaces. The model 550 built-in HP-IB interface may be used as the system disc HP-IB interface after HPUX installation. It is recommended that the built-in HP-IB interface be used for the system's non-disc devices. The examples which follow assume a 27110 interface at select code 5 and an HP 7907 at bus address 0.

The suggested initial setting of the drive switches are listed below.

Switch	Setting
HP-IB Address	7
WRITE PROTECT	OFF
RUN/STOP	RUN
97907A TAB	Write Enabled (installed)

Although the suggested initial use is write enabled, the Series 500 operating systems support access to write-protected media (except the root disc in HPUX).

BASIC 2.0

Recommended Interleave	1
Typical msus	:CS80,500,0 (fixed disc)
	:CS80,500,1 (removable disc)
Binaries Required	HP27110
LIF or SDF Directories per drive	2

HPUX 5.0

Recommended interleave	1
Mountable volumes per drive	2
Driver required	cs80
Block-mode major number	1
Character-mode major number	1

Driver Minor Number

BITS	23-16	15-8	7-4	3-0
FIELDS	Select Code	HP-IB Address	Unit Number	Not Used
VALUES (hex)	02 to 05 08 to 17	00 to 07	0 = lower 1 = upper	0

The following are typical *mknods* for an HP 7907 (as system disc) at select code 5, bus address 0:

```
#mknod /dev/hd7907.0 b 1 0x050000
#mknod /dev/rhd7907.0 c 1 0x050000
#mknod /dev/hd7907.1 b 1 0x050010
#mknod /dev/rhd7907.1 c 1 0x050010
```

The following special considerations apply to operation with HPUX:

• The HP 7907 may be used as the sole system disc (plus one mounted volume) or as add-on mounted volumes. If used as the sole system disc, another disc or tape drive with a supported 1/4-inch cartridge tape drive must be available for software installation.

• HPUX does acknowledge the RUN/STOP switch of the HP 7907 on dismounted drives only and grants release. The cartridge must be dismounted (*umount*) before removing it to avoid I/O errors and possible file system corruption. When either the fixed or removable platter is mounted (e.g., is the *root* or VM disc), the system must be shut down before release is granted.

• Backup operations available using the removable cartridge: pushbutton, *dd* (copy platter), *tar* and *cpio*.

• Do not attempt to remove the cartridge when the disc is initializing (*sdfinit*).

Product Line Sales/Support Key
Key Product Line
A   Analytical
CM Components
C   Computer Systems
E   Electronic Instruments & Measurement Systems
M   Medical Products
P   Personal Computation Products
*   Sales only for specific product line
** Support only for specific product line

IMPORTANT:These symbols designate general product line capability.They do not insure sales or support availability for all products within a line, at all locations.Contact your local sales office for information regarding locations where HP support is available for specific products.

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