

CONTEL CODATA CORPORATION

System Bootstrap Release 4.1

Introduction

If your disk drives have been formatted or configured with a System Bootstrap from a pre-4.0 release, USE OF THE NEW BOOTSTRAP MAY BE HAZARDOUS TO YOUR FILE SYSTEM. See 'Modified Configurations' below.

New machines that come with this Bootstrap have been formatted and configured with the new boot, and will have none of the possible problems discussed below.

ALSO NOTE - Unisis System Software Version 3.2.1 contains all of the files used in Bootstrap Release 4.1. As a result, it is not necessary to copy any of the files mentioned below, since they are already in place on your system.

*** New Features of this Release ***

The 4.1 Bootstrap provides the following changes:

Diagnostics

A new standalone diagnostics package "diags version 1.0", is now provided as one of the standard bootstrap utilities. It includes tests for checking RAM cards, the floppy disk and the hard disk systems. "Diags" may be accessed one of the following ways:

fd(0,90)diags	(on floppy bootstrap)
dmboot diags	(on prom bootstrap)
dk(0,0)diags	(on Unisis Version 3.2.1 and later)

Detailed documentation can be found in the /usr/src/doc directory in a file called diags.doc or request the "Hardware diagnostics software reference manual" (Codata P/N 04-5008-01 Rev A).

New Disk Configurations

Three new hard disks have been added to the bootstrap disk configuration menu. They are the Hitachi 511-5 (51 Mb) disk, the CMI 5619 (19 Mb) disk and the Fuji (470 Mb) disk. Refer to the table at the end of this document for additional information on these disks. (Each was actually pretested in Bootstrap Release

Codata P/N 03-5001-01 Rev B

4.0.2).

New SKY Floating Point Board Interface

A new initialization routine has been created for the SKYFFP board. It is designed to work in conjunction with the SKYFFP device driver that is used in Unisis System Software Version 3.2.1. Any earlier versions of Unisis will not work properly with this new routine. The compilers that are currently designed to interface with the SKYFFP board are SVS Version 2.2 FORTRAN and/or PASCAL.

In order for the SKYFFP board to function properly, the initialization routine must be down loaded to the board while the system is in the standalone environment. This is done by entering the following:

```
fd(0,90)ffpinit      (if floppy bootstrap)
dmboot ffpinit      (if prom bootstrap)
```

The ffpinit routine provides the option of specifying the device and name of the file containing the SKY microcode, with the default being 'dk(0,0)etc/skyffp.ascii'. This file is in place on Unisis Versions 3.2.1 and greater. The SKY microcode is also located on the 4.1 boot floppy and can be accessed by entering fd(0,90)skyffp.ascii.

On systems with Unisis Version 3.2.1 and greater, a process has been devised to automatically initialize the SKYFFP board when booting to unix. (The ffpinit routine is automatically called). This is done by jumpering pin 8 on the parallel input connector on the CPU card to the pin below it. (The pins are numbered from zero at the rightmost.) If you boot from PROMs, you will either need to get the new Release 4.1 PROMs, or enter 'dmboot bootx' to boot to the 4.1 Bootstrap to utilize the automatic floating point initialization option.

The Sky Microcode V3.5 is provided in 'ascii' format so that any 'patches', or modifications that may be required in the future, can be done with the editor.

Should the occasion arise, the SKY microcode file may be copied from the floppy boot disk to the hard disk. This done by booting the system to unix, mounting '/dev/fd0a' on '/f', and then using 'cp' to copy the sky.ascii file from '/f' to '/etc'.

The SKY microcode file may also be copied from the boot tape to the hard disk. This transfer, however, is a little more complicated; you have to copy the file twice to keep things simple. The first copy is done with the command:

```
dd if=/dev/dmb of=/tmp/sky1 count=118 skip=1016
```

The '1016' value is the dm offset value for the skyffp.ascii file, and should be modified as may be required, the '118' value is the number of blocks required for the Version 3.5 Sky Microcode. The second step is as follows:

```
dd if=/tmp/sky1 of=/etc/skyffp.ascii bs=1 count=60270
```

For more information on the SKYFFP board interface with Unisis, consult chapter 4 of the Unisis User's Manual or type 'man sky'.

PROM Bootstrap 4.1

The new PROM Bootstrap Release 4.1 now includes the driver for the 'fd' device, so PROM boot systems that also have floppy disks can now access the floppy disk from the Standalone environment.

Pin 7 on the CPU parallel input port can now be jumpered to indicate that the 'help' files for the standalone utilities are to be read from 'dk(0,0)usr/src/stand/fd0a/help'. Without this jumper the boot assumes that the 'help' files are on 'fd(0,90)'.

Floppy Bootstrap Backup

To back up the Bootstrap Floppy to disk, use the following procedure. With Unix running, insert the Bootstrap Floppy into the drive, and close the door. Now, type:

```
# mount /dev/fd0a /f -r
# csh /f/move
# umount /dev/fd0a
```

(the Unix '#' prompt is shown. Do not type it in)

To create an extra boot floppy, insert a formatted floppy in the drive, and close the door. Now, type:

```
# cd /usr/src/stand
# make.boot
```

Modified Configurations

The 4.1 Bootstrap also includes the following 4.0 modifications:

The configurations for the 33, 84, 168 and 330 Megabyte disk drives have been modified for faster file access times.

In all four types of drives, the drive has been split up into separate file systems. This provides for quicker (on the average) file-open operations, and for greater file-system integrity.

In order for users with existing systems to take advantage of the new file system organization, the disk drive in question has to be reconfigured. As a result, MOST OF THE FILES ON DISK WILL BE LOST, so everything of value has to be backed up ahead of time.

In the 84, 168 and 330 Megabyte drives, the interleave factor has been changed from 7 to 5. This significantly improves disk access since the dk/cd driver was speeded up.

Note that reconfiguring the drive in this case is not enough. In order for users with existing systems to take advantage of the new interleave factor, the drive in question has to be reformatted (see dkformat(8SA)). As a result, ALL OF THE FILES ON DISK WILL BE LOST, so everything of value has to be backed up ahead of time.

We recommend using the 'tar(1)' utility for backing up files (as opposed to 'dump(1)'), because of its capability to extract files back selectively. This capability is important because the new file system sizes, are in some cases smaller than the size of the file system the files were taken from. This means that files from what used to be large file systems will now have to be separated into different file systems under the new configurations. Care should be taken to examine if this is desirable, or at all possible.

PLEASE NOTE

Users who are satisfied with the speed of their system, and its file system organization, may consider staying with the Bootstrap they are currently using instead of going through the lengthy reconfiguration or reformatting procedure. The new 'ffpinit' utility and 'skyffp.ascii' files can be copied onto /dev/fd0a on an older boot floppy if necessary.

IF THIS IS AN UPDATE TO AN EXISTING SYSTEM, DO NOT UPDATE THE CONFIGURATION BLOCK ON YOUR DISK OR REFORMAT YOUR DRIVE BEFORE BACKING UP YOUR FILES TO TAPE OR FLOPPY.

Related documents

Unisis Version 3.2.1 Release Notes Codata P/N 04-5007-01 Rev A
System Software Restoration Guide V3.2.1 Codata P/N 04-5004-01 Rev B

New File System Organization

The following table shows the new file system organization for the various disk drives.

Disk Drive	File system	Device Name	Size
CMI 19 Megabyte	SWAP SPACE	/dev/cd01	2992
	root	/dev/cd02 - dk(0,0)	28118
ATASI 33 Megabyte	root	/dev/cd01 - dk(0,0)	21250
	SWAP SPACE	/dev/cd02	7225
	<mountable>	/dev/cd03	25415
ATASI 47 Megabyte	root	/dev/cd01 - dk(0,0)	21420
	SWAP SPACE	/dev/cd02	7735
	<mountable>	/dev/cd03	46291
HITACHI 51 Megabyte	root	/dev/cd01 - dk(0,0)	22610
	SWAP SPACE	/dev/cd02	8330
	<mountable>	/dev/cd03	52122
FUJITSU 84 Megabyte	<mountable>	/dev/cd01	19040
	<mountable>	/dev/cd02	11900
	root	/dev/cd03 - dk(0,0)	23800
	SWAP SPACE	/dev/cd04	17850
	<mountable>	/dev/cd05	67354
FUJITSU 168 Megabyte	<mountable>	/dev/cd01	46580
	<mountable>	/dev/cd02	46580
	SWAP SPACE	/dev/cd03	15980
	root	/dev/cd04 - dk(0,0)	25500
	<mountable>	/dev/cd05	46580
	<mountable>	/dev/cd06	46580
	<mountable>	/dev/cd07	46580
FUJITSU 330 Megabyte	<mountable>	/dev/cd01	102816
	<mountable>	/dev/cd02	102816
	SWAP SPACE	/dev/cd03	16320
	root	/dev/cd04 - dk(0,0)	26112
	<mountable>	/dev/cd05	102816
	<mountable>	/dev/cd06	102816
	<mountable>	/dev/cd07	102816

Note that SWAP SPACE is not a mountable file system, but an area on disk reserved for Unix.