NAME

intro – introduction to stand-alone utilities

DESCRIPTION

Stand-alone utilities must be booted up in a manner similar to UNIX itself. They may not be run under UNIX and are, in effect, their own small operating systems. Thus, most normal UNIX functions and utilities are not available under the stand-alone utilities. After using one of these utilities, standard UNIX (or another stand-alone utility or operating system) must be rebooted.

NAME

mmtest — PDP 11/70 memory management test

SYNOPSIS

[This program must be booted up in the same manner as the UNIX operating system.]

DESCRIPTION

Mmtest is a stand-alone test of the DEC PDP11/70 memory management hardware. It runs an extensive test, accessing main memory with combinations of separated/combined I and D space, Unibus mapping, supervisor space, user space, kernel space, 16 bit addressing, 18 bit addressing, and 22 bit addressing. It attempts to load into and fetch from all memory locations using those combinations with all possible memory management register pairs.

Because of the great number of permutations to try, the test can take several minutes. On a machine with 250K core memory, the test took about 25 minutes.

If the result indicates any memory cannot be properly accessed with some memory management registers/options, call DEC and make sure that the latest ECO for memory management is indeed installed on your machine.

If the memory management registers are not working properly, intermittent, unpredictable system crashes may occur.

NAME

sacopy – stand-alone copy/verify

SYNOPSIS

[This program must be booted-up in the same manner as the UNIX operating system.]

DESCRIPTION

Sacopy is a stand-alone copy/verify program, that is, it must be booted into core just as the UNIX operating system is. When the boot program issues its prompt, the operator must type "sacopy" followed by a carriage-return in order to load *sacopy* into core and execute it.

Sacopy, because it is a stand-alone program and because it performs its copies in an efficient, contiguous manner (via its own device drivers), is the best procedure to use for performing normal system backup. The current record size used is 10240 bytes, ie, 20 512-bytes blocks. *Sacopy* has good error recovery. It attempts smaller block sizes on read errors and gives up only as a last resort.

It begins with the following message on the system tty:

Mode: copy, vrfy, or vcopy?

The user should enter **copy** for copy only, **vrfy** for verify only or **vcopy** for copy with verification. After receiving the selected mode, it then prompts for the source device via a "from:" request. To this prompt the operator must type the name of one of the available devices on the system.

The program next asks for the destination device by issuing a "to:" prompt. Again, the operator must type the name of one of the available devices on the system.

If the name typed by the operator is not found, *sacopy* will print "invalid device" and reissue the "from:" or "to:" names. It suffices to type a carriage-return to either of the above prompts. In this case *sacopy* will list the current device abbreviations which may be input. Currently available devices are described below.

Sacopy then indicates the number of 512-byte blocks to be copied and proceeds with the copy operation.

Any errors encountered while reading or writing a mag tape are noted and the operator is asked if processing should proceed with the prompt "proceed?". If processing is to continue, the operator types "y" (yes) to the prompt. Any other response is interpreted as "no" and *sacopy* restarts.

When a copy has been completed, an error summary is produced, and *sacopy* prompts for the next copy by typing "next copy" when "from:" and "to:" as before.

The operator halts *sacopy* by depressing the machine's "halt" switch.

Sacopy may be given the from and to arguments when it is initially booted. Type

sacopy <from> <to>

in response to the boot prompt.

Sacopy will copy any block size from the mag tape. If the destination is also a mag tape the block size is preserved. If the destination only is a mag tape, the block size is 10240 bytes.

If *sacopy* is copying tape to tape, it will copy to an input EOF. If it is copying to or from any device with a fixed logical size, it will copy the minimum of the input and output sizes.

DEVICES

nulldev - infinite source of zeros and sink of anything
rk0 - rk drive 0

rk1 - rk drive 1
rp0 - first half of an RP03 disk
rp1 - second half of an RP03 disk
rputil - first 3400 blocks on an RP03 disk
rf0 - rf drive 0 - 1024 blocks
tc0 - tc11 DECTAPE unit 0
tc1 - tc11 DECTAPE unit 1
tc2 - tc11 DECTAPE unit 0 - multitape
tc3 - tc11 DECTAPE unit 1 - multitape
rx0 - rx11 floppy unit 0
rx1 - rx11 floppy unit 1
tm0 - tu10 drive 0 - with rewind
tm1 - tu10 drive 1 - with rewind
tm4 - tu10 drive 0 - without rewind
tm5 - tu10 drive 1 - without rewind
hp0 - cylinders 0 to 119 of an RP06 disk (drive 0)
hp1 - cylinders 120 to 239 of an RP06 disk
hp2 - cylinders 240 to 359 of an RP06 disk
hp3 - cylinders 360 to 479 of an RP06 disk
hp4 - cylinders 480 to 599 of an RP06 disk
hp5 - cylinders 600 to 719 of an RP06 disk
hp6 - cylinders 720 to 814 of an RP06 disk
hp7 - cylinders 455 to 479 of an RP06 disk (OSG swap)
hputil - first 5016 blocks of an RP06 disk
hp9 - cylinders 12 to 22 of an RP06 disk (OSG util swap)
hp10 - cylinders 23 to 119 of an RP06 disk
hp11 - unused minor device of an RP06 disk
hp12 - cylinders 120 to 131 of an RP06 disk
hp13 - cylinders 132 to 144 of an RP06 disk
hp14 - cylinders 145 to 164 of an RP06 disk
hp15 - cylinders 165 to 239 of an RP06 disk
hp16 - unused minor device of an RP06 disk
hp17 - unused minor device of an RP06 disk
hp18 - unused minor device of an RP06 disk
hp32 - cylinders 0 to 119 of an RP06 disk (drive 1)
hp33 - cylinders 120 to 239 of an RP06 disk (drive 1)
hp34 - cylinders 240 to 359 of an RP06 disk (drive 1)
hp35 - cylinders 360 to 479 of an RP06 disk (drive 1)
hp36 - cylinders 480 to 599 of an RP06 disk (drive 1)
hp37 - cylinders 600 to 719 of an RP06 disk (drive 1)
hp38 - cylinders 720 to 814 of an RP06 disk (drive 1)
hp64 - cylinders 0 to 119 of an RP06 disk (drive 2)
hp65 - cylinders 120 tp 239 of an RP06 disk (drive 2)
hp66 - cylinders 240 to 359 of an RP06 disk (drive 2)
hp67 - cylinders 360 to 479 of an RP06 disk (drive 2)
hp68 - cylinders 480 to 599 of an RP06 disk (drive 2)
hp69 - cylinders 600 to 719 of an RP06 disk (drive 2)
hp70 - cylinders 720 to 814 of an RP06 disk (drive 2)
hs3 - RJS03 disk
hs4 - RJS04 disk
ht0 - tu16 drive 0 - 800 bpi - with rewind
ht1 - tu16 drive 1 - 800 bpi - with rewind

ht4 - tu16 drive 0 - 800 bpi - without rewind
ht5 - tu16 drive 1 - 800 bpi - without rewind
ht8 - tu16 drive 0 - 1600 bpi - with rewind
ht9 - tu16 drive 1 - 1600 bpi - with rewind
ht12 - tu16 drive 0 - 1600 bpi - without rewind
ht13 - tu16 drive 1 - 1600 bpi - without rewind

Note that the disk minor device areas for the *hp* units are defined in *hpmap.c*. The above example may not represent the actual disk layout.

DIAGNOSTICS

As mentioned above, the response "invalid device" is printed whenever a device name is not found.

"Nodev called" is an internal error which should never occur.

"Source and Destination cannot be same"

"Next Copy" is printed whenever sacopy has finished or aborted the current copy.

"Unexpected EOF."
"Copy Prematurely Terminated." - a read from the input device has returned a zero for the number of bytes read and more data is expected.

"Input record size (nnn)"
"Not a multiple of 512"
"Copy Aborted" - Mag tapes must have a block size which is a multiple of 512.

"Tape <xxx> error"
"mtcs2: <nnn>"
"mtds: <nnn>"
"mter: <nnn>"
"Proceed?" - This message indicates a tape read or write error as described by <xxx>. The three octal number printed correspond to the tu16 mag tape registers. Consult the *PDP11 Peripherals Handbook*, Chapter 4. It is unwise to continue after a write error. If the answer given is yes for a read error, some bad data may be copied.

"Tape <xxx> error"
"mts:"
"Proceed?:" - As above, but pertaining to a tu10.

"Bad Sectors <xxx>" - What follows is a list of bad sectors on the device <xxx>.

"No Bad Sectors on <xxx>" - Normal termination report for disks.

"Error List Full" - Too many bad sectors were encountered. *Sacopy* will print the bad sectors encountered thus far and restart.

BUGS

Be careful with any two logical names referring to the same physical tape drive.

Sacopy from mt0 to mt4 will scribble the tape.

Vcopy does not work correctly with non-rewind tape drives or on bootable tapes.