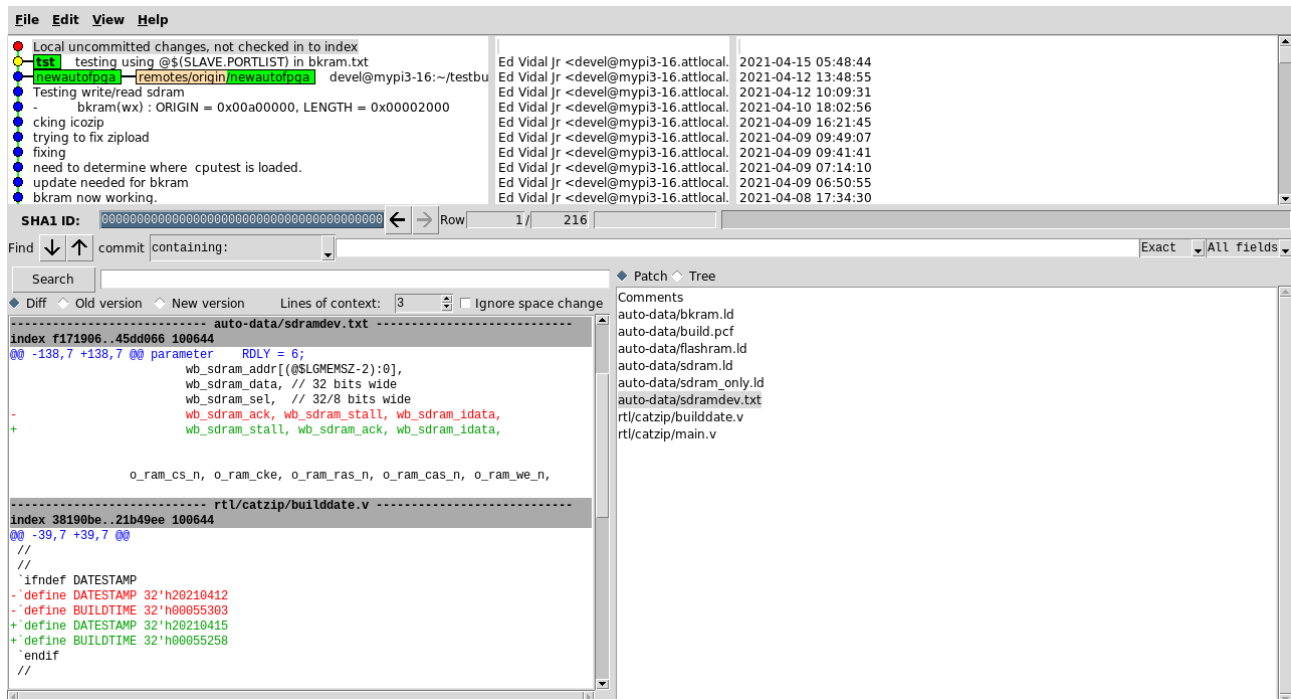


The make completed as before. Started the simulator in left shell. In right shell ./arm-zipload -v ../board/cputest Hangs Clearing the CPUs registers

testing using @\$(SLAVE.PORTLIST) in bkram.txt
switching order o_wb_ack, o_wb_stall -> o_wb_stall, o_wb_ack

Needed to test an additional change to catzip-tst/catzip/auto-data/sdramdev.txt



devel@mypi3-16:~/testbuilds/catzip-tst/catzip/sw/host \$./arm-zipload -v ../board/cputest

Halting the CPU

Memory regions:

Block RAM: 01400000 - 01402000

SDRAM : 02000000 - 03000000

Loading: ../board/cputest

Section 0: 02000000 - 02003e94

Writing to MEM: 02000000-02003e94

Clearing the CPUs registers

POLL = 1

RCVD: 2 bytes

< W

> K00000000

POLL = 1

RCVD: 2 bytes

< W

> K00000000

POLL = 1

RCVD: 2 bytes

< W

> K00000000

POLL = 1

RCVD: 2 bytes

```
< W
> K00000000
POLL = 1
RCVD: 2 bytes
< W
> K00000000
POLL = 1
RCVD: 2 bytes
< W
> K00000000
POLL = 1
RCVD: 2 bytes
< W
> K00000000
POLL = 1
RCVD: 11 bytes
< A01000015R
> A01000015R20210415
POLL = 1
RCVD: 14 bytes
< A04000001W400
> A04000001K00000000
POLL = 1
RCVD: 11 bytes
< A04000005W
> A04000005
```

```
// @REGDEFS.H.DEFNS for masters
#define CLKFREQHZ      40000000
#define R_ZIPCTRL      0x04000000
#define R_ZIPDATA      0x04000004
#define RESET_ADDRESS  0x01400000
// @REGDEFS.H.DEFNS for peripherals
#define BKRAMBASE      0x01400000
#define BKRAMLEN       0x00002000
#define SDRAMBASE      0x02000000
#define SDRAMLEN       0x01000000
```

```
#define CPU_GO          0x0000
#define CPU_RESET       0x0040
#define CPU_INT         0x0080
#define CPU_STEP        0x0100
#define CPU_STALL       0x0200
#define CPU_HALT        0x0400
#define CPU_CLRCACHE    0x0800
#define CPU_sR0         0x0000
#define CPU_sSP         0x000d
#define CPU_sCC         0x000e
#define CPU_sPC         0x000f
#define CPU_uR0         0x0010
#define CPU_uSP         0x001d
#define CPU_uCC         0x001e
```

```
#define CPU_uPC      0x001f
```

I had a program arm-wrsdram which writes to 0x01400000 8192 words.

```
devel@mypi3-16:~/testbuilds/catzip-tst/catzip/sw/host $ ../../../../catzip-newautofpga/arm-wrsdram  
rgb_pack.bin
```

The size of the buffer is 0x002000 or 8192 words

This also hangs.

```
devel@mypi3-16:~/testbuilds/catzip-tst/catzip/sw/host $ ./arm-wrsdram rgb_pack.bin
```

The size of the buffer is 0x010000 or 65536 words

READ-COMplete

```
./arm-rdsdram rdtest.bin
```

Write-COMplete

The size of the buffer is 0x010000 or 65536 words

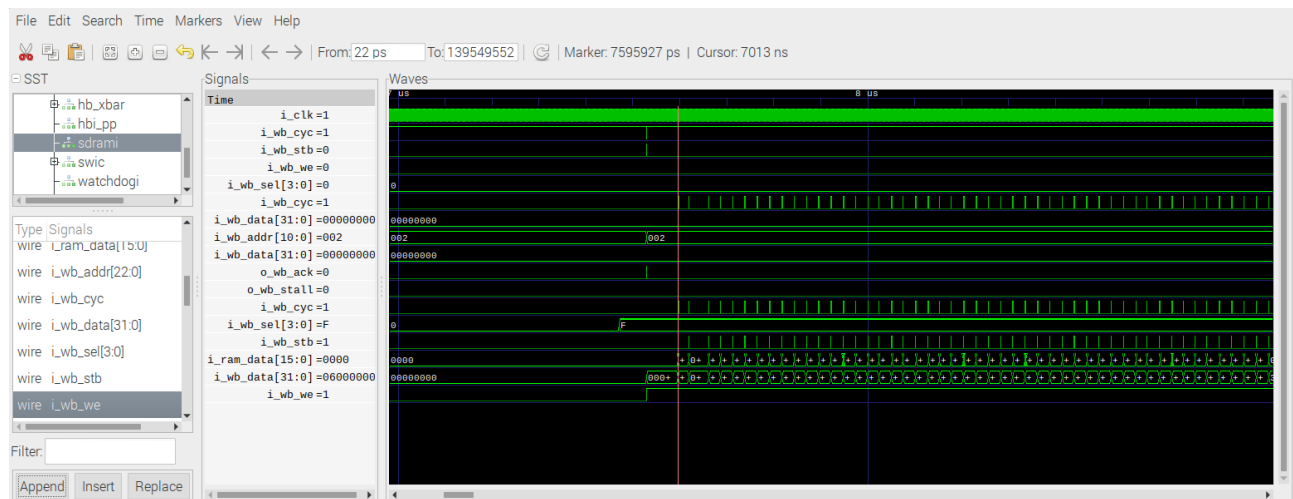
Write data 0x0200f120 65536 words. I beleve this confirm that the problem is in the bkram.

```
File Edit Tabs Help
00000000 7C 24 22 0E 83 20 E2 0D 75 14 22 0E 7B 20 32 0E |$"... ..u.".{ 2.
00000010 7A 28 12 0E 7C 18 22 0E 70 18 02 0E 75 0C D2 0D z(...|."p...u...
00000020 6D 10 C2 0D 76 2C E2 0D 6A 00 F2 0D 69 0C E2 0D m...v,..j...i...
00000030 6F 10 B2 0D 65 FC 01 0E 74 04 C2 0D 74 04 D2 0D o...e...t...t...
00000040 69 08 F2 0D 72 0C 02 0E 76 28 22 0E 70 24 62 0E i...r...v("p$b.
00000050 71 38 72 0E 77 48 72 0E 7A 58 B2 0E 79 58 72 0E q8r.wHr.zX..yXr.
00000060 75 54 E2 0E 78 50 A2 0E 76 3C 82 0E 75 18 72 0E uT...xP...v<...u.r.
00000070 62 D4 F1 0D 77 DC 81 0D 60 64 A1 0C 5F 40 31 0B b...w...`d..._@1.
00000080 53 FC 70 0A 5D F8 A0 09 58 F0 B0 09 56 10 31 0A S.p.]...X...V.1.
00000090 58 1C 51 0A 5A 24 91 0A 5A 24 E1 0A 5B 24 11 0B X.Q.Z$.Z$..[$..
000000A0 56 38 11 0B 55 28 11 0B 55 2C F1 0A 5A 3C 01 0B V8..U(..U,..Z<..
000000B0 57 2C 11 0B 57 2C 11 0B 58 38 41 0B 55 30 21 0B W,..W,..X8A.U0!.
000000C0 59 38 11 0B 5A 38 01 0B 52 24 D1 0A 53 24 41 0B Y8..Z8..R$..S$A.
000000D0 55 38 31 0B 59 4C 71 0B 59 4C C1 0B 5A 60 21 0C U81.YLq.YL..Z`!.
000000E0 57 4C 21 0C 58 68 11 0C 59 74 31 0C 5B 68 41 0C WL!.Xh..Yt1.[hA.
000000F0 5C 80 A1 0C 5C 78 91 0C 5A 68 B1 0C 5F 98 B1 0C \...\x..Zh..._...
00000100 5E 88 D1 0C 62 94 E1 0C 62 80 C1 0C 60 80 B1 0C ^...b...b...`...
00000110 69 B0 A1 0C 66 98 C1 0C 60 90 D1 0C 5C 80 C1 0C i...f...`...\...
00000120 60 84 E1 0C 5E 80 91 0C 5F 9C A1 0C 5E 8C A1 0C `...^..._...^...
00000130 60 8C B1 0C 5C 80 B1 0C 60 A0 E1 0C 6B A0 D1 0C `...\...`...k...
00000140 5D 88 11 0D 61 90 F1 0C 60 94 F1 0C 67 9C 01 0D ]...a...`...g...
00000150 62 94 11 0D 5F 90 31 0D 63 90 21 0D 61 94 11 0D b..._.1.c.!a...
00000160 63 9C 11 0D 65 9C E1 0C 60 94 E1 0C 5D 8C F1 0C c...e...`...].
--- rgb_pack.bin ---0x0/0x40000-----
```

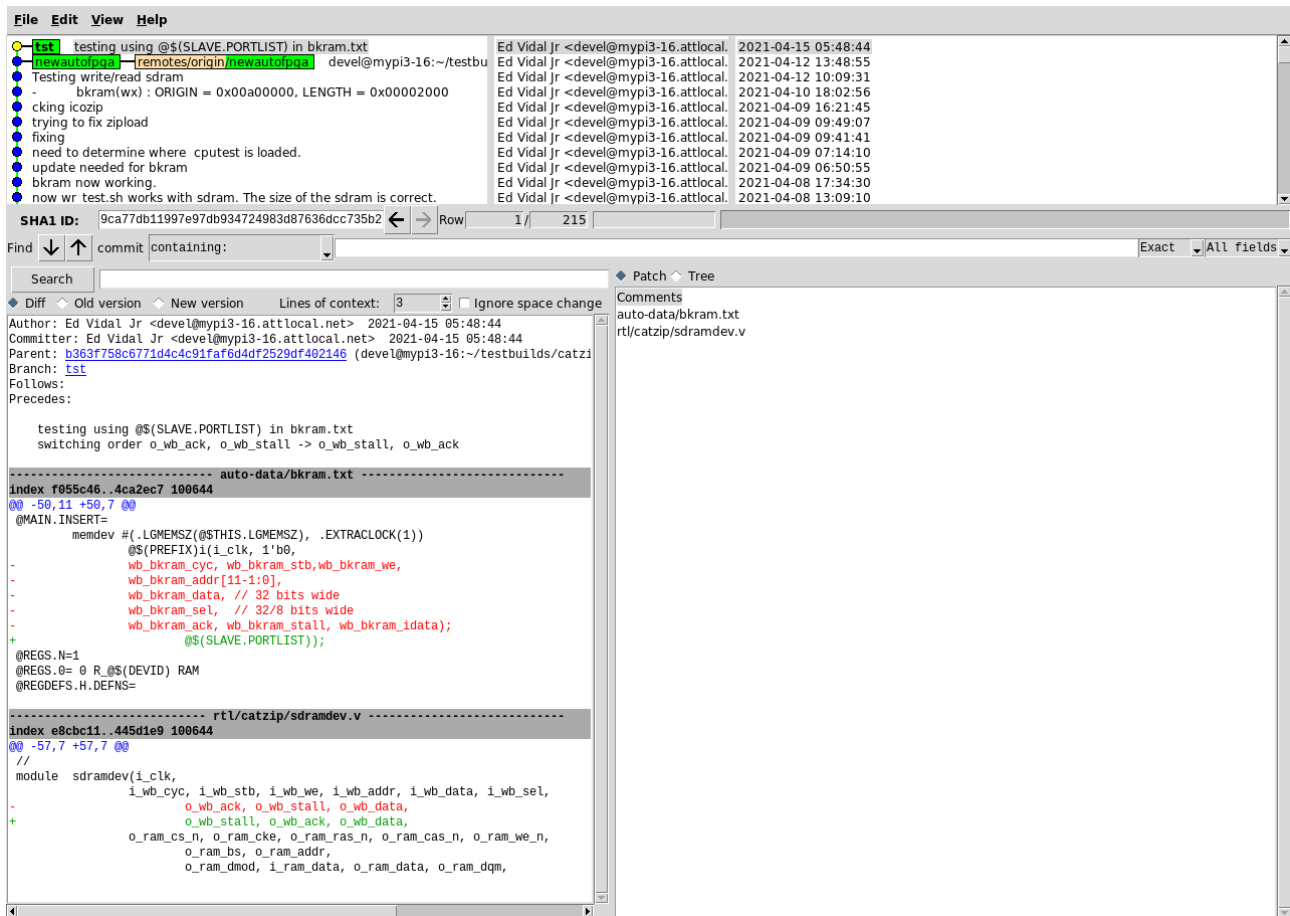
Read data

```
File Edit Tabs Help
00000000 7C 24 22 0E 83 20 E2 0D 75 14 22 0E 7B 20 32 0E |$"...u.".{ 2.
00000010 7A 28 12 0E 7C 18 22 0E 70 18 02 0E 75 0C D2 0D z(..|."p...u...
00000020 6D 10 C2 0D 76 2C E2 0D 6A 00 F2 0D 69 0C E2 0D m...v,..j...i...
00000030 6F 10 B2 0D 65 FC 01 0E 74 04 C2 0D 74 04 D2 0D o...e...t...t...
00000040 69 08 F2 0D 72 0C 02 0E 76 28 22 0E 70 24 62 0E i...r...v("p$b.
00000050 71 38 72 0E 77 48 72 0E 7A 58 B2 0E 79 58 72 0E q8r.wHr.zX..yXr.
00000060 75 54 E2 0E 78 50 A2 0E 76 3C 82 0E 75 18 72 0E uT..xP..v<..u.r.
00000070 62 D4 F1 0D 77 DC 81 0D 60 64 A1 0C 5F 40 31 0B b...w...`d..._@1.
00000080 53 FC 70 0A 5D F8 A0 09 58 F0 B0 09 56 10 31 0A S.p.]...X...V.1.
00000090 58 1C 51 0A 5A 24 91 0A 5A 24 E1 0A 5B 24 11 0B X.Q.Z$.Z$..[$..
000000A0 56 38 11 0B 55 28 11 0B 55 2C F1 0A 5A 3C 01 0B V8..U(..U,..Z<..
000000B0 57 2C 11 0B 57 2C 11 0B 58 38 41 0B 55 30 21 0B W,..W,..X8A.U0!..
000000C0 59 38 11 0B 5A 38 01 0B 52 24 D1 0A 53 24 41 0B Y8..Z8..R$..S$A.
000000D0 55 38 31 0B 59 4C 71 0B 59 4C C1 0B 5A 60 21 0C U81.YLq.YL..Z`!.
000000E0 57 4C 21 0C 58 68 11 0C 59 74 31 0C 5B 68 41 0C WL!.Xh..Yt1.[hA.
000000F0 5C 80 A1 0C 5C 78 91 0C 5A 68 B1 0C 5F 98 B1 0C \...\x..Zh...
00000100 5E 88 D1 0C 62 94 E1 0C 62 80 C1 0C 60 80 B1 0C ^...b...b...`...
00000110 69 B0 A1 0C 66 98 C1 0C 60 90 D1 0C 5C 80 C1 0C i...f...`...\...
00000120 60 84 E1 0C 5E 80 91 0C 5F 9C A1 0C 5E 8C A1 0C `...^...^...^...
00000130 60 8C B1 0C 5C 80 B1 0C 60 A0 E1 0C 6B A0 D1 0C `...\...`...k...
00000140 5D 88 11 0D 61 90 F1 0C 60 94 F1 0C 67 9C 01 0D ]...a...`...g...
00000150 62 94 11 0D 5F 90 31 0D 63 90 21 0D 61 94 11 0D b..._.1.c.!a...
00000160 63 9C 11 0D 65 9C E1 0C 60 94 E1 0C 5D 8C F1 0C c...e...`...]...
--- rdtest.bin --0x0/0x40000-----
```

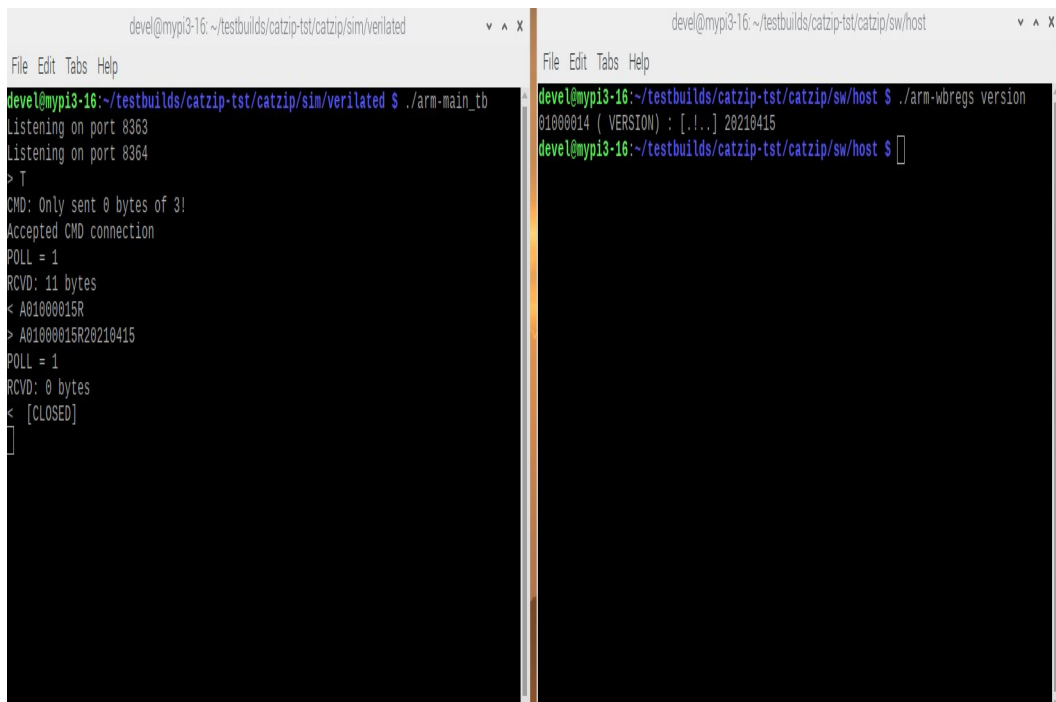
ran a simulation with a trace.



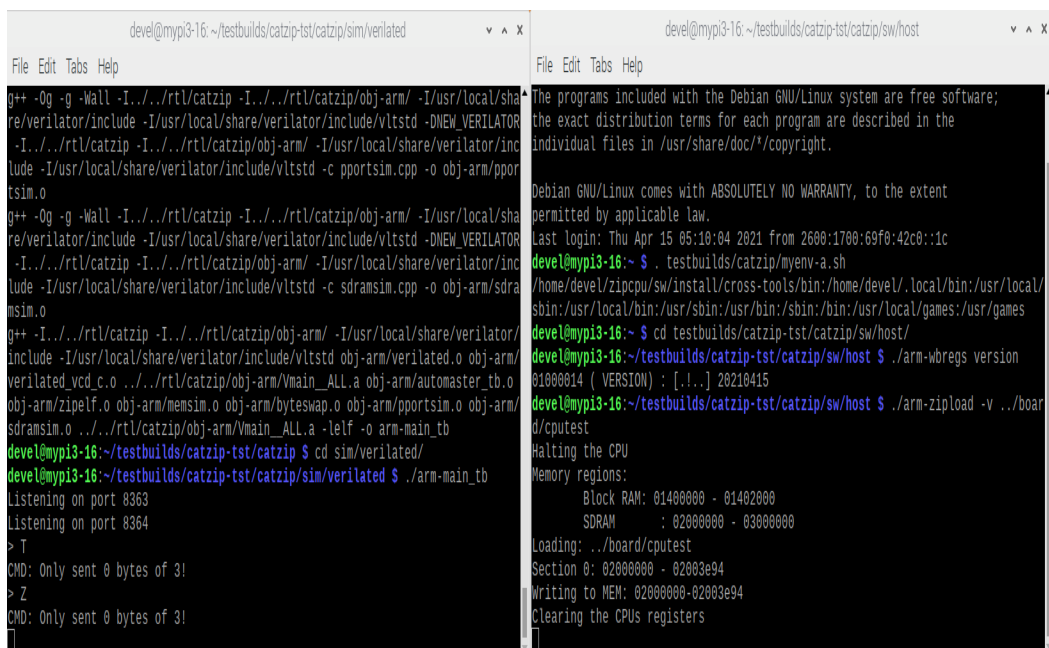
I created a tst branch.



./arm-wbregs version ok.



The make completed as before. Started the simulator in left shell. In right shell `./arm-zipload -v`
`../board/cputest` Hangs Clearing the CPUs registers



```
devel@mypi3-16: ~/testbuilds/catzip-tst/catzip/sim/verilated
File Edit Tabs Help
g++ -Og -g -Wall -I../rtl/catzip -I../rtl/catzip/obj-arm/ -I/usr/local/share/verilator/include -I/usr/local/share/verilator/include/vltstd -DNEW_VERILATOR -I../rtl/catzip -I../rtl/catzip/obj-arm/ -I/usr/local/share/verilator/include -I/usr/local/share/verilator/include/vltstd -c pportsim.cpp -o obj-arm/pportsim.o
g++ -Og -g -Wall -I../rtl/catzip -I../rtl/catzip/obj-arm/ -I/usr/local/share/verilator/include -I/usr/local/share/verilator/include/vltstd -DNEW_VERILATOR -I../rtl/catzip -I../rtl/catzip/obj-arm/ -I/usr/local/share/verilator/include -I/usr/local/share/verilator/include/vltstd -c sdramsim.cpp -o obj-arm/sdramsim.o
g++ -I../rtl/catzip -I../rtl/catzip/obj-arm/ -I/usr/local/share/verilator/include -I/usr/local/share/verilator/include/vltstd obj-arm/verilated.o obj-arm/verilated_vcd_c.o ../rtl/catzip/obj-arm/Vmain_ALL.a obj-arm/automastr_tb.o obj-arm/zipelf.o obj-arm/mensim.o obj-arm/bytewrap.o obj-arm/pportsim.o obj-arm/sdramsim.o ../rtl/catzip/obj-arm/Vmain_ALL.a -lelf -o arm-main_tb
devel@mypi3-16:~/testbuilds/catzip-tst/catzip $ cd sim/verilated/
devel@mypi3-16:~/testbuilds/catzip-tst/catzip/sim/verilated $ ./arm-main_tb
Listening on port 8363
Listening on port 8364
> T
CMD: Only sent 0 bytes of 3!
> Z
CMD: Only sent 0 bytes of 3!
]
```

```
devel@mypi3-16: ~/testbuilds/catzip-tst/catzip/sw/host
File Edit Tabs Help
The programs included with the Debian GNU/Linux system are free software; the exact distribution terms for each program are described in the individual files in /usr/share/doc/*/copyright.
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.
Last login: Thu Apr 15 05:10:04 2021 from 2600:1700:69f0:42c0::1c
devel@mypi3-16:~$ . testbuilds/catzip/myenv-a.sh
/home/devel/zipcpu/sw/install/cross-tools/bin:/home/devel/.local/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/local/games:/usr/games
devel@mypi3-16:~$ cd testbuilds/catzip-tst/catzip/sw/host/
devel@mypi3-16:~/testbuilds/catzip-tst/catzip/sw/host $ ./arm-wbregs version
01000014 ( VERSION ) : [...] 20210415
devel@mypi3-16:~/testbuilds/catzip-tst/catzip/sw/host $ ./arm-zipload -v ../board/cputest
Halting the CPU
Memory regions:
Block RAM: 01400000 - 01402000
SDRAM : 02000000 - 03000000
Loading: ../board/cputest
Section 0: 02000000 - 02003e94
Writing to MEM: 02000000-02003e94
Clearing the CPUs registers
```