

******Draft******

Hardware Testing Sdram, Bkram, and GPIO

04/09/21

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Make a copy of the working software to test on RPi3 with Catboard.

```
devel@mypi3-16:~/testbuilds $ rsync -avl catzip-newautofpga mypi3-21:~/
```

```
devel@mypi3-21:~ $ cd catzip-newautofpga/catzip/sw/host
```

Program the FPGA using config_cat

```
devel@mypi3-21:~/catzip-newautofpga/catzip/sw/host $ sudo config_cat ../../rtl/catzip/catzip.bin
```

GPIO 25 not exported, trying to export...

GPIO 17 not exported, trying to export...

GPIO 22 not exported, trying to export...

OK: SPI driver loaded

Setting GPIO directions

out

out

in

Setting output to low

0

Resetting FPGA

0

1

Checking DONE pin

0

Continuing with configuration procedure

263+1 records in

263+1 records out

135100 bytes (135 kB, 132 KiB) copied, 0.0268802 s, 5.0 MB/s

Setting output to high

1

Checking DONE pin

1

Start the software that listens to local port & a remote port.

```
devel@mypi3-21:~/catzip-newautofpga/catzip/sw/host $ sudo ./arm-netpport
```

Listening on port 8363

Listening on port 8364

Check the date the catzip was created using local software.

```
devel@mypi3-21:~/catzip-newautofpga/catzip/sw/host $ ./arm-wbregs version
00800014 ( VERSION ) : [!..] 20210408
```

Check the date the catzip was created using remote software.

```
devel@mypi3-16:~/testbuilds/catzip-newautofpga/catzip/sw/host $ ./arm-wbregs -n mypi3-21 -p
8363 version
00800014 ( VERSION) : [!..] 20210408
```

```
devel@mypi3-21:~/catzip-newautofpga/catzip/sw/host $ cat wr.sh
#!/bin/bash
./arm-wbregs 16777216 0x55
./arm-wbregs 16777220 0xaa
./arm-wbregs 16777224 0x01
./arm-wbregs 16777228 0x02
./arm-wbregs 16777232 0x00010000
./arm-wbregs 16777236 0x00020000
./arm-wbregs 16777216
./arm-wbregs 16777220
./arm-wbregs 16777224
./arm-wbregs 16777228
./arm-wbregs 16777232
./arm-wbregs 16777236
```

```
devel@mypi3-21:~/catzip-newautofpga/catzip/sw/host $ cat wr1.sh
#!/bin/bash
./arm-wbregs 10485760 0x55
./arm-wbregs 10485764 0xaa
./arm-wbregs 10485768 0x01
./arm-wbregs 10485772 0x02
./arm-wbregs 10485776 0x00010000
./arm-wbregs 10485768 0x00020000
./arm-wbregs 10485760
./arm-wbregs 10485764
./arm-wbregs 10485768
./arm-wbregs 10485772
./arm-wbregs 10485776
./arm-wbregs 10485768
```

```
devel@mypi3-21:~/catzip-newautofpga/catzip/sw/host $ ./wr1.sh
00a00000 ( RAM)-> 00000055
00a00004 ( )-> 000000aa
00a00008 ( )-> 00000001
00a0000c ( )-> 00000002
00a00010 ( )-> 00010000
00a00008 ( )-> 00020000
00a00000 ( RAM) : [...U] 00000055
00a00004 ( ) : [...] 000000aa
00a00008 ( ) : [...] 00020000
00a0000c ( ) : [...] 00000002
00a00010 ( ) : [...] 00010000
00a00008 ( ) : [...] 00020000
```

A program using ./arm-wbregs which is Poke & Peek to the FPGA.

```
devel@mypi3-21:~/catzip-newautofpga/catzip/sw/host $ ./wr.sh
01000000 ( SDRAM)-> 00000055
```

```
01000004 (    )-> 000000aa
01000008 (    )-> 00000001
0100000c (    )-> 00000002
01000010 (    )-> 00010000
01000014 (    )-> 00020000
01000000 ( SDRAM) : [...U] 00000055
01000004 (    ) : [...] 000000aa
01000008 (    ) : [...] 00000001
0100000c (    ) : [...] 00000002
01000010 (    ) : [...] 00010000
01000014 (    ) : [...] 00020000
```

```
devel@mypi3-21:~/catzip-newautofpga/catzip/sw/host $ ./arm-wbregs 16777220
01000004 (    ) : [...] 000000aa
devel@mypi3-21:~/catzip-newautofpga/catzip/sw/host $ ./arm-wbregs 16777236
01000014 (    ) : [...] 00020000
devel@mypi3-21:~/catzip-newautofpga/catzip/sw/host $ ./arm-wbregs 0x01000000
01000000 ( SDRAM) : [...U] 00000055
devel@mypi3-21:~/catzip-newautofpga/catzip/sw/host $ ./arm-wbregs 0x01000010
01000010 (    ) : [...] 00010000
```

```
devel@mypi3-16:~/testbuilds/catzip-newautofpga/catzip/sw/host $ ./arm-wbregs -n mypi3-21 gpio
0x00010001
0080000c ( GPIO)-> 00010001
devel@mypi3-16:~/testbuilds/catzip-newautofpga/catzip/sw/host $ ./arm-wbregs -n mypi3-21 gpio
0x00020002
0080000c ( GPIO)-> 00020002
devel@mypi3-16:~/testbuilds/catzip-newautofpga/catzip/sw/host $ ./arm-wbregs -n mypi3-21 gpio
0x00070000
0080000c ( GPIO)-> 00070000
```



Leds 4 & 2 on.

