

\*\*\*\*\*Draft\*\*\*\*\*

**Testing Upgrades to icestorm, yosys, zipcpu and nextpnr  
mypi3-20 pi400-2  
09/29/21**

\*\*\*\*\*Draft\*\*\*\*\*

Tested verilog & C++  
commit 5df54b35ca8724fe0cf3149f1543cfa2dd66acd7 (HEAD -> catzip)  
Author: Edward Vidal Jr <develone@sbcglobal.net>  
Date: Wed Sep 29 06:23:55 2021 -0600

missing from last commit

yosys -V  
Yosys 0.9+4081 (git sha1 83a21814, gcc 8.3.0-6+rpil -fPIC -Os)

nextpnr-ice40 -V  
nextpnr-ice40 -- Next Generation Place and Route (Version 67bd349e)

verilator -V  
Verilator 4.100 2020-09-07 rev v4.100-10-g39eea781

zipcpu

commit 0046fdc254222ed7b8c9e4ae08c0fe98c2b959f7 (HEAD -> master, upstream/master)  
Author: ZipCPU <dgisselq@ieee.org>  
Date: Wed Sep 1 17:25:39 2021 -0400

Moved GCC patch from zipcore to master

Includes fix for genzipops

autofpga  
devel@mypi3-20:~/autofpga \$ git log  
commit 5b57538081d60a04cd32aeba2436816062cb0141 (HEAD -> master, upstream/master,  
upstream/dev)  
Author: ZipCPU <dgisselq@ieee.org>  
Date: Fri Aug 14 07:55:55 2020 -0400

Fixes MacOS build err--std::string vs char \* in gbl\_msg.err()

File Edit Tabs Help

devel@mypi3-19:~/testbuilds/mypi3-20/catzip/sw/host \$ sudo ./arm-netpport

Listening on port 8363

Listening on port 8364

```
. |=====|
. |
. | Four score and seven years ago our fathers brought forth on this
. | continent, a new nation, conceived in Liberty, and dedicated to
. | the proposition that all men are created equal.
. |
. | Now we are engaged in a great civil war, testing whether that
. | nation, or any nation so conceived and so dedicated, can long
. | endure. We are met on a great battle-field of that war. We have
. | come to dedicate a portion of that field, as a final resting
. | place for those who here gave their lives that that nation might
. | live. It is altogether fitting and proper that we should do this.
. |
. | But, in a larger sense, we can not dedicate-we can not consecrate-
. | we can not hallow-this ground. The brave men, living and dead,
. | who struggled here, have consecrated it, far above our poor power
. | to add or detract. The world will little note, nor long remember
. | what we say here, but it can never forget what they did here. It
. | is for us the living, rather, to be dedicated here to the
. | unfinished work which they who fought here have thus far so nobly
. | advanced. It is rather for us to be here dedicated to the great
. | task remaining before us-that from these honored dead we take
. | increased devotion to that cause for which they gave the last
. | full measure of devotion-that we here highly resolve that these
. | dead shall not have died in vain-that this nation, under God,
. | shall have a new birth of freedom-and that government of the
. | people, by the people, for the people, shall not perish from the
. | earth.
. |
. |
. |=====|
```

. ello, World!

. Hello, World!

. Hello, World!

^C

devel@mypi3-19:~/testbuilds/mypi3-20/catzip/sw/host \$

## cputest

```
File Edit Tabs Help
> A040000005K000000000
< A040000001W41f
> A040000001K000000000
< A040000005W
> A040000005K000000000
< A040000001Wc00
> A040000001K000000000
< A040000001W40f
> A040000001K000000000
< A040000005W20000000
> A040000005
> K000000000
< A040000001R
> A040000001R00000060f
Command port disconnect
Command port is now connected
< A040000001Wf
> A040000001K000000000
Command port disconnect
#
# Running CPU self-test
# -----
# SIM Instructions          Pass
# CIS Instructions          Supported
# Break test #1            Pass
# Break test #2            Pass
# Break test #3            Pass
# Early Branch test        Pass
# Trap test/AND             Pass
# Trap test/CLR            Pass
# Overflow test            Pass
# Carry test               Pass
# Loop test                Pass
# Shift test               Pass
# Pipeline test            Pass
# Mem-Pipeline test        Pass
# Conditional Execution test Pass
# No-waiting pipeline test  Pass
# Conditional Branching test Pass
# Ill Instruction test, NULL PC Pass
# Ill Instruction test, two Pass
# Comparison test, ==      Pass
# Comparison test, !=      Pass
# CC Register test         Pass
# Multi-Arg test           Pass
# Multiply test            Pass
# Multiply HI-word test    Pass
# Divide test              Pass
#
# -----
# All tests passed.  Halting CPU.
#
```

hello

```
File Edit Tabs Help
> A04000005K00000000
< A04000001W417
> A04000001K00000000
< A04000005W
> A04000005K00000000
< A04000001W418
> A04000001K00000000
< A04000005W
> A04000005K00000000
< A04000001W419
> A04000001K00000000
< A04000005W
> A04000005K00000000
< A04000001W41a
> A04000001K00000000
< A04000005W
> A04000005K00000000
< A04000001W41b
> A04000001K00000000
< A04000005W
> A04000005K00000000
< A04000001W41c
> A04000001K00000000
< A04000005W
> A04000005K00000000
< A04000001W41d
> A04000001K00000000
< A04000005W
> A04000005K00000000
< A04000001W41e
> A04000001K00000000
< A04000005W
> A04000005K00000000
< A04000001W41f
> A04000001K00000000
< A04000005W
> A04000005K00000000
< A04000001Wc00
> A04000001K00000000
< A04000001W40f
> A04000001K00000000
< A04000005W20000000
> A04000005
> K00000000
< A04000001R
> A04000001R0000060f
Command port disconnect
Command port is now connected
< A04000001Wf
> A04000001K00000000
Command port disconnect
# Hello, World!
```

now using b.bin which was extracted from blu.pgm with wrpgm.m

This does not need to use split.

./runjpeg.sh

01401000 ( )-> 00000002

01401004 ( )-> 00000001

```
01401008 (    )-> 00000001
0140100c (    )-> 00000000
01401010 (    )-> 00000001
01401018 (    )-> 00000001
Halting the CPU
Memory regions:
    Block RAM: 01400000 - 01402000
    SDRAM      : 02000000 - 03000000
Loading: ../board/jpeg
Section 0: 02000000 - 0204fe6c
Writing to MEM: 02000000-0204fe6c
Clearing the CPUs registers
Setting PC to 02000000
The CPU should be fully loaded, you may now
start it (from reset/reboot) with:
> wbrege cpu 0x0f
```

```
CPU Status is: 0000060f
04000000 (    CPU)-> 0000000f
```

```
# w=256 h=256
# 1401000 2
# flag 2 0x204fde8
# 1401004 1
# 140100c 200fde8
```

```
./arm-wrsdram b.bin or ./arm-wrsdram g.bin or ./arm-wrsdram r.bin
The size of the buffer is 0x010000 or 65536 words
```

READ-COMPLETE

```
./arm-wbrege 0x01401008 0
01401008 (    )-> 00000000
```

```
# ptrs.alt 0x20544c8 0x200fde8
# 131072
```

```
./arm-wbrege 0x01401010 0
01401010 (    )-> 00000000
```

```
./arm-wbrege 0x01401008 0
01401008 (    )-> 00000000
```

```
./arm-wbrege 0x01401010 0
01401010 (    )-> 00000000
```

```
# 0x200fde8 0x7e
# 0x200fdec 0x7d
# 0x200fdf0 0x7b
# 0x200fdf4 0x76
#
# 0x202fde8 0x6a
```

```
# 0x202fdec 0x6a
# 0x202fdf0 0x68
# 0x202fdf4 0x64
#
# 0x204fdd8 0x48
# 0x204fddc 0x4a
# 0x204fde0 0x4e
# 0x204fde4 0x50
# 256 0x200fde8 0x20544c8 0x 1401004
# 256
```

./arm-rdsdram dwt.bin

Write-COMplete

The size of the buffer is 0x010000 or 65536 words

