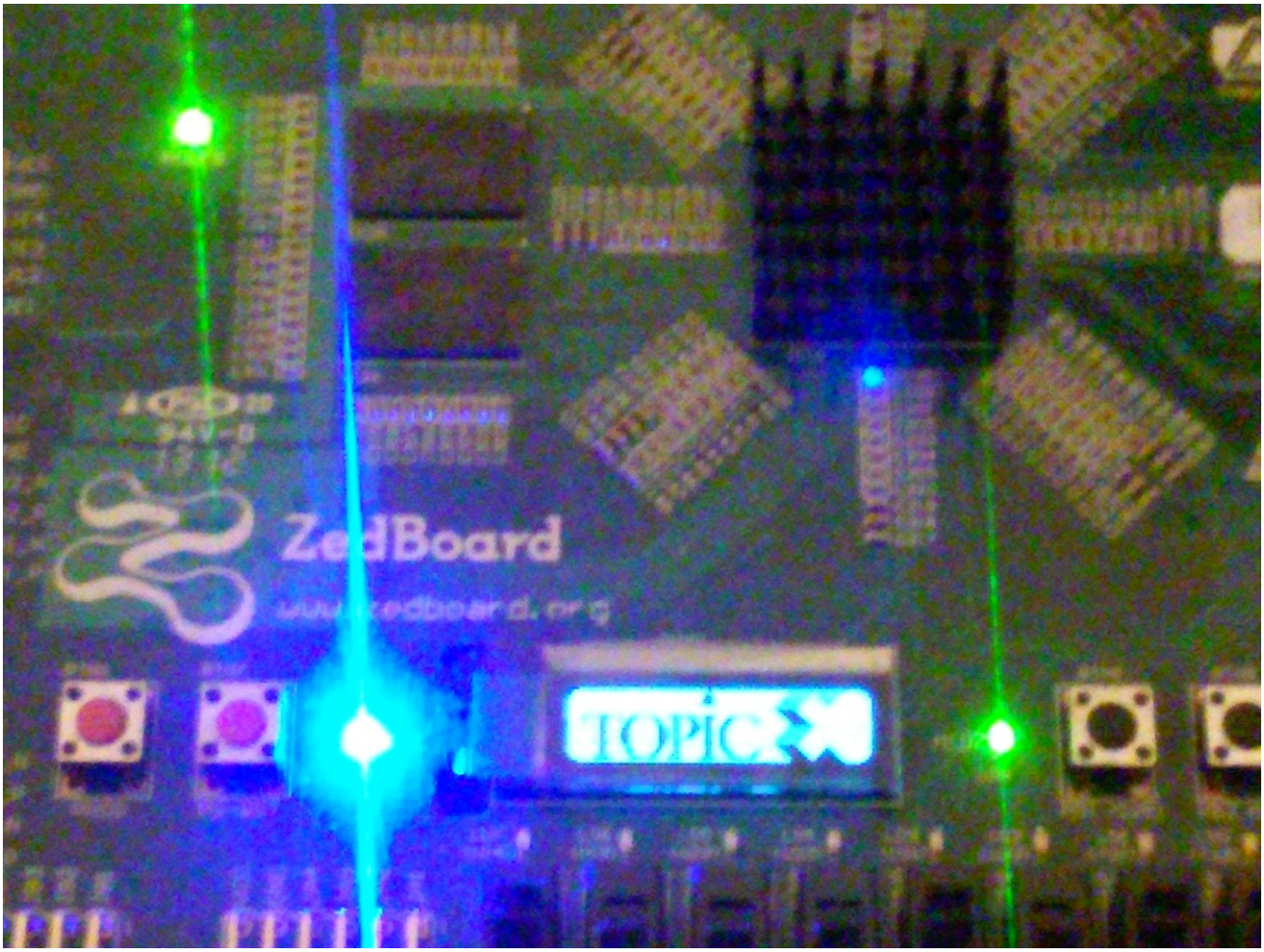
Sound, GSL, GNUPLOT, C920 Camera with OpenCV,
Myhdl ,GTKWave compiled, GCC, Python
switches, oled display on ZedBoard
11/27/15

Testing on a remote shell running on Ubuntu 12.04.
On power up.
The Green led in the upper left is the power on. The Green led blinks to right oled display. The blue to left of the oled display comes on a few seconds later. On the HDMI display Please wait: booting … is displayed. Before the the HDMI display goes to SATO display the oled display turns on displaying the TOPIC logo.



ls /sys/class/gpio/
export gpiochip0 unexport

~/sw_export
#!/bin/sh

echo "Starting rcS..."

```
#echo "++ Starting OLED Display"
#load_oled

echo "++ Exporting LEDs & SWs"
for i in 0 1 2 3 4 5 6 7;
do
	sw=$(($i+65));
	echo $sw > /sys/class/gpio/export;
done;

ls /sys/class/gpio/
export  gpio66 gpio68 gpio70 gpio72    unexport
gpio65 gpio67 gpio69 gpio71 gpiochip0

read_sw

#!/bin/sh
value=0;
for i in 0 1 2 3 4 5 6 7;
do
	sw=$((72-$i));
	sw_tmp=`cat /sys/class/gpio/gpio$sw/value`;
	value=$(($value*2));
	value=$(($value+$sw_tmp));
done;
printf "0x%x %d\n" $value $value;
```

With switches up dn dn dn up dn up up

```
./read_sw
0x8b 139
```

With switches up dn dn dn dn dn up up

```
./read_sw
0x83 131
```

cd display_logos

./unload_oled The oled turns off

cp logo.bin.tmp logo.bin Digilent logo is copied to logo.bin file

./load_oled

./unload_oled The oled turns off

cp topic_logo.bin.tmp logo.bin

./load_oled

Speakers are connected to black jack and sound is heard correctly.
aplay speech_dft.wav
Playing WAVE 'speech_dft.wav' : Signed 16 bit Little Endian, Rate 22050 Hz, Mono

ssh -Y 192.168.1.143
uname -a
Linux zedboard 3.12.0 #1 SMP PREEMPT Sat Mar 29 13:42:20 MDT 2014 armv7l GNU/Linux

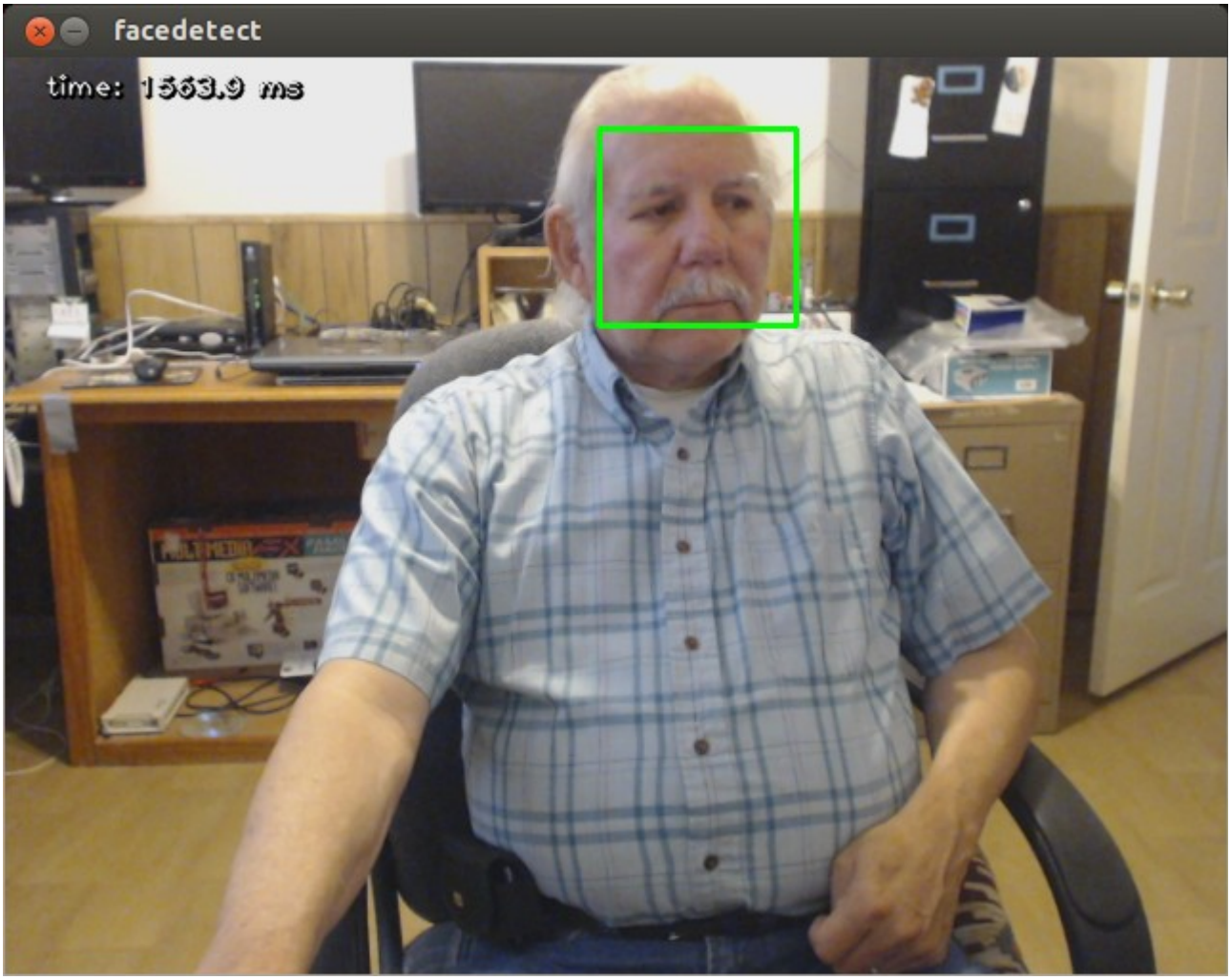
```
rpm -qa | sort > zedbrd_pkgs.txt

cd gsl/

. ./setpath
#!/bin/bash
export CFLAGS="-I/usr/include -L/usr/lib -lgsl -lgslcblas -lm"

./compile_test_files
#!/bin/bash
gcc ${CFLAGS} sqmatrice.c -o sqmatice
gcc ${CFLAGS} linalg.c -o linalg
gcc ${CFLAGS} poly.c -o poly
gcc ${CFLAGS} testmatrices.c -o testmatrices
./linalg
x =
-4.05205
-12.6056
1.66091
8.69377
root@zedboard:~/gsl# ./poly
z0 = -0.809016994374947673 +0.587785252292473359
z1 = -0.809016994374947673 -0.587785252292473359
z2 = +0.309016994374947507 +0.951056516295152976
z3 = +0.309016994374947507 -0.951056516295152976
z4 = +0.999999999999999889 +0.000000000000000000
root@zedboard:~/gsl# ./testmatrices
m(0,0) = 0.23
m(0,1) = 1.23
m(0,2) = 2.23
m(1,0) = 100.23
m(1,1) = 101.23
m(1,2) = 102.23
m(2,0) = 200.23
m(2,1) = 201.23
m(2,2) = 202.23
m(3,0) = 300.23
m(3,1) = 301.23
m(3,2) = 302.23
m(4,0) = 400.23
m(4,1) = 401.23
m(4,2) = 402.23
m(5,0) = 500.23
m(5,1) = 501.23
m(5,2) = 502.23
m(6,0) = 600.23
m(6,1) = 601.23
m(6,2) = 602.23
```

```
m(7,0) = 700.23
m(7,1) = 701.23
m(7,2) = 702.23
m(8,0) = 800.23
m(8,1) = 801.23
m(8,2) = 802.23
m(9,0) = 900.23
m(9,1) = 901.23
m(9,2) = 902.23
gsl: ../gsl/gsl_matrix_double.h:275: ERROR: first index out of range
Default GSL error handler invoked.
Aborted
root@zedboard:~/gsl# ./sqmatice
The output file format ofmt %f
will be used in gsl_matrix_fprintf (opointer, m, ofmt)
Initial test matrice
m(0,0) = 2.58
m(0,1) = -3.1
m(0,2) = 4.25
m(1,0) = 3.821
m(1,1) = 4.44
m(1,2) = 5.656
m(2,0) = 1.82
m(2,1) = 7.41
m(2,2) = 3.33
transpose of initial matrice
the matrice needs to be square
3
sizeof of struct m 24
num of rows 3
num of cols 3
m(0,0) = 2.58
m(0,1) = 3.821
m(0,2) = 1.82
m(1,0) = -3.1
m(1,1) = 4.44
m(1,2) = 7.41
m(2,0) = 4.25
m(2,1) = 5.656
m(2,2) = 3.33
The identity matrice
m(0,0) = 1
m(0,1) = 0
m(0,2) = 0
m(1,0) = 0
m(1,1) = 1
m(1,2) = 0
m(2,0) = 0
m(2,1) = 0
```

m(2,2) = 1

cd opencv_python_yocto_raspberry_pi/

python facedetect_my.py The image below was taken with RaspberryPi2B and C920 camera. Results are the same on ZedBoard.



GTKwave compiled on target.

tar xfz gtkwave-3.3.66.tar.gz

cd gtkwave-3.3.66

./configure –disable-tcl

make

make install

cd ../

gtkwave tb.vcd

Myhdl

cd myhdl/

python setup.py install

python test_rs232.py
testCharacterize (__main__.rs232Characterize)
Find min/max tx baud rate tolerance by simulation ... Max tx baudrate: 10160
Min tx baudrate: 9095
ok
testDefault (__main__.rs232Test)
Check default case ... ok
testOddParity (__main__.rs232Test)
Check odd parity ... ok
testParityError (__main__.rs232Test)
Expect a parity error ... ok
testSevenBitsEvenParity (__main__.rs232Test)
Check 7 bits with even parity ... ok

Ran 5 tests in 19.002s

OK

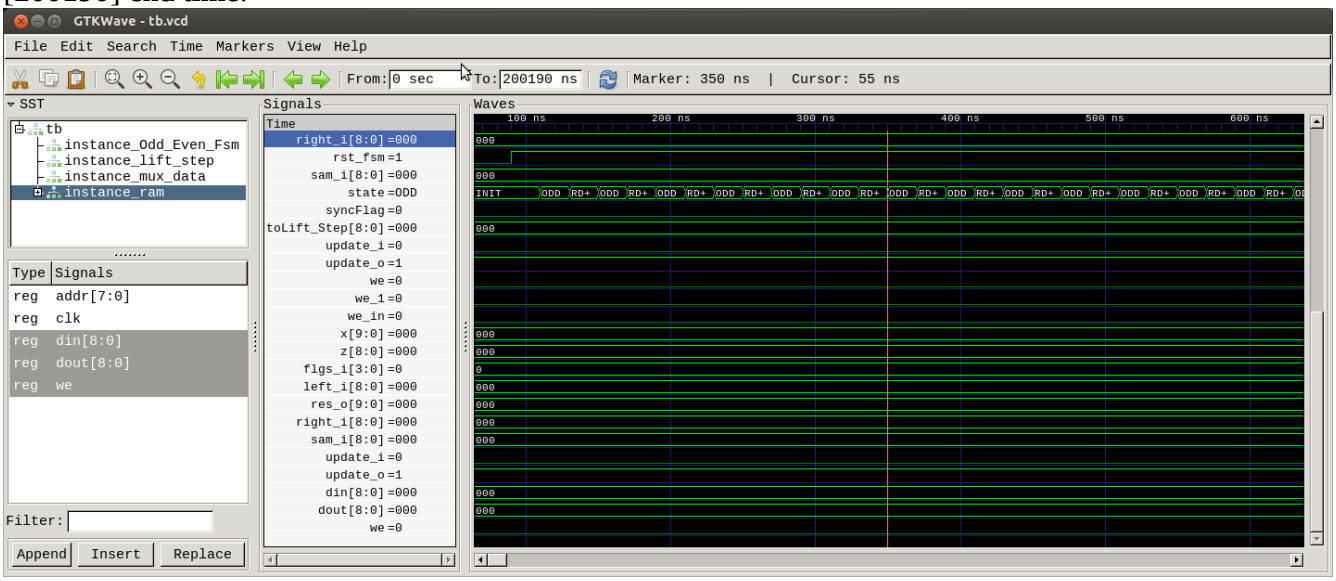
Using the repository jpeg-2000-test

cd jpeg-2000-test/ipython_fixbv/test_lifting_jpeg_step

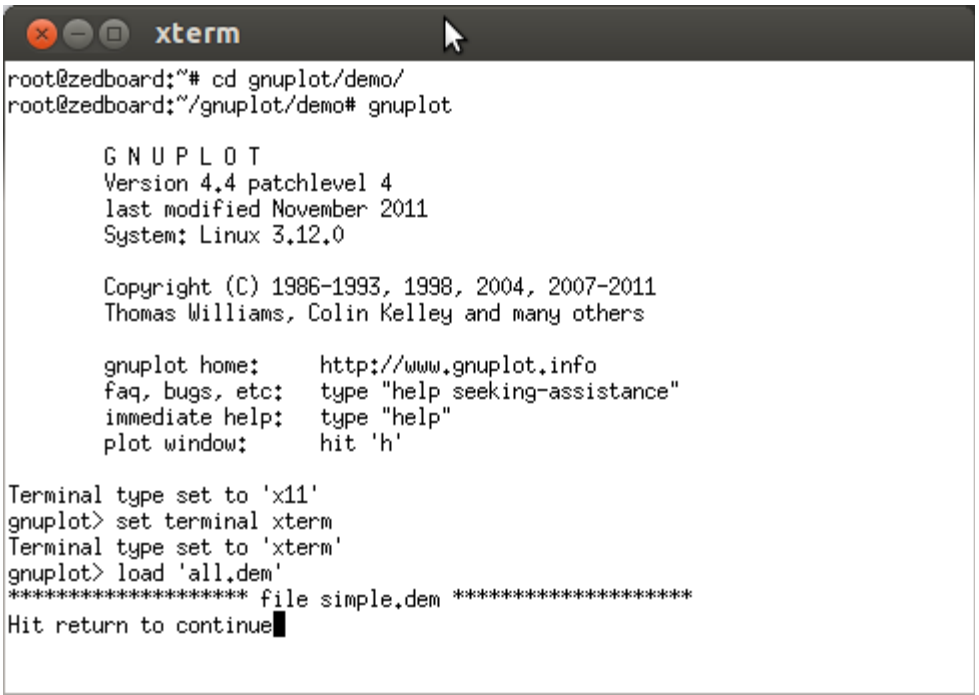
python odd_even_fsm.py
190 muxsel_i 0 rst_fsm 1
200190
root@zedboard:~/jpeg-2000-test/ipython_fixbv/test_lifting_jpeg_step# gtkwave tb.vcd
Gtk-Message: Failed to load module "canberra-gtk-module"

GTKWave Analyzer v3.3.66 (w)1999-2015 BSI

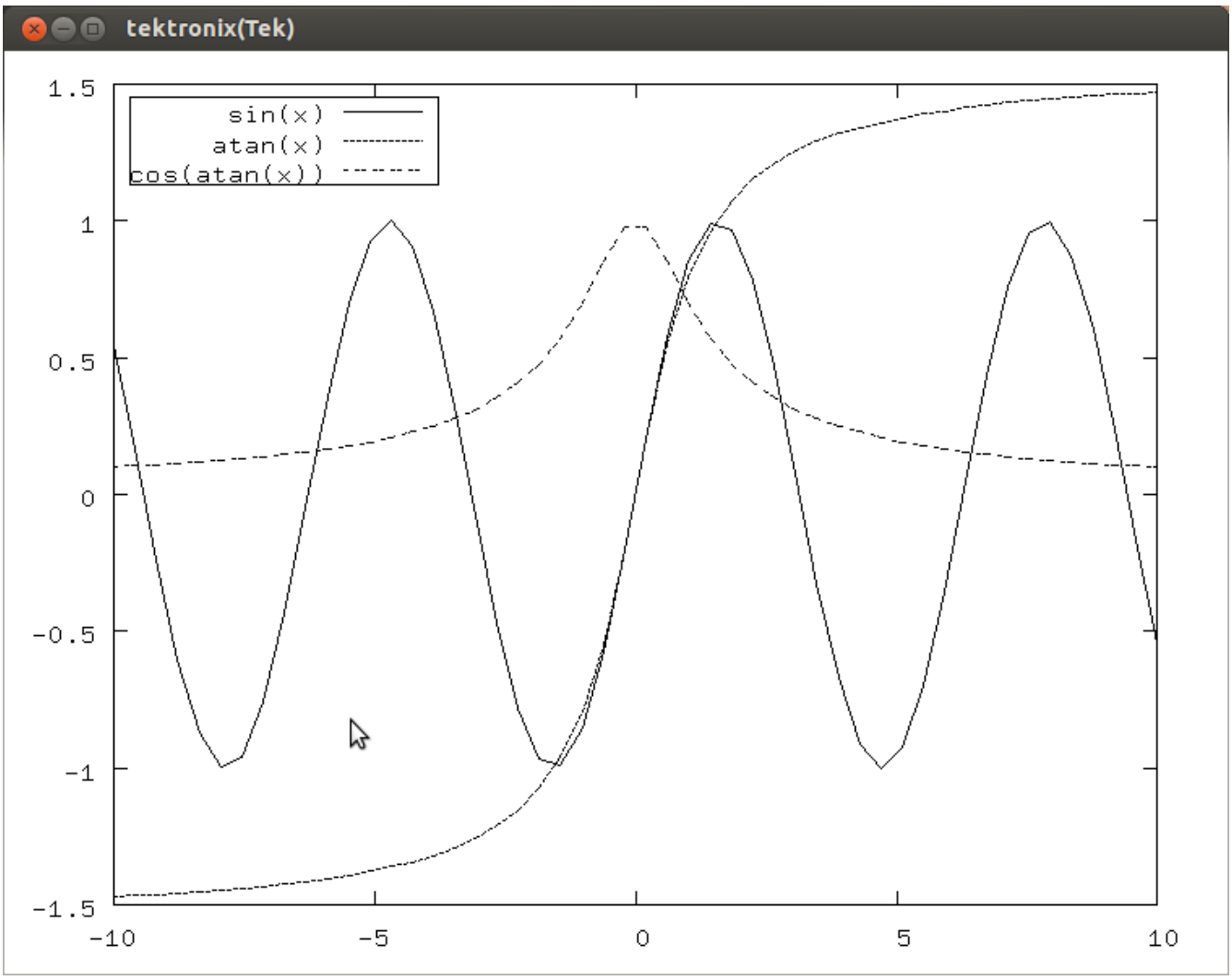
[0] start time.
[200190] end time.



Running gnuplot from xterm



plot1 of demo


tektronix(Tek)
sin(x)
atan(x)
cos(atan(x))
1.5
1
0.5
0
-0.5
-1
-1.5
-10
-5
0
5
10

plot2 of demo