

## lit3rick test

### Flash FPGA firmware

We need to run `icoprog` which will flash FPGA with `De.bin` firmware :

```
sudo ./icoprog -v -p < De.bin
./reset.sh
```

Entrée [43]: `!sudo ./icoprog -v -p < De.bin`

```
reset..
cdone: low
programming..
 1 kB written.
 2 kB written.
 3 kB written.
 4 kB written.
 5 kB written.
 6 kB written.
 7 kB written.
 8 kB written.
 9 kB written.
10 kB written.
11 kB written.
12 kB written.
13 kB written.
14 kB written.
15 kB written.
16 kB written.
17 kB written.
```

Entrée [44]: `!gpio mode 10 OUT`  
`!gpio mode 11 OUT`  
`!gpio mode 6 OUT`  
`!gpio write 10 1`  
`!gpio write 11 1`  
`!gpio mode 12 alt0`  
`!gpio mode 13 alt0`  
`!gpio mode 14 alt0`  
`!gpio mode 15 IN`  
`!gpio mode 16 IN`  
`!gpio write 6 1`

Reset IOs done!

### Initialise SPI communication with lit3rick

```
Entrée [49]: ▶ import RPi.GPIO as GPIO
import spidev

def write_fpga(spi, adress, value): # OK LIT3RICK
    """
    Basic function to write registers value to the FPGA
    """
    spi.xfer([0xAA])
    spi.xfer([adress])
    spi.xfer([value])

def set_ledRGB(spi,R,G,B):
    write_fpga(spi, 0xC1, R)
    write_fpga(spi, 0xC2, G)
    write_fpga(spi, 0xC3, B)

g_spi = spidev.SpiDev()

GPIO.setmode(GPIO.BCM)
# Once program is loaded, should be OK
#for k in [3,4,17,27,5,12,16,20,15]:
#    GPIO.setup(k, GPIO.IN)
# @todo: reset from flash when flash works
g_spi.open(0, 0) # CS0 is the FPGA, CS1 is flash
g_spi.mode = 0b01
g_spi.max_speed_hz = 200000000
display("pi cshigh is " + str(g_spi.cshigh))
display("spi mode is " + str(g_spi.mode))
display("spi maxspeed is "+str(g_spi.max_speed_hz)+"hz")
set_ledRGB(g_spi, 1, 1,0)
```

'pi cshigh is False'

'spi mode is 1'

'spi maxspeed is 200000000hz'

Entrée [ ]: ▶