

Contents: [Dobrica PavlinuÄjiÄ 's random unstructured stuff]

- Dobrica PavlinuÄjiÄ 's random unstructured stuff (power)
- Dobrica PavlinuÄjiÄ 's random unstructured stuff (Update boot flash)
- Dobrica PavlinuÄjiÄ 's random unstructured stuff (GPIO)
- Dobrica PavlinuÄjiÄ 's random unstructured stuff (FPGA)
 - ◆ Dobrica PavlinuÄjiÄ 's random unstructured stuff (headless stream)
- Dobrica PavlinuÄjiÄ 's random unstructured stuff (serial)
- Dobrica PavlinuÄjiÄ 's random unstructured stuff (hardware)
- Dobrica PavlinuÄjiÄ 's random unstructured stuff (software)
 - ◆ Dobrica PavlinuÄjiÄ 's random unstructured stuff (device tree)
 - ◆ Dobrica PavlinuÄjiÄ 's random unstructured stuff (/dev)
 - ◆ Dobrica PavlinuÄjiÄ 's random unstructured stuff (Debian)
 - ◆ Dobrica PavlinuÄjiÄ 's random unstructured stuff (Epiphany)

power

- what about power it by USB <http://forums.parallella.org/viewtopic.php?f=12&t=1128>
- 2A to micro-usb connector next to the rj45 Ethernet <http://forums.parallella.org/viewtopic.php?f=50&t=1081>
- How to minimize Epiphany standby power? <http://forums.parallella.org/viewtopic.php?uid=590&f=10&t=1069&start=0>
- Critical issue with non-conforming USB powered hubs. <http://forums.parallella.org/viewtopic.php?f=10&t=841>
- USB port change <http://forums.parallella.org/viewtopic.php?f=10&t=1072>
- USB power fix <http://forums.parallella.org/viewtopic.php?f=50&t=1510>
- Where can I draw 5V for a fan ? <http://forums.parallella.org/viewtopic.php?f=23&t=1049&start=10>

Update boot flash

This is required to get CR10 led working

- <http://forums.parallella.org/viewtopic.php?f=49&t=983>
- <https://github.com/parallella/parallella-hw/tree/master/boards/parallella-l/firmware>

enviroment before u-boot update:

```
zynq-u-boot> env print
baudrate=115200
bitstream_image=parallella.bit.bin
bootcmd=run modeboot
bootdelay=0
devicetree_image=devicetree.dtb
devicetree_size=0x20000
```

```
ethact=zynq_gem
ethaddr=04:4f:8b:00:10:13
fdt_high=0x20000000
initrd_high=0x20000000
ipaddr=192.168.0.99
kernel_image=uImage
kernel_size=0x500000
modeboot=run qspiboot
qspiboot=echo Configuring PL and Booting Linux...;mmcinfo;fatload mmc 0 0x4000000 ${bitstream_image}
serverip=192.168.0.101
stderr=serial
stdin=serial
stdout=serial
```

Environment size: 655/131068 bytes

flasing output:

```
zynq-uboot> mmcinfo
Device: SDHCI
Manufacturer ID: 3
OEM: 5344
Name: SU08G
Tran Speed: 50000000
Rd Block Len: 512
SD version 2.0
High Capacity: Yes
Capacity: 7.4 GiB
Bus Width: 4-bit
zynq-uboot> fatload mmc 0 0x4000000 parallella.7020.flash.bin
reading parallella.7020.flash.bin

4351800 bytes read
zynq-uboot> sf probe 0 0 0
SF: Detected N25Q128 with page size 64 KiB, total 16 MiB
zynq-uboot> sf erase 0 0x1000000
SF: Successfully erased 16777216 bytes @ 0x0
zynq-uboot> sf write 0x4000000 0 0x${filesize}
SF: program success 4351800 bytes @ 0x0

# I skipped set ethaddr because it was already set correctly

zynq-uboot> set AdaptevaSKU SKUA101040
zynq-uboot> saveenv
Saving Environment to SPI Flash...
SF: Detected N25Q128 with page size 64 KiB, total 16 MiB
Erasing SPI flash...SF: Successfully erased 131072 bytes @ 0x4e0000
Writing to SPI flash...SF: program success 131072 bytes @ 0x4e0000
done
```

GPIO

```
dpavlin@parallella:~/parallella-utils$ make gpiotest
gcc -o gpiotest gpiotest.c para_morse.c para_gpio.c -Wall -lrt
```

```
dpavlin@parallella:~/parallella-utils$ sudo ./gpiotest
[sudo] password for dpavlin:
```

GPIOTEST - Basic test of para_gpio

```
Initializing...
Success, pausing 5 seconds
Setting direction (forces output to 0!)...
Pausing 5 seconds
Reading multiple times
> 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Toggling pin 100000 times...
Took 1.432 seconds, 69818 updates/sec
Write / Read test, 100000 times...
Took 2.618 seconds, 76384 ops/sec
Setting output to 0
Verifying level... OK
Disabling output and monitoring input
Gave up waiting for the input to transition
Setting output to 1
Verifying level... OK
Disabling output and monitoring input
Input flipped after 0 cycles
Closing
```

FPGA

- Zynq documentation <http://forums.parallella.org/viewtopic.php?f=51&t=1114>
- Command-line programming
<http://forums.parallella.org/viewtopic.php?uid=590&f=51&t=1161&start=0>

```
sudo mknod /dev/xdevcfg c 250 0
sudo -s
cat parallella.bit.bin > /dev/xdevcfg
exit
```

```
# programming time
cat /sys/devices/amba.1/f8007000.devcfg/prog_done
```

- Routing additional Zynq hard block I/O to PEC_FPGA
<http://forums.parallella.org/viewtopic.php?f=51&t=1154>
- Source <http://forums.parallella.org/viewtopic.php?uid=590&f=10&t=1069&start=0>
- does the board contains thermal sensor(s) ?
<http://forums.parallella.org/viewtopic.php?f=23&t=930>

```
/sys/bus/iio/devices/iio:device0/in_temp0_raw
/sys/bus/iio/devices/iio:device0/in_temp0_offset
/sys/bus/iio/devices/iio:device0/in_temp0_scale
```

```
T = ((in_temp0_raw + in_temp0_offset) * in_temp0_scale) / 1000)
```

script:

```
#!/bin/bash
raw=`cat /sys/bus/iio/devices/iio:device0/in_temp0_raw`
offset=`cat /sys/bus/iio/devices/iio:device0/in_temp0_offset`
scale=`cat /sys/bus/iio/devices/iio:device0/in_temp0_scale`

c_temp=`echo "scale=1;(($raw + $offset) * $scale) / 1000" | bc`
f_temp=`echo "scale=1;(($c_temp * 9) / 5) + 32" | bc`

echo
echo "Zynq Temp: $c_temp C / $f_temp F"
echo
```

Modified to display temperature in loop: [temp.sh](#)

headless stream

<http://forums.parallella.org/viewtopic.php?f=48&t=1213>

removed html traces from device tree

serial

- serial port <http://forums.parallella.org/viewtopic.php?f=10&t=845>

hardware

- Eagle library available <http://forums.parallella.org/viewtopic.php?f=11&t=559>
- KiCad daughter card template <http://forums.parallella.org/viewtopic.php?f=11&t=1204>
https://github.com/TiZed/Parallella_Template
- Parallella Case With 12V Fan <http://www.thingiverse.com/thing:273701>
- Parallella clip case <https://github.com/kyllikki/designs/tree/master/Parallella>
- ARM JTAG <http://forums.parallella.org/viewtopic.php?f=10&t=167>
- uboot network problems
<http://forums.parallella.org/viewtopic.php?f=48&t=1667&p=10416&hilit=devicetree#p10416>

software

device tree

```
sudo apt-get install device-tree-compiler

# Compiling a device tree blob from source (.dts-->.dtb):
dtc -I dts -O dtb -o devicetree.dtb zynq-parallella1-headless.dts

# To get source from compiled device tree (.dtb-->.dts):
dtc -I dtb -O dts -o devicetree.dts devicetree.dtb
```

/dev

see how to modify devicetree at http://elinux.org/Parallella_Speed_Up_Ubuntu

Debian

http://elinux.org/Parallella_Debian

Epiphany

- cgminer <https://github.com/LordRafa/cgminer>