Contents

1 Testing procedure for the switch (Draft)

0. Visual inspection, electrical inspection, powerup.
    - Check if R5 is on, R3 is off (DMS=1)

- The PPTS
- The PTS (Production test suite like SPEC)
    - at the moment it is called alpha because we have only some script (no python).
- Benchmark test
- Compliance test

1.1 The APTS (Alpha-Production Test Suite)

1.1.1 Expected testing flow

1. does ARM respond

- internal RAM
- DDR memory (EBI0)
- Ethernet port
- Dataflash memory
- NAND memory (EBI1)
- USB port
- CPU-FPGA flashing:
    - TK0, TD0
    - FPGA_INIT_B+FPGA_INIT_A
- CPU-FPGA channel (EBI1)
- FPGA peripheral (PTS test)

The testing procedure for ARM was done with the following material:

- Switch MCH Mini-backplane (rev 3.0pre)
- 3x mini-USB cable
- 1x USB-to-TTL converter (To connect easily to DBGU)
- 1x JTAG emulator (Jlink SAM-ICE from segger)

You also need to the package:

- alpha-pts.tar.gz

1.1.2 Considerations

- The different step for the test should not be perform in bootstrap but in a linear way.
- A first step is need to check: CPU & DDR
- The second step must executed respecting the following properties:
  - Load all the following files at once: at91bootstrap.bin, barebox.bin, kernel, filesystem
  - Two way of loading files in case one failed: JTAG and USB
  - No use of TFTP for loading (in case ethernet is failing we want to check the other components)

1.1.3 Actual testing flow (to be improved)

1. Basic: testing the component that are need to load linux
   1. loading from CPU
      - Testing SRAM (if g45memtest is loading?)
      - Testing DDR (run g45memtest)
- Advanced: testing all other components once the linux is loaded
  1. Ethernet (Loading files from TFTP*)
  - FPGA (flashing)
  - CPU-FPGA bus
  - USB bus
  - DF memory test
  - NAND memory test
  - Flashing test (Reading back after reboot*)
  - PTS (like SPEC) ...

* To improve

1.1.3.1 Basic testing First you should setup your tftp server and extract alpha-pts.tar.gz in the /tftpboot folder.

Connecting with JTAG and doing the following you should have:

```
speed 2
r
wreg "R15 (PC)" 300000
loadbin /tftpboot/g45memtest 0x300000
```

1.1.3.2 Advanced testing See http://www.segger.com/cms/jlink.html

```
./start
```

Init the JTAG, and write register to go at RAM direction:

```
speed 2
r
wreg "R15 (PC)" 300000
```

Set the bootstrap: loadbin at91bootstrap.bin 0x300000

```
loadbin /tftpboot/at91bootstrap.bin 0x300000
SetBP 0x300088 H
g
```

Set the second boot:

```
speed a
loadbin /tftpboot/barebox.bin 0x73f00000
ClrBP 1
g
```

Once you reach barebox terminal you may run:

Load the linux distrib:

```
tftp boot-fs-ben
sh boot-fs-ben
```

Load the testing files:

```
tftp -g -r testing.sh 192.168.7.1
chmod +x ./testing.sh
./testing.sh
```