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Overview

This article describes uboot level and Linux level test suites to be run on the plug2-w hardware.

Tests covered in u-boot test suite

Script to run : ./ubootTest.tcl



This test suite will work for serverip 10.4.50.5 & plug2-w ip 10.4.50.4 as static addresses. For different ip addresses, the configuration needs to be changed. This assumes you have working uboot image in flash (burnt using openocd).

UBOOT_TEST_03 : Sanity Tests

| S.N. | Test Case id | Test Name | Description | Comments |
|------|------------------|--------------------------|--|-------------------------------------|
| 1 | UBOOT_TEST_03_01 | Serial Transmission test | Test whether u-boot sends characters onto the serial console | |
| 3 | UBOOT_TEST_03_03 | U-boot version test | Test whether correct u-boot version is displayed | |
| 7 | UBOOT_TEST_03_07 | DRAM test | Test whether all DRAM related information is displayed correctly | Total size, width,CS[x] base & size |
| 15 | UBOOT_TEST_03_15 | Network device test | Test whether the network device name is correct | Eg. egiga0, egiga1 |

UBOOT_TEST_04 : Basic Functional Tests

| | | | | |
|-----|------------------|--------------------------------|---|---|
| 1.3 | UBOOT_TEST_04_01 | Environment variables test 1.3 | Test whether the new value of an environment variable persists even after reset if it is saved on flash | setenv command modifies the value in RAM. The saveenv command causes the values to be stored on the flash. SO the values persist even after reset |
| 2.3 | UBOOT_TEST_04_02 | Environment variables test 2.3 | Test whether a variable can be permanently deleted by saving the environment after deletion | After deletion, if the saveenv command is executed, the new environment, in which the variable does not exist, is stored on flash. So, the variable does not appear even after reset. |
| 5 | UBOOT_TEST_04_05 | Network test(egiga0) | Test whether the board can communicate with other machines in the network | The "ping <i>hostname</i> " command must return "host <i>hostname</i> alive" if the host is reachable directly or through a gateway |

| | | | | |
|-----|------------------|----------------------------|--|---|
| 6.1 | UBOOT_TEST_04_06 | TFTP test : normal(egiga0) | Test whether the board is able to receive files from a tftp server | When everything is connected properly, and all parameters set correctly, execute the "tftp loadaddr filename" command . TFTP server is already setup with required file in fedora-11 machine preparation step |
| 10 | UBOOT_TEST_04_10 | RAM test | Test if bits can be written to RAM and read correctly | The mtest command tests RAM by writing arbitrary bits and reading them back |

UBOOT_TEST_06 : Stress Tests

| S.N. | Test Case id | Test Name | Description | Comments |
|------|------------------|------------|---|----------|
| 1 | UBOOT_TEST_06_01 | Reset test | Test if the board responds correctly by resetting 10 times, anywhere in between the boot process or any other time. | |

Expected Results for uboot test suite

Test report for UBOOT_TEST_03 : Sanity Tests
 Performed on : Fri Dec 04 2009 17:04:21 IST

| Test Case Id | Test Name | Status | Comments |
|---|---------------------|--------|-------------------------------------|
| UBOOT_TEST_03_01 | Serial Transmission | Pass | Serial data received |
| UBOOT_TEST_03_03 | U-boot version | Pass | U-Boot 2009.08-00404-g67b6a6d-dirty |
| (Nov 23 2009 - 10:38:00);Marvell-Sheevaplug | | | |
| UBOOT_TEST_03_07 | DRAM Memory | Pass | DRAM: 512 MB |
| UBOOT_TEST_03_15 | Network device | Pass | Net: egiga0 |

Test report for UBOOT_TEST_04 : Basic Functional Tests
 Performed on : Fri Dec 04 2009 17:04:22 IST

| Test Case Id | Test Name | Status | Comments |
|---------------------|---|--------|------------------------------------|
| UBOOT_TEST_04_01_03 | Env:set,save,reboot,view after reset | Pass | Var2101854686=Val2101854705 even |
| UBOOT_TEST_04_02_03 | Env:del,save,reboot,view non-volatile memory | Pass | Variable deleted successfully from |
| UBOOT_TEST_04_05 | Network (ping) test(egiga0) | Pass | |
| UBOOT_TEST_04_06_01 | TFTP : normal(egiga0) | Pass | File received using tftp |
| UBOOT_TEST_04_10 | RAM test | Pass | The mtest U-boot command checked |
| | DRAM for data bus, address bus & device test. | | |

Test report for UBOOT_TEST_06 : Stress Tests
 Performed on : Fri Dec 04 2009 17:08:26 IST

| Test Case Id | Test Name | Status | Comments |
|------------------|-------------------------|--------|---------------------------------------|
| UBOOT_TEST_06_01 | Reset stress test times | Pass | Successfully reset the board 10 times |

RFS burning and running Linux tests

Script to run : `./diag_plug2-w.pl`



Make sure external devices such as USB drives(2) & microSD(1) card are connected before running this command.

After running this script it will ask user to enter mac address for ethernet port on plug2-w.

Enter the MAC address 1: 00:50:43:11:22:33

First, the script will boot into nfs filesystem & will write kernel, rootfilesystem to internal nand flash using mtd-utils like nandwrite and flash_eraseall. Then Linux tests will start in following sequence.

USB/microSD data transfer tests

It is assumed that FAT16/FAT32 formatted usb drives & microSD are attached to plug2-w. After writing root filesystem to nand flash, it will boot from nand flash. In plug2-w debian rfs, all the USB drives will get mounted. Then following sequence of tests will get run on all USB devices.

- Find vfat partition from mount
- Transfer 1MB file from /dev/urandom
- Verify md5sum of original & copied file
- If md5sum matches, then it indicates Pass else Fail
- If test Fails then script will exit deleting temporary file created
- If test succeeds then script continues to linux wireless tests

Wireless tests

If you are using windows machine as wireless client then please download tftp server from <http://tftpd32.jounin.net/>

If you are using a Linux machine as wireless client, the tftp server is already configured in when you run the testenv_install_2.sh script which prepares the fedora-11 Linux machine. In this case, simply associate with plug2-w using Linux NetworkManager.

Following tests will be performed.

- Wireless ping test, just see if ping packets are received properly or not.
- Tftp transfer tests from USB to wireless client. It is 1MB random file from/to wireless client tftp server.
- This test will indicate status as Pass or Fail.
- If test fails then script will exit deleting temporary file created.
- If test succeeds then it will exit after necessary clean-up.

For wireless test, the script diag_plug2-w.pl will ask user to enter wireless client ip as shown below.

```
sheevaplug-debian:~# mkdir -p /mnt/tmp
ev>nulllug-debian:~# dd if=/dev/urandom of=/mnt/tmp/temp_diag bs=1M count=1 2>/d
sheevaplug-debian:~# mount | grep "vfat" | awk '{print $1}'
/dev/sdb1
sheevaplug-debian:~#
****USB test for device /dev/sdb1
sheevaplug-debian:~# cp /mnt/tmp/temp_diag /media/ sb1
sheevaplug-debian:~# md5sum /mnt/tmp/
temp_diagnodev, sync, noatime, fmask=0022, dmask=0022, codepage=cp437, iocharset=iso8859-1, sho
d430ce5689b519d7d6d236ce3e792dcf /mnt/tmp/temp_diag
sheevaplug-debian:~# md5sum /media/usb1/temp_diag
d430ce5689b519d7d6d236ce3e792dcf /media/usb1/temp_diag
sheevaplug-debian:~# PASSED
rm -f /mnt/tmp/temp_diag
sheevaplug-debian:~#
sheevaplug-debian:~#
Please associate wireless client
Enter the Wireless client ip address: 192.168.1.103
****Wireless ping test starts
```