S7 Hardware Test Tools

Contents

[Setting up a Livefs Image SD Card 2](#_Toc473818425)

[Instructions for livefs image 2](#_Toc473818426)

[Instructions for livefs image – On Platform 3](#_Toc473818427)

[Setting up a Squashfs Image SD Card 4](#_Toc473818428)

[Instructions for squashfs image – On Platform 4](#_Toc473818429)

[Steps for the Sentinnel image 5](#_Toc473818430)

[TestBattery Tool 7](#_Toc473818431)

[NVRAMTester Tool 9](#_Toc473818432)

# Setting up a Livefs Image SD Card

## Instructions for Livefs image

The following steps are used to create SD card using one of the S7 Test tools. You will need to

copy the livesdk.tgz file to the Ubuntu VM image.

<http://uslv-abudbld-01.dev.local:8080/view/nCompass/job/sentinel7-firmware/>

Use tar xvfz to extract the contents.

For example: tar xvfz sentinel7-livesdk-image-1.0.30.tgz

Change to the directory with the mksdcard.sh script.

For example: cd livesdk-image-1.0.30

(BE EXTREMELY CAREFUL TO SPECIFY THE CORRECT DRIVE in following command.)

(If the drive is “dev/sda” then that’s PROBABLY WRONG.)

Run the script, specifying the drive letter for the desired target SD card.

For example: sudo ./mksdcard.sh /dev/sdc

* Running under sudo may or may not be necessary.
* If the script fails then it may work when run again.

From an Ubuntu VM terminal window, verify that the disk now has two partitions:

* For example: ls /dev/sdc\*
* Returns: /dev/sdc /dev/sdc1 /dev/sdc2

Mount the rootfs partition using the following command

$ sudo mount /dev/sd[bcd]2 {mount point}

Example of this command sudo mount /dev/sdc2 /media/falcondev/rootfs

Note the roofs directory needs to exist before a mount will successfully mount. Once the directory is mounted.

For example copy the NVRAMTester and the NVRAMtester.sh to the /media/falcondev/rootfs directory. The following command to copy these files.

$ cp NVRAMTester NVRAMtester.sh /media/falcondev/rootfs

Download the phidget install tar.gz file from:

[\\aristocrat-inc.com\ATUS-R&D Systems\Private\Studio 300\Linux Port\libphidget-2.1.8-install.tar.gz](file:///\\aristocrat-inc.com\ATUS-R&D%20Systems\Private\Studio%20300\Linux%20Port\libphidget-2.1.8-install.tar.gz)

Use the Ubuntu VM image as gunzip this file.

$ gunzip libphidget-2.1.8-install.tar.gz

This leaves the file libphidget-2.1.8-install.tar, copy this file to the rootfs file partion in the /media/{username}/rootfs/home/root.

Next unpack the tar file using the following command. $ tar xvf libphidget-2.1.8-install.tar

This will unpack the libphidget-2.1.8-install directory.

On the task bar for the xxx [Running] Oracle VM Virtual instance window.

Select Devices / USB / …

And select the previously checked USB drive controller.

Select Devices / USB and verify that the previously checked USB drive controller is now unchecked.

The drive letter should reappear in the Window drives display (check Start / Computer, etc.).

Right click on the drive letter and select Eject

Remove the SD card from the external card reader, insert into the nCompass unit and trying powering up the nCompass unit.

## Instructions for livefs image – On Platform

Insert the new SD card into a working nCompass unit; also install a valid media card this is where the log file will be stored. Remote into the nCompass unit:

$ ssh [root@10.138.96.135](mailto:root@10.138.96.135)

Change to the libphidget install directory.

$ cd /home/root/libphidget-2.1.8-install

And the run the install.sh to install the phidget files on the SD card. This installs the phidget files, and configuration files.

$ ./install.sh

Setup the auto start script for the desired test tool for example NVRAMTester copy the startup script to the /etc/init.d directory. Create a softlink in the /etc/rc5.d directory to the file in the init.d directory. The following commands demonstrate the steps for the NVRAMtester tool.

$ cp NVRAMtester.sh /etc/init.d

$ chmod +x /etc/init.d/NVRAMtester.sh

$ ln –s /etc/init.d/NVRAMtester.sh /etc/rc5.d/S85NVRAMtester.sh

Note that the name of the file in the rc5.d directory has to start with a capitol “S” the next two character need to be digits for example 85. The order by which scripts are dependent on the numeric value. For example a script S01xxxxx is started before a file name S02xxxxxx.

Restart the nCompass unit and the desired test tool should be started in a full screen mode.

The specifics on the specific tools can be found in the subsequent sections of this doctument.

# Setting up a Squashfs Image SD Card

## Instructions for squashfs image – On Platform

Copy the desired squashfs .tgz file to the Ubuntu VM image.

<http://uslv-abudbld-01.dev.local:8080/view/nCompass/job/sentinel7-firmware/>

Use tar xvfz to extract the contents.

For example: tar xvfz sentinel7-squashfs-image-1.0.21.tgz

Change to the directory with the mksdcard.sh script.

For example: cd squashfs-image-1.0.21

(BE EXTREMELY CAREFUL TO SPECIFY THE CORRECT DRIVE in following command.)

(If the drive is “dev/sda” then that’s PROBABLY WRONG.)

Run the script, specifying the drive letter for the desired target SD card.

For example: sudo ./mksdcard.sh /dev/sdc

* Running under sudo may or may not be necessary.
* If the script fails then it may work when run again.

From an Ubuntu VM terminal window, verify that the disk now has two partitions:

For example: ls /dev/sdc\*

Returns: /dev/sdc /dev/sdc1 /dev/sdc2

From an Ubuntu VM terminal window, mount the first partition:

For example: mkdir ~/sdc1

For example: sudo mount /dev/sdc1 ~/sdc1

And copy a desired sentinel.img file to the image

<http://uslv-abudbld-01.dev.local:8080/job/Falcon/>

For example: sudo cp /media/sf\_D\_DRIVE/Ibis/Builds/363/sentinel.img ~/sdc1

And/or perform any other options as desired to the disk partition …

For example: copy the NVRAMTester API test to ~/sdc1

For example: sudo cp ~/Jaba/1.53.Falcon/nCompass/S7\_Test\_Tools/TestBattery/Release/NVRAMTester ~/sdc1

Download the phidget install tar.gz file from:

[\\aristocrat-inc.com\ATUS-R&D Systems\Private\Studio 300\Linux Port\libphidget-2.1.8-install.tar.gz](file:///\\aristocrat-inc.com\ATUS-R&D%20Systems\Private\Studio%20300\Linux%20Port\libphidget-2.1.8-install.tar.gz)

Use the Ubuntu VM image as gunzip this file.

$ gunzip libphidget-2.1.8-install.tar.gz

This leaves the file libphidget-2.1.8-install.tar, copy this file to the rootfs file partion in the /media/{username}/rootfs/home/root.

Next unpack the tar file using the following command. $ tar xvf libphidget-2.1.8-install.tar

This will unpack the libphidget-2.1.8-install directory.

From an Ubuntu VM terminal window, unmount the first partition:

For example: sudo umount ~/sdc1

For example: rmdir ~/sdc1

## Steps for the Sentinnel image

Copy a sentinel.img file to an empty directory.

The sentinel.img file is normally found in root directory of the OS boot disk SD card.

- It is also found in the nCompass /sdboot directory at runtime.

- The latest build is also found at <http://uslv-abudbld-01.dev.local:8080/job/Falcon/>

Change to the directory with the sentinel.img file.

From a command line, execute: unsquashfs sentinel.img

- This creates a squashfs-root directory.

Make desired changes to the squashfs-root directory:

1. For example, copy the desired new version of the Sentinel executable file to the squashfs-root/opt/ncompass/bin directory.

2. For example, change the sentinel.sh file to run something in the root directory instead of the Sentinel executable.

For example, change squashfs-root/etc/init.d/sentinel.sh from:

cd /opt/ncompass/bin

./Sentinel > /dev/null 2>&1 &

To:

cd /opt/ncompass/bin

# Install the Phidget Libray files

/sdboot/libphidget-2.1.8-install/install.sh

# Launch API test in a full-screen terminal window.

/bin/sleep 1 # but wait a bit so the weston-terminal launches correctly.

/usr/bin/weston-terminal --fullscreen --shell=/sdboot/NVRAMTester &

Alternatively, use a generic name for the executable in the sdboot directory.

From the parent directory with the sentinel.img file:

Execute: mksquashfs squashfs-root sentinel-new.img

Copy the new sentinel-new.img file to the root of the OS boot disk SD card as sentinel.img

On the task bar for the xxx [Running] Oracle VM Virtual instance window.

Select Devices / USB / …

And select the previously checked USB drive controller.

Select Devices / USB and verify that the previously checked USB drive controller is now unchecked.

The drive letter should reappear in the Window drives display (check Start / Computer, etc.).

Right click on the drive letter and select Eject

Remove the SD card from the external card reader, insert into the nCompass unit and trying powering up the nCompass unit.

You may end up with FSCK0000.REC (etc.) files in the root of the SD card if you update the sentinel.img file via a remote login to the nCompass unit.

- It is generally okay to delete these files.

# TestBattery Tool

The TestBattery tool is used to verify the status of the battery.

Requirements: TestBattery uses to the TestBattery.sh to automatically start this test utility.

To execute the TestBattery it is started from the command line. The following is a copy of the usage for the program.

Usage: BatteryTest [-h][-l][-v]

-h) displays this usage display.

-l) run the battery test once every 10 minutes.

-v) displays the version of this test utility.

An example line is as follows

$ BatteryTest

This line starts the BatteryTest program

Using the –v option will display the version of the BatteryTest.

There are no log file produced by this program.

The following are the outputs from

OK – means that the battery okay.

LOW – means that the battery status is low.

The testbattery.txt copies the output from the command line. This file /opt/ncompass/mediacard/testbattery.txt. This file is appended to each time the program is (re)started. The file must be deleted in order to create a new file.

$ rm /opt/ncompass/mediacard/testbattery.txt

The following is a couple of snippets of this file as before this file identifies errors with the line starting with ERROR and followed by a blank line after the error text.

$ cat TestBattery\_log.txt

…

ln -sf /media/mmcblk3p1 /opt/ncompass/mediadisk

#

# Starting the TestBattery.

#

#

# Exiting the TestBattery start script.

#

2017-02-02 20:59:38: OK 2017-02-02 21:09:38: OK2017-02-02 21:19:38: OK2017-02-02 21:29:38: OK

2017-02-02 21:39:38: OK 2017-02-02 21:49:38: OK 2017-02-02 21:59:38: LOW

2017-02-02 22:09:38: LOW

# NVRAMTester Tool

There are two versions of the NVRAMTester tool. The first is built without the POWER\_DOWN compiler flag and does not use the phidget library or hardware. The second one is built with the /DPOWER\_DOWN=1 compiler option, and uses the phidget hardware and library. The first version can be built minus the steps needed for the phidget library installation.

Requirements: NVRAMTester uses to the NVRAMtester.sh to automatically start this test utility.

To execute the NVRAMTester it is started from the command line. The following is a copy of the usage for the program.

Usage: NVRAMTester [-h][-n nn][-v]

-h) displays this usage display.

-n nn) specified the number of loops to run. (Default is infinite.)

-v) displays the version of this test utility.

An example line is as follows

$ NVRAMTester

Or $ NVRAMTester –n 500

The first line starts the NVRAMTester program and runs forever or until the hardware or program is stopped. The second line runs for a specific number of loop in this example 500.

Using the –v option will display the version of the NVRAMTester.

This program creates two log files, he first one is directly ported from the windows version. This file is /opt/ncompass/mediacard/NVRAM.txt. This file is written new after each time the NVRAMTester program is (re)started.

The following is a short snippet of this files and it also shows how an error is displayed. All errors in both files start with ERROR and have a blank line following the error text, to help make spotting them easier when scanning a large file.

$ cat /opt/ncompass/mediacard/NVRAM.txt

…

SRAM Write function complete

In SRAM Write function at address 320640

SRAM Write function complete

In SRAM Write function at address 320792

SRAM Write function complete

In SRAM Write function at address 320830

SRAM Write function complete

In SRAM Write function at address 321022

SRAM Write function complete

In SRAM Write function at address 321030

SRAM Write function complete

In SRAM Write function at address 321038

SRAM Write function complete

In SRAM Write function at address 321046

SRAM Write function complete

In SRAM Write function at address 321076

SRAM Write function complete

In SRAM Write function at address 321084

SRAM Write function complete

In SRAM Write function at address 321222

SRAM Write function complete

In SRAM Write function at address 321274

SRAM Write function complete

In SRAM Write function at address 321282

ERROR: Problem waiting for attachment

Make sure that the Phidget Hardware is connected!

The second logfile copies the output from the command line. This file /opt/ncompass/mediacard/nvram\_log.txt. This file is appended to each time the program is (re)started. The file must be deleted in order to create a new file.

$ rm /opt/ncompass/mediacard/nvram\_log.txt

The following is a couple of snippets of this file as before this file identifies errors with the line starting with ERROR and followed by a blank line after the error text.

$ cat nvram\_log.txt

…

ln -sf /media/mmcblk3p1 /opt/ncompass/mediadisk

#

# Starting the NVRAMTester.

#

#

# Exiting the NVRAMTester start script.

#

2017-01-27 22:59:38: Start!! - 1 2017-01-27 22:59:38: Reading!! 2017-01-27 22:59:59: Reading!! 2017-01-27 22:59:59: Checking!!

2017-01-27 22:59:59: Reading - Done!! 2017-01-27 22:59:59: Clearing!! 2017-01-27 22:59:59: Clearing - Done!!

2017-01-27 22:59:59: Resetting!! 2017-01-27 23:23:51: Start!! - 1 2017-01-27 23:23:51: Reading!! 2017-01-27 23:23:51: ERROR: read error!!

2017-01-27 23:23:51: Clearing!!

2017-01-27 23:23:51: Partially written blocks found!

NVRAM needs to be cleared.

Do you want to clear the NVRAM? (Y/n)

…

ln -sf /media/mmcblk3p1 /opt/ncompass/mediadisk

#

# Starting the NVRAMTester.

#

#

# Exiting the NVRAMTester start script.

#

2017-02-02 18:09:56: Start!! - 1

2017-02-02 18:09:56: Reading!!

2017-02-02 18:10:17: Reading!!

2017-02-02 18:10:17: Checking!!

2017-02-02 18:10:17: Reading - Done!!

2017-02-02 18:10:17: Clearing!!

2017-02-02 18:10:17: Clearing - Done!!

2017-02-02 18:10:17: Resetting!!

2017-02-02 18:13:00: Resetting - Done!!

2017-02-02 18:13:00: Timer setting value = 44144

2017-02-02 18:13:00: Writing!!

2017-02-02 18:13:00: Writing!!

2017-02-02 18:13:44: Restarting

2017-02-02 18:14:04: ERROR: Problem waiting for attachment

Make sure that the Phidget Hardware is connected!