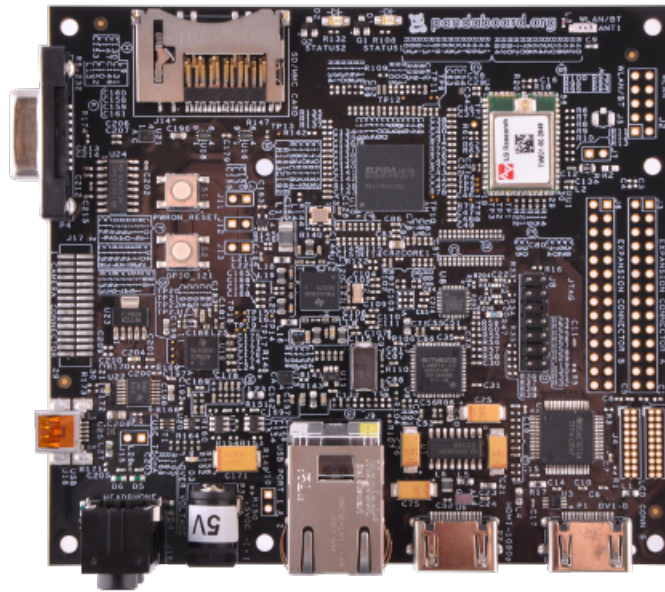




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Pandaboard Guide: Running Android Jellybean

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October 29, 2012

Abstract

In this guide, I will describe how to port Android Jellybean(4.1.2) on the pandaboard step by step. This guide uses ready made binaries and does not build them for source. This guide targets beginners who are just getting started on the Pandaboard and want to play around with Android. These instructions will work for Pandaboard as well as Pandaboard ES. Please not that in this build, few functionalities may not work out of the box.

Setup

- I used an Ubuntu 12.04 64 bit machine.
- I used Pandaboard ES for this guide.

Steps

- Download the Android Panda LEB(Linaro Evaluation Build) by typing the following commands in the terminal:

```
$ wget http://releases.linaro.org/12.09/android/images/panda-jb-gcc47-tilt-stable-blob/boot.tar.bz2
$ wget http://releases.linaro.org/12.09/android/images/panda-jb-gcc47-tilt-stable-blob/system.tar.bz2
$ wget http://releases.linaro.org/12.09/android/images/panda-jb-gcc47-tilt-stable-blob/userdata.tar.bz2
```

Alternatively if you prefer not to use the terminal, you can manually download the above artifacts(boot,system,userdata) from the link below:

<http://releases.linaro.org/12.09/android/leb-panda/>

The output after running the above commands should be as shown below:

```
Linaro Releases - Chromium Electro_House 2012 Danc... [Buddy List] #linaro Terminal - jayneil@jayneil-... Fri, 12 Oct 09:39 jayneil
Terminal - jayneil@jayneil-pc:~
File Edit View Terminal Go Help
jayneil@jayneil-pc:~$ wget http://releases.linaro.org/12.09/android/images/panda-jb-gcc47-tilt-stable-blob/boot.tar.bz2
--2012-10-12 09:28:01-- http://releases.linaro.org/12.09/android/images/panda-jb-gcc47-tilt-stable-blob/boot.tar.bz2
Resolving releases.linaro.org (releases.linaro.org)... 91.189.95.16
Connecting to releases.linaro.org (releases.linaro.org)[91.189.95.16]:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 5209419 (5.0M) [application/x-tar]
Saving to: `boot.tar.bz2'

100%[=====] 5,209,419 298K/s in 17s

2012-10-12 09:28:19 (296 KB/s) - `boot.tar.bz2' saved [5209419/5209419]

jayneil@jayneil-pc:~$ wget http://releases.linaro.org/12.09/android/images/panda-jb-gcc47-tilt-stable-blob/system.tar.bz2
--2012-10-12 09:28:34-- http://releases.linaro.org/12.09/android/images/panda-jb-gcc47-tilt-stable-blob/system.tar.bz2
Resolving releases.linaro.org (releases.linaro.org)... 91.189.95.16
Connecting to releases.linaro.org (releases.linaro.org)[91.189.95.16]:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 173622111 (166M) [application/x-tar]
Saving to: `system.tar.bz2'

100%[=====] 173,622,111 283K/s in 10m 8s

2012-10-12 09:38:42 (279 KB/s) - `system.tar.bz2' saved [173622111/173622111]

jayneil@jayneil-pc:~$
```

```
Linaro Releases - M... *Untitled Documen... Multiple Card Read... Terminal - jayneil@j... Terminal - jayneil@j... Desktop - File Mana... Fri, 12 Oct 11:47 jayneil
Terminal - jayneil@jayneil-pc:~
File Edit View Terminal Go Help
jayneil@jayneil-pc:~$ wget http://releases.linaro.org/12.09/android/images/panda-jb-gcc47-tilt-stable-blob/userdata.tar.bz2
--2012-10-12 11:39:01-- http://releases.linaro.org/12.09/android/images/panda-jb-gcc47-tilt-stable-blob/userdata.tar.bz2
Resolving releases.linaro.org (releases.linaro.org)... 91.189.95.16
Connecting to releases.linaro.org (releases.linaro.org)[91.189.95.16]:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 28752680 (27M) [application/x-tar]
Saving to: `userdata.tar.bz2'

100%[=====] 28,752,680 82.9K/s in 4m 7s

2012-10-12 11:43:12 (113 KB/s) - `userdata.tar.bz2' saved [28752680/28752680]

jayneil@jayneil-pc:~$
```

- In order to install the Android image, you will need the linaro-image-tools 0.4.8 or higher. Install them by typing the following commands in the terminal:

```
$ sudo add-apt-repository ppa:linaro-maintainers/tools
$ sudo apt-get update
$ sudo apt-get install linaro-image-tools
```

The output should be similar to as shown in the figure below:



```
File Edit View Terminal Go Help
Terminal - jayneil@jayneil-pc-
Terminal - jayneil@jayneil-pc-
Hit http://packages.medibuntu.org precise/non-free amd64 Packages
Hit http://packages.medibuntu.org precise/free i386 Packages
Hit http://packages.medibuntu.org precise/non-free i386 Packages
Ign http://packages.medibuntu.org precise/free TranslationIndex
Ign http://packages.medibuntu.org precise/non-free TranslationIndex
Ign http://dl.google.com stable/main Translation-en_US
Ign http://dl.google.com stable/main Translation-en
Get:34 http://security.ubuntu.com precise-security/restricted amd64 Packages [3,969 B]
Get:35 http://security.ubuntu.com precise-security/universe amd64 Packages [48.6 kB]
Get:36 http://security.ubuntu.com precise-security/multiverse amd64 Packages [2,188 B]
Get:37 http://security.ubuntu.com precise-security/main i386 Packages [183 kB]
Get:38 http://security.ubuntu.com precise-security/restricted i386 Packages [3,968 B]
Get:39 http://security.ubuntu.com precise-security/universe i386 Packages [48.7 kB]
Get:40 http://security.ubuntu.com precise-security/multiverse i386 Packages [2,357 B]
Get:41 http://security.ubuntu.com precise-security/main TranslationIndex [73 B]
Get:42 http://security.ubuntu.com precise-security/multiverse TranslationIndex [71 B]
Get:43 http://security.ubuntu.com precise-security/restricted TranslationIndex [71 B]
Get:44 http://security.ubuntu.com precise-security/universe TranslationIndex [73 B]
Ign http://packages.medibuntu.org precise/free Translation-en_US
Hit http://security.ubuntu.com precise-security/main Translation-en
Ign http://packages.medibuntu.org precise/free Translation-en
Ign http://packages.medibuntu.org precise/non-free Translation-en_US
Hit http://security.ubuntu.com precise-security/multiverse Translation-en
Hit http://security.ubuntu.com precise-security/restricted Translation-en
Ign http://packages.medibuntu.org precise/non-free Translation-en
Hit http://security.ubuntu.com precise-security/universe Translation-en
Hit http://security.ubuntu.com precise-security/universe Translation-en
Fetched 2,357 kB in 18s (129 kB/s)
Reading package lists... Done
jayneil@jayneil-pc:~$ sudo apt-get install linaro-image-tools
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  btrfs-tools debootstrap libyaml-0-2 python-linaro-image-tools python-parted python-yaml qemu-user-static u-boot-tools
The following NEW packages will be installed:
  btrfs-tools debootstrap libyaml-0-2 linaro-image-tools python-linaro-image-tools python-parted python-yaml qemu-user-static u-boot-tools
0 upgraded, 9 newly installed, 0 to remove and 8 not upgraded.
Need to get 16.6 MB of archives.
After this operation, 63.6 MB of additional disk space will be used.
Do you want to continue [Y/n]? [ ]
```

- Install disk utility from Ubuntu software center.
- Insert your SD card into the computer but make sure that it is not mounted. If the card is mounted, open disk utility and un-mount it.
- Now, identify the correct raw device name (like /dev/sde - not /dev/sde1). You can do this by opening disk utility in Ubuntu and clicking on the sd card. You can erase your hard drive with the wrong parameter.
- Run linaro image tools by typing the following in the terminal:

```
$ linaro-android-media-create -mmc /dev/sdb -dev panda -boot boot.tar.bz2
-system system.tar.bz2 -userdata userdata.tar.bz2
```

- Install graphics libraries by typing the commands below in the terminal:

```
$ wget http://releases.linaro.org/12.09/android/images/panda-jb-gcc47-tilt-
stable-blob/install-binaries.sh
$ chmod a+x install-binaries.sh
$ ./install-binaries.sh
```

Accept the license by typing 'I ACCEPT' . The output should be similar to as shown in the figure below:

```
Terminal - jayneil@jayneil-pc: ~/Work Stuff/Linaro Android Binary
File Edit View Terminal Go Help
provisions may only be amended, modified, supplemented or waived in a
writing signed by both parties hereto.

d. Compliance with laws. You shall comply with all applicable laws,
rules, and regulations in connection with its activities under this
Agreement.

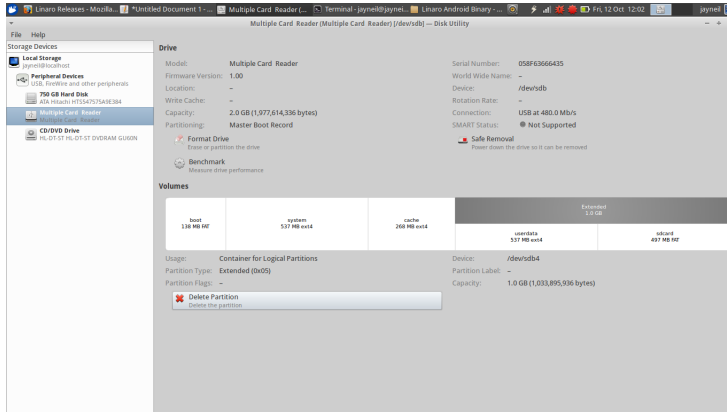
e. Entire Agreement. This Agreement completely and exclusively states
the agreement between You and Licensor regarding this subject matter.

Type "I ACCEPT" if you agree to the terms of the license: I ACCEPT

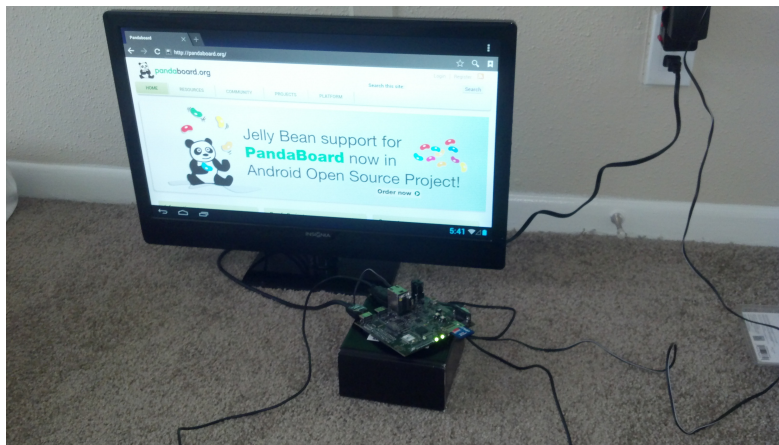
vendor/
vendor/imgtec/
vendor/imgtec/panda/
vendor/imgtec/panda/BoardConfigPanda.mk
vendor/imgtec/panda/proprietary/
vendor/imgtec/panda/proprietary/libsrvc_init.so
vendor/imgtec/panda/proprietary/gralloc_omap4.so
vendor/imgtec/panda/proprietary/libsrvc_um.so
vendor/imgtec/panda/proprietary/libWgegl.so
vendor/imgtec/panda/proprietary/libEGL_POWERVR_SGX540_120.so
vendor/imgtec/panda/proprietary/libEGLSv2_POWERVR_SGX540_120.so
vendor/imgtec/panda/proprietary/pvrsvrinit
vendor/imgtec/panda/proprietary/libEGLSv1_CM_POWERVR_SGX540_120.so
vendor/imgtec/panda/proprietary/libusbc.so
vendor/imgtec/panda/proprietary/libPVRScopeServices.so
vendor/imgtec/panda/proprietary/libpvr2d.so
vendor/imgtec/panda/proprietary/libglslcompiler.so
vendor/imgtec/panda/proprietary/libpvrANDROID_WSEGL.so
vendor/imgtec/panda/device-panda.mk
vendor/ti/
vendor/ti/panda/
vendor/ti/panda/BoardConfigVendor.mk
vendor/ti/panda/device-vendor.mk

Files extracted successfully.
/home/jayneil/Work Stuff/Linaro Android Binary
Success, installing binary files
jayneil@jayneil-pc:~/Work Stuff/Linaro Android Binary$
```

- Mount the SD card back using disk utility. There should be a lot of partitions created on it as shown below:



- Remove the SD card from the device writer and plug it into the board. If all went well, you should see Android booting up on the pandaboard as shown below:



- To install custom apps, just put the apk file in `userdata>app`.

References

- [1] <http://wiki.linaro.org/Platform/Android/ImageInstallation>