

TI-Android-GingerBread-2.3-DevKit-1.0 ReleaseNotes



TI Android GingerBread 2.3 DevKit 1.0 Release Notes

Release Notes - March 31, 2011

Introduction

This is TI-Android-GingerBread-2.3-DevKit-1.0 release based on Android GingerBread 2.3 for AM35x EVM, AM37x EVM, OMAP35x EVM, Beagleboard Rev Cx and Beagleboard XM platforms.

This release serves to provide

- Fundamental software platform to build Android based products with TI devices.
- Give Android application developer a stable integrated foundation software.
- Provide benchmark numbers to evaluate Android based solutions with other distributions on TI devices
- A single release package that comprises of all TI components (bootloader, kernel, Tools), TI differentiators (like 3D graphics based on SGX, Overlay libraries, Adobe Flash 10) and Android standard components.

| Component | Version | Base Repository | Base Tag (or commit id) |
|-------------------|--------------------------------------|---|--|
| OMAP Linux Kernel | 2.6.32(Android Linux kernel version) | The baseline was chosen from "PSP" release from [1] | OMAPPSP_03.00.01.06_baseline |
| U-Boot | 2010.06.rc2 | [2] | PSP 04.00.00.09 |
| Android | GingerBread 2.3 | http://gitorious.org/rowboat | TI-Android-GingerBread-2.3-DevKit-1.0.xml (without multimedia DSP acceleration), |

The filesystem was built by integrating the sources from arowboat.org project hosted on arowboat gitorious Project [3] using TI-Android-GingerBread-2.3-DevKit-1.0.xml manifest file.

The codebase for Linux kernel, SGX kernel drivers, U-Boot included in this release is also hosted at the following repositories:

| Component | Repository (Branch) | Commit ID / Baseline |
|-------------------|-----------------------------|--|
| Bootloader | [4] | PSP 04.00.00.09 |
| OMAP Linux Kernel | [5] (rowboat-eclair-2.6.32) | d9b04d8b50d19b7056ee051106057f703877dabc |
| SGX Release | [6] | 3674b877cb6b7c6e0267cb46c02c0f2ef9958a7e |
| Adobe Flash 10 | [7] | v10.1.r105 |

For detailed information on the various software components included in the release and how to use them, please refer to the

http://processors.wiki.ti.com/index.php/TI-Android-GingerBread-2.3-DevKit-1.0_UserGuide.

The Android sources, SGX drivers, Kernel and U-Boot have been compiled with GNU Toolchain for ARM Processors from Android pre-built package

<http://gitorious.org/rowboat/prebuilt/trees/rowboat-froyo/linux-x86/toolchain/arm-eabi-4.4.0>

Documentation

- **User guide**

Provides instructions on how to use the TI Android GingerBread 2.3 DevKit 1.0 package. A copy of the User Guide is included in the docs folder of the DevKit package. The User Guide also gives instructions on building the Android root filesystem using Android sources maintained on rowboat repositories.

Location : http://processors.wiki.ti.com/index.php/TI-Android-GingerBread-2.3-DevKit-1.0_UserGuide

- **Developer guide**

Provides instructions for Android developers to get access to Android sources for TI devices, setting up host environment for compilation and enabling debug environment to ease the app development, debugging and deployment. [edit]

Location : http://processors.wiki.ti.com/index.php/TI-Android-GingerBread-2.3-DevKit-1.0_DeveloperGuide

- **Performance guide**

Gives the benchmark numbers for various parameters and peripherals

Location : http://processors.wiki.ti.com/index.php/Android_Benchmarks_DevKit2.3

- **Porting guide**

Provides information on porting packages like WLAN/BT, Camera, PowerManagement, NAND UBIFS for other platforms,

Location : http://processors.wiki.ti.com/index.php/TI-Android-GingerBread-2.3-DevKit-1.0_Porting_Guides

What's Supported

This SDK package includes support for the OMAP35x EVM, AM35x EVM, AM37x EVM, DM37x EVM, Beagleboard Rev Cx and Beagleboard XM.

Software features/components supported in this DevKit are

- Android GingerBread 2.3 release from Google Android
- Android Linux Kernel 2.6.32 integrated with PSP (03.00.01.06) drivers
- Bootloader (u-boot) and x-loader
- SGX Open GL Driver & Libraries
- Adobe Flash 10 (upon approval)
- WLAN and Bluetooth Firmware and Drivers for TI's WL1271
- Example Applications and Demos
 - Desk Clock, Browser, Calendar, Calculator, Contacts, Gallery, GlobalSearch, Launcher, Music, Settings
 - 3D Graphics - OpenGL ES demos.
- Documentation
 - User Guide
 - Release Notes
 - Developer Guide
 - CTS report
 - RowboPERF (Performance measurement) application user guide
 - Software Manifest files
- Host Tools
 - NAND Flashing Tool

- Pin Mux Utility
- SignGP
- Android Debugging
 - ADB Debugging over USB, Ethernet and Ethernet over USB
 - Connecting Eclipse (as provided by Android) with the EVMs, Beagleboards
- Test and Performance Reports
 - Performance, benchmarking results
 - Test results from our validation

Complete directory structure of DevKit

```

TI_Android_GingerBread_2_3_DevKit_1_0
|-- Android_Source_Manifest
|   `-- TI-Android-GingerBread-2.3-DevKit-1.0.xml
|-- Documents
|   |-- RowboPERF_User_Guide.pdf
|   |-- Software_Manifests
|   |-- Test_Performance_Results
|   |   |-- CTS_Report.tar.gz
|   |   |-- Performance_Results.pdf
|   |   `-- Test_Results.pdf
|   |-- TI-Android-GingerBread-2.3-DevKit-1.0_ReleaseNotes.pdf
|   |-- TI-Android-GingerBread-2.3-DevKit-1.0_UserGuide.pdf
|   `-- TI-Android-GingerBread-2.3-DevKit-1.0_DeveloperGuide.pdf
|-- Performance_Apps
|   |-- 0xbench
|   |-- 3D
|   |-- Launcher2
|   |-- rowboatBench
|   |-- RowboPERF
|   `-- StorageIO
|-- Prebuilt_Images
|   |-- AM35X
|   |-- AM37X
|   |-- beagleboard-rev-c4
|   |-- OMAP35X
|-- Tools
|   |-- flash-utility.tar.gz
|   |-- mk-bootscr
|   |-- mk-mmc
|   |-- pinmux-utility.tar.gz
|   |-- signGP
`-- Wireless
    `-- WL1271Android-patches.tar.gz
  
```

New in this Release

- The following items are newly added in this release:
 - Mouse cursor support for the gingerbread
 - Power Management features like DVFS,CPU idle states
 - Bluetooth audio gateway for HSP/HFP(Bluetooth SCO audio),AVRCP profiles on AM37x EVM
- The following features from previous release are provided:
 - Fastboot
 - WLAN (WL1271) on AM37x EVM
 - NAND UBIFS booting
 - UI and video on S-video
 - Adobe Flash 10
 - USB Mass Storage
 - Audio Record feature in Android
 - Bluetooth connectivity for OPP, A2DP profiles
 - Camera Image capture on Beagle XM
 - Performance measurements using RowboPERF, 0xbench and rowboatbench
 - Media clips for Audio, Video and JPEG
 - Keypad support on AM35x EVM
 - Hardware accelerated dynamic rotation for Video pipeline.

What's Not Supported

- The following items are not supported:
 - AM/DM37x Processor card with Micron Memory

Installation and Usage

The DevKit release is maintained as a single "TI-Android-GingerBread-2.3-DevKit-1.0.tar.gz" at http://software-dl.ti.com/dsps/dsps_public_sw/sdo_tii/TI_Android_DevKit/TI_Android_GingerBread_2_3_DevKit_1_0/index_FDS.html and individual component packages.

On a Linux Host PC download the single release package and execute the following components

```
#> tar -xzvf TI-Android-GingerBread-2.3-DevKit-1.0.tar.gz
```

Please refer to the TI-Android-GingerBread-2.3-DevKit-1.0 User Guide ^[8] for more information on how to install and use the DevKit

Other individual packages can be used to refer to respective components.

The md5 checksums are provided for users to double check or verify the completeness of downloaded package.

Device Support

This release supports the following Texas Instruments devices

- OMAP35x, AM35x, AM37x

This release supports the following platforms

- Texas Instruments AM37x EVM (on the Mistral Rev G AM3715EVM)
- Texas Instruments AM35x EVM
- Texas Instruments OMAP35x EVM (on the Mistral Rev G OMAP35x)
- Beagleboard Rev Cx
- Beagleboard XM

Known Issues

| Component | Issue Description | Workaround | Comments |
|-----------|---|--|--|
| Hardware | USB EHCI Host port doesn't work on few AM37x EVMs | No workaround | No fix available currently, suggestion is to use TI USB PHY |
| Software | Pinmux Utility: could not resize the GUI, so could not see what the other button on the bottom right corner is. | User may need to adjust the display resolution of their Windows PC | To be fixed in future releases |
| Software | Pinmux Utility: could not resize the GUI, so could not see what the other button on the bottom right corner is. Pinmux utility requires Left-click to select a peripheral interface cell. The cell should be auto selected when user right-click it. | No impact to functionality. Just a note on the user interface. | To be fixed in future releases |
| Software | AM35x EVM platform booting doesn't continue after below shown messages AudioPolicyService not published, waiting... | This happens if the Filesystem was not unmounted properly. Look for the process ID in the console messages. Kill the process with "kill" command. This will not appear again. | |
| Software | ARM performance data is not shown sometimes when RowboPERF runs ARM benchmarks | The CPU tests in Rowboat Bench will generate ARM benchmarks, this can be used for same purpose | |
| Software | Netperf Ethernet performance is low when using a buffer size of 8192 | No workaround | Other buffer sizes give better performance, see the performance results sheet for this release |
| Software | System does not obtain IP address automatically after booting | Use netcfg <eth0> dhcp on the console. | See user guide for more details |
| Software | Graphics Screen resolution is changed after suspend/resume sequence | No workaround | This is only with one of the demo app, this will not affect UI. The other 3D tests in RowboPerf work good. |
| Software | SUSPEND power consumption is too high (~85mw) | No workaround | To be done |
| Software | Acquiring different WakeLocks doesn't change power consumption | No workaround | To be done |
| Hardware | Video display is not clear when displayed over s-video Not observed on LCD TVs | No workaround | Not consistent on all TVs |

| | | | |
|----------|--|--|---|
| Tool | Flashing NAND using flash utility v1.3 doesn't work over UART | USB can be used with same utility to flash the NAND | |
| Software | "Four Dalvik VM unit tests failed during testing failed: 057-iteration-performance failed: 062-character-encodings failed: 063-process-manager failed: 071-dexfile | No workaround | To be done |
| Software | When the system is set to display through the S-video output, the display start flickering after a wake-up from suspend | No workaround | To be done |
| N/A | system boot-up takes too long, UI is less responsive, or video playback is sluggish | use the SD cards listed in the "SD Card Recommendations" section in the User Guide | |
| N/A | Currently Beagle-XM prebuilt image is not included in the release. | The Beagle-XM prebuilt package will be available soon | We noticed kernel crashes on Beagle XM, it could be due to OpenGL drivers, we are currently working on this issue. The release page will be updated soon with the fix. Please keep tracking this column for more updates. |

Version

This is Release TI Android GingerBread 2.3 DevKit 1.0

The release is available from http://software-dl.ti.com/dsp/dsp_public_sw/sdo_tii/TI_Android_DevKit/TI_Android_GingerBread_2_3_DevKit_1_0/index_FDS.html

Technical Support and Product Updates

For further information or to report any problems, contact <http://e2e.ti.com/android> or <http://support.ti.com>.

For community support join <http://groups.google.com/group/rowboat>

For IRC #rowboat on irc.freenode.net

To raise any defect for this release please use <http://code.google.com/p/rowboat/issues/list>

References

- [1] <http://arago-project.org/git/projects/linux-omap3.git>
- [2] <http://arago-project.org/git/projects/u-boot-omap3.git>
- [3] <http://gitorious.org/rowboat>
- [4] <http://gitorious.org/rowboat/u-boot-omap3>
- [5] <http://gitorious.org/rowboat/kernel>
- [6] <http://gitorious.org/rowboat/hardware-ti-sgx.git>
- [7] <http://focus.ti.com/docs/toolsw/folders/print/adobeflash-a8.html>
- [8] http://processors.wiki.ti.com/index.php/TI-Android-GingerBread-2.3-DevKit-1.0_UserGuide

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