Android Release Notes

Contents

1   Release Description

i.MX Android jb4.3_1.1.0 is GA release for Android 4.3 Jelly Bean(JB) on Freescale's i.MX 6Quad, i.MX 6Dual, i.MX 6DualLite, i.MX 6Solo, and i.MX 6SoloLite applications processors.

i.MX Android jb4.3_1.1.0 release includes all necessary codes, documents and tools to assist users in building and running Android 4.3 on the i.MX 6Quad, i.MX 6DualLite, and i.MX 6SoloLite hardware boards from scratch. The pre-built images are also included for a quick trial on Freescale i.MX 6Quad SABRE-SD board and platform, i.MX 6DualLite SABRE-SD platform, and i.MX 6SoloLite EVK platform. This release includes all Freescale porting and enhancements based on Android open source code.

Most of the deliveries in this release are provided in source code with the exception of some proprietary modules/libraries from third parties.

2   Supported Hardware SoC/Boards

- i.MX 6Quad SABRE-SD board and platform

  Function validation test

- i.MX 6DualLite SABRE-SD platform

BAT validation test

- i.MX 6Quad SABRE-AI board and platform

BAT Validation test

- i.MX 6DualLite SABRE-AI board and platform

Function validation test

- i.MX 6SoloLite EVK platform

BAT Validation test

3 Release Package Contents

Release package contains software and documentation.

The jb4.3_1.1.0 release package includes the following software and documents:

Android source code patch	All Freescale i.MX specific patches (applicable to Google Android repo) to enable Android on i.MX based boards. For example, hardware abstraction layer implementation, hardware codec acceleration, etc. Packed in android_jb4.3_1.1.0-ga_source.tar.gz
Documents	The following documents are included in android_jb4.3_1.1.0-ga_docs.tar.gz • Android Quick Start Guide: A manual that explains how to run Android on an i.MX board by using prebuilt images. • Android User's Guide: A detailed manual for this release package. • Android Frequently Asked Questions: A document that contains Frequently Asked Questions (FAQs). • i.MX Android Wi-FI Display Sink API Introduction: A document that describes how to use i.MX Android Wi-Fi Display Sink API. • Android Release Notes: A document that introduces key updates and known issues in this release. • Android Codec Release Notes: A document that introduces key updates and known issues of the multimedia codecs part of the BSP release. • i.MX 6 G2D API User Guide: A document that introduces the G2D API usages.
Tools	Tools in android_jb4.3_1.1.0-ga_tools.tar.gz • MFGTool: Manufacturing tools for i.MX platform. • tool/tetherxp.inf: USB tethering windows .inf driver configuration file.
Prebuilt images	You can test Android with a prebuilt image on i.MX reference board before building any code: • android_jb4.3_1.1.0-ga_image_6qsabresd.tar.gz: Prebuilt images for the SABRE-SD board. • android_jb4.3_1.1.0-ga_image_6qsabreauto.tar.gz: Prebuilt images for the SABRE-AI board. • android_jb4.3_1.1.0-ga_image_6slevk.tar.gz: Prebuilt images for the 6SL SABRE-AI board. All prebuilt images are in another package. See Android Quick Start Guide and Android User's Guide to understand which image should be used in which case.

4 Features

This section contains features in this package.

Feature	i.MX 6Quad SABRE-SD and i.MX 6DualLite SABRE-SD	i.MX 6Quad SABRE-AI and i.MX 6DualLite SABRE-AI	i.MX 6SoloLite EVK	Comments
Linux 3.0.35 kernel	Y	Y	Y	Based on Linux BSP L3.0.35_4.1.0 GA release
Google Jelly Bean 4.3 release	Y	Y	Y	Based on android-4.3_r2.1 release
Boot source	eMMC, External SD	SD, NAND **Note:** For differences between SD and External SD, see Android User Guide and FAQs for boot from different sources.	External SD	Default NAND chip supported is Micron MT29F8G08ABABAWP
Splash Screen for LVDS	Y	N	N	-
UI (input)	Multi-touch on LVDS panel	Multi-touch on LVDS panel	N	-
UI (display)	LVDS panel, HDMI display	LVDS panel, HDMI display	LCD panel	-
UI (dual display, LVDS+HDMI, UI mirror displayed on second device)	Y	Y	N	-
UI (brightness control)	Y	Y	Y	-
Storage - External Media	Y	Y	Y	SD, External SD, and UDisk
Connectivity - Ethernet	Y	Y	Y	-
Connectivity - BT	Y	N	N	Hardware: • Silex AR6233X SDIO card Profiles: • A2DP • HID • OPP • PBAP
Connectivity - Wi-Fi	Y	Y	Y	Hardware: • Atheros AR6103 SDIO card • Silex AR6233X SDIO card • Realtek 8723AS SDIO card Features:

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Features

Feature	i.MX 6Quad SABRE-SD and i.MX 6DualLite SABRE-SD	i.MX 6Quad SABRE-AI and i.MX 6DualLite SABRE-AI	i.MX 6SoloLite EVK	Comments
				• AP mode • Wake on Wireless
Connectivity - 3G	Y	N	N	Hardware: • HUAWEI EM770W modem • Infineon Amazon 1 modem • ZTE FM210 modem
Connectivity - GPS	Y	N	N	Locosys AH-1613
Connectivity - USB Tethering	Y	Y	Y	Supports Wi-Fi or Ethernet as upstream
Power - Battery status report	Y	N/A	N/A	Known limitations about the accuracy in some use cases
Power - CPU Freq	Y	Y	Y	-
Power - Bus Freq	Y	Y	Y	-
Media - Music Play	Y	Y	Y	SSI WM8962 for SABRE-SD, ESAI CS42888 for SABRE-AI
Media - Sound Record	Y	Y	Y	SSI WM8962 for SABRE-SD, ESAI CS42888 for SABRE-AI
Media - Video Play	Y	Y	Y	-
Media - Camera	Y	Y	Y	Camera panorama is not supported on the i.MX6SoloLite EVK board.
Media - TVIN	N/A	Y	N/A	PAL/NTSC
Media - Dual Camera	Y	Y	N	Hardware for Sabre SD: • Front Camera: OV5642 CSI camera • Rear Camera: OV5640 MIPI camera Hardware for Sabre AI: • Front Camera: UVC camera • Rear Camera: TV IN
Media - Camcorder	Y	Y	Y	Hardware for MX6SL EVK: • Front Camera: UVC camera • Rear Camera: OV5640
Media - USB Camera	Y	Y	Y	Logitech: • C250 • E3500 Camera panorama is not supported on the i.MX6SoloLite EVK board.
Media - USB Mic	Y	Y	N	-
Media - Movie Studio	Y	Y	N	-
Media - HDMI audio output	Y	Y	N	-
Graphic - HW 3D acceleration	Y	Y	N	OpenGL-ES 1.1/2.0 via GC2000 or GC880 3D core

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Freescale Semiconductor, Inc.

Feature	i.MX 6Quad SABRE-SD and i.MX 6DualLite SABRE-SD	i.MX 6Quad SABRE-AI and i.MX 6DualLite SABRE-AI	i.MX 6SoloLite EVK	Comments
Graphic - HW accelerated UI surface composition	Y	Y	Y	-
Misc - ADB over USB	Y	Y	Y	-
Misc - Fastboot utility	Y	Y	Y	-
Misc - SW update and factory reset	Y	Y	Y	-
Sensor - Magnetometer	Y	Y	N	Freescale MAG3110
Sensor - Accelerometer	Y	Y	N	Freescale MMA8451Q
Sensor - Light	Y	N	N	-
NTFS-3G File System	Y	Y	Y	For external Storage
NAND	N	Y	N	Tested NAND chip: - Micron 29F8G08ABABA
WIFI Display Source	Y	Y	N	Hardware: • Realtek 8723AS SDIO card • Atheros AR6103 SDIO card • Silex AR6233X SDIO card
WIFI Display Sink	Y	Y	N	Hardware: • Realtek 8723AS SDIO card • Atheros AR6103 SDIO card • Silex AR6233X SDIO card
Data Partition Encryption	Y	Y	Y	Not supported for NAND boot in Sabre-AI
USB Accessory	Y	Y	Y	Google AOA v2.0
Trick Mode for Video Playback	Y	Y	N	Demo on Freescale APK CactusPlayer
Audio track selection in Video Playback	Y	Y	N	Demo on Freescale APK CactusPlayer
Subtitle track selection in Video Playback	Y	Y	N	Demo on Freescale APK CactusPlayer
webrtc	Y	N	N	-

5 Multimedia Codecs

See the details about Multimedia Codec in the *Android Codec Release Notes* document included in the release package.

6 Change Lists

Compared to the jb4.3_1.0.0-beta release, this release has the following major changes:

  • Update GPU 4.6.9p13 binary and driver to support webGL.

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- Passed WebGL Conformance Test V1.0.1.
- Improved the Wi-Fi display connection during camera recording or video playback for a long time.

7 Known Issues and Limitations

Read through all hardware related reference material and ensure the necessary hardware modifications have been made before using the software.

Issue Description	Comments
The power key on SABRE-SD board is not supported as a result of the SoC being unable to detect the power key press or release event on i.MX 6Quad TO1.1 and i.MX 6DualLite TO1.0 SABRE-SD boards.	VOL_DN on SABRE-SD is mapped as power key on i.MX 6Quad TO1.1 and i.MX 6DualLite TO1.0 SABRE-SD boards. On SABRE-SD i.MX 6Quad TO1.2 or i.MX 6DualLite TO1.1 or higher boards, VOL_DN is used again and the SW1 (power button) is used as the power key.
Huawei EM770W 3G modem with China Mobile SIM card consumes too much power which will flash the LVDS screen.	-
Battery level info is incorrect when charged in MX6DQ/ MX6DL SABRE-SD board. 100%	To resolve this issue, add a fuel gauge in hardware.
UI is Landscape while camera preview is portrait on the SABRE-SDP board.	SABRE-SDP board issue. See "i.MX Android 13.4.1 Camera issue on SDP board" for more details.
PCIe does not support Hot Plug and Power Management.	PCIe Intel Wi-Fi source code has been integrated into this release. However, PCIe is not enabled by default because the power management is not supported. See https://community.freescale.com/docs/DOC-94045 about the instructions to enable PCIe WiFi.
L/R channel is swapped in SABRE-AI board.	It is hardware issue. please connect red line to white port, white line to red port.
3G modem cannot work if the BT in bootargs of the bootloader is enabled.	The I/O pin KEY_COL4 is either used by UART5 as UART RTS pin or by 3G modem as DISABLE pin.
i.MX 6Quad TO1.0/TO1.1 and i.MX 6DualLite TO1.0 is not supported with wait mode enabled.	-
The WIFI Display Sink device with HDCP cannot be connected.	No HDCP is enabled in WIFI Display Source function.
There are some function limitations and poor performance in Wi-Fi Display Source and Sink when using Atheros AR6103 and Silex AR6233X sdio card.	- Sometimes group formation fails in first Wi-Fi display connection which is a known issue of ATHEROS. - MCC is not supported. - Sometimes frames may be dropped, especially switching the UI in Settting.
Google USB driver must be installed multiple times for the MTP, PTP, MTP&ADB, PTP&ADB, and ADB function settings.	Some Windows XP environments may display MTP and PTP windows even though PTP only is enabled in the device.
Wi-Fi display connection may be suddenly lost after camera recording or video and audio playback after several hours.	Still under checking.
When Accessibility -> Magnification is enabled, several blue lines appear if sliding from bottom when playing a video.	Known issue, it is related with DPI, and should be Android SystemUI or Gallery3D layout issue. There will be no such issue if set DPI to 128 in init.freescale.rc, but we set DPI to 160 by default for some reasons in the release.

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Issue Description	Comments
Reboot does not work on the i.MX6 SoloLite EVK board.	The reboot function should be always okay if the hardware can trigger PMIC reset, which ensures the RESET key and watchdog reset can control PMIC_ON_REQ pin.
When some HTTPLive streams are played from the browser, the accepted cookies need to be disabled.	When some HTTPLive streams are played from the browser, such as tv.cntv.cn, it may fails, because cookie data is not supported in the protocol currently, and the accepted cookies need to be disabled.

8 CTS Known Issues

See the "CTS and CTS-Verifier Test Report" for detailed information.

CTS results on i.MX 6Quad Sabre-SD board with Android CTS 4.3_r2

CTS Summary: 11 failed in 18789 cases.

CTS-Verifier Summary: 2 failed in 150 cases.

Test Case	Known Issues
android.app.cts.SystemFeaturesTest#testLocationFeatures	Known issue which can be fixed by including the Google's location provider APK
6 cases in android.bluetooth.cts.BasicAdapterTest	Bluetooth not connected due to conflict with 3G
2 cases in com.android.cts.aadb.TestDeviceFuncTest	Known issue as https://code.google.com/p/android/issues/detail?id=59443
android.dpi.cts.AspectRatioTest#testAspectRatio	Known issue as https://android-review.googlesource.com/#/c/65434/
android.permission.cts.FileSystemPermissionTest#testAllCharacterDevicesAreSecure	Known issue as https://android-review.googlesource.com/#/c/65434/

CTS-Verifier Test Case	Known Issues
Camera Formats Camera 0 & 1920 x 1080 & NV21	Color of output image mismatched with that of the preview image.
Data Backup Test	No GMS library, so no Google Account can be input.

CTS results for i.MX 6Quad Sabre-AI board with Android CTS 4.3_r1

CTS Summary: 54 failed in 18789 cases.

CTS-Verifier Summary: 3 failed in 99 cases.

Test Case	Known Issues
android.dpi.cts.AspectRatioTest#testAspectRatio	Known issue as https://android-review.googlesource.com/#/c/65434/
4 cases in android.hardware.cts.CameraGLTest	Known issue due to not have on board camera for
34 cases in android.hardware.cts.CameraTest	Known issue due to not have on board camera for ARD board.

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CTS Known Issues

2 cases in android.media.cts.CamcorderProfileTest	Known issue due to not have on board camera for ARD board.
4 cases in android.media.cts.MediaPlayerTest related with video recording	Known issue due to not have on board camera for ARD board.
5 cases in android.media.cts.MediaRecorderTest#testSetMaxFileSize	Known issue due to not have on board camera for ARD board.
3 cases in android.mediastress.cts.MediaRecorderStressTest	Known issue due to not have on board camera for ARD board.
2 cases in com.android.cts.aadb.TestDeviceFuncTest	Known issue as https://code.google.com/p/android/issues/detail?id=59443
libcore.java.net.URLConnectionTest#test_chunkedUpload_byteByByte	Known issue as https://code.google.com/p/android/issues/detail?id=31344

CTS-Verifier Test Case	Known Issues
Hardware/Software Feature Summary android.hardware.location	Known issue, no PGS supported.
Hardware/Software Feature Summary android.hardware.location.network	Known issue, no PGS supported.
Data Backup Test	No GMS library, so no Google Account can be inputted.

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