Document Number: ARN
Rev. O8.1.0_1.3.0_8M, 04/2018

Android™ Release Notes

Contents

1 Release Description

The i.MX Android™ O8.1.0_1.3.0_8M release is an RFP (GA) release for the Android 8.1 Oreo (O) platform on the i.MX 8MQuad applications processors.

i.MX Android O8.1.0_1.3.0_8M release includes all necessary code, documents, and tools to assist users in building and running the Android 8.1 platform on the i.MX 8MQuad EVK board from scratch. Pre-built images are also included for a quick trial on the following platform:

- i.MX 8MQuad EVK Board and Platform

This release includes all porting and enhancements based on the 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

The supported hardware system-on-chip (SoCs)/boards are listed as follows:

- i.MX 8MQuad EVK Board and Platform

3 Release Package Contents

The O8.1.0_1.3.0_8M release package includes the following software and documents.

Table 1. Release package contents

i.MX Android proprietary source code package	• imx-o8.1.0_1.3.0_8m.tar.gz: i.MX Android proprietary source code package to enable the Android platform on i.MX boards.
Documents	The following documents are included in android_O8.1.0_1.3.0_8M_docs.tar.gz • *Android™ Quick Start Guide* (AQSUG): A document that explains how to run the Android platform on an i.MX board using prebuilt images. • *Android™ User's Guide* (AUG): A document describing procedures for configuring and building this release package. • *Android™ Release Notes* (ARN): A document that introduces key updates and known issues in this release. • *i.MX Android™ Extended Codec Release Notes* (IMXACRN): A document that provides the extended codec information. • *Android™ Frequently Asked Questions* (AFAQ): A document that contains the answers to the Frequently Asked Questions (FAQs). • *i.MX Graphics User's Guide* (IMXGRAPHICUG): A document that describes GPU 2D API, Tools, Memory, and Application programming guidelines.
Tools	Tools in android_O8.1.0_1.3.0_8M_tools.tar.gz • VivanteVTK-v6.2.4.p1.1.7.5.tgz: GPU tools for Vivante GPU 6.2.4.p1 driver. For more information about these tools, see *i.MX Graphics User's Guide* (IMXGRAPHICUG). • fsl-sdcard-partition.sh: tool to make partition and flash Android images. • MFGTool: Manufacturing tools for i.MX platform.
Prebuilt images	You can test the Android platform with a prebuilt image on i.MX reference board before building any code: • android_O8.1.0_1.3.0_8M_image_8mq.tar.gz: Prebuilt images with NXP extended features for the i.MX 8MQuad EVK board. The extended features include additional multimedia format support. All prebuilt images are in a separate package. See the *Android™ Quick Start Guide* (AQSUG) and *Android™ User's Guide* (AUG) to choose the appropriate image.

4 Features

This section contains features in this package.

Table 2. Features

Feature	i.MX 8MQuad EVK	Remarks
Linux 4.9.78 kernel (merged with the AOSP kernel)	Y	Based on Linux® OS BSP L4.9.51_imx8mq-ga release
Google Oreo 8.1 release	Y	Based on android-8.1.0_r14
U-Boot	Y	v2017.03

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Table 2. Features (continued)

Feature	i.MX 8MQuad EVK	Remarks
Graphic-HW 3D acceleration	Y	OpenGL ES1.1/2.0/3.1 through GC7000L
Boot source	SD/eMMC	-
Splash Screen for LVDS	N	-
UI (input)	N	-
UI (display)	HDMI/MIPI-to-HDMI/ MIPI panel display	Supports physical HDMI display, MIPI-to-HDMI display, and MIPI panel display
UI (dual display, MIPI-to-HDMI +HDMI)	Y	-
UI (brightness control)	N	-
Storage - External Media	Y	Supports the udisk on the USB host port
Connectivity - Ethernet	Y	-
Connectivity - Bluetooth® wireless technology	Y	Hardware: • Qualcomm 1CQ qca6174A Profiles: • A2DP Source • AVRCP • BLE Central
Connectivity - Wi-Fi	Y	Hardware: • Qualcomm 1CQ qca6174A Features: • AP mode
Connectivity - USB Tethering	Y	-
Power - CPU Freq	Y	-
Power - Bus Freq	Y	-
Media - Music Play	Y	SSI + WM8524
Media - Video Play	Y	-
Media - Camera	Y	OV5640. Camera cannot co-work with MIPI Display due to the I2C address conflict.
Media - TVIN	N/A	-
Media - Dual Camera	Y	-
Media - Camcorder	N	-
Media - USB Camera	Y	USB camera supports C920, C270, and C525.
Media - USB Mic	Y	-
Media - HDMI audio output	Y	-
Media-HDR10	Y	-
Graphic - HW accelerated UI surface composition	Y	-
Misc - ADB over USB	Y	-
Misc - Fastboot utility	Y	-

Table continues on the next page...

Table 2. Features (continued)

Feature	i.MX 8MQuad EVK	Remarks
Misc - SW update and factory reset	Y	-
Sensor - Magnetometer	N	-
Sensor - Accelerometer	N	-
Sensor - Gyroscope	N	-
Sensor - Light	N	-
Sensor - Pressure	N	-
Sensor - Temperature	N	-
Data Partition Encryption	Y	-
USB Accessory	Y	Google AOA v2.0
Screen Recording	Y	-
Ethernet APK	Y	-
webGL	Y	-
OTA for A/B	Y	-
USB Type-C PD	Y	Supports power role switch with devices that support USB power delivery
DM Verity	Y	-

5 Multimedia Codecs

For multimedia codecs and features, see Section 5 in the Android 8.1 Compatibility Definition Document(CDD).

6 Extended Feature Packages

The release extends the default AOSP Android version with the following features. For more information about the features below, contact "L2manager-android@freescale.com". For detailed extended and additional features, see *i.MX Android™ Extended Codec Release Notes* (IMXACRN).

7 Change Logs

Compared to the O8.0.0_1.3.0_8M-PRC release, this release has the following major changes:

- Upgraded the kernel from v4.9.68 to v4.9.78.
- Upgraded the Android code base from android-8.0.0_r25 to android-8.1.0_r14.
- Upgraded the GPU driver from 6.2.4 to 6.2.4.p1.
- Enabled video playback YUV tile compress DCSS display feature.
- Enabled Dual Display (HDMI + MIPI-to-HDMI) support.
- Enabled MIPI display panel support.
- Supports framebuffer tile output in GPU driver.
- Enabled Dual Camera support.

8 Known Issues and Limitations

The known issues about the hardware and hardware rework instructions are not included in this document. There may be hardware-related reference materials for some reference boards. Make sure to check the link i.MX Application Processors to see if it is applicable.

Table 3. Known issues and limitations

Issue description	Remarks
The 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 with only PTP enabled in the device.
The media audio can only be accessed by the HDMI monitor when a physical HDMI display is used.	On-board headphone jack cannot detect whether the headphone is inserted. The audio jack is treated as a speaker. For media sound, HDMI output has higher priority than speaker, and all media sounds route to HDMI.
Bluetooth is not enabled in the default prebuilt image for i.MX 8MQuad EVK.	To enable Bluetooth, request the wcnss_filter binary from Qualcomm.
Camera cannot work with MIPI display.	ADV7535 HDMI Adapter and Camera cannot work at the same time because they have the same I2C address in the same bus.
Screen cannot wake up from suspend with the MIPI-panel display.	The Suspend/Resume operation cannot work well when the DSI is set up to receive the display input from the DCSS.
There is a video tearing issue on playback of some videos.	It is a DCSS DRM driver issue.
Antutu Benchmark 3D score is sensitive to the CMA memory configuration.	To support 4K HDR video playback, the CMA size is set to 1536 MB by default. Change cma=1280M in bootargs when measuring the benchmark performance.

9 Revision History

Table 4. Revision history

Revision number	Date	Substantive changes
N7.1.2_2.1.0_8MQ-EAR	09/2017	Initial release
O8.0.0_1.3.0_8M-PRC	01/2018	i.MX 8MQuad PRC (Beta) release
O8.1.0_1.3.0_8M	04/2018	i.MX 8MQuad RFP (GA) release

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