

Android™ Release Notes

Contents

1 Release Description

The i.MX Android™ O8.1.0_1.5.1_8MM-beta release is a PRC (Beta) release for the Android 8.1 Oreo (O) platform on the i.MX 8M Mini and i.MX 8M Quad EVK applications processors.

i.MX Android O8.1.0_1.5.1_8MM-beta release includes all necessary code, documents, and tools to assist users in building and running the Android 8.1 platform on the i.MX 8M Mini EVK board and i.MX 8M Quad EVK board from scratch. Pre-built images are also included for a quick trial on the following platform:

- i.MX 8M Mini EVK Board and Platform
- i.MX 8M Quad 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:

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Release Package Contents

- i.MX 8M Mini EVK Board and Platform
- i.MX 8M Quad EVK Board and Platform

3 Release Package Contents

The O8.1.0_1.5.1_8MM-beta release package includes the following software and documents.

Table 1. Release package contents

i.MX Android proprietary source code package	<ul style="list-style-type: none">• imx-o8.1.0_1.5.1_8mm-beta.tar.gz: i.MX Android proprietary source code package to enable the Android platform on i.MX boards.
Documents	<p>The following documents are included in android_o8.1.0_1.5.1_8mm-beta_docs.tar.gz</p> <ul style="list-style-type: none">• <i>Android™ Quick Start Guide (AQSUG)</i>: A document that explains how to run the Android platform on an i.MX board using prebuilt images.• <i>Android™ User's Guide (AUG)</i>: A document describing procedures for configuring and building this release package.• <i>Android™ Release Notes (ARN)</i>: A document that introduces key updates and known issues in this release.• <i>i.MX Android™ Extended Codec Release Notes (IMXACRN)</i>: A document that provides the extended codec information.• <i>Android™ Frequently Asked Questions (AFAQ)</i>: A document that contains the answers to the Frequently Asked Questions (FAQs).• <i>i.MX Graphics User's Guide (IMXGRAPHICUG)</i>: A document that describes GPU 2D API, Tools, Memory, and Application programming guidelines.
Tools	<p>Tools in android_o8.1.0_1.5.1_8mm-beta_tools.tar.gz</p> <ul style="list-style-type: none">• 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>i.MX Graphics User's Guide (IMXGRAPHICUG)</i>.• fsl-sdcard-partition.sh: tool to make partition and flash Android images.• mfgtools.zip: Manufacture tools for i.MX 8M Quad EVK Board and Platform.
Prebuilt images	<p>You can test the Android platform with a prebuilt image on i.MX reference board before building any code:</p> <ul style="list-style-type: none">• android_o8.1.0_1.5.1_8mm-beta_image_8mmevk.tar.gz: Prebuilt images with NXP extended features for the i.MX 8M Mini EVK board. The extended features include additional multimedia format support.• android_o8.1.0_1.5.1_8mm-beta_image_8mqevk.tar.gz: Prebuilt images with NXP extended features for the i.MX 8M Quad EVK board. The extended features include more multimedia format support. <p>All prebuilt images are in a separate package. See the <i>Android™ Quick Start Guide (AQSUG)</i> and <i>Android™ User's Guide (AUG)</i> to choose the appropriate image.</p>

4 Features

This section contains features in this package.

Table 2. Features

Feature	i.MX 8M Mini EVK	i.MX 8M Quad EVK	Remarks
Linux 4.9.123 kernel (merged with the AOSP kernel)	Y	Y	Based on Linux® OS BSP L4.9.123_2.3.0_8mm-ga release.
Google Oreo 8.1 release	Y	Y	Based on android-8.1.0_r41.
U-Boot	Y	Y	v2017.03.
Graphic-HW	Y	Y	VeriSilicon GC7000NanoUltr GPU for i.MX 8M Mini, VeriSilicon GC7000L GPU for i.MX 8M Quad with 6.2.4.p1 driver.
Graphic-HW 3D acceleration	Y	Y	OpenGL ES1.1/2.0 through GC7000NanoUltr for i.MX 8M Mini, OpenGL ES1.1/2.0/3.1 through GC7000L for i.MX 8M Quad.
Graphic-HW accelerated UI surface composition	Y	Y	OpenGL ES2.0 through GC7000NanoUltr for i.MX 8M Mini, OpenGL ES3.1 through GC7000L for i.MX 8M Quad.
Boot source	SD/eMMC	SD/eMMC	-
Splash Screen for LVDS	Y	Y	-
UI (input)	N	N	-
UI (display)	MIPI-DSI to HDMI Display	HDMI/MIPI-DSI to HDMI/MIPI Panel	i.MX 8M Mini supports MIPI-DSI to HDMI display and MIPI Panel display. i.MX 8M Quad supports physical HDMI display, MIPI-DSI to HDMI display, and MIPI panel Display.
UI (dual display)	N	Y	-
UI (brightness control)	N	N	-
Storage - External Media	Y	Y	Supports the udisk on the USB host port.
Connectivity - Ethernet	Y	Y	-
Connectivity - Bluetooth® wireless technology	Y	Y	Hardware: <ul style="list-style-type: none"> Qualcomm 1PJ QCA9377 for i.MX 8M Mini Qualcomm 1CQ QCA6174A for i.MX 8M Quad Profiles: <ul style="list-style-type: none"> A2DP Source AVRCP BLE Central
Connectivity - Wi-Fi	Y	Y	Hardware: <ul style="list-style-type: none"> Qualcomm 1PJ QCA9377 for i.MX 8M Mini Qualcomm 1CQ QCA6174A for i.MX 8M Quad Features: <ul style="list-style-type: none"> AP mode
Connectivity - USB Tethering	Y	Y	-

Table continues on the next page...

Table 2. Features (continued)

Feature	i.MX 8M Mini EVK	i.MX 8M Quad EVK	Remarks
Power - CPU Freq	Y	Y	-
Power - Bus Freq	Y	Y	-
Media - Music Play	Y	Y	SSI + WM8524
Media - Video Play	Y	Y	-
Media - Camera	Y	Y	OV5640csi For i.MX 8M Quad, the camera cannot co-work with MIPI Display due to the I2C address conflict.
Media - TVIN	N/A	N	-
Media - Dual Camera	Y	Y	-
Media - Camcorder	N	N	-
Media - USB Camera	Y	Y	USB camera supports C920, C270, and C525.
Media - USB Mic	Y	Y	-
Media - HDMI audio output	N	Y	-
Media-DSD Playback	Y	Y	DSD stream output from Audio Expansion Board.
Media-M4 Playback	Y	N	Audio playback based on FreeRTOS on the Cortex-M4 core for i.MX 8M Mini.
Media-Hi-Res audio output	Y	N	High resolution audio output from Audio Expansion Board for i.MX 8M Mini. <ul style="list-style-type: none"> • 2 channel: 384000, 768000 sampling rate • 4 channel: 48000, 96000, 192000, 384000, 768000 sampling rate • 6 channel: 48000, 96000, 192000, 384000 sampling rate • 8 channel: 48000, 96000, 192000, 384000 sampling rate
Misc - ADB over USB	Y	Y	-
Misc - Fastboot utility	Y	Y	-
Misc - SW update and factory reset	Y	Y	-
Sensor - Magnetometer	N	N	-
Sensor - Accelerometer	N	N	-
Sensor - Gyroscope	N	N	-
Sensor - Light	N	N	-
Sensor - Pressure	N	N	-
Sensor - Temperature	N	N	-
Data Partition Encryption	Y	Y	-
USB Accessory	Y	Y	Google AOA v2.0
Screen Recording	Y	Y	-
Ethernet APK	Y	Y	-
webGL	Y	Y	-
OTA for A/B	Y	Y	-

Table continues on the next page...

Table 2. Features (continued)

Feature	i.MX 8M Mini EVK	i.MX 8M Quad EVK	Remarks
USB Type-C PD	Y	Y	Supports power role switch with devices that support USB power delivery
DM Verity	Y	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@nxp.com". For detailed extended and additional features, see *i.MX Android™ Extended Codec Release Notes* (IMXACRN).

7 Change Logs

Compared to the O8.1.0_1.5.0_8MM-alpha release, this release has the following major changes:

- Upgraded the kernel from v4.9.105 to v4.9.123.
- Upgraded the Android code base from android-8.1.0_r23 to android-8.1.0_r41.
- Enabled MIPI panel display support.
- Added i.MX 8M EVK board support as an Engineering (ER) release.

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.
U-Boot will hang when erasing Kingston SD card.	U-Boot will hang when sending the erase command on some Kingston SD cards.
The board reboots automatically after deep sleeping for about 5-10 minutes.	After deep sleeping or suspending for about 5-10 minutes or more, the board reboots automatically.

9 Revision History

Table 4. Revision history

Revision number	Date	Substantive changes
O8.1.0_1.5.0_8MM-alpha	07/2018	Initial release
O8.1.0_1.5.1_8MM_beta	09/2018	i.MX 8M Mini Beta release

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