

Android™ Release Notes

Contents

1 Release Description

The i.MX Android™ O8.1.0_2.0.0-ga release is a GA (RFP) release for the Android 8.1 Oreo (O) platform on the i.MX 8QuadMax and i.MX 8QuadXPlus MEK board applications processors.

i.MX Android O8.1.0_2.0.0-ga release includes all necessary code, documents, and tools to assist users in building and running the Android 8.1 platform on the i.MX 8QuadMax and i.MX 8QuadXPlus MEK boards from scratch. Pre-built images are also included for a quick trial on the following platforms:

- i.MX 8QuadXPlus MEK B0 Board and Platform
- i.MX 8QuadMax MEK B0 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 8QuadXPlus MEK B0 Board and Platform
- i.MX 8QuadMax MEK B0 Board and Platform

3 Release Package Contents

The O8.1.0_2.0.0-ga 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_2.0.0-ga.zip: 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_2.0.0-ga_docs.zip:</p> <ul style="list-style-type: none">• <i>Android™ Quick Start Guide</i> (AQSUG): A document that explains how to run the Android platform on an i.MX board using prebuilt images.• <i>Android™ User's Guide</i> (AUG): A document describing procedures for configuring and building this release package.• <i>Android™ Release Notes</i> (ARN): A document that introduces key updates and known issues in this release.• <i>i.MX Android™ Extended Codec Release Notes</i> (IMXACRN): A document that provides the extended codec information.• <i>i.MX Graphics User's Guide</i> (IMXGRAPHICUG): A document that describes GPU 2D API, Tools, Memory, and Application programming guidelines.
Prebuilt images	<p>You can test the Android platform with a prebuilt image on an i.MX reference board before building any code:</p> <ul style="list-style-type: none">• android_o8.1.0_2.0.0-ga_image_8qmek.tar.gz: Prebuilt images with NXP extended features for the i.MX 8QuadMax/8QuadXPlus MEK board. The extended features include additional multimedia format support. <p>All prebuilt images are in a separate package. See the <i>Android™ Quick Start Guide</i> (AQSUG) and <i>Android™ User's Guide</i> (AUG) to choose the appropriate image.</p>

NOTE

VivanteVTK tool is no longer provided in the Android release package. It is available on <https://www.nxp.com/imx6tools> (for example: Tools -> Vivante VTK -> VivanteVTK-v6.2.4.p4.1.7.8).

4 Features

This section contains features in this package.

Table 2. Features

Feature	i.MX 8QuadMax/ 8QuadXPlus MEK	Remarks
Google Oreo 8.1 release	Y	Based on android-8.1.0_r60 release.
Linux 4.14.98 kernel (merged with AOSP kernel)	Y	Based on Linux® OS BSP L4.14.98-2.0.0_ga release.
U-Boot	Y	v2018.03.

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Table 2. Features (continued)

Feature	i.MX 8QuadMax/ 8QuadXPlus MEK	Remarks
Graphic-HW	Y	For i.MX 8QuadMax, VeriSilicon GC7000XSVX GPU with 6.2.4.p4 driver. For i.MX 8QuadXPlus, VeriSilicon GC7000L GPU with 6.2.4.p2 driver.
Graphic-HW 3D acceleration	Y	For i.MX 8QuadMax, OpenGL ES 1.1/2.0/3.1/3.2 through GC7000XSVX. For i.MX 8QuadXPlus, OpenGL ES 1.1/2.0/3.1 through GC7000L.
Graphic-HW accelerated UI surface composition	Y	For i.MX 8QuadMax, OpenGL ES 3.2 through GC7000XSVX. For i.MX 8QuadXPlus, OpenGL ES 3.1 through GC7000L.
Boot source	SD/eMMC	-
Splash Screen for LVDS	Y	-
UI (input)	Y	-
UI (display)	HDMI/MIPI panel display	i.MX 8QuadMax supports the LVDS-to-HDMI/MIPI-to-HDMI/MIPI panel display and physical HDMI display. i.MX 8QuadXPlus supports the LVDS-to-HDMI/MIPI-to-HDMI display.
UI (dual display, HDMI+HDMI, UI mirror displayed on second device)	Y	Supports dual LVDS-to-HDMI display.
UI (brightness control)	N	-
Storage - External Media	Y	The USB 2.0 port supports udisk, but the USB 3.0 port does not support udisk.
Connectivity - Ethernet	Y	-
Connectivity - Bluetooth® wireless technology	Y	Qualcomm QCA6174A. Profiles: A2DP Source, AVRCP, BLE Host, HSP, HID Host, HID Device, PAN, and OPP.
Connectivity - Wi-Fi	Y	Qualcomm QCA6174A. Features: AP mode, STA mode, and Wi-Fi Direct.
Connectivity - USB Tethering	Y	Supports Wi-Fi and Ethernet as upstream
Power - CPU Freq	Y	-
Power - Bus Freq	Y	-
Media - Music Play	Y	WM8960+CS42888+HDMI
Media - Sound Record	Y	ESAI+CS42888
Media - Video Play	Y	-
Media - Camera	Y	OV5640MIPI
Media - TVIN	N/A	PAL/NTSC
Media - Dual Camera	Y	i.MX 8QuadMax supports dual OV5640MIPI. i.MX 8QuadXPlus supports OV5640MIPI&OV5640CSI.
Media - Camcorder	Y	-
Media - USB Camera	N	-
Media - USB Mic	Y	-

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Table 2. Features (continued)

Feature	i.MX 8QuadMax/ 8QuadXPlus MEK	Remarks
Media - HDMI audio output	Y	Only i.MX 8QuadMax supports HDMI audio output.
Misc - ADB over USB	Y	-
Misc - Fastboot utility	Y	-
Misc - SW update and factory reset	Y	-
Sensor - Magnetometer	Y	FXOS8700
Sensor - Accelerometer	Y	FXOS8700
Sensor - Gyroscope	Y	FXAS2100
Sensor - Light	Y	ISL29023
Sensor - Pressure	Y	MPL3115
Sensor - Temperature	Y	MPL3115
File Based Encryption	Y	-
USB Accessory	Y	Google AOA v2.0
Ethernet APK	Y	-
webGL	Y	-
OTA for A/B	Y	-
Vulkan	Y	-
USB TYPEC PD	Y	-
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@nxp.com". For detailed extended and additional features, see *i.MX Android™ Extended Codec Release Notes* (IMXACRN).

7 Change Log

Compared to the O8.1.0_2.0.0-beta release, this release has the following major changes:

- Upgraded the Android code base from android-8.1.0_r51 to android-8.1.0_r60.
- Upgraded the kernel from v4.9.78 to v4.14.98.

8 Known Issues and Limitations

The known issues about the hardware and hardware rework instructions are not included in this document. Read all hardware-related reference material and ensure the necessary hardware modifications have been made before using the software.

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's SD card.	U-Boot will hang when sending the erasing command on some Kingston SD cards.
The display is sometimes black on both i.MX 8QuadMax MEK and i.MX 8QuadXPlus MEK boards.	<p>The display is sometime black with the following log on both the i.MX 8QuadMax and i.MX 8QuadXPlus MEK board.</p> <pre>imx-dpu-crtc imx-dpu-crtc.4: flush - wait for content shld done timeout.</pre> <p>It will be fixed in next release.</p>
For i.MX 8QuadXPlus, it fails to boot from some types of eMMC.	<p>In the default settings, the UUU script burns the boot image into eMMC Boot Partition with 32KB offset. Although it works properly on the MEK board, it fails to read the boot image on some types of eMMC.</p> <p>There are two possible solutions:</p> <ul style="list-style-type: none"> • Download flash.bin in the eMMC Boot Partition + 0KB offset + eMMC fastboot enabled in fuse. • Download flash.bin in the eMMC User Partition + 32KB offset (eMMC fastboot can be either enabled or disabled in fuse). <p>For more information, see https://community.nxp.com/docs/DOC-342285.</p>
Video cannot be played any more after certain HTML5 H.264 or VP8 video playback on i.MX 8QuadMax MEK and i.MX 8QuadXPlus MEK boards.	It will be fixed in next release.

9 Revision History

Table 4. Revision history

Revision number	Date	Substantive changes
O8.0.0_1.2.0_8QXP-EAR	12/2017	Initial release
O8.1.0_1.2.0_8QXP-PRC	03/2018	i.MX 8QuadXPlus PRC/Beta release
O8.1.0_1.2.0_8QXP-beta2	08/2018	i.MX 8QuadXPlus Beta2 release
O8.1.0_2.0.0-beta	01/2019	i.MX 8QuadXPlus/8QuadMax Beta release
O8.1.0_2.0.0-ga	04/2019	i.MX 8QuadXPlus/8QuadMax GA release

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