

Android™ Release Notes

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1 Release Description

The i.MX Android™ P9.0.0_2.0.1-ga release is an RFP (GA) release for the Android Pie 9.0 (P) on NXP's i.MX 8QuadMax applications processors.

i.MX Android P9.0.0_2.0.1-ga release includes all necessary code, documents, and tools to assist users in building and running the Android Pie 9.0 on the i.MX 8QuadMax Board.

The prebuilt images are also included for a quick trial on NXP i.MX 8QuadMax 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.

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2 Supported Hardware SoC/Boards

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

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



3 Release Package Contents

The P9.0.0_2.0.1-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-p9.0.0_2.0.1-ga.zip: i.MX Android proprietary source code package to enable Android on i.MX boards. For example, Hardware Abstraction Layer implementation, hardware codec acceleration, etc.
Documents	<p>The following documents are included in android_p9.0.0_2.0.1-ga_docs.zip:</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>i.MX Graphics User's Guide (IMXGRAPHICUG)</i>: 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 i.MX reference board before building any code:</p> <ul style="list-style-type: none"> android_p9.0.0_2.0.1-ga_image_8qmek.tar.gz: Prebuilt images with NXP extended features for the i.MX 8QuadMax MEK 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>

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 MEK	Remarks
Google Pie 9.0 release	Y	Based on android-9.0.0_r30 release
Linux 4.14.98 kernel (merged with the AOSP kernel)	Y	Based on Linux® OS BSP L4.14.98-2.0.0_ga release.
U-Boot	Y	v2018.03.
Graphic-HW	Y	VeriSilicon GC7000XSVX GPU with 6.2.4.p4 driver.
Graphic-HW 3D acceleration	Y	OpenGL ES 1.1/2.0/3.1/3.2 through GC7000XSVX.

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Table 2. Features (continued)

Feature	i.MX 8QuadMax MEK	Remarks
Graphic-HW accelerated UI surface composition	Y	OpenGL ES 3.2 through GC7000XSVX.
Boot source	SD/eMMC	-
Splash Screen	Y	-
UI (input)	Y	-
UI (display)	HDMI display	Supports LVDS-to-HDMI/MIPI-to-HDMI and physical 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	USB 2.0 port supports udisk, but USB 3.0 port does not support udisk.
Connectivity - Ethernet	Y	-
Connectivity - Bluetooth® wireless technology	Y	Hardware: <ul style="list-style-type: none"> • Qualcomm 1CQ QCA6174A Profiles: <ul style="list-style-type: none"> • A2DP Source • AVRCP • BLE Host • HSP • HID Host • HID Device • PAN • OPP
Connectivity - Wi-Fi	Y	Hardware: <ul style="list-style-type: none"> • Qualcomm 1CQ QCA6174A Features: <ul style="list-style-type: none"> • STA mode • AP mode • Wi-Fi Direct • AP/STA Concurrency
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	For i.MX 8M Quad, the camera cannot co-work with MIPI Display due to the I2C address conflict.
Media - TVIN	N	-
Media - Dual Camera	Y	Dual OV5640MIPI
Media - Camcorder	Y	-
Media - USB Camera	N	USB camera supports C920, C270, and C525.

Table continues on the next page...

Table 2. Features (continued)

Feature	i.MX 8QuadMax MEK	Remarks
Media - USB Mic	Y	-
Media - HDMI audio output	Y	-
Media-DSD Playback	N	-
Media-PlayReady DRM	N	-
Media-WideVine DRM	N	-
Media-M4 Playback	N	-
Media-Hi-Res audio output	N	-
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	-
Vulkan	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 [Google Pie 9.0 Compatibility Definition Document \(CDD\)](#).

6 Extended Feature Packages

An enhanced multimedia experience is available for the Android platform. This release delivers an error-resilient, feature-rich multimedia solution by extending the existing multimedia features of the Android platform and introduces additional 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 P9.0.0_2.0.0-ga release, this release has the following major changes:

- Updated the SCFW version to support 1.7v PMIC for new i.MX 8QuadMax chips.

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 display is sometimes black on the i.MX 8QuadMax MEK boards.	<p>The display is sometime black with the following log on the i.MX 8QuadMax MEK board.</p> <pre>imx-dpu-crtc imx-dpu-crtc.4: flush - wait for content shldd done timeout.</pre> <p>It will be fixed in the next release.</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 the next release.

9 Revision History

Table 4. Revision history

Revision number	Date	Substantive changes
P9.0.0_1.0.0-beta	11/2018	Initial release
P9.0.0_1.0.0-ga	01/2019	i.MX 8M, i.MX 8QuadMax, i.MX 8QuadXPlus GA release.
P9.0.0_2.0.0-ga	04/2019	i.MX 8M, i.MX 8QuadMax, i.MX 8QuadXPlus GA release.
P9.0.0_2.0.1-ga	06/2019	i.MX 8QuadMax GA release.

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