Android™ Release Notes

1   Release Description

The i.MX Android™ O8.1.0_1.2.0_8QXP-PRC release is a PRC/Beta release for the Android 8.1 Oreo (O) platform on the i.MX 8QuadXPlus MEK board applications processors.

i.MX Android O8.1.0_1.2.0_8QXP-PRC release includes all necessary code, documents, and tools to assist users in building and running the Android 8.1 platform on the i.MX 8QuadXPlus MEK board from the scratch. Pre-built images are also included for a quick trial on the following platforms:
   • i.MX 8QuadXPlus MEK 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.

Contents

2   Supported Hardware SoC/Boards

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

   • i.MX 8QuadXPlus MEK Board and Platform

3 Release Package Contents

The O8.1.0_1.2.0_8QXP-PRC release package includes the following software and documents.

Table 1. Release package contents

i.MX Android proprietary source code package	• imx-o8.1.0_1.2.0_8qxp-prc.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_1.2.0_8QXP-PRC_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_1.2.0_8QXP-PRC_tools.tar.gz • VivanteVTK-v6.2.4.1.7.4.tgz: GPU tools for VeriSilicon GPU 6.2.4 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.
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_1.2.0_8QXP-PRC_image_8qxpmek.tar.gz: Prebuilt images with NXP extended features for the i.MX 8QuadXPlus MEK board. The extended features include more 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 8QuadXPlus MEK	Remarks
Google Oreo 8.1 release	Y	Based on android-8.1.0_r1 release.
Linux 4.9.69 kernel	Y	Based on Linux® OS BSP L4.9.51_imx8qxp-beta release.
U-Boot	Y	v2017.03
Graphic-HW 3D acceleration	Y	OpenGL ES 3.1 through GC7000L
Boot source	SD/eMMC	-

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NXP Semiconductors

Table 2. Features (continued)

Feature	i.MX 8QuadXPlus MEK	Remarks
Splash Screen for LVDS	N	-
UI (input)	Y	-
UI (display)	HDMI display	Supports LVDS/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
Connectivity - Wi-Fi	Y	Qualcomm QCA6174A. Features: AP mode.
Connectivity - USB Tethering	Y	Supports Wi-Fi and Ethernet as upstream
Power - CPU Freq	Y	-
Power - Bus Freq	Y	-
Media - Music Play	Y	ESAI+CS42888 (not support multichannel)
Media - Sound Record	Y	ESAI+CS42888
Media - Video Play	Y	-
Media - Camera	Y	MAX9286
Media - TVIN	N/A	PAL/NTSC
Media - Dual Camera	N	-
Media - Camcorder	N	-
Media - USB Camera	N	-
Media - USB Mic	Y	-
Media - HDMI audio output	N	-
Graphic - HW accelerated UI surface composition	Y	-
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

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Table 2. Features (continued)

Feature	i.MX 8QuadXPlus MEK	Remarks
Screen Recording	Y	-
Ethernet APK	Y	-
webGL	Y	-
OTA for A/B	Y	-

5 Multimedia Codecs

For multimedia codecs and features, see Section 5 in the Android 8.0 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 O8.0.0_1.2.0_8QXP-EAR release, this release has the following major changes:

- Upgraded the Android code base from android-8.0.0_r25 to 8.1.0_r1.
- Upgraded the kernel from v4.9.56 to v4.9.69.
- Supports MIPI to HDMI display.

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 environment may display MTP and PTP windows even with only PTP enabled in the device.
There is silence in the first few seconds for HDMI output when connecting the board to some kinds of TV-sets.	This issue is related with TV-sets. Some TV-sets have no issue. Some TV-sets have issue.

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Table 3. Known issues and limitations (continued)

Issue description	Remarks
Bluetooth is not enabled in the default prebuilt image for i.MX 8QuadXPlus MEK.	To enable Bluetooth, request wcnss_filter binary from Qualcomm.
MIPI DSI to HDMI output flickers seriously or even no output with some HDMI monitors on i.MX 8QuadXPlus MEK.	It is a hardware known issue due to DPLL jitter on the current A0 chip. Later B0 chip will fix the issue.
The screen trembles severely during UI operation or video playback at the primary display when booting up with dual displays.	It is a DRM display driver issue.
Multiple sensors may randomly not work after rebooting the device.	This issue is related with "can't detect FSL_SENSOR_HUB as an input device with several reboots", and thus the framework cannot get the sensor data.

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

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