Android™ Quick Start Guide

Contents

1 Overview

This document guides you through the processes of downloading and running this release package. It only explains how to download and run the default release image with default configuration. For details on using the release package, see the *Android™ User's Guide* (AUG) included in this release package.

2 Hardware Requirements

The hardware requirements for using this release package are as follows:

Supported system-on-chips (SoCs):

- i.MX 8QuadMax

Supported boards:

- i.MX 8QuadMax MEK Board and Platform

3 Working with the i.MX 8QuadMax MEK Board

3.1 Board hardware

The figure below shows the different components of the i.MX 8QuadMax MEK board.

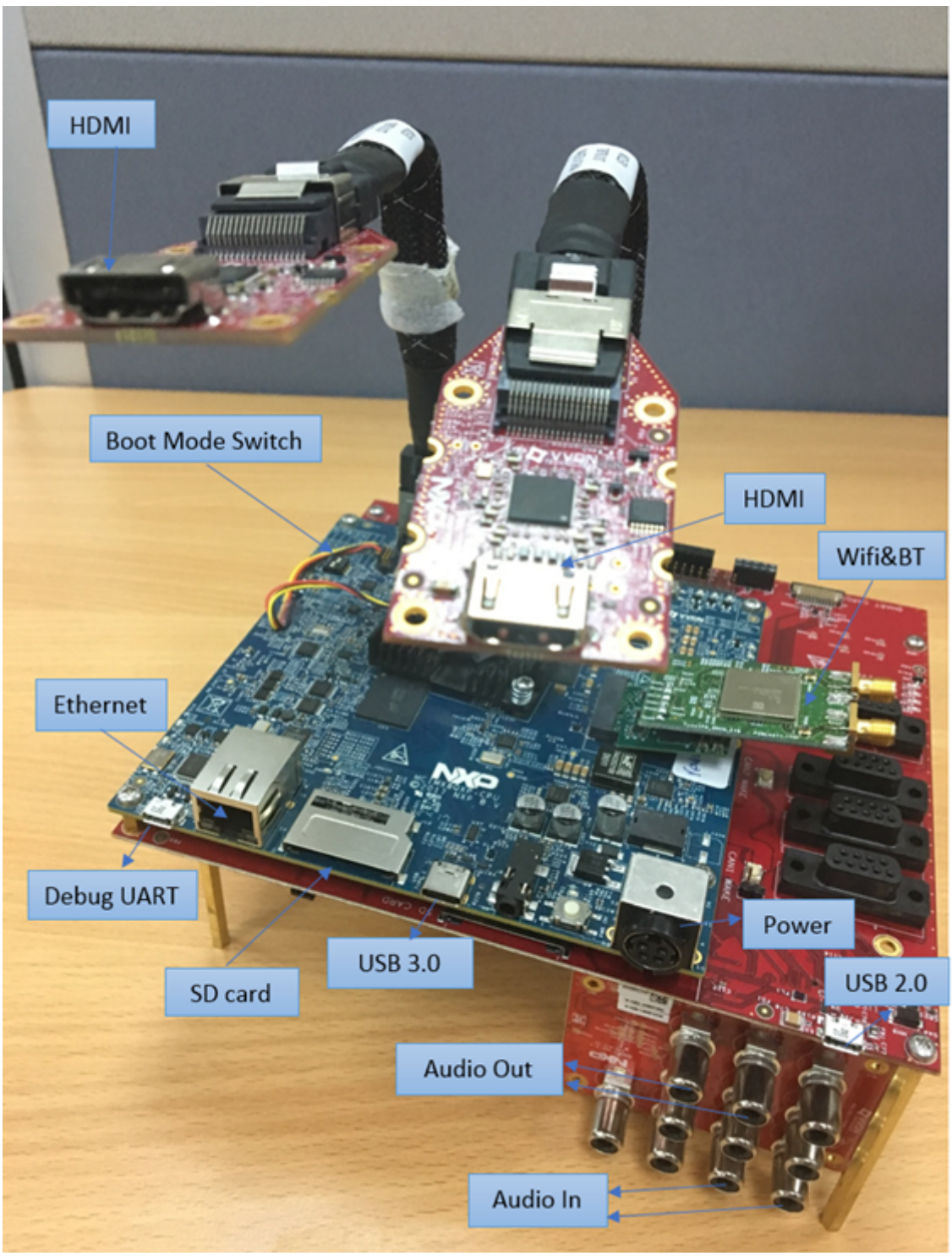

Figure 1. i.MX 8QuadMax MEK board

3.2 Board images

The table below describes the location in the board partitions of the software images in android_O8.1.0_1.1.0_8QM-PRC2_image_8qmmek.tar.gz.

Table 1. Board images

Image name	Download target
u-boot-imx8qm.imx	33 KB offset of MMC.
partition-table.img	Program to the first 17 KB, and then back up to last LBA. GPT table image for 16 GB SD card.
partition-table-7GB.img	Program to the first 17 KB, and then back up to last LBA. GPT table image for 8 GB SD card.
partition-table-28GB.img	Program to the first 17 KB, and then back up to last LBA. GPT table image for 32 GB SD card.
/boot-imx8qm.img	Boot image for i.MX 8QuadMax MEK board to support LVDS to HDMI display with LVDS0 connected.
/boot-imx8qm-dual.img	Boot Image for i.MX 8QuadMax MEK board to support LVDS to HDMI display with LVDS0 and LVDS1 connected.
/boot-imx8qm-hdmi.img	Boot Image for i.MX 8QuadMax MEK board to support physical HDMI display.
/boot-imx8qm-mipi.img	Boot Image for i.MX 8QuadMax MEK board to support MIPI to HDMI display.
/vbmeta-imx8qm.img	Android Verify Boot metadata image for i.MX 8QuadMax MEK board to support LVDS to HDMI display with lvds0 connected.
/vbmeta-imx8qm-dual.img	Android Verify Boot metadata image for i.MX 8QuadMax MEK board to support LVDS to HDMI display with LVDS0 and LVDS1 connected.
/vbmeta-imx8qm-hdmi.img	Android Verify Boot metadata image for i.MX 8QuadMax MEK board to support physical HDMI display.
/vbmeta-imx8qm-mipi.img	Android Verify Boot metadata image for i.MX 8QuadMax MEK board to support MIPI to HDMI display.
system.img	System Boot image.
vendor.img	Vendor image for i.MX 8QuadMax MEK board.

3.3 Flashing board images

The board images can be flashed to the target board by using the MFGTool. The release package includes MFGTool for i.MX 8QuadMax in android_O8.1.0_1.1.0_8QM-PRC2_tools.tar.gz. The MFGTool is mfgtools.zip.

NOTE

The MFGTool only works in the Windows OS environment.

Perform the following steps to download the board images:

1. Unzip the mfgtools.zip file to a selected location. The directory is named `MFGTool-Dir` in this example.

2. Copy the following files from `release_package/android_O8.1.0_1.1.0_8QM-PRC2_image_8qmmek.tar.gz` to your `MFGTool-Dir/Profiles/Linux/OS Firmware/files/android/mek` directory.
   - /u-boot-imx8qm.imx
   - /partition-table.img
   - /boot-imx8qm.img
   - /vbmeta-imx8qm.img
   - /system.img
   - /vendor.img

NOTE

- Do not replace other files in the file directory and OS Firmware directory.
- If the SD card is 32 GB, copy partition-table-28GB.img and rename it to partition-table.img.
- If the SD card is 16 GB, use the default partition-table.img.
- If the SD card is 8 GB, copy partition-table-7GB.img and rename it to partition-table.img.
- To test LVDS to HDMI display with LVDS0 connected, copy the default boot-imx8qm.img and vbmeta-imx8qm.img.
- To test LVDS to HDMI display with LVDS0 and LVDS1 connected, copy boot-imx8qm-dual.img and vbmeta-imx8qm-dual.img,and then rename them to boot-imx8qm.img and vbmeta-imx8qm.img.
- To test physical HDMI display, copy boot-imx8qm-hdmi.img and vbmeta-imx8qm-hdmi.img, and then rename them to boot-imx8qm.img and vbmeta-imx8qm.img.
- To test MIPI to HDMI display, copy boot-imx8qm-mipi.img and vbmeta-imx8qm-mipi.img, and then rename them to boot-imx8qm.img and vbmeta-imx8qm.img.

3. Change the board's SW2 (boot mode) to 001000 (from 1 bit to 6 bit) to enter serial download mode.
4. To flash an image to SD card, plug in the SD card. To flash an image to eMMC, remove the SD card.
5. Power on the board. Use the USB cable on the board USB 2.0 port, and connect a computer running Windows OS with the board.

NOTE

- There are three USB ports in the i.MX 8QuadMax MEK board: USB to UART, USB 2.0, and USB 3.0.
- The USB to UART can be referenced as debug UART, and can be used to watch the log of hardware boot processing.
- USB 2.0 is USB OTG and USB 3.0 is USB Host.

6. Double-click the *.vbs file according to the target device as shown in the following table.

Table 2. MFGTool VBS file

Target device and boot storage	VBS file
i.MX 8QuadMax MEK eMMC	mfgtool2-android-mx8qm-mek-emmc.vbs
i.MX 8QuadMax MEK SD	mfgtool2-android-mx8qm-mek-sd.vbs

7. Click Start to start flashing images.

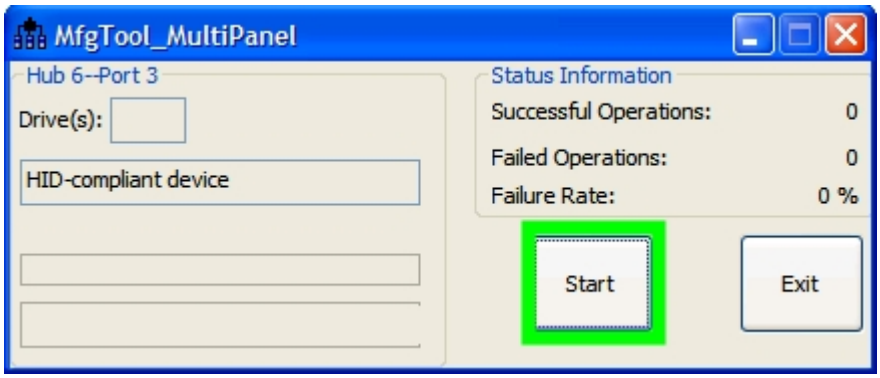

Figure 2. Starting flash

The figure below shows flashing in progress, and the status bar shows the flash status. The flash may take one to two minutes depending on the host machine.

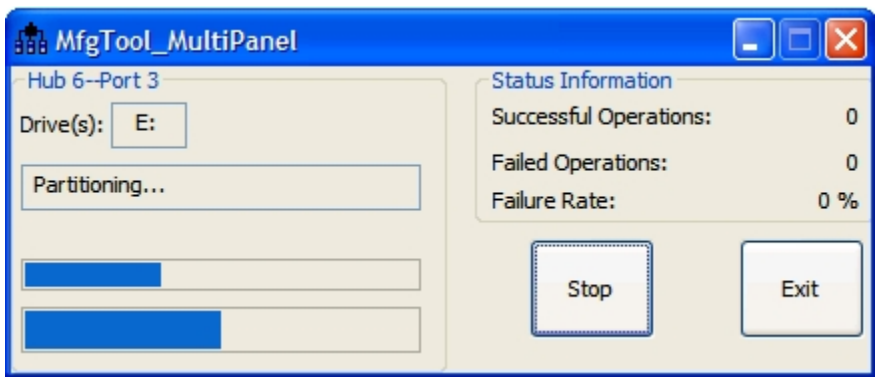

Figure 3. Download status

The figure below shows the tool when the flash is complete.

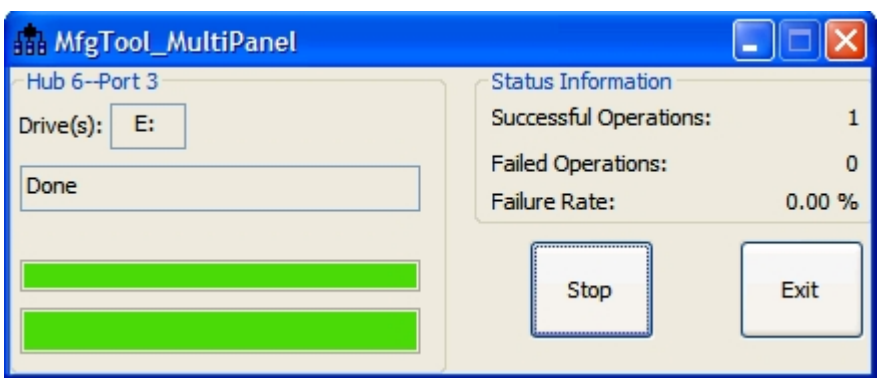

Figure 4. Download complete

8. Click Stop and disconnect the USB cable.
9. Change SW2 to switch the board back to 000100 (from 1 bit to 6 bit) to enter eMMC boot mode, or 001100 (from 1 bit to 6 bit) to enter SD boot mode.

3.4 Booting with HDMI display

After downloading the images, you can plug the SD card into the SD slot on board and power on to boot the board.

In the U-Boot prompt, set the U-Boot environment variables as shown below:

```
U-Boot > setenv bootcmd boota mmc1
U-Boot > setenv bootargs console=ttyLP0,115200 earlycon=lpuart32,0x5a060000,115200,115200
init=/init androidboot.console=ttyLP0 consoleblank=0 androidboot.hardware=freescale cma=800M
U-Boot > saveenv
```

With the settings above, the Android platform does not start the shell console. To disable selinux, append "androidboot.selinux=permissive" to the U-Boot's bootargs. Boot environment variables are as follows:

```
U-Boot > setenv bootcmd boota mmc1
U-Boot > setenv bootargs console=ttyLP0,115200 earlycon=lpuart32,0x5a060000,115200,115200
init=/init androidboot.console=ttyLP0 consoleblank=0 androidboot.hardware=freescale cma=800M
androidboot.selinux=permissive
U-Boot > saveenv
```

LVDS to HDMI display, MIPI to HDMI display, and physical HDMI display are supported. They share the same bootargs.

3.5 Board reboot

After you have completed download and setup, reboot the board and wait for the Android platform to boot up.

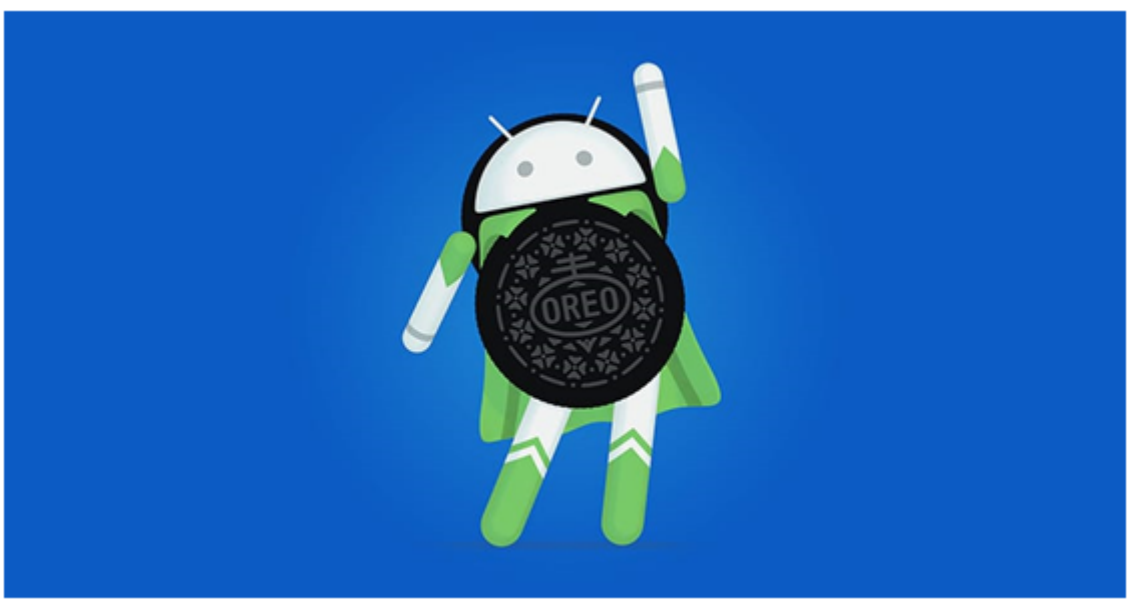

Figure 5. Android Oreo image

4 Revision History

Table 3. Revision history

Revision number	Date	Substantive changes
O8.0.0_1.1.0_8QM-PRC1	12/2017	Initial release
O8.1.0_1.1.0_8QM-PRC2	03/2018	i.MX 8QuadMax Beta2 release

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