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i.MX RT1020 Flashloader v2.7.0 Release Notes

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1 Overview

These are the release notes for the i.MX RT1020 Flashloader v2.7.0. For additional information and getting started instructions, check Getting Started section of this document.

The device Flashloader is an application that is loaded into the internal RAM of the device. The Flashloader is designed to work as a second stage bootloader for this device. It detects communication on one of the supported peripherals (USB-HID or UART), downloads a user application, and writes the application to external serial NOR or serial NAND flash device. The Flashloader is initially loaded by MfgTool which then helps in programming the flash. Alternately, flashloader can also be loaded using sdphost command line application and blhost application can be used for flash programming.

This release includes the PC-hosted MfgTool application. This application is used for downloading user-application to flash device in both development and production phases. This release also includes the elftosb command-line application. It is used to generate a bootable image for the device ROM and generate a programmable image supported by Flashloader.

2 Development tools

The device Flashloader was compiled and tested with following development tools.

Firmware projects:

- IAR Embedded Workbench for ARM® v8.30.1
- KEIL MDK5.26 with corresponding device pack
- MCUXpresso IDE v10.3

Host projects:

- Microsoft Visual Studio® Professional 2015 for Windows® OS Desktop
- Microsoft Visual Studio C++ Redistributable for Visual Studio 2015 (vcredist_x86.exe)
- Apple Xcode® v9.2 (for tools).
- Linux® OS GNU Compiler (GCC) v5.4.0, libstdc++6, libudev-dev, libc6, and libgcc1 for the Linux build.
- Linux OS tools have been tested on Ubuntu 16.04 LTS (GLIBC v2.23).

- Apple Mac® OS host tools have been tested on MacOS High Sierra v10.13.3.

3 System requirements

System requirements are based on the requirements for the development tools and the MfgTool application. The recommended PC configuration is 2 GHz processor, 2 GB RAM, and 2 GB free disk space.

Windows OS applications like MfgTool require installation of Visual C++ redistributable 2013 or greater.

To make the MfgTool work, the device needs to be connected to a PC via a USB hub. Sometimes, an extra USB hub is required if all the USB ports on the PC are USB root hub ports.

4 Target requirements

This release of the Flashloader supports the following platforms:

- MIMXRT1020-EVK

There are no specific requirements for the hardware other than what the board requires to operate.

5 Release contents

Table 1 describes the release contents

Table 1. Release contents

Deliverable	Location
Host binaries and utilities	<sdk_package>/middleware/mcu-boot/bin/Tools example BD files are under <sdk_package>/middleware/mcu-boot/bin/Tools/bd_file folder blhost application is under <sdk_package>/middleware/mcu-boot/bin/Tools/blhost folder elftosb application is under <sdk_package>/middleware/mcu-boot/bin/Tools/elftosb folder MfgTool application is under <sdk_package>/middleware/mcu-boot/bin/Tools/mfgtools-rel folder
Documentation	<sdk_package>/middleware/mcu-boot/doc
Flashloader release	<sdk_package>/boards/<board>/bootloader_examples/flashloader

6 Getting started

To understand the steps required to use the Flashloader and corresponding host tools to generate a user application boot image and load it to an external flash device, see the *i.MX RT1020 Manufacturing User's Guide* (document) under <sdk_package>/middleware/mcu-boot/doc directory.

7 Features

For downloading an application, the Flashloader supports the following communication interfaces:

- USB-HID

- LPUART1

It also supports configuring and programming the external flash device in a user-friendly manner. For further details, refer to *MCU Flashloader Reference Manual* under <sdk_package>/middleware/mcu-boot/doc folder.

8 Host tools

The bootloader release contains the binaries for the following PC-based host tools:

- MfgTool2.exe: GUI Windows application to download and program an application image into the external flash device. cfg_MXRT1020X.ini needs to be renamed to cfg.ini to use.
- elftosb: command line tool to convert ELF/SREC formatted application image into bootable image format (or SB format). It is available on Windows and Linux platforms.
- blhost: command line debug tool called by MfgTool to program the application. It is available for Windows, Linux, and Mac operating systems.
- sdphost: command line tool to download and execute the Flashloader application on the device. It is available for Windows, Linux, and Mac operating systems.

9 Known issues

Using blhost to communicate with the flashloader over LPUART is not supported on Mac OS.

10 Revision history

The table below summarizes the changes done to this document since the initial release.

Table 2. Revision history

Revision number	Date	Substantial changes
0	12/2018	Initial release
1	06/2019	Added Chapter 9, Known Issue

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