

1 Overview

These are the release notes for the i.MX RT1020 Flashloader. 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® v8.50.9
- MDK-Arm Microcontroller Development Kit (Keil)® 5.33 with corresponding device pack
- MCUXpresso IDE v11.3
- Makefiles support with GCC 9-2020-q2-update from Arm Embedded

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.

Contents

1	Overview.....	1
2	Development tools.....	1
3	System requirements.....	1
4	Target requirements.....	1
5	Release contents.....	2
6	Getting started.....	2
7	Features.....	2
8	Host tools.....	2
9	Revision history.....	2



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 sdphost application is under <sdk_package>/middleware/mcu-boot/bin/ Tools/sdphost folder MfgTool application is under <sdk_package>/middleware/mcu-boot/bin/ Tools/mfgtools-rel folder
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 IMXRT1020MFUUG).

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*.

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` must be renamed to `cfg.ini` to use.

Host tools must be used with MCUBOOT and are available for download from nxp.com/MCUBOOT.

- `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.

9 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
-----------------	------	---------------------

Table continues on the next page...

Table 2. Revision history (continued)

0	12/2018	Initial release
1	06/2019	Added Chapter 9, Known Issue
2	07/2020	Removed Chapter 9: Known Issue; Updated for MCUXpresso SDK 2.8.0 release
3	12/2020	Updated for MCUXpresso SDK 2.9.0 release

How To Reach Us

Home Page:

nxp.com

Web Support:

nxp.com/support

Information in this document is provided solely to enable system and software implementers to use NXP products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits based on the information in this document. NXP reserves the right to make changes without further notice to any products herein.

NXP makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does NXP assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters that may be provided in NXP data sheets and/or specifications can and do vary in different applications, and actual performance may vary over time. All operating parameters, including "typicals," must be validated for each customer application by customer's technical experts. NXP does not convey any license under its patent rights nor the rights of others. NXP sells products pursuant to standard terms and conditions of sale, which can be found at the following address: nxp.com/SalesTermsandConditions.

Right to make changes - NXP Semiconductors reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

Security — Customer understands that all NXP products may be subject to unidentified or documented vulnerabilities. Customer is responsible for the design and operation of its applications and products throughout their lifecycles to reduce the effect of these vulnerabilities on customer's applications and products. Customer's responsibility also extends to other open and/or proprietary technologies supported by NXP products for use in customer's applications. NXP accepts no liability for any vulnerability. Customer should regularly check security updates from NXP and follow up appropriately. Customer shall select products with security features that best meet rules, regulations, and standards of the intended application and make the ultimate design decisions regarding its products and is solely responsible for compliance with all legal, regulatory, and security related requirements concerning its products, regardless of any information or support that may be provided by NXP. NXP has a Product Security Incident Response Team (PSIRT) (reachable at PSIRT@nxp.com) that manages the investigation, reporting, and solution release to security vulnerabilities of NXP products.

NXP, the NXP logo, NXP SECURE CONNECTIONS FOR A SMARTER WORLD, COOLFLUX, EMBRACE, GREENCHIP, HITAG, ICODE, JCOP, LIFE, VIBES, MIFARE, MIFARE CLASSIC, MIFARE DESFire, MIFARE PLUS, MIFARE FLEX, MANTIS, MIFARE ULTRALIGHT, MIFARE4MOBILE, MIGLO, NTAG, ROADLINK, SMARTLX, SMARTMX, STARPLUG, TOPFET, TRENCHMOS, UCODE, Freescale, the Freescale logo, Altivec, CodeWarrior, ColdFire, ColdFire+, the Energy Efficient Solutions logo, Kinetis, Layerscape, MagniV, mobileGT, PEG, PowerQUICC, Processor Expert, QorIQ, QorIQ Qonverge, SafeAssure, the SafeAssure logo, StarCore, Symphony, VortiQa, Vybrid, Airfast, BeeKit, BeeStack, CoreNet, Flexis, MXC, Platform in a Package, QUICC Engine, Tower, TurboLink, EdgeScale, EdgeLock, eIQ, and Immersive3D are trademarks of NXP B.V. All other product or service names are the property of their respective owners. AMBA, Arm, Arm7, Arm7TDMI, Arm9, Arm11, Artisan, big.LITTLE, Cordio, CoreLink, CoreSight, Cortex, DesignStart, DynamIQ, Jazelle, Keil, Mali, Mbed, Mbed Enabled, NEON, POP, RealView, SecurCore, Socrates, Thumb, TrustZone, ULINK, ULINK2, ULINK-ME, ULINK-PLUS, ULINKpro, μ Vision, Versatile are trademarks or registered trademarks of Arm Limited (or its subsidiaries) in the US and/or elsewhere. The related technology may be protected by any or all of patents, copyrights, designs and trade secrets. All rights reserved. Oracle and Java are registered trademarks of Oracle and/or its affiliates. The Power Architecture and Power.org word marks and the Power and Power.org logos and related marks are trademarks and service marks licensed by Power.org.

© NXP B.V. 2018-2020.

All rights reserved.

For more information, please visit: <http://www.nxp.com>

For sales office addresses, please send an email to: salesaddresses@nxp.com

Date of release: 23 December 2020
Document identifier: IMXRT1020FLDRRN

