

SERVICE BULLETIN QP2-001

Product: QuadPort2

Subject: Applying a firmware update via the bootloader

Date: 28th Feb 2022

Description

This Service Bulletin describes how to apply a firmware update to the QuadPort2's Main Board via the bootloader. This operation is required to be performed on devices that are from the first production batch of QuadPort2 devices.

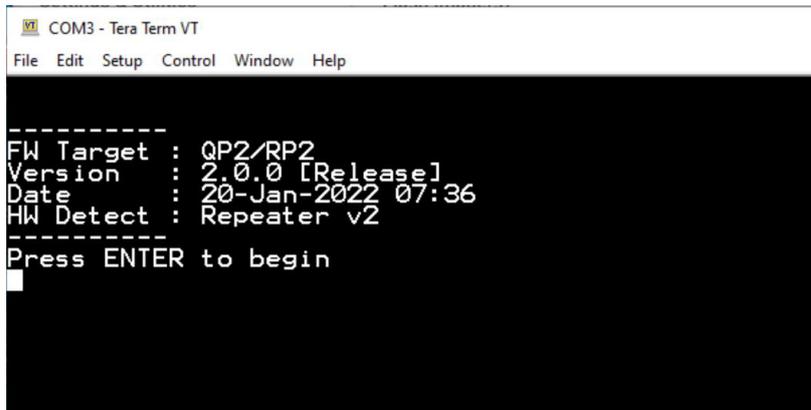
Background

The first production batch of QuadPort2 devices were shipped with firmware version 2.0.0 on the Main Board. The 2.0.0 firmware provides basic functionality but does not have the ability to apply firmware updates from the Command Line Interface (CLI), or down the coaxial cable using the remote diagnostics system.

The procedure described in this document can be used to update the Main Board firmware to version 2.1.3 via the serial port bootloader.

How to identify the affected devices?

- Connect a PC to the device's SERVICE port using a **TTL-232R-RPI** cable.
- Open a Teraterm session to the virtual COM port that was auto created by the USB to serial cable, using the following serial settings:
 - Speed = 115,200
 - Data = 8 bits
 - Parity = None
 - Stop bits = 1 bit
 - Flow control = None
- Press the **RESET** button on the Main Board to display the bootup banner.
- Affected devices will display version **2.0.0** in the banner, as shown below.



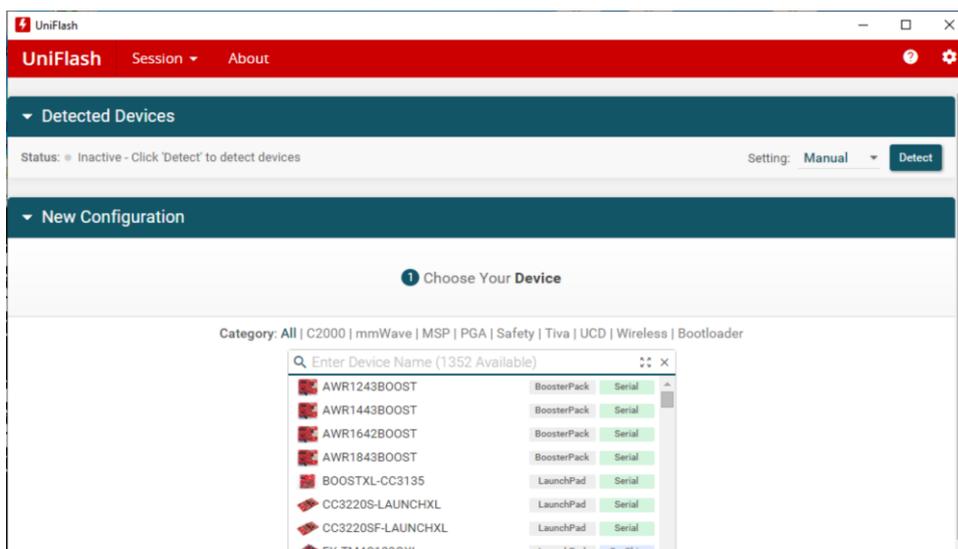
Procedure

Install TI Uniflash on the PC

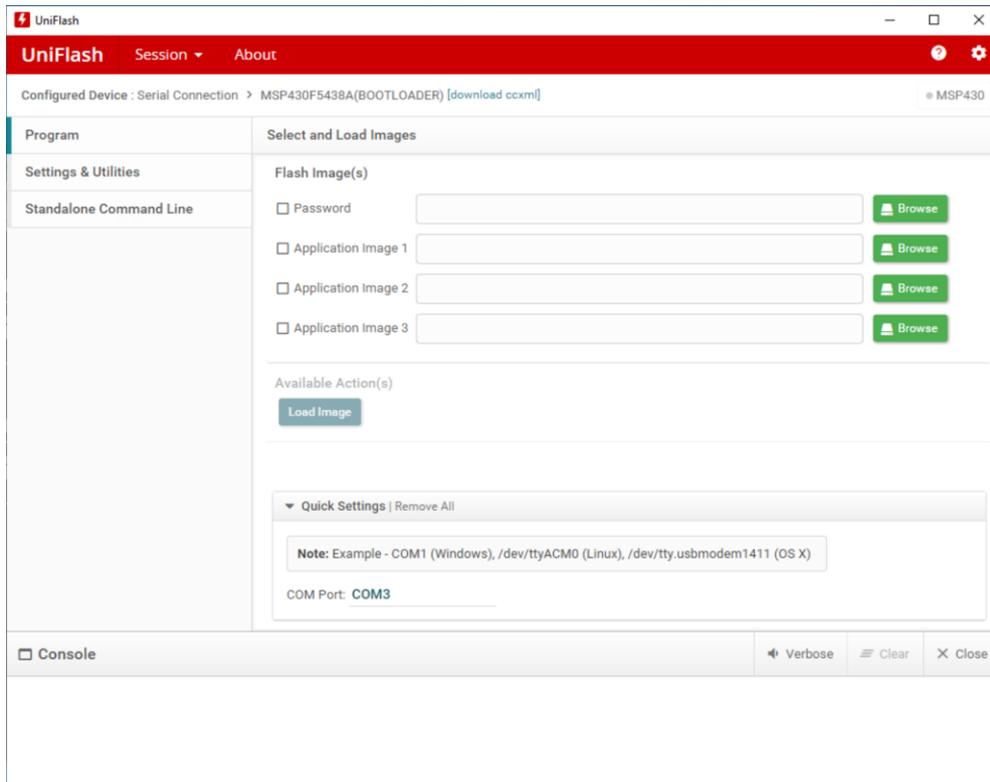
- Download **UniFlash for most TI microcontrollers (MCUs) and mmWave sensors** from <https://www.ti.com/tool/UNIFLASH>.
- Install UniFlash on the PC.

Configure UniFlash

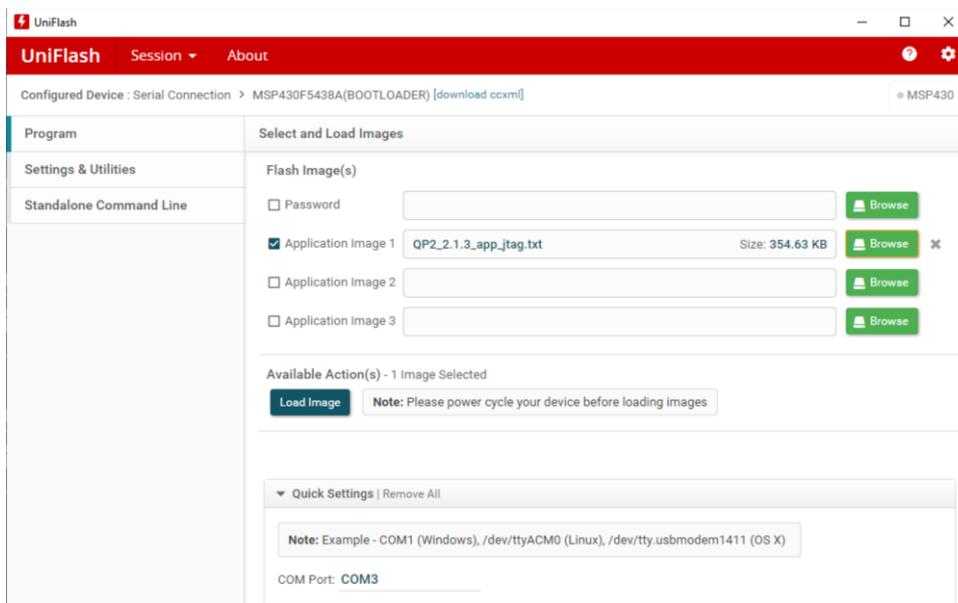
- Connect a PC to the device's SERVICE port using a **TTL-232R-RPI** cable.
- Take note of the virtual COM port that was created by the USB to serial cable (e.g. COM3).
- If a Teraterm session to the SERVICE port is still open, disconnect that Teraterm session since the serial port must be made available for Uniflash.
- Start TI Uniflash, which will display the following screen:



- From the menu bar select **Session** -> **Load Session** and navigate to the configuration file: **MSP430F5438A_BL.uniflash**. After this is done, the following screen will be displayed:



- Click the **Browse** button next to the **Application Image 1** text box and navigate to the file: **QP2_2.1.3_app_jtag.txt**.
- Change the **COM Port** field value to match the virtual serial port that was created by the USB to serial cable.
- Once these steps are completed, the screen will look similar to the following:



Program the application

- Enter the bootloader on the Main Board by following these steps:
 - Press and hold the DEFAULT button
 - While holding the DEFAULT button, press and release the RESET button.
 - Release the DEFAULT button.



- If the bootloader was entered, the yellow DEBUG LED on the Main Board will be flashing twice a second.
- Click the **Load Image** button in UniFlash, which will fail with the following message in the **Console** window of UniFlash.

```
☐ Console
[28/2/2022 10:10:34 pm] [INFO] MSP430: MSP430F5438A(Bootloader)
[28/2/2022 10:10:36 pm] [ERROR] MSP430: [ERROR]BSL password is incorrect!
[28/2/2022 10:10:37 pm] [ERROR] MSP430: [ERROR_MESSAGE]Process is failed!
```

- This failure results in the application being erased from main memory, which then allows the next attempt to succeed.
- Click the **Load Image** button again in UniFlash. It will take several minutes to complete the flash programming.

Verify that the update was successfully programmed

- Press the **RESET** button on the Main Board to boot into the application.
- Verify that the yellow DEBUG LED stops flashing.
- Close TI UniFlash.
- Open a TeraTerm session to the virtual COM port, using the following serial settings:
 - Speed = 115,200
 - Data = 8 bits
 - Parity = None
 - Stop bits = 1 bit
 - Flow control = None
- Press the **RESET** button on the Main Board to display the bootup banner.
- The upgraded device will display version **2.1.3** in the banner, as shown below.

```
COM3 - Tera Term VT
File Edit Setup Control Window Help
-----
FW Target  : QP2/RP2
Version    : 2.1.3 [Release]
Date      : 19-Feb-2022 15:04
HW Detect  : Repeater v2
-----
Press ENTER to begin
█
```