# **Flashing Protocol**

Abstract

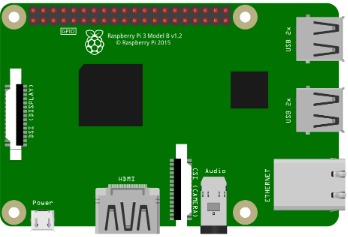
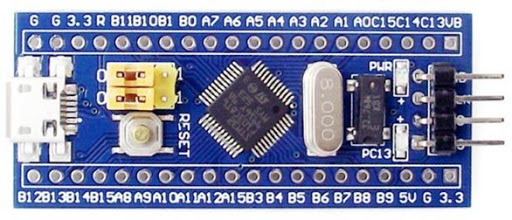
This Document describes the communication process between raspberry pi and the bootloader of the microcontroller during flashing new application process. This document presents communication protocol used and physical Layer description, Frames description and Flashing process.

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1.0 Communication protocol:

The main communication protocol used between raspberry pi and the microcontroller is UART (Universal Asynchronous Transmitter Receiver) with baud Rate 115200 Fps. Additional external GPIO pin is used to send a triggering signal from the raspberry pi to the microcontroller to start the flashing process.

* 1. Physical Layer diagram



Interrupt GPIO Pin

UART Pins

Common ground

* 1. Pins Description
     1. Pins Connection Table

|  |  |  |
| --- | --- | --- |
| Raspberry Pi Pin | MicroController Pin | Connection description |
| Pin #5 (GND Pin) | GND Pin | Common ground |
| Pin#8 (TXD) | Pin A10 (Rx-Pin) | Raspberrypi → microcontroller UART pin |
| Pin#10 (RXD) | Pin A9 (Tx-Pin) | microcontroller → Raspberrypi UART pin |
| Pin#15 (GPIO 22) | Pin A0 (GPIO pin) | Start Flashing signal pin |

* + 1. Pins Configuration

|  |  |
| --- | --- |
| Raspberry Pi Pin | Configuration |
| Pin #5 (GND Pin) | No Configuration needed. |
| Pin#8 (TXD) | No Configuration needed. |
| Pin#10 (RXD) | No Configuration needed. |
| Pin#15 (GPIO 22) | Output GPIO pin. |

|  |  |
| --- | --- |
| STM32f103 Pin | Configuration |
| GND Pin | No Configuration needed. |
| Pin A10 (Rx-Pin) | * Activate GPIO –A Clk. * Input Pull-up Resistor. * Input Speed. |
| Pin A9 (Tx-Pin) | * Activate GPIO –A Clk. * Alternative Function Push/pull. * O/P suitable speed. |
| Pin A0 (GPIO pin) | Output GPIO pin. |

1. Frames Description