

# MINI-M0™

development board for STM32

The whole STM32 development board fitted in DIP40 form factor, containing high-performance STM32F051R8 ARM Cortex-M0 microcontroller.



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I want to express my thanks to you for being interested in our products and for having confidence in MikroElektronika.

The primary aim of our company is to design and produce high quality electronic products and to constantly improve the performance thereof in order to better suit your needs.

A white handwritten signature in cursive script, appearing to read 'N. Matic', set against a dark green background.

Nebojsa Matic  
General Manager

# Table of Contents

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Introduction to MINI-M0 for STM32	4
Key features	4
System Specification	5
1. Programming with mikroBootloader	6
step 1 - Connecting MINI-M0 for STM32	6
step 2 - Browsing for .HEX file	7
step 3 - Selecting .HEX file	7
step 4 - Uploading .HEX file	8
step 5 - Finish upload	9
2. Schematic	10
3. Pinout	11
4. Dimensions	12

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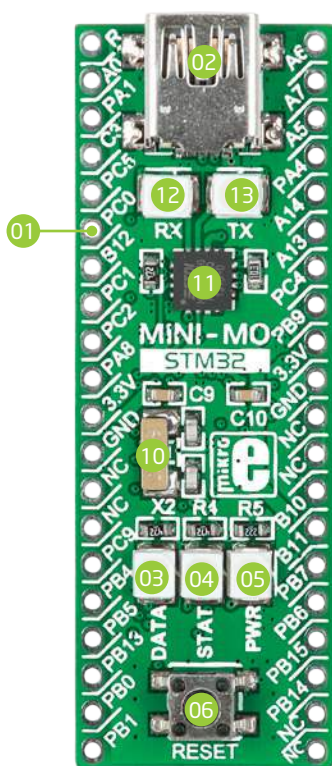
# Introduction to MINI-M0 for STM32

Miniature and high-performance development tool designed to work as stand alone device or as MCU card in DIP40 socket. MINI-M0 for STM32 is preprogrammed with USB-UART bootloader so it is not necessary to have external programmer. If there is need for external programmers (mikroProg™ or ST-LINK V2) attach it to MINI-M0 for STM32 via pads marked with PA14 (TCK/SwC), PA13 (TMS/SWD), and RST#.



## Key features

- 01 Connection Pads
- 02 USB MINI-B connector
- 03 DATA LED
- 04 STAT LED
- 05 POWER supply LED
- 06 Reset button
- 07 Power supply regulator
- 08 Microcontroller STM32F051R8
- 09 16 MHz Crystal oscillator
- 10 32.768kHz Crystal oscillator
- 11 FTDI FT230x chip
- 12 UART RX LED
- 13 UART TX LED



## System Specification



### power supply

3.3V via pads or 5V via USB



### power consumption

depends on MCU state (max current into 3.3V pad is 300mA)



### board dimensions

50.8 x 17.78mm (2 x 0.7")



### weight

~6g (0.013 lbs)

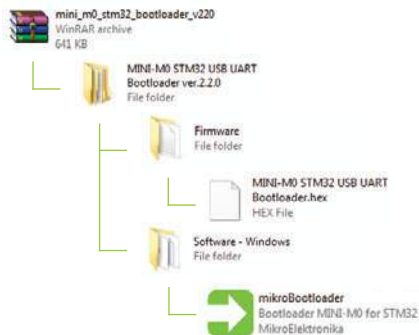
# 1. Programming with mikroBootloader

You can program the microcontroller with bootloader which is preprogrammed into the device by default. To transfer .HEX file from a PC to MCU you need bootloader software (**UART mikroBootloader**) which can be downloaded from:



[http://www.mikroe.com/downloads/get/2055/mini\\_m0\\_bootloader\\_v220.zip](http://www.mikroe.com/downloads/get/2055/mini_m0_bootloader_v220.zip)

After software is downloaded unzip it to desired location and start mikroBootloader USB UART software.



## mikroBootloader software

**note** Before starting mikroBootloader software, connect MINI M0 for STM32 to a PC using a USB cable provided with the package

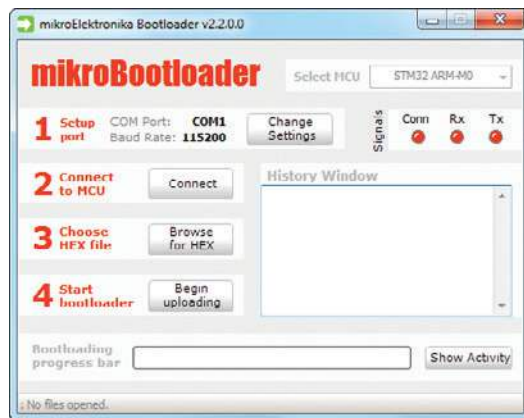


Figure 2-1: mikroBootloader window

01 When you start mikroBootloader software, a window as shown in **Figure 2-1** should appear

## Identifying device COM port

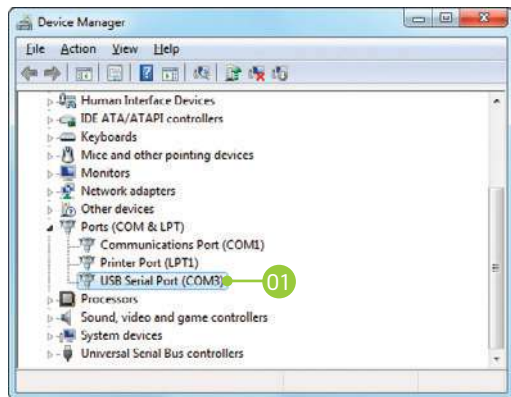


Figure 2-2: Identifying COM port

- 01 Open **Device Manager** window and expand **Ports section** to see which COM port is assigned to MINI M0 for STM32 (in this case it is COM3)

## step 1 - Choosing COM port

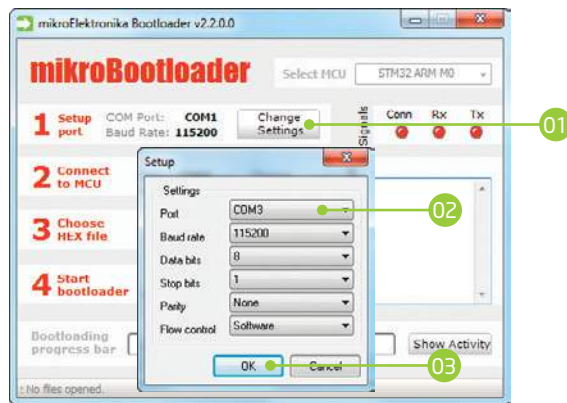


Figure 2-3: Choosing COM port

- 01 Click the **Change Settings** button
- 02 From the drop down list, select appropriate COM **port** (in this case it is COM3)
- 03 Click **OK**

## step 2 - Establishing Connection



Figure 2-4: Connecting with mikroBootloader

- 01 Press the **Reset** button on MINI M0 for STM32 board and click the **Connect** button within 5s, otherwise the existing microcontroller program will run. If connected, the button's caption will be changed to **Disconnect**

## step 3 - Browsing for .HEX file



Figure 2-5: Browse for HEX

- 01 Click the **Browse for HEX** button and from a pop-up window (Figure 2-6) choose a .HEX file to be uploaded to MCU memory



## step 4 - Selecting .HEX file

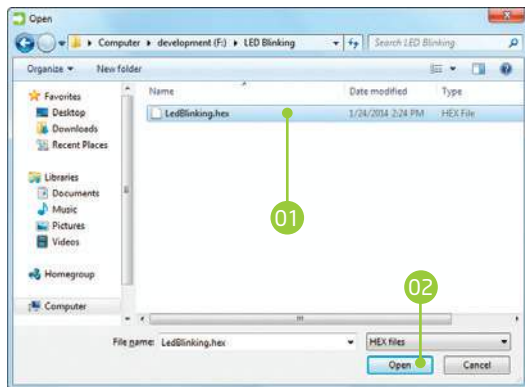


Figure 2-6: Locating and selecting .hex file

- 01 Select .HEX file using open dialog window.
- 02 Click the **Open** button

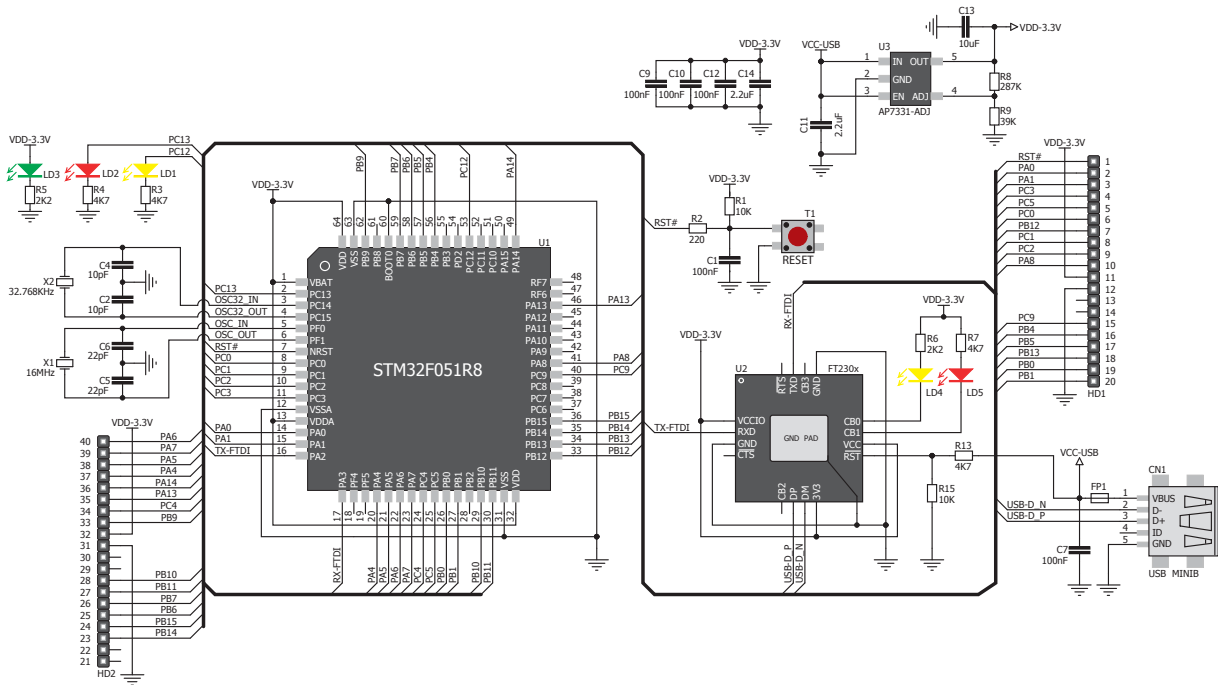
## step 5 - Uploading .HEX file



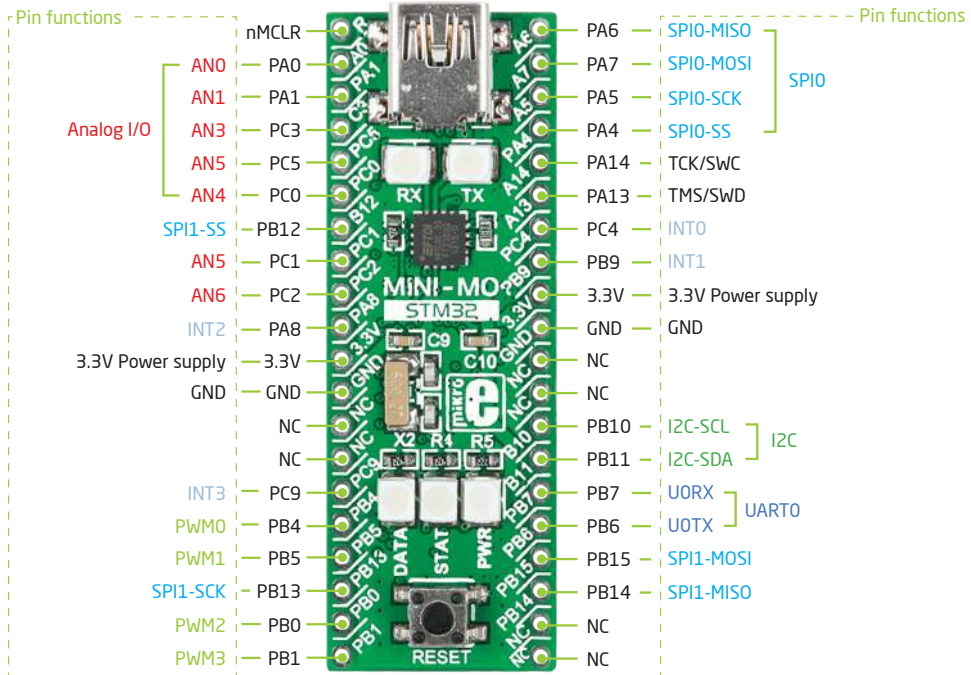
Figure 2-7: Begin uploading

- 01 To start .HEX file bootlodng click the **Begin uploading** button

# 2. Schematic

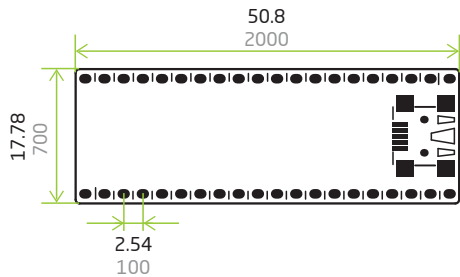


# 3. Pinout



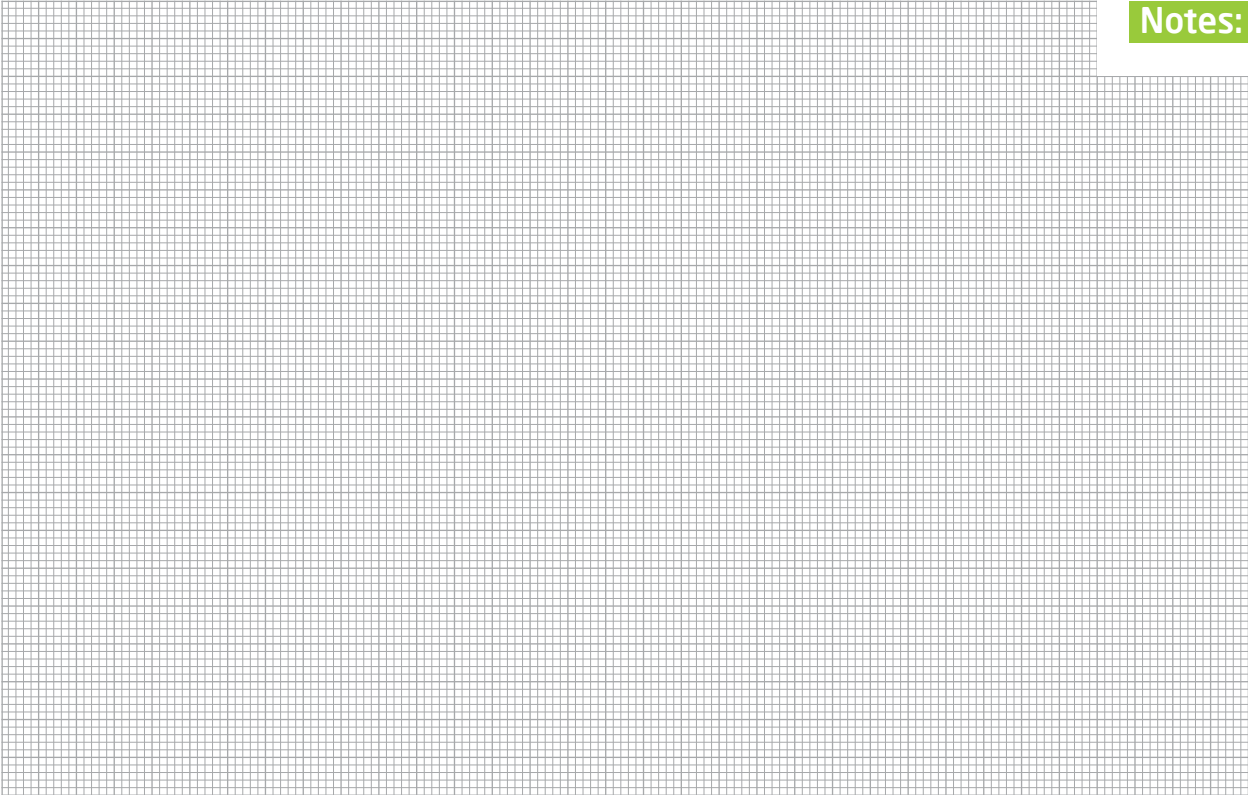
■ Analog Lines   
 ■ Interrupt Lines   
 ■ SPI Lines   
 ■ I2C Lines   
 ■ UART lines   
 ■ PWM lines

# 4. Dimensions



## Legend

— mm  
— mils



Notes:

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