

mikroProg™ for STM32®

mikroProg™ is a fast USB programmer with hardware debugger support. Smart engineering allows mikroProg™ to support all STM32® ARM® Cortex™-M3 and Cortex™-M4 microcontrollers in a single programmer.



TO OUR VALUED CUSTOMERS

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

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Introduction to mikroProg™



mikroProg™ for STM32® is a fast programmer and hardware debugger. Smart engineering allows mikroProg™ to support all STM32® ARM® Cortex™-M3 and Cortex™-M4 devices in a single programmer! Outstanding performance, easy operation, elegant design and low price are its top features. It is supported in mikroElektronika, as well as in other ARM® compilers.

Key features

- **Hardware Debugging**
- No need for firmware update
- New microcontrollers supported via latest version of **mikroProg Suite™** for **ARM®** software

What you see

- 01 Flat cable
- 02 USB MINIB connector
- 03 DATA transfer indication LED
- 04 ACTIVE indication LED
- 05 LINK indication LED
- 06 POWER indication LED



1. Driver installation

On-board mikroProg™ requires drivers in order to work. Drivers are located on the **Product DVD** that you received with the package:



`DVD://download/eng/software/development-tools/arm/stm32/mikroprog/st_link_v2_usb_driver.zip`

When you locate the drivers, please extract the setup file from the ZIP archive. You should be able to locate the driver setup file. Double click the setup file to begin installation of the programmer drivers.

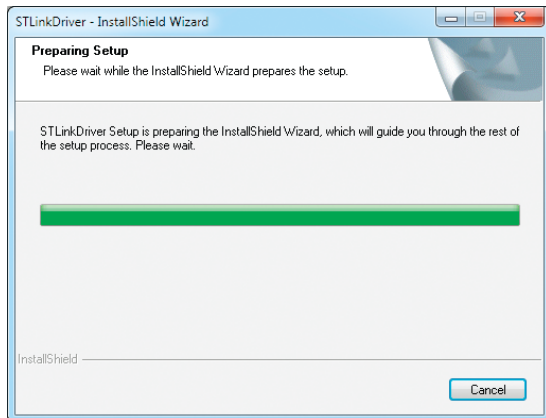


`st_link_v2_usb_driver.zip`
WinRAR ZIP archive
9.96 MB

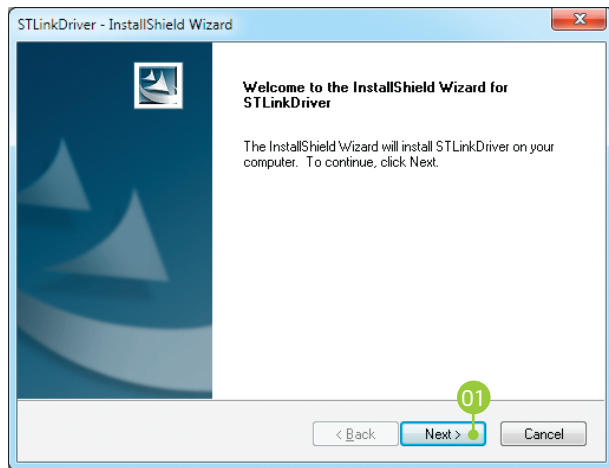


`ST-Link_V2_USBdriver.exe`
InstallScript Setup Launcher
Acresso Software Inc.

NOTE: Make sure to disconnect mikroProg™ before installing drivers.

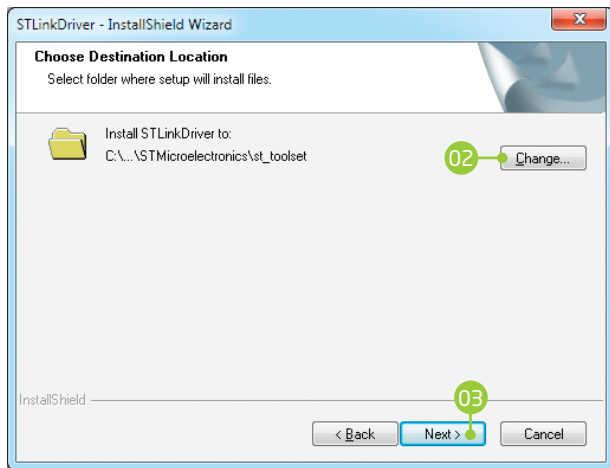


step 1 - Start installation



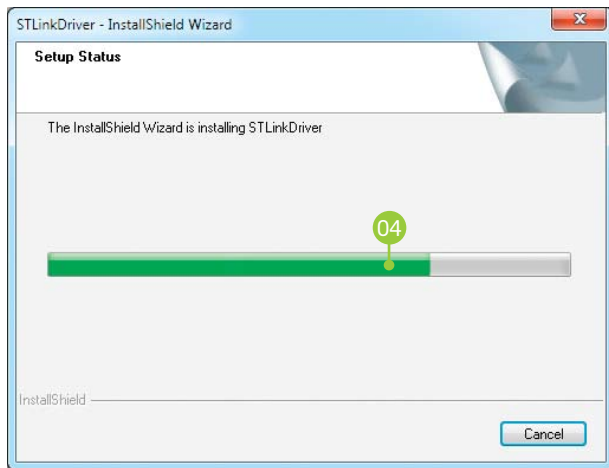
- 01 In welcome screen click the **Next >** button

step 2 - Accept EULA



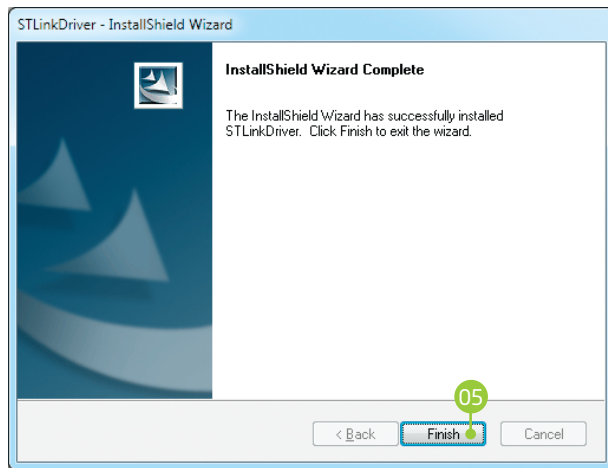
- 02 Click **Change button** to select new destination folder or use the suggested installation path
- 03 Click the **Next >** button

step 3 - Installing the drivers



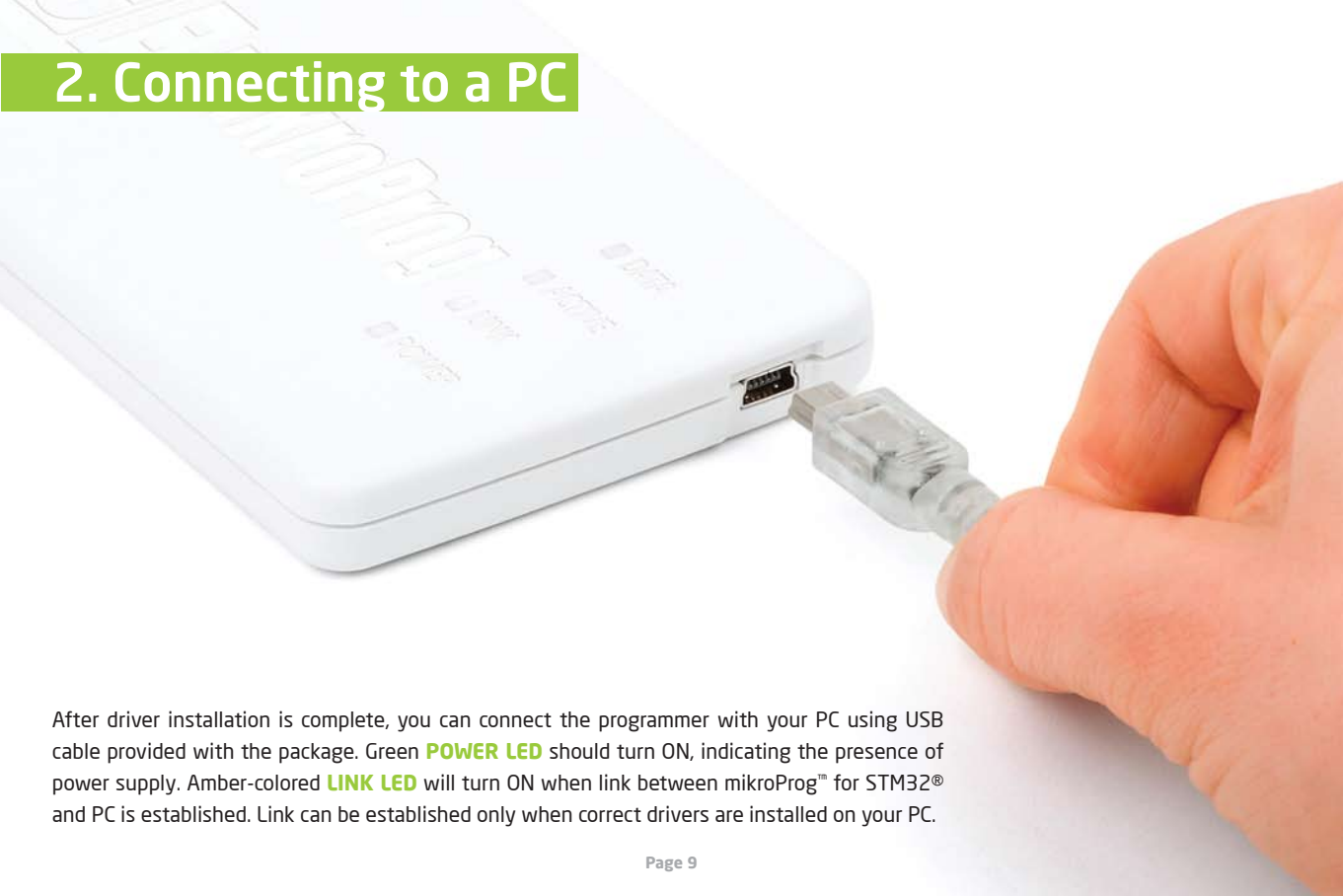
04 Drivers are installed automatically

step 4 - Finish installation



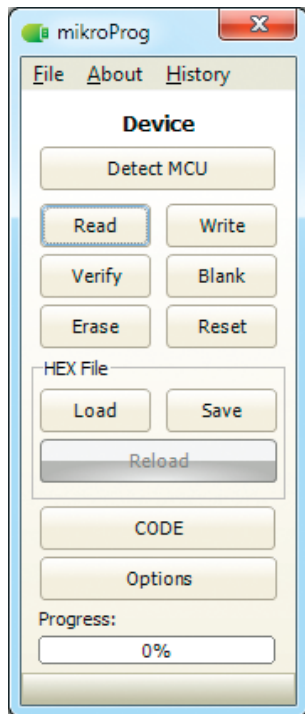
05 Click the **Finish** button to end installation process

2. Connecting to a PC



After driver installation is complete, you can connect the programmer with your PC using USB cable provided with the package. Green **POWER LED** should turn ON, indicating the presence of power supply. Amber-colored **LINK LED** will turn ON when link between mikroProg™ for STM32® and PC is established. Link can be established only when correct drivers are installed on your PC.

3. mikroProg Suite™ for ARM® software



mikroProg™ for STM32® programmer requires special programming software called mikroProg Suite™ for ARM®. This software is used for programming ALL of STM32® ARM® Cortex™-M3 and Cortex™-M4 microcontroller families. It features intuitive interface and SingleClick™ programming technology. Software installation comes on a Product DVD:



DVD://download/eng/software/development-tools/arm/mikroprog/mikroprog_suite_for_arm_v110.zip

After downloading, extract the package and double click the executable setup file, to start installation.

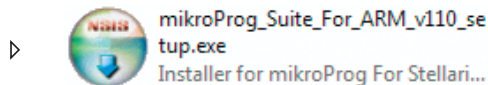
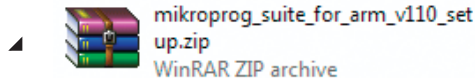


Figure 3-1:
mikroProg Suite™ for ARM®
window

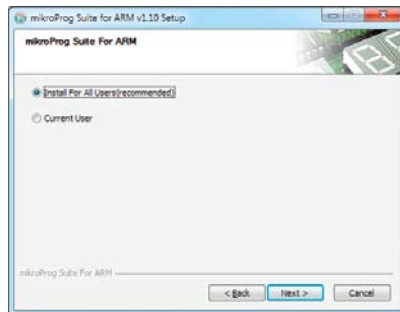
Software installation wizard



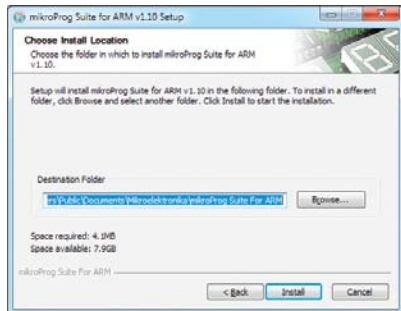
01 Start Installation



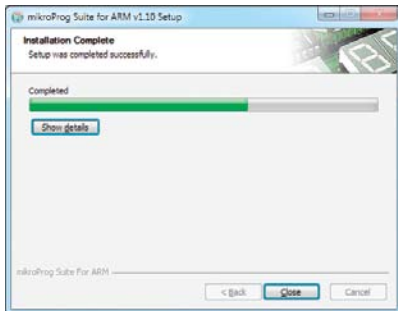
02 Accept EULA and continue



03 Install for All users or Current user



04 Choose destination folder



05 Installation in progress



06 Finish installation

4. Connecting with a target device

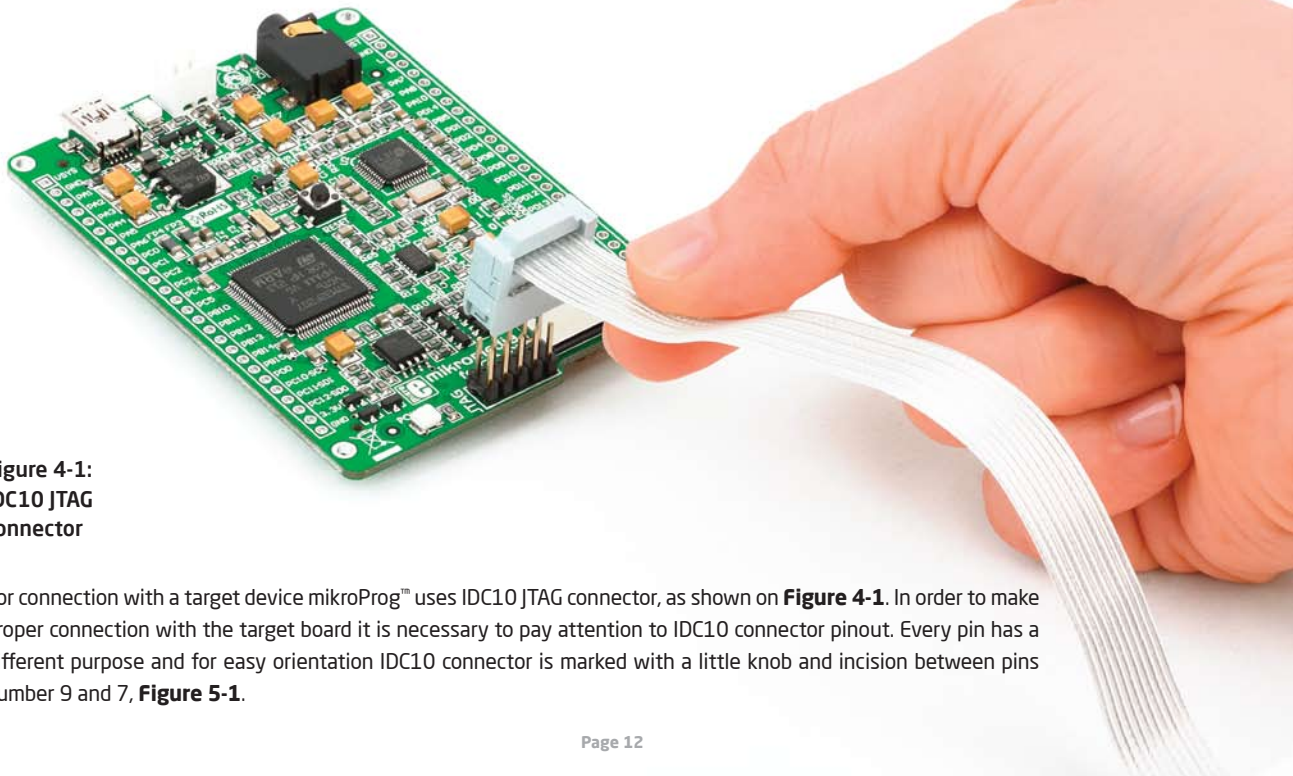


Figure 4-1:
IDC10 JTAG
connector

For connection with a target device mikroProg™ uses IDC10 JTAG connector, as shown on **Figure 4-1**. In order to make proper connection with the target board it is necessary to pay attention to IDC10 connector pinout. Every pin has a different purpose and for easy orientation IDC10 connector is marked with a little knob and incision between pins number 9 and 7, **Figure 5-1**.

5. Connector Pinout

- 01 **VCC-3.3V** - Power supply
- 03 **GND** - Ground
- 05 **GND** - Ground
- 07 **TRST** - JTAG reset
- 09 **GND** - Ground

- 02 **TMS/SWDIO** - JTAG Mode Select/SWD data I/O
- 04 **TCK/SWCLK** - JTAG Clock/SWD clock
- 06 **TDO** - JTAG Data output
- 08 **TDI** - JTAG Data input
- 10 **#RESET** - System Reset

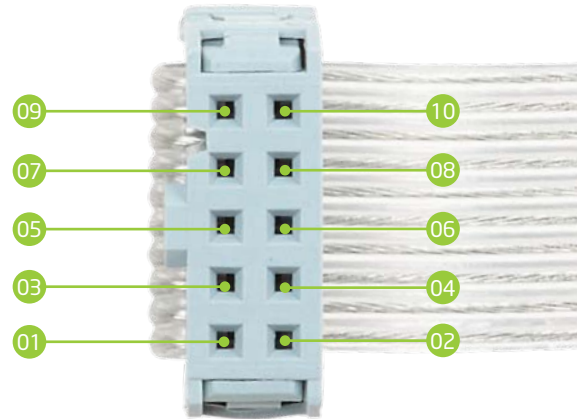


Figure 5-1: Female connector pinout

6. mikroProg™ to 20-pin JTAG connector

Figure 6-1:
mikroProg™
to ST-LINK V2
adaper



In order to connect mikroProg to 20-pin male JTAG connector it is necessary to use appropriate adapter, such as the **mikroProg™ to ST-LINK V2 adaper**, **Figure 6-1**. This adapter should be first placed on 2x10 male connector. Then you should plug in the mikroProg™ into 2x5 male header, **Figure 6-2**.

Figure 6-2:
Connecting
mikroProg™
programmer



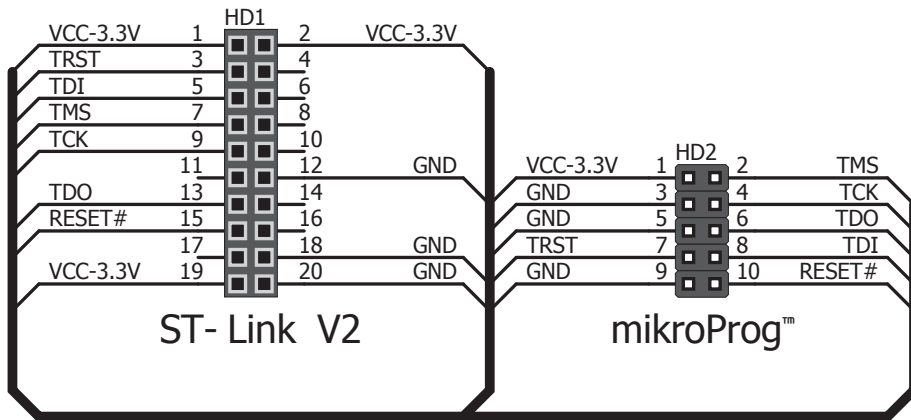
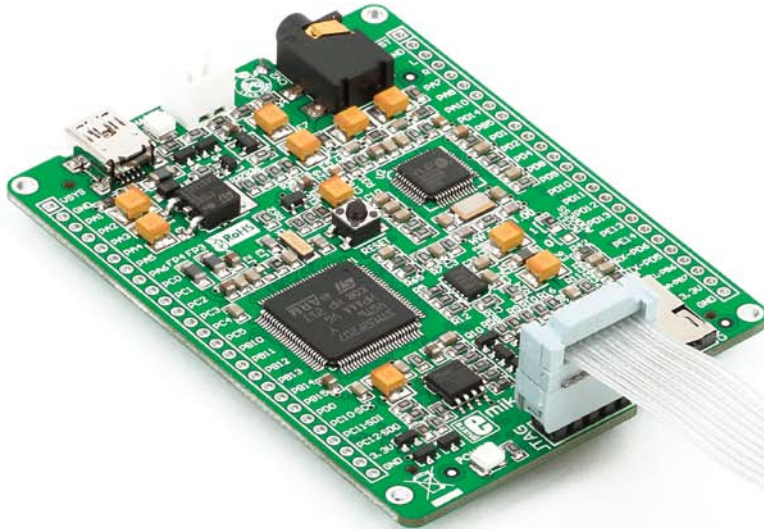


Figure 6-3: mikroProg™ to ST-Link V2 adapter connection schematics

7. Connection schematics examples



Following examples demonstrate connections with some of the most popular supported microcontrollers. Each one is carefully selected as a representative of the entire family. All MCUs use TMS, TCK, TDO, TDI, TRST, #RESET lines for JTAG programming or SWDIO, SWCLK for SWD (Serial Wire Debug) programming. These lines are located on same microcontroller pins within a family.

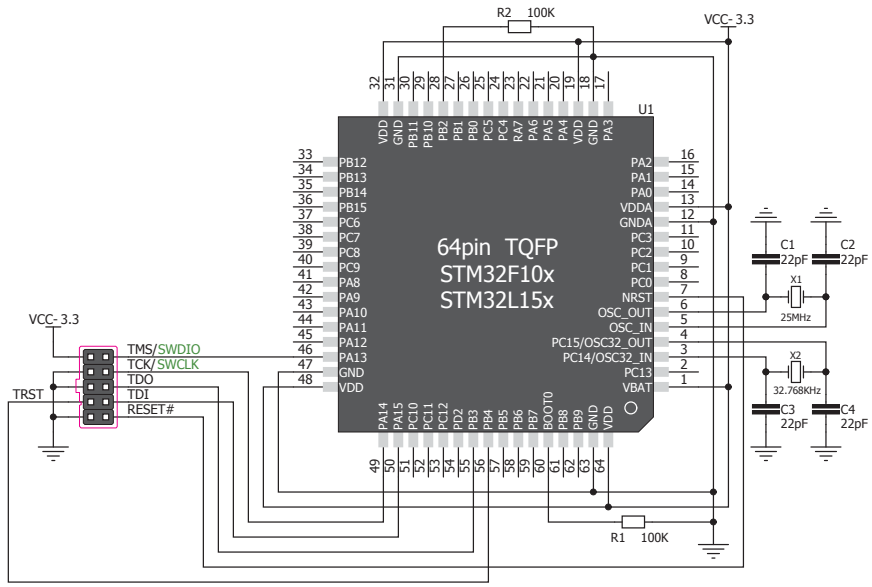


Figure 7-1: Connection schematics for 64-pin STM32F10x/STM32L15x MCU via 2x5 male header

100-pin STM32® schematic

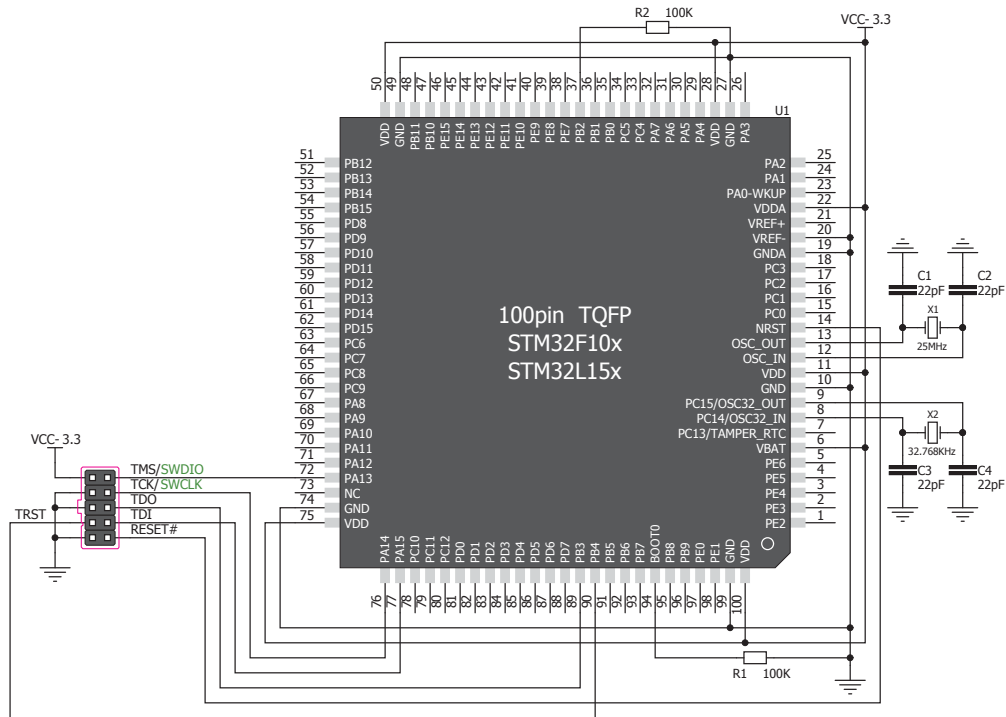


Figure 7-2: Connection schematics for 100-pin STM32F10x/ STM32L15x MCU via 2x5 male header

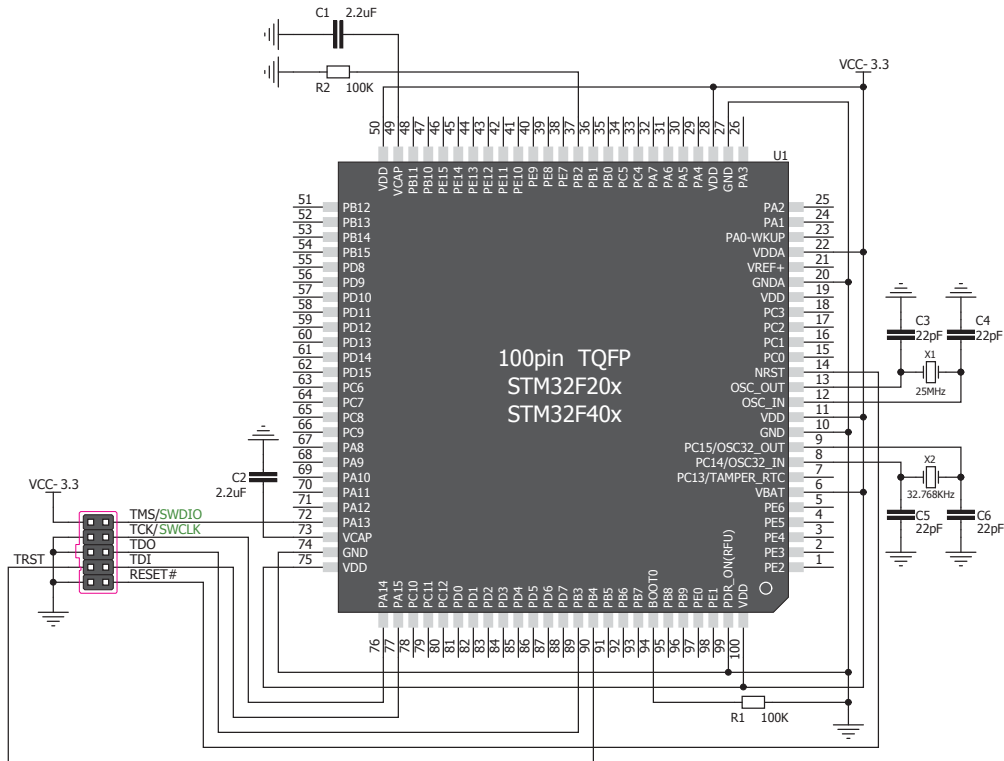


Figure 7-3: Connection schematics for 100-pin STM32F20x/STM32F40x MCU via 2x5 male header

144-pin STM32[®] schematic

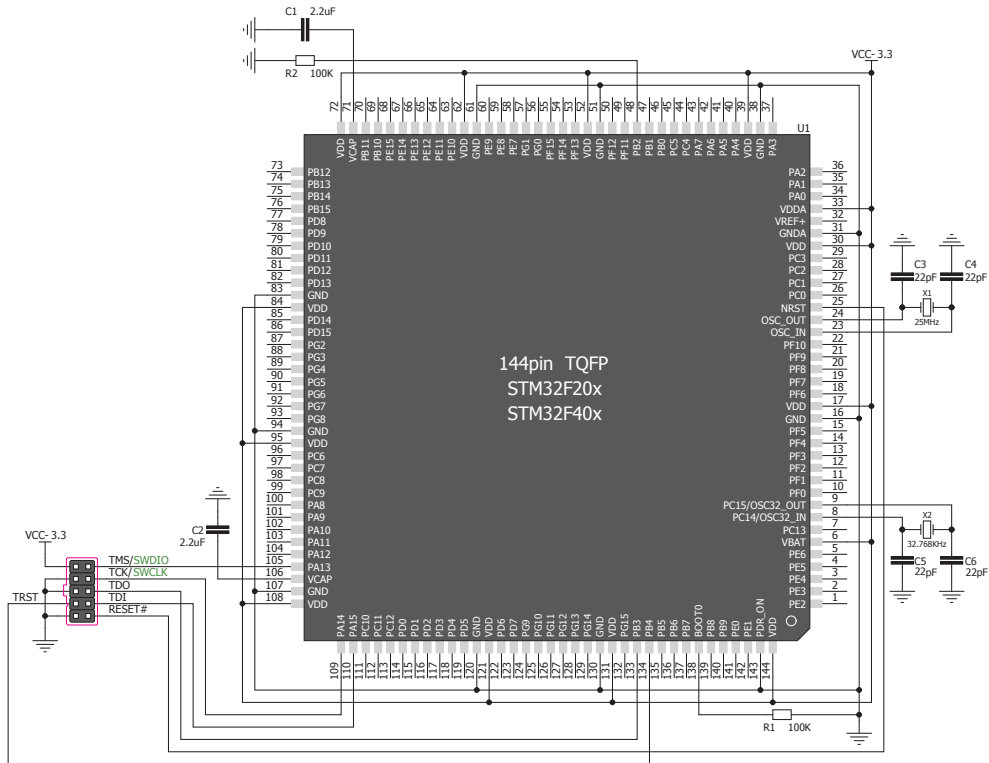


Figure 7-4: Connection schematics for 144-pin STM32F20x/STM32F40x MCU via 2x5 male header

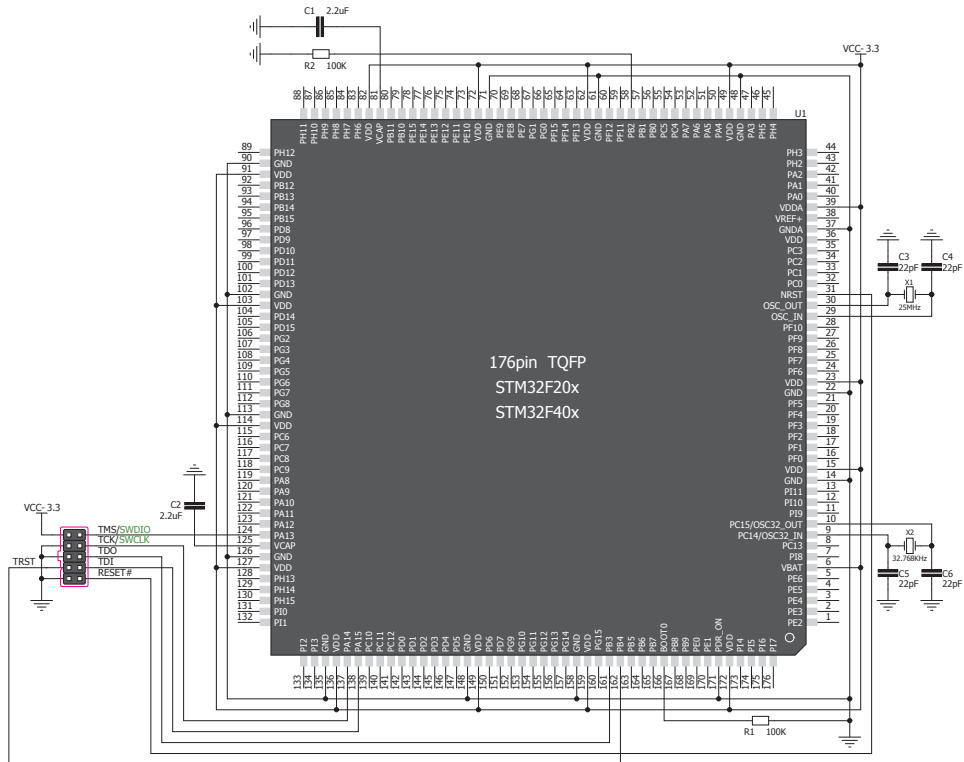


Figure 7-5: Connection schematics for 176-pin STM32F20x/STM32F40x MCU via 2x5 male header

Notes:

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