

Get the Nucleo-F103RB board working on Arduino IDE 1.5x/1.6x (Hardware setup)

Please read the Nucleo manual first ([UM1724 – User Manual](#))

Hardware modifications:

There are a few things we need to change to get the board working properly with the Arduino IDE:

OSC clock: (necessary step)

Currently there are two working possibilities: MCO from ST-LINK or HSE on-board oscillator.

Solution 1 MCO from ST-LINK: Check your serial number on the backside of your board (see photo):

If your number is “MB1136 C-02” or higher, than you are ready to go to the next step.

If your serial number is “MB1136 C-02” you need following changes:

Remove the 0-Ohm-resistors on SB55 and SB54 (*bottom right*) to cut the trace.

Solder a little bridge on: SB16(MCO) (*top left*) and SB50 (*bottom middle*)

Solution 2 HSE oscillator on-board from X3 crystal: Please consider the reference manual for further steps.

Free pins D0(PA3) and D1(PA2) and route Serial2 Debug (optional)

If you need the two pins and/or you want to route the debug serial signal (the serial signal you get into Arduino IDE) follow this steps:

Desolder the 0-Ohm-resistors on SB13 and SB14 (*top middle*) to cut the trace.

Solder a little bridge on: SB62 and SB63 (*bottom left*)

Now you are free to use the STLINK TX/RX connector (*upside top left*) for every serial signal you want! UART3 (Serial2) is remapped per software, so the pins PC10(TX) and PC11(RX) can easily connect with jumper cables to the ST-Link.

Pins:

Please compare with the document: [nucleo_F103RB_pinout_sheet.pdf](#)

Pins	Count	Arduino pins:
all user available pins	46	D0-D45
ADC pins	15	0,1,11,12,16,17,18,19,20,21,28,29,35,41,45
PWM Pins	14	2,3,5,6,7,8,10,14,15,19,24,37,39,41

USART	RX	TX
Serial	2	8
Serial1	0	1
Serial2	30	22

SPI	SS	SCK	MOSI	MISO
1	18	13	11	12
2	38	44	43	42

I2C	SDA	SCL
1	24	10
2	39	6

T1	T2	T3	T4	QA
✓	✓	✓	✓	

SB4	SB3
SB6	SB5
SB8	SB7
SB10	SB9

○ =solder bridge
 □ = desolder



Nucleo

SB17 B1-USER

LD2-LED

SB21 SB20 SB25 SB24 SB28 SB29 SB35

SB38 SB40 SB39 SB41 SB42 SB44

SB43 SB47

SB53 SB58 SB59 SB62 SB61 SB63

SB46 SB52 SB51 SB56 SB57 SB60

SB45 SB49 SB48 SB55 SB54

MB1136 rev C

Serial Number MB1136 C-01 214140479

SDA SCL