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## NUCLEO-L152RE | Mbed

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Affordable and flexible platform to ease prototyping using a STM32L152RET6 microcontroller.



### Overview

The STM32 Nucleo board provides an affordable and flexible way for users to try out new ideas and build prototypes with any STM32 microcontroller line, choosing from the various combinations of performance, power consumption and features.

The Arduino™ connectivity support and ST Morpho headers make it easy to expand the functionality of the STM32 Nucleo open development platform with a wide choice of specialized shields.

The STM32 Nucleo board does not require any separate probe as it integrates the ST-LINK/V2-1 debugger/programmer.

## Microcontroller features

- STM32L152RET6 in LQFP64 package
- ARM®32-bit Cortex®-M3 CPU
- 32 MHz max CPU frequency
- VDD from 1.65 V to 3.6 V
- 512 KB Flash
- 80 KB SRAM
- 16 KB EEPROM
- GPIO (51) with external interrupt capability
- 12-bit ADC with 21 channels
- RTC
- Timers (9)
- I2C (2)
- USART (5)
- SPI (3)
- USB 2.0 full-speed

- DAC (2)
- LCD (1) 4x32 or 8x28
- Operational Amplifiers (2)
- Comparators (2)

## Nucleo features

- Two types of extension resources
  - Arduino Uno Revision 3 connectivity
  - STMicroelectronics Morpho extension pin headers for full access to all STM32 I/Os
- On-board ST-LINK/V2-1 debugger/programmer with SWD connector
  - Selection-mode switch to use the kit as a standalone ST-LINK/V2-1
- Flexible board power supply
  - USB VBUS or external source (3.3 V, 5 V, 7 - 12 V)
  - Power management access point
- User LED (LD2)
- Two push buttons: USER and RESET
- USB re-enumeration capability: three different interfaces supported on USB
  - Virtual Com port

- Mass storage (USB Disk drive) for drag'n'drop programming
- Debug port








## Board pinout

### Pins Legend

#### Labels usable in code

	MCU pin without conflict		Arduino connector names (A0, D1, ...)
	MCU pin connected to other components See <a href="#">PeripheralPins.c</a> (link below) for more information		LEDs and Buttons (LED_1, USER_BUTTON, ...)

#### Labels not usable in code (for information only)

	Serial pins (USART/UART)		AnalogIn (ADC) and AnalogOut pins (DAC)
	SPI pins		CAN pins
	I2C pins		Power and control pins (3V3, GND, RESET, ...)
	PWMOut pins (TIMER n/c[N]) n = Timer number c = Channel N = Inverted channel		

You can find more details on the available pins and labels in the **PeripheralPins.c** and **PinNames.h** files.

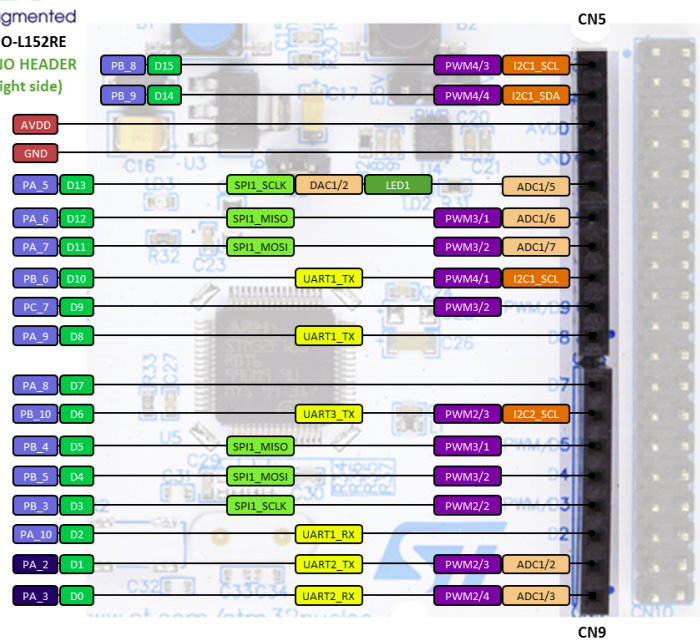
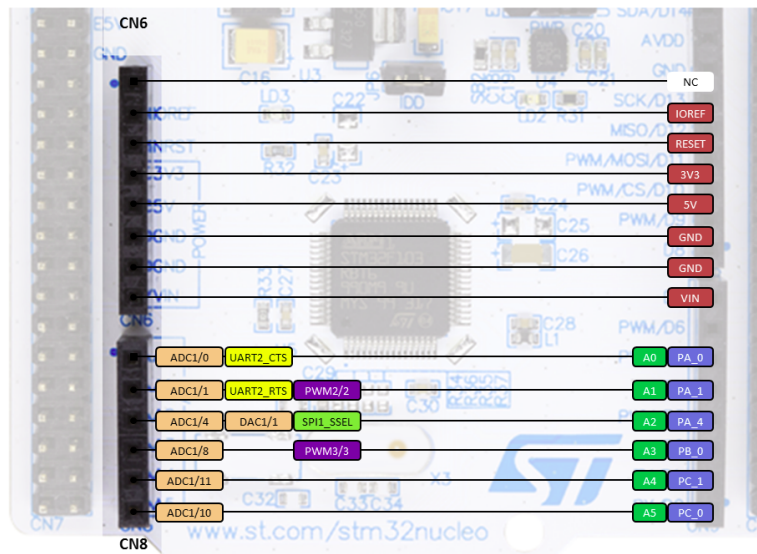
These files can be found in:

- ARMmbed/mbed-os repository on GitHub (**up-to-date** version, used with **mbed CLI commands**)

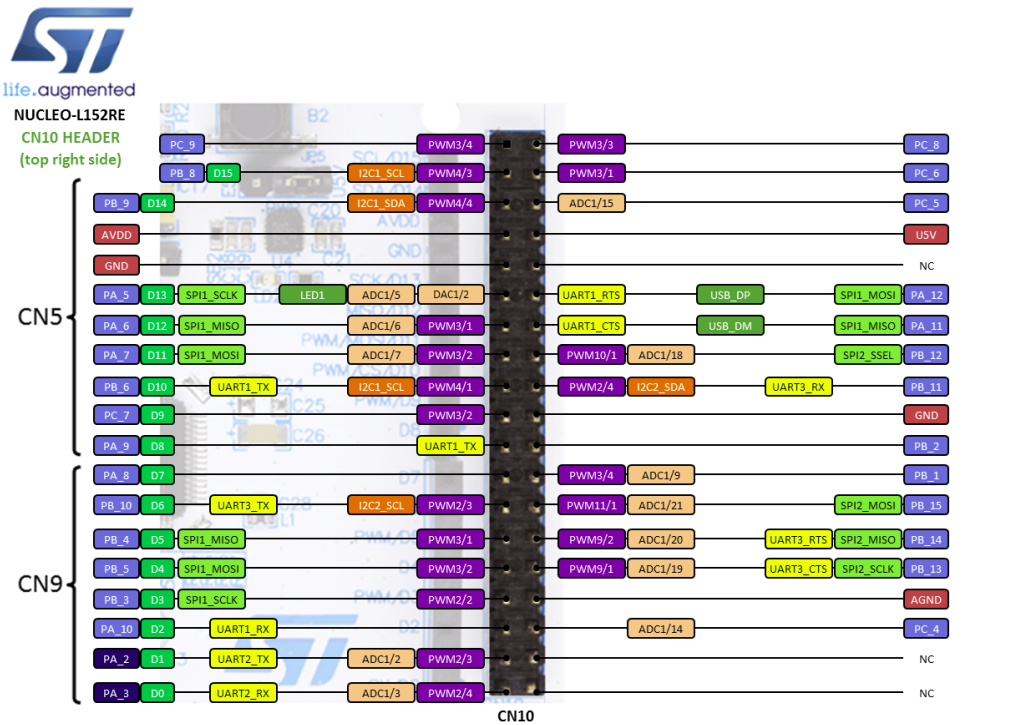
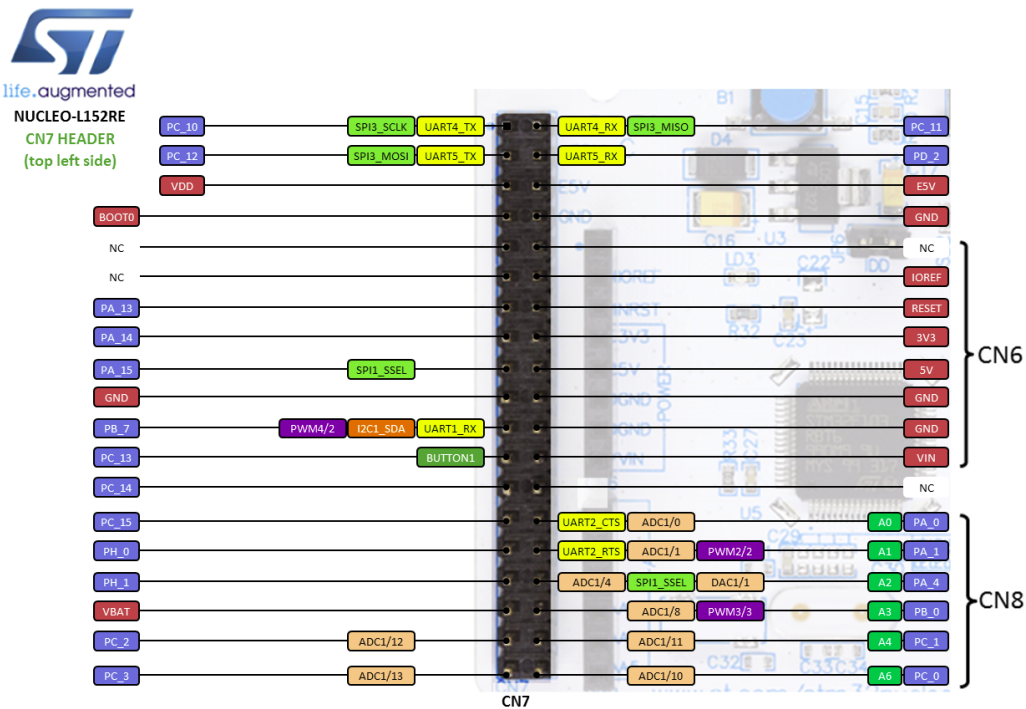
[https://github.com/ARMmbed/mbed-os/blob/master/targets/TARGET\\_STM/TARGET\\_STM32L1/TARGET\\_NUCLEO\\_L152RE/](https://github.com/ARMmbed/mbed-os/blob/master/targets/TARGET_STM/TARGET_STM32L1/TARGET_NUCLEO_L152RE/)

- mbed-dev library in developer.mbed.org (source files of the mbed library used on **mbed compiler IDE**)

[https://developer.mbed.org/users/mbed\\_official/code/mbed-dev/file/default/targets/TARGET\\_STM/TARGET\\_STM32L1/TARGET\\_NUCLEO\\_L152RE/](https://developer.mbed.org/users/mbed_official/code/mbed-dev/file/default/targets/TARGET_STM/TARGET_STM32L1/TARGET_NUCLEO_L152RE/)



These headers give access to all STM32 pins.



Supported shields

## ST X-NUCLEO boards

See [Matrix of tested boards](#).

## Other Non-ST boards

See [here](#).

## Getting started

This video shows how to get started with ARM mbed Integrated Development Environment using STM32 Nucleo platform:

### Nucleo ST-LINK/V2 driver installation and firmware upgrade

- Install the ST-LINK/V2 driver before connecting the Nucleo board to your PC the first time. Follow this [LINK](#) for all details.
- For optimum performances, ensure that the Nucleo ST-LINK/V2 firmware is upgraded to the latest version. Follow this [LINK](#) for all details.

## Technical references

For more information, please refer to:

- [STM32L152RE microcontroller](#)
- [Nucleo board](#)
- [SDK changes log](#)

## Known limitations

The following section describes known limitations of the platform. Note that general issues are

tracked into the [mbed repository](#) available on GitHub.

- On Nucleo 64-pins boards, the D0 and D1 pins are not available per default as they are used by the STLink Virtual Comm Port. More information [HERE](#)

## Tips and Tricks¶

Find more information in [ST WIKI pages](#).

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