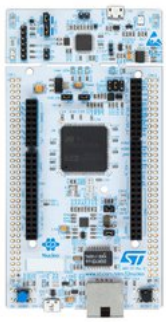
NUCLEO-F767ZI

STM32 Nucleo-144 development board with STM32F767ZIT6 MCU, supports Arduino, ST Zio and morpho connectivity



To compile a program for this board using Mbed CLI, use **nucleo_f767zi** as the target name.

Board Partner

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A world leader in providing the semiconductor solutions that make a positive contribution to people's lives, both today and in the future.

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Mbed Enabled

- Advanced
- Baseline

Mbed OS support

- Mbed OS 2
- Mbed OS 5.10
- Mbed OS 5.11
- Mbed OS 5.12
- Mbed OS 5.13
- Mbed OS 5.14
- Mbed OS 5.15
- Mbed OS 6.0
- Mbed OS 6.1
- Mbed OS 6.10
- Mbed OS 6.11
- Mbed OS 6.12
- Mbed OS 6.13
- Mbed OS 6.14
- Mbed OS 6.15
- Mbed OS 6.2
- Mbed OS 6.3
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Overview

The STM32 Nucleo-144 board provides an affordable and flexible way for users to try out new concepts and build prototypes with the STM32 microcontroller, choosing from the various combinations of performance, power consumption and features. The ST Zio connector, which is an extension of Arduino™ Uno, provides access to more peripherals and ST morpho headers make it easy to expand the functionality of the Nucleo open development platform with a wide choice of specialized shields. The STM32 Nucleo-144 board does not require any separate probe, as it integrates the ST-LINK/V2-1 debugger/programmer and it comes with the STM32 comprehensive software HAL library, together with various packaged software examples, as well as a direct access to the ARM®mbed™online resources.

Microcontroller features

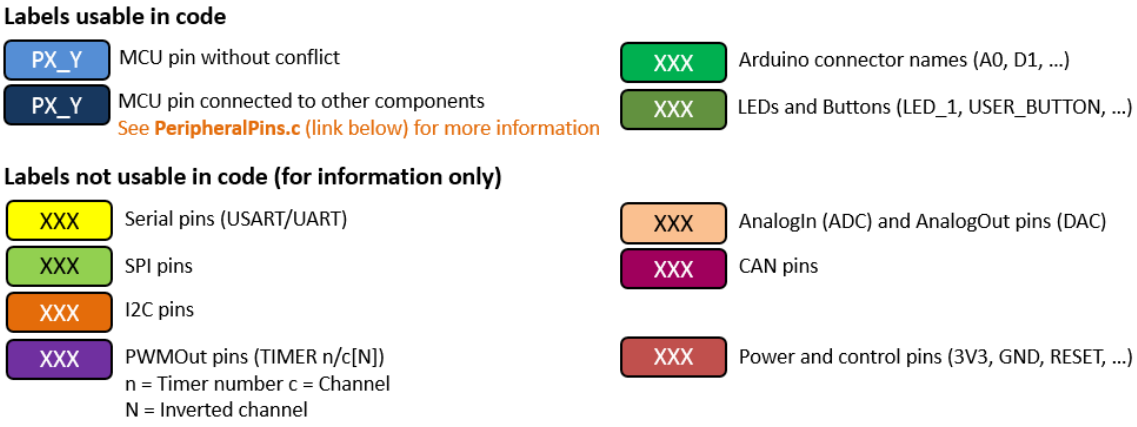
- STM32F767ZIT6 in LQFP144 package
- ARM®32-bit Cortex®-M7 + DPFPU + Chrom-ART™ Accelerator
- 216 MHz max CPU frequency
- VDD from 1.7 V to 3.6 V
- 2 MB Flash
- 512 KB SRAM
- GPIOs (114) with external interrupt capability
- 12-bit ADCs with 24 channels (3)
- 12-bit DAC channels (2)
- USART/UART (8)
- I2C (4)
- SPI (6)
- General Purpose Timers (10)
- Advanced-control Timers (2)
- Basic Timers (2)
- Low-power Timers (1)
- Watchdog Timers (2)
- CAN 2.0B active (3)
- SAI (2)
- SPDIFRX 4 inputs
- SDMMC
- Camera Interface
- LCD-TFT
- USB 2.0 OTG HS/FS
- Random Number Generator (TRNG for HW entropy)
- Ethernet

Nucleo board 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
- Three User LEDs
- 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
- Ethernet 10/100Mbps
- USART

Board pinout

Pins Legend



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_STM32F7/TARGET_STM32F767xI/TARGET_NUCLEO_F767ZI/ (https://github.com/ARMmbed/mbed-os/blob/master/targets/TARGET_STM/TARGET_STM32F7/TARGET_STM32F767xI/TARGET_NUCLEO_F767ZI/)

- 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_STM32F7/TARGET_STM32F767xI/TARGET_NUCLEO_F767ZI/ (https://developer.mbed.org/users/mbed_official/code/mbed-dev/file/default/targets/TARGET_STM/TARGET_STM32F7/TARGET_STM32F767xI/TARGET_NUCLEO_F767ZI/)

Zio and Arduino-compatible headers

- Mbed OS 6.8
- Mbed OS 6.9

Example programs

Mbed OS mbed-os-example-mbed5-blinky (/teams/mbed-os-examples/code/mbed-os-example-mbed5-blinky/)

Featured 107 (/teams/mbed-os-examples/code/mbed-os-example-mbed5-blinky/)shortlog) 194967 (/teams/mbed-os-examples/code/mbed-os-example-mbed5-blinky/)

This is a very simple guide, reviewing the steps required to get Blinky working on an Mbed OS platform.

Last updated: 22 Nov 2019 (22 Nov 2019)

Mbed OS example-Ethernet-mbed-Cloud-connect (/teams/ST/code/example-Ethernet-mbed-Cloud-connect/)

15 (/teams/ST/code/example-Ethernet-mbed-Cloud-connect/)shortlog) 878 (/teams/ST/code/example-Ethernet-mbed-Cloud-connect/)

Superseded by https://os.mbed.com/teams/ST/coc example-common/

cloud (/search/?q=cloud), ethernet (/search/?q=ethernet), stm32 (/search/?q=stm32)

Last updated: 15 Oct 2018 (15 Oct 2018)

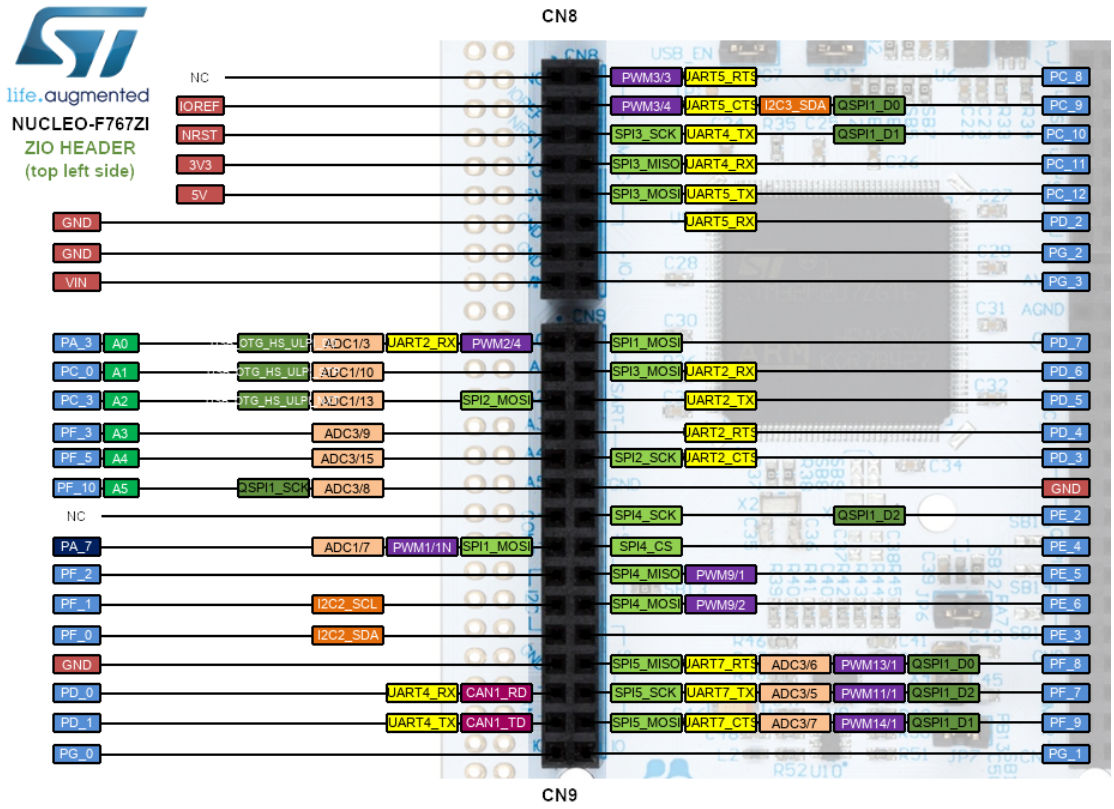
Mbed OS pelion-example-common (/teams/ST/code/pelion-example-common/)

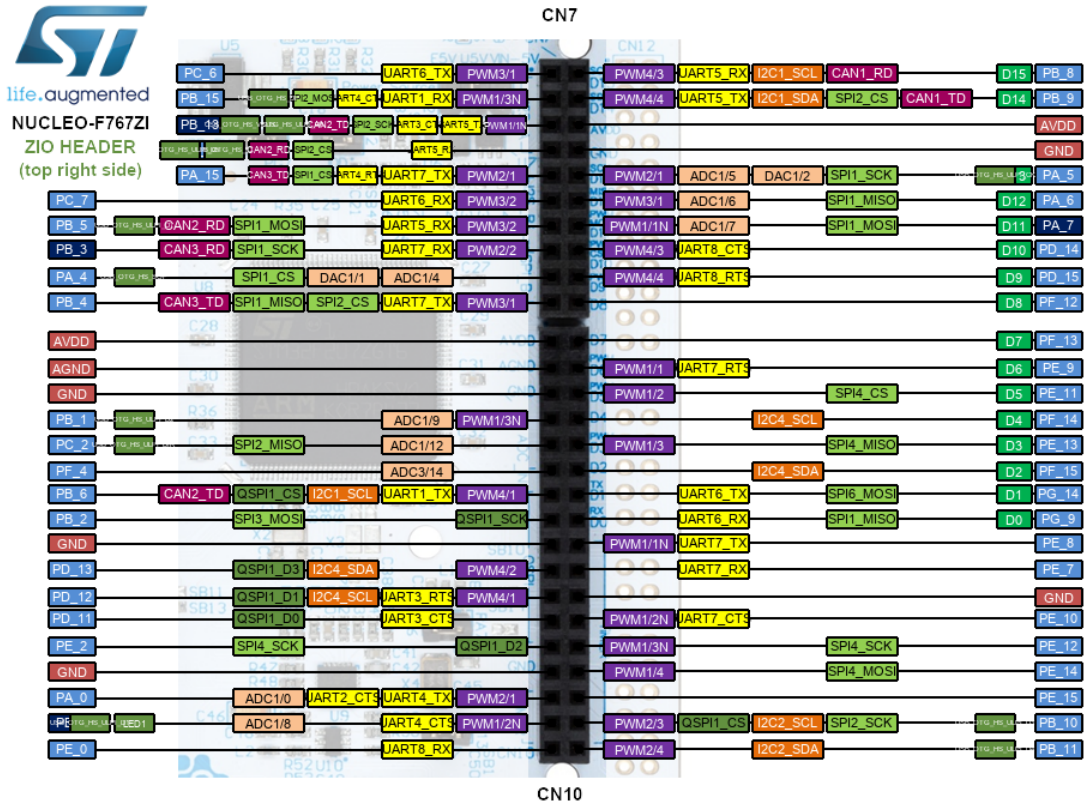
26 (/teams/ST/code/pelion-example-common/)shortlog) 4687 (/teams/ST/code/pelion-example-common/)

Mbed OS Device Management example for various ST boards.

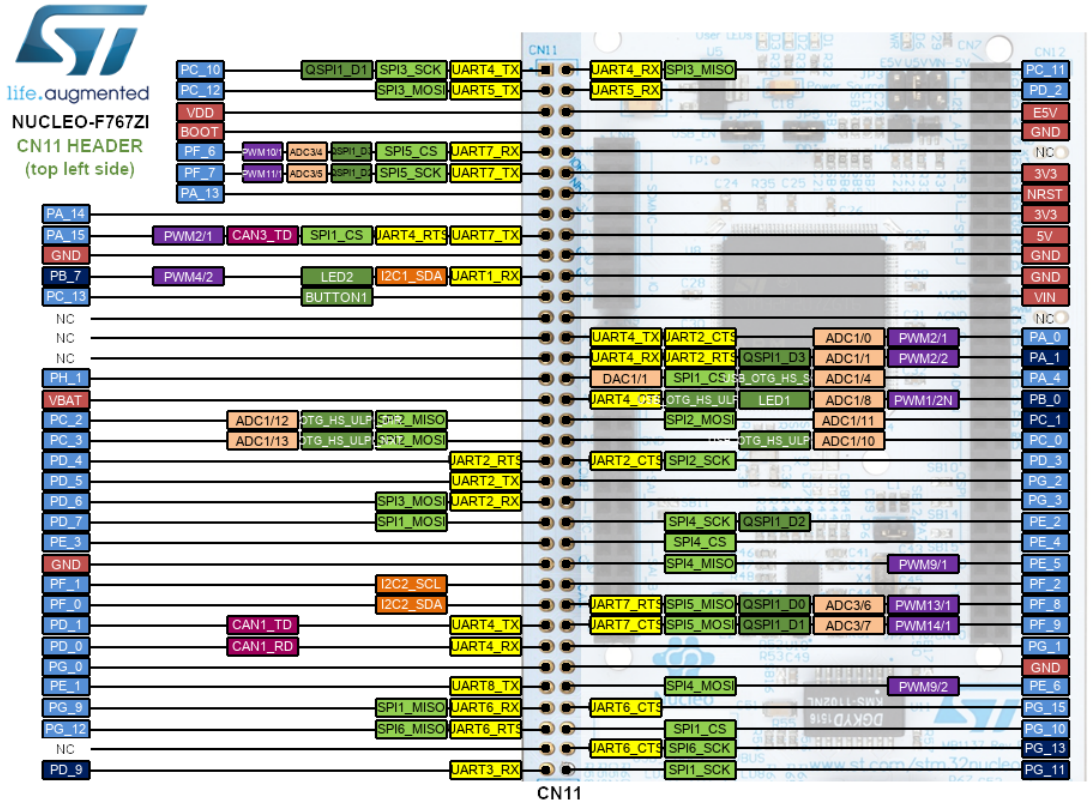
device management (/search/?q=device management), Pelion (/search/?q=Pelion), ST (/search/?q=ST), ST Discovery (/search/?q=ST Discovery), ST Nucleo (/search/?q=ST Nucleo)

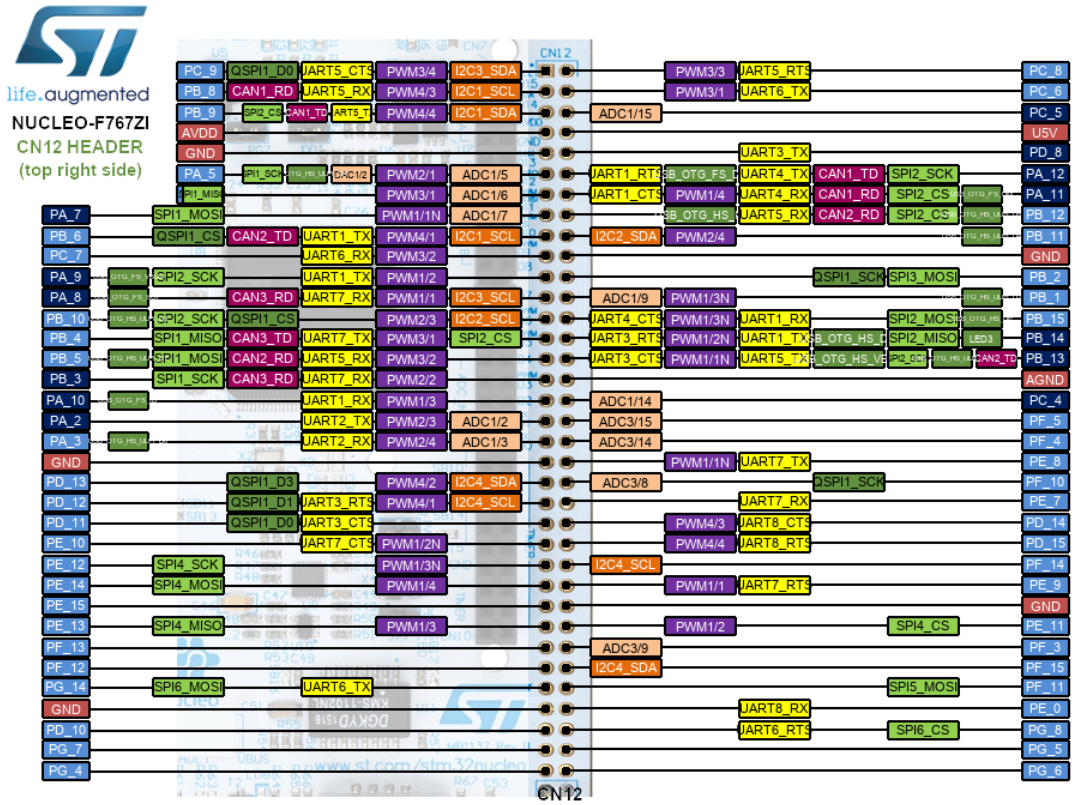
Last updated: 27 Mar 2019 (27 Mar 2019)





CN11 CN12 headers





Getting started

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

https://www.youtube.com/watch?v=BrMw5TNQROo&list=PLnMKNibPkDnF97QnUOFGirl1q0G_4VdDc&index=22 (https://www.youtube.com/watch?v=BrMw5TNQROo&list=PLnMKNibPkDnF97QnUOFGirl1q0G_4VdDc&index=22)

Supported shields

ST X-NUCLEO boards

See Matrix of tested boards (https://developer.mbed.org/teams/ST/wiki/Matrix-of-tested-boards).

Other Non-ST boards

See here (https://developer.mbed.org/teams/ST/wiki/Supported-shields).

Technical references

For more information, please refer to:

- STM32F767ZI microcontroller (http://www.st.com/content/st_com/en/products/microcontrollers/stm32-32-bit-arm-cortex-mcus/stm32f7-series/stm32f7x7/stm32f767zi.html)
- NUCLEO-F767ZI board (http://www.st.com/content/st_com/en/products/evaluation-tools/product-evaluation-tools/mcu-eval-tools/stm32-mcu-eval-tools/stm32-mcu-nucleo/nucleo-f767zi.html)
- SDK changes log (/teams/ST/wiki/SDK-changes-log)

Known limitations

The following section describes known limitations of the platform. Note that general issues are tracked into the mbed repository (https://github.com/mbedmicro/mbed) available on GitHub.

- Conflict between Ethernet and SPI pins on Arduino D11

See HERE (https://os.mbed.com/teams/ST/wiki/Nucleo-144pins-ethernet-spi-conflict)

- Ethernet erroneous data received in RMII configuration with boards embedding STM32F767 revision A

See Errata Sheet (http://www.st.com/content/ccc/resource/technical/document/errata_sheet/group0/23/a6/11/0b/30/24/46/a5/DM00257543/files/DM00257543.pdf/jcr:content/trans
for more information

Tips and Tricks

How to enable the Flash dual bank ? (https://os.mbed.com/teams/ST/wiki/How-to-enable-flash-dual-bank)

Find more in ST WIKI pages (https://os.mbed.com/teams/ST/wiki/Special:Allpages).

Buy Now (http://www.st.com/content/st_com/en/products/evaluation-tools/product-evaluation-tools/mcu-eval-tools/stm32-mcu-eval-tools/stm32-mcu-nucleo/nucleo-f767zi.html#samplebuy-scroll)

You need to log in (/account/login/?next=/platforms/ST-Nucleo-F767ZI/) to post a discussion

Discussion topics

Topic	Replies	Last post
Jumper on CN5 (TX and RX) (/forum/platform-176-ST-Nucleo-F767ZI-community/topic/28005/) F767ZI (/search/?q=F767ZI&type=Forum), troubleshooting (/search/?q=troubleshooting&type=Forum)	0	12 Sep 2017 (12 Sep 2017) (/forum/platform-176-ST-Nucleo-F767ZI-community/post/53200/) by Chris P (/users/ChrisPro/)
debug and ST-LINK (/forum/platform-176-ST-Nucleo-F767ZI-community/topic/27820/) gd (/search/?q=gd&type=Forum), NUCLEO-F767ZI (/search/?q=NUCLEO-F767ZI&type=Forum), openocd (/search/?q=openocd&type=Forum), ST-LINK (/search/?q=ST-LINK&type=Forum)	0	18 May 2017 (18 May 2017) (/forum/platform-176-ST-Nucleo-F767ZI-community/post/52769/) by Antonello Lombardinilo (/users/quipu/)

Error on this page: Wrong chip shown under Microcontroller features (/forum/platform-176-ST-Nucleo-F767ZI-community/topic/26748/)	1	16 Nov 2016 (16 Nov 2016) (/forum/platform-176-ST-Nucleo-F767ZI-community/post/51633/) by bco stm (/users/bcostm/)

Questions

1 answer
(/questions/86731/Does-anyone-else-have-a-problem-when-deb/) Does anyone else have a problem when debugging? (/questions/86731/Does-anyone-else-have-a-problem-when-deb/) (/users/AlejandroVyent/) Alejandro Vyent (/users/AlejandroVyent/)
3 years, 3 months ago (Mon 12 Aug 2019 15:22)

NUCLEO-F767ZI (/questions/tag/NUCLEO-F767ZI)

1 answer
(/questions/86685/Cant-find-led3-pin/) ✔ Can't find led3 pin (/questions/86685/Cant-find-led3-pin/) (/users/gregfox151/) Greg Arikian (/users/gregfox151/)
3 years, 3 months ago (Wed 07 Aug 2019 11:22)

NUCLEO-F767ZI (/questions/tag/NUCLEO-F767ZI)

2 answers
(/questions/84776/Are-Nucleo-boards-usable-by-makers/) ✔ Are Nucleo boards usable by makers? (/questions/84776/Are-Nucleo-boards-usable-by-makers/) (/users/ppelleti/) Patrick Pelletier (/users/ppelleti/)
3 years, 9 months ago (Mon 25 Feb 2019 08:48)

license (/questions/tag/license) , Makers (/questions/tag/Makers) , NUCLEO-F767ZI (/questions/tag/NUCLEO-F767ZI)

1 answer
(/questions/81981/HTTPClient-example-over-ethernet-Nucleo-/) HTTPClient example over ethernet Nucleo F767ZI (/questions/81981/HTTPClient-example-over-ethernet-Nucleo-/) (/users/shivanandgowdakr/) Shivanand Gowda (/users/shivanandgowdakr/)
4 years, 4 months ago (Mon 06 Aug 2018 08:05)

ethernet (/questions/tag/ethernet) , HTTPClient (/questions/tag/HTTPClient) , NUCLEO-F767ZI (/questions/tag/NUCLEO-F767ZI)

1 answer
(/questions/80700/Is-there-a-way-to-use-PwmIn-library-for-/) Is there a way to use PwmIn library for this board effectively? (/questions/80700/Is-there-a-way-to-use-PwmIn-library-for-/) (/users/dangton/) Ton Dang (/users/dangton/)
4 years, 2 months ago (Mon 01 Oct 2018 13:56)

NUCLEO-F767ZI (/questions/tag/NUCLEO-F767ZI)

See more related questions (/questions/related/72/176/ST-Nucleo-F767ZI/)