STM32 programming

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FI MUNI: PA176

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Source code

Github:JarekParal/FI-MUNI_PA176_STM32-programming

`https://goo.gl/x6BciB`

STM32F103C8_encoders_TrueStudio/Src/main.c

STM32 ARM family

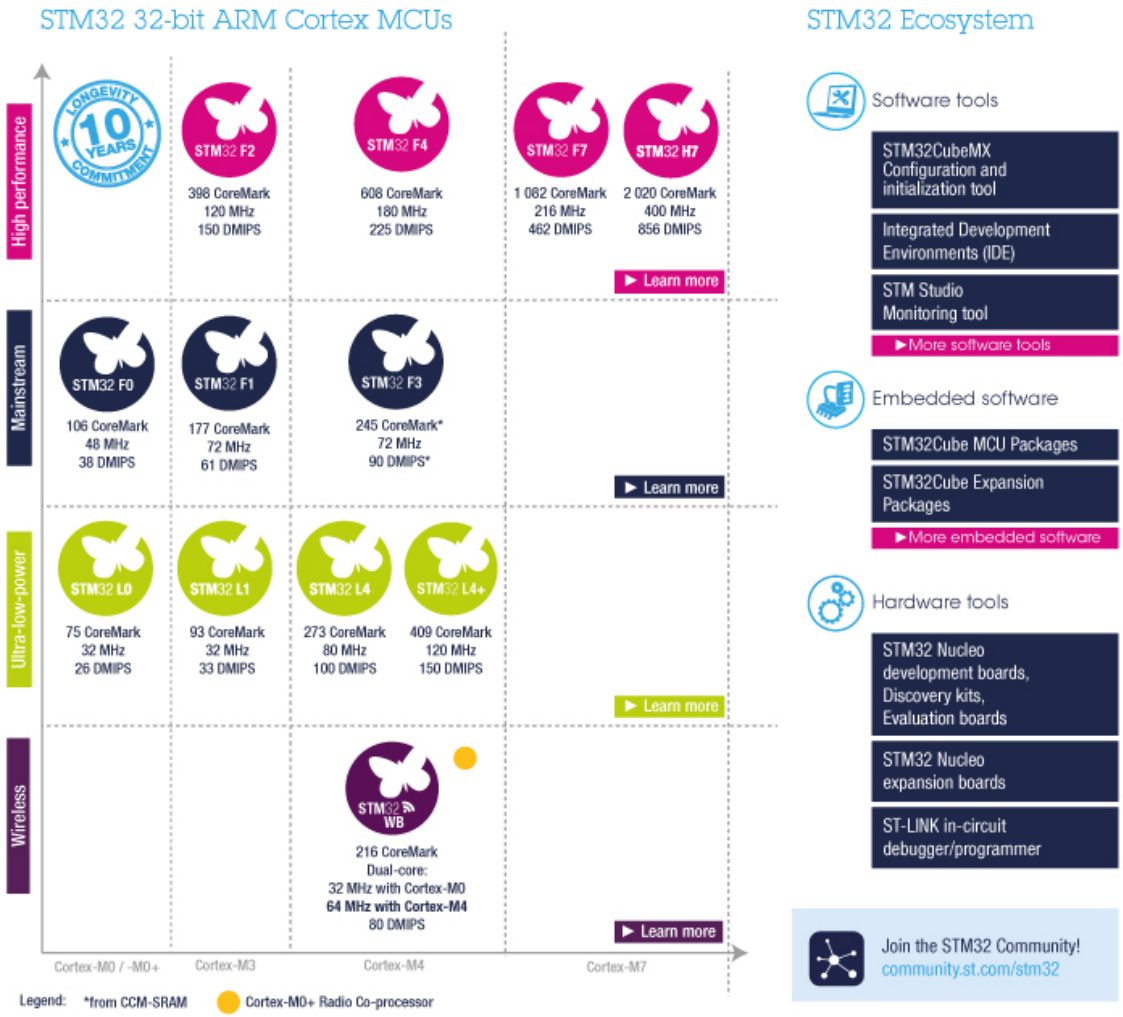
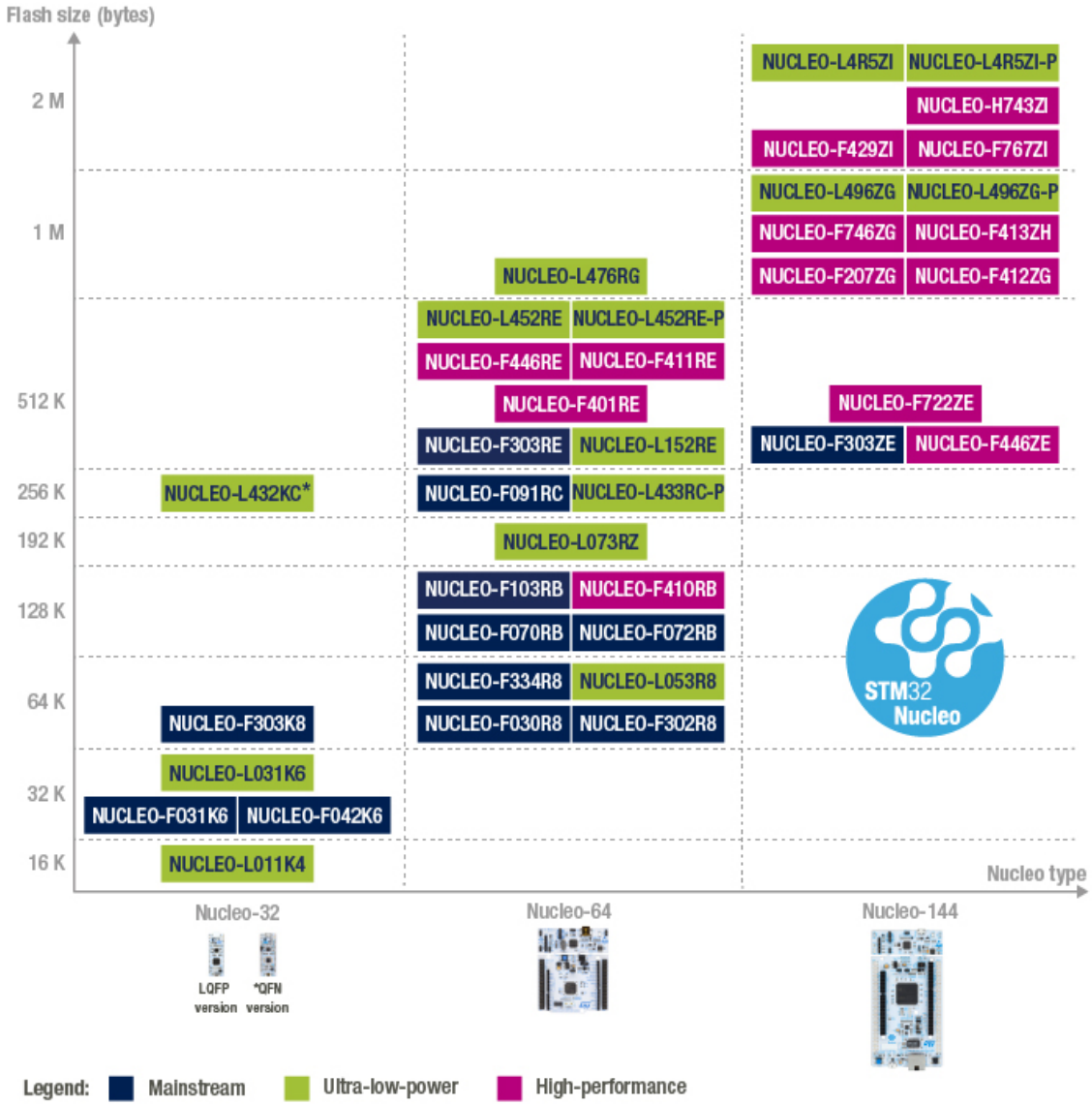


Image source: `http://www.st.com/en/microcontrollers/stm32-32-bit-arm-cortex-mcus.html`

STM32 ARM family

Image source: Digikey.com

STM32 MCU Nucleo - development board



STM32F1 Series

ARM® Cortex®-M3 (DSP + FPU) – Up to 72 MHz

- -40 to 105°C range
- USART, SPI, I²C
- 16- and 32-bit timers
- Temperature sensor
- Up to 3x12-bit ADC
- Dual 12-bit ADC
- Low voltage 2.0 to 3.6V (5V tolerant I/Os)

STM32 F1 Product lines	FCPU (MHz)	Flash (Kbytes)	RAM (Kbytes)	USB 2.0 FS	USB 2.0 FS OTG	FSMC	CAN 2.0B	3-phase MC Timer	I²S	SDIO	Ethernet IEEE1588	HDMI CEC
STM32F100 Value line	24	16 to 512	4 to 32			•		•				•
STM32F101	36	16 to 1M	4 to 80			•						
STM32F102	48	16 to 128	4 to 16	•								
STM32F103	72	16 to 1M	4 to 96	•		•	•	•	•	•		
STM32F105 STM32F107	72	64 to 256	64		•	•	•	•	•		•	

Image source: `http://www.st.com/en/microcontrollers/stm32f1-series.html`

STM32F103C8

ARM Cortex-M3 MCU with 64 Kbytes Flash, 72 MHz CPU

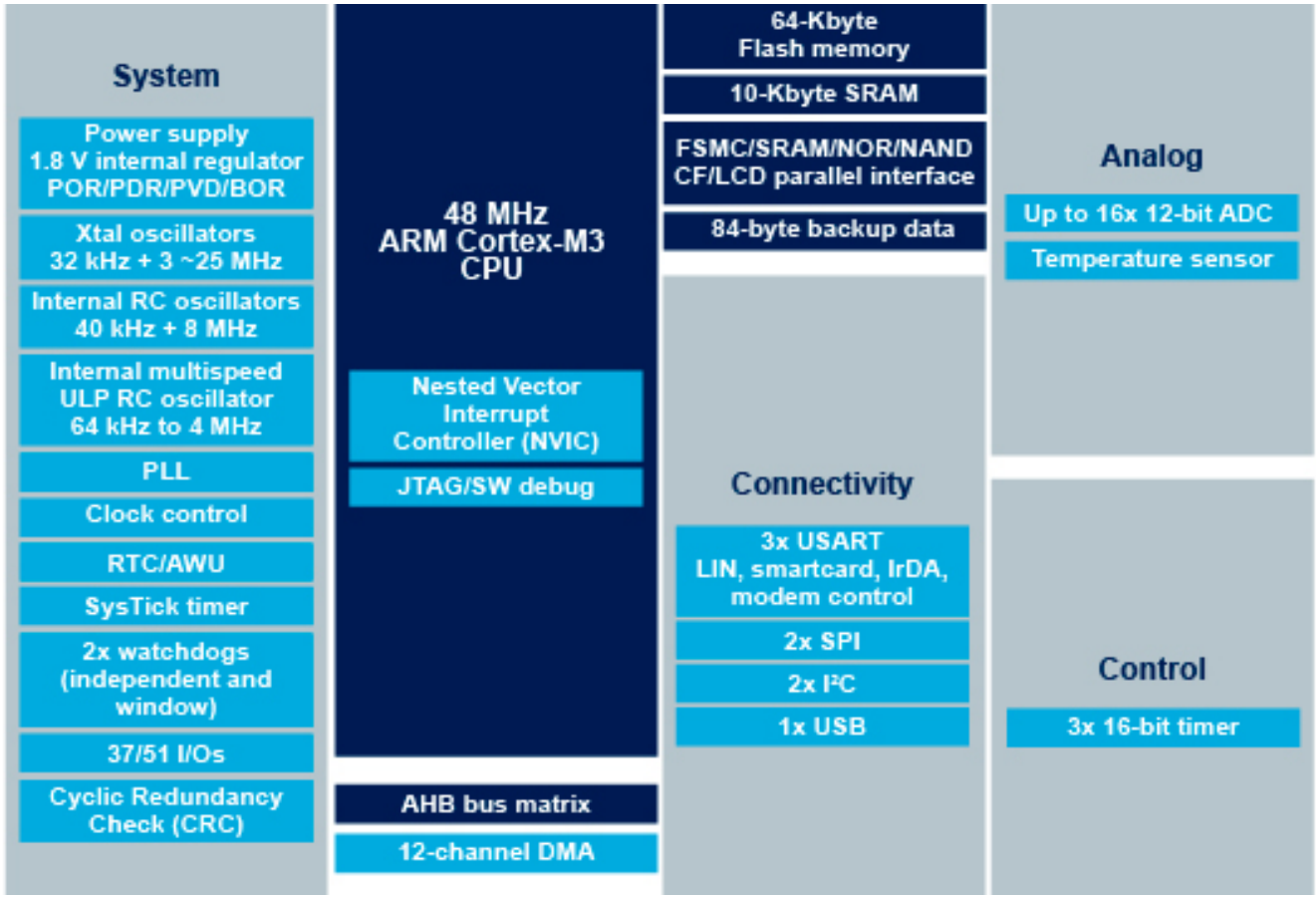


Image source: `http://www.st.com/en/microcontrollers/stm32f1-series.html`

STM32F103C8 - Blue Pill (Ebay / AliExpress - $2)

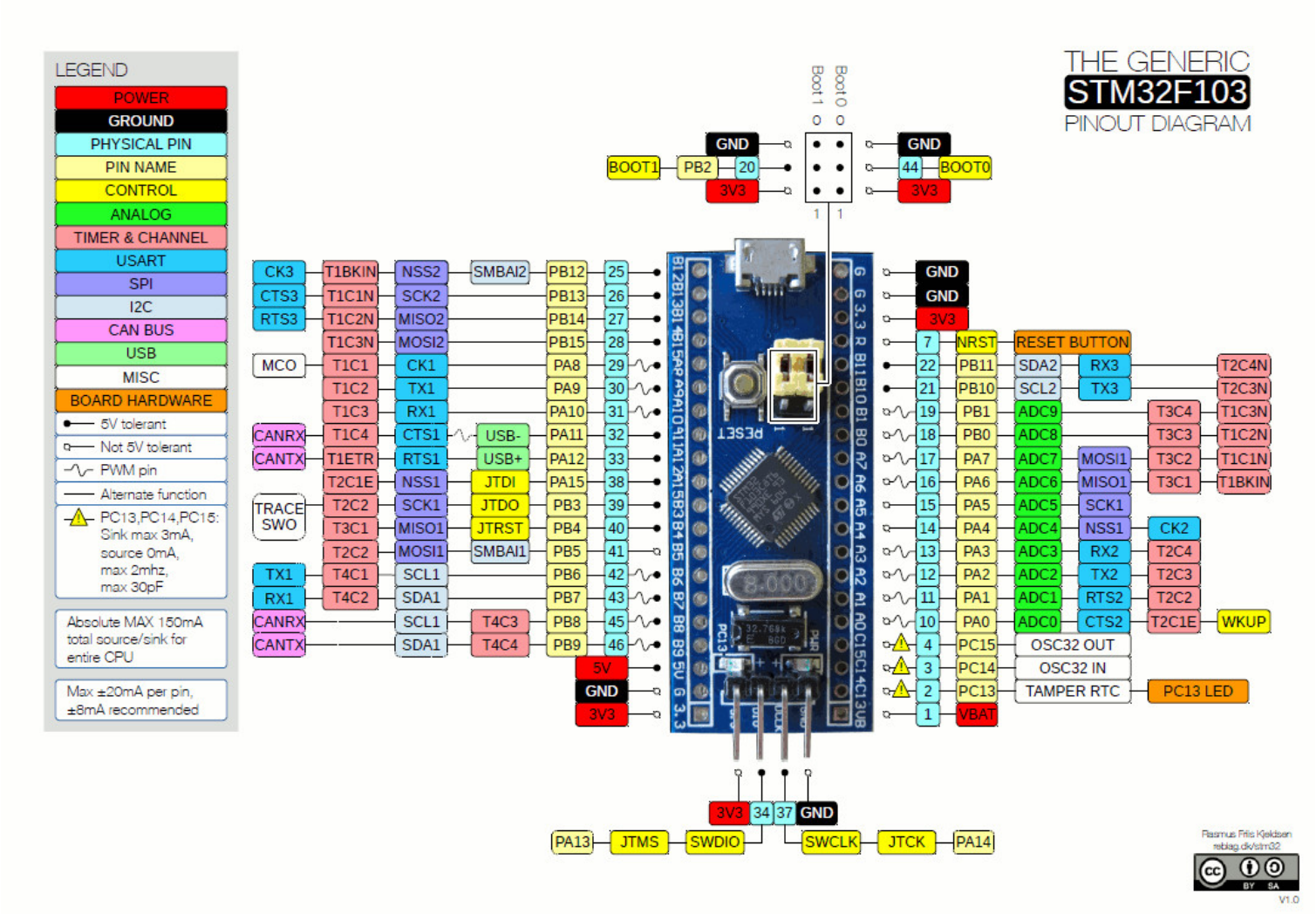


Image source: `http://wiki.stm32duino.com/index.php?title=Blue_Pill`

Tools

IDE (Integrated Development Environment)

- IAR-EWARM - just 30-day time-limited evaluation
- Keil MDK-Arm Lite - code size limit: 32 KBytes
- SW4STM32 - free, without restriction, not too powerful
- Attolic TrueSTUDIO
  - free without any restriction
  - now own by ST (2017-12-12)
  - similar powerful IDE as IAR or Keil
  - Windows / Linux
  - I recommend

Other tools

Arm Mbed - IoT Device Platform

more info STM32 IDEs

Tools

STM32CubeMX - initialization code generator

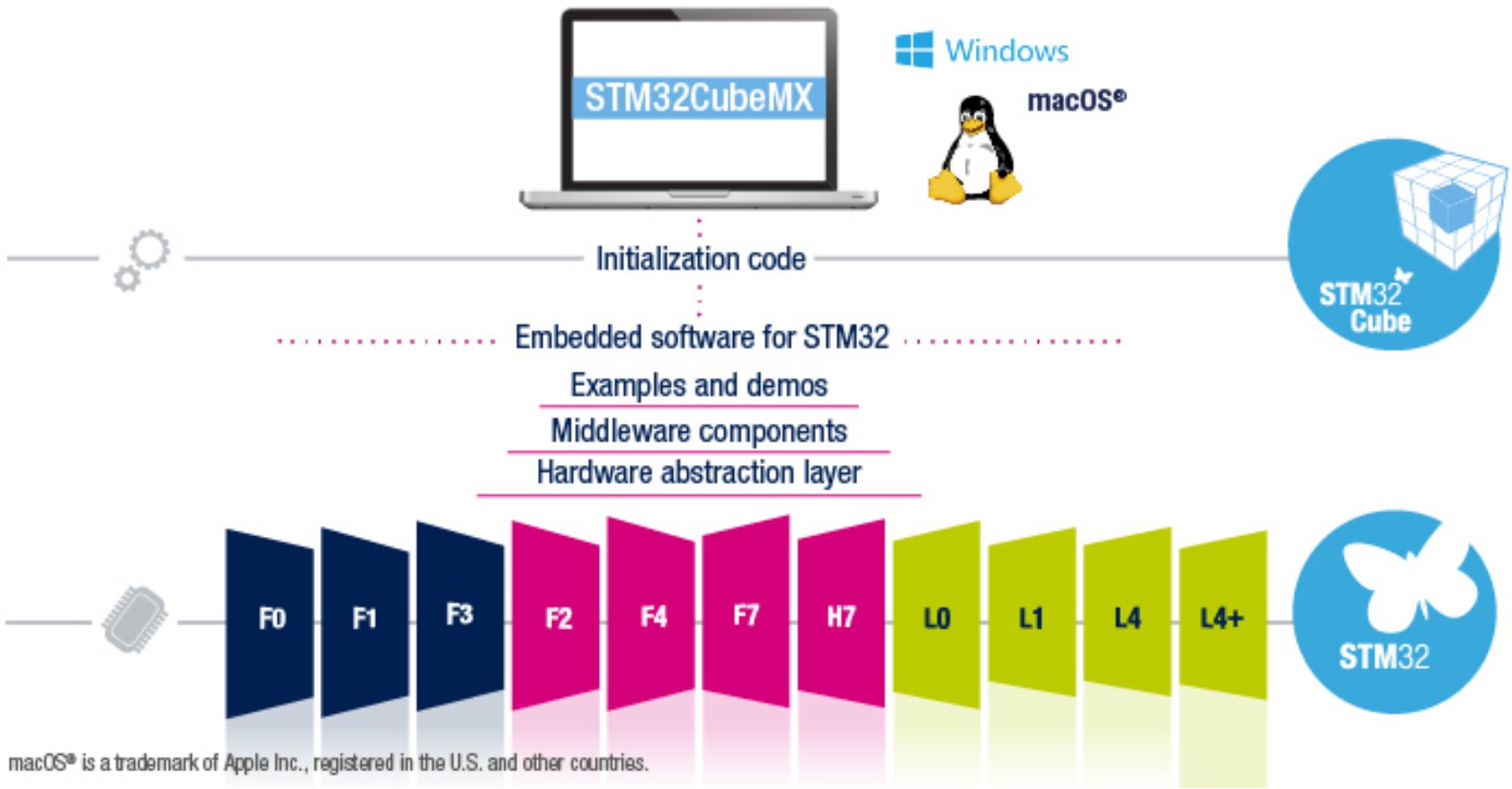


Image source: `http://www.st.com/en/embedded-software/stm32cube-mcu-packages.html`

Libraries and drivers

STM32CubeF1 - MCU Package for STM32 F1 series to CubeMX

- HAL
- Low-Layer APIs
- CMSIS (CORE, DSP, RTOS)
- USB
- TCP/IP
- File system
- RTOS
- examples for Discovery kits and Evaluation boards

STSW-STM32102 - STM32 Virtual COM Port Driver

Programmer and debugger - ST-Link (AliExpress - $2)

Image source: `https://goo.gl/kfhSuU/`

How continue?
Nucleo board + STM32 Education

NUCLEO-L432KC (Arduino Nano compatible)

Thanks for attention

NUCLEO-L432KC

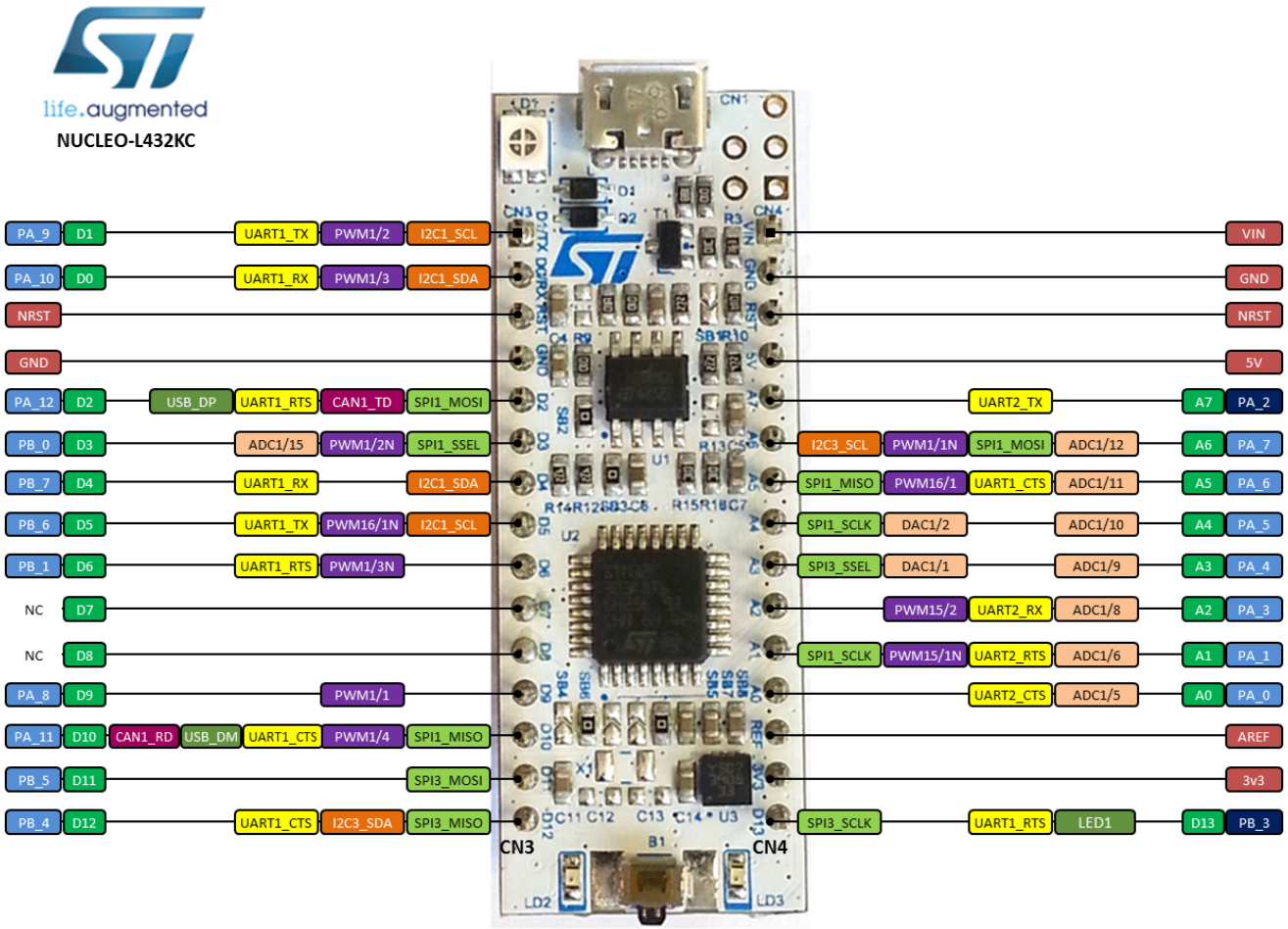


Image source: `https://os.mbed.com/platforms/ST-Nucleo-L432KC/`

ALKS (Arduino Learning Kit Starter)

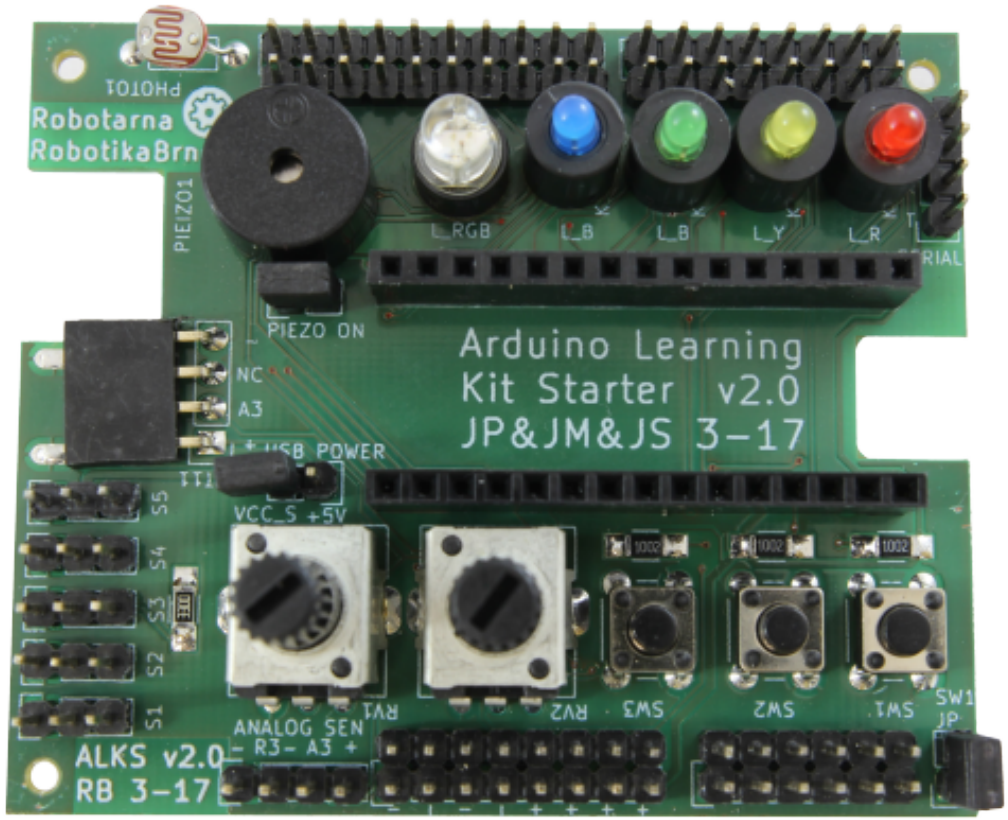


Image source: `https://github.com/RoboticsBrno/ArduinoLearningKitStarter/`