

STM32 programming

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FI MUNI: PA176

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Github: [JarekParal/FI-MUNI_PA176_STM32-programming](https://github.com/JarekParal/FI-MUNI_PA176_STM32-programming)

STM32 ARM family

STM32 32-bit ARM Cortex MCUs



STM32 Ecosystem

Software tools

- STM32CubeMX
Configuration and
initialization tool
- Integrated Development
Environments (IDE)
- STM Studio
Monitoring tool
- More software tools

Embedded software

- STM32Cube MCU Packages
- STM32Cube Expansion
Packages
- More embedded software

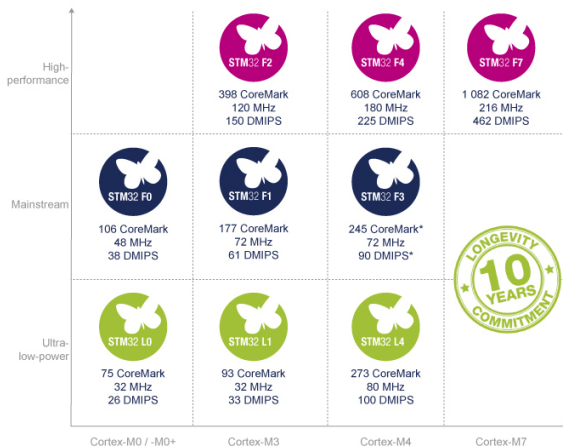
Hardware tools

- STM32 Nucleo
development boards,
Discovery kits,
Evaluation boards
- STM32 Nucleo
expansion boards
- ST-LINK in-circuit
debugger/programmer

Join the STM32 Community!
community.st.com/stm32

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

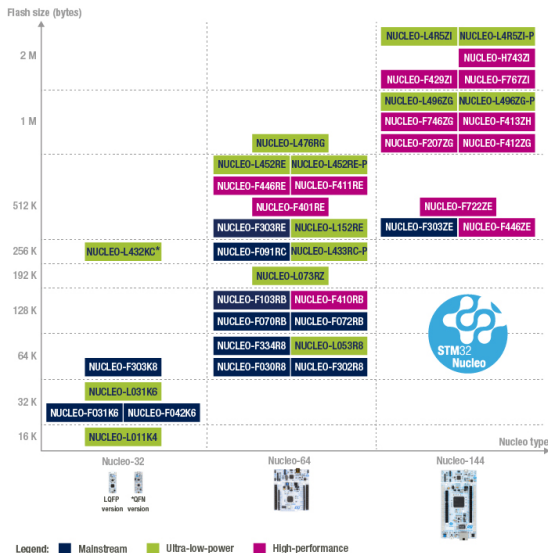
STM32 ARM family



* from CCM-SRAM

Image source: Digikey.com

STM32 MCU Nucleo - development board



STM32F1 Series


ARM® Cortex®-M3 (DSP + FPV) – Up to 72 MHz	<ul style="list-style-type: none"> -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	FCPU (MHz)	Flash (Kbytes)	RAM (Kbytes)	USB 2.0 FS	USB 2.0 FS OTG	FSMC	CAN 2.0B	3-phase MC Timer	PS	SDIO	Ethernet IEEE1588	HDMI CEC
		Product lines												
		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

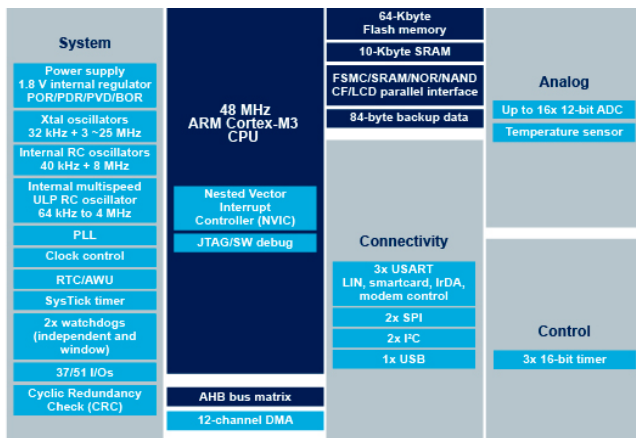


Image source: <http://www.st.com/en/microcontrollers/stm32f1-series.html>

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

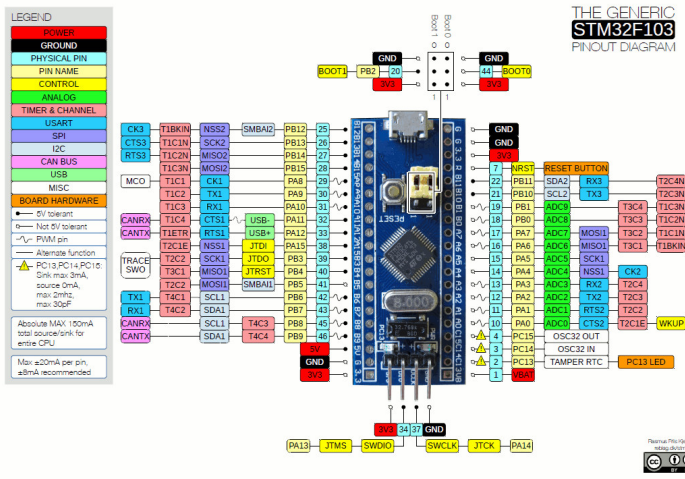


Image source: http://wiki.stm32duino.com/index.php?title=Blue_Pill

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

STM32CubeMX - initialization code generator

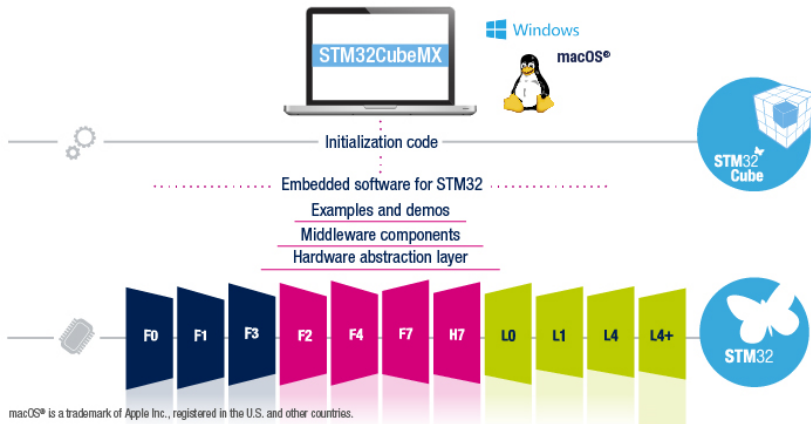


Image source: <http://www.st.com/en/embedded-software/stm32cube-mcu-packages.html>

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