STM32CubeMX

STM32 configuration and initialization C code generation

Features

- Intuitive STM32 microcontroller selection
- Microcontroller graphical configuration:
  - Pinout with automatic conflict resolution
  - Clock tree with dynamic validation of configuration
  - Peripherals and middleware functional modes and initialization with dynamic validation of parameter constraints
  - Power sequence with estimate of consumption results
- C code project generation covering STM32 microcontroller initialization compliant with IAR™, Keil™ and GCC compilers.
- Available as a standalone software running on Windows®, Linux® and macOS® (Apple Inc. trademark registered in the U.S. and other countries) operating systems, or through Eclipse plug-in

Description

STM32CubeMX is part of STMicroelectronics STMCube™ original initiative to make developers' lives easier by reducing development effort, time and cost. STM32Cube covers the whole STM32 portfolio.

STM32Cube includes STM32CubeMX, a graphical software configuration tool that allows the generation of C initialization code using graphical wizards.

It also embeds comprehensive STM32Cube MCU Packages, delivered per STM32 microcontroller Series (such as STM32CubeF4 for STM32F4 Series). These packages include the STM32Cube HAL (an STM32 abstraction layer embedded software ensuring maximized portability across the STM32 portfolio), the STM32Cube LL (low-layer APIs, a fast, light-weight, expert-oriented layer), plus a consistent set of middleware
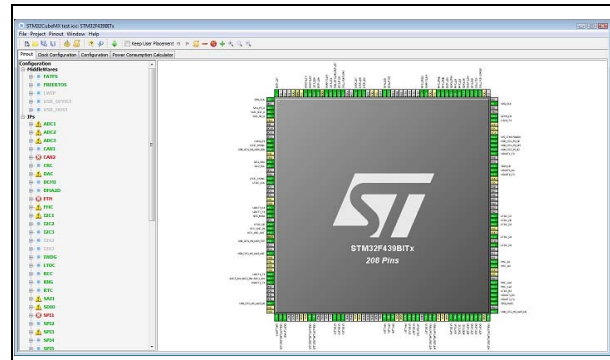
components such as RTOS, USB, TCP/IP and graphics. All the embedded software utilities are delivered with a full set of examples.

STM32CubeMX is a graphical tool that allows a very easy configuration of STM32 microcontrollers and the generation of the corresponding initialization C code through a step-by-step process.

Step one consists in selecting the STMicroelectronics STM32 microcontroller that matches the required set of peripherals.

The user must then configure each required embedded software thanks to a pinout-conflict solver, a clock-tree setting helper, a power-consumption calculator, and an utility performing MCU peripheral configuration (GPIO, USART, ..) and middleware stacks (USB, TCP/IP, ...).

Finally, the user launches the generation of the initialization C code based on the selected configuration. This code is ready to be used within several development environments. The user code is kept at the next code generation.

Figure 1. STM32Cube overview

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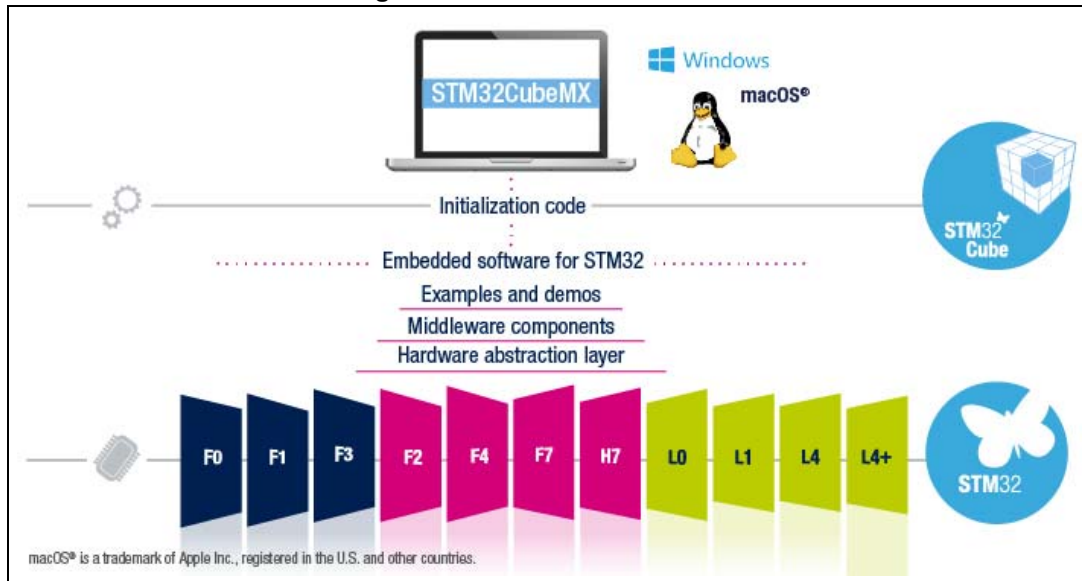
Ordering Information

STM32CubeMX is available for free download from http://www.st.com/stm32cubemx.

Revision history

Table 1. Document revision history

Date	Revision	Changes
14-Feb-2014	1	Initial release.
19-Jun-2014	2	Updated *Description* and *Figure 1: STM32Cube overview*.
16-Jan-2015	3	STM32CubeMX extended to all STM32 series.
08-Feb-2016	4	Added Windows® and Linux® operating systems in *Features*. Removed mention of MicroXplorer tool in *Description*. Updated *Figure 1: STM32Cube overview*.
29-Apr-2016	5	Added OS X operating system.
28-Jun-2017	6	Add low-layer APIs. Replace OS X by macOS operating system. Updated *Figure 1: STM32Cube overview*
04-Jul-2017	7	The footnote on cover page related to macOS has been embedded in the list of features.
14-Nov-2017	8	Updated *Description* and *Figure 1: STM32Cube overview*

IMPORTANT NOTICE – PLEASE READ CAREFULLY