STM32CubeF1

STM32Cube MCU Package for STM32F1 Series with HAL, low-layer drivers and dedicated middleware

Data brief

Features

- Consistent and complete embedded software offer that frees the user from dependency issues
- Maximized portability between all STM32 Series supported by STM32Cube
- More than 120 examples for easy understanding
- High quality HAL using CodeSonar® static analysis tool
- High quality low-layer APIs (LL) using CodeSonar® static analysis tool
- STM32F1-dedicated middleware including USB Host and Device, FatFS, RTOS, Graphics, and TCP/IP
- Free user-friendly license terms
- Update mechanism that can be enabled by the user to be notified of new releases

Description

STMCube™ is an STMicroelectronics original initiative to make developers' lives easier by reducing development effort, time and cost. STM32Cube is the implementation of STMCube™ that 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 comprises the STM32CubeF1 MCU Package composed of the STM32Cube hardware abstraction layer (HAL) and the low-layer (LL) APIs, plus a consistent set of middleware components (RTOS, USB, FAT file system, Graphics and TCP/IP). All embedded software utilities are delivered with a full set of examples running on STMicroelectronics boards.
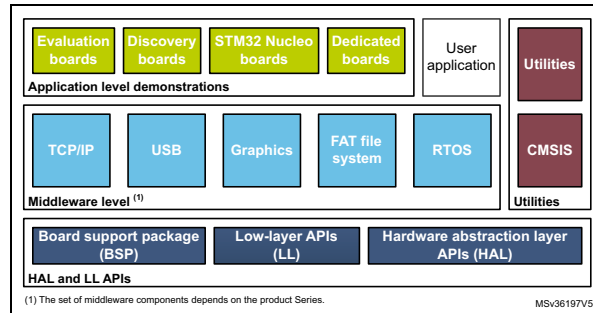
The STM32Cube HAL is an STM32 embedded software layer that ensures maximized portability across the STM32 portfolio, while the LL APIs make up a fast, light-weight, expert-oriented layer which is closer to the hardware than the HAL. HAL and LL APIs can be used simultaneously with a few restrictions.

Both the HAL and LL APIs are production-ready and have been developed in compliance with MISRA C®:2004 guidelines with some documented exceptions (reports available on demand) and ISO/TS 16949. Furthermore, ST-specific validation processes add a deeper-level qualification.

STM32CubeF1 gathers in one single package all the generic embedded software components required to develop an application on STM32F1 microcontrollers. Following STM32Cube initiative, this set of components is highly portable, not only within STM32F1 Series but also to other STM32 Series. In addition, the low-layer APIs provide an alternative, high-performance, low-footprint solution to the STM32CubeF1 HAL at the cost of portability and simplicity.

HAL and LL APIs are available under open-source BSD license for user convenience.

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STM32CubeF1 MCU Package

The STM32CubeF1 MCU Package runs on STM32 32-bit microcontrollers based on the Arm® Cortex®-M processor.

The package contains a set of middleware components with the corresponding examples. They are delivered in very permissive license terms:

- CMSIS-RTOS implementation with FreeRTOS™ open source solution
- TCP/IP stack based on open source LwIP solution
- FAT file system based on open source FatFS solution
- STemWin, a professional graphical stack solution available in binary format and based on our partner solution SEGGER emWin
- Full USB Host and Device stack supporting many classes

A set of application projects implementing all these middleware components is also provided in the STM32CubeF1 MCU Package.

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Ordering Information

STM32CubeF1 is available for free download from http://www.st.com/stm32cubefw.

Revision history

Table 1. Document revision history

Date	Revision	Changes
09-Jan-2015	1	Initial release.
23-Jun-2017	2	Cover page: – moved list of middleware components from document title to list of features. – added low-layer APIs (LL) to features list – updated STM32CubeF1 firmware component block diagram. – updated description In *Section : STM32CubeF1 package*, removed last sentence. Normalized term 'low-layer' (hyphen and lower case).
29-Nov-2017	3	Updated title and schematic. Updated *Features*, *Description* and *STM32CubeF1 MCU Package* to introduce the 'STM32CubeF1 MCU package' denomination.

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