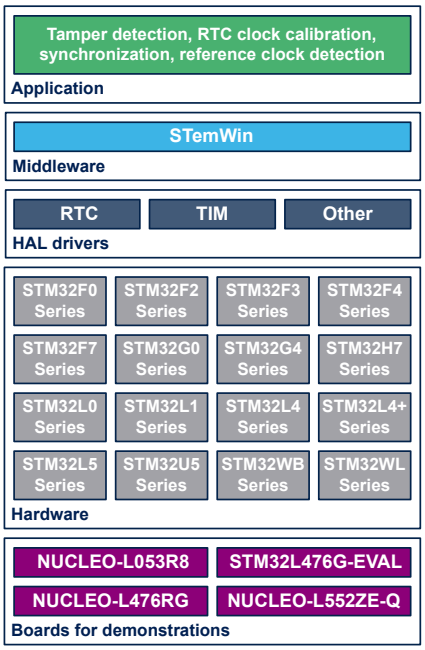
X-CUBE-RTC

Data brief

RTC (real-time clock) software expansion for STM32Cube



Product status link
X-CUBE-RTC

Features

- Calendar that keeps time and date
- Tamper detection by erasing backup registers
- Timestamp for the tampering event
- RTC usage in Stop mode
- Smooth digital calibration
- RTC clock synchronization
- Reference clock detection
- Internal tamper detection

Description

The microcontrollers in the STM32F0 Series, STM32F2 Series, STM32F3 Series, STM32F4 Series, STM32F7 Series, STM32G0 Series, STM32G4 Series, STM32H7 Series, STM32L0 Series, STM32L1 Series, STM32L4 Series, STM32L4+ Series, STM32L5 Series, STM32U5 Series, STM32WB Series, and STM32WL Series feature a real-time clock (RTC) peripheral designed to allow the STM32 MCUs to operate with minimum power requirements.

The applications in the X-CUBE-RTC Expansion Package aim to demonstrate how to exploit fully the RTC advantages, thus extending product battery life.

For more details, refer to the *Using the hardware real-time clock (RTC) and the tamper management unit (TAMP) with STM32 microcontrollers* application note (AN4759), available on *www.st.com*.

1 General information

The X-CUBE-RTC Expansion Package runs on STM32 microcontrollers based on Arm® cores.

Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

1.1 Ordering information

X-CUBE-RTC is available for free download from the *www.st.com* website.

1.2 What is STM32Cube?

STM32Cube is an STMicroelectronics original initiative to significantly improve designer's productivity by reducing development effort, time, and cost. STM32Cube covers the whole STM32 portfolio.

STM32Cube includes:

- A set of user-friendly software development tools to cover project development from conception to realization, among which are:
  - STM32CubeMX, a graphical software configuration tool that allows the automatic generation of C initialization code using graphical wizards
  - STM32CubeIDE, an all-in-one development tool with peripheral configuration, code generation, code compilation, and debug features
  - STM32CubeProgrammer (STM32CubeProg), a programming tool available in graphical and command-line versions
  - STM32CubeMonitor (STM32CubeMonitor, STM32CubeMonPwr, STM32CubeMonRF, STM32CubeMonUCPD) powerful monitoring tools to fine-tune the behavior and performance of STM32 applications in real-time
- STM32Cube MCU and MPU Packages, comprehensive embedded-software platforms specific to each microcontroller and microprocessor series (such as STM32CubeG4 for the STM32G4 Series), which include:
  - STM32Cube hardware abstraction layer (HAL), ensuring maximized portability across the STM32 portfolio
  - STM32Cube low-layer APIs, ensuring the best performance and footprints with a high degree of user control over hardware
  - A consistent set of middleware components such as FAT file system, RTOS, USB Device, and USB Power Delivery
  - All embedded software utilities with full sets of peripheral and applicative examples
- STM32Cube Expansion Packages, which contain embedded software components that complement the functionalities of the STM32Cube MCU and MPU Packages with:
  - Middleware extensions and applicative layers
  - Examples running on some specific STMicroelectronics development boards

2 License

X-CUBE-RTC is delivered under the *Mix Ultimate Liberty+OSS+3rd-party V1* software license agreement (SLA0048).

The software components provided in this package come with different license schemes as shown in Table 1.

Table 1. Software component license agreements

Software component	Copyright	License
Board support package (BSP)	STMicroelectronics	BSD-3-Clause
STemWin middleware	STMicroelectronics	Proprietary
HAL STM32F0, STM32F2, STM32F3, STM32F4, STM32F7, STM32G0, STM32G4, STM32H7, STM32L0, STM32L1, STM32L4, STM32L4+, STM32L5, STM32U5, STM32WB, STM32WL	STMicroelectronics	BSD-3-Clause
Project examples	STMicroelectronics	Proprietary

Revision history

Table 2. Document revision history

Date	Revision	Changes
30-May-2016	1	Initial release.
11-Nov-2016	2	Updated *Features* and *Description* in cover page.
10-Feb-2020	3	Extended document scope to the STM32G0 Series, STM32G4 Series, STM32H7 Series, STM32L4+ Series, STM32L5 Series, STM32WB Series, and STM32WL Series. Updated the entire document: • Updated title and cover page • Updated *Description* • Added *Ordering information*, *What is STM32Cube?* and *License*
9-Jun-2021	4	Document scope extended to the STM32U5 Series: updated Description, License and the cover picture. Updated What is STM32Cube?

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