

## Low-power timer (LPTIM) software expansion for STM32Cube

Asynchronous pulse counter in Stop mode	
PWM generator in Stop mode	
Timeout wake-up mode	
Application examples	
RCC	FLASH
PWR	LPTIM
HAL drivers	
STM32F4 Series <sup>(1)</sup>	STM32F7 Series
STM32G0 Series	STM32G4 Series
STM32H7 Series	STM32L0 Series
STM32L4 Series	STM32L4+ Series
STM32L5 Series	STM32U5 Series
STM32WB Series	STM32WL Series
Hardware	STM32MP1 Series
Demonstration boards	
NUCLEO-L476RG	

(1) For some product lines only.

Product status link

X-CUBE-LPTIMER



### Features

- Three applicative examples covering most features of the STM32 low-power timer peripherals:
  - Asynchronous pulse counter in Stop mode
  - PWM generator in Stop mode
  - Timeout wake-up mode
- Source-code template generated by the [STM32CubeMX](#) software tool
- Tailored to run readily on the [NUCLEO-L476RG](#) board
- Easy tailoring for any toolchains compatible with the STM32 ecosystem

### Description

The [X-CUBE-LPTIMER](#) is an STM32Cube Expansion Package. It provides applicative use-cases for the low-power timer (LPTIM) peripherals embedded in STM32 microcontrollers and microprocessors.

[X-CUBE-LPTIMER](#) applies to the [STM32F7 Series](#), [STM32G0 Series](#), [STM32G4 Series](#), [STM32H7 Series](#), [STM32L0 Series](#), [STM32L4 Series](#), [STM32L4+ Series](#), [STM32L5 Series](#), [STM32U5 Series](#), [STM32WB Series](#), [STM32WL Series](#), and [STM32MP1 Series](#). It applies also to the [STM32F410](#) and [STM32F413/423](#) product lines.

For more details on the low-power timer (LPTIM), refer to the *Low-power timer (LPTIM) applicative use cases on STM32 MCUs and MPUs* application note (AN4865), available at the [www.st.com](http://www.st.com) website.

## 1 General information

The X-CUBE-LPTIMER 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-LPTIMER is available for free download from the [www.st.com](http://www.st.com) website.

### 1.2 What is STM32Cube?

STM32Cube is an STMicroelectronics original initiative to improve designer productivity significantly 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 STM32CubeL4 for the STM32L4 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 RTOS, USB Host and Device, FAT file system, touch library, and graphics
  - 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

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X-CUBE-LPTIMER is delivered under the [SLA0048](#) software license agreement and its Additional License Terms.

## Revision history

Table 1. Document revision history

Date	Revision	Changes
26-Sep-2016	1	Initial release.
16-Jun-2017	2	Updated <i>Description</i> .
22-Mar-2022	3	Extended the range of compatible products: <ul style="list-style-type: none"><li>• Added the simplified software architecture on the cover page</li><li>• Updated the document title</li><li>• Updated <a href="#">Features</a> and <a href="#">Description</a></li></ul> Added <a href="#">License</a> and <a href="#">What is STM32Cube?</a>

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