

LED driver software expansion for STM32Cube

Applications & demonstrations	LED Demo
Hardware Abstraction	STM32Cube Hardware Abstraction Layer (HAL)
Hardware	STM32 Nucleo expansion boards X-NUCLEO-LED12A1
	STM32 Nucleo development board



Features

- Driver software expansion for X-NUCLEO-LED12A1 expansion board based on LED1202
- Normal and GUI modes
- In normal mode, each LED starts from the minimum intensity to reach the maximum intensity
- In GUI mode, LED intensity can be controlled via GUI
- Sample implementation available for X-NUCLEO-LED12A1 when connected to a NUCLEO-L073RZ, NUCLEO-L476RG or NUCLEO-F401RE development board
- Easy portability across different MCU families, thanks to STM32Cube
- Free, user-friendly license terms

Description

The X-CUBE-LED12A1 expansion software package for STM32Cube runs on the STM32 and includes drivers that recognize the LED1202 LED Driver IC.

The expansion is built on STM32Cube software technology to ease portability across different STM32 microcontrollers.

The software comes with a sample implementation of the drivers running on the X-NUCLEO-LED12A1 expansion board when connected to a NUCLEO-L073RZ, NUCLEO-L476RG or NUCLEO-F401RE development board.

The X-CUBE-LED12A1 lets you easily create your own application using the driver implemented.

Product summary	
LED driver software expansion for STM32Cube	X-CUBE-LED12A1
LED driver expansion board based on LED1202 device for STM32 Nucleo	X-NUCLEO-LED12A1
12-channel low quiescent current LED driver	LED1202
Applications	LED Lighting Smart Home

1 Detailed description

1.1 What is STM32Cube?

STM32Cube is a combination of a full set of PC software tools and embedded software blocks running on STM32 microcontrollers and microprocessors:

- [STM32CubeMX](#) configuration tool for any STM32 device; it generates initialization C code for Cortex-M cores and the Linux device tree source for Cortex-A cores
- [STM32CubeIDE](#) integrated development environment based on open-source solutions like Eclipse or the GNU C/C++ toolchain, including compilation reporting features and advanced debug features
- [STM32CubeProgrammer](#) programming tool that provides an easy-to-use and efficient environment for reading, writing and verifying devices and external memories via a wide variety of available communication media (JTAG, SWD, UART, USB DFU, I2C, SPI, CAN, etc.)
- STM32CubeMonitor family of tools ([STM32CubeMonRF](#), [STM32CubeMonUCPD](#), [STM32CubeMonPwr](#)) to help developers customize their applications in real-time
- [STM32Cube MCU and MPU packages](#) specific to each STM32 series with drivers (HAL, low-layer, etc.), middleware, and lots of example code used in a wide variety of real-world use cases
- [STM32Cube expansion packages](#) for application-oriented solutions.

1.2 How does this software complement STM32Cube?

This software is based on the STM32CubeHAL hardware abstraction layer for the STM32 microcontroller. The package extends [STM32Cube](#) by providing a board support package (BSP) for the [X-NUCLEO-LED12A1](#) expansion board.

The drivers abstract low-level details of the hardware and allow the applications to access the [LED1202](#) mounted on the [X-NUCLEO-LED12A1](#).

The package includes a sample application that the developer can use to start experimenting with the code. The sample application works in two modes: normal mode and GUI mode.

In normal mode, the demo runs on a [NUCLEO-L073RZ](#), [NUCLEO-L476RG](#), or [NUCLEO-F401RE](#) development board plus the [X-NUCLEO-LED12A1](#) expansion board and the panel board.

In GUI mode, the demo runs on the same hardware and lets you control the LED intensity via GUI.

For this purpose, the package also includes a utility for Windows PC. This utility allows you to choose among several options available on the expansion board.

You can find this PC GUI (downloadable from the [STSW-LED1202GUI](#) web page) in the utility folder of the [X-CUBE-LED12A1](#) package.

Revision history

Table 1. Document revision history

Date	Revision	Changes
04-Oct-2021	1	Initial release.
08-Nov-2021	2	Added references to the STSW-LED1202GUI PC GUI.

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