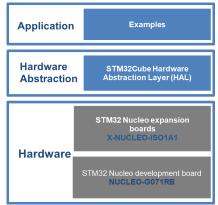




### Micro-PLC software expansion for STM32Cube





#### **Product summary** Micro-PLC software expansion for X-CUBE-ISO1 STM32Cube Industrial isolated input/ output expansion board hased on X-NUCLEO-STISO620/621. ISO1A1 CLT03-2Q3 and IPS1025HQ for STM32 Nucleo STM32 Nucleo-64 development board with **NUCLEO-**STM32G071RB MCU, G071RB supports Arduino and ST morpho connectivity STM32 Nucleo-64 development board with **NUCLEO-**STM32G0B1RE MCU, G0B1RE supports Arduino and ST morpho connectivity STM32 Nucleo-64 development board with **NUCLEO-**STM32G070RB MCU, **G070RB** supports Arduino and ST morpho connectivity

### **Features**

- Firmware to use the industrial isolated input/output expansion board, X-NUCLEO-ISO1A1, based on STISO620, STIS0621, CLT03-2Q3 and IPS1025HQ
- · Simple user APIs to
  - monitor industrial digital inputs via GPIO
  - control high side digital outputs individually or collectively, or alternatively, configure and start PWM signals on outputs
  - monitor output faults and board status through UART present on the NUCLEO board
  - control LEDs on the board
- Functionality to support stacking of two X-NUCLEO-ISO1A1 boards
- Pre-compiled binaries available on the X-NUCLEO-ISO1A1 board connected to a NUCLEO-G071RB development board (other compatible development boards are NUCLEO-G0B1RE and NUCLEO-G070RB)
- Easy portability across different MCU families, thanks to STM32Cube
- Free, user-friendly license terms

### **Description**

The X-CUBE-ISO1 expansion software package for STM32Cube runs on the STM32 and includes APIs and sample applications in order to perform tasks such as digital input to output mirroring, PWM generation through timers, output fault detection, board test case and other input output functions.

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-ISO1A1 expansion boards connected to a NUCLEO-G071RB development board (or either a NUCLEO-G0B1RE or a NUCLEO-G070RB).



Product summary		
	Digital Input to output mirroring	
Applications	PWM generation	
Applications	Test case and fault detection	
	Board monitoring through UART	

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## 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-ISO1A1 board.

The package includes several sample applications that the developer can use to start experimenting with the code. The various user APIs can be used to obtain the desired functionality.

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# **Revision history**

Table 1. Document revision history

Date	Revision	Changes
04-Apr-2025	1	Initial release.
25-Jun-2025	2	Updated Title and Product summary.

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