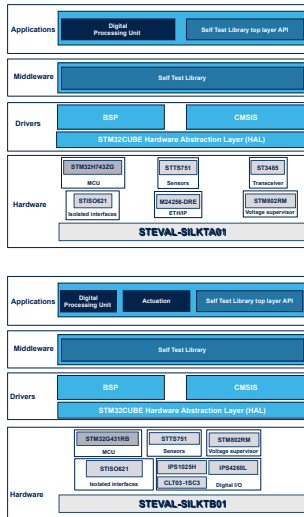


Software package for STEVAL-SILKT01 evaluation kit



Features

- Dual core architecture based on STM32H743ZG and STM32G431RB
- Independent execution of safety functions by each microcontroller
- X-CUBE-STL self-test library certified by TÜV Rheinland according to IEC61508
- Diagnostic features supported by dedicated API (undervoltage/overvoltage/temperature monitoring)
- Real time communication supporting RS485, CAN, Ethernet/IP (just at hardware level)
- Board support package (BSP) libraries for the on-board IC management
- STM32 framework compliance

Description

The **STSW-SILKT01** firmware has been developed using IAR workbench 8.5.9. It is compliant with the STM32 Cube framework and offers an application example with the main features necessary at firmware level to control a system in the range of functional safety, for the application use cases where a SIL3 level is required.

The firmware package is made of two parts, with the first one addressing the main board STEVAL-SILKTA01, while the second is dedicated to the actuation board, identified with the order code STEVAL-SILKTB01.

The first firmware is implemented for [STM32H743ZG](#) microcontroller, whereas the second one for [STM32G431RB](#).

Both firmwares implement the same features such as: diagnostic functions for boards monitoring, data processing, temperature monitoring and the detection of digital inputs connected to the actuation board. Execution of safety functions, in an independent way as required by the IEC61508.

The firmware package support for [STM32H743ZG](#) and [STM32G431RB](#) microcontrollers the related safety libraries, to put in place with dedicated source routine the internal memory check for each.

Product summary	
Software package for STEVAL-SILKT01 evaluation kit	STSW-SILKT01
Evaluation kit for PLC solution SIL3 suitable	STEVAL-SILKT01
High-performance and DSP with DP-FPU, Arm Cortex-M7 MCU with 2MBytes of Flash memory, 1MB RAM, 480 MHz CPU, Art Accelerator, L1 cache, external memory interface, large set of peripherals	STM32H743ZG
Mainstream Arm Cortex-M4 MCU 170 MHz with 128 Kbytes of Flash memory, Math Accelerator, Medium Analog level integration	STM32G431RB
Applications	Programmable Logic Controllers (PLC)

1 STM32 safety libraries

The STM32 safety libraries for both MCU are certified by TUV Rheinland, but are not included in the [STSW-SILKT01](#) package.

Please contact ST to agree on how to get the [X-CUBE-STL](#) library (you will be asked to sign a NDA, non-disclosure agreement).

Note: Once you get the [X-CUBE-STL](#) library for both microcontrollers, integrate it in the `Middleware/ST` folder; the [STSW-SILKT01](#) package, includes the two firmware package one for `STEVAL-SILKTA01` based on `STM32H743ZG` and the other for `STEVAL-SILKTB01` based on `STM32G431RB`, so integrate the safety library accordingly to microcontroller. After library integration, open the `STLmain.c` file available in the `Core` folder, and fill the `StlSingleTest()` routine with the corresponding content in the available in the libraries.

Note: The application firmware example implemented in the [STSW-SILKT01](#) package is not certified or assessed by independent safety assessor (ISA); it includes the basic functions to satisfy requirements in terms of diagnostic safety functions, and safety function execution for load de-energization in case of fault.

Revision history

Table 1. Document revision history

Date	Revision	Changes
14-Dec-2023	1	Initial release.

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