

Functional safety design package to achieve IEC 61508 safety integrity level (SIL2 / SIL3) certification with STM32

ACHIEVING SIL2/3 WITH STM32



Product status link

[X-CUBE-STL](#)

Features

- MCU safety manual
 - Detailed list of safety requirements (conditions of use) and examples to guide STM32 users to achieve safety integrity level certification in compliance with IEC 61508
 - Available for STM32F0, F3, F4, F7, H7, L4 Series (to be extended in the future to other STM32 Series)
- MCU FMEA
 - Detailed list of MCU failure modes and related mitigation measures adopted (qualitative analysis)
 - Available today for STM32F0 Series (to be extended in the future to other STM32 Series)
- FMEDA snapshot
 - Static snapshot reporting IEC 61508 failure rates, computed at both MCU and basic function levels of detail
 - Available for STM32F0, F1, F3, F4, F7, L4 Series (to be extended in the future to other STM32 Series)
- X-CUBE-STL library
 - Software-based diagnostic suite designed to detect hardware random failures in STM32 safety-critical core components (CPU + SRAM + Flash memory)
 - Compliant to IEC61508 SC3 (SIL3) development process
 - Diagnostic coverage verified by state-of-the-art ST proprietary fault injection methodology
 - Application independent: can be used in any end customer application
 - Compiler independent: delivered as object code
 - Certified by TÜV Rheinland
 - Includes the X-CUBE-STL user guide, a functional-only document related to STL functions (such as API details)
 - Includes the X-CUBE-STL safety manual, the instructions/conditions of use for end customer related to the use of STM32 STL in a safety application
 - Available today for STM32F0 Series (to be extended in the future to other STM32 Series)



Description

On the basis of the ST Quality foundations, the STM32 product portfolio and the STM32 embedded safety features, the STM32 SIL functional safety design package helps customers to quickly market STM32-based safety critical applications, targeting the industry safety standard IEC 61508 Safety Integrity Level (SIL2 / SIL3) in

domains such as industrial, motor control, factory automation, power generation/conversion or medical.

Contact ST local representative to request the X-CUBE-STL software, FMEA and FMEDA documentation (NDA agreement required).

The X-CUBE-STL functional safety design 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.

Revision history

Table 1. Document revision history

Date	Version	Changes
23-Apr-2018	1	Initial release.
01-Jun-2018	2	Updated product status link on cover page.

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