

X-CUBE-STL

Functional Safety Package for STM32 MCUs and MPUs



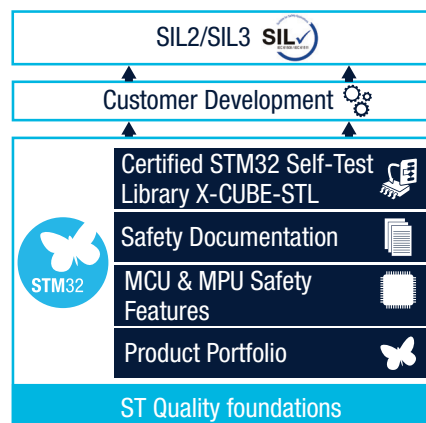
Dramatically reduce time and cost to build STM32-based systems certified

Compliance with the IEC 61508 standard has become a must in safety-critical industrial applications to detect and protect systems from dangerous failures.

With the X-CUBE-STL, ST offers a free flexible design support package including a certified software library that streamlines certification of safety-critical systems featuring STM32 microcontrollers and microprocessors.

WHY CHOOSE X-CUBE-STL ?

- Design your certified safety-critical system using a standard STM32 microcontroller and microprocessor
- Benefit from a free, high added-value, certified self-test library developed by ST tailored to the STM32 MCU and MPU platform
- Ease your end application certification process thanks to a certified software library for STM32 MCU and MPU



STM32 safety documentation

- Safety user manuals are available on ST website: detailed list of safety requirements and examples to guide STM32 users to achieve safety integrity level certification in compliance with IEC 61508
- Technical documentation under NDA agreement (contact your local ST representative):
 - FMEA: Detailed list of MCU, MPU failure modes and related mitigation measures adopted (qualitative analysis)
 - FMEDA: Static snapshot reporting failure rates compliant to IEC 61508, computed at both MCU, MPU and basic function levels of detail

Self-Test Libraries

- Software-based diagnostic suite designed to detect random hardware failures in STM32 safety-critical core components (CPU + SRAM + Flash memory)
- Diagnostic coverage verified by state-of-the-art ST proprietary fault injection methodology
- Application independent: can be used in potentially any end-user application
- Compiler independent : delivered as object code
- IEC 61508 SIL3 (SC3) compliant
- Provided with safety manual and user guide
- Certified by TÜV Rheinland

STM32 built-in safety features

- X-CUBE-STL is based on ST Quality Foundations, STM32 product portfolio and STM32 embedded safety features



Achieve SIL2/3 with STM32

SIL2	Achievable with a single STM32 MCU or MPU (1001 architecture)	
SIL3	Achievable with two STM32 MCU or MPU (1002 architecture)	

STM32 CubeExpansion

The X-CUBE-STL gives engineers a choice of hundreds of feature-rich devices offering high performance for safety-critical applications.

Available for STM32F0, STM32F1, STM32F3, STM32F4, STM32F7, STM32G0, STM32G4, STM32H7, STM32L0, STM32L4, STM32L4+, STM32L5, STM32U5, STM32WL microcontrollers and STM32MP1 microprocessors.



© STMicroelectronics - April 2021 - Printed in United Kingdom - All rights reserved
 ST and ST logo are trademarks or registered trademarks of STMicroelectronics International NV or its affiliates in the EU and/or other countries. For additional information about ST trademarks, please refer to www.st.com/trademarks.
 All other product or service names are the property of their respective owners.

