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.

WHY CHOOSE X-CUBE-STL?

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

www.st.com/functionalssafety
STM32 safety documentation
- Safety manuals: Detailed list of safety requirements and examples to guide STM32 users to achieve safety integrity level certification in compliance with IEC 61508
- FMEA: Detailed list of MCU failure modes and related mitigation measures adopted (qualitative analysis)
- FMEDA: Static snapshot reporting failure rates compliant to IEC 61508, computed at both MCU 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

Without X-CUBE-STL functional safety package

With X-CUBE-STL functional safety package

Rely on a certified comprehensive offering to:
- lower your project cost
- lower your project complexity
- ease your SIL certification assessment

Achieve SIL2/3 with STM32

<table>
<thead>
<tr>
<th>SIL</th>
<th>Achievable with</th>
<th>Achievable with two STM32 MCU</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>a single STM32 MCU (1001 architecture)</td>
<td>(1001 architecture)</td>
</tr>
<tr>
<td>3</td>
<td>two STM32 MCUs</td>
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Available for STM32F0, STM32F1, STM32F3, STM32F4, STM32F7, STM32G0, STM32G4, STM32H7, STM32L0, STM32L4, and STM32L4+ Series microcontrollers, the X-CUBE-STL package will be extended to other STM32 series, giving engineers a choice of hundreds of feature-rich devices offering high performance for safety-critical applications.

STM32 CubeExpansion

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Order code: FLSTM32SAFE0520
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