



IEC61508 Certified Solutions

FUNCTIONAL SAFETY SOLUTION FOR INDUSTRIAL AUTOMATION

The Renesas Functional Safety solution provides core technology needed for IEC61508 SIL* certification. The certified software kits and related reference board and documents help to construct a certified functional safety system.

This solution significantly reduces development time and contributes to the implementation of a safe working environment in factories with the ability to handle hazards—even when the system functions fail.

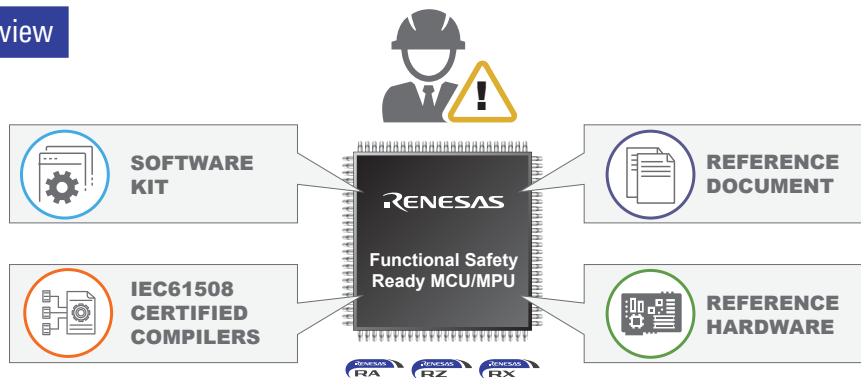
* SIL: Safety Integrity Level which is defined in the functional safety standard

Target Applications

Safety Systems for:

- AC Servo and Drive
- Remote IO
- Programmable Logic Controller
- Sensor and Actuator

Renesas Solution Overview



Software

Self-Test Software Kit*

Diagnostic software for permanent failure of CPU, ROM, RAM inside the MCU/MPU.
Available for web download with certificate

SIL3 System Software Kit*

Functional Safety Platform software for dual MCU/MPU system equipped with MCU/MPU diagnosis, scheduler, and partitioning function.
Free evaluation version available via web download

Safety Protocol Application Software Kit*

FSoE and PROFIsafe for slave devices.
Free evaluation version available via web download

Document

Reference Document*

Guideline document to obtain IEC61508 certification, including:

- Sample documents to submit to certification body
- Preparation guide
- Technical documents, necessary for safety part development such as input/output circuit diagnosis—, and power-supply monitoring

Free digest version available via web download

Safety Kit for Compiler

IEC61508 Certification Kit for RX Compilers*

Document set certifying functional safety compliance of Renesas compiler "CC-RX".

Evaluation

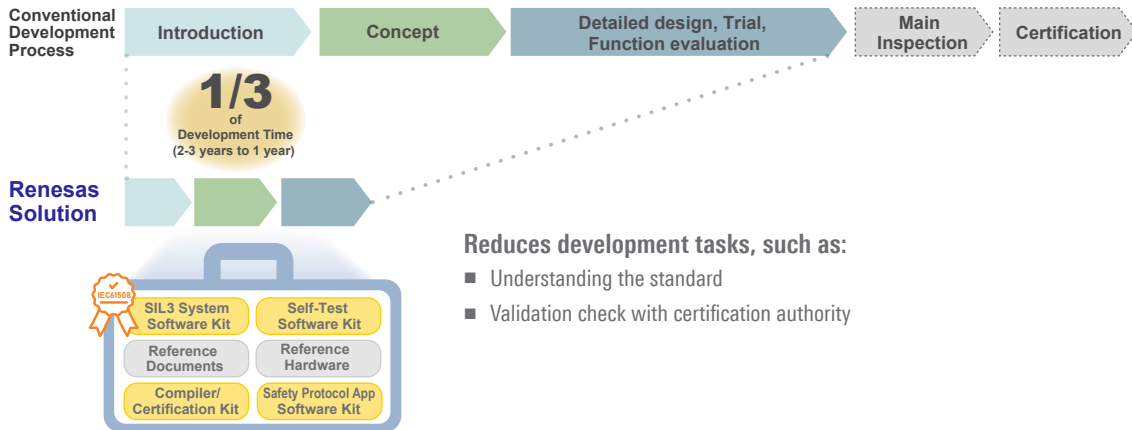
Reference Hardware

- Reference board (dual MCU configuration eval board)
 - RX111-RX111 (RXv1 core version)
 - RX71M-RX651 (RXv2 core version)
 - RX72N-RX72N (RXv3 core version)
- FSoE reference kit with RX MCU*
 - RX72M – RX23T dual MCU configuration eval board comes with sample software to realize safety Remote I/O

*License agreement required up front.

Functional Safety Solution for Industrial Automation

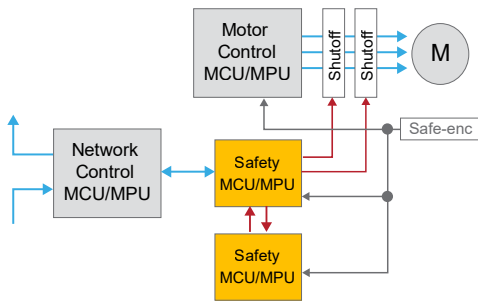
Fast, Easy, and Reliable Development



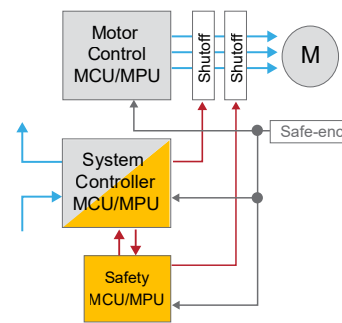
Note: The software kits in yellow boxes are certified by TÜV Rheinland

Target Safety System Examples (Motor Control + Network Control + Safety)

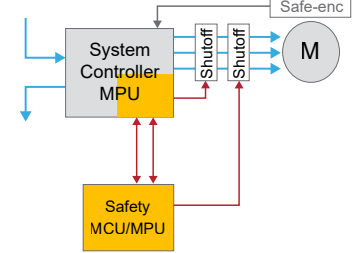
1. Optional Safety Add-on Solution



2. Integral Safety Solution



3. Reduced BOM Safety Solution



Solution Portfolio

Product	Family	RX			RA			RZ
	Core	RXv1 (RX111, 113, 130)	RXv2	RXv3	CM4	CM23	CM33	CR52 (RZ/T2M)
Self-Test Software Kit		✓	✓	✓	✓	✓	✓	✓
SIL3 System Software Kit			✓	✓				✓
FSoE Application Software Kit			✓	✓				✓
PROFIsafe Application Software Kit			✓	✓				
Reference Document		✓	✓	✓	✓*	✓*	✓*	✓*
Reference Hardware		✓	✓	✓				
IEC 61508 Certified Compilers		✓	✓	✓	**	**	**	**

*: Although the example describes using RX MCUs, it can be used for other MCUs as it is a technical document for the functional safety standard itself and not dedicated to a specific MCU/MPU Family.
 **: EWARM from IAR Systems ready

For more information, please visit us at: renesas.com/fusa