

START THE SAFETY AND SECURITY SUPPORT PROGRAM FOR AUTOMOTIVE



Automotive control by electronic systems such as electronic control units (ECU) continues to become more advanced and sophisticated in order to achieve cars that are safe, comfortable, and environmentally friendly. Electronic systems have come to bear the intended function of automotive control, in particular in driving support systems such as collision avoidance and automatic following traveling systems. Thus, the risk of safety violations caused by abnormal control due to failure of electronic systems is increasing. Furthermore, research and development for automated driving are proceeding vigorously in recent years. In order to realize autonomous driving, electronic systems require even more complex control as well as more advanced safety. For these reasons, the implementation of functional safety technology that performs safe handling even in the event of failure, and security technology that protects system operation from external attacks, has become essential. In November 2011, the ISO 26262 international standard for functional safety for electrical and/or electronic systems in cars was released. The work required from electronic system developers—such as constructing a safety concept and performing qualitative and quantitative safety analysis—has increased. Consideration of the 2nd edition of ISO 26262 has also started, so it can be expected that development activity will further increase when new requirements are added. In addition, communications with systems outside of the car are important for autonomous driving because the car needs to be controlled in coordination with other vehicles and traffic infrastructure information, so communication security must also be considered. Many concerns have already been brought up by academic conferences, papers, and so on, demonstrating the importance of security. Due to this direction, the automotive industry as a whole needs to take care of security. Standardization of security is advancing in many countries, and standardization has become a requirement just as it has for functional safety. Consequently it is expected that the burden on development will further increase.

Together with our customers around the world and as the holder of the world's top share in the automotive semiconductor business, Renesas has been investigating state-of-the-art functional safety and security technologies. We have been participating in the ISO Working Group for ISO 26262 and other standardization activities to lead the development of functional safety and security technologies globally. Leveraging our core competences of the vast experience gained through these activities and our proven track record recognized by our many customers, we propose new system solutions that are optimized to our customers' systems and that can easily satisfy functional safety and security requirements.

Comprehensive Support for Functional Safety and Security in **Four Axes**

- Tools with proven track record in safety analysis and security threat analysis
- Support for software that is closely related to hardware enables easy system building
- Work Product set can easily support standards



Hardware

Safety / Security mechanisms
MCU, SoC, A&P



Software

CPU core self-test
Software drivers



Work Products

Functional safety,
Security analysis tool, Report



Consulting

Workshop
Development support



YOUR BEST PARTNER is HERE!

SAFETY and SECURITY SUPPORT PROGRAM for AUTOMOTIVE



The Support You Need for Functional Safety in a Single Package
Support packages for any requirement are available



[Choose the package that is best for you.]

Package	Provides
Default	<ul style="list-style-type: none"> • Standard functional safety work products • Safety analysis summary report
Advanced	<ul style="list-style-type: none"> • Functional safety work products including system-building guide • Safety analysis tool • Functional safety technical support

*Note: Packages may be subject to change. Package that includes security is under consideration.

Balances Functional Safety and Security

Based on abundant knowledge and experience with functional safety and security

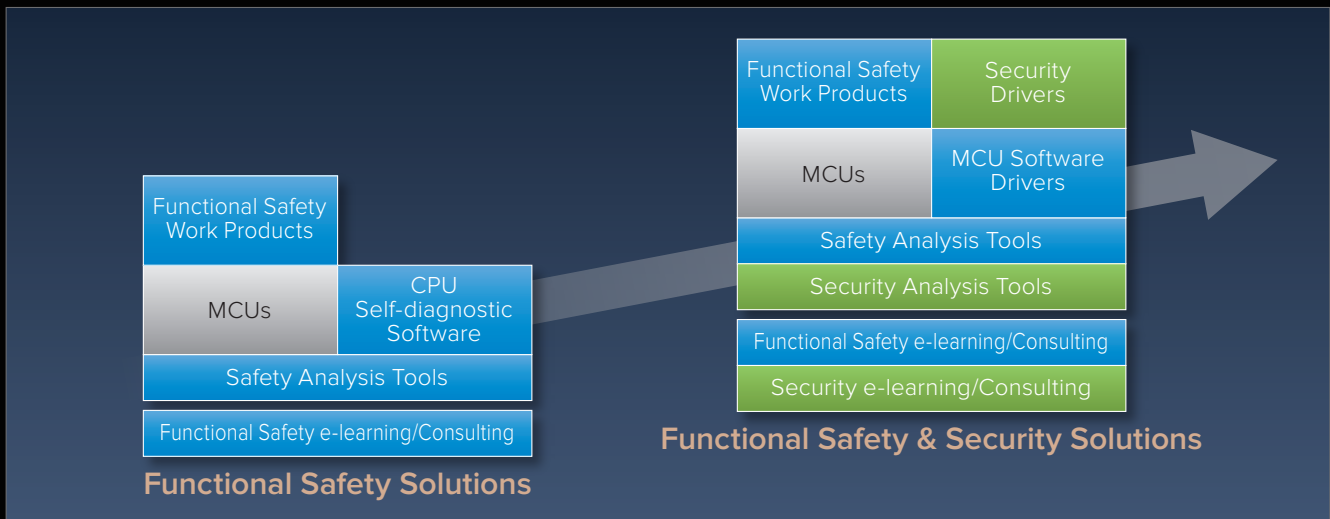


An automated driving system obviously requires strong security, but this must be balanced with functional safety. For example, if the countermeasure for an attack from a malicious third party was to be to stop all functions, this would not be safe for an automated driving system which requires continuous operation.

Renesas collaborates with partners around the world and participates in a variety of standardization activities to consider functional safety requirements for systems installed with security functions and development processes that integrate functional safety and security. Based on the knowledge acquired through such activities, Renesas offers solutions that balance both functional safety and security.

Integrated Functional Safety and Security Solution Lineup (Under Consideration)

Renesas' experience and knowledge offered as a system solution



■ **Functional Safety and security support program contact information**

Please contact a Renesas distributor or the sales representative in your area. <http://www.renesas.com/contact/>