



**RAPITA**  
SYSTEMS  
A DANLAW COMPANY

*Safety through quality*

PRODUCT BRIEF

## Automotive Software Verification Services

# Product brief: Automotive Software Verification Services

Testing ISO 26262 software costs significant time and effort. Rapita offers a comprehensive solution to help you reduce these costs.

By combining our proven verification tools and experience in test development and ISO 26262 processes, we offer a complete service that supports you throughout your ISO 26262 ASIL A-D project.

Rapita provides the following Software Verification Services:

- Performing gap analysis and streamlining processes
- Reviewing requirements
- Setting up a test environment
- Meeting verification requirements
  - Unit and integration testing
  - Structural code coverage analysis
  - Execution time analysis
  - Other analyses
- Training

Our verification services are completely flexible. We can provide any combination of tools, training and engineering expertise.

## Performing gap analysis and streamlining processes

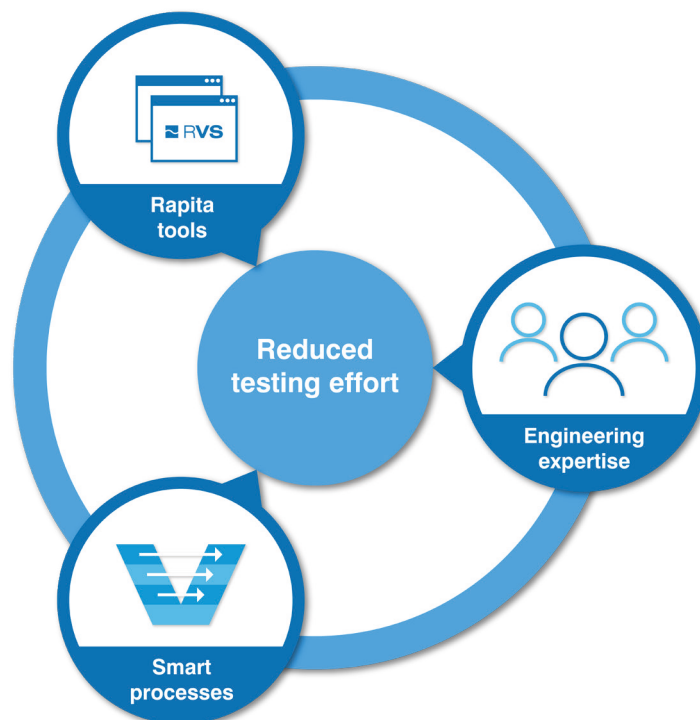
Rapita helps you refine the process you will use to meet ISO 26262 requirements in your project. By identifying gaps in your process and helping you to address them, we improve the efficiency of your project early in its life cycle to save future effort.

## Reviewing requirements

Investing the effort needed to produce high quality requirements during the initial stages of development can significantly reduce the cost of later rework. Rapita increases the quality of requirements by providing early reviews and traceability analyses during key early stages of development.

## Setting up a test environment

Rapita offers integration of its Rapita Verification Suite (**RVS**) tools to verify software on both host and target architectures. **RVS** lets you write and execute tests to generate the verification evidence needed to meet ISO 26262 requirements; see *Meeting verification requirements*.



## Meeting verification requirements

The development of tests to demonstrate that ISO 26262 software meets its unit and architectural design specifications is one of the most effort intensive activities in ISO 26262 projects.

Using our RVS tools, our team of testers in the UK and USA meet these requirements by performing the activities listed below. RVS tools can be qualified for ISO 26262 projects, satisfying ISO 26262-8:2011(11.4.6), and used on the embedded target itself to satisfy ISO 26262-6:2011(9.4.6).

### *Unit and integration testing*

We help develop, review and run the tests needed to meet ISO 26262-6:2011(9.4.2 and 10.4.2) by performing activities such as:

- System, integration and unit testing
- White box and black box testing
- Conformance and compatibility testing
- On-host and on-target testing
- Migrating legacy tests

Rapi**Test** provides an efficient platform to perform these types of testing.

### *Structural code coverage analysis*

To meet ISO 26262 requirements, the structural coverage of code should be analyzed. This includes statement, branch, function, call and modified condition/decision coverage (MC/DC), depending on the ASIL (ISO 26262-6:2011(9.4.6 and 10.4.6)).

Rapi**Cover** generates evidence that software tests meet these criteria.

### *Execution time analysis*

To meet ISO 26262 requirements, the resource usage of software should be analyzed while it runs on the embedded target. This includes minimum and maximum execution times (ISO 26262-6:2011(10.4.3)).

Rapi**Time** and Rapi**Task** produce the evidence required to satisfy some of these requirements, regardless of the complexity of the system.

Our engineers can also perform a detailed analysis of the optimization opportunities in your system so you can make the most of its available capacity.

### *Other analyses*

Our engineers help you to generate evidence to satisfy other ISO 26262 requirements including stack analysis, data coverage and data coupling/control coupling.

## Training

We provide training on how to use our tools to meet ISO 26262 requirements.

## Rapita Systems and Danlaw

Rapita Systems is a subsidiary of Danlaw Inc. Danlaw is a global leader in connected car and automotive electronics, and has been leading innovation in the field for more than thirty years. Its team of more than 800 staff provide specialist testing services to the automotive industry. Rapita looks forward to building on this reputation by offering specialist verification services using **RVS**.



## How can we help?

Every ISO 26262 project has specific challenges. To better meet the needs of each project, our *Software Verification Services* are completely flexible. Contact us to arrange a custom solution that suits your needs.



## About Rapita

Rapita Systems provides on-target software verification tools and services globally to the embedded aerospace and automotive electronics industries.

Our solutions help to increase software quality, deliver evidence to meet safety and certification objectives and reduce costs.

## Find out more

A range of free high-quality materials are available at:  
[rapitasystems.com/downloads](http://rapitasystems.com/downloads)

## SUPPORTING CUSTOMERS WITH:

### Tools

#### Rapita **Verification Suite:**

Rapi**Test**

Rapi**Cover**

Rapi**Time**

Rapi**Task**

### Engineering Services

#### V&V Services

Integration Services

Qualification

SW/HW Engineering

Compiler Verification

### Multicore verification

#### **MACH**<sup>178</sup>

Multicore Timing Solution

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