RAPITA Systems
A DanLaw Company

Multicore timing solutions for automotive

Multicore in automotive applications

Multicore processors are being increasingly used in automotive software applications for a few reasons. These include increased performance capacity, increasingly demanding software needs to fit more complex use cases e.g. **ADAS** and **AD** applications, and decreasing availability of single core processors.

Certifying your multicore software

If you use multicore processors with your ISO 26262 software, you'll need to consider the impact that using a multicore platform has on your application and run additional activities to demonstrate that your software is **free from interference** and will not suffer from cascading failures due to timing overruns.

Multicore platforms are particularly sensitive to timing interference due to contention on hardware resources that are shared by software applications running on different cores.

Guaranteeing worst-case execution times is mandatory for safety-critical automotive software. Rapita Systems has applied its aerospace certified tools to the automotive industry, and is the only company that provides a comprehensive multicore offering for ISO-26262 certification.

Stay ahead of the curve

Our multicore timing solutions help you stay ahead of the curve and reduce your time to market and verification costs for your multicore ISO 26262 systems.

We help you:

- Evaluate multicore platforms for your project
- Reduce multicore verification effort
- Cut certification risk

Evaluate multicore platforms for your project

We can help you evaluate multicore platforms in order to best meet the needs of your project and reduce downstream verification costs.

Reduce multicore verification effort

Our multicore solutions can help you mitigate interference in your system, helping you demonstrate freedom from interference. We do this by identifying configuration settings such as which applications are hosted on which core and where memory is mapped in order to best mitigate interference, and supporting the analysis of timing behavior for your software.

We can augment your engineering capabilities to support your project by providing V&V services including multicore timing analysis. Whether you're looking for a handful of engineers to support an existing project, or a team to do the work for you, we can provide a solution that works for you.

> "[The solution] has effectively allowed [Magneti Marelli] to detect the impact of potential contention scenarios on application timing and assess the obtained results. [It provides] trustworthy bounds to multicore timing interference and can be useful as part of an optimization approach for selecting among different software configurations."
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> **Magneti Marelli staff, on our multicore timing analysis technology**

Cut certification risk

Our qualification kits provide the evidence needed to demonstrate the robustness of our solutions. These are used by companies certifying safety-critical software at the highest levels of rigor, aerospace DO-178C DAL A.

> "The quality and ease-of-use of Rapita's Qualification products and services is second to none and made the adoption of R**VS** simple and pain-free."
>
> **Kyle Ford**
>
> Principal Software Engineer
> **Collins Aerospace**

Your multicore verification partner

Rapita Systems are the leading experts in commercial multicore timing analysis solutions. Our background is in timing analysis for safety-critical software, and we're spearheading the development of robust and cost-effective solutions for multicore timing analysis for critical software applications.

Together with the Barcelona Supercomputing Center, Magneti Marelli, and Collins Aerospace, we commercialized technology to serve the automotive and aerospace companies in the EU-funded MASTECS project. We provide end-to-end multicore solutions including tools, V&V services and training for customers including Bell Flight.

www.mastecs-project.eu

Rapita Systems is a fully-owned subsidiary of Danlaw Inc., which has been providing connected car and automotive electronics solutions to the global automotive market for over 30 years.