

Leveraging the LDRA tool suite for In-vehicle software (or electronic) platform development



Denso Corporation Headquarters, Kariya, Aichi, Japan

The Client

DENSO, a leading supplier of advanced automotive technology, systems and components for all the world's major automakers, operates in 32 countries and regions with more than 112,000 associates.

The Electronic Systems Business Group incorporates two divisions developing and manufacturing engine ECUs and other integrated circuits or electronic devices for automotive control systems in order to promote synergistic development of both software and hardware.

Project Requirements

For DENSO an essential requirement of the software that they develop is that it must be of high quality and also demonstrate high dependability in the field.

In addition DENSO look to optimise the code size, thus maximising resource saving and real-time performance in the limited target hardware environment in which they operate.

These target development requirements are typified by AUTOSAR where the demands are rigorous for the software platform field.

The software platform needs are becoming increasingly important for next generation technology. There are also plans for the adoption of safety integrity standards in the automotive market as has been the case in the aerospace industry. Both of these factors will be of greater significance to developers of automotive technology systems in the future and DENSO are currently leading the way with research and development in this area.



Converter and Battery

“LDRA has the ability to work with Limited Target HW due to demands for cost reduction and downsizing”



Akihito Iwai

The Benefits

Akihito Iwai, Project Manager DENSO Japan, commented:

“We have taken advantage of LDRA’s software analysis techniques to improve the quality of our software platform. The *LDRA tool suite* is used as a benchmark for other third-party and similar software platform products.”

He continued by saying DENSO have been able to:

- “Systematically quantify the sophisticated quality metrics.
- Effectively use the graphical and intuitive analysis reports, especially the dynamic analysis reports of the tool, which have unique unparalleled characteristics.
- Extend and integrate the tool chain through integration with other third-party tools.”

Through the deployment of the *LDRA tool suite* DENSO have been able to apply a uniform set of analysis techniques and standards for each software platform which has, in turn, provided significant cost and time savings for current and future projects.

“The *LDRA tool suite* is used as a bench mark for other third-party and similar tools”

The Future

The *LDRA tool suite* has assisted DENSO in leveraging analysis and testing. This has proven to be beneficial as DENSO have been able to make use of the techniques, which have previously been successfully utilised by industries such as aerospace to bring these to the automotive industry.

DENSO are now looking to develop the techniques further and bring more software testing processes to the automotive industry.

Photos courtesy Denso Corporation

To find out more about saving money and improving quality of service contact LDRA

w: www.ldra.com **e**: info@ldra.com