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Richland Technologies Slashes Design and Certification Time for Advanced Avionics Systems with the LDRA Tool Suite

Streamlined and simplified checking process produces high-quality code in record time

Wirral, U.K. – 17 December 2015 – LDRA, the leader in standards compliance, automated software verification, source code analysis and test tools, today announced that Richland Technologies, a leading avionics hardware and software engineering company, has successfully implemented the LDRA tool suite to verify and certify extremely complex designs with increasingly shorter design cycles. With a more than 40-year track record for delivering automated code testing and software safety analysis products, LDRA's modular tool suite is used by Richland Technologies to gain early insight into potentially exploitable safety and security vulnerabilities in software source code.

Headquartered in Lawrenceville, Georgia, Richland Technologies specialises in avionics computing platforms, cockpit displays, and advanced vision system development. The company's services include safety engineering as well as design, implementation, verification, and validation to meet DO-178C (software) and DO-254 (hardware) standards. Richland Technologies engineers use the LDRA tool suite for static analysis, unit testing, low-level verification, and structural coverage analysis of the embedded software for advanced applications such as vision systems and inertial measurement units used in standby instrument systems.

"As design cycles got shorter and designs more complex, we wanted to make sure we were using the very best tools on the market and so embarked on a rigorous test of all software testing and certification products," said Robert Atkinson, a sales and marketing executive at Richland Technologies. "The LDRA tool suite came out on top in our evaluation of low-level verification tools for target computer systems, and we have been using it successfully for almost three years now. We are currently looking at implementing even more of the modules in the LDRA tool suite as our business grows."

LDRA Technical Support: An Invaluable Resource for Reducing Design Cycle Time

Once the engineers at Richland Technologies selected the LDRA tool suite, they needed to come up to speed quickly to begin verifying designs on extremely tight schedules. They relied on the LDRA support team to help them learn the tools and integrate them with the target embedded systems.

"With most complex tool suites, it takes days to get set up using a combination of instruction manuals and the tool provider's technical support," said Stephen Spence, a senior avionics software engineer at Richland Technologies. "Set-up almost always takes a lot longer than you expect, but with the LDRA tool suite it took less time than we expected because we had a skilled technical support engineer there to resolve any issues quickly."

"The LDRA tools automate the part of software engineering that everyone hates — the mundane, repetitive verification tasks," Spence added. "An engineer often has to go over thousands of lines of code to ensure compliance to coding standards such as MISRA (Motor Industry Software Reliability Association). The LDRA tool suite finds 99 per cent of coding standard violations and reduces verification time from days to a few minutes."

Stepping Up to the DO-178C and DO-254 Certification Challenge

At Richland Technologies, designs must adhere to the strict requirements-driven processes mandated by the DO-178C and DO-254 standards for the development of commercial airborne electronic systems. The LDRA tool suite and documentation are well matched to safety-critical design flows and in-house methodologies that help developers to achieve standards certification in much shorter timeframes. Features of particular importance to Richland Technologies include:

- Well-organised web-page-based output highlighting code coverage and static analysis results achieved during low-level verification
- Rapid regression analysis
- Structural coverage results
- Robust static analysis capability
- Extensive unit tests
- Easy integration into the DO-178C design flow
- Support for remote collaboration on designs with end customers

Shipping and Availability

The LDRA tool suite used by Richland Technologies (TBsafe, TBmisra, LDRA Testbed, TBrun and TBsecure) is available now.

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About LDRA

For more than forty years, LDRA has developed and driven the market for software that automates code analysis and software testing for safety-, mission-, security-, and business-critical markets. Working with clients to achieve early error identification and full compliance with industry standards, LDRA traces requirements through static and dynamic analysis to unit testing and verification for a wide variety of hardware and software platforms. Boasting a worldwide presence, LDRA is headquartered in the United Kingdom with subsidiaries in the United States and India coupled with an extensive distributor network. For more information on the LDRA tool suite, please visit www.ldra.com.

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