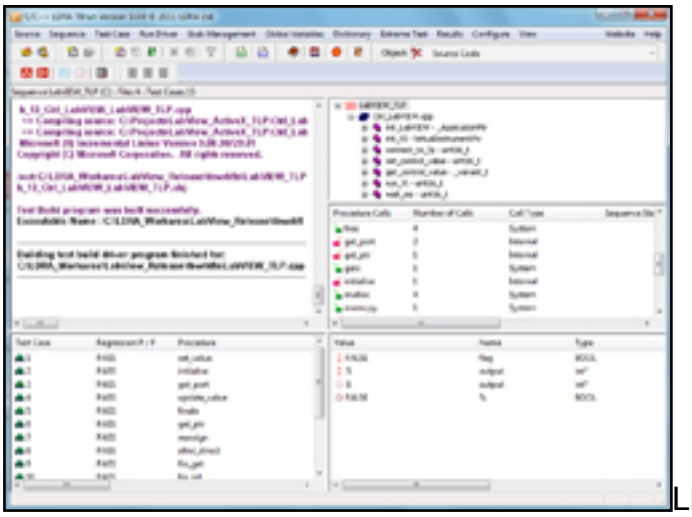
Hardware-Software Test Offering Supports DO-178 Systems



LDRA has integrated its tool suite with National Instruments LabVIEW Virtual Instruments. The LDRA-NI solution offers hardware-in-the-loop (HIL) simulation, a technique used to develop and test the complex real-time embedded systems commonly found in military and aerospace designs. Owing to LDRA's expertise in safety-critical systems, NI's hardware testing capabilities are fully matched with the software competencies necessary to achieve DO-178 certification up to and including Level A. By using the joint NI hardware testing capabilities with LDRA's software testing expertise, developers can simulate how a complete hardware-software system will react to real-life test conditions. Used in conjunction with NI's hardware, LabVIEW Virtual Instruments creates a simulated system with an extensive range of capabilities for testing target hardware that includes signal generation, signal measurement, control actuation and real-time measurements. When these systems are exposed to an extensive range of test data, they simulate the responses of a system to the data, enabling developers to quickly identify the likely response of a target system under test.

The integration with the LDRA tool suite ensures that full software analysis is applied to the systems under test on the simulated target hardware. With the ability to test software systems up to DO-178 Level A, LDRA includes code standards enforcement, structural coverage analysis including modified condition/decision (MC/DC), object code coverage, unit testing, data and control coupling, and requirements traceability. The integration allows LDRA's automated unit testing tool TBrun to generate inputs to and read outputs from LabVIEW Virtual Instruments, resulting in bidirectional control and data collection.

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