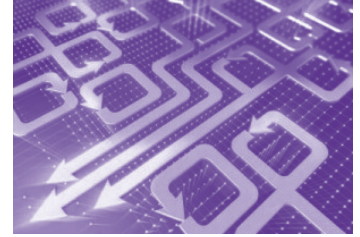# LDRA
Software Technology

HCC Raises the Bar on Quality and Reliability

The Client

As a developer of efficient high-quality software for the medical, transport, industrial and aerospace markets worldwide it is essential for HCC Embedded to hold a reputation for premium and reliable products. Following a vigorous and extensive competitive evaluation, HCC Embedded chose the LDRA tool suite to enforce the MISRA standard and to raise the bar on the software development processes applied to the file systems and TCP/IP products that they develop.

MISRA-compliant TCP/IP stack

The Project

"Companies claim their tools are the best, but seldom have measurable data to prove it," asserts HCC Embedded CEO Dave Hughes. "We wanted to prove our superior quality. The LDRA tool suite gives us this with its comprehensive static analysis and very good dynamic analysis capabilities."

The Requirements

HCC Embedded's adopted the LDRA tool suite as a key element of a wider move to implement more rigorous, verifiable method. "LDRA's tools helped us adopt a more disciplined process. We needed a standards checker that systematically enforced good programming methods."

- By adopting MISRA, HCC Embedded can guarantee that they are implementing the most complete, rigorous implementation of C. "The MISRA standard is a very strict subset of C and likely the best reference for creating something that is verifiable," Hughes affirms. "The LDRA tool suite is the best tool we found in terms of its thoroughness and complete ability to enforce the MISRA standard."

- In critical systems, MISRA-C:2004 stresses 141 rules in 21 categories. HCC Embedded was able to adopt them all so that the code that was developed was as clean as possible.

The Benefits

"The truth of the matter is that the LDRA tool suite brings a lot more to the table than other MISRA compliant solutions," Hughes explains. "The LDRA tool suite is by far the best implementation we have found."

HCC Embedded used the LDRA tool suite to develop its new MISRA compliant TCP/IP stack for embedded applications requiring a high degree of integrity. The engineers designed the code following the MISRA guidelines, and ran the code through the LDRA tool suite's static analysis engine to ensure full compliance with MISRA-C:2004. "The LDRA tool suite verifies and reports code conformance," Hughes says. "Our code is well structured and easy to read because of MISRA and because the LDRA tools verify that the standard is correctly implemented."

> *"The truth of the matter is that LDRA tool suite is just a lot more thorough than other MISRA compliant solutions."*

Impressed with the difference in quality that the LDRA tool suite delivered, HCC Embedded has committed to making the most stringent programming standards their norm for all key products with full MISRA compliance tested and proven with the LDRA tool suite. To HCC, such rigorous high quality sets their tools apart and establishes a measurable level of quality that does not currently exist in the industry.

"By using the LDRA tool suite to implement MISRA-C:2004, we are convinced HCC's tools are built on a verifiably, higher quality of code," Hughes continues. "We gain clean, clear, robust code, with no ambiguities. Our tools are appropriate for use in the most critical embedded applications."

The Future

Thanks to the increased quality and reliability, HCC Embedded looks forward to implementing MISRA compliance across its entire product line.

Should compliance to other standards such as CERT-C—a security-oriented standard—become important to customers, HCC Embedded will integrate those too. "We're committed to deliver high-quality software tools that provide proof of any claims we make. The MISRA standard enforced by the LDRA tool suite raises the bar on quality and reliability for our customers and the industry."

> *"We chose the LDRA tool suite because it covers comprehensive static analysis and has very good dynamic analysis capabilities"*

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

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