IAR Embedded Workbench for RISC-V

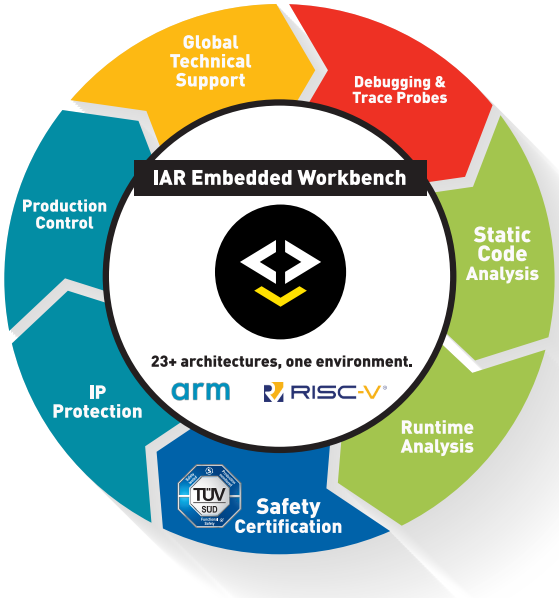
Taking RISC-V to the next level!

As the leading commercial tools vendor for RISC-V, IAR Systems is able to provide stable and future-proof technology as well as global technical support. IAR Embedded Workbench for RISC-V is a complete toolchain offering excellent optimization technology to ensure developers that the application fits the required needs and optimizes the utilization of on-board memory and necessary speed.

What's included?

- Complete C/C++ compiler and debugger toolchain with integrated code analysis tools
- Outstanding performance through sophisticated optimization technology
- Extensive debugging capabilities through the state-of-the-art debugger C-SPY
- Integration with our feature-rich debugging probe I-jet
- Custom extentions support
- Stack protection
- User-friendly features for a streamlined workflow
- Support for the RV32I and RV32E base instruction sets and extensions such as M, A, F, D, C, P
- Easy-to-use example projects to get up and running on hardware in just a few minutes

More than an ordinary toolbox.



Future-proof tools in a fast-moving market

The RISC-V Foundation is moving fast with optional additions to the instruction set, debug and trace infrastructure and other aspects of the architecture. We have been part of the foundation since 2018, participating in selected working groups and committed to support standardized functionality relevant for embedded systems. Examples are 64-bit support and instruction set extensions V (vector) and B (bit manipulation), as well as additional debug and trace functionality.

We are continuously adding support for new devices and extensions in IAR Embedded Workbench for RISC-V. In addition, future releases will offer 64-bit support as well as functional safety certification and security solutions.

Powerful solutions for the RISC-V tools community

Integrated static analysis

The static analysis tool C-STAT is integrated in IAR Embedded Workbench and helps to find potential issues in the code by doing an analysis on the source code level. C-STAT is covering the SEI CERT C Coding Standard, which provide rules for developing safe, reliable and secure systems in the C programming language. C-STAT also checks compliance with rules as defined by coding standards including MISRA C:2004, MISRA C++:2008 and MISRA C:2012, as well as hundreds of rules based on CWE (the Common Weakness Enumeration).

Customized intructions

The standardized ability to extend the base instruction set with your own customized instructions is a prominent feature of the RISC-V instruction set. This ability can be used in innovative ways to tailor your own SoC design to specific workloads, to for example balance energy, speed and code size requirements. IAR Embedded Workbench for RISC-V lets you add support for such customized extensions in an easy and intuitive way.

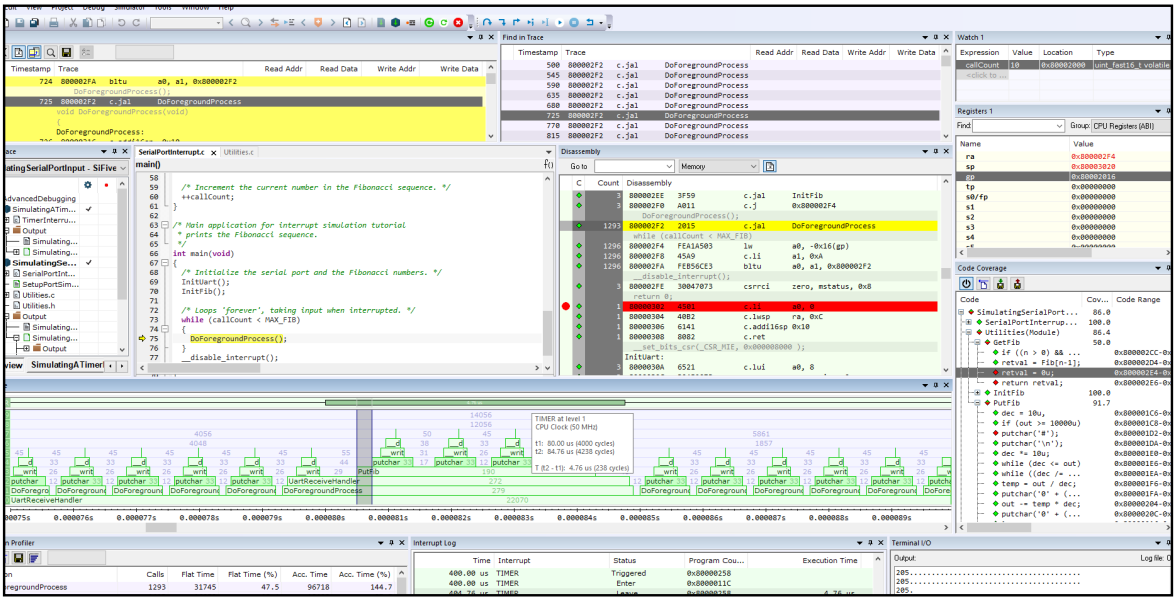
Functional safety and security

We have the industry's broadest selection of compiler and build tools certified according to the requirements of IEC 61508 (industrial), as well as ISO 26262 (automotive) and IEC 62304 (medical). A certification of the RISC-V tools is pending, so let us know already now if your next RISC-V project will have safety certification requirements. The standardization of security features is an ongoing work in the RISC-V foundation and we are committed to supporting features relevant for embedded systems.

Advanced debugging and trace capabilities

By making use of the advanced debugging tools, you can optimize the working time of your team when investigating issues and testing your application. The modern I-jet debug probe facilitates surprisingly advanced visualization of the application behavior.

In addition, the advanced I-jet Trace probe enables powerful code coverage and profiling data capabilities in IAR Embedded Workbench and traces every single executed instruction in your application. Many standards require code coverage and trace in order to prove that you have executed every line of code that is essential for the testing matrix.



Professional technical support

We have global processes in place to ensure we deliver an efficient and smooth experience. With a Support and Update Agreement (SUA), you get access to technical support centers and customer care in multiple time zones globally, as well as the latest updates and features for your IAR Embedded Workbench license.