

VectorCAST RSP IAR

Version 1.1

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Abstract	Information on the VectorCAST RSP IAR

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1 Overview

VectorCAST Runtime Support Package (RSP) is an extension of the VectorCAST product. It provides an interface layer that allows you to use the VectorCAST testing techniques and methods on an embedded target processor. The VectorCAST RSP will always run on your host platform (the same platform as the compiler). Only the VectorCAST generated test harness will be downloaded to, and executed on, the embedded target.

A VectorCAST RSP is always customized to a particular Target CPU, Cross Compiler, and Run-Time environment (or kernel). As such, the information presented here contains sections for this specific RSP.

This application note provides details on configuring VectorCAST to run tests on the IAR simulator using the IAR compiler.

VectorCAST uses the IAR compiler and linker to build the VectorCAST test harness into an executable image. VectorCAST then loads the executable image onto the simulator, starts execution, and collects the test results.

VectorCAST provides off-the-shelf IAR RSPs for most ARM processors as well as 32-bit and 64-bit RISC-V processors. If you need support for a different architecture, need help configuring VectorCAST for your target board, or run into any issues configuring VectorCAST, please contact support@vector.com.

2 Setup

2.1 Use Case: Selecting the Proper Configuration

The first thing to do when configuring your IAR RSP is to select the correct configuration as shown in Figure 1. First, choose the version of IAR Embedded Workbench you have. Then, choose the processor that you want to test on. Finally, choose C for only testing C code, choose C++ for either C++ or a combination of C and C++.

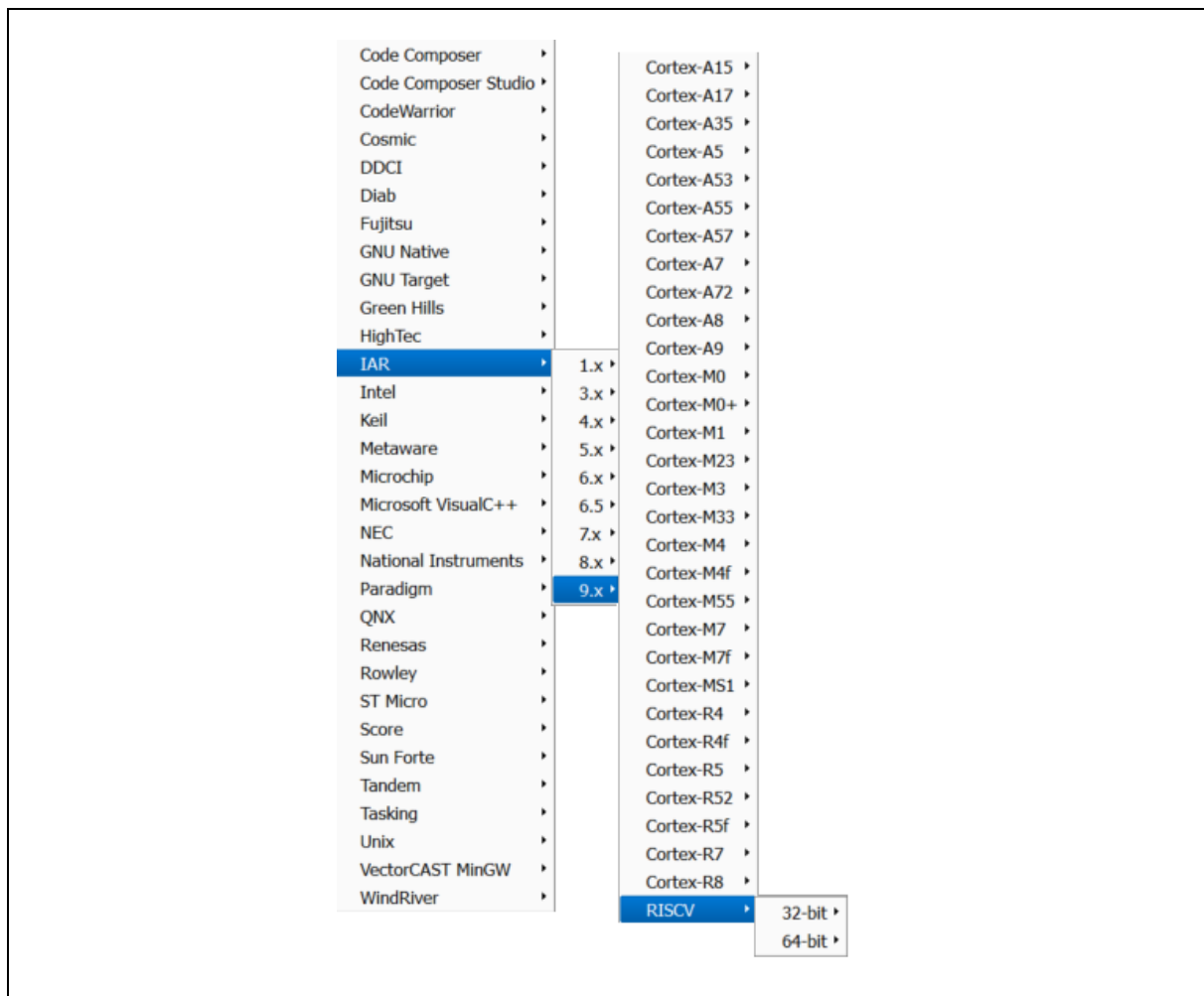


Figure 1 – Selecting the RISC-V Configuration

Once either the C or any C++ version is selected, the configuration will show up in your project and the compiler node will be populated with the proper data, seen in Figure 2.

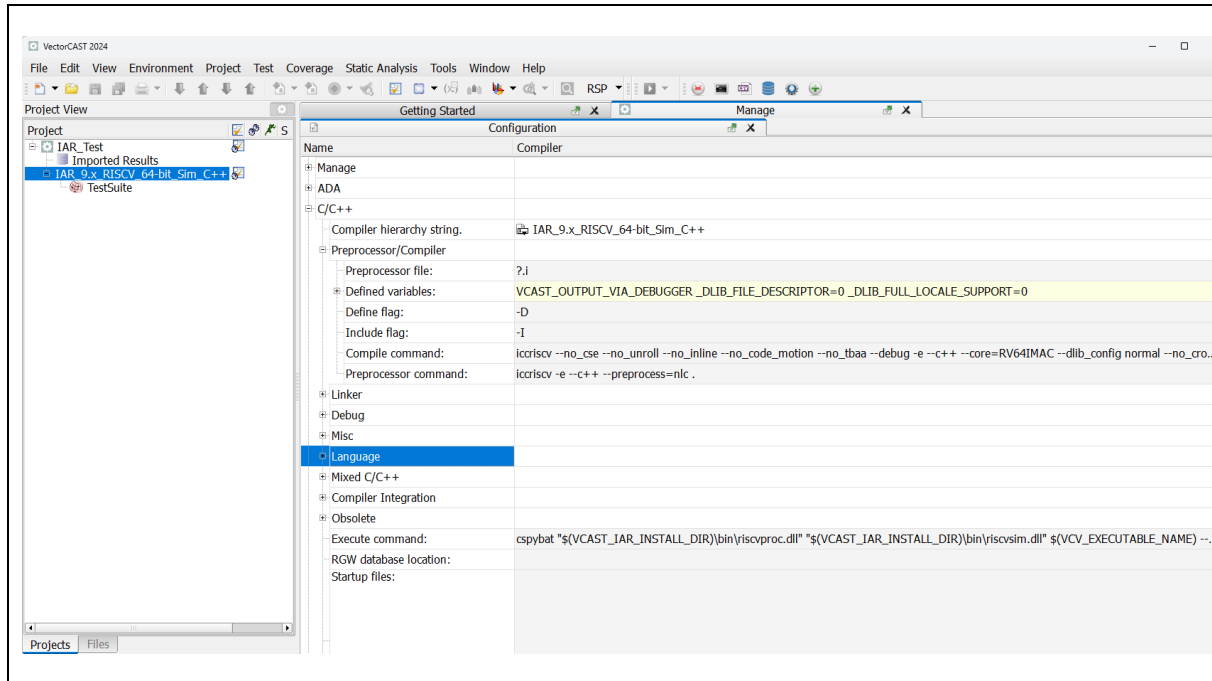


Figure 2 – Project Configuration

2.2 Use Case: Environment Setup

The path to the IAR compiler and the cspybat executable need to be on the path environment variable.

VectorCAST recommends putting the path into a startup script called **setup_VectorCAST.bat** or **setup_VectorCAST.sh** depending on if using Windows or Linux.

setup_VectorCAST.bat script will end up looking something like this:

```
set VCAST_IAR_INSTALL_DIR=D:\ProgramFiles\IAR_EW_9.2\riscv
set path=%VCAST_IAR_INSTALL_DIR%\bin;%VCAST_IAR_INSTALL_DIR%\..\common\bin;%path%
```

The first line of **setup_VectorCAST.bat** sets the environment variable VCAST_IAR_INSTALL_DIR, the second line puts the path to the compiler and the path to the cspybat executable on the environment path so that VectorCAST can call the compiler and call cspybat.

The **setup_VectorCAST.bat** script will need to be called before execution of any VectorCAST CLI commands (such as %VECTORCAST_DIR%\manage or %VECTORCAST_DIR%\clicast).

The **setup_VectorCAST.bat** script will also need to be called before launching the VectorCAST GUI.

VectorCAST recommends creating another script called **start_VectorCAST.bat** that will call **setup_VectorCAST.bat** and then launch the VectorCAST GUI.

start_VectorCAST.bat will look like this:

```
call %~dp0setup_VectorCAST.bat
start %VECTORCAST_DIR%\vcastqt
```

The `%~dp0` is a windows batch syntax that will expand the directory path so that **setup_VectorCAST.bat** will be called from the same directory that **start_VectorCAST.bat** exists in. This allows for a shortcut to **start_VectorCAST.bat** to be used and if **setup_VectorCAST.bat** is in the same directory as **start_VectorCAST.bat** then the shortcut will work.

Use **start_VectorCAST.bat** to launch VectorCAST to be able to build or execute unit test environments.

2.3 Use Case: Building Environments

If you followed the setup instructions in this App Note, then you should be able to build VectorCAST environments using the IAR compiler. If you are having trouble building environments using the IAR compiler, contact support@vector.com.

2.4 Use Case: Testcase Execution

If you followed the setup instructions in this App Note, then you should be able to execute testcases on the IAR simulator without any further modifications. If you need to execute testcases on a live target, then some modifications are required. Please contact support@vector.com for more details.

VectorCAST uses the Execute command in the VectorCAST options to execute tests. For IAR RSPs, VectorCAST uses the `cspybat` executable provided by IAR to start the simulator, load the test harness into the simulator, execute the test harness, and collect the test results.

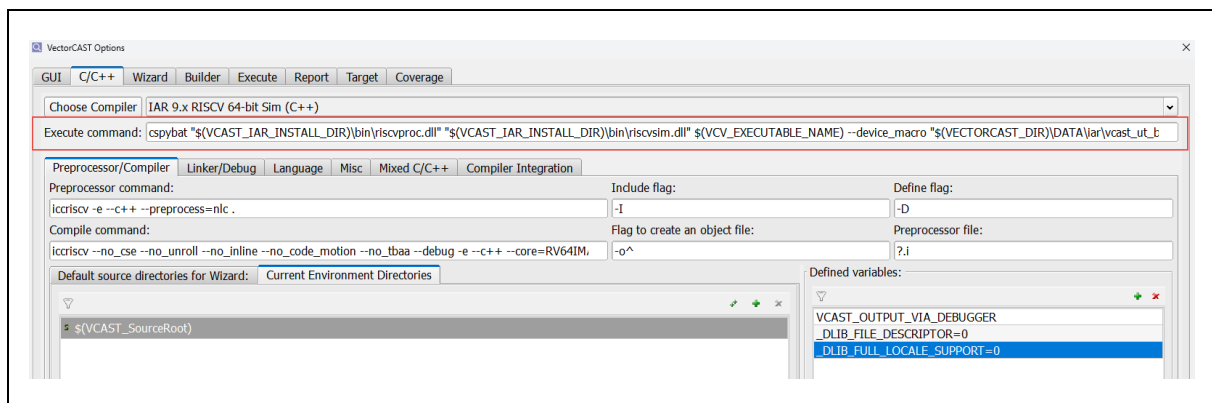


Figure 3 – Testcase Execution

2.5 Use Case: Debugging

Debugging VectorCAST testcases for a IAR RSP is done using IAR Embedded Workbench.

To start debugging, right click on a testcase and select 'Execute with Debug'. VectorCAST will launch a debug window. Click the 'Start Debugger' button in the bottom right of the window to launch IAR Embedded Workbench. Once Embedded Workbench has launched, you should be ready to debug the test harness. To set breakpoints, you can go to View->Breakpoints. To debug the code under test, right click in the breakpoint window and choose New Breakpoint->Code and type in the name of the function under test. At this point you should be able to click the Go button execution should stop on your breakpoint. To debug the entire test harness, you can set a breakpoint on main.

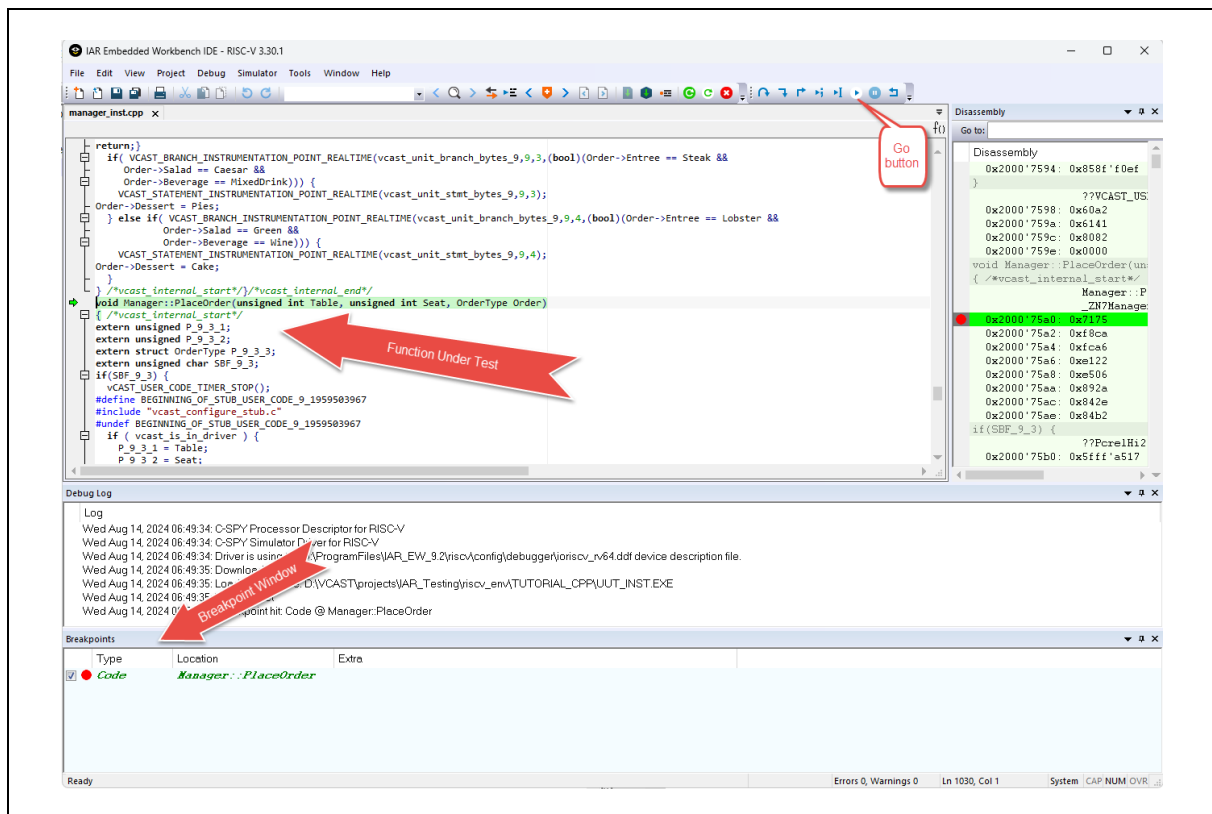


Figure 4 – Execute with Debug

3 Additional Resources

iar.com

4 Trademarks

All mentioned names are either registered or unregistered trademarks of their respective owners.

5 Contacts

For a full list with all Vector locations and addresses worldwide, please visit <http://vector.com/contact/>.