



HCL SOFTWARE

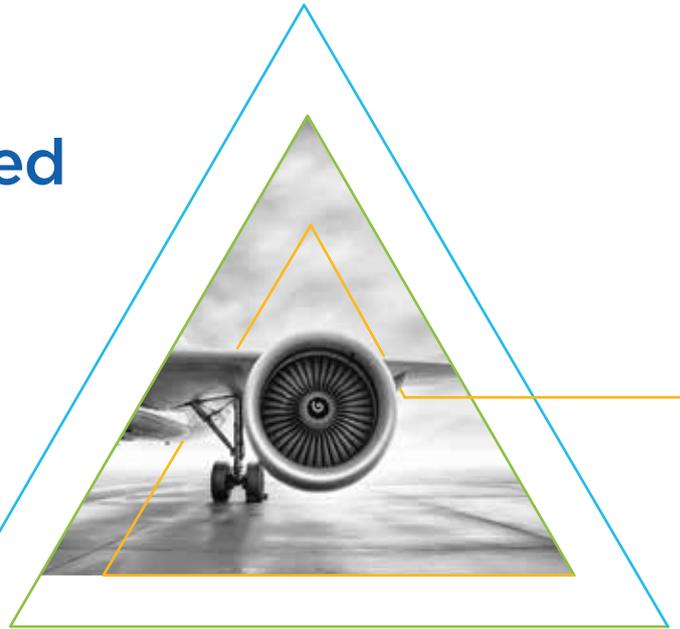
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# HCL OneTest Embedded

A cross-platform solution for component testing and runtime analysis



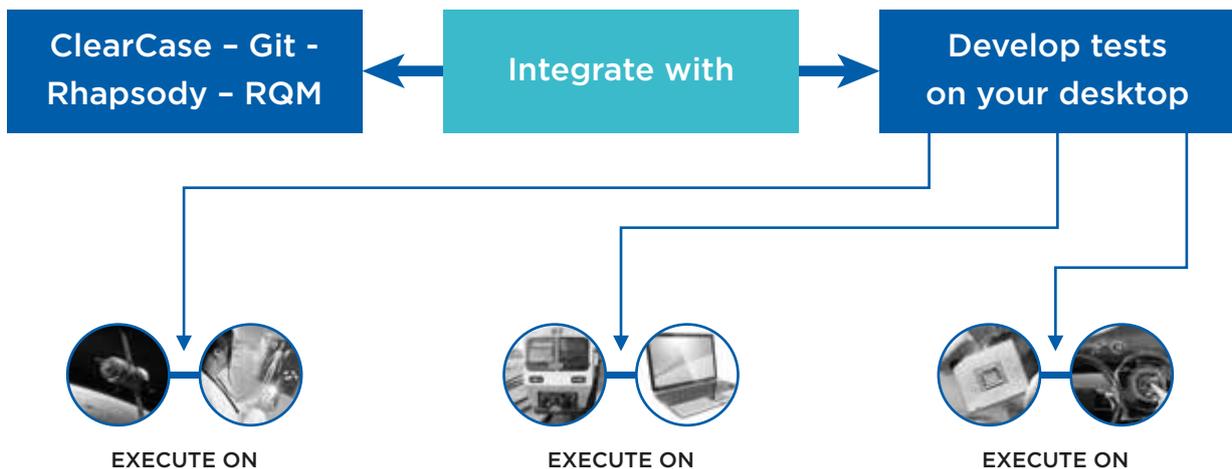
HCL OneTest



## HIGHLIGHTS

- Automates component testing and runtime analysis for host and target from a **single testing environment**
- Automates creation and deployment of **component test harnesses**, test stubs, and test drivers
- Profiles **memory and performance**, analyzes code coverage, and visually illustrates runtime tracing
- Host-based tests easily adapted to different targets without **rewriting test procedures**
- Test and analyze directly on the target. Supports all common platforms—from 8-bit microchips to a 64-BIT RTOS
- Provides detailed code coverage information required for safety and mission-critical certification
- Code coverage and runtime tracing on-the-fly reports
- Qualification Kits for certification processes are available on request

HCL OneTest Embedded is a cross-platform solution for component testing and runtime analysis. HCL OneTest Embedded was designed specifically for those who write code for embedded, real-time, and other types of commercial software products. HCL OneTest Embedded allows you to be more proactive in your debugging, enabling you to fix your code before it breaks.



Renesas, WindRiver, Lauterbach, Texas Instruments, STMicroelectronics

ARM series – ARM Cortex Arduino – Raspberry STM32

Windows, Linux, Solaris, Aix x86 / x64, GNU

NXP/FreeScale ColdFire – Power Architectures

Microcontrollers, Microprocessors, Low profile

HighTec TriCore, And many others

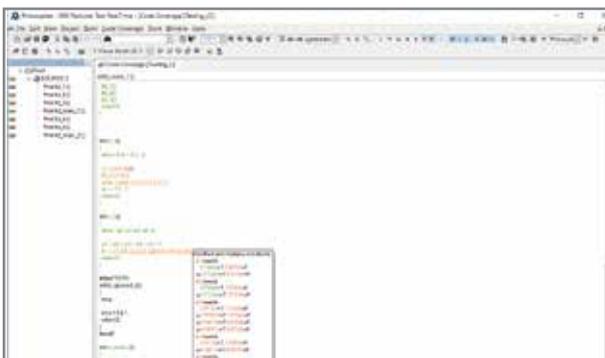
## Test, analyze and resolve during development

The best time to find and fix bugs is during development. Therefore HCL OneTest Embedded is focused on developer testing – the kind only you as the author of the code can perform effectively. You need to easily test the components you write and to analyze the reliability and performance of your applications as they run on your host development system.

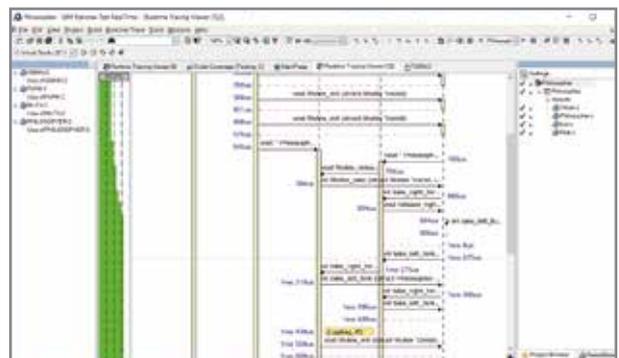
HCL OneTest Embedded automates the creation and deployment of component test harnesses, test stubs, and test drivers. With a single click from your development environment, you can also profile memory and performance, analyze code coverage, and visualize the behavior of your program execution.

Fully detailed test and runtime analysis reports are hyperlinked to the relevant source code.

HCL OneTest Embedded combines component testing and runtime analysis into a single, integrated developer-centric testing solution.



1 Code Coverage Analysis



2 Runtime Analysis

HCL OneTest Embedded's graphical user interface links your runtime analysis results (code coverage on the left, runtime analysis on the right) directly to your source code, enabling code repairs without ever having to leave the tool.

Feature 	Description 	Benefits 
<b>Component Testing</b>	Automates creation and deployment of host and target-based component tests. High level test orientated languages allow sophisticated tests to be easily written.	Increases developer tester productivity through automation. Allows a virtual cycle of test generation, execute, review and then test improvement to rapidly achieve full test coverage. One click to build, to execute on the target and to generate the report.
<b>Memory profiling</b>	Illustrates how a program's memory is being consumed and possibly leaked. Detects memory leaks, potential memory leaks, buffer under and over runs, misuse of memory after liberation and many other memory management errors.	Identifies the source of memory management errors at the testing phase before they occur in production, preempting performance issues and program crashes. Can be adapted to work with custom memory management methods used in embedded software.
<b>Thread profiling</b>	Detects and analyzes multithreading problems, such as deadlocks and race conditions as they occur in programs.	Improves the reliability of multi- threaded applications. Provides visibility on thread execution and switching to develop a deep understanding of the behavior of the system under test. Integrates Test Results and Code Coverage data.
<b>Code coverage</b>	Identifies which portions of the source code that have not been tested from function call up to MC/DC coverage levels.	Helps the developer tester to develop pertinent test cases. Avoids delivering code that is executed for the first time by the user or the target system running the application
<b>Runtime tracing</b>	Illustrates thread execution function calls, and variable values in programs as a function of time via UML sequence diagrams.	Developers can go back in time to review how a program behaved after the execution has completed. The integrates Test Results and Code Coverage data helps to provide a deep understanding of the behavior of the system under test. This information can be gathered on-the-fly whilst the system under test is running.
<b>Target Deployment Technology</b>	Provides a versatile, low-overhead technology for enabling target-independent tests and runtime analysis.	Develop tests on your host and validate on your target. Your tests won't need to change when your environment does; test script deployment, execution and reporting remain easy to use without changing your test scripts.
<b>Qualification kit</b>	Specifications and test suites are available to qualify HCL OneTest Embedded with your environment and your target device.	Allows qualification against many industry standards. See the last page of this brochure for a full list.
<b>Reporting</b>	Generation of reports in various formats (XML, HTML, text...).	Consolidated reports facilitate the certification process. Linking of reports allows detailed understanding of the test results.

## Supported Platforms

Programming Languages	Popular Targets, others on demand
C	Renesas - WindRiver - Lauterbach - Texas Instruments
C++	STMicroARM series - ARM Cortex - Arduino - Raspberry - Windows - Linux - Solaris - Aix - x86 / x64 - GNU toolchains - NXP/FreeScale - ColdFire - Power Architectures - HighTec Tricore,
Ada (component Testing and Code Coverage)	And many others ...
Industry	Standards
Aeronautical	DO178B/C, DO-278
Automotive	MISRA, ISO-26262
Defence	Def Stan 00-55
Medical / Industrial	IEC 62304
Rail	EN 50128

### HCL OneTest Embedded is part of the wider HCL OneTest Suite, providing additional functionality.

- **HCL OneTest API:** Trigger and validate a system's APIs across a range of network protocols and message formats.
- **HCL OneTest UI:** Create and execute UI-layer tests for packaged applications, web UIs, and mobile apps.
- **HCL OneTest Performance:** Identify and manage the risk of application performance failures.
- **HCL OneTest Virtualization:** Author, deploy, and monitor the virtual services for your testing environments.
- **HCL OneTest Data:** Generate synthetic data on demand without the risk of privacy issues.



#### About HCL Software

HCL Software is a division of HCL Technologies (HCL) that operates its primary software business. It develops, markets, sells, and supports over 20 product families in the areas of DevSecOps, Automation, Digital Solutions, Data Management, Marketing and Commerce, and Mainframes. HCL Software has offices and labs around the world to serve thousands of customers. Its mission is to drive ultimate customer success with their IT investments through relentless innovation of its products. For more information, please visit [www.hcltechsw.com](http://www.hcltechsw.com).

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