# Green Hills Software MULTI IDE

Solution Summary

The MULTI IDE is the industry's unrivaled integrated development environment used to create, debug, and optimize code for embedded processors. MULTI supports the RA family MCUs and RZ family MPUs and runs on Linux and Windows machines locally or in the cloud. It debugs code from multiple compilers, connects to targets over various links, and supports multiple operating systems running on silicon, simulators, or emulators. MULTI lets developers easily find and fix difficult bugs, pinpoint performance bottlenecks, and prevent future problems. MULTI lowers the cost to deliver on-time software, helps organizations avoid costly recalls due to poor software quality, and lowers hardware costs because more efficient code uses less memory and smaller CPUs.

Features/Benefits

- Certified for IEC 61508 SIL 3, EN 50128 & 50657 SIL 4, ISO 26262 ASIL D and more
- Debug applications, kernels and device driver code on various operating systems or bare board code
- Debug virtualized operating system kernels and their applications
- The Green Hills Compilers use hundreds of the most advanced compiler optimizations to significantly increase program execution speed and decrease size
- DoubleCheck, Green Hills Software's integrated static source code analyzer saves time and money by identifying programming errors before running the program

Diagrams/Graphics
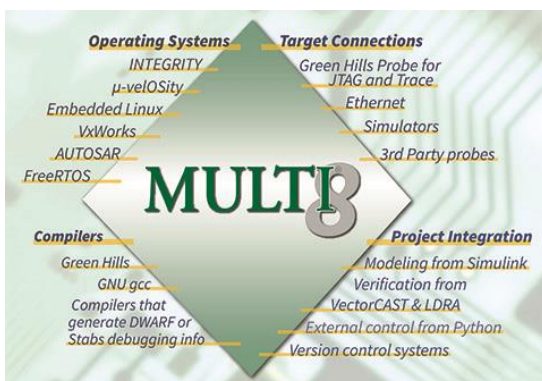
Target Markets and Applications

- Industrial IoT
- Medical
- Secure IoT
- Software defined radio
- Railway
- Networking/Telecom

https://ghs.com/products/MULTI_IDE.html

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Find and fix bugs faster

In complex real-time systems, unexpected time spent on hunting for sporadic and deeply buried bugs or finding performance bottlenecks can take weeks or even months, potentially risking an on-time product launch.

With MULTI, problems that once took days, weeks, or months are found and fixed in hours or even minutes. In complex systems, the most time-consuming bugs are sporadic, hidden and not evident with code inspection. MULTI enables developers to quickly pinpoint problems caused by memory corruption, unintended dependencies, unexpected interrupts, multicore complexity, inter-task corruptions, opaqueness from missing source code or virtualization, missed real-time requirements, and asynchronous hardware events … just to name a few.

The MULTI **Debugger** includes three powerful capabilities:

History viewer shows you how the program got to the current state and what the system was doing

TimeMachine uses trace data so you can run, step, and analyze back-in-time in the Debugger

Debug Snapshot saves a debugging session that you can easily share with coworkers

MULTI ecosystem

Target Processors
- Arm (AArch32 & AArch64)
- RH850/V850
- RISC-V

Operating systems
- INTEGRITY
- Linux
- µ-velOSity
- AUTOSAR
- FreeRTOS
- VxWorks

Design and test tools integration
- Rhapsody
- SCADE
- VectorCAST
- Simulink/MATLAB
- LDRA
- Python