

Wind River Simics

Electronic systems have become increasingly complex in recent years. These systems often contain multiple heterogeneous processors and multi-core processors running multiple software stacks and operating systems. In addition, they are usually part of a larger system connected via bus, backplane, LAN, or the Internet.

Because of this increased level of complexity and connectivity, traditional development tools and processes are often less effective when debugging, integrating, and testing these systems. Wind River Simics allows developers to radically enhance the way they develop, debug, and test electronic systems, providing a significant impact on important business metrics such as time-to-market, costs, and product quality.

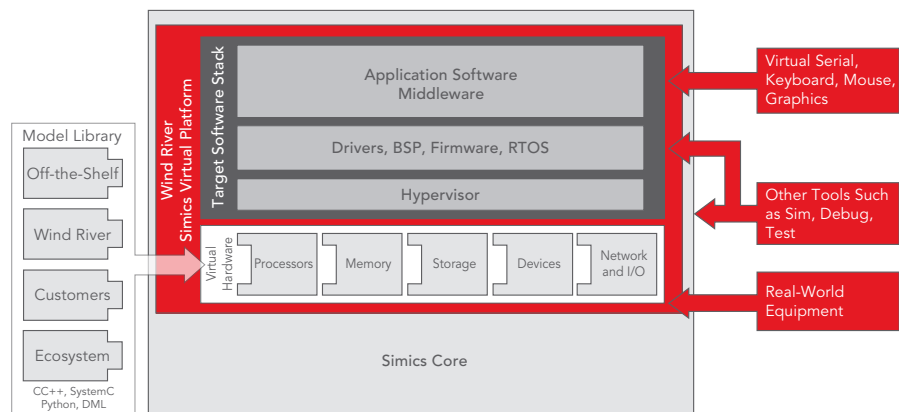


Figure 1: Simulate your entire target system

Simulate the Full System

Wind River Simics is a full system simulator used by software developers to simulate the target hardware of everything from a single processor to large, complex, and connected electronic systems. This simulation, referred to as a virtual platform, simulates the functional behavior of the target hardware. This enables unmodified target software (same BSP, firmware, real-time operating system, middleware, and application) to run on the virtual platform the same way it does on the physical hardware.

Accelerate Product Development

By collaborating more effectively, developers can significantly improve the way they develop their products, resulting in an acceleration of time-to-market. Activities such as board bring-up, system integration, and system testing can begin before physical hardware is available. Even though this in itself can improve time-to-market, more substantial benefits are available when developers take advantage of the unique capabilities that Simics offers. These benefits include early and continuous system integration, faster prototyping by utilizing virtual prototypes instead of physical prototypes, and architectural analysis by running what-if scenarios and trying multiple hardware/software alternatives before committing to one.

Simics also enables collaboration by making it possible to share a complete virtual system and its entire state, which increases efficiency and accelerates software development and testing.

Optimize System Development

Complex and connected systems are difficult to debug and manage. While traditional development tools can help you track down bugs related to a single board, finding a bug in a system of many boards can be a daunting task. For example, if you stop one board with a traditional debugger, other boards in the system will continue to execute, making bug isolation almost impossible.

Simics provides access, visibility, and control over all boards in the system. Single-stepping forward, or even in reverse, applies to the system as a whole, not just a part. Furthermore, a checkpoint—or snapshot—can be made of the entire system and then delivered to another individual. This other person then has access to the complete system, both hardware and software, and can continue execution as if it never stopped.

Simics offers unique capabilities for software development and testing such as hardware and software fault injection, control over virtual system time, and access to all hardware registers.

Simics virtual platforms are easier to configure and manage than the physical hardware. In addition, parts of the virtual system can be easily replicated to test scalability. Simics is designed to be able to simulate systems containing hundreds of boards and processors with a performance level that enables real software target loads to execute.

Manage Full-System Target Hardware

One of the biggest obstacles with developing, debugging, integrating, and testing an electronic system is that target hardware is not always available or even operational. Instead, product teams make do with less than ideal substitutes such as reference boards or host-based development. With Simics, there is unlimited target hardware for all team members. Furthermore, this virtual target hardware is not just a piece of the system; it can be the complete system. This gives product teams the ability to do their work in the context of a complete system, instead of just a part of it.

For those developers who support many different configurations of their target hardware, a Simics virtual platform provides the ability to easily manage multiple configurations of components, which is especially useful for compatibility testing and testing specific customer scenarios.

Support the Entire Product Life Cycle

Simics supports the entire product life cycle, from system definition through product maintenance.

System Definition

- Explore hardware architecture choices, even pre-silicon.
- Analyze impact of hardware choices on legacy software.

Hardware and OS Bring-up

- Develop, debug, and test low-level software, board support packages (BSPs), and OS configurations before hardware is available.
- Prototype virtually.

Application Development

- Provide all application developers with virtual target hardware to eliminate integration issues later.
- Leverage advanced debugging capabilities such as checkpointing, reverse debugging, and breakpoints.

System Integration

- Integrate often and continuously using virtual target hardware instead of waiting on availability of physical hardware.
- Debug at the system level; report bugs to developers using checkpoints.

System Maintenance

- Maintain legacy products indefinitely without worry of hardware obsolescence.
- Analyze upgrade options on a legacy system before committing to the hardware development.

Supported Target Architectures

- Power
- Intel
- MIPS
- ARM
- M68K
- SPARC
- Others

Key Wind River Simics Capabilities

- Run any software that runs on the physical target on Wind River Simics.
- Analyze performance of a full system, not just a single board.
- Debug efficiently by running the simulation forward or in reverse.
- Resume execution from the exact point that you last saved it.
- Share system state and virtual hardware with anyone, anywhere.
- Inject faults to test system robustness.
- Automate manual steps and repetitive tasks with full scripting capability.
- Use your standard debugger and software toolset with Simics.
- Integrate with your existing environment.
- Simulate your target system including processors, devices, full boards, and systems.
- Use a prepackaged virtual platform from Wind River, build your own, or have Wind River do it for you.

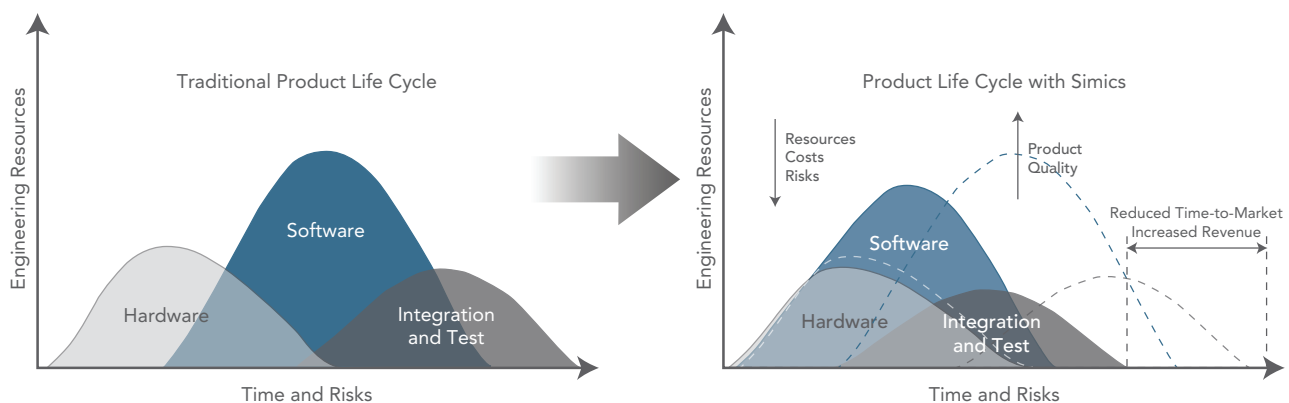


Figure 2: Wind River Simics accelerates product development, improves product quality, and reduces risks and costs

WIND RIVER

Wind River is a leader in embedded and mobile software. We enable companies to develop, run, and manage device software faster, better, at lower cost, and more reliably. www.windriver.com

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