

Virtutech Simics

Aerospace and Defense Applications

Virtutech Simics® provides architects, software developers and integrators with a virtual platform that enables the design, development and deployment of complex, software-based systems. Simics is flexible and can model any system – from single-core boards to very complex heterogeneous multicore or multi-rack systems. Simics fast simulation provides the accuracy and performance for measurable benefits across the full product life-cycle including: system architecture, software development (firmware, OS, drivers, applications), systems integration, ecosystem creation, and support – all on a standard PC and without the need of the target physical hardware.

Simics for Aerospace and Defense Systems

Aerospace and Defense applications are among the world's most complex electronic systems. These systems frequently consist of multiple, heterogeneous rack-mounted boards or networks of subsystems. The integration of these systems is also complex in that individual components of these systems may come from different project teams or even sub-contractors.



In addition, failures in these systems can have catastrophic consequences which means thorough and extended testing is required. Certification standards, such as DO-178B, also increases the testing efforts.

With Virtutech Simics, your entire physical hardware system can be modeled, not just a single SoC or board. This means that your entire software stack, including hypervisors, RTOSes, drivers, BSPs, and applications can be run on every engineer's desktop computer, even if your hardware is comprised of heterogeneous CPU's, running different speeds, running different RTOS's and applications.

In addition, by leveraging a virtual representation of your system, you have the ability to do quick prototypes of new components, virtually. This eliminates the time, effort, and expense needed when building physical prototypes.

This also helps reduce your risks and ensure schedule compliance by preventing hardware delays and availability from blocking progress on your software, integration, and testing efforts.



At-a-glance

Virtutech Simics

- › Simulate any digital electronic system from a single board to an entire avionics rack or satellite system
- › Run unchanged target binaries – major commercial RTOS's, drivers, hypervisor, application
- › Bug creation is repeatable because of deterministic execution
- › Isolate source of bugs through reverse execution
- › Save state of entire system and resume execution for later analysis
- › Create automated test suites
- › Easily inject hardware and system faults for safety-critical testing
- › Stress system by simulating abnormal loads or operating conditions

Application Uses

- › Provide every engineer, tester, and integrator with virtual target hardware on their personal computer
- › Perform hardware/software integration much earlier in product development process
- › Support rapid hardware/software prototyping using virtual hardware instead of physical hardware
- › Perform DO-178B testing
- › Extend debugging to the entire system instead of a single board
- › Obtain visibility into, and control of, individual devices of the virtual target hardware

Typical Model Support

- › Power Architecture®: Freescale QorIQ™ P4080, Freescale PowerQUICC™ Family, AMCC, IBM
- › BAE Systems RAD750®
- › MIPS Architecture: Cavium, RMI, PMC
- › Communications/Buses: PCI, PCI-Express, RapidIO, I²C, MIL-STD-1553, SpaceWire, ARINC 429/629, Ethernet