



Application: Software Development

Industry: Embedded Software Consulting

Customer Challenge

Kyma Systems is a system software consulting firm specializing in embedded systems software development, especially for networking, storage and wireless, providing custom system-level software solutions that dramatically reduce development time for complex software projects. In a recent program, Kyma developed the Kernel-based Virtual Machine (KVM) Hypervisor on MIPS cores with hardware virtualization (VZ) extensions, deploying Imperas.

Imperas Solution

In this MIPS core-based application at Kyma Systems, the KVM Hypervisor was developed for inclusion in Linux OS distribution. KVM is a full virtualization solution for Linux containing virtualization extensions, consisting of a loadable kernel module for the core virtualization infrastructure and a processor-specific module. KVM for MIPS was initially developed using trap and emulate technology. With the addition of VZ extensions to MIPS instruction set, Kyma's mission was to re-develop KVM to take advantage of VZ extensions.

Kyma turned to Imperas for a several reasons. The hardware was not available as a development platform for KVM. And, Kyma knew that the Imperas virtual platform delivers superior performance and debug capabilities, as well as affordable, widespread platforms for embedded software, to enable all developers.

Benefits

Imperas delivered CPU-aware tools, modeling, simulation, and capabilities to optimize KVM on VZ. Imperas high-performance virtual platforms, with M*SDK and Fast Processor Models, were key for booting complex systems. Imperas tools delivered on the promise of visibility for virtual platforms. Using virtual platforms accelerated Hypervisor development by 12 months.

Business Challenges

- Accelerated KVM Hypervisor software development schedules
- Software quality

Design Challenges

- KVM Hypervisor development, debug and test
- VZ extensions
- Hardware was not available as a development platform

Results

- Imperas virtual platforms accelerated Hypervisor development by 12 months
- Outstanding software quality

“As a small company, schedules and quality are what drives our success. The Imperas tools made it possible for us to develop the KVM hypervisor within the required schedule, with outstanding quality.”

Sanjay Lal, President and CEO, Kyma Systems