



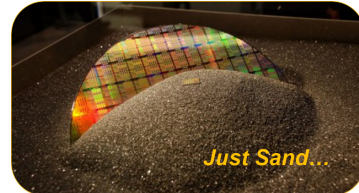
## Revolutionizing Embedded Software Development

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### Imperas Newsletter: September 2016

*"Silicon without software is just sand."*

Updating you on what's new in the embedded software revolution.



#### Viewpoint: Simon Davidmann, CEO Imperas

Automotive safety continues to be a concern, especially in light of news about the recent Tesla crashes, such as the EE Times article "[Tesla's Fatal Crash: 6 Unanswered Questions](#)". News such as this raises the question, among others: There are many corner cases (like the Tesla case) that are almost impossible to test. Considering the infinite number of potential scenarios that could lead to a crash, how does the car industry plan to meet the challenge of modeling, simulation, test and validation? Virtual platforms are one important solution; encompassing both hardware and software for a systems validation approach. Please see our new video on the value of virtual prototyping below.

Looking forward to seeing you at [ARM TechCon](#), October 25-27 at the Santa Clara Convention Center! More information follows below. To set up a meeting or demo, please email us [sales@Imperas.com](mailto:sales@Imperas.com).

Please **follow us**: on [Linked In](#), and [twitter](#) @ImperasSoftware

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### New Imperas Videos!

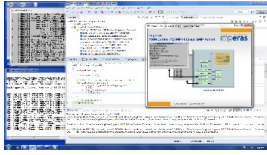


#### Video: Simon Davidmann on Virtual Platforms

Imperas CEO Simon discusses the Imperas mission to revolutionize software development, virtual platforms, key applications, multi-level software and hardware system models and what virtual prototyping can do for you!

[View it here.](#)

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## Video: Imperas and Green Hills Software Demo

How to use the Green Hills Software MULTI Debugger with Imperas simulators and OVP Fast Processor models of Renesas RH850 processors.

[View it here.](#)

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## Imperas in the News



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## Hypervisors!

### "Will Hypervisors Protect Us?"

*Article by Brian Bailey, with Simon Davidmann in Semiconductor Engineering. Part 1.*

"They may not be a silver bullet, but they are a good first step when it comes to securing cars and the Internet of Things (IoT)." Learn more about:

Protecting electronic systems from dysfunction and the criminal world by adding increasingly sophisticated layers of protection such as hypervisors.

Hypervisors and their evolution across different sectors in the industry: aircraft manufacturers, factory automation, automotive, infotainment and control systems, artificial intelligence and the Internet of Things (IoT).

The impact of modern hardware with multi-core processors or a farm of machines, and the role of virtualization and hypervisors to achieve separation. The challenges of multiple types of processing engines, including CPUs, GPUs and possibly FPGAs. The complexity of heterogeneous embedded systems with varied memory architectures, along with CPU consolidation, fault tolerance and job isolation.

Challenges of multi-application systems, third-party software, requirements for certification or compliance, security, mixed operating systems, user interfaces, and communications between modules.

Hardware support for hypervisors via hardware virtualization, trust zone, and other ideas, to accelerate hypervisor performance and reduce overhead and impact on silicon area or power. Capabilities needed from the hardware, with process flows across both CPUs and GPUs, memory management and protection, timers for temporal isolation, mechanisms to protect certain processor instructions, and I/O, including DMA and dealing with heterogeneous environments.

The evolving demands on embedded hypervisors for isolation, robustness and security in the face of more diverse and complex hardware.

[Read more here.](#)

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## See Imperas Software Development Tools and Virtual Platforms at ARM TechCon 2016

*Imperas Exhibits Solutions Supporting Software Debug and Test for the ARM-Based Embedded Systems*

Imperas will exhibit solutions and deliver a technical session at the 2016 [ARM TechCon](#), October 25-27, at the Santa Clara Convention Center. [Contact us](#) to register for a demonstration of Imperas embedded software development, debug and test solutions for ARM-based systems.

### Demo Highlights (See Imperas in expo booth #520):

- **Solutions:** See demos of Imperas solutions for custom/proprietary processor modeling, early software development, more comprehensive software testing, and software/system power/timing estimation. Use cases include porting and bring up of hypervisors and operating systems, advanced software analysis such as code coverage, profiling and memory monitoring, and support for advanced methodologies such as Continuous Integration (CI)
- **Demos:** Linux booting on various Cortex-A platforms, RTOS booting on Cortex-M platforms, and the Imperas verification, analysis and profiling (VAP) tools, including OS-aware tools and advanced tools such as fault simulation.
- **Models and architectures:** [Open Virtual Platforms \(OVP\)](#) models and platforms cover the full line of ARM processors, including Cortex-A, R and M families, ARM big.LITTLE architecture and multi-cluster ARMv8 architectures.

### Technical Session Highlights (Wednesday, October 26, 3:30-4:20pm):

- [Integrating Power Models into Instruction Accurate Virtual Platforms for ARM-based MPSoCs](#) by Imperas and OFFIS (Institute for Information Technology.) In embedded systems, extra-functional requirements like power consumption have been increasing in importance. This work focuses on a power extension of an instruction accurate virtual platform. As a proof of concept, we equip an OVP Xilinx Zynq virtual platform with a dynamic voltage and frequency scaling (DVFS) compatible power model. Software on the virtual platform can access the actual power consumption and perform power management through DVFS. See this presentation, with real-world demonstration.

### Partner Highlights:

- [Seltech](#), a Japan-based developer of hypervisors, will be in the Imperas booth for one hour both days of the exhibit discussing and demonstrating their hypervisor-based solutions for safety and security critical embedded systems.
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## Imperas Announces Coontec as Distributor in Korea *Coontec to Provide Technical Support and Distribution to Embedded Systems Customers in Korea*

Imperas announced a new partnership with [Coontec Co., Ltd.](#), a Korea-based provider of embedded software solutions. This distribution and support partnership combines technology-leading Imperas high-performance software simulation and virtual platforms with the power of Coontec's expertise on embedded systems for the automotive, IoT and mil-aero markets, to further drive the adoption of virtual platforms in Korea.

[Read more here.](#)



## Lee Moore of Imperas receives RAeC Award from HRH Prince Andrew for New Aviation Traffic Awareness Technology

Imperas is proud to announce that our own Lee Moore has received a Royal Aero Club (RAeC) award from His Royal Highness Prince Andrew at the Club's annual Awards Evening held at the Royal Air Force Club in London's Piccadilly. His new solution is the affordable PilotAware product, an ARM/Linux based real-time embedded system with smartphone iOS/Android application that helps pilots avoid accidents and save lives.

[Read more here.](#)



## Grappling With Auto Security

Article by Ann Steffora Mutschler, with Simon Davidmann in Semiconductor Engineering. The search is on for a way to balance connectivity, performance and security...

[Read more here.](#)

## OVPsim Release News

### **OVP: Fast Simulation, Free open source models, Public APIs: Open Virtual Platforms.**



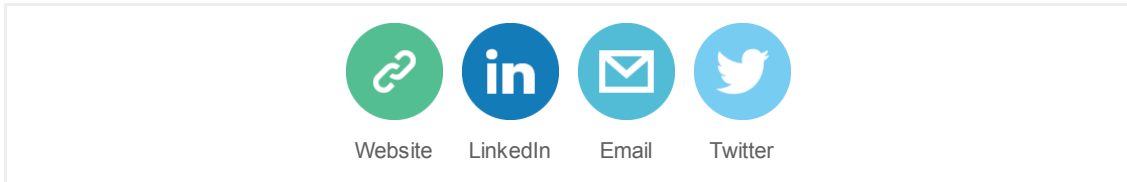
A new Imperas and OVP release is available, 20160627.0 (July 2016). New in this release are the OP API for building virtual platforms, the model of the ARM Cortex-A72 processor, and the addition of the iGen productivity tool for peripheral and platform building to OVPsim. The OP API provides flexibility and efficiency for complex platforms, including those with hierarchy. Transitioning to OP is seamless if iGen was used to build the platform.

The [Open Virtual Platforms](#) portal is one of the most exciting open source

software developments in the embedded software world since GNU created GDB.

- For embedded software developers, virtual platforms are increasingly important, especially for multi-core designs.

The resources on this portal can significantly accelerate your development and test. The next release of OVPsim is expected to be available in September 2016.



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