



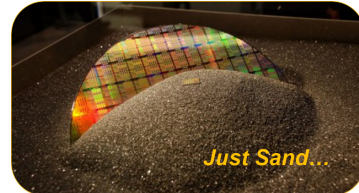
## Revolutionizing Embedded Software Development

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### Imperas Newsletter: July 2016

*"Silicon without software is just sand."*

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



#### Viewpoint: Simon Davidmann, CEO Imperas

June's DAC and Embedded TechCon were exciting, addressing embedded software more than ever before, with ideas of systems now expanded to include software. IoT went mainstream. And Embedded TechCon being co-located for the second year gave great technical depth. Please see below for more information.

If you missed our solutions demos at DAC / Embedded TechCon, or for more information on the Imperas virtual platform products, please go to [www.imperas.com](http://www.imperas.com) or contact us directly at [sales@imperas.com](mailto:sales@imperas.com). Also, information on models, including demos of virtual platforms, can be found on the Open Virtual Platforms (OVP) website, [www.OVPworld.org](http://www.OVPworld.org).

Looking forward to ARM TechCon in October in Santa Clara, CA.

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### Imperas Update from [DAC](#) and [Embedded TechCon 2016](#)

At DAC / Embedded TechCon, Imperas featured how we are revolutionizing embedded software development for companies developing electronic systems. Whether you're a software engineer, systems developer, or SoC designer, Imperas virtual platform solutions can help you rapidly deliver innovative, high-quality, secure electronic products.



- DAC demos of Imperas virtual platforms for embedded software and systems development, debug and test spanned a wide variety of [Open Virtual Platforms \(OVP\)](#) models and virtual prototypes, including showing processor models of ARM (including Cortex-A, R and M families), Altera, Synopsys ARC, Imagination Technologies (MIPS), Renesas and Xilinx cores.
- Our DAC tutorial: "[Linux Porting and Bring Up, and Driver Development](#)" showed how virtual platforms can be used to

accelerate operating system (OS) bring up and improve OS and driver quality.

- Imperas Embedded TechCon [presentations](#) included: "[Pre-Silicon OS Porting, Bring Up and Driver Development](#)" and "[Accelerating ARM Software Development, Debug and Test](#)"



## Imperas in the News

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### Silicon Without Software is Just Sand: Shifting Left with Imperas

Amelia Dalton's Fish Fry looks at the value of virtual prototypes to simulate embedded software. "No one builds a chip without simulation, right? Simon Davidmann (CEO - Imperas) and I chat about about why he thinks no one should design embedded software without simulation, and the benefits of using virtual platforms to develop a verification and test environment." (Dalton)

[Listen to the Fish Fry audio podcast here.](#)



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### More ARM Models and Virtual Platforms from Imperas and Open Virtual Platforms

 ARM Connected Community

Having released support for ARMv8 over 2 years ago with models of the Cortex-A53 and Cortex-A73, Imperas recently added more solutions around the Cortex-A72 to further accelerate embedded software development.

[Read more here.](#)

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### Fast Processor Model of Renesas RL78 CPU Released by Imperas, Open Virtual Platforms



A new fast processor model of the Renesas RL78 CPU was developed by eSOL TRINITY and Imperas, in partnership. Example virtual platforms have also been released, as well as support for the new model in the Imperas M\*SDK™ advanced software development tools. This new model expands the rich library supported by Imperas, including variants of Renesas V850, RH850, RL78, M16C and R8C.

[Read more here.](#)

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### System-Level Verification Tackles New Role (Part 3)

By Brian Bailey in Semiconductor Engineering, with experts including Larry Lapides of Imperas.

[Read Part 1 here.](#) The role of system-level verification is not the same as block-level verification and requires different ways to think about the problem.



- "There is an interesting term that is being used to capture some of these system-level verification issues: extra-functional properties. Things like power, latency, safety and security are all being lumped into this term. We need to start worrying about these things..." (Lapides)

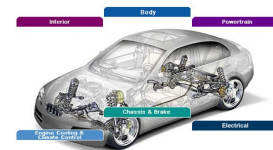
[Read Part 2 here.](#) Mixed requirements for different types of systems, model discontinuity and the needs for common stimulus and debug.

- "Now you have the cloud and the data aggregation level, you have tens, hundreds or even thousands of microcontroller nodes, and you need to make sure that they work together. And this is not a single chip..." (Lapides)

[Read Part 3 here.](#) Addressing automotive reliability and test coverage; the real value of portable stimulus.

- "There are still unique differentiators on the hardware side for most chips. The software has to work closely with the hardware and there is no commodity chip for ADAS or anything like that. The Tesla approach also has some security issues related to updates and then there is software maintenance and needing to do continuous updates – that is expensive." (Lapides)

## Imperas Virtual Platforms Support Embedded Software Development for Automotive



### Automotive Case Study: Software Testing

**Customer Challenge:** A Tier 1 automotive OEM electronics company, very safety-conscious, needed advanced software testing tools including code coverage with fault injection to comply with internal safety initiatives as well as commercial regulations.

**Benefits:** Imperas delivered a high-performance virtual platform solution for complex automotive hardware/ software systems, enabling comprehensive simulation, verification and debug. Imperas models helped the company get started quickly and accelerate development, with a solution for comprehensive quality verification, including corner cases and fault injection.

Imperas currently delivers complete virtual platforms for the following popular standards:

- CAN, specifically for automotive, with essential models from Renesas, ARM and other IP and SoC providers.
- USB, for a wide variety of electronics including automotive.
- Ethernet, for networking everywhere.

### OVPsim Release News

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

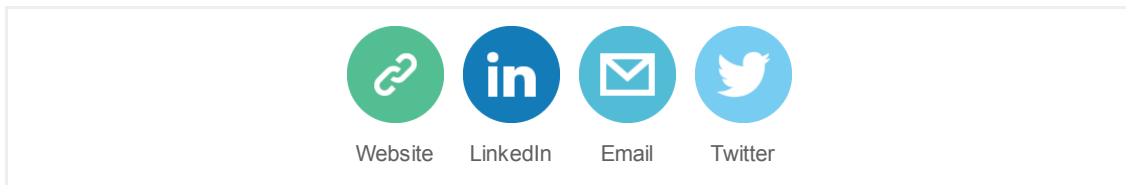


A new Imperas and OVP release is available, 20160627.0 (June 2016). New in this release are the OP API for building virtual platforms, the models of the ARM Cortex-A72 processor and Renesas RL78, and the addition of the iGen productivity tool for peripheral and platform building to OVPsim. The OP API 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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