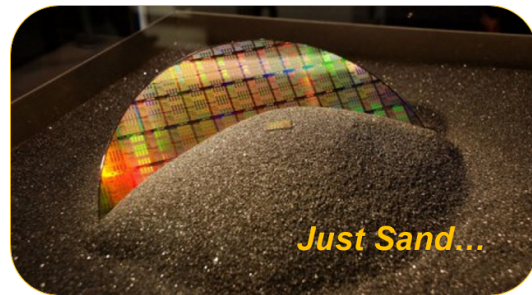See Imperas at DAC 2015!

imperas Revolutionizing Embedded Software Development

Imperas Newsletter: DAC 2015
"Silicon without software is just sand."

The DAC Issue!
Updating you on what's new in the embedded software revolution.

Just Sand...

CEO View: Simon Davidmann
Looking forward to seeing you at DAC in San Francisco.

In our last Newsletter, the three embedded software insights discussed were: exponentially increasing complexity; the catastrophic consequences of one failure; and lessons to be learned from hardware design. At Imperas, we listen closely to customers, who have contributed an additional perspective.

Software specifications change a lot during development, and software can rapidly evolve, which is one of the great things about it. But since software changes are so prevalent, even at a very late stage, having a high level, structured approach to development, verification, debug and regression testing becomes even more important. This increases the need for virtual platforms, with advanced verification for embedded software. The better your regression and test environment the safer it is to change the software. Virtual platforms are a key component of modern software regression environments.

Imperas has always led the way with virtual platforms and virtual prototyping technology. We have an exciting lineup for DAC this year, with demos, tutorials, and talks. Please email larryl@imperas.com to set up a meeting. We look forward to seeing you at DAC 2015!

Imperas Exhibits at the Design Automation Conference 2015
Imperas shows Virtual Platforms for Software Development and Testing across Multiple IP Vendors and Applications.

Visit Imperas Software Ltd. at the Design Automation Conference (DAC)

exhibition area. Attendees can also register for the tutorial on embedded Linux being delivered by Imperas.

WHEN: June 7-11, 2015.
WHERE Moscone Center, San Francisco, CA.

TUTORIALS: Imperas Software, in partnership with Altera and Posedge Software, will deliver two tutorials on "Linux Porting and Bring Up, and Linux Driver Development" featuring virtual platforms, as part of the Embedded Software topic in the DAC Embedded Systems track.
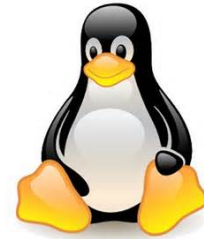
Date: Monday, Jun 8, 2015
Time: 10:30am to 12:00pm
Location: Room 303

Date: Monday, Jun 8, 2015
Time: 4:30pm to 6:00pm
Location: Room 303

DEMOS: See Imperas virtual platform based embedded software debug, analysis and verification demos at the ARM Connected Community booth, #2414 in 3B. Imperas demos will show the full line of Open Virtual Platforms (OVP) models of ARM processors, including Cortex-A, M and R families Our partners will also be showing demos of Imperas technology and products: at the Imagination Technologies booth, #1709, and the Magillem booth, #2414.

TALKS: Imperas will deliver two talks on virtual platform based methodology for embedded software development on the show floor in the ARM Connected Community booth theater.
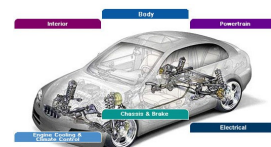**Times**: Monday, June 8 at 2:15pm and Tuesday, June 9 at 1:45pm

For more information, or to set up meetings with Imperas at DAC, please email sales@imperas.com
Read more...

Imperas Virtual Platforms Support Embedded Software for Automotive
Imperas supports standards and key applications with complete virtual platform solutions

Developing software for automotive? Did you know that complete virtual platforms are available to support CAN and other automotive standards, along with essential models from Renesas, ARM, and other IP vendors? Virtual platforms (technology and methodology) radically improve embedded software development, and have always delivered superior debug visibility and early start to embedded software development, even before hardware is available. Imperas standards-based platforms for

- Functional coverage for improved code quality and predictability
- Fault injection for safety and compliance, ISO 26262
- Continuous integration testing for predictability and accelerated schedules

For each of these applications, Imperas software simulation and debug development platforms deliver ultra-fast simulation with QuantumLeap, software debug, analysis and verification environments, and model generation tools.

As Martin Baker of the Renesas Electronics Automotive Business Unit commented "Software testing is a huge issue in automotive electronics. By providing simulation-based tools focused on software test and development, Imperas is improving the user experience and results for Renesas processors. By continuing to support the V850 processor core family and V850 devices, Imperas and OVP are helping expand the toolkit available to the Renesas automotive user community."
Read more about one automotive application here...

FlexTiles Adaptive Multicore SoC Virtual Platform Now Available from Imperas
Imperas Technologies Used for FlexTiles Program.

Now, a virtual platform for the FlexTiles program is available, based on Imperas™ and Open Virtual Platforms™ (OVP™) simulators and models.The FlexTiles platform is a self-adaptive heterogeneous multicore 3D System-on-Chip (SoC) architecture developed by a consortium of universities, research institutes and commercial companies. A major challenge in computing is to leverage multicore technology to develop energy-efficient high-performance systems.

The FlexTiles project has developed an energy-efficient, programmable many-core platform with self-adaptive capabilities, along with an innovative virtualization layer and a dedicated tool flow. As similar architectures are adopted in industry, improvements in programming efficiency, and therefore reductions in time to market, are expected, together with a reduction in overall development costs of 20 to 50%. The project successfully used the OVP technologies to create a many-core virtual platform, which is available at no cost from from Karlsruhe Institute of Technology (KIT), and from the OVP Library page for KIT. Imperas simulation and OVP models were selected because of superior performance and the availability of open source models. While the FlexTiles architecture is not processor-specific, the Xilinx MicroBlaze was used to demonstrate the capabilities of the architecture, both in demo hardware and in the virtual platform.

quickly create a virtual platform for our advanced architecture," stated Stephan Werner of Karlsruhe Institute of Technology. "We were able to use the Imperas technology and tools to develop multiple demonstrations of the FlexTiles architecture, including multiple hardware configurations, the Network on Chip (NoC) developed under this program and the operating system and software tools for FlexTiles."

Dave Tokic, Senior Director of Partner Ecosystems at Xilinx, commented: "We're excited to see Xilinx FPGAs, including the MicroBlaze cores, used in a project with such far-reaching impact. High performance processor models, virtual platforms and software development tools, such as are available from Imperas and OVP, are critical to the quality and success of embedded software projects."

Read more...

Imperas at Imagination Summit Silicon Valley 2015
Imperas MIPS CPU Virtual Platforms for Software Development and Testing at the popular Imagination Summit Silicon Valley 2015

Imperas recently demonstrated Imperas virtual platform based software development, debug and verification tools, at the Imagination Summit Silicon Valley – "Securing the Future" – a series of presentations, demonstrations and detailed technical sessions with top executives and experts from Imagination Technologies and their partners. Attendees explored the ultra-low power architectures in Imagination's SoC processor IP cores and security solutions for IoT and other markets. Imagination featured their new generation of MIPS Warrior CPUs, which are already supported by Imperas Open Virtual Platforms (OVP) models. Imperas also supports MIPS-based SoC software development through its Extendable Platform Kits (EPKs), which help users to get a quick start with virtual platform methodology, and with tools for software debug, analysis and verification. Imperas showed demos of the full line of MIPS models, as well as the EPKs and the Imperas embedded software tools.

The efforts of the new Security working group in the prpl Foundation was also discussed, and is gaining industry momentum fast, thanks to members such as Imperas.
View a brief interview on prpl with Imperas CEO, Simon Davidmann here.
Read more...

Ann Steffora Mutschler on Capturing Performance
Semiconductor Engineering explores examples of architectural strategies for getting the best performance out of a power budget.

Ann Steffora Mutschler writes: Virtual platform developer Imperas Software's tools are being used for power estimation, to enable dynamic analysis of the impact of the complete software stack — OS, firmware, applications — on the power consumption of SoCs and systems,

of these architectures have in common is heterogeneity: using the right processor for the appropriate task."

He sees the next step in this progression of system architectures as enabling optimized sharing of processing resources. "We have seen two basic approaches. The first is an architecture approach to heterogeneous computing, such as that being developed by the Heterogeneous System Architecture (HSA) Foundation, which enables the easier programming of heterogeneous systems. The second is the use of hypervisors for controlling resource allocations on a SoC. This approach has been significantly enhanced in the last two years by the introduction of hardware virtualization instructions to the ARM and MIPS architectures, to enable hypervisors to operate with much lower performance and power overhead than previous generations of hypervisors that did not rely on the underlying hardware. The two approaches are more complementary than competitive."

Read more...

Kevin Morris in Electronic Engineering Journal
The Hardware Vanishing Point: Someday, Will it All be Software?

Kevin Morris writes: "The disciplines of hardware and software engineering have always been intertwined and symbiotic - like the yin and yang of some bizarre abstract beast. Software cannot exist without hardware to execute it, of course, and most hardware today is designed in the service of software. The vast majority of systems being designed today involve a mix of both elements working together, with software steadily inheriting more and more of the complexity load.

Let's think about that for a minute..."

Read more...

Brian Bailey Blogs About EDA Panel
Parts 2 and 3: Are there problems ahead For EDA?

In a series of blogs, Brian Bailey of Semiconductor Engineering reports on his panel with Simon Davidmann, chief executive officer for Imperas; Bill Neifert, chief technology officer at Carbon Design Systems; Randy Smith, vice president of marketing for Sonics; and Michel Courtoy, vice president of marketing and business development for Kilopass Technology, discussing the health of EDA.

Read the new Part 3 here...
Read the new Part 2 here...
Read Part 1 here...

Virtual Platforms.
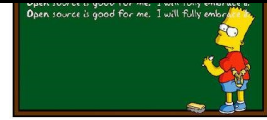
The Open Virtual Platforms™ (OVP™) portal is one of the most exciting open source software developments in the embedded software world since GNU created GDB.

- For embedded software developers, virtual platforms will be increasingly important, especially for multi-core designs. The resources on this portal can significantly accelerate your development and test..
- Explore what is new at OVPworld!

The current OVPsim release is 20150205.3 (May 2015)

- Please check the release notes on OVPworld.org for more details.
- The next release of OVPsim is expected to be available in mid-August.

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