FOR IMMEDIATE RELEASE

Contact: Madeleine Gray, HiPEAC
Email: communication@hipeac.net

New startup MachineWare enables ultra-fast RISC-V simulation

Aachen, Germany, 28 June 2022 – Headquartered in Aachen and emerging from stealth mode in May, MachineWare is set to revolutionize semiconductor design with its high-speed functional RISC-V simulator, SIM-V.

SIM-V, the company's flagship product, combines unprecedented simulation performance with exceptional customizability for applications ranging from the tiniest embedded devices to warehouse-scale supercomputers. SIM-V enables software developers to test full software stacks – including firmware, operating system kernel and complex user-space applications, such as (Java-) virtual machines or rich graphical environments – in real time.

'Our mission is to equip RISC-V software developers with the tools they need to deliver safe and secure software stacks on schedule and glitch free,' says Lukas Jünger, MachineWare managing director and co-founder.

Today's hardware-software systems are becoming increasingly complex, with even tiny edge systems executing millions of lines of code. SIM-V gives software developers the ability to interactively debug even the most complex designs without the need for physical hardware, even before first prototypes are available. Integrating SIM-V into continuous integration systems minimizes test execution times, saves compute resources and allows developers to continue their work sooner.

'Human errors are unavoidable and critical bugs that compromise system safety and security are bound to appear in every project,' adds Jünger. 'Correct system functionality can only be ensured through extensive testing and rigorous verification. However, automated, cross-architecture continuous-integration systems are still a major resource drain on many software teams. With SIM-V, complex test suites can be set up, executed much faster and scaled up, all before getting near the hardware.'

MachineWare offers tailored versions of SIM-V for different use cases:

- ⇒ **SIM-V Compute** targets the design and verification of high-performance RISC-V systems, including hardware models of GPUs and high-speed PCIes interconnects.
- ⇒ **SIM-V Edge**, on the other end of the spectrum, is optimized for designing compact 32-bit edge computing systems, offering a broad range of I/O from the microcontroller design space.

Both simulators are built on MachineWare's open-source SystemC modelling library, VCML, which enables easy integration into existing verification setups and SystemC platform models, while providing tracing, analysis and scripting features.

SIM-V is also based on MachineWare's fast and flexible instruction set simulation framework FTL. This enables easy customization of the simulator to add custom tailored RISC-V instruction set extensions or even design fully custom instruction set simulators for almost any microprocessor architecture.

MachineWare is a spinoff of RWTH Aachen's Institute for Communication Technologies and Embedded Systems. The university has nurtured a culture of innovation, with 101 spinoffs in 2021 alone.

MachineWare's founders are members of the HiPEAC network of top computing systems experts in Europe.

For further information, contact Madeleine Gray at communincation@hipeac.net.