

## Think Silicon demonstrates early preview of Industry's first RISC-V ISA based 3D GPU at the RISC-V Summit

***NEOX|V™ low-power GPU empowers rapid deployment of Computer Graphics, Machine Learning and open GPGPU compute framework applications***

**San Jose, California / Athens , Gr – Dec. 2nd, 2019:** Think Silicon, recognized for the successful ultra-low power NEMA® GPU-Series for MCU driven SoCs, announced the demonstration of the industry's first RISC-V ISA based 3D GPU -- the NEOX|V™. Attendees at the RISC-V Summit, in San Jose, California, will have the first opportunity to witness this new GPU innovation designed for the rapid deployment of Computer Graphics, Machine Learning and open GPGPU compute framework applications.

Offering a myriad of flexible possibilities, NEOX|V™ IP is designed to be easily configured for applications such as computer graphics, machine learning, vision/video processing and general-purpose compute. The new offering provides a platform for implementation in multiple embedded and external devices across many consumer and industrial vertical markets including Graphics, Compute, and AI for IoT/Edge/Compute.

*"Building a GPGPU on RISC-V instruction set architecture is another significant milestone in the young history of Think Silicon. With the announcement of NEOX|V™, we're delivering the essential low-power GPU technologies to enable companies to create efficient and nimble solutions for a wide variety of markets," said Ulli Mueller, SVP Sales and Marketing, Think Silicon.*

NEOX|V™ also offers a framework for integrating custom user instructions allowing companies to tailor-suit their solutions to enhance performance for their target applications. NEOX|V™ has the capability to be the fundamental basis of customers' multicore/multithreading compute engines. The usage of a common ISA between the main system CPUs and GPUs will allow new programming paradigms by dynamically balancing computation load between these processing elements.

*"The elegance and simplicity of the RISC-V ISA used in NEOX|V™ will enable a new class of SoCs, which are smaller, consume less energy and are easier and more open to program." said Iakovos Stamoulis , CTO, Think Silicon.*

Software support is the focal point of NEOX|V™. One of the major pain points for customers is the constraints in limited software resources compounded by rising development costs (60%-70% of total operating expenses, according to EETimes). NEOX|V™ leverages the growing set of tools in the RISC-V ecosystem -- such as compilers, optimizers and debuggers -- to provide a solution based on Open Standards.

NEOX|V™ features:

- Parallel multicore and multithreaded architecture based on the RISC-V64GC ISA instruction set with adaptive NoC (Networks-on-Chip)
- Configurable from 4 to 64 cores
- Variety of cache sizes and thread counts organized in 1 to 16 cluster elements

- Variety of cluster/core configurations with compute power ranging from 12.8 to 409.6 GFLOPS at 800 MHz
- Support for FP16, FP32 and FP64 plus SIMD instructions

NEOX|V™ SDK features System Verilog RTL, Integration Tests, LLVM C/C++ Compiler, and GCC C/C++ compiler. Support is offered for open graphics frameworks, such as OpenGL® ES and Vulkan®, through GLOVE™ middleware. The SDK supports Custom instructions for Computer Graphics, Compute and AI plus user defined extensions. Evaluation is available on Xilinx SoC FPGA platform and SW Cycle Accurate Simulator. Supported operating systems include Linux, RTOS, and Wear OS.

Think Silicon will exhibit at RISC-V Summit at the San Jose Convention Center, December 10 to 12, in San Jose, California (booth #423). For more information, visit <https://tmt.knect365.com/risc-v-summit/sponsors/thinksilicon>.

## About Think Silicon

Think Silicon S.A. is a privately held Limited Company founded in 2007, located in Patras, Greece (HQ), Toronto, Canada (WW Sales & Marketing of), San Jose, CA, USA (Sales office), Taipei, Taiwan (Sales office). Think Silicon is specialized in developing and licensing high-performance graphics, display controller and machine learning IP technology for ultra-low power and area-limited digital devices for worldwide semiconductor technology customers. <https://think-silicon.com>

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**Contact Think Silicon:** Mrs. Georgia Protogerou, +30 2610 910650, [g.protogerou@think-silicon.com](mailto:g.protogerou@think-silicon.com)