Latest Release of Lattice sensAI Solutions Stack Delivers up to 6X Performance Boost on Award-Winning CrossLink-NX FPGAs

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Upgraded CNN Engine, NN Compiler, and New Reference Designs Enable 60 Frames-Per-Second Video Streams While Consuming Mere Milliwatts of Power

HILLSBORO, Ore.--(BUSINESS WIRE)--Dec. 17, 2020-- Lattice Semiconductor Corporation (NASDAQ: LSCC), the low power programmable leader, today announced performance enhancements and additional reference designs for its award-winning Lattice sensAI™ solutions stack. Lattice sensAI helps developers rapidly create high-performance AI/ML solutions running on flexible, low power Lattice FPGAs for use in Edge devices. The enhancements include optimizations to the stack's programmable CNN Plus engine and NN compiler software and leverage other innovations in AI/ML technology that capitalize on the capabilities of the Lattice Nexus™ FPGA platform. The updated stack also features reference designs that use these enhancements to boost application performance while keeping power consumption low, including a new object detection application running on the Lattice CrossLink™-NX FPGA, Lattice's flagship device for vision processing.

"By taking advantage of the hardware programmability of FPGAs and tracking the latest innovations in AI and ML technology, we've extended the performance capabilities of our sensAI solutions stack to new levels," said Hussein Osman, Market Segment Manager, Lattice Semiconductor. "With these enhancements, Lattice can deliver a smart vision solution capable of analyzing incoming video data streams at up to 60 frames-per-second while consuming only a few milliwatts of power, enabling more accurate smart vision performance in industrial automation, smart home, and security and surveillance applications."

The latest enhancements to the Lattice sensAI solution stack (v3.1) include:

- Optimized CNN engine IP – optimizations to the way DSPs are used in the IP block and other architectural features of CrossLink-NX FPGAs deliver heightened CNN performance to the sensAI stack. For example, when running the stack on a CrossLink-NX FPGA, the Mobilenet CNN model (version 1) can process video data at 60 frames-per-second at a resolution of 224x224, a 6x increase in performance from the prior release. Lattice offers an object detection reference design that can enable similar performance in applications like automated defect detection on an industrial assembly line or presence detection in security cameras.
- Updated CNN compiler – the software compiler used in the sensAI stack is specifically optimized for DSPs implemented on a Lattice FPGA fabric to reduce operations-per-cycle by 50 percent. Additional NN model compression innovations include removal of duplicate weights to reduce memory usage while preserving accuracy.
- More development board options - a new sensAI development board featuring the CrossLink-NX 40K FPGA, an image sensor, microphones, and expansion connectors for interfacing with additional sensors. This board supports the reference designs referred to above and is intended to speed time-to-market for AI/ML applications.
- New end-to-end reference designs and hardware - a low power gesture detection reference design to accelerate customer implementation of contactless human/machine interface (HMI) systems that are gaining popularity in the post-COVID-19 marketplace. The application uses an ultra-low-power Lattice iCE40™ UltraPlus FPGA so developers can implement it in a small form factor using minimal power. The reference design could be a compelling option for developers looking to add HMI to an industrial robot or a battery-powered smart toy.

For More Information

To learn more about the Lattice technologies mentioned above, please visit:

- www.latticesemi.com/sensAI
- www.latticesemi.com/LatticeNexus
- www.latticesemi.com/CrossLink-NX
- www.latticesemi.com/iCE40UltraPlus

About Lattice Semiconductor

Lattice Semiconductor (NASDAQ: LSCC) is the low power programmable leader. We solve customer problems across the network, from the Edge to the Cloud, in the growing communications, computing, industrial, automotive, and consumer markets. Our technology, long-standing relationships, and commitment to world-class support lets our customers quickly and easily unleash their innovation to create a smart, secure and connected world.

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MEDIA CONTACTS:
Bob Nelson
Lattice Semiconductor
408-826-6339
Bob.Nelson@latticesemi.com

INVESTOR CONTACT:
Rick Muscha
Lattice Semiconductor
408-826-6000
Rick.Muscha@latticesemi.com

Source: Lattice Semiconductor Corporation