Ultra-Low Power Lattice sensAI Leads Mass Market Enablement of Artificial Intelligence in Edge Devices

May 21, 2018

New FPGA Solutions Open Doors for Rapid Deployment of Machine Learning Inferencing Across Broad Market IoT Applications Demanding Milliwatt Range Power Consumption

- Accelerates deployment of AI into fast growth consumer and industrial IoT applications including mobile, smart home, smart city, smart factory, and smart car products
- Optimized to provide ultra-low power (under 1 mW–1 W), small size, and production-priced (~$1-$10 USD) benefits of ASICs, with FPGA flexibility to support evolving algorithms, interfaces, and tailored performance
- Full-featured Lattice sensAI stack offers modular hardware platforms, neural network IP cores, software tools, reference designs, and custom solutions via partner eco-system

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PORTLAND, Ore.--(BUSINESS WIRE)--May 21, 2018-- Lattice Semiconductor Corporation (NASDAQ: LSCC) today unveiled Lattice sensAI™ – a complete technology stack combining modular hardware kits, neural network IP cores, software tools, reference designs and custom design services – to accelerate integration of machine learning inferencing into broad market IoT applications. With solutions optimized for ultra-low power consumption (under 1 mW–1 W), small package size (5.5 mm^2 –100 mm^2), interface flexibility (MIPI$^®$ CSI-2, LVDS, GigE, etc.), and high-volume pricing (~$1-$10 USD), Lattice sensAI stack fast-tracks implementation of edge computing close to the source of data.

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(Graphic: Business Wire)

"Lattice sensAI addresses the unmet need for flexible, low cost, ultra-low power AI silicon solutions suited for rapid deployment across a wide range of emerging, mass market IoT applications," said Deepak Boppana, senior director, product and segment marketing at Lattice Semiconductor. "By delivering a full-featured machine learning inferencing technology stack combining flexible, ultra-low power FPGA hardware and software solutions, the Lattice sensAI stack accelerates integration of on-device sensor data processing and analytics in edge devices. These new edge computing solutions build on our leadership in FPGAs for edge connectivity, implementing flexible sensor interface bridging and data aggregation in high-volume IoT applications, including smart speakers, surveillance cameras, industrial robots and drones."

"The Edge is getting smarter with more computing capabilities being deployed for real-time processing of data from an expanding range of sensors, as seen in the consumer IoT space, and the emergence of artificial intelligence is only accelerating this trend," says Michael Palma, research director at IDC. "Low power, small size, and low cost silicon solutions that can perform such local sensor data processing, will be critical for implementation of AI in various broad market edge applications."

As the industry continues to adopt machine learning technology, latency, privacy and network bandwidth limitations are increasingly pushing computing to the Edge. IHS Markit expects 40B IoT devices at the Edge between 2018 and 2025, and predicts that in the next 5-10 years, the convergence of transformative technologies like IoT, AI-based edge computing and cloud analytics are expected together to disrupt each and every

industry vertical and domain, as well as to foster new business opportunities.* Semico Research predicts unit growth for edge devices with AI will explode increasing over 110% CAGR over the next five years.**

To address the computing opportunities at the Edge, Lattice's sensAI stack includes the following:

- **Modular Hardware Platform**s – ECP5™ device-based Video Interface Platform (VIP), including the award-winning [Embedded Vision Development Kit](), and iCE40 UltraPlus™ device-based Mobile Development Platform (MDP).
- **IP Cores** – Convolutional Neural Network (CNN) accelerator and Binarized Neural Network (BNN) accelerator.
- **Software Tools** – Neural network compiler tool for Caffe/TensorFlow to FPGA, Lattice Radiant™ design software, Lattice Diamond® design software.
- **Reference Designs** – Face detection, key phrase detection, object counting, face tracking, and speed sign detection.
- **Design Services** – Eco-system of design service partners delivers custom solutions for broad market applications, including smart home, smart city, and smart factory.

For more information about Lattice sensAI, visit: www.latticesemi.com/sensAI.

Lattice at the Embedded Vision Summit 2018 – Santa Clara, CA

Lattice will be exhibiting at Embedded Vision Summit 2018 in Santa Clara, May 22 - May 23, showcasing advancements in Edge connectivity and Edge computing solutions in the Industrial, Automotive, and Consumer markets. To schedule a customer meeting, please visit: http://www.latticesemi.com/en/About/ContactUs.aspx

About Lattice Semiconductor

Lattice Semiconductor (NASDAQ: LSCC) is a leader in smart connectivity solutions at the network edge, where the "things" of IoT live. Our low power FPGA, 60 GHz millimeter wave, video ASSP and IP products deliver edge intelligence, edge connectivity, and control solutions to the consumer, communications, industrial, compute, and automotive markets. Our unwavering commitment to our global customers enables them to accelerate their innovation, creating an ever better and more connected world.

For more information about Lattice please visit www.latticesemi.com. Stay in the know by subscribing to the Lattice [newsletter]() or following us on [LinkedIn](), [Twitter](), [Facebook](), [YouTube](), [WeChat](), [Weibo]() or [Youku]().

*Luca De Ambroggi, Senior Research and Analyst Director, Transformative Technologies, IHS Markit.

**Semico Research, April 2018.

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