Lattice Extends Industry-leading Security and System Control to Automotive Applications

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MachXO3LF and MachXO3D FPGAs Support Extended Temperature Range for Automotive and other Ruggedized Applications

HILLSBORO, Ore.--(BUSINESS WIRE)--Sep. 16, 2020-- Lattice Semiconductor Corporation (NASDAQ: LSCC), the low power programmable leader, today announced new versions of its MachXO3LF™ FPGAs for flexible deployment of robust automotive control applications and MachXO3D™ FPGAs for system security that support extended temperature operating ranges for automotive and other ruggedized applications. MachXO3D FPGAs augment the popular system control capabilities of the Lattice MachXO FPGA architecture with industry-leading security features, including hardware Root-of-Trust (RoT), platform firmware resilience (PFR), and secure dual-boot support. The MachXO3D and MachXO3LF devices target control, bridging, and I/O expansion applications that must operate reliably in rugged environments, including advanced driver assistance systems (ADAS), infotainment, motor control, 5G communications infrastructure, industrial robots and automation systems, and defense systems.

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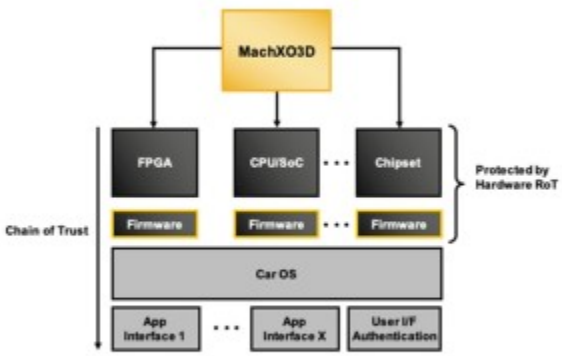

The Lattice MachXO3D FPGA for secure control in automotive applications establishes a hardware Root-of-Trust to confirm that the device, and other devices that boot after the FPGA, are running authorized firmware. (Graphic: Business Wire)

Emerging trends like electric vehicles (EVs), autonomous driving, ADAS, and infotainment are increasing OEMs' reliance on electronic components in automotive systems. Deloitte projected that by 2030, 45 percent of the cost of a new car will come from electronic systems[1]. As more sensors and electric motors are incorporated into cars, systems become exposed to risk of malicious hacks. OEMs must be able to immediately detect vulnerabilities and combat cyberattacks, and they need electronic systems capable of reliable and secure operation in rugged environments.

According to McKinsey & Company, systems in autonomous vehicles "have to be able to withstand rugged environments that involve variations in weather, vibration, and connectivity."[2] The MachXO3D family of FPGAs builds on the MachXO3LF family of devices by adding a hardware security engine to help protect, detect, and recover the device from unauthorized attempts to access its firmware.

"By collaborating with Lattice, the leading provider of low power FPGAs, we are able to provide developers in the automotive market with ready-to-use IPs that simplify their design efforts by accelerating implementation of networking controllers for CAN and LIN," said Nikos Zervas, CEO of CAST Inc. "With the extended temperature range for automotive and other ruggedized applications, the new MachXO3D automotive family of FPGAs will allow developers to achieve their performance and power consumption goals and get their products to market faster, while enhancing the security of their control systems."

"The MachXO architecture is highly leveraged in the server market for control and security applications, and now we've extended this popular hardware ecosystem to bring low power, small form factor, secure system control to automotive and ruggedized applications as automobiles integrate more processor-based, server-like systems into their designs," said Jay Aggarwal, Director of Silicon Product Marketing, Lattice. "Coupled with our solutions stacks for firmware security and smart vision, Lattice Sentry and Lattice mVision, these devices enable the rapid development of next-generation systems."

MachXO3LF and MachXO3D FPGAs are supported by Lattice's integrated design software suite, Lattice Diamond®, a complete GUI-based FPGA design and verification environment with leading-edge design and implementation tools optimized for low-power Lattice FPGAs. The latest version of Lattice Diamond, version 3.11.3, is now available.

Key features of the new MachXO3LF and MachXO3D FPGA family include:

- Support for an extended operating range -40°C to +125°C (junction temperature)
- Robust control – provides instant-on control hub that reliably powers the platform up and power and simplifies deployment by:
    - Single 3.3V or 1.2V supply operation
    - Highest I/O-to-logic ratio
    - Enables deterministic I/O operation by eliminating power-up glitches with default pull-down and maintaining signal integrity with program slew rate, drive strength, and hysteresis

The MachXO3D FPGAs' security features include:

- On-chip flash memory – secures bitstream and user data against malicious attacks via OTP mode and password protection. MachXO3D has an immutable embedded security block to enable security compliant with NIST SP-800-193 Platform Firmware Resilience (PFR) guidelines for protecting, detecting, and recovering firmware from unauthorized access.
    - On-chip flash enables single-chip, instant-on, and dual-boot images for fail-safe programming and in-field updates
- Flexible system with secure reprogramming - supports reliable in-system updates with:
    - Fail-safe reprogramming enabled by secure dual boot
    - Configuration engine that prevents unauthorized access to configuration memory
    - On-Chip flash that eliminates external memory and enables instant-on
    - Mixed voltage support on I/O that eliminates GTL buffers and level shifters
    - Per-pin programmability

For more information about the MachXO3LF FPGA family, please visit: https://www.latticesemi.com/MachXO3.

For more information about the MachXO3D FPGA family, please visit: https://www.latticesemi.com/MachXO3D.

For more information about Lattice Diamond design software, please visit: https://www.latticesemi.com/Diamond.

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.

For more information about Lattice, please visit www.latticesemi.com. You can also follow us via LinkedIn, Twitter, Facebook, YouTube, WeChat, Weibo or Youku.

[1] "Semiconductors – the Next Wave Opportunities and winning strategies for semiconductor companies," Deloitte, April 2019, p.15.

[2] "New demand, new markets: What edge computing means for hardware companies," McKinsey & Company, October 2018, p.6.

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