

Silicon Labs Secures IoT Nodes with New EFM32 Jade and Pearl Gecko Microcontrollers

Next-Generation Gecko MCUs Combine State-of-the-Art Hardware Cryptography with Advanced Energy Management Features

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AUSTIN, Texas--([BUSINESS WIRE](#))--Delivering the next generation of Gecko technology for the Internet of Things (IoT), [Silicon Labs](#) (NASDAQ: SLAB) has introduced two new EFM32™ Gecko microcontroller (MCU) families that provide advancements in security and energy management technologies. The new Jade Gecko and Pearl Gecko MCUs combine a state-of-the-art hardware cryptography engine, flexible low-energy modes, an on-chip dc-dc converter and scalable memory options backed by Silicon Labs' developer-friendly [Simplicity Studio](#)™ tools. EFM32 Jade and Pearl Gecko MCUs target an array of energy-sensitive and battery-powered devices including wearable health and fitness trackers, smart door locks, point-of-sale devices, security sensors and other IoT node applications.

Get all the details about the new EFM32JG Jade Gecko and EFM32PG Pearl Gecko MCUs including pricing and availability, development kits and data sheets at www.silabs.com/EFM32.

Securing IoT Nodes

Jade and Pearl Gecko MCUs address the growing need to equip IoT-connected devices with the latest security technologies to thwart hackers. The new MCUs feature a hardware cryptography engine providing fast, energy-efficient, autonomous encryption and decryption for Internet security protocols such as TLS/SSL with minimal CPU intervention—and without sacrificing battery life. The on-chip crypto-accelerator supports advanced algorithms such as AES with 128- or 256-bit keys, elliptical curve cryptography (ECC), SHA-1 and SHA-224/256. Hardware cryptography enables developers to meet evolving IoT security requirements more efficiently than with conventional software-only techniques often required by competing MCUs.

Minimizing Energy Consumption

Based respectively on ARM® Cortex®-M3 and M4 cores, Jade and Pearl Gecko MCUs provide ample performance for connected devices while enabling developers to optimize battery life or use smaller batteries for space-constrained designs. The new MCUs feature an enhanced peripheral reflex system (PRS) that lets low-power peripherals operate autonomously while the MCU core sleeps, allowing connected devices to sleep longer, thus extending battery life. Energy-saving low active-mode current (63 µA/MHz) enables computationally intensive tasks to execute faster. Low sleep-mode current (1.4 µA down to 30 nA) and ultra-fast wake-up/sleep transitions further minimize energy consumption.

Jade and Pearl Gecko MCUs also integrate a high-efficiency dc-dc buck converter. Offering a total current capacity of 200 mA, the on-chip converter can provide a power rail for other system components in addition to powering the MCU. This power management innovation reduces bill-of-materials (BOM) cost and board area by eliminating the need for an external dc-dc converter.

“IoT developers are seeking not only advanced power management architectures to extend the battery life of connected devices but also next-generation cryptography technologies to help secure IoT node applications,” said Daniel Cooley, vice president of marketing for IoT products at Silicon Labs. “With connected devices facing ever-increasing security threats, developers must safeguard their IoT products with leading-edge hardware cryptography. We designed our Pearl and Jade Gecko MCU families from the ground up to address these two critical IoT application requirements – energy efficiency and security.”

Jade Gecko and Pearl Gecko MCU Highlights

- Choice of 32-bit ARM Cortex-M3 and M4 cores scaling up to 40 MHz
- On-chip hardware encryption/decryption accelerator supporting random number generator, AES, ECC and SHA technologies
- Flexible energy management system with a wide range of low-energy modes
- 12-channel peripheral reflex system (PRS) supporting autonomous interaction between peripherals down to deep sleep mode, as well as configurable logic functions

- 12-bit, 1 Msps analog-to-digital converter (ADC) capable of sampling and performing autonomous comparisons down to stop mode
- Integrated dc-dc buck converter providing a power rail for other system components
- Scalable memory options (up to 256 kB flash with 32 kB RAM)
- Independent I/O rail supporting 1.8V to 5V components
- Software-compatible with existing portfolio of 240+ EFM32 Gecko MCUs

Simplifying EFM32 Gecko Development

EFM32 Jade and Pearl Gecko system design is powered by Silicon Labs' comprehensive [Simplicity Studio development platform](#). Simplicity Studio streamlines the process of creating IoT applications by providing developers with one-click access to everything they need to complete their projects, from initial concept to final product, in a unified software environment. Simplicity Studio includes an Eclipse-based integrated development environment (IDE), graphical configuration tools, energy profiling tools, wireless network analysis tools, demos, software examples, documentation, technical support and community forums.

Pricing and Availability

Engineering samples of EFM32JG Jade Gecko and EFM32PG Pearl Gecko MCUs are available now in 5 mm x 5 mm QFN32 and 7 mm x 7 mm QFN48 packages; production quantities are planned for Q2 2016. Jade Gecko pricing begins at \$1.24 (USD) in 10,000-unit quantities, and Pearl Gecko 10K pricing begins at \$1.65 (USD). The SLSTK3401A EFM32PG Pearl Gecko Starter Kit, priced at \$29.99 (USD MSRP), enables developers to jumpstart evaluation and development of Gecko-based applications. To order samples and starter kits, visit www.silabs.com/EFM32.

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Silicon Labs

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Contact:

Silicon Labs PR Contact
Dale Weisman, +1-512-532-5871
dale.weisman@silabs.com

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