

SEGGER introduces emApps for embedded systems

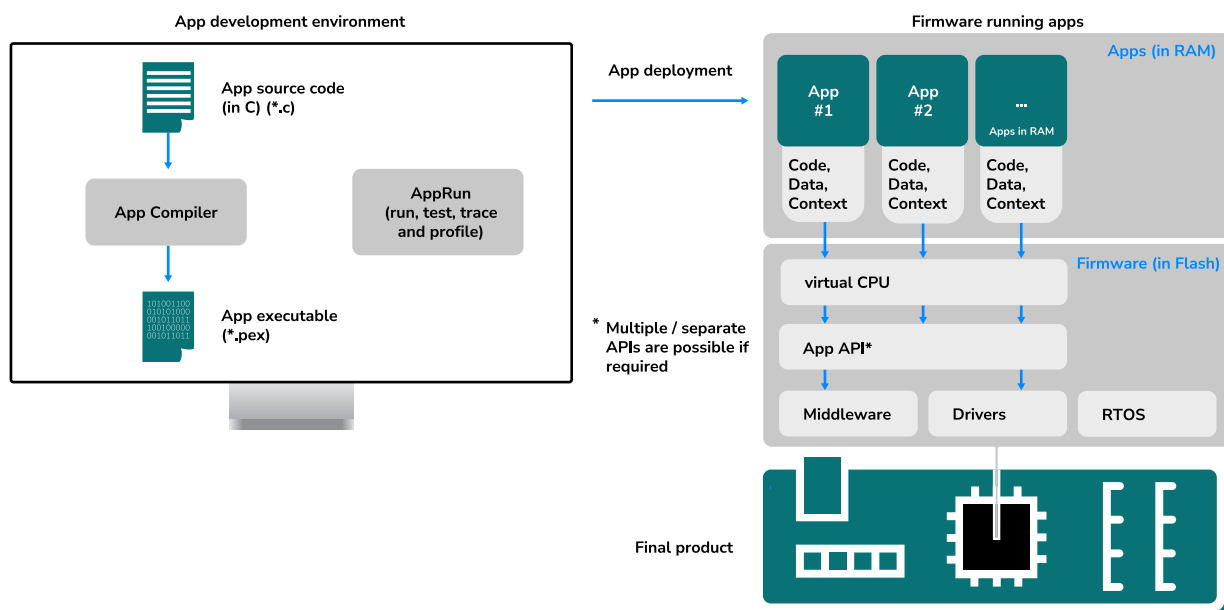
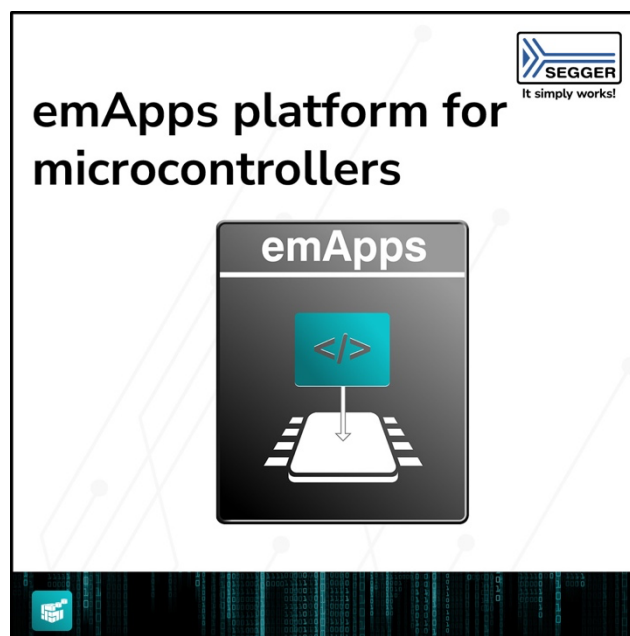
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“emApps is a revolutionary software package that brings the familiar flexibility of the smartphone to the world of embedded systems,” says Rolf Segger, Founder of SEGGER. **“Apps add capabilities to embedded devices, while keeping firmware small. We have been using them in our [J-Link](#) and [Flasher](#) product lines for years.”**

SEGGER emApps is a software package for creating and executing apps, which are small programs that can be dynamically loaded and executed in a sandbox environment. Host systems can range from small microcontroller-based embedded systems to full desktop applications.

emApps consists of a PC development environment with a compiler for creating apps, as well as source code for host integration. Also included is a PC-based executor for running, testing, tracing, and even profiling apps on a desktop. Apps can be used to dynamically extend a host's capabilities or to enable customization by manufacturers, OEMs, and end customers.

emApps's key features are small code size, high performance, and security. Apps run on a virtual CPU specifically designed by SEGGER for this purpose, and they are executed by a call to the emApps executor, which implements the instruction set. Apps operate in their own memory space, fully sandboxed and isolated from the host program and other apps. Any illegal operations (such as access outside of app memory space) are detected,



returning control to the caller. Apps have high code density (starting at less than 100 bytes in size) and deliver very high performance.

Integrating emApps into existing firmware is simple and easy. Code size requirements on the host side are minimal at around 2.5 KB, making emApps suitable for even compact microcontrollers. While the executor is written in C, the software also comes with an assembly optimized version for Arm cores. “Apps are a great enhancement for almost any embedded device,” says Dirk Akemann, Head of Technical Marketing, SEGGER. “We keep finding new use cases. I am convinced that we will see apps in many different types of embedded devices in the future. I encourage developers to give emApps a go. A [trial version](#) that allows execution on a PC is available for download.”

With emApps, new functionality can be added to firmware at any time with no need to alter a validated core system. This enables new features or enhancements to be deployed in the field while maintaining system stability and security. App capabilities are defined by an API table in firmware, giving a firmware developer full control over the exact functionalities available to them. It is even possible to grant different rights (API tables) to different apps running in a system. Multiple apps can be executed simultaneously in a system with multiple CPU cores or an RTOS-based system, and they can have multiple entry points and serve as libraries, similar to DLLs.

For more information, contact info@segger.com, or visit the [emApps page](#).

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About SEGGER Flashers

SEGGER Flashers are a professional line of ISPs designed for use in service environments, prototype programming, and mass production. They are capable of programming non-volatile flash memory in microcontrollers and systems on a chip, as well as external SPI-style flash memory and various other memories. The target interface is highly flexible, and it contains built-in support for JTAG, SWD, (Q)SPI, I2C, UART, and more. In addition, it can support almost any protocol and communication interface.

SEGGER Flashers can program almost anything, and they deliver programming speeds that are very close to the theoretical limit imposed by the hardware being programmed.

All SEGGER Flashers come with setup and control software that is compatible with Linux, macOS, and Windows. Software and firmware updates are provided at no additional cost, ensuring continued compatibility with currently supported devices, as well as with any devices added in the future. All listed programming algorithms (supported devices) are available, and there are no ongoing costs or fees. The initial cost is the only cost.

For a complete list of devices supported by SEGGER’s J-Link debug probes and Flasher programming tools, visit www.segger.com.

About SEGGER

Founded in 1992, SEGGER Microcontroller GmbH has over three decades of experience in embedded systems, producing cutting-edge [RTOS and software libraries](#), J-Link and J-Trace [debug and trace probes](#), a line of [Flasher ISPs](#), and [software development tools](#).

SEGGER's all-in-one solution [emPower OS](#) provides an RTOS and a complete spectrum of software libraries for, among other things, communication, security, data compression and storage, user-interface software, and more. emPower OS gives developers a head start, allowing them to benefit from decades of experience in the embedded industry.

SEGGER's professional embedded-development software and tools are simple in design, optimized for embedded systems, and support the entire embedded-system development process with their affordability, high quality, flexibility, and ease of use.

SEGGER, with headquarters in Monheim am Rhein, Germany, also has an office in Boston, Massachusetts, United States, and branch operations in Silicon Valley, California, United States; Shanghai, China; and the United Kingdom. With distributors on most continents, SEGGER's full product range is available worldwide.

For more information on SEGGER, visit www.segger.com.

Why SEGGER?

In short, SEGGER has a full set of tools for embedded systems, offers support throughout the entire development process, and has decades of experience. We are The Embedded Experts.

Furthermore, SEGGER software has no open-source or attribution licenses, and it can be integrated into any commercial or proprietary product — with no obligation to disclose the combined source. SEGGER offers stability in an often-volatile industry, making it a highly reliable partner for long-term business relationships.

For additional information, visit www.segger.com.

Contact information:

Dirk Akemann

Head of Technical Marketing

Tel: +49-2173-99312-0

E-mail: info@segger.com

Issued on behalf of:

SEGGER

Microcontroller GmbH

Ecolab-Allee 5

40789 Monheim am Rhein

Germany

www.segger.com

SEGGER

Microcontroller Systems

LLC

Boston area

101 Suffolk Lane

Gardner, MA 01440

United States of America

SEGGER

Microcontroller China Co., Ltd.

Room 218, Block A, Dahongqiaoguoji

No. 133 Xiulian Road

Minhang District, Shanghai 201199

China

www.segger.cn

Silicon Valley

Milpitas, CA 95035, USA

United States of America

www.segger.com

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