

RTOS revolution: SEGGER embOS-Ultra enhances application performance with Cycle-resolution Timing

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SEGGER introduces embOS-Ultra, a revolutionary new RTOS using Cycle-resolution Timing, completely eliminating the periodic tick interrupt used by traditional RTOS. Scheduling of all time-based events, such as timeouts, delays, and periodic timers, can now be specified in microseconds or CPU cycles. Cycle-resolution Timing technology replaces ad-hoc, target-specific techniques for precise timing with clean and consistent API calls.

Upgrading to [embOS-Ultra](#) simply works as it maintains full API compatibility with classic [embOS](#) but, at the same time, provides CPU-cycle precision for scheduling through additional API calls. embOS-Ultra replaces the typical one-millisecond system tick with a single-shot hardware timer that generates interrupts exactly when — and only when — necessary. With this technique, traditional system tick interrupts are eliminated, CPU activity is reduced, and energy is saved, helping to deliver a greener future when powering billions of devices.

“Using cycles as the internal time base for an RTOS is a completely new concept with many benefits. The resolution of scheduling is orders of magnitude better than that of traditional RTOSes,” says Rolf Segger, founder of SEGGER. “We already use it in our [J-Link debug probes](#) and [Flasher In-System programmers](#). We found that it simplifies system design and allows using RTOS API calls where before we had to use dedicated hardware timers. This made the firmware far easier to maintain and port, and it further enhanced the performance of the products. I am convinced that many of our customers will have the same experience.”

Migration from a traditional RTOS to the cycle-based embOS-Ultra is very simple: No application changes are required as the existing API and RTOS behavior is maintained. embOS-Ultra provides millisecond-aligned timing where classic embOS API calls are used and it provides microsecond or cycle resolution where the new API calls are used. The traditional embOS API can be mixed with the extended high-precision embOS-Ultra API in the same application, there is no need to choose one or the other. Applications can instantly benefit from the upgrade to embOS-Ultra.





For more product information, please visit:

<https://www.segger.com/products/rtos/embos/editions/embos-ultra/>

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About SEGGER

SEGGER has over twenty-nine years 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 In-System Programmers](#) and [software development tools](#).

SEGGER's all-in-one solution emPower OS provides an RTOS plus a complete spectrum of software libraries including communication, security, data compression and storage, user interface software and more. Using emPower OS gives developers a head start, benefiting from decades of experience in the industry.

SEGGER's professional software and tools for Embedded System development are designed for simple usage and are optimized for the requirements imposed by resource-constrained embedded systems. The company also supports the entire development process with affordable, high-quality, flexible, easy-to-use tools.

The company was founded by Rolf Segger in 1992, is privately held, and is growing steadily. SEGGER also has a U.S. office in the Boston area and branch operations in Silicon Valley, Shanghai and the UK, plus distributors on most continents, making SEGGER's full product range available worldwide.

Why SEGGER?

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

In addition, SEGGER software is not covered by an open-source or required-attribution license and can be integrated in any commercial or proprietary product, without the obligation to disclose the combined source.

Finally, SEGGER offers stability in an often volatile industry making SEGGER a very reliable partner for long-term relationships.

For additional information please visit: www.segger.com

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