Visualising RTOS Scheduling and Event Tracing with RapiTask

Take advantage of a new tracing solution

If you work with embedded systems with complex scheduling (for example, multi-threaded or multicore), you will know that debugging and verifying them can be challenging.

RapiTask provides an RTOS-independent tool for visualizing and exploring the scheduling behavior of such systems, and rapidly diagnosing and identifying potential problems.

How can RapiTask help you?

- **Getting a high-level overview of system scheduling** - RapiTask provides the ability to visualize scheduling behavior across threads and processor cores, and report response times.

- **Locating rare timing events, such as race conditions, and other debugging tasks** - RapiTask provides the ability to search large traces for specific situations or to quickly locate specific patterns within the trace or even visually identify specific patterns.

- **Understanding system capacity issues** - RapiTask can show peak and average CPU utilization. It also shows fragmentation (number of pre-emptions/interrupts) and report summary and statistics views.
Supporting different targets, including multi-core - Rap\textbf{i}Task is target-independent and can be easily adapted to work with different targets.

Verifying actual timing behavior - allowing you to confirm timing behavior meets system requirements, Rap\textbf{i}Task provides the ability to measure system-level properties such as periodicity and jitter.

Quickly identifying user-specific concerns/user-level events - Rap\textbf{i}Task provides customizable colouring of tasks and supports visualization of OS-level features such as alarms, events, mailboxes, mutexes etc.

**Deployment and integration**

If you are already using Rap\textbf{i}Time, Rap\textbf{i}Task can use your existing integration. If not, Rapita’s Target Integration Service is available.

Specially designed for customers who require guidance to integrate Rap\textbf{i}Task with their development environment, the Target Integration Service provides a specific consultancy package which results in:

- documentation describing how the integration works with the customer’s development environment;
- source code of instrumentation libraries; and
- build scripts.

The result is a Target Integration Kit (TIK) which guides your engineers, saves valuable resources and enables a smooth and customized integration into your development environment.

**The benefits of our tracing solution**

Rap\textbf{i}Task:

- Offers significantly faster debugging of timing problems;
- Is not tied to a specific RTOS vendor;
- Provides customizable coloring of tasks;
- Visualizes large traces quickly;
- Reduces debugging and verification effort;
- Is easily integrated with RVS (see below), offering a wider range of capabilities such as worst-case execution time analysis.

**About Rapita Systems Ltd**

Rapita Systems specialize in providing customized on-target verification solutions for large critical real-time embedded software systems in the avionics and automotive electronics markets.

Rapita Verification Suite (RVS), which includes Rap\textbf{i}Time and Rap\textbf{i}Cover, is the essential collection of on-target timing verification, optimization and code coverage measurement tools for real-time embedded systems. Rap\textbf{i}Time is the only product on the market that can tell users exactly where to focus optimization effort to minimize worst-case execution time.

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