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## RTOS Debugger for μC3/Compact

### ARM Cortex

- Real-time, non-intrusive display of uC3/Compact/Standard system resources
- Task stack coverage
- Task related breakpoints
- Task related performance measurement
- Statistic evaluation and graphic display of task run times
- Task related evaluation of function run times
- PRACTICE Functions for OS Data
- Easy access via uC3 specific menu

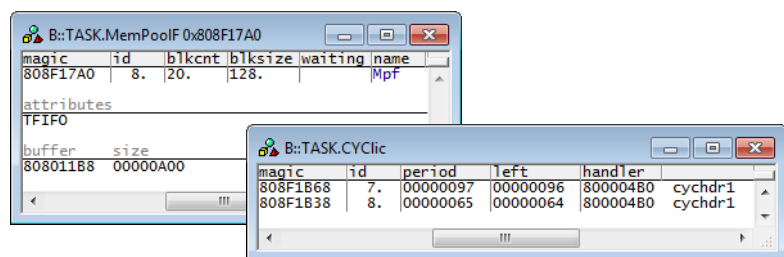
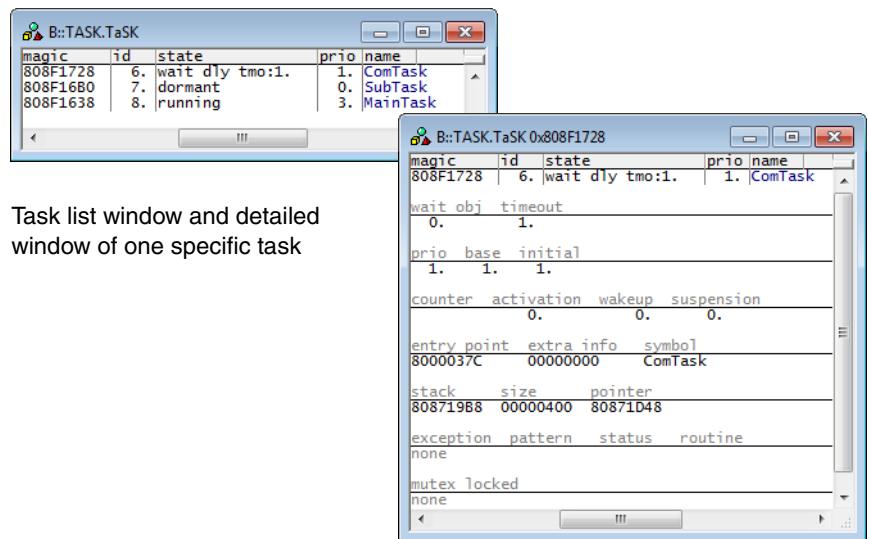
The TRACE32 System includes a configurable RTOS debugger to provide symbolic debugging in real time operating systems. Our software package contains a ready-to-run configuration for the uC3/Compact and uC3/Standard ITRON kernel from eForce Co. Ltd.

## RTOS Awareness on TRACE32 with $\mu$ C3/Compact and $\mu$ C3/ Standard

### Real-Time, Non-Intrusive Display of $\mu$ C3 System Resources

The TRACE32 RTOS debugger for  $\mu$ C3 provides display functions to show to the kernel resources. All resources, such as tasks, semaphores, flags etc. can be displayed. In addition, if the system allows reading memory

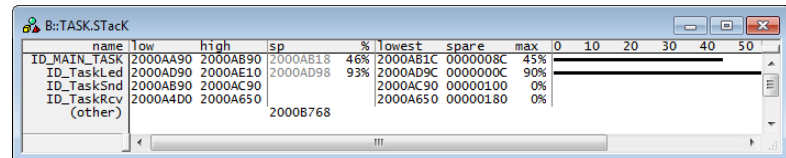
while running, the display of all these objects can be viewed non-intrusively in real time. The tables are updated permanently ("On The Fly"), without affecting the application at all.



## Task Stack Coverage

In real-time systems it is quite important to know, how much stack space each task consumes. For this purpose,

a special window shows the current and the maximum usage of the stack of each separate task.



Task stack coverage window

## Task Related Breakpoints

Any breakpoint set in the TRACE32 debugger can be set dependent to a specific task. This means, that the

breakpoint will only halt, if hit by the specified task. This allows task related debugging even in shared code.

## Task Related Performance Measurement

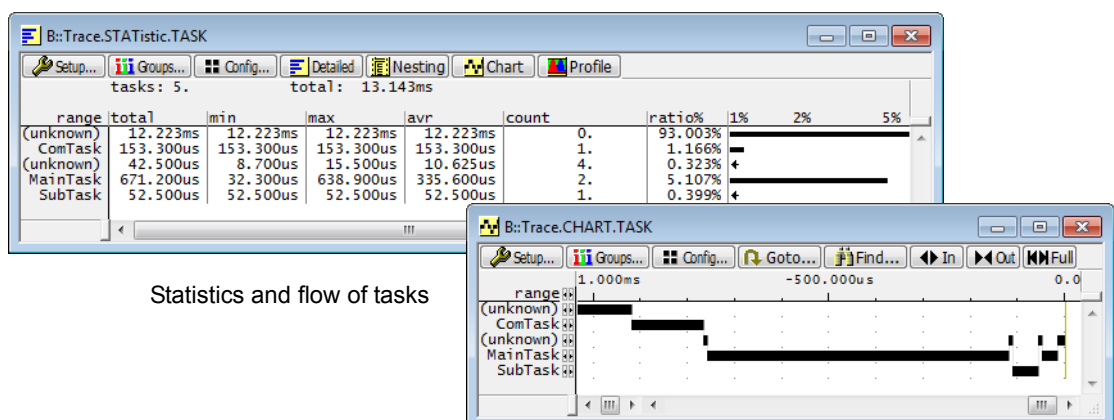
While  $\mu$ C3 is running, TRACE32 is capable of recurrently evaluating the current running task and collecting the results. The percentage, each task consumes of the system, is then dis-

played graphically and updated permanently. The longer time you let the measurement run, the more exact are the results. This feature is available even without any hardware trace.

## Statistic Evaluation and Graphic Display of Task Run Times

Out of the real time trace buffer (if available), the analyzer can calculate statistic tables of task run times and task switches. A graphical diagram shows

which task was active at a specific time, giving a clear view of the behaviour of the system.

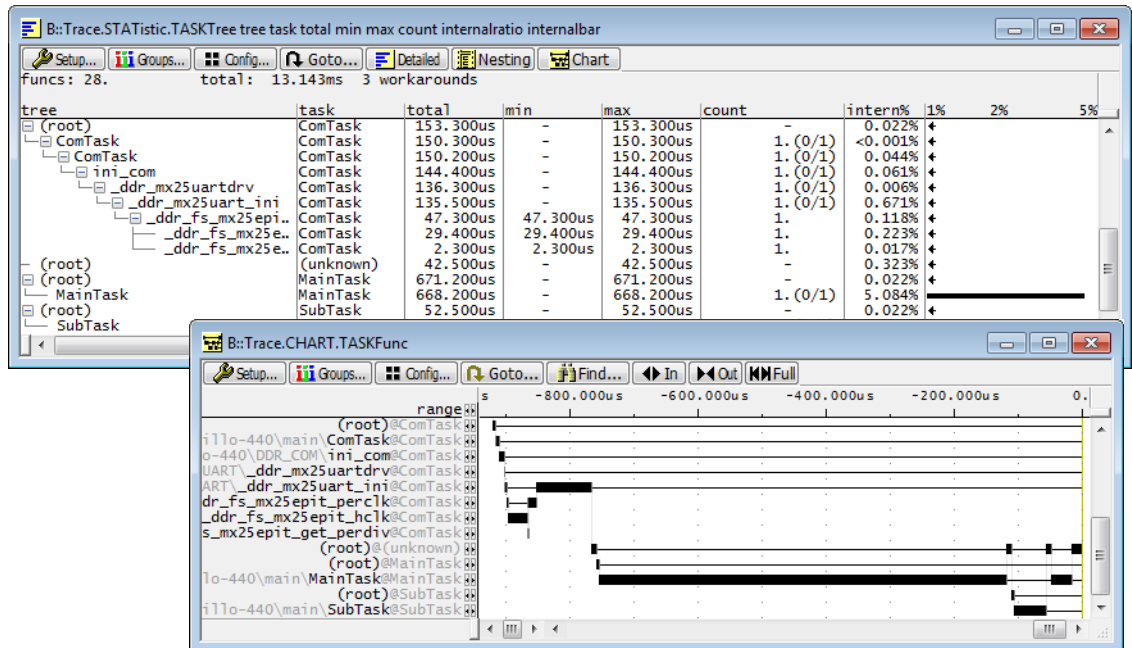


Statistics and flow of tasks

## Task Related Evaluation of Function Run Times

The statistic and graphic evaluation of function calls and function run times (if available) can be done dependant on the actual running task. This is neces-

sary, if different tasks call one single function at the same time, or if a task switch occurs in between the function.



Function call hierarchy with statistics and flow of functions

## PRACTICE Functions for OS Data

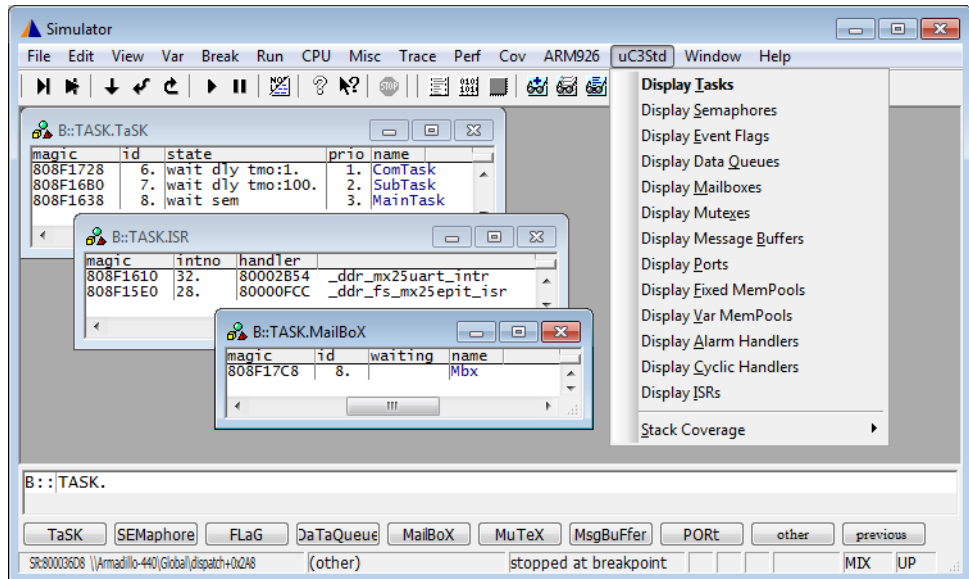
The support includes extended PRACTICE functions for  $\mu$ C3 specific data, to be used in setup and test scripts. E.g. the function "TASK.CONFIG(magic)"

returns the address of the so called magic value, which corresponds to the id of the current executing task.

## Easy Access via $\mu$ C3 Specific Menu

Because the menu bar of the TRACE32 user interface can be fully customized, you can create a new pull down menu, including operating sys-

tem specific commands. We deliver  $\mu$ C3 support with an example for such specific menus, which provides fast access to the  $\mu$ C3 awareness features.



TRACE32 with  $\mu$ C3/Standard menu

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