TRACE32®

Technical Information

RTOS-OSE-Delta

13.03.19

RTOS Debugger for OSE Delta

PowerPC
ARM
M683xx
MIPS
XSCALE

- ■ Real Time, Non-Intrusive Display of OSE Delta System Resources
- ■ Support of Load Modules
- ■ OSE Delta Specific Display of Trace Listing
- ■ Statistic Evaluation and Graphic Display of Process Run Times
- ■ Process related Evaluation of Function Run Times
- ■ Statistic Evaluation and Graphic Display of Process States
- ■ Process Stack Coverage
- ■ Process Context Display
- ■ PRACTICE Functions for OS Data
- ■ OSE Delta related Pull-Down Menu

The TRACE32 System includes a configurable multitask debugger to provide symbolic debugging in real time operating systems. Our software package contains a ready-to-run configuration for the OSE Delta Real Time Kernel from OSE Systems.

In close cooperation with OSE Systems we built a special multitask support for OSE Delta. The additional implemented features in TRACE32 enable you to do an effective debugging on OSE systems.

LAUTERBACH
DEVELOPMENT TOOLS

Multitask Debugging on TRACE32 with OSE Delta

Real Time, Non-Intrusive Display of OSE Delta System Resources

The TRACE32 multitask debugger for OSE Delta provides special display functions. The system resources such as process list and signal queues can be displayed. In addition, by using the emulators dual-port memory, the dis-play of all these regions can be viewed non-intrusively in real time. The tables are updated permanently ("On The Fly"), without affecting the application at all.
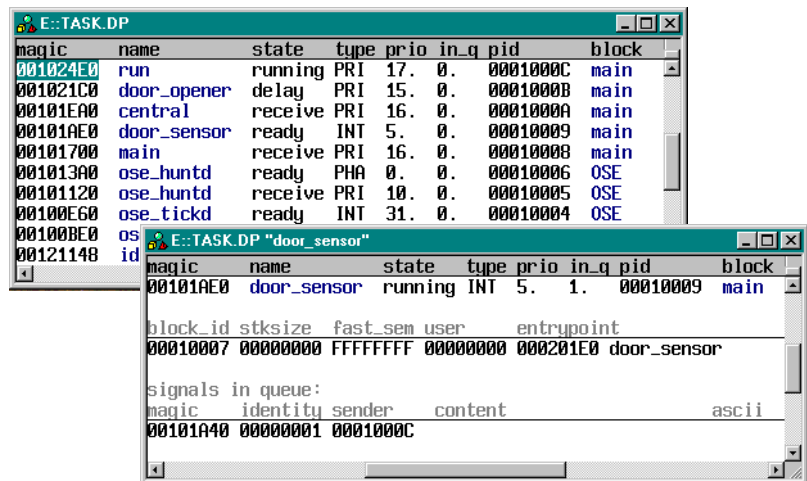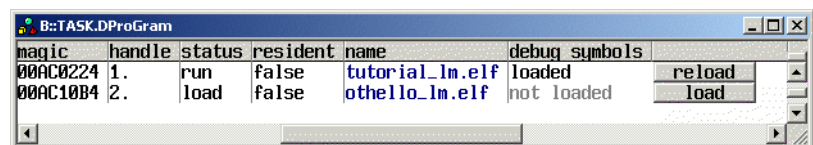

Process list window and detailed view of one process

Support of Load Modules

TRACE32 supports debugging of Load Modules (aka satellites) in OSE. You're able to debug dynamically loaded pro-grams with full symbol information at high level language source code.

List of all loaded Load Modules

OSE Delta Specific Display of Trace Listing

The data recorded in the analyzer can be displayed and interpreted specific to the operating The process switches are displayed symbolically

Analyzer listing, task selective recording, display of task switches, assembler mnemonics and HLL lines

Statistic Evaluation and Graphic Display of Process Run Times

The analyzer can calculate statistic tables of process run times and process switches. A graphical diagram shows which process was active at a specific time, giving a clear view of the behaviour of the system.
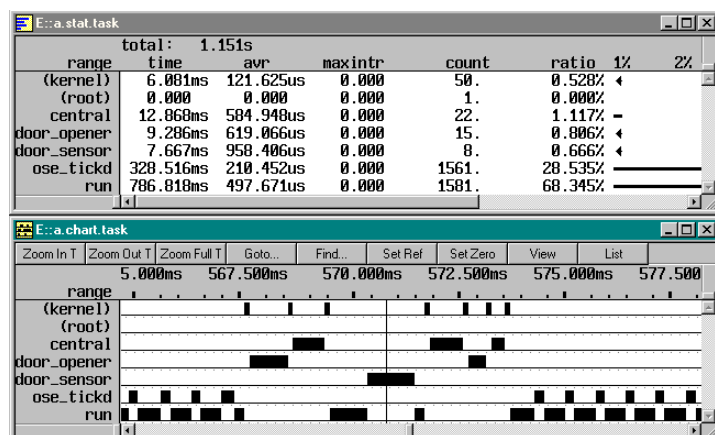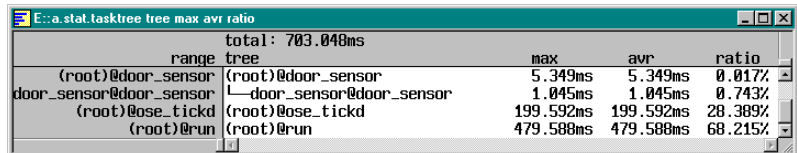
Statistics and flow of processes

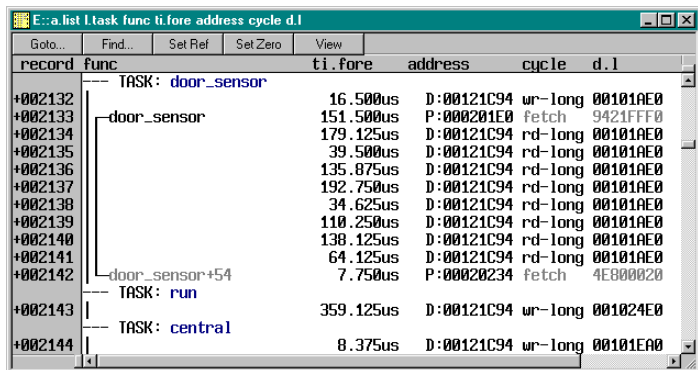## Process related Evaluation of Function Run Times

The statistic and graphic evaluation of function calls and function run times can be done dependant to the actual running process. This is necessary, if different processes call one single function at the same time, or if a process switch occurs in between the function.

Statistics on function hierarchy, process related

Analyzer listing, function call hierarchy and process switches

Statistic Evaluation and Graphic Display of Process States

These tabular and graphical analyses of the status of processes show the various states (i.e. running, ready, waiting, suspended and undefined) and times each process spent in each state. A graphical view of the data can help to highlight prioritisation problems, critical paths etc.
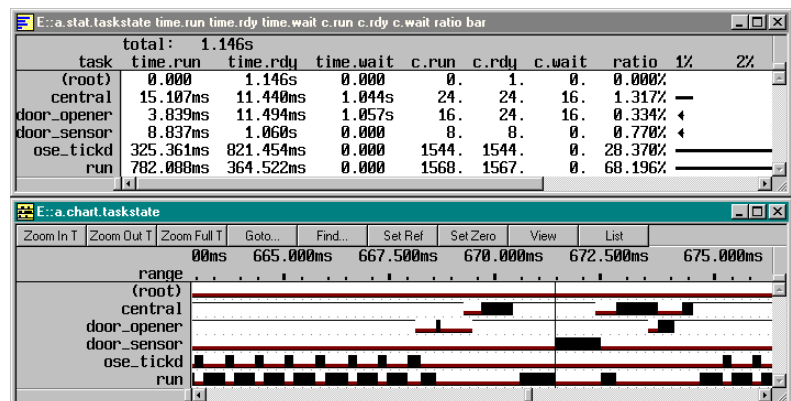
Statistics and flow of process states

Process Stack Coverage

In real time systems it is quite important to know, how much stack space each process consumes. For this purpose a special window shows the current and the maximum usage of each seperate process.

Process stack coverage window

Process Context Display

The TRACE32 Multitask debugger provides an easy way to to switch the current displayed context to another process. Normally all register related windows (e.g. listing at current PC, local variables or function call stack) are displayed related to the actual context (i.e. current executed process). You can switch to the context of another process to see all this information at the time this process was scheduled.

PRACTICE Functions for OS Data

The support includes extended PRACTICE functions for process specific data. E.g. the function "TASK.CONFIG(magic)" returns the address of the so called magic value.

OSE Delta related Pull-Down Menu

Because the menu bar of the TRACE32 user interface can be fully costomized, you can create a new pull down menu, including operating system specific commands. We deliver OSE Delta support with an example for such specific menues, which provides fast access to the OSE Delta features.
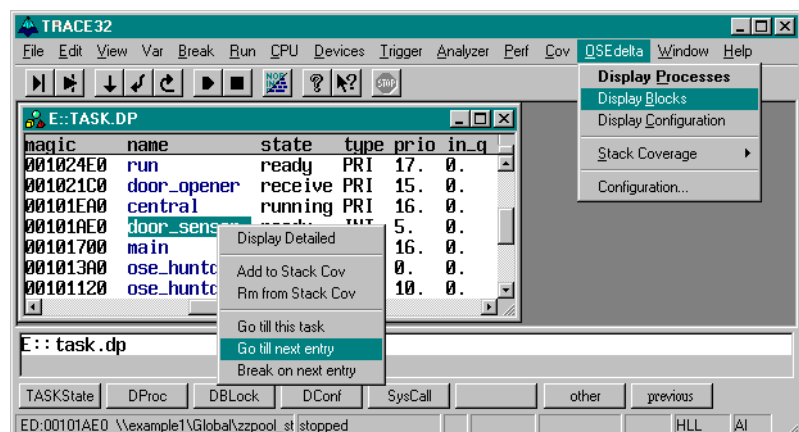
TRACE32 with OSE Delta menu

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