RTOS Debugger for OSE Classic

- Improved support for the OSE System Debugger
- Real time, non-intrusive display of OSE Classic system resources
- OSE Classic specific display of analyzer 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
- Manual executed system calls
- PRACTICE functions for OS data

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 Epsilon Real Time Kernel from Enea OSE Systems.
Multitask Debugging on TRACE32 with OSE Classic (OS68)

**Improved support for the OSE System Debugger**

OS68 provides an OSE System Debugger, which runs on the target. TRACE32 provides an interface to this debugger, i.e. you can control the debugger and view its outputs inside the TRACE32 surface. TRACE32 handles clearly the dual-windowed interface to the debugger. There is no more need to use other tools for the OSE System Debugger control.

![Command window and output window of the OSE System](image)

**Manual executed system calls**

In OSE Classic it is possible to execute system calls, initiated with PRACTICE from the TRACE32 surface. This technique can be used, for example, to set specific signals, to suspend processes or simulate some other special condition.
Real time, non-intrusive display of OSE Classic system resources

The TRACE32 multitask debugger for OSE Classic provides display functions, closely mirroring the command set of the OSE System Debugger. The system resources such as process list and signal queues can be displayed. In addition, by using the emulators dual-port memory, the display 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. Moreover, these functions are still available, when the OSE System Debugger is not linked to your software.

Process list in window

Signal list window and detailed signal description
OSE Classic specific display of analyzer listing

The data recorded in the analyzer can be displayed and interpreted specific to the operating system. The process switches and all system calls, including their parameters, can be displayed symbolically.

Analyzer listing, task switches and system calls

Analyzer listing, task selective recording, display of task switches, OS system calls, source lines and assembler mnemonics
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.

![Statistic evaluation and graphic display of process run times](image)

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.

![Process related evaluation of function run times](image)
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

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.
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