RTOS Debugger for MicroC/OS-II

- Display of all µC/OS System Resources
- Task Related Breakpoints
- Task Stack Coverage
- Task Context Display
- Dynamic Task Performance Measurement
- µC/OS-II Specific Display of Trace Listing
- Statistic Evaluation and Graphic Display of Task Run Times
- Statistic Evaluation and Graphic Display of Function Run Times
- Statistic Evaluation and Graphic Display of Task States
- PRACTICE Functions for OS Data
- µC/OS-II Related Pull-Down 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 µC/OS-II Real Time Kernel from Micrium Inc.

The µC/OS-II awareness provides easy access to task lists and other kernel information, generates performance analysis data and enables you to do a most effective debugging with the TRACE32 systems on targets running µC/OS-II.
RTOS Awareness on TRACE32 with µC/OS-II

Real time, non-intrusive display of µC/OS-II system resources

The TRACE32 RTOS debugger for µC/OS-II provides display functions to show the system resources of µC/OS-II. All objects, such as tasks, events, memory partitions etc. can be displayed and inspected. In addition, by using the processors capability of reading the target memory while the application is running, or by using the emulators dual-port memory (if available), 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.

![Task list window and detailed window of one specific task](image)

- Option: STK_CHK, STK_CLR
- Pending message: 
- Stack ptr: 15CD, content: current

![Detailed window of an queue event entry](image)

- Start size entries in, out: 13
- Queue entries: address, content:
  - 1234 32 32 32 32 32 32 32 32 32 32 32
**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 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 Context Display**

The TRACE32 RTOS debugger provides an easy way to to switch the current displayed context to another task. 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 task). You can switch to the context of another task to see all this information at the time this task was scheduled.

**Dynamic Task Performance Measurement**

While µC/OS-II 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 displayed 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.
µC/OS specific display of trace listing

The data recorded in the real time trace buffer (if available) can be displayed and interpreted specific to the operating system. The task switches are displayed symbolically, either exclusively or in addition to other information.

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.
Task related evaluation of function run times

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

Statistic evaluation and graphic display of task states

If covered by the real time trace, these tabular and graphical analyses of the status of tasks show the various states (i.e. running, ready, waiting, suspended and undefined) and times each task spent in each state. A graphical view of the data can help to highlight prioritisation problems, critical paths etc.

Statistics and flow of task states
PRACTICE functions for OS data.

The support includes extended PRAC-TICE functions for µC/OS-II 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 executed task.

µC/OS related pull-down menu

Because the menu bar of the TRACE32 user interface can be fully customized, you can create a new pull down menu, including operating system specific commands. We deliver µC/OS-II support with an example for such specific menus, which provides fast access to the µC/OS-II awareness features.
Contact

International Representative

Argentina
Anaecom Eletronica Ltda.
Mr. Rafael Sorice
Rua Nazareth, 807, Barcelona
BR-09551-200 São Caetano do Sul, SP
Phone: +55 11 3422 4200
FAX: +55 11 3422 4242
EMAIL: rsorice@anaecom.com.br

Australia
Embedded Logic Solutions P/L
Mr. Ramzi Karlan
Suite 2, Level 3
144 Marsden Street
Parramatta NSW 2150
Phone: +61 2 9667 1980
FAX: +61 2 9687 1881
EMAIL: sales@emilogic.com.au

Austria
Lauterbach GmbH
Altlaufstr. 40
D-85635 Höhenkirchen-Siegertsbrunn
Phone: +49 8102 9876 190
FAX: +49 8102 9876 187
EMAIL: sales@lauterbach.com

Belgium
Tritec Benelux B.V.
Mr. Robbert de Voogt
Stationpark 550
NL-3364 DA Sliedrecht
Phone: +31 184 42 36 11
EMAIL: software@tritec.nl

Brazil
Anaecom Eletronica Ltda.
Mr. Rafael Sorice
Rua Nazareth, 807, Barcelona
BR-09551-200 São Caetano do Sul, SP
Phone: +55 11 3422 4200
FAX: +55 11 3422 4242
EMAIL: rsorice@anaecom.com.br

Canada
Lauterbach Inc.
Mr. Udo Zoettler
4 Mount Royal Ave.
USA-Marlborough, MA 01752
Phone: +1 508 303 6812
FAX: +1 508 303 6813
EMAIL: info_us@lauterbach.com

China Suzhou
Lauterbach Technologies Co., Ltd
Mr. Linglin He
Henyuey Square, Rm 709
No. 186, Xing Hai Street
Suzhou, 215021 P.R. of China
Phone: +86 512 6265 8030
FAX: +86 512 6265 8032
EMAIL: info_cn@lauterbach.com

Czech. Republic
Lauterbach GmbH
Altlaufstr. 40
D-85635 Höhenkirchen-Siegertsbrunn
Phone: +49 8102 9876 190
FAX: +49 8102 9876 187
EMAIL: sales@lauterbach.com

Denmark
Nohau Danmark A/S
Mr. Flemming Jensen
Herkert 26, Plan 4
DK-2730 Herlev
Phone: +45 44 52 16 50
FAX: +45 44 52 26 55
EMAIL: info@nohau.dk

Finland
Nohau Solutions Finland
Mr. Martti Viljainen
Teknikantie 14
FI-25150 Espoo
Phone: +358 9 2517 8101
EMAIL: sales@nohau.fi

France
Lauterbach S.A.R.L.
Mr. Jean-Pierre Paradiso
Europarc - Le Hameau B
F-94035 Créteil Cedex
Phone: +33 1 49 56 20 30
FAX: +33 1 49 56 20 39
EMAIL: info_fr@lauterbach.com

Germany
Lauterbach GmbH
Sales Team Germany
Altlaufstr. 40
D-85635 Höhenkirchen-Siegertsbrunn
Phone: +49 8102 9876 190
FAX: +49 8102 9876 187
EMAIL: sales@lauterbach.com

Greece
Lauterbach GmbH
Altlaufstr. 40
D-85635 Höhenkirchen-Siegertsbrunn
Phone: +49 8102 9876 190
FAX: +49 8102 9876 187
EMAIL: sales@lauterbach.com

Hungary
Lauterbach GmbH
Altlaufstr. 40
D-85635 Höhenkirchen-Siegertsbrunn
Phone: +49 8102 9876 190
FAX: +49 8102 9876 187
EMAIL: sales@lauterbach.com
Russia
RTSoft
Mr. Alexey Isaev
Nikolskaya 5
RUS-105037 Moscow
Phone: +7 495 742 6828
FAX: +7 495 742 6829
EMAIL: sales@rtsoft.msk.ru

Singapore
Flash Technology
Mr. Teo Kian Hock
No 61, # 04-15 Kali Bukit Av 1
Shun Li Industrial Park
SGP-Singapore 417943
Phone: +65 6749 6168
FAX: +65 6749 6138
EMAIL: teokh@flashtech.com.sg

South Korea, Pangyo
Hancom MDS Inc.
Mr. Dongwook Jun
3-F, Hancom Tower
49, Daewangpangyo-ro 644, Bundang-gu
Seongnam-si, Gyeonggi-do, 463-400, ROK
Phone: +82-31-627-3000
FAX: +82-31-627-3100
EMAIL: trace32@hancommds.com

Spain
Captura Electronica,SCCL
Mr. Juan Martinez
c/Duero, 40
E-08031 Barcelona
Phone: +34 93 420 5730
FAX: +34 93 407 0778
EMAIL: info@captura-el.com

Sweden
Nohau Solutions AB
Mr. Jörgen Nilsson
Derryvägen 6D
SE-21235 Malmo
Phone: +46 40 592 206
FAX: +46 40 592 229
EMAIL: Jorgen.nilsson@nohau.se

Switzerland
JDT Jberg DatenTechnik
Mr. Andreas Jberg
Zimmereristrasse 3
CH-5734 Reinach AG
Phone: +41 62 7710 886
FAX: +41 62 7710 886
EMAIL: Andreas.Jberg@jdt.ch

Taiwan
Superlink Technology Corp.
Mr. Sulin Huang
3F-6 No.77, Sec.1, Xintaiwu Rd.,Xizhi District,
New Taipei City 22101, Taiwan, R.O.C.
Phone: +886 2 26983535
FAX: +886 2 26983535
EMAIL: info.stc@superlink.com.tw

Tunisia
Lauterbach Consulting S.A.R.L.
Mr. Khaled Jmal
Route El Riem Km 3.5
TN-3062 Sfax
Phone: +216-31361061
FAX: +216-74611753
EMAIL: info_tr@lauterbach.com

Turkey-1
Tektronik Muh. ve Tic. A.S.
Mr. Hakkan Yavuz
CyberPlaza B-Blok, 702B
Bilkent
06800 Ankara
Phone: +90 312 437 3000
FAX: +90 312 437 1616
EMAIL: info@tektronik.com.tr

Turkey-2
G3TEK Embedded Technologies Ltd.
Mr. Celal Aygun
Skylerism Mah. 445.
Sok. No: 48
06370 Bilkent/Ankara
Phone: +90 312 3324769
FAX: +90 312 3324769
EMAIL: info@g3tek.com

UK
Lauterbach GmbH
Mr. Richard Copeman
Alfaustr. 40
D-85636 Höhenkirchen-Siegertsbrunn
Phone: +49 8102 9876 190
FAX: +49 8102 9876 187
EMAIL: sales@lauterbach.com

USA East
Lauterbach Inc.
Mr. Udo Zoettler
4 Mount Royal Ave.
USA-Marlborough, MA 01752
Phone: +1 508 303 6812
FAX: +1 508 303 6813
EMAIL: info_us@lauterbach.com

USA West
Lauterbach Inc.
Mr. Bob Kupyn
1111 Main Street, Suite 620
USA-Vancouver, WA. 98660
Phone: +1 503 924 2222
FAX: +1 503 924 2223
EMAIL: bob.kupyn@lauterbach.com
Additional Information

http://www.lauterbach.com

Lauterbach GmbH
Altlaufstr. 40
D-85635 Höhenkirchen-Siegertsbrunn
Tel. ++49 8102 9876-0    FAX -999
info@lauterbach.com
http://www.lauterbach.de

Lauterbach Inc.
4 Mount Royal Ave.
Marlboro MA 01752
Phone (508) 303 6812    FAX (508) 303 6813
info_us@lauterbach.com
http://www.us.lauterbach.com

Lauterbach Ltd.
11 Basepoint Enterprise Ctre Stroudley Road
Basingstoke, Hants RG24 8UP
Phone ++44-1256-333-690    FAX -661
info_uk@lauterbach.com
http://www.lauterbach.co.uk

Lauterbach S.A.R.L.
135 Chemin Des Bassins
F-94035 Créteil Cedex
Phone ++33-149-562-030
FAX ++33-149-562-039
info_fr@lauterbach.com
http://www.lauterbach.fr

Lauterbach Japan, Ltd.
3-9-5 Shinyokohama Kouhoku-ku
Yokohama-shi Japan 222-0033
Phone +81-45-77-4511    FAX -4519
info_j@lauterbach.com
http://www.lauterbach.co.jp

Lauterbach s.r.l.
Via Enzo Ferrieri 12
I-20153 Milano
Phone ++39 02 45490282
FAX ++39 02 45490428
info_it@lauterbach.it
http://www.lauterbach.it

Suzhou Lauterbach Consulting Co., Ltd.
Room 1605, Xing Hai International Square
No.200, Xing Hai Street
Suzhou, 215021 PR of China
Phone: 0086-512 6265 8030
FAX: 0086-512 6265 8032
info_cn@lauterbach.cn
http://www.lauterbach.cn

Disclaimer

The information presented is intended to give overview information only. Changes and technical enhancements or modifications can be made without notice.