

ICE In-Circuit Emulator

- Timing Analyzer
- Emulation Memory
- Memory Banking
- ICE Module
- State and Performance Analyzer
- Emulation Controller
- System Controller

TRACE32-ICE is a state of the art In-Circuit Emulator, which offers unlimited hardware breakpoints and up to 16MByte dual-ported emulation memory. The real-time trace and trigger work up to the max. speed of the CPU. The analyzer offers selective trace as well as performance analysis and statistic functions.

The system offers an interface to all programming languages for most compilers and a multitask debugger for a wide range of RTOS. TRACE32 works with the highest variety of host interfaces. The communication link to the

host is done by the printer port, a fibre optic interface or ethernet allowing a high speed transfer.

TRACE32-ICE is universal In-Circuit Emulator and supports a wide range of 8- to 32-bit microprocessors and microcontrollers. Its modular architecture allows:

1. to adapt the emulator to your project requirements

2. to integrate the emulator in any project environment

3. to adapt the emulator easily to different CPUs

4. to support new CPUs in record time

TRACE32-ICE Features

Universal Emulator for 8- to 32-bit Microprocessors

TRACE32-ICE supports a wide range of microprocessors and microcontrollers at 3.3V or 5V.

Open Software Architecture

TRACE32-ICE works seamlessly with

- Most programming languages (C, C++, ADA, Pearl etc.)
- Most third party compilers in all object file formats
- A wide range of RTOS
- Third party debuggers
- Third party CASE tools

Interface to all Hosts

TRACE32-ICE can be linked to a PC, any workstation or mainframe. Software drivers are available for all standard operation systems and all graphical user interfaces.

- Parallel, fibre optic and ethernet interface
- Same "Look and Feel" on all supported host systems
- Fast download

Scalable Tool Chain

TRACE32-ICE is the high end tool of Lauterbach's TRACE32 tool chain. We also offer:

- TRACE32-ICD
ROM monitor based debugger
Debug interface based debugger (BDM, JTAG etc.)
- TRACE32-ICD TRACE
TRACE32-ICD enhanced by trace and trigger capabilities
- TRACE32-FIRE
Full featured RISC Emulator

The uniform, compatible GUI for all products of the TRACE32 series makes it easy to migrate to a more complex tool or to use different complex tools side by side in the same project.

Up to 16 MByte Dual Ported Emulation Memory

- The emulation memory access time of 15ns allows zero-waitstate emulation up to the max. speed of the processor.
- The dual-port technology allows on-the fly access to the emulation memory to display and modify runtime variables.

Banking Support

TRACE32-ICE supports even very complex banking systems up to 16MByte:

- Max. 256 banks
- With external bank logic
- With internal bank logic
- Banked EPROM

Shadow RAM

The Shadow RAM allows to monitor real-time variable and memory for special CPUs.

Unlimited Hardware Breakpoints

TRACE32-ICE provides up to 16MByte dual ported break memory.

Powerful, Integrated High Level Language Debugger

Multitask Debugger

TRACE32-ICE provides symbolic debugging of complex multitask applications and the detailed analysis of the real time behaviour of the system. It

supports internally developed and a wide range of off-the-shelf realtime kernels.

Code Coverage

Up to 16 MByte Flag memory traces all CPU access in real time for a comprehensive code coverage, for a stack depth verification or for the detection of unused or uninitialized variables.

Up To 4 MFrame Trace Buffer

- Up to 344 trace channels
- Up to 50 MHz
- Time Stamp

Real Time Trace and Trigger

The multilevel trigger system allows to use advanced trigger sequences to find even complex errors in record time.

- External trigger inputs
- Trigger outputs to trigger external devices.

Performance Analysis

TRACE32-ICE offers comprehensive performance analysis on program, function or module base or on areas defined by the user.

Statistic Functions

TRACE32 allows detailed analysis of:

- Functions
 - Min. and max. time
 - Passes
 - Include and exclud time
- Link analysis
 - Callers
 - min. and max. times
 - Calls
- Duration
 - Execution time
 - Response time
- Distance

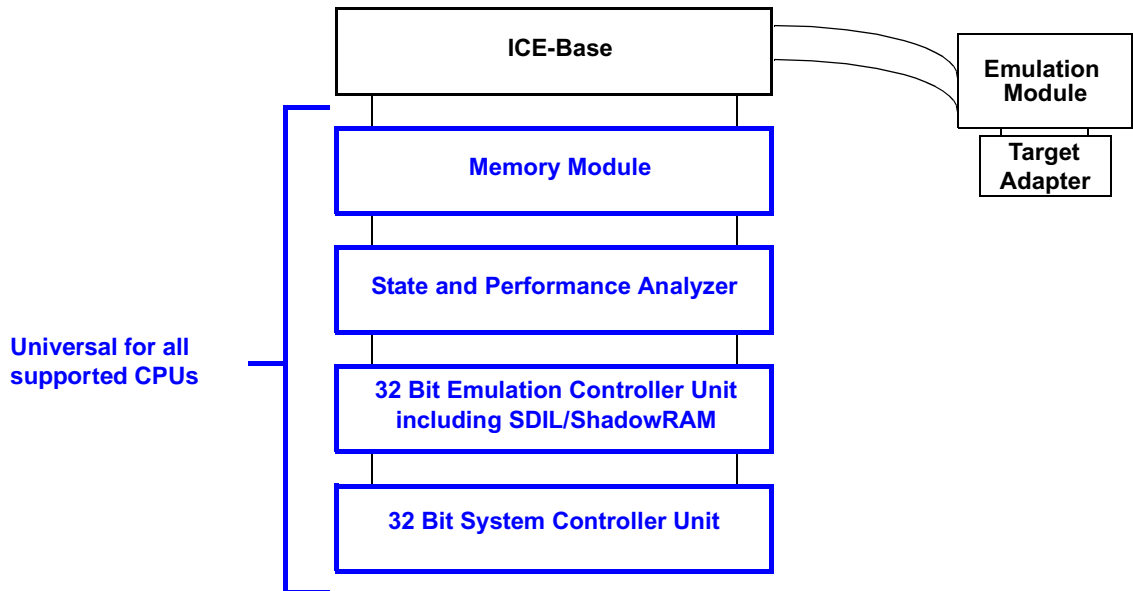
Powerful Graphical Analysis Functions

Most statistic and runtime analysis can also be displayed in a graphical way to offer an intuitive interpretation.

Powerful Batch Language

TRACE32-ICE offers a powerful batch language for automatic set ups and automatic testing. It is supported by its own debugger.

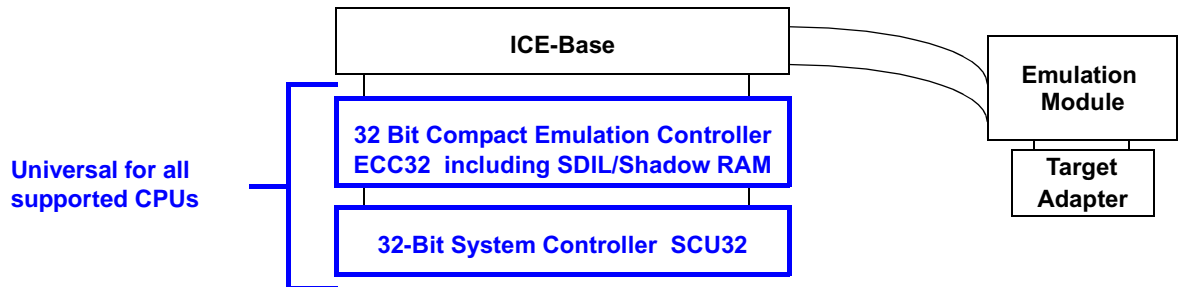
System Architecture TRACE32-ICE



TRACE32-ICE uses a modular technology and consists of the following parts:

- 32 Bit System Controller SCU32 (universal)**
 The System Controller is the interface between the host and the emulator. It contains the host interface card, the power supply and the main controller for the emulator.
- 32 Bit Emulation Controller ECU32 (universal)**
 The Emulation Controller Unit contains all part of an emulator, which are independent form the specific CPU e.g.memory mapper, trigger logic, universal counter, pulse generator.It also includes the connectors for the static emulation memory card and the shadow RAM.
- State and Performance Analyzer HA120 (universal)**
 The High Speed State Analyzer consists of the trace memory, a programable trigger unit and a performance analyzer unit.
- Emulation Memory Module SRAM (universal)**
 The SRAM allway offers all 3 types of memory for TRACE32-ICE:
 - Overlay/emulation memory
 - Break memory for the hardware breakpoints
 - Flag memory to analyse read and write access to specific addresses
- ICE-Base**
 The ICE-Base is the family module for a complete CPU family.
- Emulation Module with Target Adapter**

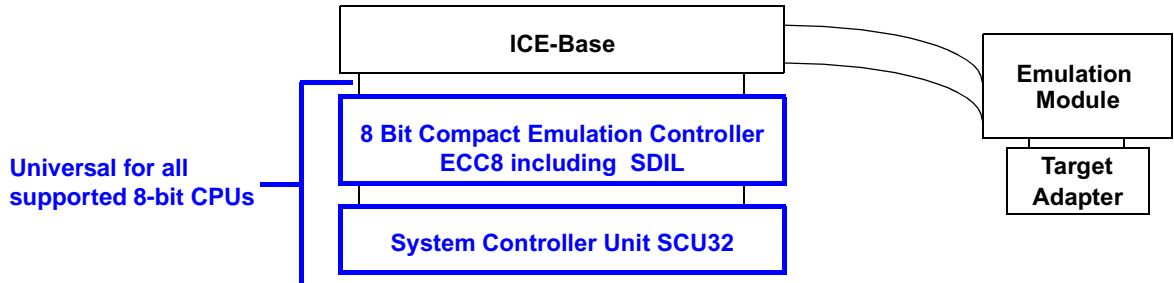
TRACE32-ICE_{COMPACT32}



TRACE32_{COMPACT32} is a cost effective compact solution for all supported CPUs. The 32 Bit Compact Emulation Controller is a high integration of the 32 Emulation Controller ECU32 and the State

and Performance Analyzer HA120. The functionality of the integrated State and Performance Analyzer is especially adapted for the use small and medium sized projects.

TRACE32-ICE_{COMPACT8}



TRACE32_{COMPACT8} is a cost effective compact solution for all supported 8-bit CPUs. It is entirely designed for the development of 8-bit target systems.

Contact

International Representative

Argentina

ANACOM Software e Hardware Ltd
Mr. Rafael Sorice
Rua Nazareth, 807, Barcelona
BR-09551-200 S, o Caetano do Sul, SP
Phone: 0055 11 3422-4200
FAX: 0055 11 3422-4242
EMAIL: rsorice@anacom.com.br

Australia

Embedded Logic Solutions P/L
Mr. Ramzi Kattan
Suite 2, Level 3
144 Marsden Street
Parramatta NSW 2150
Phone: ++61 2 9687 1880
FAX: ++61 2 9687 1881
EMAIL: sales@emlogic.com.au

Austria

Lauterbach GmbH
Mr. Stefan Kolbinger
Altlaufstr. 40
D-85635 Höhenkirchen-Siegertsbrunn
Phone: ++49 8102 9876 129
FAX: ++49 8102 9876 170
EMAIL: stefan.kolbinger@lauterbach.com

Belgium

Tritec Benelux B.V.
Mr. Robbert de Voogt
Stationspark 550
NL-3364 DA Sliedrecht
Phone: ++31 184 41 41 31
FAX: ++31 184 42 36 11
EMAIL: software@tritec.nl

Brazil

ANACOM Software e Hardware Ltd
Mr. Rafael Sorice
Rua Nazareth, 807, Barcelona
BR-09551-200 S, o Caetano do Sul, SP
Phone: 0055 11 3422-4200
FAX: 0055 11 3422-4242
EMAIL: rsorice@anacom.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. Yue Zhao
Room 1605, Xing Hai International Square
No.200, Xing Hai Street
Suzhou, 215021 P.R. of China
Phone: 0086-512 6265 8030
FAX: 0086-512 6265 8032
EMAIL: info_cn@lauterbach.com

China Beijing

Suzhou Lauterbach Technologies Co.,Ltd.
Mr. Linglin He
Beijing Office
A3, South Lishi Road, XiCheng District
Beijing 100037, P.R. China
Phone: 0086-10-68023502
FAX: 0086-10-68023523
EMAIL: linglin.he@lauterbach.com

Denmark

Nohau Danmark A/S
Mr. Flemming Jensen
Klausdalsbrovej 493
DK-2730 Herlev
Phone: ++45 44 52 16 50
FAX: ++45 44 52 26 55
EMAIL: info@nohau.dk

Egypt

Wantech Egypt
Mr. Wagih A. Nawara
5 Shafik Ghalie St., Suite 2
Off Pyramids Road, Giza
Cairo 12111
Phone: ++20 10 1251955
FAX: ++20 2 35877303
EMAIL: sales@wantech.net.com

Finland

Nohau Solutions Finland
Mr. Leevi Lehtinen
Teknobulevardi 3-5
FI-01531 Vantaa
Phone: ++358 40 546 1469
FAX: ++358 9 2517 8101
EMAIL: sales@nohau.fi

France

Lauterbach S.A.R.L.
Mr. Jean-Pierre Paradiso
Europarc - Le Hameau B
135 Chemin Des Bassins
F-94000 CrEteil
Phone: ++33 1 49 56 20 30
FAX: ++33 1 49 56 20 39
EMAIL: jean-pierre.paradiso@lauterbach.com

Germany

Lauterbach GmbH
Altlaufstr. 40
D-85635 Höhenkirchen-Siegertsbrunn
Phone: ++49 8102 9876 0
FAX: ++49 8102 9876 999
EMAIL: info@lauterbach.com

Germany North

Lauterbach GmbH
Mr. Klaus Hommann
Leonhardring 5
D-31319 Sehnde
Phone: ++49 5138 6185 5
FAX: ++49 5138 6185 3
EMAIL: klaus.hommann@lauterbach.com

Germany South

Lauterbach GmbH
Mr. Stefan Kolbinger
Altlaufstr. 40
D-85635 Höhenkirchen-Siegertsbrunn
Phone: ++49 8102 9876 129
FAX: ++49 8102 9876 170
EMAIL: stefan.kolbinger@lauterbach.com

India

Electro Systems Associates Pvt. Ltd.
Mr. G. V. Gurunatham
Subramanyanagar
4215 JK Complex First Main Rd.
India-Bangalore 560 021
Phone: ++91 80 23577924
FAX: ++91 80 23475615
EMAIL: sales@esaindia.com

Ireland

Lauterbach Ltd.
Mr. Barry Lock
11 Basepoint Enterprise Centre
Stroudley Road
Basingstoke, Hants RG24 8UP
Phone: ++44-1256-333-690
FAX: ++44-1256-336-661
EMAIL: info_uk@lauterbach.com

Israel

Itec Ltd.
Mr. Mauri Gottlieb
P.O.Box 10002
IL-Tel Aviv 61100
Phone: ++972 3 6491202
FAX: ++972 3 6497661
EMAIL: general@itec.co.il

Italy

Lauterbach Srl
Mr. Maurizio Menegotto
Via Enzo Ferrieri 12
I-20153 Milano
Phone: ++39 02 45490282
FAX: ++39 02 45490428
EMAIL: info_it@lauterbach.com

Japan

Lauterbach Japan, Ltd.
Mr. Kenji Furukawa
3-9-5 Shinyokohama
Kouhoku-ku
Yokohama-shi, Japan 222-0033
Phone: ++81-45-477-4511
FAX: ++81-45-477-4519
EMAIL: info@lauterbach.co.jp

Luxemburg

Tritec Benelux B.V.
Mr. Robbert de Voogt
Stationspark 550
NL-3364 DA Slidrecht
Phone: ++31 184 41 41 31
FAX: ++31 184 42 36 11
EMAIL: software@tritec.nl

Malaysia

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

Mexico

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

Netherlands

Tritec Benelux B.V.
Mr. Robbert de Voogt
Stationspark 550
NL-3364 DA Slidrecht
Phone: ++31 184 41 41 31
FAX: ++31 184 42 36 11
EMAIL: software@tritec.nl

New Zealand

Embedded Logic Solutions P/L
Mr. Ramzi Kattan
Suite 2, Level 3
144 Marsden Street
Parramatta NSW 2150
Phone: ++61 2 9687 1880
FAX: ++61 2 9687 1881
EMAIL: sales@emlogic.com.au

Norway

Nohau Solutions Norway
Mr. Tom Trælvik
Skovenasveien 5 D
N 0686 Oslo
Phone: ++47 92 44 22 09
FAX: ++47 94 76 10 19
EMAIL: sales@nohau.no

Poland

Quantum Sp.z o.o. Korp. Transf
Mr. Czeslaw Bil
ul. Wystawowa 1
51-618 Wrocław
Phone: ++48 71 362 6356
FAX: ++48 71 362 6357
EMAIL: info@quantum.com.pl

Portugal

Captura Electronica, SCCL
Mr. Juan Martinez
c/Albert Einstein s/n
Edificio Forum de la Tecnol.
E-08042 Barcelona
Phone: ++34 93 291 76 33
FAX: ++34 93 291 76 35
EMAIL: info@captura-el.com

Russia

RTSoft
Mr. Alexey Isaev
Nikitinskaya 3
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 Kaki 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

MDS Technology Co., Ltd.
Mr. Sangheon Lee
15F Kolon Digital Tower Vilant
#222-7, Guro-3dong, Guro-gu
Seoul, 152-777, ROK
Phone: ++82 2 2106 6000
FAX: ++82 2 2106 6004
EMAIL: trace32@mdstec.com

Spain

Captura Electronica, SCCL
Mr. Juan Martinez
c/Albert Einstein s/n
Edificio Forum de la Tecnol.
E-08042 Barcelona
Phone: ++34 93 291 76 33
FAX: ++34 93 291 76 35
EMAIL: info@captura-el.com

Sweden

Nohau Solutions AB
Mr. Magnus Engström
Derbyvägen 4
SE-21235 Malmö
Phone: ++46 40 59 22 04
FAX: ++46 40 59 22 29
EMAIL: sales@nohau.se

Switzerland

JDT Jberg DatenTechnik
Mr. Andreas Iberg
Zimmereistrasse 2
CH-5734 Reinach AG
Phone: ++41 62 7710 886
FAX: ++41 62 7717 187
EMAIL: Andreas.Jberg@jdt.ch

Taiwan

Superlink Technology Corp.
Mr. Sulin Huang
3F-8, No.77, Shin-Tai-Wu Rd. Sec1
Taipei Hsien 221, Taiwan, R.O.C.
Phone: ++886 2 26983456
FAX: ++886 2 26983535
EMAIL: info.stc@superlink.com.tw

Turkey

Tektronik Muh. ve Tic. Ltd.
Mr. Hakan Yavuz
Mahatma Gandhi Cad 68A/2
G.O.Pasa
06700 Ankara
Phone: ++90 312 437 3000
FAX: ++90 312 437 1616
EMAIL: info@teknorik.com.tr

UK

Lauterbach Ltd.
Mr. Barry Lock
11 Basepoint Enterprise Centre
Stroudley Rd
Basingstoke, Hants RG24 8UP
Phone: ++44 (0) 1256-333690
FAX: ++44 (0) 1256-336661
EMAIL: info_uk@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. Jerry Flake
Main Place
1111 Main Street, Suite 416
USA-Vancouver, WA, 98660
Phone: ++1 503 524 2222
FAX: (503) 524 2223
EMAIL: jerry.flake@lauterbach.com

Additional Information

<http://www.lauterbach.com>

Lauterbach GmbH

Altlaufstr. 40
D-85649 Hofolding
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.lauterbach.com/usa

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.

114, avenue d'Eylau
75115 Paris
Phone ++33-669-195-328
FAX ++33-142-835-048
info_fr@lauterbach.com
http://www.lauterbach.fr

Lauterbach Japan, Ltd.

3-9-5 Shinyokohama Kouhoku-ku
Yokohama-shi Japan 222-0033
Phone ++81-45-477-4511 FAX -4519
info_j@lauterbach.com
http://www.lauterbach.co.jp

Lauterbach s.r.l.

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@lauterbach.cn
http://www.lauterbach.cn

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