

In-Circuit Emulator for MC68020/30

- 33 MHz no-waitstate emulation
- MMU support
- FPU support
- Support for companion mode MC68360
- Interface with all compilers
- C++ support
- CASE tools interface
- RTOS support
- Windows9x, NT and Motif interface

MC68020

MC68030

MC68EC020

MC68EC030

The ICE68020 emulator module supports the MC68020 and MC68030 processors from Freescale. The EC versions are supported as well.

The software has direct access to MMU and FPU functions.

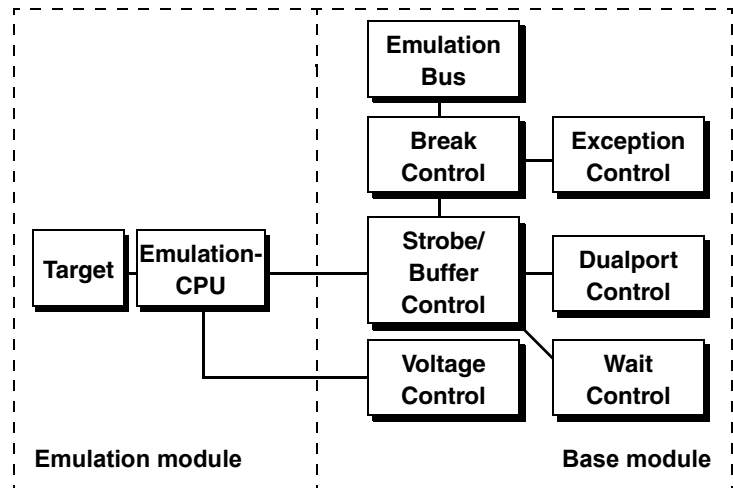
A software compatible ROM monitor is available.

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.

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.

Features

Basics of Operation



The ICE-68020 is a high-performance emulation system for all 68020 and 68030 derivatives from Motorola.

Operating Modes

The Emulator can work in stand-alone mode with internal clock or in active mode with internal or the target clock. On power-down of the target system the emulator tristates its output buffers and isolates its internal emulation circuits.

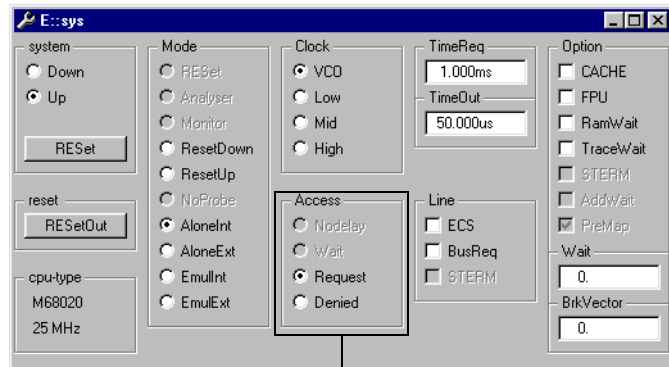
- Reset Down
- Reset Up
- No Probe
- Alone Internal
- Alone External
- Emulation Internal
- Emulation External

Wait System

- Additional wait cycles (1-15) can be specified
- Up to 250 wait cycles (4K blocks globally and bitwise in 64K area)

Voltage and Clock Monitors for the Target System

Dual-Port Access



Dual port access modes

All TRACE32 memories are dual-ported. The dual-port access makes it possible to display and modify the contents of the overlay memory, to set or delete breakpoints or use the flag memory while the application is running in real-time.

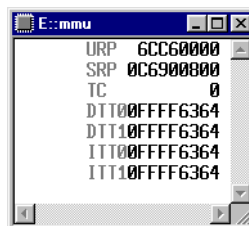
The following dual-port access mode is implemented:

- Request

In the **Request mode** the dual port access is always possible.

In the **Denied mode** the dual port access is switched off.

MMU Support



- Display of Register
- Display of translation tables
- Debugging with logical addresses
- Separate logical memory spaces for multitask environments

Emulation does not use any Memory

- No target stack required

Cache Support

ICE-68020 supports cache operations for the target memory.

HLL Debugging

The screenshot shows the TRACE32 debugger interface with a table of assembly instructions. A context menu is open over the instruction at address 7400.

| Step | Step Over | Go Next | Go Return | Go Up | Go | Break | Mode | | |
|-------------|--------------|---------|-----------|---------------------|----|-------|------|--------------------------------|---------|
| addr/line | code | label | mnemonic | | | | | | comment |
| 555 | { | | | | | | | | |
| SP:00001788 | 48E73830 | sieve: | moven.l | [d2-d4,a2-a3],-(a7) | | | | | |
| SP:0000178C | 227C00002774 | | movea.l | #2774,a1 | | | | ; #flags,a1 | |
| | | | | | | | | register int i, prime, k; | |
| | | | | | | | | int count; | |
| 559 | | | | | | | | count = 0; | |
| SP:00001792 | 7200 | | moveq | #0,d1 | | | | ; #0,count | |
| 561 | | | | | | | | for (i = 0 ; i <= SIZE ; flag | |
| SP:00001794 | 7400 | | moveq | #0 | | | | | |
| SP:00001796 | 2042 | | movea.l | d2 | | | | | |
| SP:00001798 | 5282 | | addq.l | #1 | | | | | |
| SP:0000179A | 13BC00018800 | | move.b | #1 | | | | a1,a0.l*1) | |
| SP:000017A0 | 7012 | | moveq | #1; | | | | | |
| SP:000017A2 | B082 | | cmp.l | d2 | | | | | |
| SP:000017A4 | 6CF0 | | bge | 17! | | | | other... | |

The TRACE32 debugger provides a interface to C, C++, PASCAL, PEARL and ADA for all standard compilers. For more information on the supported compilers refer to the section "Debug Interfaces".

Full support in real-time for:

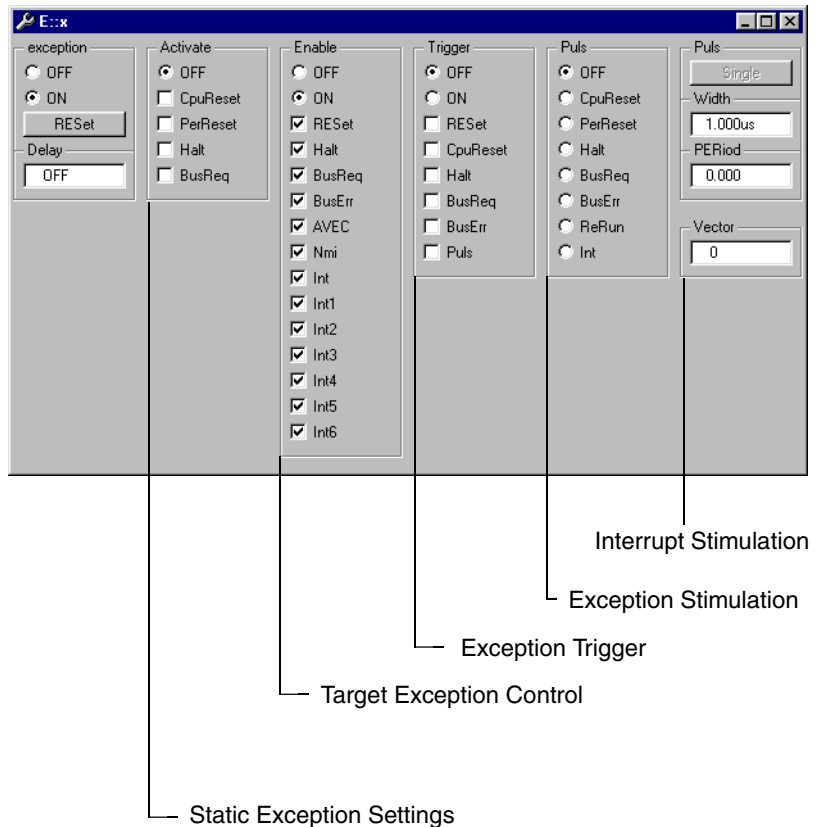
- Break-before-line operation
- HLL single step in real-time
- Trigger and trace on local variables

Background Task

The background task allows:

- To process interrupts
- To maintain the refresh of a target DRAM while the emulation is stopped.

Exception Control



The TRACE32 exception controller allows to permanently activate an exception, to enable or disable specific exceptions, to trigger on specific exceptions or to stimulate an exception.

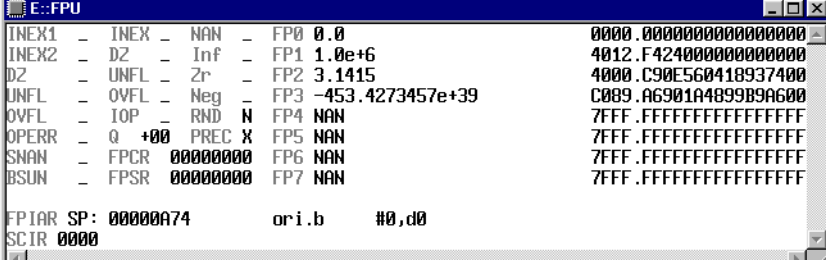
- Interrupt Stimulation
 - Level-1...7-interrupts
 - All vectors

TRAPs used for Emulation

Program breakpoints are installed by a BPT instruction. ICE-68040 offers free selection of the breakpoint vector to avoid conflicts with other applications.

- BPT0,2,4,7 selectable

FPU Support



```

E::FPU
INEX1 - INEX - NAN - FP0 0.0          0000.0000000000000000
INEX2 - DZ - Inf - FP1 1.0e+6       4012.F424000000000000
DZ - UNFL - Zr - FP2 3.1415       4000.C90E560418937400
UNFL - OVFL - Neg - FP3 -453.4273457e+39  C089.A6901A4899B9A600
OVFL - IOP - RND N FP4 NAN        7FFF.FFFFFFFFFFFFFFFF
OPERR - Q +00 PREC X FP5 NAN       7FFF.FFFFFFFFFFFFFFFF
SNAN - FPCR 00000000 FP6 NAN       7FFF.FFFFFFFFFFFFFFFF
BSUN - FPSR 00000000 FP7 NAN       7FFF.FFFFFFFFFFFFFFFF

FPIAR SP: 00000A74      ori.b      #0,d0
SCIR 0000
  
```

The display and the modification of the FPU registers is supported.

32 Additional Trace Channels

- 16 Bit Date 4 Bit State
- 12 Bit Address

Limitations

- No Burst Mode (68030)

Emulation Modules

Modules Overview

tbd

Debug Interfaces

TRACE32-PowerView supports most compilers, realtime operation systems and debuggers.

New integrations are mostly done on customers request. If your compiler or RTOS is not supported now, please ask us !

Compiler Support

| Language | Compiler | Company | Option | Comment |
|----------|----------------|---------------------------------|-----------|------------------------|
| ADA | ALSYS-ADA | | IEEE | limited support (IEEE) |
| ADA | TELESOFT-ADA | Telesoft | IEEE | limited support (IEEE) |
| ASM | RTOS | IEP GmbH | SYM/LOC | Source level debugging |
| ASM | ASM68K | Mentor Graphics Corporation | IEEE | Source level debugging |
| ASM | VERSADOS-ASM | NXP Semiconductors | VERSADOS | symbols only |
| ASM | OS-9-ASSEMBLER | Radisys Inc. | ROF | Source level debugging |
| ASM | AS68 | TASKING | IEEE | |
| C | HP-64000-C | | HP | no type/locals info |
| C | ORGANON | CAD-UL Electronic Services GmbH | BOUND | |
| C | C68K | Cosmic Software | COSMIC | |
| C | GNU-C | Free Software Foundation, Inc. | ELF/DWARF | |
| C | GNU-C | Free Software Foundation, Inc. | COFF | |
| C | GNU-C | Free Software Foundation, Inc. | ELF/DWARF | |

| Language | Compiler | Company | Option | Comment |
|----------|---------------|---------------------------------|-----------|----------------------|
| C | GREEN-HILLS-C | Greenhills Software Inc. | COFF | |
| C | ICC68K | Introl Corporation | ICOFF | |
| C | MCC | Mentor Graphics Corporation | IEEE | |
| C | HT-68K | Microchip Technology Inc. | HITECH | |
| C | HICROSS-68K | NXP Semiconductors | HICROSS | |
| C | CC68K | NXP Semiconductors | COFF | |
| C | ULTRA-C | Radisys Inc. | ROF | OS/9 compilers |
| C | OS/9-C | Radisys Inc. | ROF | |
| C | CROSSCODE-C | SDSI | SDS | |
| C | SCC68K | Sierra | COFF | |
| C | SUN3-CC | Oracle Corporation | DBX | |
| C | ICC68K | TASKING | COFF | |
| C | ICC68K | TASKING | IEEE | |
| C | TT-68K | TASKING | IEEE | |
| C | TCC68K | TASKING | AOUT | only source and syms |
| C | TEKTRONIX-C | Tektronix | COMFOR | |
| C | D-CC | Wind River Systems | IEEE | |
| C | D-CC | Wind River Systems | ELF/DWARF | |
| C++ | ORGANON-C++ | CAD-UL Electronic Services GmbH | BOUND | |
| C++ | GNU-C++ | Free Software Foundation, Inc. | DBX | |
| C++ | GNU-C++ | Free Software Foundation, Inc. | ELF/DWARF | |
| C++ | CCC68K | Mentor Graphics Corporation | IEEE | |

| Language | Compiler | Company | Option | Comment |
|----------|---------------|-----------------------------|-----------|---------------------|
| C++ | HICROSS-68K | NXP Semiconductors | HICROSS | |
| C++ | CODEWARRIOR | NXP Semiconductors | ELF/DWARF | |
| C++ | CROSSCODE-C++ | SDSI | SDS | |
| C++ | D-C++ | Wind River Systems | ELF/DWARF | |
| MODULA | MOD68K | Introl Corporation | ICOFF | |
| MODULA | MCS2 | Multichannel systems GmbH | COFF | |
| MODULA | MCDS | NXP Semiconductors | MCDS | |
| PASCAL | MPC | Mentor Graphics Corporation | IEEE | |
| PEARL | RTOS | IEP GmbH | SYM/LOC | no type/locals info |

RTOS Support

| Company | Product | Comment |
|-----------------------------|----------------|--------------------|
| Atego Ltd. | AdaWorld ARTK | |
| KadakProducts Ltd. | AMX | |
| Oracle Corporation | ChorusOS | |
| CMX Systems Inc. | CMX-RTX | |
| Synopsys, Inc | MQX | 2.40 and 2.50, 3.6 |
| | MTOS-UX | |
| Mentor Graphics Corporation | Nucleus PLUS | |
| Radisy Inc. | OS-9 | |
| Enea OSE Systems | OSE Classic | (OS68) |
| Enea OSE Systems | OSE Delta | 4.x and 5.x |
| | RealTime Craft | (XEC68k) |

| Company | Product | Comment |
|-----------------------------|------------|---------------------------------|
| Quadros Systems Inc. | RTXC 3.2 | |
| IBM Corp. | SDT-Cmicro | |
| - | uCLinux | Kernel Version 2.4 and 2.6, 3.x |
| Mentor Graphics Corporation | VRTX32 | |
| Mentor Graphics Corporation | VRTXmc | |
| Mentor Graphics Corporation | VRTXsa | |
| Wind River Systems | VxWorks | 5.x and 6.x |

Debugger Support

| CPU | Tool | Company | Host |
|-----|---------------------------|------------------------------|---------|
| | WINDOWS CE PLATF. BUILDER | - | Windows |
| | CODE::BLOCKS | - | - |
| | C++TEST | - | Windows |
| | ADENEO | - | |
| | X-TOOLS / X32 | blue river software GmbH | Windows |
| | CODEWRIGHT | Borland Software Corporation | Windows |
| | CODE CONFIDENCE TOOLS | Code Confidence Ltd | Windows |
| | CODE CONFIDENCE TOOLS | Code Confidence Ltd | Linux |
| | EASYCODE | EASYCODE GmbH | Windows |
| | ECLIPSE | Eclipse Foundation, Inc | Windows |
| | CHRONVIEW | Inchron GmbH | Windows |

| CPU | Tool | Company | Host |
|-----|--------------------------|----------------------------------|---------|
| | LDRA TOOL SUITE | LDRA Technology, Inc. | Windows |
| | UML DEBUGGER | LieberLieber Software GmbH | Windows |
| | SIMULINK | The MathWorks Inc. | Windows |
| | ATTOL TOOLS | MicroMax Inc. | Windows |
| | VISUAL BASIC INTERFACE | Microsoft Corporation | Windows |
| | LABVIEW | NATIONAL INSTRUMENTS Corporation | Windows |
| | TPT | PikeTec GmbH | Windows |
| | CANTATA | QA Systems Ltd | Windows |
| | RAPITIME | Rapita Systems Ltd. | Windows |
| | RHAPSODY IN MICROC | IBM Corp. | Windows |
| | RHAPSODY IN C++ | IBM Corp. | Windows |
| | TESSY | Razorcat Development GmbH | Windows |
| | DA-C | RistanCASE | Windows |
| | TRACEANALYZER | Symtavisin GmbH | Windows |
| | ECU-TEST | TraceTronic GmbH | Windows |
| | UNDODB | Undo Software | Linux |
| | TA INSPECTOR | Vector | Windows |
| | VECTORCAST UNIT TESTING | Vector Software | Windows |
| | VECTORCAST CODE COVERAGE | Vector Software | Windows |
| 68K | OS68 DEBUGGER | Enea OSE Systems | - |
| 68K | SDT CMICRO | IBM Corp. | Windows |
| 68K | DIAB RTA SUITE | Wind River Systems | Windows |

Operation Voltage and Frequency

The maximum operation frequency of TRACE32-ICE depends on:

- The max. frequency of the CPU
- The access time of the overlay memory (15ns or 35ns)
- The mapper mode (**Slow** or **Fast**)
- The number of waitstates (W0 = 0 waitstates
W1 = 1 waitstate)
- The dual-port access mode

Denied and Request Access

Operating Voltage

This list contains information on probes available for other voltage ranges.

Probes not noted here supply an operation voltage range from 4.5V to 5.5V. tbd

Dimensions

Module Dimensions

tbd

Available Tool Chain

TRACE32 provides a complete set of development tools for this family. This includes:

- The In-Circuit Emulator TRACE32-ICE
- The high speed RISC Emulator TRACE32-FIRE
- The BDM/JTAG/ONCE etc. based In-Circuit Debugger TRACE32-ICD
- The ROM Monitor based In-Circuit Debugger TRACE32-ICD
- The ICD Trace, a trace extension to the BDM/JTAG debuggers or ROM monitors
- Evaluation boards, which can be used until the target hardware is available.
- The Instruction Set Simulator (SIM), a software tool for code test without any hardware

The following list give an overview which development tools are available for the specific derivatives of this family.

tbd

Order Information

Module Description

Detailed Order Information

Contact

International Representative

Argentina

Anacom 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@anacom.com.br

Australia

Embedded Logic Solutions P/L
Mr. Ramzi Kaffan
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
Alltaufstr. 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
Stationspark 550
NL-3364 DA Sliedrecht
Phone: +31 184 41 41 31
FAX: +31 184 42 36 11
EMAIL: software@tritec.nl

Brazil

Anacom 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@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 Beijing

Lauterbach Technologies Co., Ltd
Mr. Linglin He
Beijing Office
A3, South Lishi Road, XiCheng District
Beijing 100037, P.R. China
Phone: +86 10 68023502
FAX: +86 10 68023523
EMAIL: linglin.he@lauterbach.com

China Shenzhen

Lauterbach Technologies Co., Ltd
1406/E Xihaimingzhu Building
No.1 Taoyuan Road, Nanshan District
Shenzhen 518052, P.R. China
Phone: +86 755 8621 0671
FAX: +86 755 8621 0675
EMAIL: emily.zhang@lauterbach.com

China Suzhou

Lauterbach Technologies Co., Ltd
Mr. Linglin He
Hengyu Square, Rm 709
No. 188, 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
Alltaufstr. 40
D-85635 Höhenkirchen-Siegertsbrunn
Phone: +49 8102 9876 130
FAX: +49 8102 9876 187
EMAIL: sales@lauterbach.com

Denmark

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

Egypt

Lauterbach GmbH
Alltaufstr. 40
D-85635 Höhenkirchen-Siegertsbrunn
Phone: +49 8102 9876 130
FAX: +49 8102 9876 187
EMAIL: sales@lauterbach.com

Finland

Nohau Solutions Finland
Mr. Martti Viljainen
Tekniikantie 14
FI-02150 Espoo
Phone: +358 40 546 0142
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-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
Alltaufstr. 40
D-85635 Höhenkirchen-Siegertsbrunn
Phone: +49 8102 9876 190
FAX: +49 8102 9876 187
EMAIL: sales@lauterbach.com

Greece

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

Hungary

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

India-Bangalore

Electro Systems Associates Pvt. Ltd.
Mr. G. V. Gurunatham
S-606, World Trade Center
Malleswaram West, No.26/1, Dr. Rajkumar
Road
India - Bangalore 560055
Phone: +91 80 67648888
FAX: +91 80 23475615
EMAIL: Trace32sales@esaindia.com

India-Chennai

Electro Systems Associates Pvt. Ltd.
Mr. D. Kannan
No.109 /59A - Ground Floor
IV Avenue, Ashok Nagar
India - Chennai - 600 083 Tamilnadu
Phone: +91 044-24715750
FAX: +91 44 24715750
EMAIL: chennai@esaindia.com

India-Delhi

Electro Systems Associates Pvt. Ltd.
Mr. R.K. Bhandari
No. 705, 7th Floor, Laxmi Deep
Shivajinagar
India - Delhi - 110 092
Phone: +91 11-22549351
FAX:
EMAIL: delhi@esaindia.com

India-Hyderabad

Electro Systems Associates Pvt. Ltd.
Mr. C.V.M. Sri Ram Murthy
Shop No. 14, "Global Enclave"
Bhagyanagar Colony, Kukat pally
India - Hyderabad 500 072
Phone: +91 40-23063346
FAX: +91 40-23063346
EMAIL: hyderabad@esaindia.com

India-Kolkata

Electro Systems Associates Pvt. Ltd.
Mr. Arun Roy
India - Kolkata
Phone: +91 98305 78843
FAX:
EMAIL: kolkata@esaindia.com

India-Pune

Electro Systems Associates Pvt. Ltd.
Mr. R K Bhandari
Shriram Complex, 1126/1, Model Colony
Shivajinagar
India - Pune - 411 016
Phone: +91 20 - 30462035 / 25663
FAX: +91 20-25677202
EMAIL: pune@esaindia.com

Ireland

Lauterbach Ltd.
Mr. Richard Copeman
11 Basepoint Enterprise Centre
Stroudley Road
Basingstoke, Hants RG24 8UP
Phone: 0044-118 328 3334
FAX:
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
3-8-8 Shinyokohama
Kouhoku-ku, Nisso 16th Building
Yokohama-shi, Japan 222-0033
Phone: +81 45 477 4511
FAX: +81 45 477 4519
EMAIL: info@lauterbach.co.jp

Luxembourg

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

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 Sliedrecht
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@emilogic.com.au

Norway

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

Poland

QUANTUM Sp. z o.o.
Mr. Aleksander Bil
ul. Jeleniogorska 6
54-056 Wrocław
Phone: +48 71 362 6356
FAX: +48 71 362 6357
EMAIL: info@quantum.com.pl

Portugal

Captura Electronica, SCCL
Mr. Juan Martinez
c/Duero, 40
E-08031 Barcelona
Phone: +34 93 429 5730
FAX: +34 93 407 0778
EMAIL: info@captura-el.com

Romania

Lauterbach GmbH
Altlaufstr. 40
D-85635 Höhenkirchen-Siegersbrunn
Phone: +49 8102 9876 130
FAX: +49 8102 9876 187
EMAIL: sales@lauterbach.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, Pangyo

Hancom MDS Inc.
Mr. Dongwook Jun
3FL, 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 93 429 5730
FAX: +34 93 407 0778
EMAIL: info@captura-el.com

Sweden

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

Switzerland

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

Taiwan

Superlink Technology Corp.
Mr. Sulin Huang
3F-8, No. 77, Sec. 1, Xintaiwu Rd., Xizhi District,
New Taipei City 22101, Taiwan, R.O.C.
Phone: +886 2 26983456
FAX: +886 2 26983535
EMAIL: info.stc@superlink.com.tw

Tunisia

Lauterbach Consulting S.A.R.L.
Mr. Khaled Jmal
Route El Ain Km 3.5
TN-3062 Sfax
Phone: +216-31361061
FAX: +216-74611723
EMAIL: info_tn@lauterbach.com

Turkey-1

Tektronik Muh. ve Tic. A.S.
Mr. Hakan 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
Ilkyerlesim Mah. 445.
Sok. No: 48
06370 Battikent/Ankara
Phone: +90 312 3324769
FAX: +90 312 3324769
EMAIL: info@g3tek.com

UK

Lauterbach GmbH
Mr. Richard Copeman
Altlaufstr. 40
D-85635 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: +1 503 524 2222
FAX: +1 503 524 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 ++81-45-477-4511 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_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.