



FIRE Emulator for ARM7

ARM710T-AMBA
ARM720T-AMBA
ARM740T-AMBA
ARM7TDMI
ARM7TDMI-AMBA

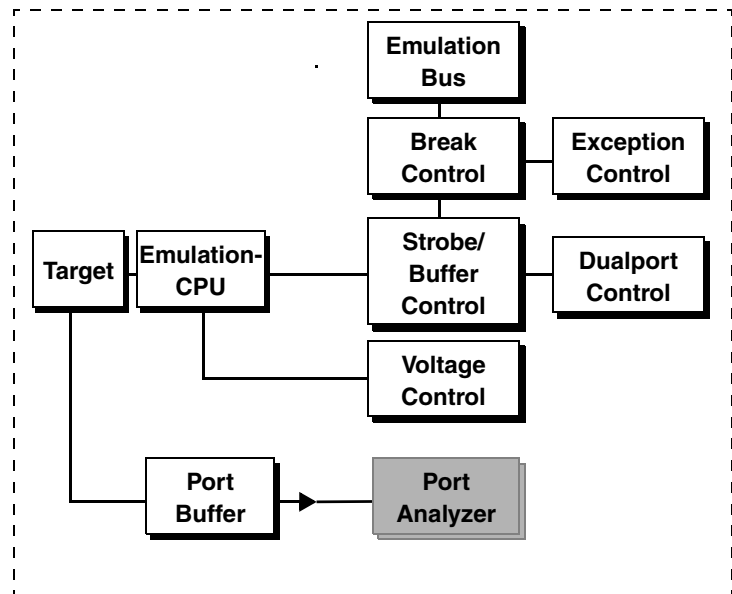
- Active, passive and tracking emulation supported
- Interface for flexible adaption to ARM7TDMI based designs
- Software compatible JTAG debugger available
- HLL debugger with C and C++ support
- Disassembler for ARM and THUMB code
- Inline assembler for ARM and THUMB code
- Little and big endian byte ordering
- Support for pipelined and de-pipelined address timing
- Operation from 3.0 to 5.0V in passive mode and from 3.0 to 3.6V in active and tracking mode

The TRACE32-FIREARM supports the ARM7TDMI macrocell with and without AMBA interface. The flexible concept of the probe allows the adaption to customer specific ASICs or to standard microcontrollers. An extensive specification is available that provides a detailed overview of our requirements. Please call or email our technical support to get this document.

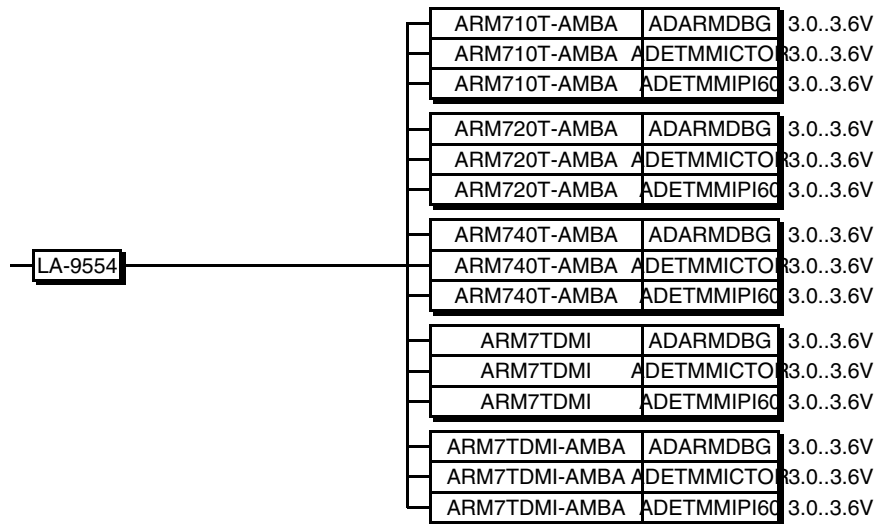
Features

Basics of Operation

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Modules Overview



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
C	CARM	ARM Germany GmbH	ELF/ DWARF	
C	ARMCC	ARM Ltd.	AIF	
C	ARMCC	ARM Ltd.	ELF/ DWARF	
C	REALVIEW MDK	ARM Ltd.	ELF/ DWARF2	
C	GCCARM	Free Software Foundation, Inc.	COFF/ STABS	
C	GCCARM	Free Software Foundation, Inc.	ELF/ DWARF2	
C	GREENHILLS C	Greenhills Software Inc.	ELF/ DWARF2	
C	ICCARM	IAR Systems AB	ELF/ DWARF2	
C	ICCV7-ARM	Imagecraft Creations Inc.	ELF/ DWARF	ARM7
C	HIGH-C	Synopsys, Inc	ELF/ DWARF	
C	TI-C	Texas Instruments	COFF	
C	GNU-C	Wind River Systems	COFF	
C	D-CC	Wind River Systems	ELF	
C++	ARM SDT 2.50	ARM Ltd.	ELF/ DWARF2	
C++	REALVIEW MDK	ARM Ltd.	ELF/ DWARF2	

Language	Compiler	Company	Option	Comment
C++	GCCARM	Free Software Foundation, Inc.	COFF/STABS	
C++	GNU	Free Software Foundation, Inc.	EXE/STABS	
C++	GCCARM	Free Software Foundation, Inc.	ELF/DWARF2	
C++	GREENHILLS C++	Greenhills Software Inc.	ELF/DWARF2	
C++	MSVC	Microsoft Corporation	EXE/CV5	WindowsCE
C++	HIGH-C++	Synopsys, Inc	ELF/DWARF	
C/C++	XCODE	Apple Inc.	Mach-O	
C/C++	VX-ARM	TASKING	ELF/DWARF2	

RTOS Support

Name	Company	Comment
AMX	KadakProducts Ltd.	
Android	-	Dalvik support in development
ChorusOS	Oracle Corporation	
CMX-RTX	CMX Systems Inc.	
ECOS	eCosCentric Limited	1.3, 2.0 and 3.0
Elektrobit tresos	Elektrobit Automotive GmbH	via ORTI
embOS	Segger	3.80
Erika	Evidence	via ORTI
FAMOS	Fujitsu Limited	
FreeRTOS	Freeware I	v7
Linux	-	Kernel Version 2.4 and 2.6, 3.0
Linux	MontaVista Software, LLC	3.0, 3.1, 4.0, 5.0
Linux	Timesys Corporation	
Linux SMP	-	Kernel Version 2.4 and 2.6, 3.0
MQX	Freescale Semiconductor, Inc.	3.x and 4.x
MQX	Synopsys, Inc	2.40 and 2.50

Name	Company	Comment
NetBSD	-	
Nucleus PLUS	Mentor Graphics Corporation	
OS-9	Radisys Inc.	
OS21	ST Microelectronics N.V.	
OSE Basic	Enea OSE Systems	(OSARM)
OSE Delta	Enea OSE Systems	4.x and 5.x
OSE Epsilon	Enea OSE Systems	(OSARM), 3.x
OSEK	-	via ORTI
prKERNEL	eSOL Co., Ltd.	
ProOSEK	Elektrobit Automotive GmbH	via ORTI
pSOS+	Wind River Systems	2.1 to 2.5, 3.0
QNX	QNX Software Systems	6.0 to 6.5.0
QNX SMP	QNX Software Systems	6.0 to 6.5.0
rcX	Hilscher GmbH	implemented by Hilscher
RealTime Craft	GSI tecsi	(XECARM)
RTEMS	RTEMS	4.10
RTX-ARM	ARM Germany GmbH	
RTXC 3.2	Quadros Systems Inc.	
RTXC Quadros	Quadros Systems Inc.	
Sciopta	Sciopta	
SMX	Coressent Technology Inc.	
SMX	Micro Digital Inc.	3.4 to 4.0
Symbian OS	Symbian	6.x, 7.0s, 8.0a 8.1a
Symbian OS	Symbian	8.0b, 8.1b, 9.x
Symbian^3	Symbian	
SYS/BIOS	Texas Instruments	
T-Kernel	eSOL Co., Ltd.	
T-Kernel SMP	eSOL Co., Ltd.	
ThreadX	Express Logic Inc.	3.0, 4.0, 5.0
ThreadX SMP	Express Logic Inc.	3.0, 4.0, 5.0
uC/OS-II	Micrium Inc.	2.0 to 2.92
uC/OS-III	Micrium Inc.	3.0
uCLinux	Freeware II	Kernel Version 2.4 and 2.6, 3.0
ulTRON	-	HI7000, RX4000, NORTi, PrKernel
VxWorks	Wind River Systems	5.x and 6.x
VxWorks SMP	Wind River Systems	5.x and 6.x

Name	Company	Comment
Windows CE	Microsoft Corporation	4.0 to 6.0
Windows Embedded Compact 7	Microsoft Corporation	
Windows Embedded Compact 7 SMP	Microsoft Corporation	
Windows Mobile	Microsoft Corporation	4.0 to 6.0
Windows Phone 7	Microsoft Corporation	

Debugger Support

CPU	Debugger	Company	Host
ALL	X-TOOLS / X32	blue river software GmbH	Windows
ALL	CODEWRIGHT	Borland Software Corporation	Windows
ALL	CODE CONFIDENCE TOOLS	Code Confidence Ltd	Windows
ALL	CODE CONFIDENCE TOOLS	Code Confidence Ltd	Linux
ALL	EASYCODE	EASYCODE GmbH	Windows
ALL	ECLIPSE	Eclipse Foundation, Inc	Windows
ALL	RHAPSODY IN MICROC	IBM Corp.	Windows
ALL	RHAPSODY IN C++	IBM Corp.	Windows
ALL	LDRA TOOL SUITE	LDRA Technology, Inc.	Windows
ALL	ATTOL TOOLS	MicroMax Inc.	Windows
ALL	VISUAL BASIC INTERFACE	Microsoft Corporation	Windows

CPU	Debugger	Company	Host
ALL	LABVIEW	NATIONAL INSTRUMENTS Corporation	Windows
ALL	CODE::BLOCKS	Open Source	-
ALL	C++TEST	Parasoft	Windows
ALL	RAPITIME	Rapita Systems Ltd.	Windows
ALL	DA-C	RistanCASE	Windows
ALL	SIMULINK	The MathWorks Inc.	Windows
ALL	WINDOWS CE PLATF. BUILDER	Windows	Windows

Operation Voltage and Frequency

The maximum operation frequency of TRACE32-FIRE depends on:

- The max. frequency of the CPU
- The access time of the overlay memory (10ns)
- The mapper mode (Slow or Fast)
- The number of waitstates (W0 = 0 waitstates
W1 = 1 waitstate)
- The dual-port access mode
- If no emulation memory is used, the frequency limit depends on the trace speed (TRACE)
- Some probes use extra high-speed memory on the emulation adapter (HEAD RAM)

Denied Access

Module	CPU	F-W0-10	F-W1-10	S-W0-10	S-W1-10	CHIP	TRACE	HEAD RAM
-	ARM710T-AMBA	25.0	50.0	20.0	40.0	50.0		
-	ARM720T-AMBA	25.0	50.0	20.0	40.0	50.0		
-	ARM740T-AMBA	25.0	50.0	20.0	40.0	50.0		
-	ARM7TDMI	25.0	50.0	20.0	40.0	50.0		
-	ARM7TDMI-AMBA	25.0	50.0	20.0	40.0	50.0		

Operation 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.

CPU	Module	Adapter	Voltage Range
ARM710T-AMBA	-	-	3.0 .. 3.6 V
ARM720T-AMBA	-	-	3.0 .. 3.6 V
ARM740T-AMBA	-	-	3.0 .. 3.6 V
ARM7TDMI	-	-	3.0 .. 3.6 V
ARM7TDMI-AMBA	-	-	3.0 .. 3.6 V

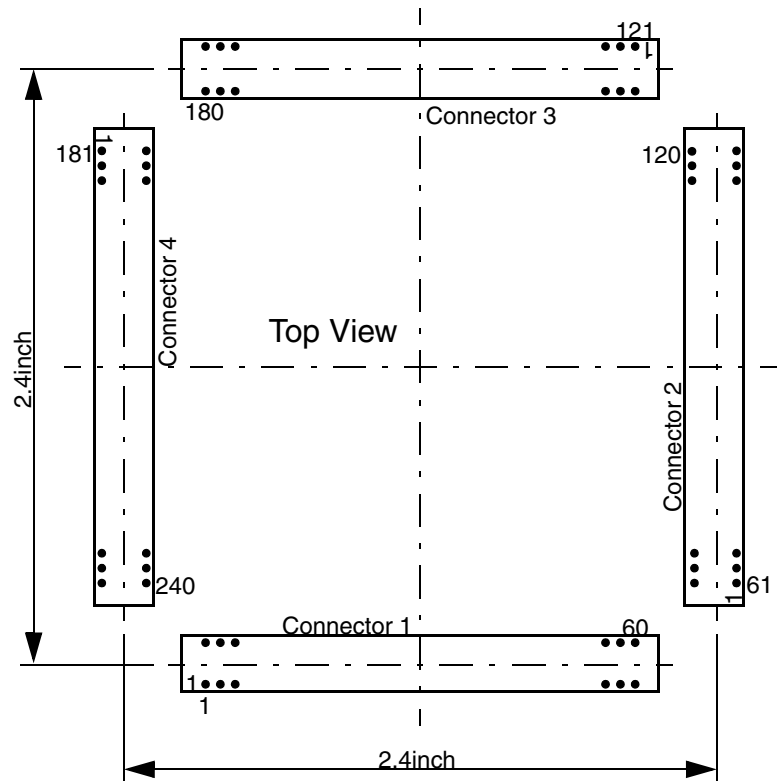
Dimensions

Module Dimensions

Connectors

On the target four 60 pin male connectors of type TFM 130 from SAMTEC are required (for a data sheet please refer to <http://www.samtec.com/tfm.html>).

It is recommended to use the connectors with the maximum available body height (lead style -31 or -32).



Notes to the schematic:

- All LAR signals must be not connected on the target
- All ARM signals are reserved for extensions and new ARM products, they must also be not connected on the target

ARMICE Connector 1

Pin	AMBA	ARM7TDMI	Pin	AMBA	ARM7TDMI
1	GND	GND	2	A00	A00
3	A01	A01	4	A02	A02
5	LAR	LAR	6	A03	A03
7	A04	A04	8	A05	A05
9	GND	GND	10	A06	A06
11	A07	A07	12	A08	A08
13	LAR	LAR	14	A09	A09
15	A10	A10	16	A11	A11
17	GND	GND	18	A12	A12
19	A13	A13	20	A14	A14
21	LAR	LAR	22	A15	A15
23	A16	A16	24	A17	A17
25	GND	GND	26	A18	A18
27	A19	A19	28	A20	A20
29	LAR	LAR	30	A21	A21
31	A22	A22	32	A23	A23
33	GND	GND	34	A24	A24
35	A25	A25	36	A26	A26
37	LAR	LAR	38	A27	A27
39	A28	A28	40	A29	A29
41	GND	GND	42	A30	A30
43	A31	A31	44	WRITE	nRW
45	LAR	LAR	46	SIZE0	MAS0
47	SIZE1	MAS1	48	PROT1	nTRANS
49	GND	GND	50	LOCK	LOCK
51	PROT0	nOPC	52	VCCSENSE	VCCSENSE
53	LAR	LAR	54	LAR	LAR
55	LAR	LAR	56	LAR	LAR
57	LAR	LAR	58	LAR	LAR
59	LAR	LAR	60	LAR	LAR

ARMICE Connector 2

Pin	AMBA	ARM7TDMI	Pin	AMBA	ARM7TDMI
61	GND	GND	62	LAR	LAR
63	LAR	LAR	64	ALE	ALE
65	LAR	LAR	66	APE	APE
67	LAR	LAR	68	LAR	LAR
69	GND	GND	70	D00	D00
71	D01	D01	72	D02	D02
73	LAR	LAR	74	D03	D03
75	D04	D04	76	D05	D05
77	GND	GND	78	D06	D06
79	D07	D07	80	D08	D08
81	LAR	LAR	82	D09	D09
83	D10	D10	84	D11	D11
85	GND	GND	86	D12	D12

Pin	AMBA	ARM7TDMI	Pin	AMBA	ARM7TDMI
87	D13	D13	88	D14	D14
89	LAR	LAR	90	D15	D15
91	D16	D16	92	D17	D17
93	GND	GND	94	D18	D18
95	D19	D19	96	D20	D20
97	LAR	LAR	98	D21	D21
99	D22	D22	100	D23	D23
101	GND	GND	102	D24	D24
103	D25	D25	104	D26	D26
105	LAR	LAR	106	D27	D27
107	D28	D28	108	D29	D29
109	GND	GND	110	D30	D30
111	D31	D31	112	VCCSENSE	VCCSENSE
113	LAR	LAR	114	LAR	LAR
115	LAR	LAR	116	LAR	LAR
117	LAR	LAR	118	LAR	LAR
119	LAR	LAR	120	LAR	LAR

ARMICE Connector 3

Pin	AMBA	ARM7TDMI	Pin	AMBA	ARM7TDMI
121	GND	GND	122	DISREQ	LAR
123	REQARM	LAR	124	LAR	LAR
125	GNTARM	LAR	126	LAR	LAR
127	REQ001	LAR	128	SEL1	SEL1
129	GNT001	LAR	130	LAR	LAR
131	GND	GND	132	TBE	TBE
133	SEL0	SEL0	134	BSTR	BSTR
135	nTRST	nTRST	136	ESIZE0	ESIZE0
137	TDO	TDO	138	VCCSENSE	VCCSENSE
139	TMS	TMS	140	TCK	TCK
141	TDI	TDI	142	ESIZE1	ESIZE1
143	DBGACK	DBGACK	144	BREAKPT	BREAKPT
145	DBGRRQ	DBGRRQ	146	ASICRD	ASICRD
147	ARM	ARM	148	EXTERN0	EXTERN0
149	EXTERN1	EXTERN1	150	ASICWR	ASICWR
151	VCCSENSE	VCCSENSE	152	VCCSENSE	VCCSENSE
153	ARM	ARM	154	LAR	LAR
155	GND	GND	156	LAR	LAR
157	ARM	ARM	158	LAR	LAR
159	ARM	ARM	160	LAR	LAR
161	SLOWCS0	SLOWCS0	162	LAR	LAR
163	SLOWCS1	SLOWCS1	164	LAR	LAR
165	GND	GND	166	RANGEOU T1	RANGEOU T1
167	RANGEOU T0	RANGEOU T0	168	LAR	LAR
169	LAR	LAR	170	LAR	LAR
171	LAR	LAR	172	VCCSENSE	VCCSENSE
173	LAR	LAR	174	LAR	LAR

Pin	AMBA	ARM7TDMI	Pin	AMBA	ARM7TDMI
175	LAR	LAR	176	LAR	LAR
177	LAR	LAR	178	LAR	LAR
179	LAR	LAR	180	LAR	LAR

ARMICE Connector 4

Pin	AMBA	ARM7TDMI	Pin	AMBA	ARM7TDMI
181	GND	GND	182	COMMRX	COMMRX
183	COMMTX	COMMTX	184	ICEINT	ICEINT
185	nTWAIT	nTWAIT	186	LAR	LAR
187	ARM	ARM	188	LAR	LAR
189	TRAN0	SEQ	190	TRAN1	nMREQ
191	LAR	LAR	192	BL0	BL0
193	LAR	LAR	194	WAIT	nWAIT
195	GND	GND	196	LAST	LAR
197	BL1	BL1	198	BL2	BL2
199	BL3	BL3	200	EEBE	EEBE
201	nCPI	nCPI	202	CPB	CPB
203	CPA	CPA	204	RES0	LAR
205	GND	GND	206	RES1	nRESET
207	ERROR	ABORT	208	RES2	LAR
209	MCLK	MCLK	210	ARM	ARM
211	ISYNC	ISYNC	212	nFIQ	nFIQ
213	nIRQ	nIRQ	214	BIGEND	BIGEND
215	GND	GND	216	nICERE- SET	nICERE- SET
217	ARM	ARM	218	ARM	ARM
219	ARM	ARM	220	ARM	ARM
221	nEXEC	nEXEC	222	nM1	nM1
223	nM0	nM0	224	VCCSENSE	VCCSENSE
225	nM2	nM2	226	nM3	nM3
227	nM4	nM4	228	GND	GND
229	LAR	LAR	230	LAR	LAR
231	LAR	LAR	232	VCCSENSE	VCCSENSE
233	LAR	LAR	234	LAR	LAR
235	LAR	LAR	236	LAR	LAR
237	LAR	LAR	238	LAR	LAR
239	LAR	LAR	240	LAR	LAR

Adapter

No adapters necessary !

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.

CPU	ICE	FIRE	ICD DEBUG	ICD MONITOR	ICD TRACE	POWER INTEGRATOR	INSTRUCTION SIMULATOR
ARM710T-AMBA		YES	YES	YES	YES		YES
ARM720T-AMBA		YES	YES	YES	YES		YES
ARM740T-AMBA		YES	YES	YES	YES		YES
ARM7TDMI		YES	YES	YES	YES		YES
ARM7TDMI-AMBA		YES	YES	YES	YES		YES

Order Information

Module Description

OrderNo Code	Text
LA-9554 FIRE-ARM7-P	FIRE Emulator passive for ARM7 Emulator for ARM7TDMI, up to 50 MHz clock frequency in passive mode, JTAG accelator, exception controller, adaption ARMICE240 requires FIRE-ZRAM
LA-9557 FIRE-ARM7-A	FIRE Emulator active module for ARM7 Emulator for ARM7TDMI, up to 25 MHz clock frequency in active mode, JTAG accelator, exception controller, adaption ARMICE240 requires FIRE-ZRAM Test chip ARM7 TDMI not included
LA-9556 FIRE-ARM7- AMBA-P	FIRE Emulator passive for ARM7 with AMBA Emulator for ARM7TDMI with AMBA, up to 50 MHz clock frequency in passive mode, JTAG accelator, exception controller, adaption ARMICE240 requires FIRE-ZRAM
LA-9558 FIRE-ARM7- AMBA-A	FIRE Emulator active module for ARM7-AMBA Emulator for ARM7TDMI with AMBA, up to 25 MHz clock frequency in active mode, JTAG accelator, exception controller, adaption ARMICE240 requires FIRE-ZRAM Test chip ARM7 TDMI not included
LA-9670 A- INTEGRATOR- ARM	Adapter for ARM Integrator Board CM7TDMI FIRE ARM TO MICTOR CONVERTER for ARM Integrator Board with order number: KPI-0110A Integrator/CM-7TDMI ARM7TDMI Core module

Detailed Order Information

Order No.	Code	Text
LA-9554	FIRE-ARM7-P	FIRE Emulator passive for ARM7
LA-9557	FIRE-ARM7-A	FIRE Emulator active module for ARM7
LA-9556	FIRE-ARM7- AMBA-P	FIRE Emulator passive for ARM7 with AMBA

Order No.	Code	Text
LA-9558	FIRE-ARM7-AMBA-A	FIRE Emulator active module for ARM7-AMBA
LA-9670	A-INTEGRATOR-ARM	Adapter for ARM Integrator Board CM7TDMI
Additional Options		
LA-1370	MICTOR-FLEXEXT	Mictor Flex Extension

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