

Solutions & Tool Chain for ARM[®]

Simulator
Starter Kit
JTAG Debugger
Trace Emulator

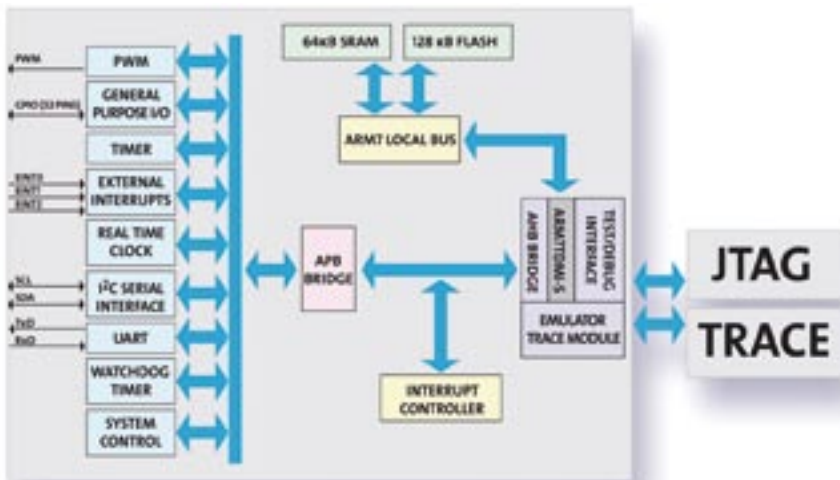
Supporting
ARM7, ARM9, ARM9E,
ARM11 and XScale[®]



Embedding Software Quality



ARM® architecture & connected community



Example of an ARM SoC

ARM – Processor Architecture

is one of the most popular architectures for modern microcontroller systems. The attractiveness of these systems is determined by

- > low cost chips, including a 32-bit CPU and a complete set of peripherals
- > embedded SRAM and FLASH memory in a single chip with small package
- > 32 bit performance with high frequencies and low power
- > a wide address range of up to 4GByte
- > upgrade path from ARM7 to ARM11 and further with re-use of code, tools, system architecture and peripherals
- > a large number of ARM microcontroller suppliers
- > a growing number of applications in ASIC's and FPGA
- > the transition towards the ARM architecture is a step for the next 10 years with
 - > upgrade path for the future
 - > enough performance and memory size
 - > enough derivatives from a lot of vendors
 - > growing amount of available code for ARM

Hitex – A Partner Of The ARM Connected Community

is offering a complete set of solutions with

- > starter kits including everything you need to setup your first ARM project.
- > tool set from low-cost up to high-performance debug tools with trace support
- > an upgrade path inside the tool chain
- > a unique HiTOP IDE supporting all Hitex debug tools
- > a safe investment in a continuous supported tool chain
- > long experience in debug tools



Hitex software tools for ARM®

Hitex Developer Suite

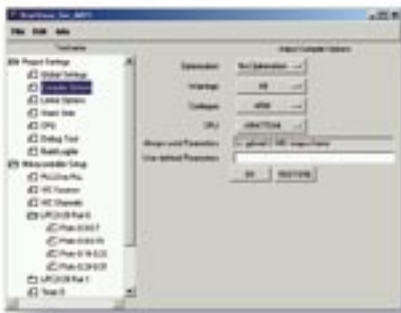
includes all software tools you need to start the development of your ARM projects:

- HiSIM * – ARM v4T instruction set simulator
- HiTOP * – powerful IDE and debug tool
- GNU C – C compiler
- Tessy * – automated unit test tool

StartEasy – Code Generating Tool

will facilitate your work with your first ARM projects. Easy dialogs determine important project settings. With StartEasy there is no need to have deep knowledge of tools and the ARM architecture. Based on the user's settings StartEasy is creating a complete project with all necessary files including the complete build process. In combination with HiTOP the project can be transferred into the target. All settings, e.g. hardware support for flash programming, are done automatically.

StartEasy is available for PhilipsPLC2119 and LPC2129, Atmel AT91Mo800 and AT91R40008 (EB40A).



Code Generation with StartEasy



Hitex Developer Suite

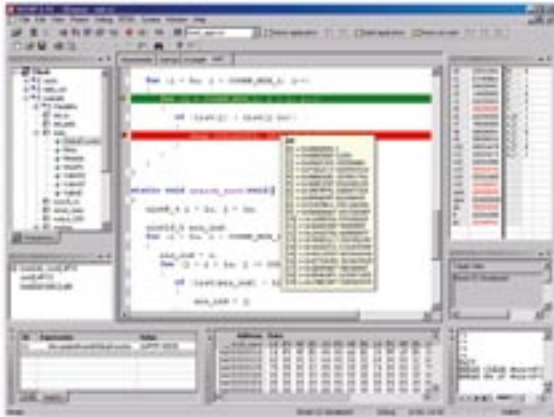
HiSIM – ARM Instruction Set Simulator

lets you debug your application under the HiTOP IDE:

- > includes GNU C Compiler
- > support ARM and Thumb mode of the ARM v4T architecture
- > Little and Big Endian Support
- > support of high and low exception vector table
- > preload of simulated memory
- > logging of simulator actions
- > counters for simulated instructions and cycles
- > IRQ and FIQ trigger control
- > breakpoints for code, data read, data write, data read/write

* 16k code-size limited or time limited version
upgradable to full version

HiTOP IDE & test software



HiTOP Integrated Development Environment

HiTOP IDE

is the universal user interface for all Hitex debug tools and CPU platforms. This modern interface includes features for sophisticated HLL debugging with:

- > integrated source code editor
- > automatic display of local variables
- > project management for your debug sessions
- > symbol loader for supported compilers and linkers
- > execute script toolbar for HiScript files
- > crosslinking of trace and Source window
- > integrated support for on-chip FLASH memory

All leading compilers and their object format is supported.

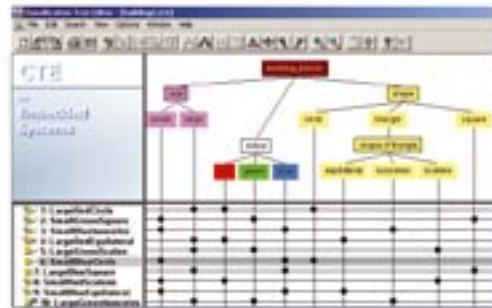
HiTOP also supports all major embedded RTOS with fully transparent overview of your software system about task lists, task status, message queues, delays and memory objects.



RTOS Support with HiTOP

HiSCRIPT Test Harness Language

HiSCRIPT is an integral part of the HiTOP debugger used on all Hitex emulators. It allows complete control of the debug system's operation and complex test harnesses to be created that can exercise embedded software in a consistent manner, using test data derived from ordinary PC disk files. Via the Remote Control Interface (RCI) of HiTOP, any remote program may control the in-circuit emulator by using HiSCRIPT.



Tessy: Unit Test Tool

Automated Unit Tests With Tessy

Tessy performs automated unit testing of embedded software. Using Tessy, you can start systematic testing directly after the implementation of a function is finished. This allows to skip time-consuming manual ad-hoc tests and thus minimizes your time-to-market. Tessy executes the tests on the real hardware, for what Tessy cooperates tightly with HiTOP.

Tessy's key features

- > re-use of test data even after source code changes
- > test documentation in various formats (Word, HTML, ...)
- > C1 code coverage
- > regression testing in batch mode
- > ASAP2 support
- > unit testing using your original binary
- > includes the Classification Tree Editor (CTE)

ARM starter kits & Tantino JTAG debug interface



Hitex Starter Kit for ARM

ARM Starter Kits

contains everything you need to setup your first ARM project at low cost

- > Tantino for ARM7-9 JTAG debugger
- > evaluation board
- > Quick Start Guide
- > installation CD with Hitex Developer Suite for ARM and examples
- > power supply, JTAG and power supply cable

You can select between the following ARM derivatives and evaluation boards:

- > Atmel AT91M40800
- > Philips LPC2129 and SJA2020
- > STMicroelectronics STR71X
- > and others in preparation

In addition we offer a big variety of Board Support Packages (BSPs) to assist your own ARM development boards.

Tantino for ARM7-9

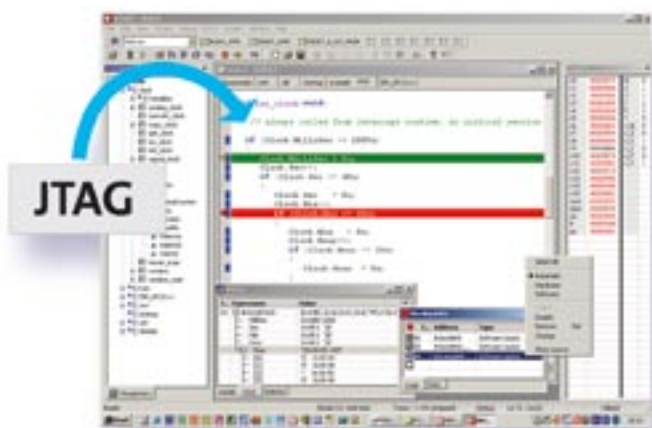
with HiTOP IDE user interface – the low-cost entry tool for professional software debugging with

- > support of ARM7™, ARM9™ and ARM9E™ processor cores (ARM11™ and XScale in preparation)
- > JTAG target interface up to 30MHz
- > USB full speed host interface
- > USB powered
- > fast program download up to 100kByte/s
- > fast and easy configurable FLASH programming
- > support of on-chip hardware and software breakpoints



Tantino for ARM7-9

Professional debugging with Tanto for ARM



Run Control Debugging via JTAG Interface

Tanto For ARM

with HiTOP IDE user interface – for high-performance software debugging with

- > support of ARM7™, ARM9™ and ARM9E™ processor cores (ARM11™ and XScale in preparation)
- > JTAG target interface up to 30MHz
- > USB full speed host interface
- > Ethernet 10/100MBit host interface
- > fast program download up to 400kByte/s
- > fast and easy configurable FLASH programming
- > supports of on-chip hardware and software breakpoints
- > additional trace capability using the Tanto Port Trace module

Professional Software Debugging

for your application development. Professional tools require

- > high performance for program download and FLASH programming
- > flexibility in connection with USB and Ethernet interface
- > intuitive user interface with HiTOP IDE support
- > easy upgrade for new CPU architectures via software
- > extensibility for program and data tracing
- > superior and qualified technical support



Tanto for ARM

Tanto for ARM is the safe investment into a reliable debug tool chain for software development of long term projects for automotive, industrial and consumer applications.

Program and data trace with Tanto Port Trace

Tanto Port Trace For ARM

with HiTOP IDE support – the extension module for the Tanto system to record program and data flow includes

- > real-time program and data trace capture
- > support of ETM7 and ETM9 trace core
 - > with CPU clocks up to 250 MHz
 - > with normal and half-rate clock modes
 - > with 4- and 8-bit trace port width
- > trace memory for up to 2 million CPU cycles
- > support of ETM configuration
- > trace display linked to HLL source
- > trace forward and backward scrolling
- > trace filtering and qualification



Tanto Port Trace for ARM

Program And Data Trace

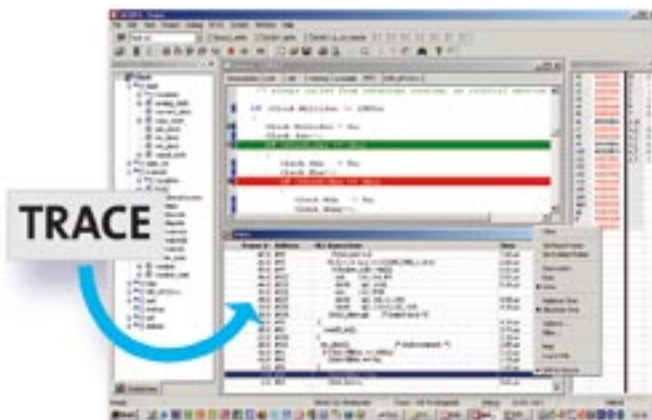
gives you the trust and confidence in your software development with

- > analysis of program flow
- > analysis of data structures
- > documentation of your program flow
- > timing analysis of software modules
- > performance analysis of software modules

Tanto Port Trace for ARM is fully integrated and supported within the Tanto tool chain and HiTOP IDE. Features like

- > crosslinking between program source and trace
- > forward and backward stepping in source and trace
- > configuration menu for the ARM ETM

emphasize the ease-of-use.



Program and Data Trace with Trace Module

Solutions overview & technical data

Tool Overview	Hitex Developer Suite	Starter Kit	Tantino for ARM7-9	Tanto for ARM	Tanto Port Trace for ARM
HiTOP IDE	x	x	x	x	
HiSIM	x	x	x	x	
GNU C	x	x	x	x	
Tessy	x	x	x	x	
Tantino		x	x		
Tanto				x	
Tanto Port Trace					x
Evaluation Boards		x			

Starter Kits with evaluation boards and examples for different architectures are available. Some configurations include code size or time limited versions

Technical Data	Tantino for ARM7-9	Tanto for ARM	Tanto Port Trace for ARM Extension Module
ARM7, ARM9, ARM9E Support	x	x	x
Debug Interface	JTAG (30 MHz, 1.8-5.0 V)	JTAG (30 MHz, 1.8-5.0 V)	JTAG (30 MHz, 1.8-5.0 V) ARM ETM Trace
PC Host Interface	USB 2.0 (Full Speed)	USB 2.0 (Full Speed) LAN 10/100 MBit	(via Tanto for ARM)
Power Supply	USB powered	External, 100-240V	(via Tanto for ARM)
Debug Support: Level 1: Program Run Control Level 2: Program and Data Trace	Level1: > run/halt > single step/line step > max. HW breakpoints > unlimited SW breakpoints > watchpoints	Level1: > run/halt > single step/line step > max. HW breakpoints > unlimited SW breakpoints > watchpoints	Level2: > ETM7 and ETM9 > CPU clock max. 250 MHz > 4- and 8-bit port normal, half-rate mode > 2 data comparators > 4 address comparators > 2 counters > instruction and data trace filtering > trace memory for up to 2 million CPU cycles > time stamp 7.5ns resolution
HiTOP IDE Support	x	x	x



Main Office Germany
Greschbachstraße 12 Tel. +49-721-9628-0
D-76229 Karlsruhe Fax +49-721-9628-149
E-mail sales@hitex.de

Visit us on the internet! www.hitex.com or www.hitex.de

Hitex USA
2062 Business Center Drive, Suite 230 Irvine, CA 92612
Tel. 800-45-HITEX
Tel. +1-949-863-0320
Fax +1-949-863-0331
E-mail info@hitex.com

Hitex UK
Warwick University Science Park GB-Coventry CV4 7EZ
Tel. +44-24-7669-2066
Fax +44-24-7669-2131
E-mail info@hitex.co.uk

Hitex Asia
25 International Business Park, #04-62A German Centre Singapore 609916
Tel. +65-6566-7919
Fax +65-6563-7539
E-mail sales@hitexasia.com.sg

This brochure is intended to give overview information only. Since our policy is one of continuing development, changes and technical enhancements are possible. Trademarks of other companies used in the text refer exclusively to the products of these companies. Hitex, HiSIM, HiTOP, DProbe, JProbe, USB Agent, Tanto and Tantino are trademarks of Hitex Development Tools GmbH. Copyright ©2004.

Embedding Software Quality