



Blueprint

News and Innovations

Wireless Debugger	1
testIDEA Pro 1 User Floating License	2
testIDEA: What's hot?	2
winIDEA OPEN	3
Semiconductor News	3
iC6000 Special	4
AUTOSAR OS from Erika Enterprise	5
Connectivity Special	6
LieberLieber-UML Debugging	6
Timing Architects-Multicore	6
AdaCore-Code Coverage	7
Razorcat-Unit Test	7
Renesas-Starter Kit	7
Vector Informatik-XCP	7
Infineon- DAVE	7
The Last Page	8

WIRELESS DEBUGGER-WHAT'S AVAILABLE TODAY?

Since a couple of month iSYSTEM launched the wireless debugger era. For now the wireless part is handled by a Bluetooth connection. In the near future, iSYSTEM will release a WiFi version of this platform too. For now all the necessary information can be found on iSYSTEM's web page:

[Technical Notes Wireless Debugger for Cortex-M, supported Cortex derivatives](#), etc.

[Hardware Reference Manual Wireless Debugger](#)

The official launch of the product was end of February 2014 at Embedded World in Nuremberg, Germany. Anja Visnikar (a member of the iSYSTEM software development team) presented iSYSTEM's wireless debug solution @Embedded World Conference . This presentation is also documented in a technical [article available from iSYSTEM's web page](#).



How to license a wireless debugger? Two options:

- License is stored in the Bluetooth Dongle
- License is stored in the Debugger Hardware



iSYSTEM's Bluetooth Debugger (order # IW-IONE-BT-

CORTEXM) comes as a bundle of different components (bundle price is EUR 2.900):

- Bluetooth Dongle (IW-BRIDGE-BT1)
- Debugger Hardware (IW-IONE-BT101)
- winIDEA/testIDEA Standard license
- Update/Support Standard Service (1 year)

Additional Debugger Hardware can be purchased for EUR 500 each. A Bluetooth Dongle can be paired with every wireless debugger hardware.

Did you know that you may order an optional 12V power supply for Car (cigarette lighter) plug using ordering code „IC30000-PS-CAR12V“ ? It works for any blue box.



TESTIDEA PRO 1 USER FLOATING LICENSE



Since April 2014 iSYSTEM does provide a testIDEA Pro Dongle version. It is similar to a 1-user floating license done in software and costs EUR 4.950 including the dongle.

If a different floating license is required, a certain

discount applies (please contact [iSYSTEM's sales team](#)):

- Usable on every PC running winIDEA
- Flexible combination with any blue box
- testIDEA use with simu-

lators possible (without blue box and target)*

* iSYSTEM tools currently come with an ARM and MPC instruction set simulator. It is planned to integrate 3rd party simulators in the near future.



MORE TESTIDEA—WHAT'S HOT?

Machine / Object code level testing

testIDEA is an application for embedded software testing of machine/object code. It complements iSYSTEM's debug and analyzer tools for embedded software development with testing and test automation functionality. In combination with an instruction set simulator, testing can also be performed on a PC without connecting to the target.

The powerful and generic scripting interface allows automating tests very easily. Standard script language within iSYSTEM tools is Python.

Eclipse plug-in:

testIDEA is implemented in JAVA. So running it under Eclipse is a logical thing. iSYSTEM now provides an Eclipse version of testIDEA.

Multicore support:

With multi-core target MCUs, a need to run tests on a specific core appears. To be able to utilize multi-core testing, one must first properly configure testIDEA.

1. Configure Core IDs

Each core is identified by its index. To make this identification more user friendly, one can assign a name to each core in project properties (File | Properties | Multicore configuration). The comma separated list contains a list of core IDs, where the first item refers to the core with index 0 or primary core, the next item refers to core with index 1, and so forth.

2. Initialization Sequence

With more than one core the initialization sequence becomes more complex. The init sequence for all winIDEA instances per cored has to be entered into a *Run configuration* dialog (Run | Run configuration) within testIDEA.

3. Assign Core ID to a test case

The final step is defining a core ID for each test case.

System test support

In contrast to unit tests, which test the behavior of a function, *system tests* verify the behavior of a complete system or parts of the system which are greater than a single function. The test scope can be specified in the *Meta* section of the Test Case Editor.

The main difference to unit tests are target start and stop conditions. While unit tests define the test start as a function entry, and test end as a function exit, *system tests* have no such clear definitions of test start and stop, so a user has to define them explicitly. To start the test at a specific point, one defines the section *Init test*, and to end the test one defines the section *Stop test*.

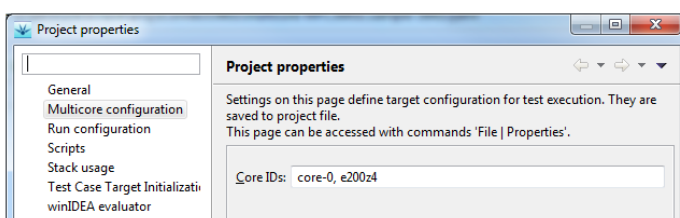
Test points

Test points enable a user to pause test execution at any location in the tested code, and perform the following actions:

- Verify the values of variables to test the internal state during function execution
- Assign values to variables to test the behavior under conditions, which can not be triggered otherwise, for example to implement [fault injection](#)
- Log values of variables to be reference anytime later.
- Run script function for performing any kind of action

You want to check what else is new: [Link to log file \(all changes, new features, etc.\)](#)

More Information:
isystem.com/downloads/testIDEA/help/



WINIDEA OPEN

A year ago iSYSTEM did launch a complete line of Cortex-M development tools. A line of hardware platforms spanning zero cost to a high end analysis platform is complemented by a powerful software sui-



te winIDEA/winIDEA Open and testIDEA. winIDEA Open is completely free, without code size limitation and operates with popular third party hardware. testIDEA a test test tool



requiring no code instrumentation rounds up this unique toolsuite.

What's new?

- Compiler support: GCC unlimited, all other compilers can be used and tested based on a 32Kbyte download limit
- Cortex [Example Projects on the web](#) for boards from Infineon, ST Microelectronics, Freescale, Spansion and NXP (more to follow)

- winIDEA Open is now integrated in Infineon DAVE™ ...

What is [Infineon DAVE™](#)? Eclipse IDE Framework, Code Generation Environment, it is from Infineon and integrates iSYSTEM tools ... click on the logo for more information about DAVE™.



iSYSTEM provides a free debugger, winIDEA Open that can be installed in DAVE™ to enhance the debugging capabilities in DAVE™.

[DOWNLOAD TUTORIAL](#)

More Information:

isystem.com/download/winideaopen



Explore a simple Cortex-M debugger hardware from iSYSTEM:

isystem.com/itag

Or



SEMICONDUCTOR NEWS

Renesas

winIDEA for Renesas E1 is available since a couple of weeks. Now Renesas bundled iSYSTEM's Embedded Software Development Environment with their newest Starterkits for RH850F1L.

Freescale

iSYSTEM @Freescale Events:

- DwF Poland (June 24, 2014)
- Abendseminare Friedrichshafen (September 2014), Sindelfingen (October 2014)

Infineon

iSYSTEM @Infineon Events,:

- XMC Developer Day, Munich 25.6., Milano 1.7.

MISC

Every month we do release support for a huge number of MCUs →

<http://www.isystem.com/supported-mcus/tricore>
Infineon TriCore
TC233LP, TC234LP, TC237LP, TC274D, TC274DE

<http://www.isystem.com/supported-mcus/cortex>
Freescale Kinetis Cortex M3
MKL26Z32, MKL26Z64, MKL26Z128, MKL26Z256

<http://www.isystem.com/supported-mcus/cortex>
Fujitsu Cortex M3
MB9BF506, MB9BF521, MB9BF522, MB9BF524, MB9BF566, MB9BF567, MB9BF568

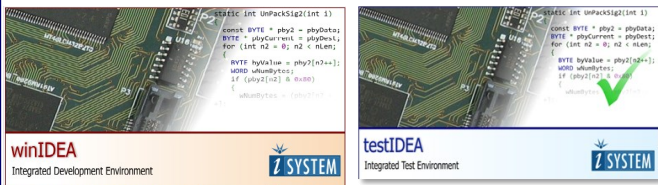
<http://www.isystem.com/supported-mcus/cortex>
NXP Cortex M3
LPC1517, LPC1518, LPC1519, LPC1547, LPC1548, LPC1549

<http://www.isystem.com/supported-mcus/cortex>
ST Cortex M3
STM32F302CB, STM32F302CC, STM32F302RB, STM32F302RC, STM32F302VB, STM32F302VC, STM32F303CB, STM32F303CC, STM32F303RB, STM32F303RC, STM32F303VB, STM32F303VC, STM32F373C8, STM32F373CB, STM32F373CC, STM32F373R8, STM32F373RB, STM32F373RC, STM32F373V8, STM32F373VB, STM32F373VC

<http://www.isystem.com/supported-mcus/cortex>
Fujitsu Cortex R4
MB9EF226, MB9DF126

... and much more ... Check out www.isystem.com/supported-mcus

ARM	Cortex-R	Cortex-A	Qorivva Sixx	QorIQ	MC5806
ARM7/ARM9	Cortex-M	MC3812(x)	Freescal		
LPC4xx	ALURIX™	STM32	STMicroelectronic	LM3	S12Z Hybrid
NXP	LPC1xx	rh850	TMS570	Kinetics	FMS
78KOR	RL78	Renesas	STM8	SH214	XC800
Infineon	RBC3x	MSP430	XILINX	TriCore™	Zynq
XMC4000	XC2000/186	XILINX	STM32	SUPPORTED MCUS	OMAP



iC6000

With Aurora Protocol Support

iSYSTEM Real-time Embedded Software Development, Test and Measurement Tool Platform



HIGHLIGHTS AND FACTS

iC5000 platform:

- Debug: JTAG, DAP, DAP2, ...
- Trace: NEXUS, ETM
- All architectures
- Optional IO Module

iC6000 platform:

- Debug: JTAG, DAP, DAP2, ...
- Trace: Aurora
- Infineon TriCore (Aurix)
- Freescale Qorivva (57xx, ...)

Two Debug/Trace Module (DTM) Options:

- AURORA/DAP for Infineon AURIX (order # IC60023)
- AURORA/JTAG for Freescale Qorivva Power Architecture (order # IC60022)

AURORA Trace

- Max. Configuration: 8 Rx Lanes, 4 Tx Lanes
- Freescale: up to 4 Rx Lanes at 1.25 GHz, i.e. up to 4 x 1.25 GBit/s = 5 GBit/s
- Infineon: 1 Rx Lane at 2.5 GHz, i.e. up to 2.5 GBit/s

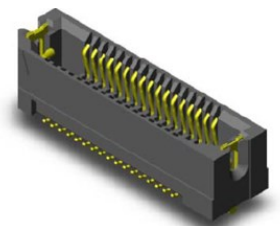
Trace Memory

- 8 GByte
- Connectivity
- USB 3.0 (4.8 GBit/s) or Ethernet

Two Cable Option according to the MCU family in use:

- 22-pin High-speed Aurora cable (order # IC60040) to connect to Infineon AURIX
- With Samtec 22-pin debug connector

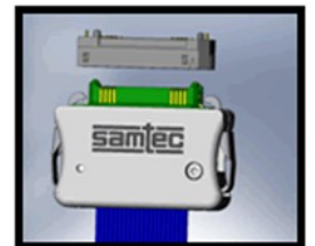
- A matching part from Samtec to be put on the target (e.g., ASP-137969-01)
- 34-pin High-speed Aurora cable (order # IC60041) to connect to Freescale MPC57xx or SPC57xx
- With Samtec 34-pin debug connector
- A matching part from Samtec to be put on the target (e.g., ASP-137973-01)



For mor information:

Technical Notes iC6000 Debug and Analyzer Platform for AURORA Debug and Trace:

- [Freescale MCUs](#)
- [Infineon MCUs](#)
- [Hardware Reference Manual iC6000](#)



Use-Case	JTAG	DAP2	AURORA
Debug	OK	OK	-
	Very slow	OK	Best
Trace	Actual max: 3MHz Max	Actual max: ~45MHz Theoretical: 160MHz	2.5GBit/s ~290MBytes/s

AUTOSAR/OSEK OS AWARENESS

Developing embedded software based on a Real-Time Operating System (RTOS) can be supported by the debugger making it aware of the underlying RTOS. In other words, the debugger understands the structure of the RTOS and its elements such as tasks, interrupts, alarms, etc..

For applications, based on an AUTOSAR/OSEK compliant OS such as ERIKA Enterprise, the OSEK Run-Time Interface (ORTI) file is a method for describing the structure of the RTOS to the debugger. By reading in the ORTI file generated by the RTDRUID when building an ERIKA-based application, the winIDEA debugger becomes ERIKA Enterprise OS-aware.

ERIKA Enterprise OS awareness provides the following features:

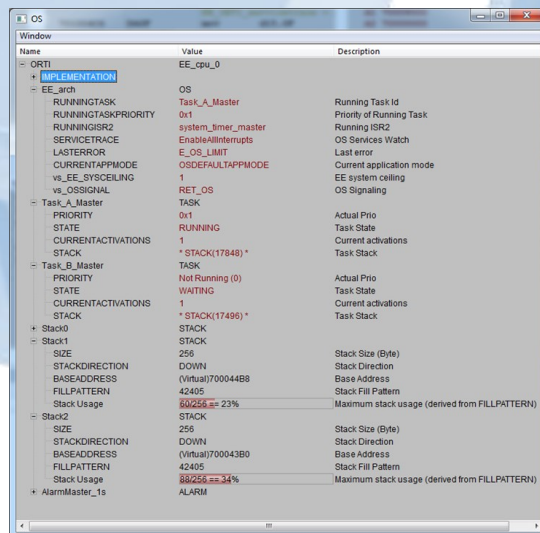
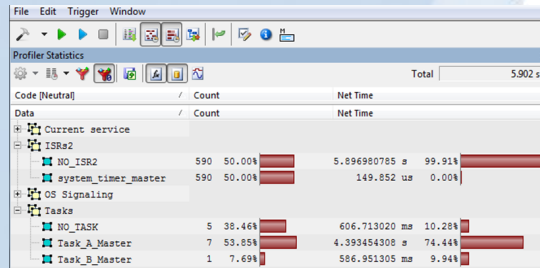
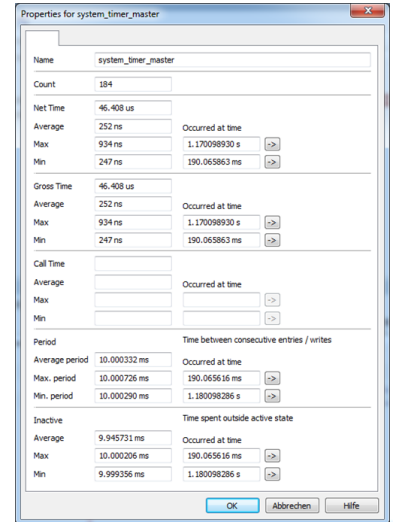
Display of OS Resources and Status. A dedicated window of the winIDEA IDE reports the resources and the current status of the ERIKA Enterprise OS. This includes:

- Currently running Task
- Currently running ISR
- Status of each Task
- Stack Utilization for
- Etc.

ERIKA Enterprise OS objects selected by the user are recorded and displayed by the winIDEA Profiler.

- Analysis of CPU Utilization (Profiler Statistics) of Tasks and Interrupts (ISR Category 1 and 2). The Trace Analyzer of winIDEA also provides statistical information about OS objects, such as Tasks and Interrupts.

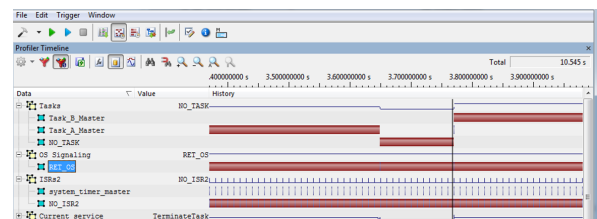
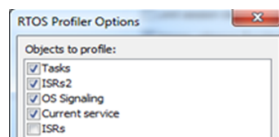
- Min/Max/Avg Net and GrossTime
- Min/Max/Avg Call Time
- Min/Max/Avg Perio




iSYSTEM tools do support all AUTOSAR/OSEK Operating Systems available on the market today

Run-Time Analysis (Profiler Timeline) of Tasks and Interrupts (ISR Category 1 and 2). The Trace Analyzer of winIDEA automatically configures the on-chip trace logic of the micro controller, based on the information provided by the ORTI file. The state changes of all

A right-mouse click on the selects OS object opens a Properties window, which summarizes all Timing Information such as



Testing	Semiconductors	RTOS
3rd Party Debugger Hardware		Multicore
		Measurement
UML		
system.com/download/winidea-testidea-apis		
Simulation	Modelling	Diagnostics
Scripting	Calibration	Starter Kits

Connectivity

iSYSTEM Partner Network

Our vision is to easily enable developers and testers to use embedded development and test tools from iSYSTEM within the complete development process. Our mission is to develop and produce development and test tools for real-time embedded applications. We provide high

quality products, services and support as well as modular and easy to use products. Connectivity to other products along the design-V enables our customers to seamlessly integrate iSYSTEM tools into their development process. The success of

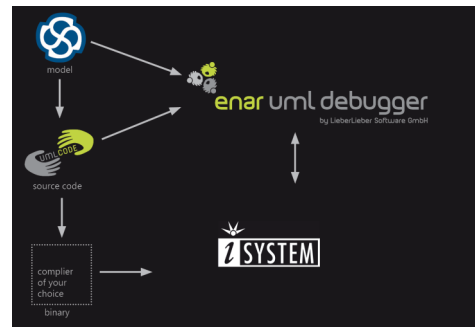
such a strategy also depends on partners who follow and live the same strategy. In the last couple of years, iSYSTEM worked together with different embedded tool and solution providers to implement a generic approach of connectivity

along the embedded software / hardware development and test process. All connectivity is based on iSYSTEM's [Generic Tool API system.connect](http://system.connect).



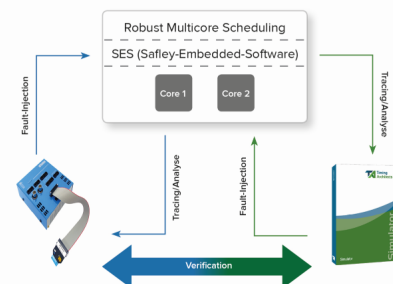
LIEBERLIEBER—UML DEBUGGING

LieberLieber Software and iSYSTEM cooperate to provide a seamless tool chain for testing and debugging of embedded software at the model level. This enables embedded systems software developers using model-based UML tools, to test and debug directly in the model.



TIMING ARCHITECTS—MULTICORE

iSYSTEM is co-operating with Timing-Architects as well as research institutes in order to address future challenges of multicore embedded system development and test. Current ZIM project is named Zelos3 ...



ADACORE – CODE COVERAGE

iSYSTEM has worked with AdaCore to facilitate the integration of Nexus Program Trace message data into AdaCore's GNATcoverage product, providing a coverage analysis tool which works with non-instrumented code running on the actual target hardware.

[AdaCore Releases New Version of GNATcoverage Dynamic Analysis Tool](#)

In this press release AdaCore announced the release of GNATcoverage 1.2, the latest version of its source and object code coverage analysis tool. GNATcoverage's innovative technology

does not require instrumentation of the executable, and this new product release supports usage with an iSYSTEM hardware probe generating Nexus trace data. For the full press release, please click on the link within this paragraph.



RAZORCAT – UNIT TEST

TESSY V3.1 features an interface to the iSYSTEM Test Tools. Using this interface, TESSY V3.1 can be used to perform unit tests

on the unchanged user application (Original Binary Test, OBT). This combination allows using the comfortable test data input and

management features of TESSY together with the test execution on the target hardware by iSYSTEM Tools.



RENESAS – STARTER KIT FOR RH850/F1L

Renesas Starter Kit for RH850/F1L including winIDEA for Renesas E1 Debugger.

[Starter Kit User's Manual](#) (page 20).

[Getting Started with winIDEA for Renesas E1](#)

For more information about licensing winIDEA for Renesas E1, please contact sales@isystem.com.



VECTOR INFORMATIK – ECU TEST, XCP

XCP Integrated Software Development with iSYSTEM and Vector Tools - Development, measurement, test and calibration of embedded software through any debug interfaces and for a variety of microcontroller

iSYSTEM AG supports the Universal Measurement and Calibration Protocol (XCP) in its integrated development environment winIDEA. It is a standard plug-in within winIDEA. winIDEA implements XCP

slave functionality. It supports XCP over TCP/IP and XCP over UDP/IP. An XCP master can connect to [winIDEA in order to perform measurement and calibration](#) on the connected ECU.



INFINEON – DAVE™

iSYSTEM provides a free debugger, winIDEA Open that can be installed in DAVE to enhance the debugging capabilities in DAVE™.

DOWNLOAD TUTORIAL

DAVE™ is a high-productivity development platform for the XMC

microcontroller families to simplify and shorten SW development. With DAVE™ developers can generate the SW library to efficiently use the innovative application-optimized peripherals. Code generation is based on predefined and tested application-oriented SW components, called DAVE™

Apps. DAVE™ Apps are SW building blocks for a wide range of application use cases. The generated code can be used via well documented APIs directly in DAVE™ or can be imported in 3rd party compiler tools



There are much more solutions from within the iSYSTEM tool partner ecosystem →



iSYSTEM AG für
Informatiksysteme
Carl-Zeiss-Str. 1
85247 Schwabhausen
Germany

Phone: +49(8138)6971-0
Fax: +49(8138)6971-46

E-mail: info@isystem.com
Web: www.isystem.com

Commercial register of the
local courts (Amtsgericht)
München HRB 148751
VAT identification number:
DE128231221

Board of Management:
Erol Simsek, Werner Fischer,
Martin Gröstenberger

Responsible for the content
§ 10 Absatz 3 MDSStv:
Erol Simsek

THE LAST PAGE – ABOUT ISYSTEM

iSYSTEM is a privately held company headquartered in Germany, close to Munich. Since its foundation in 1986, iSYSTEM is an independent manufacturer and provider of embedded software debugging and test tools. Beside standard products iSYSTEM offers development and production services for custom designs, projects and OEM products.

iSYSTEM's Blue Box Technology stands for fast and easy microcontroller access via any kind of microcontroller debug interface. No matter whether one is developing, debugging or testing embedded software on a real target system. iSYSTEM's open and integrated Debug and Test Software enables engineers to drive a Blue Box and the corresponding development.

iSYSTEM maintains long standing and close relationships with all major semiconductor, operating system and compiler companies worldwide. This guarantees quick tool availability and the highest level of integration.

iSYSTEM is a ISO9001:2008 certified company.

"We are continually impressed with how much energy and passion our teams tackle the challenges of the iSYSTEM prospects and customers world-wide"

R&D and Manufacturing Slovenia



**iSYSTEM Germany:
Support, Systems
Engineering, Logistics,
Sales, Marketing**