

User Interface  
**HiTOP**  
Debugger  
and IDE



Embedding Software Quality

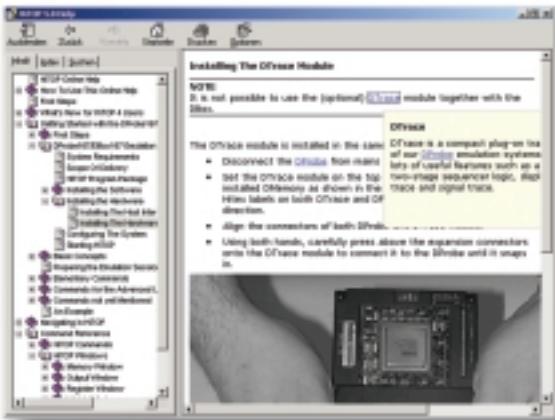


# The modern, intuitive user interface

## One Interface For All Tools

HiTOP is the universal user interface for all our development tools. It was developed by Hitex expressly for use with Hitex test and analysis tools like in-circuit emulators and simulators, and is tuned to take full advantage of the Hitex emulator hardware.

HiTOP provides complete high-level language debugging and rapid access to all emulator resources. Powerful test scripts and automated test environments can be created with HiSCRIPT, an extensive command language. Various helpful tools from other vendors work with HiTOP and extend the functionality of HiTOP in numerous ways.

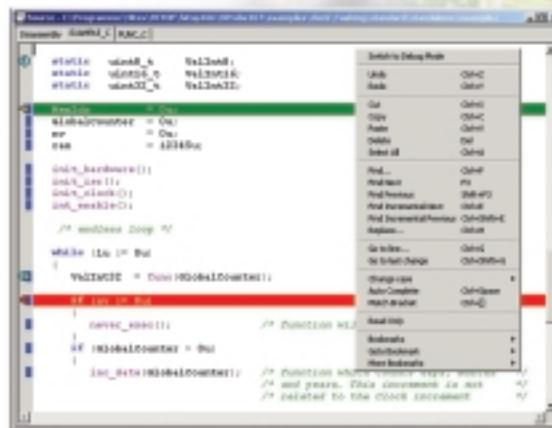


*Hypertext links enable fast access to the information you need*

## Sophisticated Operating Concept

HiTOP will make your life a lot easier when working with in-circuit emulators from Hitex. In fact, in-circuit emulation systems are extremely powerful debugging tools. Their operation requires understanding of the features an in-circuit emulator provides. These features may be combined to achieve debugging goals such as "break if a variable is written with a certain value".

HiTOP remedies these operational shortcomings by introducing new operating concepts aimed at making the in-circuit emulator much easier to operate. Among these concepts are:



*The Source window integrates an editor featuring syntax coloring*

## Standardized Operation

HiTOP provides all the well-known interface elements used in almost every modern user interface, such as docking windows, toolbars, standard menu layout, dragging and dropping (e.g. variables can be dragged from the Source window and dropped into the Watch window to display their contents in the Watch window), hotkeys, etc. Especially novice users will benefit from this intuitive user interface.

## Well-designed Interface

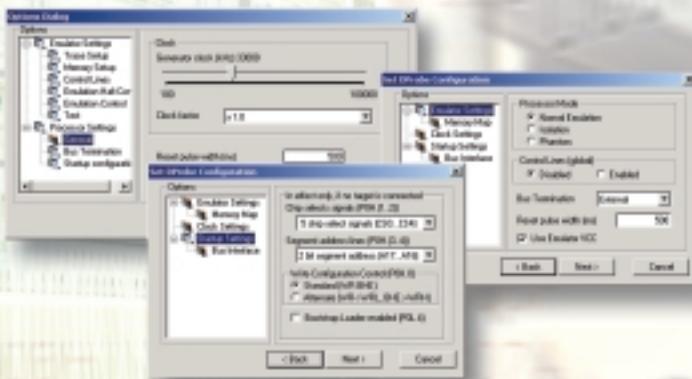
Everything's where you expect it to be!

The structure of the user interface has been arranged such that the user can easily find all functions required to perform a certain task. In general, all settings are accessible from one place in the user interface, so nothing can be overlooked.

# Smart emulator features ease debugging

Smart Emulator - User Guidance

HiTOP guides the user through all dialogs regarding the setup or a specific task. The number and order of the dialogs may vary, depending on the settings previously made. This guarantees that nothing is omitted and all settings are consistent.



*HiTOP gathers all project information by leading the user through a series of dialogs*

An initial emulation session usually starts with setting up a project. Here, HiTOP leads the user through a series of dialogs where all settings of the project are specified. HiTOP saves this information in a project file so you can jump-start your next debug session.



*Watch window tabs can easily be edited to display user-definable labels*

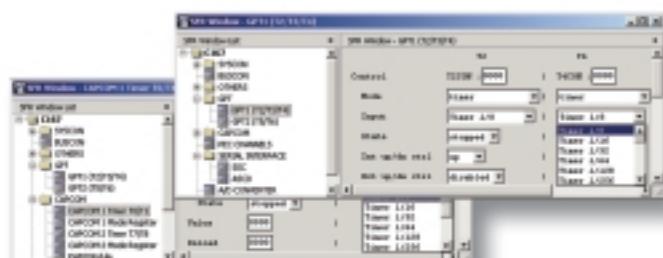


*The symbol tree provides easy access to applications, modules, functions, global and local variables*

## Smart Emulator - Any Suggestions?

In case HiTOP cannot rely on that the information available is sufficient or correct, it will make a suggestion, making it easy for the user to accept or reject it and to perform the necessary changes.

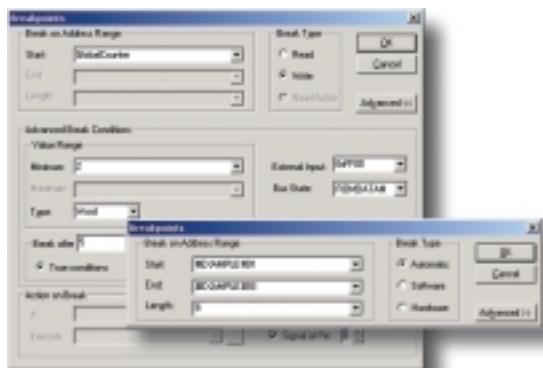
HiTOP uses the application's symbol information to determine the memory areas the application will use. It will then suggest an appropriate mapping for the emulation memory for code and data, for example. However, the symbol information does not include all the required information in any case, e.g. with respect to heap memory. In addition, it's up to the user to decide whether emulation memory or target memory is to be used. This is a major advantage over the manual setup by the user.



User-definable windows allow the „plain text“ access to the Special Function Registers (SFR) of the microcontroller

## Smart Emulator - Intelligent Resource Manager

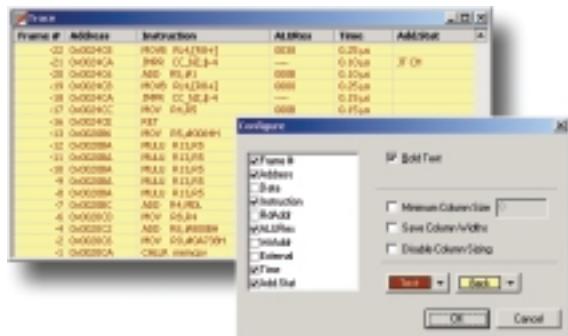
HiTOP manages the resources of the in-circuit emulator in an intelligent way, thus freeing the user from selecting the appropriate emulator feature. An example: A normal code breakpoint halts the emulation when a specific instruction of the application is executed for the first time. HiTOP automatically selects the optimal feature provided by the specific emulator or microcontroller for this purpose, e.g. a software breakpoint, a breakpoint established by the hardware breakpoint logic of the in-circuit emulator, or a breakpoint implemented by the on-chip debug system of the microcontroller. The selected kind of breakpoint heavily depends on the respective emulator or microcontroller in use.



**A standard data breakpoint can easily be extended to much more complex break conditions**

If the user now wishes the same breakpoint to halt the emulation not on the first occurrence, but, say, on the fifth, the user simply extends the definition of the already existing breakpoint. HiTOP takes care of the necessary actions, which may seem as simple as changing the setup of a breakpoint realized by the on-chip debug system of the microcontroller.

However, this can be as complicated as removing the breakpoint from the hardware breakpoint logic of the in-circuit emulator and reestablishing this breakpoint using the hardware trigger logic of the in-circuit emulator, and issuing an appropriate error message in case all hardware trigger resources are already in use.



**The trace window is one of the windows that can be highly customized**

## Command Language For Automation Of Testing And Remote Control

HiTOP features a command language called HiSCRIPT. This integrated command language has a C-like control structure which lends itself to the efficient generation of test and other automated routines, such as complex queries and test harnesses, plus end of production line testing.



**HiSCRIPT files can be assigned to toolbar buttons for convenient execution**

Via the Remote Control Interface (RCI) of HiTOP, any remote program may control the in-circuit emulator by using HiSCRIPT.



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