

Using DAC with Hitex HiTOP RCI Debugger



Software Development, Quality and Documentation Tool



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Corporate Headquarters

RistanCASE GmbH
Zielackerstrasse 19
CH-8304 Wallisellen-Zurich
Switzerland

Telephone: +41 (0) 1 883 35 70
Fax: +41 (0) 1 883 35 74

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

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I Requirements

NOTE:

This technical note only provides information on how to configure DAC to facilitate your work with the HiTOP V4.xx RCI debugger, for which the document has primarily been written. For further information on DAC, please refer to "Development Assistant for C" documentation V4.0.

- **DAC - V4.0.055 or later** - (Development Assistant for C - RistanCASE). The latest version, with Demo Mode license included, can be downloaded from the following URL:
http://www.RistanCASE.com/dac/v40/dac_download.php

If you are running DAC in Demo Mode, you can easily obtain a trial license and enjoy all the comforts of DAC for two weeks! For more details, choose **Technical Support** from the **Help** menu.

- **HiTOP debugger V4.10 RCI or later** (Hitex Systementwicklung GmbH).

In the following sections, it is assumed that your HiTOP tools have been installed in the "*C:\Program Files\Hitex\Hfw_6812*" folder. In the text that follows, this folder will be referred to as the "HiTOP folder." You may have to adapt the paths used in the example provided to match your current installation paths.

It is also assumed that DAC has been installed in the "*C:\Program Files\RistanCASE\Development Assistant for C*" folder, which does not have to be in the system PATH. In the text that follows this folder will be referred to as the "DAC folder."

2 Configuring DAC

Via its **DAPI (Debugging support Application Programming Interface)** plug-in system DAC supports the possibility of cooperation with different debuggers, that is, debugging-oriented IDEs. The cooperation leads to attaining new quality that could not be achieved by either DAC or a separate debugger, or its environment.

On the other hand, the debugger offers the possibility of keeping track of, and controlling the program execution. DAC uses the features offered by the debugger, and adds rich-in-features integrated environment which, among other things, offers the project maintenance, call-graph display, flowchart display, intelligent overview of the project on the basis of the information obtained by its C analysis and integration with VCS systems, and so on. DAC does not support all the features of the debugger, but only the most general and the most often used ones.

The HiTOP's Plug-In system provides functionalities for keeping track of and conducting the debugging process. These functionalities have been used for the integration with DAC.

To make the most of your HiTOP V4.xx RCI debugger with DAC, these are the steps to follow:

- [Installing communication DLLs](#)
- [Configuring Debugger Support in DAC](#)
- [Configuring Debugger Support in HiTOP](#)

2.1 Installing communication DLLs

The communication between DAC and HiTOP is based on the TCP/IP protocol. It established by the means of:

- HiTOP DAC PlugIn ("*Cdh4xrci.dll*"),
- HiTOP Remote Control Interface ("*Rci.dll*"), provided by Hitex.

Both "*CDH4xRCI.dll*" and "*Rci.dll*" files are installed during the DAC installation process. They are located in the "*Program*" subfolder of the DAC folder.

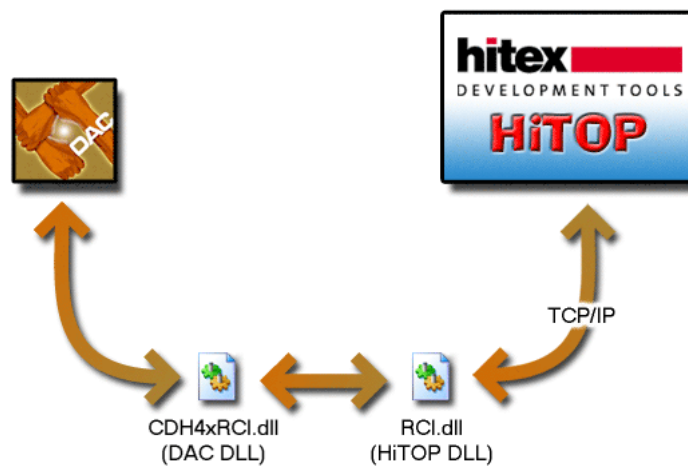


Figure 2.1 Communication between DAC and HiTOP

2.2 Configuring Debugger Support in DAC

The **Debugger Options** dialog box, has four tabs:

- [Debugger](#)
- [Connection](#)
- [Project Dependent](#) and
- **About Plug-In.**

2.2.1 Debugger

On the **Options** menu, click **Debugger** to open the **Debugger Options** dialog box, and then click the **Debugger** tab.

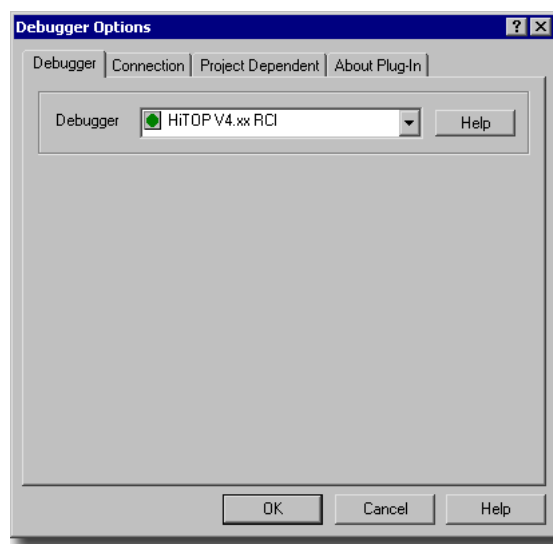


Figure 2.2 Selecting the Debugger

In the **Debugger** box, select the corresponding debugger: "Hitex HiTOP 4.xx RCI".

2.2.2 Connection

On the **Options** menu, click **Debugger** to open the **Debugger Options** dialog box, and then click the **Connection** tab.

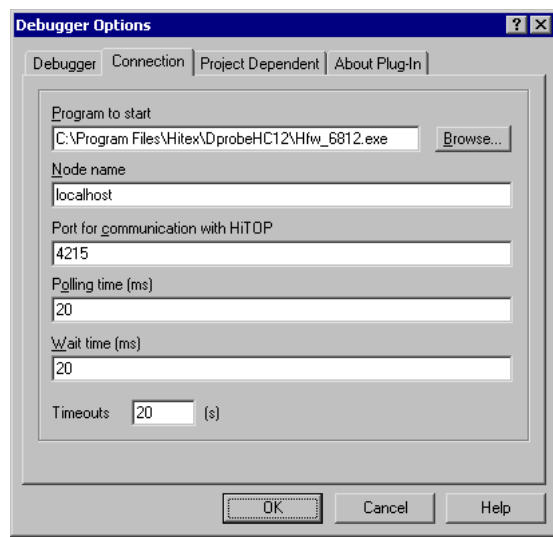


Figure 2.3 Debugger Options - the Connection tab

Program to start

In the **Program to start** box, specify the path and name of the HiTOP executable.

Node name

Please enter the Node name of the host where HiTOP is running. If HiTOP runs on the same workstation as DAC, enter "localhost".

Port for communication with HiTOP

The value specified in this box determines which TCP/IP port is used by DAC for sending commands. Answers can be expected at the port whose number is higher by one. The default value is 4215.

Polling time

In regular time intervals DAC checks whether HiTOP has sent a status change message. The value in the **Polling time** box specifies the length of that interval. The default value is 20ms.

Wait time

When DAC sends out a command to the debugger, it waits for it to reply. The value in the **Wait time** box specifies for how long DAC waits for the HiTOP debugger to reply. The default value is 20ms.

Timeouts

When DAC terminates a connection with the HiTOP debugger, it sends out an end of synchronization request, and waits for the HiTOP debugger to reply. The value in the **Timeouts** box specifies how long DAC has to wait for the HiTOP debugger to reply.

If the end of synchronization signal is not received within this period, DAC considers the connection terminated. The default value is 20s.

2.2.3 Project Dependent

On the **Options** menu, click **Debugger** to open the **Debugger Options** dialog box, and then click the **Project Dependent** tab.

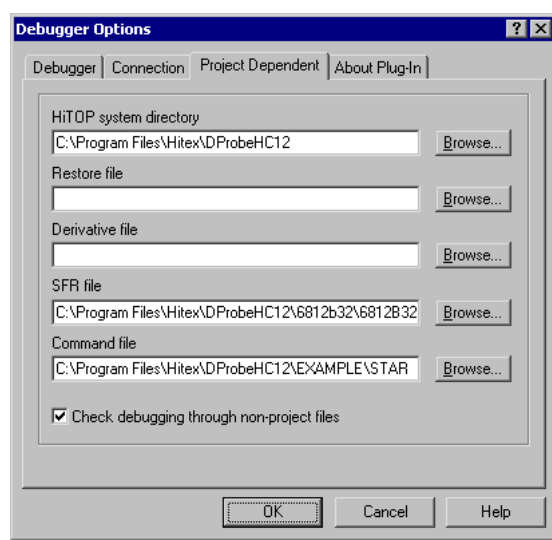


Figure 2.4 Debugger Options - the Project Dependent tab

The **HiTOP System Directory**, **Restore file**, **Derivative file**, **SFR file** and **Command file** values can be assigned here. For additional information on the purpose and contents of these files and folders, please consult HiTOP documentation.

- **Check debugging through non-project files**

During the process of debugging HiTOP debugger and DAC are synchronized.

Setting or removing breakpoints or stopping the emulation process can be done from both HiTOP and DAC.

When the **Check debugging through non-project files** option is selected, DAC issues a warning every time such an event happens in a file that is not included in the current DAC project.

For instance, if using the HiTOP debugger, the breakpoint is set within a file that is not included in the current DAC project, DAC issues a warning.

2.3 Configuring Debugger Support in HiTOP

Open the "*hfw_6812.ini*" file located in the [HiTOP folder](#), and edit or create the following section:

```
[HiSCRIPT Remote]
Activate=1
Port=4215
DebugLevel=0
```

The value assigned to the Port (in the line containing text "Port=4215") must match the value set in the [Port for communication with HiTOP](#) box in the [Connection](#) tab of the **Debugger Options** dialog box in DAC.

3 Synchronized Debugging

To test the synchronization between DAC and HiTOP, these are the steps to follow:

- Open the project in DAC.
- Select one of the executable lines in the code.
- On the **Debug** menu, click **Set Breakpoint**, or click the corresponding button on the **Debug** toolbar ([Figure 3.1.](#))

The selected line is marked in configurable color, indicating that a breakpoint has been set.

- On the **Debug** menu, click **Run**.

HiTOP has now been started; after a certain period of time, it will stop on the specified breakpoint.



Figure 3.1 Toolbar with the debugger commands (from left): Synchronize, Run, Stop, Step Into, Step Out, Step Over, Go Until, Set Breakpoint, Clear Breakpoint.

The debugging process can now be carried out from both DAC and HiTOP.

4 Troubleshooting

Possible problems and ways to overcome them:

<i>Problem</i>	<i>Answer</i>
<i>You are trying to select HiTOP, but there is no "Hitex HiTOP V4.xx RCI" in the Debugger combo-box.</i>	Check DAC Version and release number. Check the folder in which you have installed DAC for necessary DLL's. HiTOP support in DAC has also probably not been licensed. If this is the case, please contact your supplier.
<i>DAC displays the alert message box with the message "External debugger tried to connect to a DAC project dissimilar to the one configured!"</i>	This means that the name currently specified in the Debugger box of the Debugger Options dialog box does not match the debugger name. DAC has made an attempt to connect to some another debugger, not the HiTOP. Please refer to section Configuring Debugger Support in DAC .

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