Hitex Emulator Target Interface

Product Manual	Manual Date
HITEX Emulator Target Interface	Nov 2002

Contents

Hitex Target Interface

Overview

This document helps you become familiar with and use the *Hitex* Target Interface. This document consists of these sections:

- The *Hitex Target Interface Demo* section answers common questions and describes how to use advanced features of the *Hitex* Target Interface.
- The *Introduction* section introduces the *Hitex* Target Interface concept.
- The *Working in parallel in HI-WAVE and HiTOP* section describes how you can use *HI-WAVE* and *HiTOP* together.
- The *Interfacing Your System and the Debugger* section describes the connection between the in-circuit emulator and the debugger.
- The *Hitex Target Interface Menu Entries* section describes the *Hitex* Target Interface specific menu entries.
- The *Hitex Target Interface Dialogs* section describes the *Hitex* Target Interface specific dialog boxes.
- The *Status Bar Information for the Hitex Target Interface* section describes the status bar messages of the *Hitex* Target Interface.
- The *Hitex Target Interface Environment* section lists all the variables this target interface uses to store the configuration.
- The *Hitex Target Interface Command Files* section describes all the *Hitex* Target Interface command files.
- The *Hitex Target Interface Commands* section lists all the *HI-WAVE* commands specific to this target interface.
- The Index contains all keywords of the *Hitex* Target Interface.

Highlights

- The *Hitex* Target Interface currently supports these in-circuit emulators from *hitex DEVELOPMENT TOOLS*:
  - Motorola HC12 *hitex DEVELOPMENT TOOLS* in-circuit emulator: DProbeHC12-A, DPRobeHC12-B, and DProbeHC12-DG. Watchpoints are possible for the *DBox16* or *DBoxHC12* base unit.
  - Motorola HC08 *hitex DEVELOPMENT TOOLS* in-circuit emulator.
  - STMicroelectronics ST7 *hitex DEVELOPMENT TOOLS* in-circuit emulator.
- The *Hitex* Target Interface supports parallel debugging with the *HI-WAVE* and the *HiTOP debugger*. You can load an application in *Hitex File Format* from the *HI-WAVE* debugger, with or without *HiTOP* debugger symbols.
- The *Hitex* Target Interface supports memory banking for the *M68HC12A4* and *M68HC12DG128*.

Requirements

- A debug system from *hitex DEVELOPMENT TOOLS* normally consists of an in-circuit emulator and *HiTOP*, the user interface for all in-circuit emulators available from *hitex*. To use the *Hitex* Target Interface, you must install the *HiTOP* debugger from *hitex DEVELOPMENT TOOLS*. For more information about communication between *HI-WAVE* and *HiTOP*, please see the section *Interfacing Your System and the Debugger*.
- The *HiTOP* debugger from *hitex DEVELOPMENT TOOLS* must support the *Remote Control Interface* in order to communicate with *HI-WAVE*.

Hitex Target Interface Demo

Debugging with the Hitex Target Interface

This section is an overview of debugging with the *Hitex* Target Interface.

This interface lets you download an executable program from the *HI-WAVE* environment to the emulation memory. It provides feedback of the real target system behaviour to *HI-WAVE*.

HI-WAVE fully supervises and monitors the target system. That is, *HI-WAVE* control the CPU execution. You can read and write to memory; you can single-step, run, or stop the CPU; you can set breakpoints in the code.

> *Note:* ***Uninvolved Components*** *As an external MCU executes the code, the Hitex Target Interface cannot provide memory statistics. This means that you cannot use the Hitex Target Interface for profiling, coverage analysing, or I/O simulation.*

Preparing the HiTOP Debugger to Communicate with HI-WAVE

To make communication possible between the in-circuit emulator and *HI-WAVE*, you must load the *HiTOP* debugger program of the *hitex DEVELOPMENT TOOLS*.

You must set up the *HiTOP* debugger for use with a remote control, such as *HI-WAVE* which uses the Remote Control Interface (RCI).

The *HiTOP* debugger **`.INI`** file must be in the directory where you installed *HiTOP*:

- **`HFW_6812.INI`** for Motorola HC12
- **`HFW_6811.INI`** for Motorola HC08
- **`HFW_6811.INI`** for STMicroelectronics ST7

To establish remote control, add these lines to the *HiTOP* debugger **`.INI`** file that

corresponds to your in-circuit emulator:

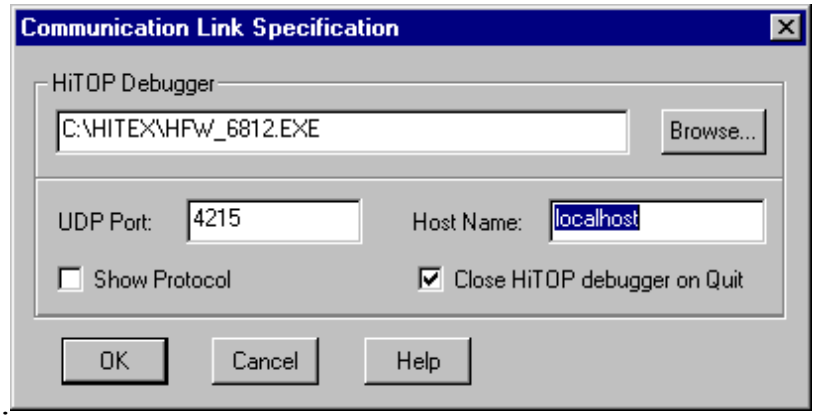
```
[HiSCRIPT Remote]
Activate=1
Port=4215
DebugLevel=0
```

The port number must correspond with the *HI-WAVE* UDP port configuration.

For hardware connections, please refer to the *hitex DEVELOPMENT TOOLS User's Manual*.

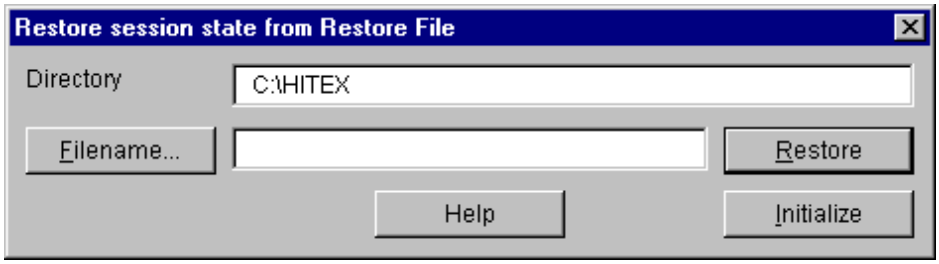
Starting with the Hitex Target Interface

1. If *HI-WAVE* is running, close it. Then, from within the *Hiware Technology Tools* shell, open the project directory that corresponds to your target derivative. For example:
   - **`C:\METROWERKS\DEMO\HC12\HITEX\DG128`** if you are using a Motorola HC12 *DprobeHC12-DG hitex* emulator.
   - **`C:\METROWERKS\DEMO\HC12\HITEX\A4`** if you are using a Motorola HC12 *DprobeHC12-A hitex* emulator.
   - **`C:\METROWERKS\DEMO\HC12\HITEX\B32`** if you are using a Motorola HC12 *DprobeHC12-B hitex* emulator.
   - **`C:\METROWERKS\DEMO\HC08\HITEX`** if you are using a *Motorola HC08 hitex* emulator.
   - **`C:\METROWERKS\DEMO\ST7\HITEX`** if you are using a *STMicroelectronics ST7 hitex* emulator.
2. Run *HI-WAVE*. If the *HiTOP* debugger is not already started, the system opens the *Communication Link Specification* dialog box.



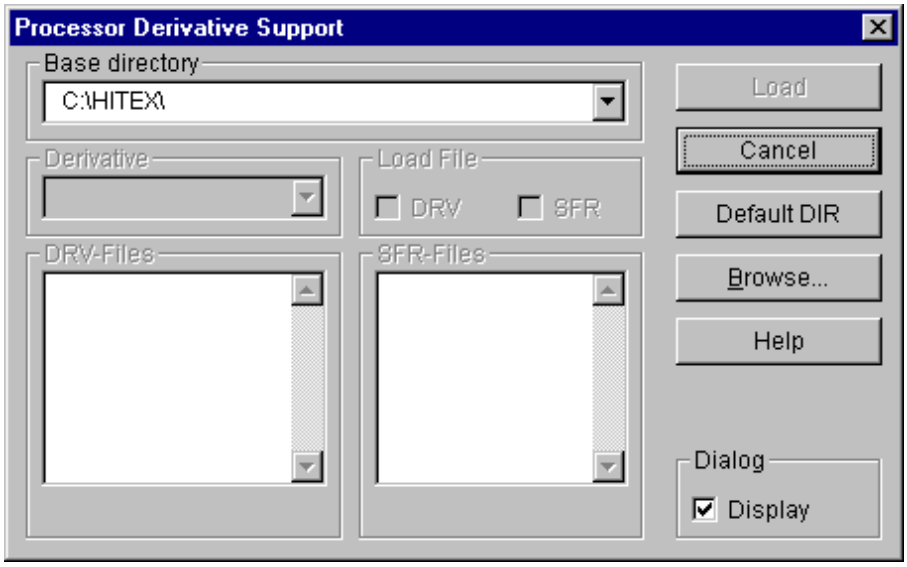
3. Make sure that the path and executable name in the *HiTOP Debugger* edit box match your installation. The value in the *UDP Port* edit box must match the one in the **`.INI`** file, which is in the *HiTOP* debugger directory (see the *Preparing the HiTOP Debugger to Communicate with HI-WAVE* section). If the emulator is connected to the computer in which you started *HI-WAVE,* specify localhost in the *Host Name* edit box, Otherwise, enter the remote computer name TCP/IP address or DNS name in this edit box.
4. When you are done changing the settings, click *Ok*. The debugger tries connecting to the target, and the *Booting ...* dialog box appears.

5. It may take up to one minute to boot. To abort the boot process, click the *Abort* button.
6. The *Restore session state from Restore file* dialog box appears. (This dialog box is part of the *HiTOP* debugger.)

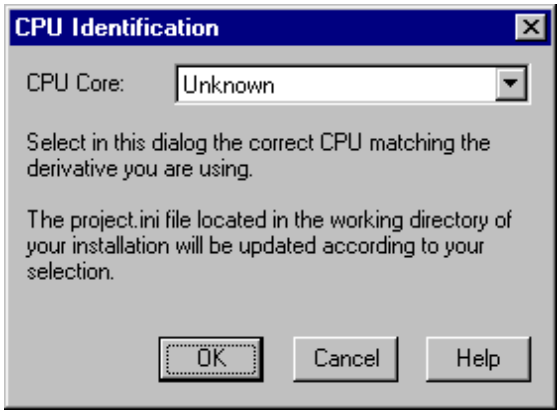


7. Click *Initialize* to initialize and to close the dialog box. The *Processor Derivative Support* dialog box appears. (This dialog box also is part of the *HiTOP* debug-

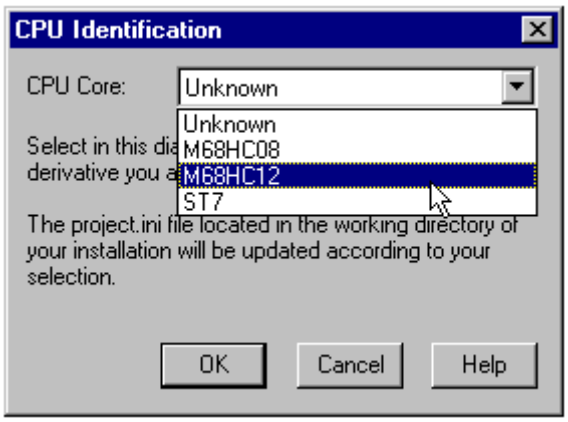
ger.)



8. Click *Cancel* to close this dialog box.
9. If the system cannot establish a connection, click the *Abort* button, then verify your parameter values. To retry the connection, select the *Hitex* | *Connect* menu command.
10. When the system successfully connects to the target emulator, the *CPU Identification* dialog box appears:



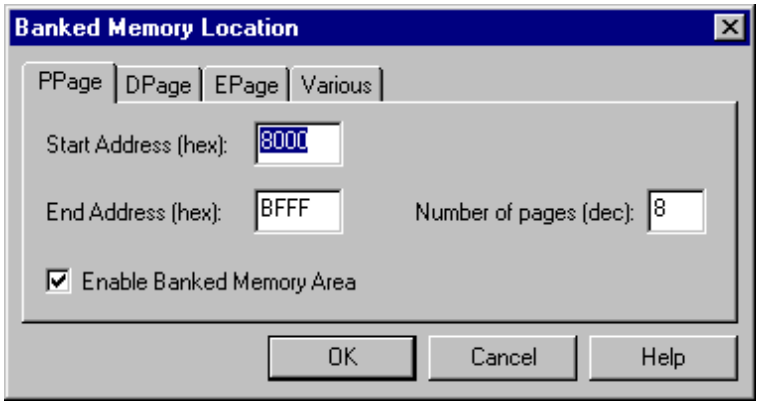
11. Use the drop-down list to select the CPU core that corresponds to the target derivative connected to your *hitex* in-circuit emulator.



12.Click *OK* to close the dialog and install the selected CPU core.

13.If the target derivative is a Motorola HC12 that supports banking (such as an M68HC12A4 or M68HC12DG128), a dialog box prompts you for the configuration of the bank memory area:

14.Click *OK* to close this dialog box, and to open the *Banked Memory Location* dialog box:



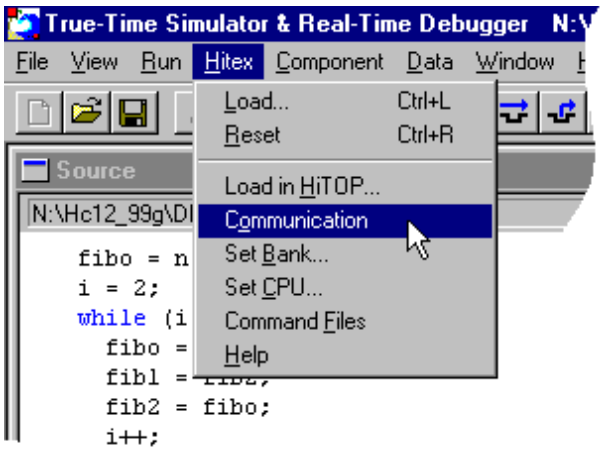
15.The default PPAGE settings are the M68HC12DG128. The default EPAGE and DPAGE settings are for the M68HC12A4.

> *Note: If you use the M68HC12DG128 DProbeHC12-DG, you must define at least one page from 0x8000 to 0xBFFF. Otherwise, there could be display problems in the Hi-WAVE Memory component.*

16.Click *OK* to close the *Banked Memory Location* dialog box and connect to the target.

The *HI-WAVE* status bar shows the CPU name and the target status.

The *HI-WAVE* main menu includes a *Hitex* entry. The *Hitex* menu lets you reset the application (select *Reset*), set the serial communication parameters (select *Communication...*), or load a **`.ABS`** application to debug (select *Load...*).



The *Load in HiTOP...* menu entry is greyed if the *Hitex* Target Interface is in demo mode.

The *Set Bank...* menu entry is present only if your target derivative is a Motorola HC12 that supports banking.

The *Set CPU... menu entry* opens the *CPU Identification* dialog box which allows you to select the CPU core matching your hardware.

The *Command Files* menu entry opens the *Hitex Target Interface Command Files* dialog box, so that you can set up the command files for the target interface.

The *Help* menu entry opens the *Hitex* Target Interface help file.

Debugging an Application in RAM

1. Choose the *Hitex* | *Load* menu command. This opens the *Load Object File* dialog box.
2. Select file **`FIBO.ABS`** and click *Open*.
3. The system closes the dialog box and loads the program.
4. Choose *Run* | *Start/Continue* or click  .

5. The system starts the application.
6. Choose *Run* | *Halt* or click  .This stops program execution.

Using the Startup Command File to Map Emulation Memory

You must define the emulation memory before loading an application. After you define the emulation memory, you may load the application after the *Hitex* Target Interface connection appears.

To map the emulation memory during the *HI-WAVE* startup routine, you can use the *Startup* command file, along with the **PT** command:

- **PT** (Pass Through *HiSCRIPT* command) is a *HI-WAVE* command that lets you use any *HiSCRIPT* command within *HI-WAVE*.

- *Startup* command file is executed each time you initiate the connection to the *Hitex* Target Interface.

As an example (for *DProbeHC12-B*), to map the on-chip Flash and EEPROM, your *Startup* command file might contain:

```
PT MAP B32_EEPROM AT 0xD00 LEN 0x300
PT MAP B32_FLASH AT 0x8000 LEN 0x8000
```

The following steps show how to load the **FIBOBANK.ABS** sample from the **C:/METROWERKS/DEMO/HC12/Hitex/DG128** on a *DProbeHC12-DG*, in standalone mode.

1. If *HI-WAVE* is running, close it. From within the *HIWARE Technology Tools* shell, open the project directory that corresponds to the M68HC12DG128 derivative.: **C:\METROWERKS\DEMO\HC12\Hitex\DG128**.
2. Using an editor, create a text command file (use the **STARTUP.CMD** default name) to map all the different memory pages of the M68HC12DG128. The file might contain:

```
PT MAP PAGE0 AT P0:0x8000 LEN 0x4000
PT MAP PAGE1 AT P1:0x8000 LEN 0x4000
PT MAP PAGE2 AT P2:0x8000 LEN 0x4000
PT MAP PAGE3 AT P3:0x8000 LEN 0x4000
PT MAP PAGE4 AT P4:0x8000 LEN 0x4000
```

```
PT MAP PAGE5 AT P5:0x8000 LEN 0x4000
PT MAP PAGE6 AT P6:0x8000 LEN 0x4000
PT MAP PAGE7 AT P7:0x8000 LEN 0x4000
```

3. Run *HI-WAVE*. If the *HiTOP* debugger is not already started, the system opens the *Communication Link Specification* dialog box. Follow the steps of the *Starting with the Hitex Target Interface* section of this demo to connect to the target.
4. The system executes the Startup command file.

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Note: If the system does not execute the Startup command file at this point, use the Hitex Target Interface Command Files Manager dialog box to verify that the correct Startup command file is set up for the Hitex Target Interface. Once you have set up the Startup command file correctly, close and restart HI-WAVE.

5. Choose *Hitex* | *Load*. This opens the *Load Object File* dialog box.
6. Select file **`FIBOBANK.ABS`** and click *Open*.
7. This closes the dialog box and loads the program.
8. Choose *Run* | *Start/Continue* or click  .
9. The system starts the application.
10. Choose *Run* | *Halt* or click  .This stops program execution.

Loading a Hitex File Format Application in HiTOP from HI-WAVE

The *Hitex* | *Load in HiTOP* menu command lets you load a file (in *Hitex File Format*) in the *HiTOP* debugger, as you load the symbols from the corresponding absolute file in *HI-WAVE*.

This feature is not available if the *Hitex* Target Interface is in demo mode.

Converting an Absolute File to Hitex File Format

You must use the absolute file (generated by the *HIWARE Technology Tools*) to generate a *Hitex File Format* file before you can load this file in the *HiTOP* debugger,

You must use a *hitex DEVELOPMENT TOOLS* symbol preprocessor to perform this operation.

You can automate the **.HTX** file generation process by using a make file.

Example:

To generate the **FIBOD128.ABS** sample, you can use a make file, such as **FIBOD128.MAK**:

```
makeall:
 $(COMP) $(FLAGS) fibo.c
 $(LINK) fibod128.prm
```

This make file lets you create the **.HTX** file that corresponds to the **FIBOD128.ABS** application.

If the name of the *hitex* symbol preprocessor is **SP6812ED.EXE** (for *ELF/Dwarf 2.0*), and if a copy of this symbol preprocessor is in directory **C:\METROWERKS\DEMO\HC12\HITEX\DG128**, (which contains the generated absolute file, add this line to the make file:

```
C:\METROWERKS\DEMO\HC12\HITEX\DG128\SP6812ED.EXE FIBOD128.ABS
```

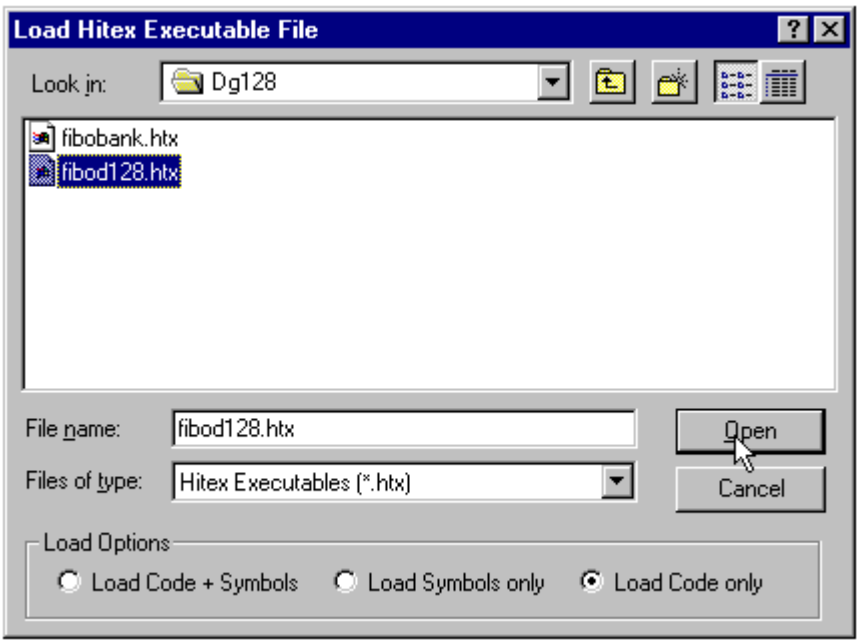
Execute the makefile using the *Maker to* create the **.ABS** and the corresponding **.HTX** files.

For more information about the *HI-WAVE Maker*, please see the related documentation.

Loading the Hitex File Format File

Once you have created the **FIBOD128.HTX** file out of the **FIBOD128.ABS** file, you can load it in the *HI-WAVE* debugger:

1. Choose the *Hitex* | *Load in HiTOP...* menu command. This opens the *Load Hitex Executable File* dialog box.



2. Select the **.HTX** file you want to load. Select the appropriate load option button: *Load Code + Symbols*, *Load Symbols only*, or *Load Code only*. Then click *Open* to load your selection in the *HiTOP* debugger.
3. The *Waiting* dialog box appears while the *HiTOP* loads the **.HTX** file. If any problem occurs, you can end the download by clicking the *Abort* button. This stops communication.

4. The system loads the **.HTX** file in *HiTOP*, and loads the symbols from the corresponding **.ABS** file in *HI-WAVE*. If you specified *Load Code + Symbols* or *Load Code only*, the system sets the **PC** to the application entry point.
5. The *Load Hitex Executable File* dialog box closes, and you can debug in *HI-WAVE*.

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Note: HI-WAVE's Load in Hitop feature downloads large applications faster than the standard loading function. This feature also lets you load symbols in HI-WAVE and open a single file in HiTOP.

Hitex Target Interface Manual

Introduction

This document describes the features of the *Hitex Target Interface*, an advanced feature of *HI-WAVE* that lets you load different target interfaces. This document also introduces the *HiTOP Development System*. The *HiTOP* debugger is a product from *hitex DEVELOPMENT TOOLS*.

With the target interface, you can transfer a program from the *HI-WAVE* environment to an external target system that executes the program. *HI-WAVE* receives feedback of the real target-system behaviour.

HI-WAVE controls the CPU execution. You can read and write in internal or external memory; you can single-step, run, or stop processes in the CPU; and you can set breakpoints in the code.

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Note: ***Uninvolved Components*** *The Hitex Target Interface cannot provide memory statistics for external processors. This means that you cannot use the Hitex Target Interface for profiling, coverage analysing, or I/O simulation.*

Working in Parallel in HI-WAVE and HiTOP

The *Hitex* Target Interface lets you debug in parallel in *HI-WAVE* and *HiTOP*.

HiTOP notifies *HI-WAVE* about each action, so that the *HI-WAVE* status always matches the *HiTOP* status.

For example, you can load your application in *HI-WAVE,* run the application from *HiTOP*, then perform a single step in *HI-WAVE*. The *HI-WAVE* and *HiTOP* debuggers stay synchronized.

You can load the application in either *HI-WAVE* or *HiTOP*. If you load the application in *HiTOP*, you must load the symbols in *HI-WAVE* so that the *Source* and *Data* component can display the correct information.

To load an application (with symbols) in the *HiTOP* debugger, select the *Hitex* | *Load in HiTOP* menu command. An open file dialog box appears. This dialog box lets you load a **`.HTX`** file (with or without symbols) in the *HiTOP* debugger, and at the same time load the symbols from a corresponding **`.ABS`** file in *HI-WAVE*.

This parallelism also means that while you debug with *HI-WAVE*, you can use advanced features of the *HiTOP* debugger to set triggers, map emulation memory, and use the trace component.

If an event occurs in *HiTOP*, the system refreshes *HI-WAVE*, displaying one of these explanations in the status bar:

- Step performed in HiTOP
- Modified memory in HiTOP
- Unhandled command performed in HiTOP
- Trigger event occurred in HiTOP
- ILLEGAL_BP (if a breakpoint has been set in HiTOP)
- RUNNING
- HALTED

Note: Loading an application in HiTOP before you start HI-WAVE can affect the displays in the Memory component, in the Assembly component, and in the Data component.

Interfacing Your System and the Target

A debug system from *hitex DEVELOPMENT TOOLS* normally consists of an in-circuit emulator and *HiTOP*. *HiTOP* is the interface you use to operate all in-circuit emulators available from *hitex*.

You must load the *HiTOP* debugger program (from *hitex DEVELOPMENT TOOLS*) before you can establish communication between the emulator and *HI-WAVE*.

For communication with the *hitex* system, *HI-WAVE* uses the **Remote Control Interface** (**RCI**), from *hitex DEVELOPMENT TOOLS*. The RCI communicates with the *HiTOP* debugger via a socket interface.

Communication through the RCI follows the *HiSCRIPT* command language protocol. Commands sent from *HI-WAVE* to *HiTOP* are *HiSCRIPT* commands. Answers and responses also follow the *HiSCRIPT* protocol.

Commands and answers are ASCII strings that terminate with the characters '\0'. These strings may contain '\n' and/or '\r' characters.

For more information about *HiSCRIPT*, see the section *"The HiSCRIPT Command Language"*, of the *HiTOP's User's manual*.

Preparing the HiTOP debugger

Configuring a remote control lets the *HiTOP* debugger communicate with the *HI-WAVE* Remote Control Interface (RCI).

The *HiTOP* debugger **`.INI`** files are in the directory that contains *HiTOP*:

- **`HFW_6812.INI`** for Motorola HC12
- **`HFW_6811.INI`** for Motorola HC08
- **`HFW_6811.INI`** for STMicroelectronics ST7

To enable and set up a remote control, add the following lines to the appropriate *HiTOP* debugger **`.INI`** file:

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

The [HiSCRIPT Remote] entries are:

Activate: This line enables or disables the remote control. The value 1 enables

the remote control. The value 0 disables the remote control.

Port: This line specifies the port through which *HiTOP* receives *HiSCRIPT* commands and sends protocol answers. The port number must correspond to the configuration of the *UDP Port* in *HI-WAVE* (see the *Loading The Target Interface* section). The *UDP Port* value must be an open port on the host system. *HiTOP* sends out notifications through the next port (that is, Port + 1).

DebugLevel: This line enables or disables *HiSCRIPT* activity logging. The value 1 logs all send and receive *HiSCRIPT* commands and notifications to a file. (The log file, "d.log", is in the directory that contains the *HiTOP* debugger). The value 0 disables logging.

Hardware Connection

For hardware connection information, please see the *hitex DEVELOPMENT TOOLS User's Manual*.

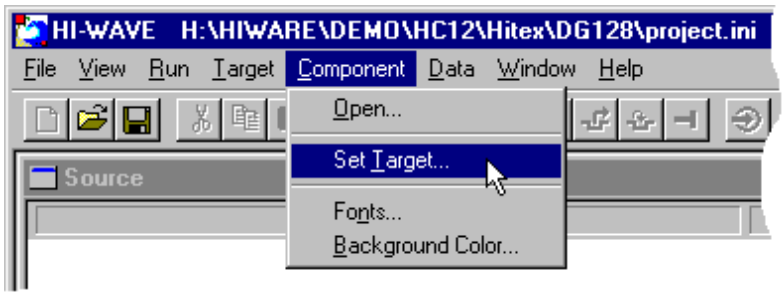
Loading the Hitex Target Interface

Usually, the **`PROJECT.INI`** file specifies the target. To make *Hitex* the target, change the file's **`Target=`** line, in the **`[HI-WAVE]`** section, to **`Target=hitex`**.

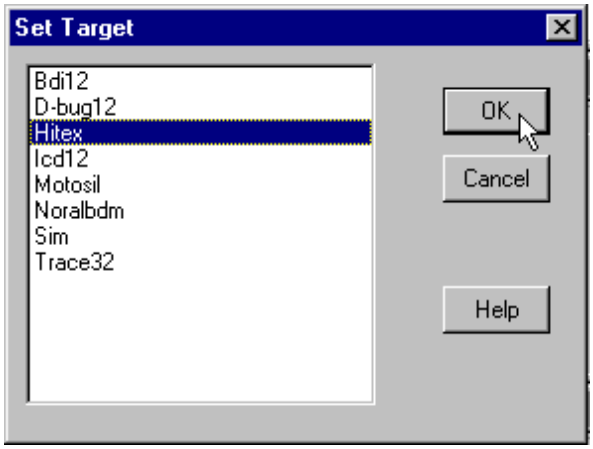
The *Hitex* Target Interface automatically detects the target connection to your system. If the interface cannot detect the target connection, the *Communication Link Specification* dialog box appears, notifying you that the target is not connected or is connected to a different port.

If the **`PROJECT.INI`** file specifies a different target (or no target), you can load the *Hitex* Target Interface.

Choose the *Component* | *Set Target...*menu command.

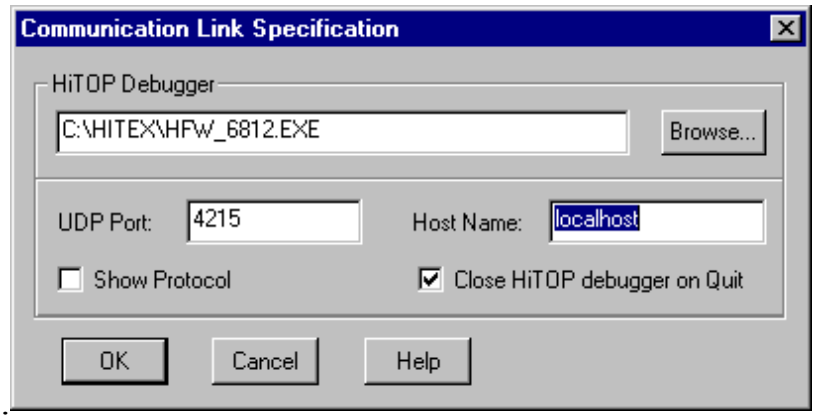


The *Set Target* dialog box appears. Choose *Hitex* from the list of possible targets and click *OK*.



The debugger tries to connect to the target. The following conditions prompt the system to open the *Communication Link Specification* dialog box:

- You are using the *Hitex* Target Interface for the first time,
- The *HiTOP* debugger is not yet started, or
- The connection between *HI-WAVE* and the *HiTOP* debugger is not already set in the current project directory.



This dialog box lets you modify the *UDP Port*, the *Host Name*, and the path and name of the *HiTOP Debugger*.

Make sure that parameter values of your host computer are correct. Check that the *UDP Port* you use matches the one the **`.INI`** file specifies. (Please see the section *Interfacing Your System and the Target, Preparing the HiTOP debugger* for more information.) Otherwise, it is not possible to communicate between *HI-WAVE* and the target. Ensure that the *Host Name* and the *HiTOP* debugger path and name are also correct.

Note: Another way to open this dialog box is choosing the Hitex | Connect... menu command. Use this method if previous connection attempts with HiTOP failed, or if you lost communication.

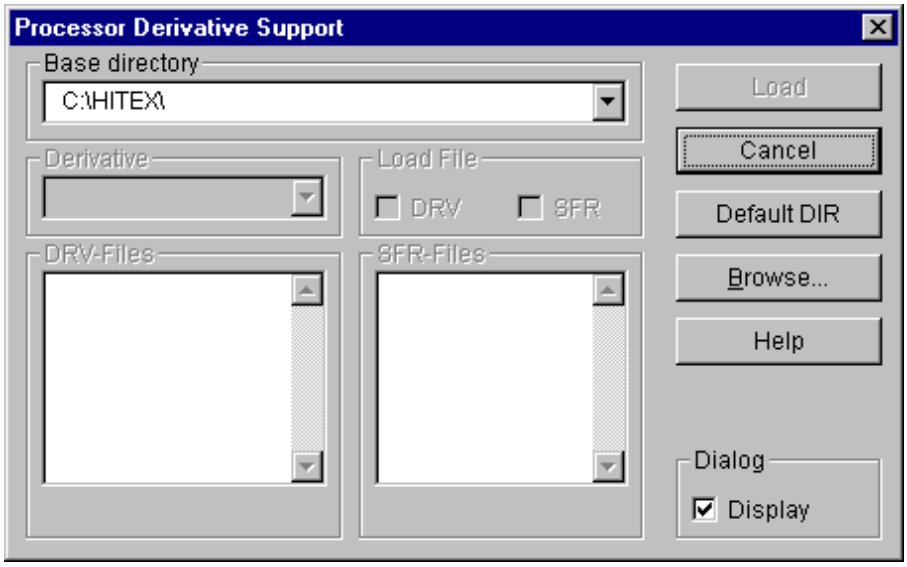
For more information about the *Communication Link Specification* dialog box, please see the section *Communication Link Specification*.

After you specify the *UDP Port*, the *Host Name*, and the path to the *HiTOP Debugger*, click *OK*.

While the *HiTOP* debugger is booting, the *Booting* dialog box appears. Booting may take as long as a minute; you can abort booting by pressing the *Abort* button.

The *HiTOP* debugger must be initialized, so the *Restore session state from Restore file* dialog box appears. (This dialog box is part of the *HiTOP* debugger.)

Close this dialog box by clicking *Initialize*. The *Processor Derivative Support* dialog box appears. (This dialog box also is part of the *HiTOP* debugger.)



Close this dialog box by clicking *Cancel*.

Note: You can switch off display of these two HiTOP dialog boxes. For instructions, see section Skipping HiTOP initialization dialogs of this manual.

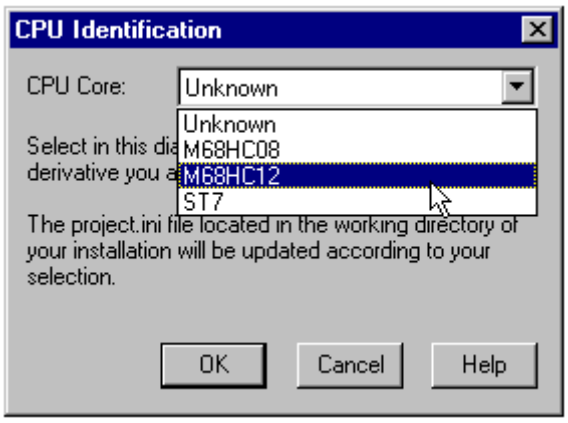
If a connection could not be established, click the *Abort* button, check that the parameter values are correct, then try again by choosing *Hitex* | *Connect*. (You must close the *HiTOP* debugger before this second communication attempt.)

If you want to exit the *Communication Link Specification* dialog box and environment, click *Cancel*.

Selecting the CPU

If you did not loaded the target interface, *HI-WAVE* prompts for information about the CPU you are using.

The *CPU Identification* dialog box appears:



Select the CPU core that matches your hardware, then click *OK*. This closes the dialog box and installs the CPU core.

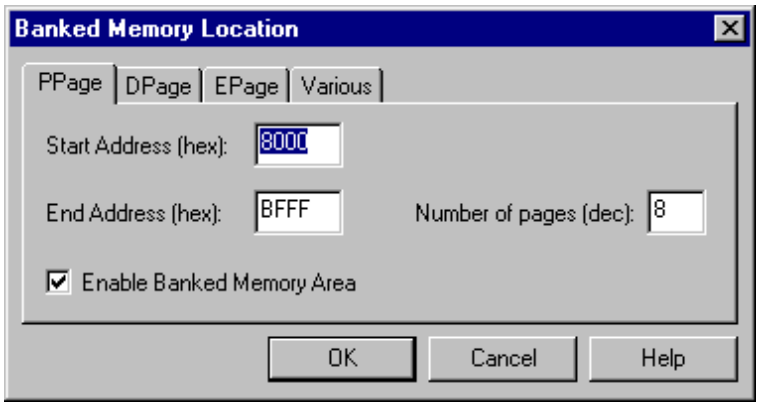
Another way to open this dialog box is choosing the *Hitex* | *Set CPU...* menu command.

For details about the *CPU Identification* dialog box, please see the section *CPU Identification*.

Setting banked memory areas

If your target derivative is a Motorola HC12 that supports banking, *HI-WAVE* prompts for the bank memory area configuration. *HI-WAVE* prompts for this the first time you load the *Hitex* Target Interface in a project directory. This message box appears:

Click *OK* to close the message box. The *Banked Memory Location* dialog box appears:



Use this dialog box to define the banked memory locations.

For details, please see the section *Banked Memory Location dialog*.

Note: You must complete the settings of this dialog box, or you risk affecting the display in the HI-WAVE Memory component.

Skipping HiTOP Initialization Dialog Boxes

If starting the *HiTOP* debugger from *HI-WAVE*, you can skip the *Restore session state from Restore file* and *Processor Derivative Support* dialog boxes.

You need two files:

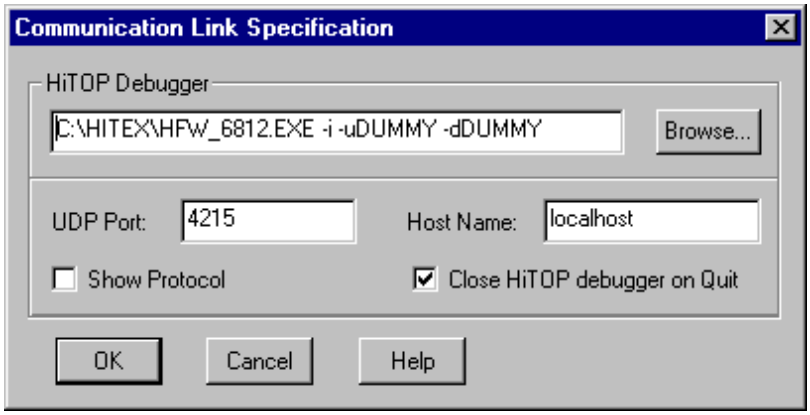
- **DUMMY** is an empty file.

- **DUMMY.SFR** contains this text:

```
REGION : BASE "0", LENGTH 1
-DUMMY        0x00,1,RW,HEX
ENDREGION
WINDOW 1 "Dummy"
|[-DUMMY####]|
ENDWINDOW
```

These files must be in your *HiTOP* debugger installation directory (the directory that contains **HFW_6812.EXE**).

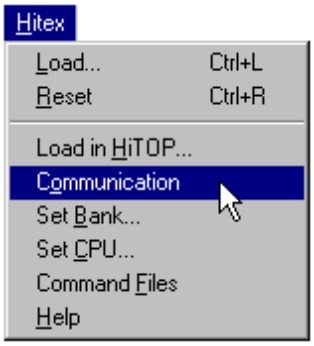
In the *Communication Link Specification* dialog, add options: **-i -uDUMMY -dDUMMY** to the *HiTOP Debugger* path



Communication to *HI-WAVE* proceeds without displaying any *HiTOP* debugger configuration dialog boxes.

Hitex Target Interface Menu Entries

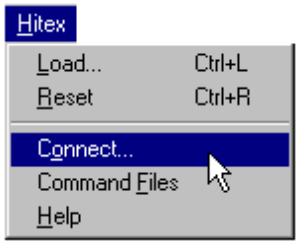
After you load the *Hitex* Target Interface, the *Hitex* menu replaces the *Target* menu:



The *Set Bank...* menu command is available only if your *Motorola HC12* derivative supports memory banking.

If the *Hitex* Target Interface is running in demo version, the *Load in HiTOP...* menu command is not available.

If connection to the target fails, the *Connect...* command replaces the *Communication...* command, and some other commands disappear from the *Hitex* menu:



Here are the descriptions of the *Hitex* menu items:

Load...

Choose *Hitex* | *Load...* to load the application you want to debug, such as a **.ABS** file.

Reset

Choose *Hitex* | *Reset* to execute the *Reset* command file and reset the target system processor. This action makes use of the *HiSCRIPT* command **RESET TARGET**.

Load in HiTOP...

Choose *Hitex* | *Load in HiTOP...* to display the *Load Hitex Executable File* dialog box. This dialog box lets you to load an application for debugging (such as a **.HTX** file) directly in the *HiTOP* debugger. At the same time, the system loads symbols of the corresponding **.ABS** file in *HI-WAVE*.

If connection to the target fails, this menu command is not available. If the target interface is in demo mode, this command is greyed out.

Communication or Connect

Choose *Hitex* | *Communication...* or *Hitex* | *Connect* to open the *Communication Link Specification* dialog box. If connection to the target fails, the *Connect* command replaces the *Communication...* command.

Set Bank...

Choose *Hitex* | *Set Bank...* to open the *Banked Memory Location* dialog box. This dialog box is available only if your derivative is a Motorola HC12 that supports memory banking.

Set CPU...

Choose *Hitex* | *Set CPU...* to open the *CPU Identification* dialog box.

Command Files

Choose *Hitex* | *Command Files* to open the *Hitex Target Interface Command Files* dialog box.

Help

Choose *Hitex* | *Help* to open the *Hitex* Target Interface Help File.

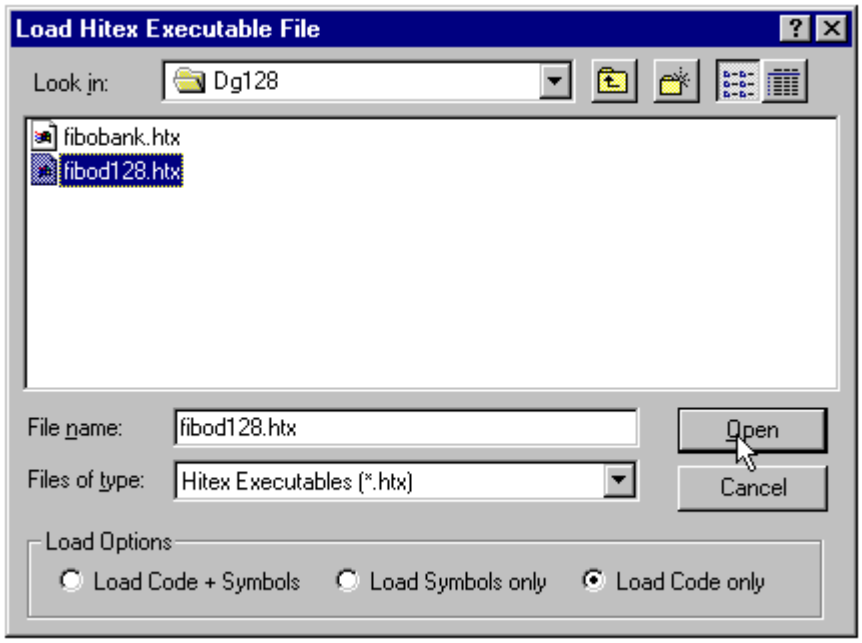
Hitex Target Interface Dialog Boxes

This section describes the dialog boxes specific to the *Hitex* Target Interface:

- *Load Hitex Executable File* (not available in demo mode).
- *Communication Link Specification*.
- *Banked Memory Location* (available only for a Motorola HC12 derivative that supports banking).
- *CPU Identification*.
- *Hitex Target Interface Command Files*.

Load Hitex Executable File Dialog Box

The *Load Hitex Executable File* dialog box appears when you choose the *Hitex* | *Load in HiTOP...* menu command.



This open file dialog box lets you load an application in *Hitex File Format* (**.HTX**) directly to the *HiTOP* debugger, simultaneously loading the application's symbols in *HI-WAVE*. (The application must have corresponding **.ABS** file.)

This feature is particularly useful if you must download a large application to emulator memory, as this feature is faster than the default download speed of the regular *Load* command. This feature also is useful if you need the load symbols to debug in the *HiTOP* debugger.

This dialog box lets you limit what parts of the application get loaded into the

HiTOP debugger: the code and symbols, only the code, or only the symbols (the default). *HI-WAVE* always loads the symbols, but if you select code, or code and symbols, *HiTOP* assigns the program entry point value to the **PC**.

Converting an Absolute File to *Hitex File Format*

To generate a *Hitex File Format* (**.HTX**) file from an absolute file (**.ABS**, in *ELF/Dwarf 2.0* or in *HI-Cross File Format*), you must use a symbol preprocessor from *hitex DEVELOPMENT TOOLS*.

A make file can automate this conversion. For example, for Motorola HC12 emulators, *hitex* provides the **SP6812ED.EXE** symbol preprocessor to convert an *ELF/Dwarf 2.0* **.ABS** file (generated by the *HIWARE Technology Tools*) to *Hitex File Format* (**.HTX**).

The *Maker* can automatically generate the **HTX** file, if you append a command like:

```
H:\METROWERKS\DEMO\HC12\HITEX\DG128\SP6812ED.EXE FIBOD128.ABS
```

This command produces the file **FIBOD128.HTX**, which you can load in the *HiTOP* debugger.

Load in HiTOP Feature Limitations

Before you can use the *Load in HiTOP* feature, the *HiTOP* debugger must be able to find and access the application. This can be a problem if the path to the program is specified as a relative path, or if the program is on a different host or network.

The **.HTX** application file must have the same name as the **.ABS** file. Otherwise the system will not load the symbols in *HI-WAVE*.

The time taken to load the application to the emulator depends on the size of the application. The *Waiting* dialog box appears during this time.

Clicking the *Abort* button breaks communication between the *HiTOP* debugger and the *HI-WAVE* Target Interface.

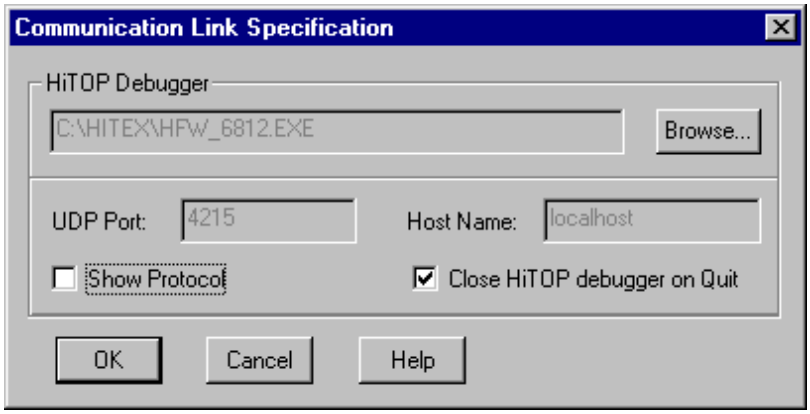
Communication Link Specification Dialog Box

The *Communication Link Specification* dialog box appears automatically if:

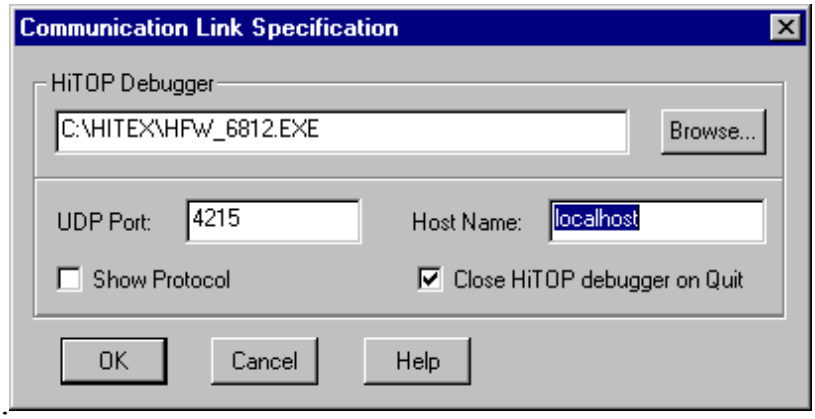
- You use the *Hitex* Target Interface for the first time,
- The *HiTOP* debugger is not yet started, or
- The connection between *HI-WAVE* and the *HiTOP* debugger is not already set in the current project directory.

An alternate way to open this dialog box is to select the menu command *Hitex* | *Communication*... or *Hitex* | *Connect*.

If you have an open connection to the target, you change only the options *Show Protocol* and *Close HiTOP debugger on Quit*. The other elements of this dialog box are greyed out.



If this dialog box opened as the result of a failed connection attempt, or if you selected *Hitex* | *Connect*, you can modify the *UDP Port*, the *Host Name*, and the path to the *HiTOP Debugger*, as well as the check boxes.



Enter the path and name of the *HiTOP* debugger in the *HiTOP Debugger* edit box. Alternatively, click the *Browse* button to find the program. The default path is **`C:\HITEX\HFW_6812.EXE`**.

In the *UDP Port* edit box, enter the same value specified in the *HiTOP* debugger **`.INI`** file (the default *UDP Port* is 4215):

- **`HFW_6812.INI`** for Motorola HC12
- **`HFW_6811.INI`** for Motorola HC08
- **`HFW_6811.INI`** for STMicroelectronics ST7

In the *Host Name* edit box, enter the TCP/IP address or the network name of the computer on which the emulator is installed. The default *Host Name* is localhost. If the emulator is connected to the computer you use to start *HI-WAVE*, this default value is correct.

The check box *Close HiTOP debugger on Quit* automatically quits the *HiTOP* debugger when you close *HI-WAVE*. This feature's default setting is ON (checked).

The checkbox *Show Protocol* controls display of messages sent between the *HiTOP* debugger and the *HI-WAVE* debugger. Check this box to have commands and responses reported in the *Command Line* window. Clear this box to have the system not echo commands or responses.

Note: Show Protocol is a useful debugging feature in case of a communication problem.

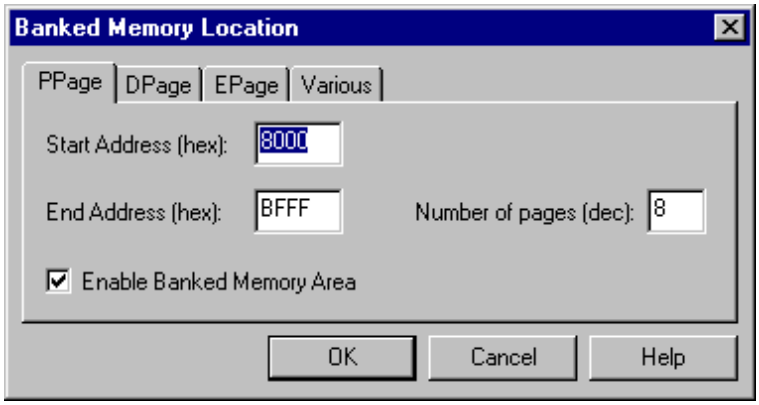
Note: The system stores your settings for this dialog box in the **`[Hitex]`** *section of the* **`PROJECT.INI`** *file. These settings will be the defaults for your next debugging session.*

Banked Memory Location Dialog Box

This dialog box is available only if your derivative is a Motorola HC12 that supports memory banking.

The *Banked Memory Location* dialog box appears automatically the first time you use the *Hitex* Target Interface with an HC12 derivative that supports banking. If the current **`PROJECT.INI`** file already defines the banked memory area locations, another way to open this dialog box is by selecting the *Hitex* | *Set Bank*.... menu command.

This dialog box lets you specify the banked memories you want to use, and their locations. The system supports the PPAGE, DPAGE and EPAGE, if they are available on the HC12 derivative.



PPAGE Property Page: Use the *PPAGE* property page to set up the PPAGE banked memory area. Enter the start address and end address (hexadecimal values) in the appropriate edit box. Enter the number of pages (decimal value) in the appropriate edit box. Check the *Enable Banked Memory Area* checkbox to enable the *PPAGE* banked memory area.

This property page does not appear in the dialog box if the PPAGE register is not available in the HC12 derivative.

DPAGE Property Page: Use the *DPAGE* property page to set up the DPAGE banked memory area. Enter the start address and end address (hexadecimal values) in the appropriate edit box. Enter the number of pages (decimal value) in the appropriate edit box. Check the *Enable Banked Memory Area* checkbox to enable the *DPAGE* banked memory area.

This property page does not appear in the dialog box if the DPAGE register is not available in the HC12 derivative.

EPAGE Property Page: Use the *EPAGE* property page to set up the EPAGE banked memory area. Enter the start address and end address (hexadecimal values) in the appropriate edit box. Enter the number of pages (decimal value) in the appropriate edit box. Check the *Enable Banked Memory Area* checkbox to enable the *EPAGE* banked memory area.

This property page does not appear in the dialog box if the EPAGE register is not available in the HC12 derivative.

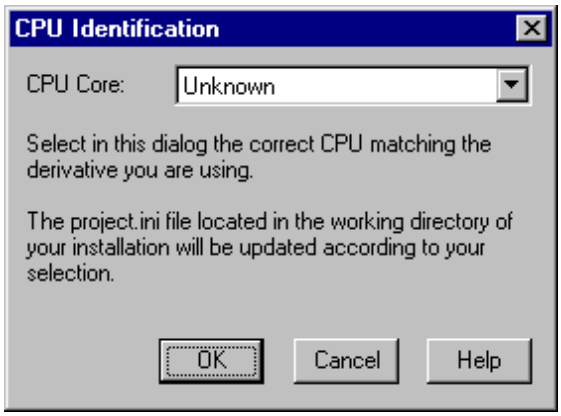
Various Property Page: Use this page to disable banking, or to use just one one bank of the three. To suppress automatic display of the *Banked Memory Location* dialog box, clear the *Display dialog at connection if banked memory locations not defined* check box.

> *Note: The system stores your settings for this dialog box in the* **`[Hitex]`** *section of the* **`PROJECT.INI`** *file. These settings become the new default settings for subsequent debugging sessions.*

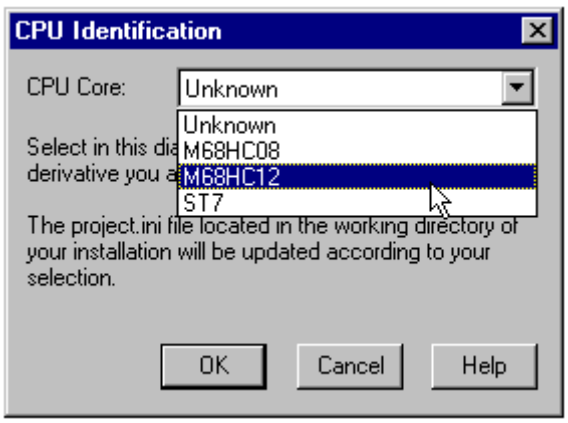
> *Note: If you use the M68HC12DG128 DProbeHC12-DG, you must define at least one page from 0x8000 to 0xBFFF. Otherwise, you could encounter display problems in the HI-WAVE Memory component.*

CPU Identification Dialog Box

The *CPU Identification* dialog box automatically appears if this is the first time you have used the *Hitex* Target Interface. This dialog box also appears if you have yet to set in the current project directory the connection between *HI-WAVE* and the *HiTOP* debugger. To open this dialog box yourself, select the *Hitex* | *Set CPU...* menu command.



Use the drop-down list to select the CPU core that corresponds to the derivative connected to your *hitex* in-circuit emulator.



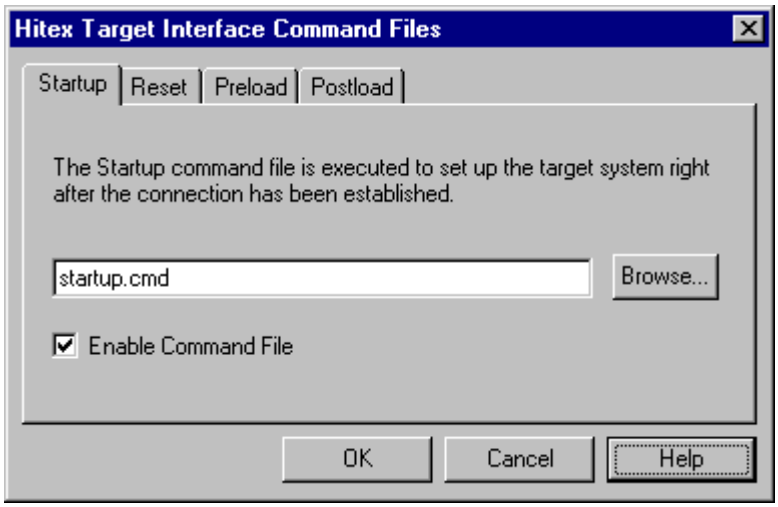
Currently, the *HI-WAVE Hitex* Target Interface supports Motorola HC12, Motorola HC08, and STMicroelectronics ST7 CPU cores.

After you select the appropriate CPU core, click the *OK* button. This closes the dialog box and installs the core.

Note: The system stores your setting for this dialog box in the **[Hitex]** *section of the* **PROJECT.INI** *file. These settings become the new default settings for subsequent debugging sessions.*

Hitex Target Interface Command Files Dialog Box

To open the *Hitex Target Interface Command Files* dialog box, select the *Hitex* | *Command Files* menu command.



Each page of this property-sheet dialog box corresponds to an event upon which *HI-WAVE* automatically can run a *command file*. The possible files are the *Startup* command file, the *Reset* command file, the *Preload* command file, or the *Postload* command file.

The text box lets you specify the command file to be run after each of the tabbed events.

Use the *Browse* button to specify the path and name of the command file. The default command files are:

- *Startup* page: **STARTUP.CMD**,
- *Reset* page: **RESET.CMD**,
- *Preload* page: **PRELOAD.CMD**,

- *Postload* page: **POSTLOAD.CMD**.

Check the *Enable Command File* check box enable the command file for the given event. Clear the check box to disable the command file for the given event. The default setting for all checkboxes is enabled (checked).

Note: The system stores your settings for this dialog box in the **[Hitex]** *section of the* **PROJECT.INI** *file, using variables* **CMDFILE0, CMDFILE1, ... CMDFILEn**. *These settings become the new default settings for subsequent debugging sessions.*

Status Bar Information for the Hitex Target Interface

When you have loaded the *Hitex* Target Interface, the *HI-WAVE* status bar displays the name of the cpu and the *HI-WAVE* status (target status).

Status Messages

HiTOP Ready

HI-WAVE is ready, waiting for you to load a new target or application. The system generates this message once you start *HI-WAVE* and the connection to the *HiTOP* debugger is established.

No Link To Target

Connection to the target system failed.

RUNNING

The application is executing in *HI-WAVE*.

HALTED

The application has been stopped, according to your request. (You chose the *Run* | *Halt* menu election, or clicked the *Halt* toolbar button.)

RESET

The system is processing a reset request. (You chose the *Hitex* | *Reset* menu command, clicked the *Reset* toolbar button, or entered a Reset command.

Stepping and Breakpoint Messages

STEPPED

The application has been stopped, due to a source-level single step. (You chose the *Run* | *Single Step* menu command, or clicked the *Single Step* toolbar button.)

STEPPED OVER

The application has been stopped, due to a step over a function call. (You chose the *Run* | *Step Over* menu command, or clicked the *Step Over* toolbar button.)

STOPPED

The application has been stopped, due to a step out from function call. (You chose the *Run* | *Step Out* menu command, or clicked the *Step Out* toolbar button.)

TRACED

The application has been stopped, due to an assembler-level single step. (You chose the *Run* | *Assembly Step* menu command, or clicked the *Assembly Step* toolbar button.)

BREAKPOINT

The application has been stopped upon reaching a breakpoint.

WATCHPOINT

The application has been stopped upon reaching a watchpoint.

Notification Messages

Step performed in HiTOP

This message indicates that a step has been performed in the *HiTOP* debugger. The system automatically checks the status of the emulator and refreshes *HI-WAVE*.

Modified memory in HiTOP

This message indicates that memory has been read from (or written to) in the *HiTOP* debugger. The system automatically checks the status of the emulator and refreshes *HI-WAVE*.

Unhandled command performed in HiTOP

This message indicates that an unhandled command has been performed in the *HiTOP* debugger. The system automatically checks the status of the emulator and refreshes *HI-WAVE*.

Trigger event occurred in HiTOP

This message indicates that the emulator is halted on a trigger event set in the *HiTOP* debugger. The system automatically checks the status of the emulator and refreshes *HI-WAVE*.

Hitex Target Interface Environment

Default Target Setup

You can use the *Target* menu to load a *Hitex* Target Interface directly, or you can set the default *Hitex* Target Interface in the **PROJECT.INI** file. The file should be in the working directory.

Example **[HI-WAVE]** section of a **PROJECT.INI** file:

```
[HI-WAVE]
Window0=Source      0    0   60   30
Window1=Assembly   60    0   40   30
Window2=Procedur    0   30   60   25
Window3=Register   60   30   40   30
Window4=Memory     60   60   40   40
Window5=Data        0   55   60   23
Window6=Data        0   78   60   22
Target=hitex
```

Typically, you set the target in the **[HI-WAVE]** section of the **PROJECT.INI** file, as shown above. However, if the target is not defined in this way, you can load the *Hitex* Target Interface interactively. Please refer to the *Loading the Hitex Target Interface section* of this manual.

Note: Please see the HI-WAVE User's Manual for additional information about the **PROJECT.INI** *file.*

Hitex Target Interface Environment Variables

This section describes the environment variables specific to the *Hitex* Target Interface:

```
BANK_D_ACTIVATED
BANK_D_END
BANK_D_NUMBER
BANK_D_START
BANK_DLG_AT_CONNECT
```

BANK_E_ACTIVATED
BANK_E_END
BANK_E_NUMBER
BANK_E_START
BANK_P_ACTIVATED
BANK_P_END
BANK_P_NUMBER
BANK_P_START
CLOSEHITOP
CMDFILEn
CPUSTRING
HOST
PATHTOHITOP
PORT
SHOWPROT

The system stores these variables in the **[Hitex]** section of the **PROJECT.INI** file.

Example **[Hitex]** section of a **PROJECT.INI** file:

```
[Hitex]
SHOWPROT=0
HOST=localhost
PATHTOHITOP=C:\HITEX\HFW_6812.EXE
PORT=4215
CLOSEHITOP=1
CPUSTRING=M68HC12
CMDFILE0=CMDFILE STARTUP ON "startup.cmd"
CMDFILE1=CMDFILE RESET ON "reset.cmd"
CMDFILE2=CMDFILE PRELOAD ON "preload.cmd"
CMDFILE3=CMDFILE POSTLOAD ON "postload.cmd"
```

The remainder of this section consists of environment variable descriptions, in alphabetic order, and in this standard topic order:

Topic	Description
Short Description	Short description of the variable.
Syntax	EBNF syntax of the variable.
Default	Default setting or value for the variable.

Topic	Description
File	Name of the file that will hold the variable.
Section	Name of the section in the file.
Components	Component on which the variable depends.
Description	Full description and instructions.
Example	Small example of using the variable.

BANK_D_ACTIVATED

Short Description

Enables/disables support of the DPAGE banked memory area

Syntax

BANK_D_ACTIVATED= 0 | 1

Default

0.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **BANK_D_ACTIVATED** variable specifies whether to use the DPAGE banked mechanism, if the Motorola HC12 derivative supports DPAGE.

Giving this variable the value 1 corresponds to checking the *Enable DPAGE Banked Memory Area* check box of the *Banked Memory Location* dialog box.

Example

BANK_D_ACTIVATED=1

BANK_D_END

Short Description

Specifies the end address of the DPAGE banked memory area

Syntax

BANK_D_END= <hexadecimal DPAGE end address>

Default

0x7FFF.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **BANK_D_END** variable specifies the hexadecimal end address of the DPAGE banked memory area. This variable corresponds to the *End Address* edit box of the *DPAGE Banked Memory Area* group, of the *Banked Memory Location* dialog box. This variable has effect if the Motorola HC12 derivative supports DPAGE, and the DPAGE banked memory area has been set up. The system ignores this variable if the HC12 derivative does not support DPAGE.

Example

BANK_D_END=0x7FFF

BANK_D_NUMBER

Short Description

Specifies the number of pages in the DPAGE banked memory area

Syntax

BANK_D_NUMBER= <decimal number of DPAGE pages>

Default

256.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **BANK_D_NUMBER** variable specifies the decimal number of pages in the DPAGE banked memory area. This variable corresponds to the *Number of pages* edit box of the *DPAGE Banked Memory Area* group, of the *Banked Memory Location* dialog box. This variable has effect if the Motorola HC12 derivative supports DPAGE, and the DPAGE banked memory area has been set up. The system ignores this variable if the HC12 derivative does not support DPAGE.

Example

```
BANK_D_NUMBER=256
```

BANK_D_START

Short Description

Specifies the start address of the DPAGE banked memory area

Syntax

BANK_D_START= <hexadecimal DPAGE start address>

Default

0x7000.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **BANK_D_START** variable specifies the hexadecimal start address of the DPAGE banked memory area. This variable corresponds to the *Start Address* edit box of the *DPAGE Banked Memory Area* group, of the *Banked Memory Location* dialog box. This variable has effect if the Motorola HC12 derivative supports DPAGE, and the DPAGE banked memory area has been set up. The system ignores this variable if the HC12 derivative does not support DPAGE.

Example

BANK_D_START=0x7000

BANK_DLG_AT_CONNECT

Short Description

Controls automatic display of the *Banked Memory Location* dialog box

Syntax

BANK_DLG_AT_CONNECT= 0 | 1

Default

1.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **BANK_DLG_AT_CONNECT** variable specifies whether to display the *Banked Memory Location* dialog box upon connection to a target. This functionality applies only if banked memory areas are not defined, and if the connected Motorola HC12 derivative supports banking.

Giving this variable the value 1 corresponds to checking the *Display this dialog at connection if banked memory locations are not defined* checkbox of the Various property page, of the *Banked Memory Location* dialog box.

Example

```
BANK_DLG_AT_CONNECT=1
```

BANK_E_ACTIVATED

Short Description

Enables/disables support of the EPAGE banked memory area

Syntax

BANK_E_ACTIVATED= 0 | 1

Default

0.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **BANK_E_ACTIVATED** variable specifies whether to use the EPAGE banked mechanism, if the Motorola HC12 derivative supports EPAGE.

Giving this variable the value 1 corresponds to checking the *Enable EPAGE Banked Memory Area* checkbox of the *Banked Memory Location* dialog box.

Example

BANK_E_ACTIVATED=1

BANK_E_END

Short Description

Specifies the end address of the EPAGE banked memory area

Syntax

BANK_E_END= <hexadecimal EPAGE end address>

Default

0x7FF.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **BANK_E_END** variable specifies the hexadecimal end address of the EPAGE banked memory area. This variable corresponds to the *End Address* edit box of the *EPAGE Banked Memory Area* group, of the *Banked Memory Location* dialog box. This variable has effect if the Motorola HC12 derivative supports EPAGE, and the EPAGE banked memory area has been set up. The system ignores this variable if the HC12 derivative does not support EPAGE.

Example

BANK_E_END=0x7FF

BANK_E_NUMBER

Short Description

Specifies the number of pages in the EPAGE banked memory area

Syntax

BANK_E_NUMBER= <decimal number of EPAGE pages>

Default

256.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **BANK_E_NUMBER** variable specifies the decimal number of pages in the EPAGE banked memory area. This variable corresponds to the *Number of pages* edit box of the *EPAGE Banked Memory Area* group, of the *Banked Memory Location* dialog box. This variable has effect if the Motorola HC12 derivative supports EPAGE, and the EPAGE banked memory area has been set up. The system ignores this variable if the HC12 derivative does not support EPAGE.

Example

BANK_E_NUMBER=256

BANK_E_START

Short Description

Specifies the start address of the EPAGE banked memory area

Syntax

BANK_E_START= <hexadecimal EPAGE start address>

Default

0x400.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **BANK_E_START** variable specifies the hexadecimal start address of the EPAGE banked memory area. This variable corresponds to the *Start Address* edit box of the *EPAGE Banked Memory Area* group, of the *Banked Memory Location* dialog box. This variable has effect if the Motorola HC12 derivative supports EPAGE, and the EPAGE banked memory area has been set up. The system ignores this variable if the HC12 derivative does not support EPAGE.

Example

BANK_E_START=0x400

BANK_P_ACTIVATED

Short Description

Enables/disables support of the PPAGE banked memory area

Syntax

BANK_P_ACTIVATED= 0 | 1

Default

0.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **BANK_P_ACTIVATED** variable specifies whether to use the PPAGE banked mechanism, if the Motorola HC12 derivative supports PPAGE.

Giving this variable the value 1 corresponds to checking the *Enable PPAGE Banked Memory Area* checkbox of the *Banked Memory Location* dialog box.

Example

BANK_P_ACTIVATED=1

Note: If you use the M68HC12DG128 DProbeHC12-DG, you must define at least one page from 0x8000 to 0xBFFF. Otherwise, you could encounter display problems in the HI-WAVE Memory component.

BANK_P_END

Short Description

Specifies the end address of the PPAGE banked memory area

Syntax

BANK_P_END= <hexadecimal DPAGE end address>

Default

0xBFFF.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **BANK_P_END** variable specifies the hexadecimal end address of the PPAGE banked memory area. This variable corresponds to the *End Address* edit box of the *PPAGE Banked Memory Area* group, of the *Banked Memory Location* dialog box. This variable has effect if the Motorola HC12 derivative supports PPAGE, and the PPAGE banked memory area has been set up. The system ignores this variable if the Motorola HC12 derivative does not support PPAGE.

Example

BANK_P_END=0xBFFF

BANK_P_NUMBER

Short Description

Specifies the number of pages in the PPAGE banked memory area

Syntax

BANK_P_NUMBER= <decimal number of PPAGE pages>

Default

8.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **BANK_P_NUMBER** variable specifies the decimal number of pages in the PPAGE banked memory area. This variable corresponds to the *Number of pages* edit box of the *PPAGE Banked Memory Area* group, of the *Banked Memory Location* dialog box. This variable has effect if the Motorola HC12 derivative supports PPAGE, and the PPAGE banked memory area has been set up. The system ignores this variable if the HC12 derivative does not support PPAGE.

Example

BANK_P_NUMBER=8

BANK_P_START

Short Description

Specifies the start address of the PPAGE banked memory area

Syntax

BANK_P_START= <hexadecimal PPAGE start address>

Default

0x8000.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **BANK_P_START** variable specifies the hexadecimal start address of the PPAGE banked memory area. This variable corresponds to the *Start Address* edit box of the *PPAGE Banked Memory Area* group, of the *Banked Memory Location* dialog box. This variable has effect if the Motorola HC12 derivative supports PPAGE, and the PPAGE banked memory area has been set up. The system ignores this variable if the HC12 derivative does not support PPAGE.

Example

```
BANK_P_START=0x8000
```

CLOSEHITOP

Short Description

Controls automatic *HiTOP* debugger closing, upon closing of *HI-WAVE*

Syntax

CLOSEHITOP= 0 | 1

Default

1.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **CLOSEHITOP** variable specifies whether to close the *HiTOP* debugger automatically, upon closing *HI-WAVE*. (You must start the *HiTOP* debugger for *HI-WAVE* to be able to communicate with a *hitex* emulator.)

Giving this variable the value 1 corresponds to checking the *Close HiTOP debugger on Quit* checkbox of the *Communication Link Specification* dialog box.

Example

CLOSEHITOP=1

CMDFILEn

Short Description

Contains a **CMDFILE** *Command Line* command to be used to define a command file on a event.

Syntax

CMDFILEn=CMDFILE <event> **ON** <filename>

Where:

n is **0**, **1**, **2**, or **3**

<event> is **STARTUP**, **RESET**, **PRELOAD**, or **POSTLOAD**

<filename> specifies a command file

Defaults

These command files are enabled:

Startup: **STARTUP.CMD**,

Reset: **RESET.CMD**,

Preload: **PRELOAD.CMD**,

Postload: **POSTLOAD.CMD**.

File

PROJECT file

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **CMDFILEn** variable specifies one of four command files, to be executed upon the corresponding event. There are four events, each with a seperate *HI-WAVE command files* for the *Hitex* Target Interface. You should define four **CMDFILEn** variable entries.

These variables correspond to specifying command-file status and names via the *Hitex Target Interface Command Files* dialog box.

Example

```
CMDFILE0=CMDFILE STARTUP ON "startup.cmd"
CMDFILE1=CMDFILE RESET ON "reset.cmd"
CMDFILE2=CMDFILE PRELOAD ON "preload.cmd"
CMDFILE3=CMDFILE POSTLOAD ON "postload.cmd"
```

CPUSTRING

Short Description

Specifies the cpu core of the derivative

Syntax

CPUSTRING = Unknown | M68HC08 | M68HC12 | ST7

Default

Unknown.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **CPUSTRING** variable specifies (to *HI-WAVE)* the cpu core of the derivative connected to the *HiTOP* debugger. This variable corresponds to the *CPU Core* drop down list box of the *CPU Identification* dialog box.

Example

CPUSTRING=M68HC12

HOST

Short Description

Specifies the host computer

Syntax

HOST=<host name>

Default

localhost.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **HOST** variable specifies the host computer: the computer on the network to which the debugger connects. The <host name> can be the computer TCP/IP address, the computer name (if a DNS server is available, or **localhost** (the computer on which *HI-WAVE* is running)

This variable corresponds to the *Host Name* edit box of the *Communication Link Specification* dialog box.

Example

```
HOST=localhost

HOST=mycomputer.metrowerks.com
```

```
HOST=172.12.0.37
```

PATHTOHITOP

Short Description

Specifies the HiTOP debugger for communication

Syntax

PATHTOHITOP=<path and executable name>

Default

C:\HITEX\HFW_6812.EXE

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **PATHTOHITOP** variable specifies the path and name of the *HiTOP* debugger that handles communication between *HI-WAVE* and the remote system.

This variable corresponds to the *HiTOP Debugger* edit box of the *Communication Link Specification* dialog box.

Example

PATHTOHITOP=C:\HITEX\HFW_6812.EXE

PORT

Short Description

Specifies the communication UDP Port

Syntax

PORT=<UDP Port number>

Default

4215.

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **PORT** variable specifies the UDP Port used for communication between *HI-WAVE* and *HiTOP*.

This variable corresponds to the *UDP Port* edit box of the *Communication Link Specification* dialog box.

Example

PORT=4215

SHOWPROT

Short Description

Enables/disables *Show Protocol* functionality

Syntax

SHOWPROT=1 | 0

Default

0 (OFF).

File

PROJECT.INI

Section

[Hitex]

Components

Hitex Target Interface.

Description

The **SHOWPROT** variable specifies whether the system reports commands and responses in the *HI-WAVE Command Line* component.

Assigning this variable a value of 1 corresponds to checking the *Show Protocol* checkbox of the *Communication Device Specification* dialog box.

Example

```
SHOWPROT=1
```

Note: The Show Protocol functionality can be used to troubleshoot communication problems.

Hitex Target Interface Command Files

The *Hitex* Target Interface lets instruct *HI-WAVE* to execute command files at certain trigger events:

- at connection: *Startup* command file,
- at reset: *Reset* command file,
- right before a file is loaded: *Preload* command file,
- right after a file has been loaded: *Postload* command file.

To specify a command file's full name and status (enabled/disabled), use the **CMDFILE** command-line command, or use the *Hitex Target Interface Command Files* dialog box.

You can use any *HI-WAVE* command in a command file. You can take advantage of the large set of commands the *HI-WAVE* manual introduces to set up the target hardware for an event.

Example command file content:

```
WB 0x0035 0x00
WB 0x0012 0x11
PROTOCOL OFF
```

- The **WB 0x0035 0x00** command sets memory location **0x35** to **0**.
- The **WB 0x0012 0x11** command sets memory location **0x12** to **0x11**.
- The command **PROTOCOL OFF** specifies *no* command and response reporting in the command line.

Startup Command File

HI-WAVE executes the *Startup command file* as soon as you load the *Hitex* Target Interface.

To change the parameters of this feature, either use the **CMDFILE STARTUP** command-line command or use the *Startup* property page of the *Hitex Target Interface Command Files* dialog box.

The default *Startup* command file is the **STARTUP.CMD** file in the current project directory.

Reset Command File

HI-WAVE executes the *Reset command file* as soon as you specify a reset. (You can click the reset toolbar button, choose a reset menu command, or enter a reset command-line command.)

To change the parameters of this feature, use the **CMDFILE RESET** command-line command or use the *Reset* property page of the *Hitex Target Interface Command Files* dialog box.

The default *Reset* command file is the **RESET.CMD** file in the current project directory.

Preload Command File

HI-WAVE executes the *Preload command file* just before the system loads an application to the target system through the *Hitex* Target Interface.

To change the parameters of this feature, either use the **CMDFILE PRELOAD** command-line command or use the *Preload* property page of the *Hitex Target Interface Command Files* dialog box.

The default *Preload* command file is the **PRELOAD.CMD** file in the current project directory.

Postload Command File

HI-WAVE executes the *Postload command file* just after the system loads an application to the target system through the *Hitex* Target Interface.

To change the parameters of this feature, either use the **CMDFILE POSTLOAD** command-line command or use the *Postload* property page of the *Hitex Target Interface Command Files* dialog box.

The default *Postload* command file is the **POSTLOAD.CMD** file in the current project directory.

Hitex Target Interface Commands

After setting the *Hitex* target interface, you can use only a subset of the *HiTex* Target Interface commands:

```
CMDFILE
PROTOCOL
PT
RESET
```

You can enter these commands in the *command files* or you can enter these commands in the in the *HI-WAVE Command Line* component.

The rest of this section describes these commands, in alphabetic order, and in this standard topic order:

Topic	Description
Short Description	Short description of the command.
Syntax	EBNF syntax of the command.
Alias	Synonym, if any.
Components	Component on which the command depends.
Description	Full description and instructions.
Example	Small example of using the command.

CMDFILE

Short Description

Sets the file path, name, and status of a command file.

Syntax

CMDFILE <file kind> ON|OFF ["<file name and path>"]

Alias

None

Components

Hitex Target Interface.

Description

The **CMDFILE** command sets up a *command file* full name and status (disabled/ enabled). Using this command corresponds to making the same settings by using the *Hitex Target Interface Command Files*.

The system stores command-file settings in the **[Hitex]** section of the **PROJECT** file (variable **CMDFILEn**).

Example

For the list of available command files, enter **CMDFILE** without any parameters.

```
in>CMDFILE
Hitex Target Interface Command Files:
STARTUP ON  startup.cmd
RESET  ON  reset.cmd
PRELOAD ON  preload.cmd
POSTLOAD  ON  postload.cmd
```

You can change the status of the *Startup* command file:

```
in>CMDFILE STARTUP OFF "my own startup.cmd"
in>CMDFILE
```

```
Hitex Target Interface Command Files:
STARTUP   OFF my own startup.cmd
RESET    ON  reset.cmd
PRELOAD   ON  preload.cmd
POSTLOAD   ON  postload.cmd
```

PROTOCOL

Short Description

Enables/disables the *Show Protocol* functionality

Syntax

PROTOCOL ON|OFF

Alias

None

Components

Hitex Target Interface.

Description

The **PROTOCOL** command specifies whether to display commands to (and responses from) the *HiTOP debugger* in the *HI-WAVE Command Line* window.

Giving this command the value OFF corresponds to checking the *Show Protocol* checkbox of the *Communication Link Specification* dialog box.

The system stores the Show Protocol functionality state in the **[Hitex]** section of the **PROJECT.INI** file (variable **SHOWPROT**) .

Example

```
PROTOCOL ON
```

Note: The Show Protocol functionality is a useful debugging feature, in case of a communication problem.

PT

Short Description

Pass through *HiSCRIPT* commands

Syntax

PT <HiSCRIPT command>

Alias

None

Components

Hitex Target Interface.

Description

The **PT** command executes a *HiSCRIPT* command within *HI-WAVE*. The *HiSCRIPT* command follows the PT command; it can be an entry in the *Command Line* component or in a command file.

As soon as the system sends the *HiSCRIPT* command to the *HiTOP* debugger, the system refreshes the *HI-WAVE* status.

Example

```
PT RESET TARGET
```

RESET

Short Description

Resets the target board

Syntax

RESET

Alias

None

Components

Hitex Target Interface.

Description

The **RESET** command resets the target.

The system resets the target board (using the **RESET TARGET** *HiSCRIPT* command), then executes the *Reset* command file.

Example

```
RESET
```

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