HUNT ENGINEERING

Create new HERON-API project Plug-in for Code Composer Studio

USER MANUAL

TECHNICAL SUPPORT

Technical support for HUNT ENGINEERING products should first be obtained from the comprehensive Support section http://www.hunteng.co.uk/support/index.htm on the HUNT ENGINEERING web site. This includes FAQs, latest product, software and documentation updates etc. Or contact your local supplier - if you are unsure of details please refer to http://www.hunteng.co.uk for the list of current re-sellers.

HUNT ENGINEERING technical support can be contacted by emailing support@hunteng.co.uk, calling the direct support telephone number +44 (0)1278 760775, or by calling the general number +44 (0)1278 760188 and choosing the technical support option.

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Code Composer Studio is a generic development tool for the C6000 DSP. As such it cannot have any knowledge of the individual hardware system that you are using.

Code Composer offers a Project→ new menu to create a new project. This however has no knowledge of the HERON hardware that you are using.

The Create new project plug in asks which HERON module type you want to make the project for, and correctly configures the memory map etc using a default configuration (.cdb) file, includes the correct libraries and sets the optimal project settings for a HERON project.

That project can include an existing source file, which will be edited to include the correct HERON-API version for the module you selected. If you don't yet have one the plug-in will generate you a template file.

If your project requires different settings from the default ones you can simply change the project as you wish.

It is a vital tool when making C6000 projects for HERON systems.

The Code Composer Studio plug ins are installed on a windows system by the HUNT ENGINEERING C6000 Software Developers Pack installation. Code Composer Studio is not supported under other operating systems so the plug ins cannot be supplied for them.

The HUNT ENGINEERING Plug ins can be found when you are in Code Composer under Tools--> HUNT ENGINEERING
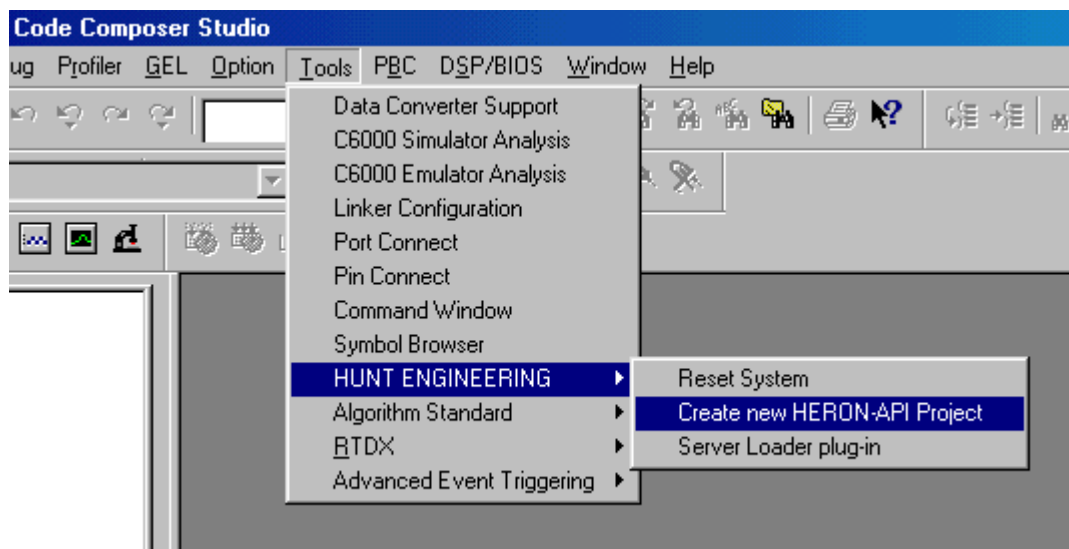
The installation process should register the plug ins with Code Composer Studio, but if it is missing from the Tools menu item the plug in can be registered using the HUNT ENGINEERING Confidence Check program.

This is found from the Start→programs→ HUNT ENGINEERING menu from windows
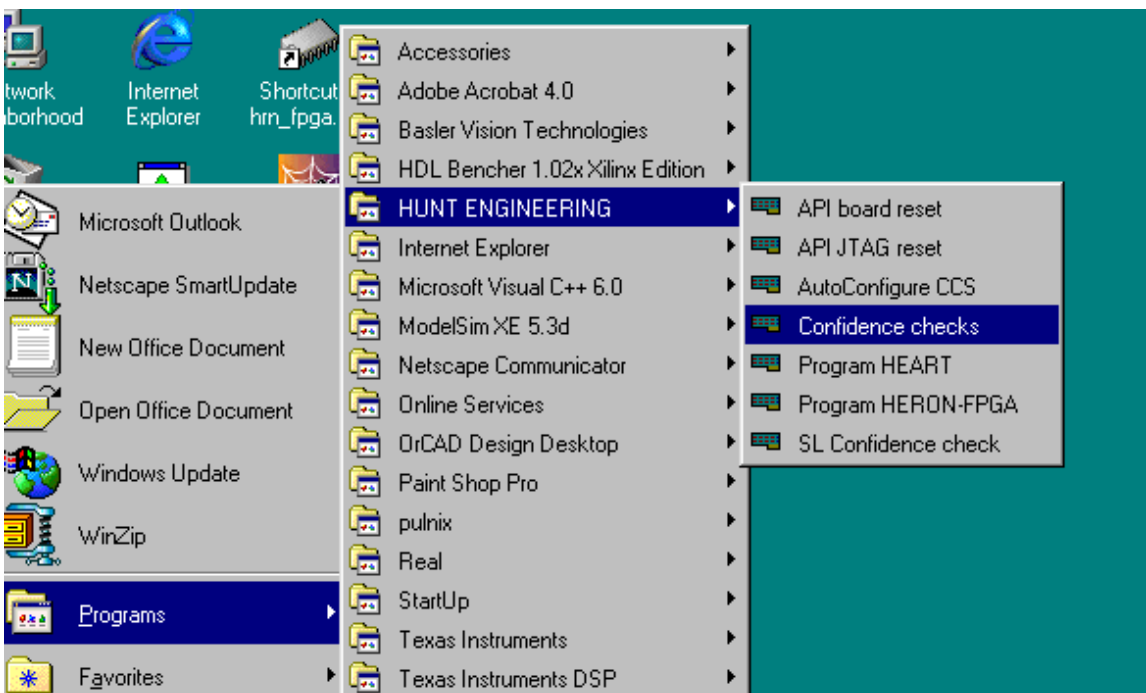
From there you can choose Code Composer ➔ Reset Plug in ➔ register, to register the plug in by hand.
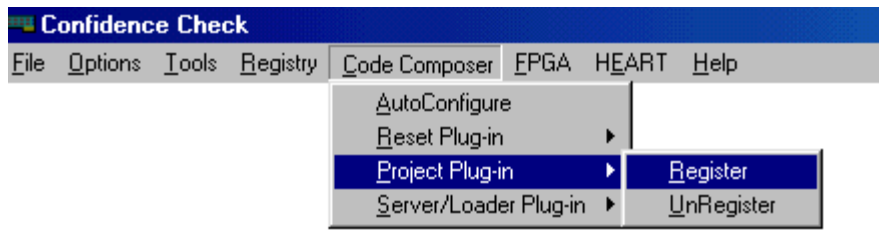
When you select the Create new HERON-API project plug in from the Code Composer Tools → HUNT ENGINEERING menu the plug in will appear as a window at the bottom of you Code Composer window.
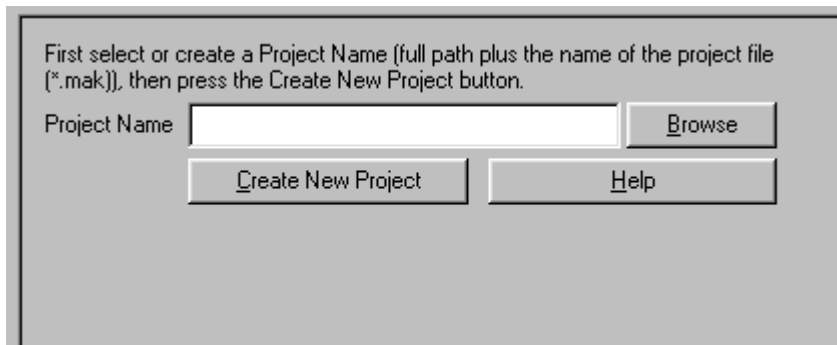
To configure how the tool will work you can right click your mouse on the background of the plug in to get the menus

Then select Property Page to see
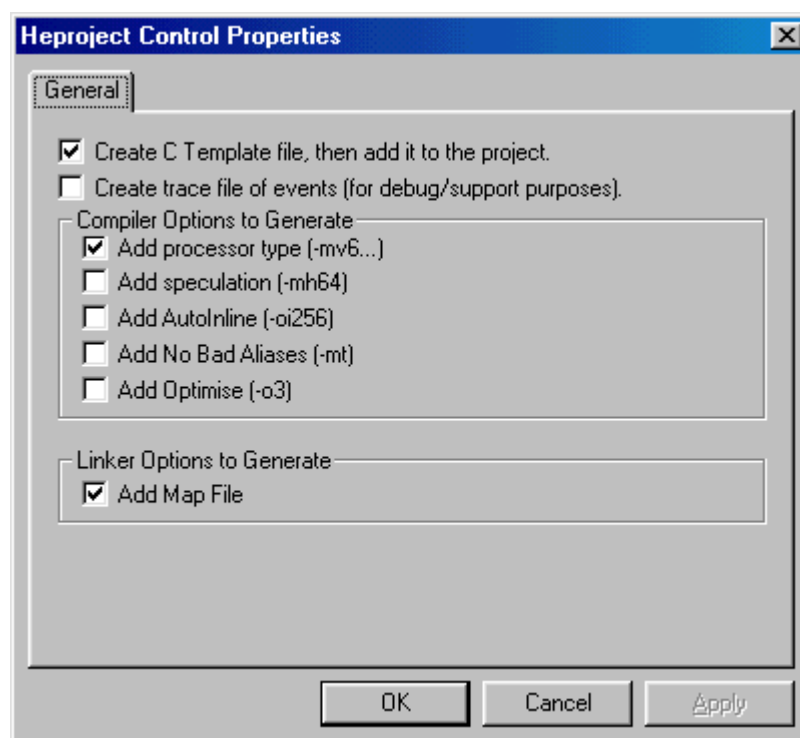
From there you can choose the various project settings that you would like to use in the new project.

Returning to the plug-in, you need to select a project path and name. You can use the browse button to navigate to the directory you want where you can select an existing project, or use the name of a C file you want to make the project with
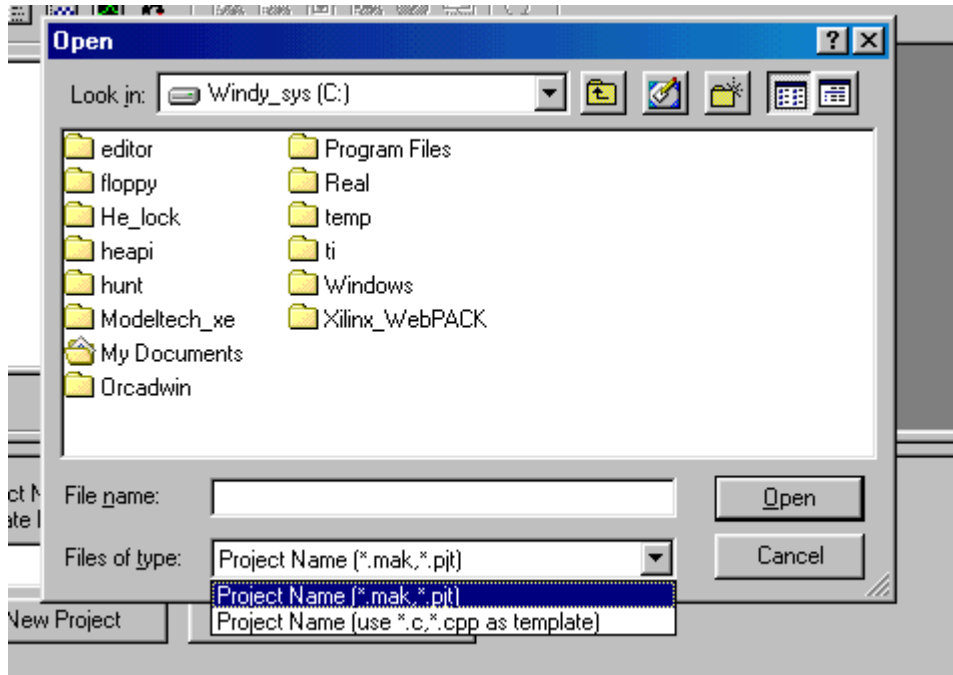
Alternatively you can simply type the path and name into the box on the tool.

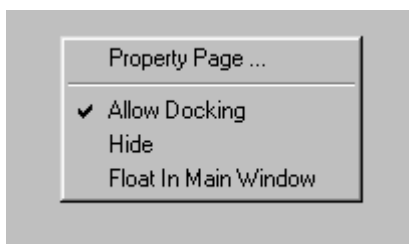In either case a C file will be included as the main C file of the project if it has the same name as the project you are making, and is in the same directory as the project you are making.
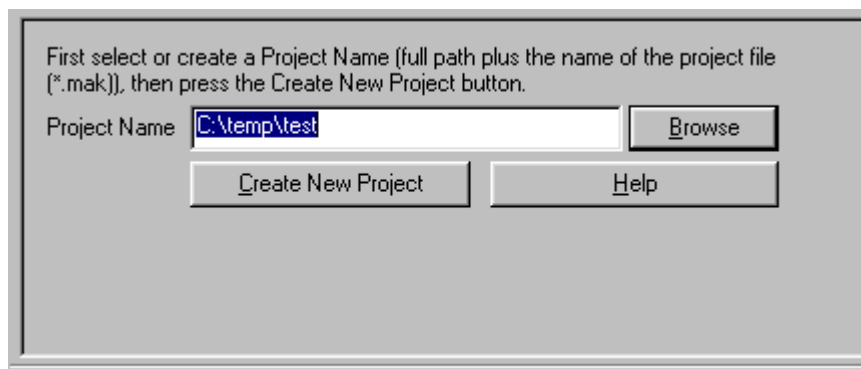
Now press Create New Project and you will be asked what module type the project should be for

When you select the type you want, press OK.

The next question that you are asked is
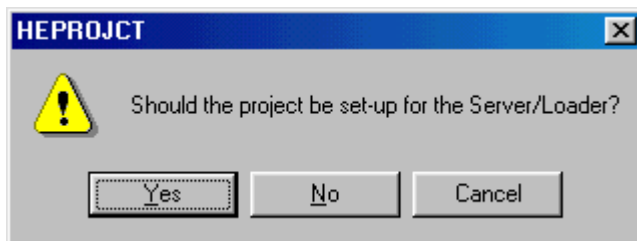
Answer according to the project type you want to make. The Server/Loader is a tool that allows you to boot the modules (C6000 and FPGA), configure HEART and offer Fast access to the STDIO resources of your host machine. See the separate user manuals for the Server/Loader and it's associated Code Composer Plug in.

The project for a Server/Loader application and a non Server/Loader application need to be set up differently so be sure to select the correct type.
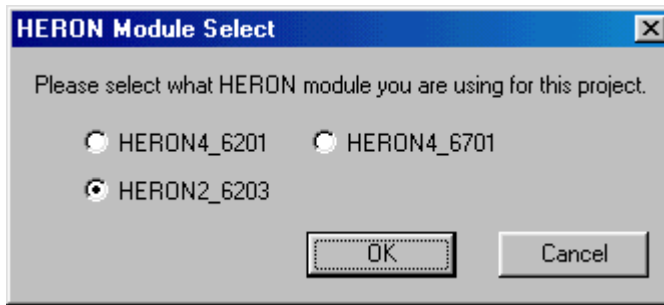
If there was not already a C file to include in the project, you are told:-
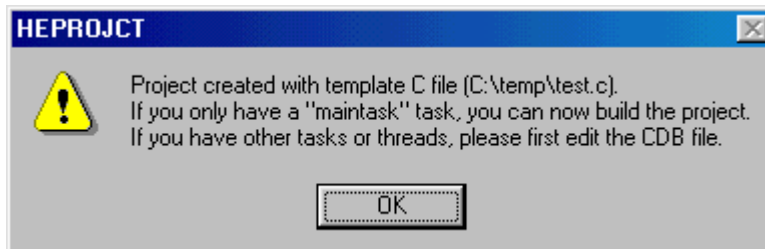
If there was you will get the message:-
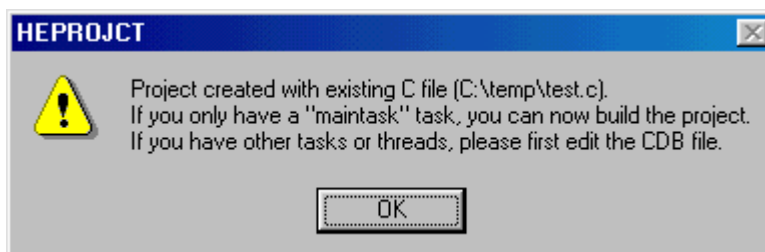
Either way, if you do not need any more than one task (called maintask) and you do not have any SWIs then you can build the project and run it using the reset or Server/Loader plug ins.

If your project does need more tasks, SWIs etc you can edit the .cdb file to reflect your needs.

The standard project is configured to use the instruction cache and to place all code into external memory. You can change this by editing the .cdb file as you want.

The standard project includes HERON-API which you will use to access the module specific hardware in a hardware independent way. HERON-API also manages the DMA engines to perform transfers to and from the HERON FIFOs.

The standard project places data that HERON-API uses into internal data memory. It does this by including an extra configuration (.cfg) file in the project that contains statements like :-

```
SECTIONS
{
        heronapi_code >              SDRAM0
        heronapi_data  >             IDRAM
}
```

You can place the HERON API data into a different memory segment by editing this file.

The standard project settings are to have no optimisation on, which makes for simpler debugging. You can change that under project settings for an existing project
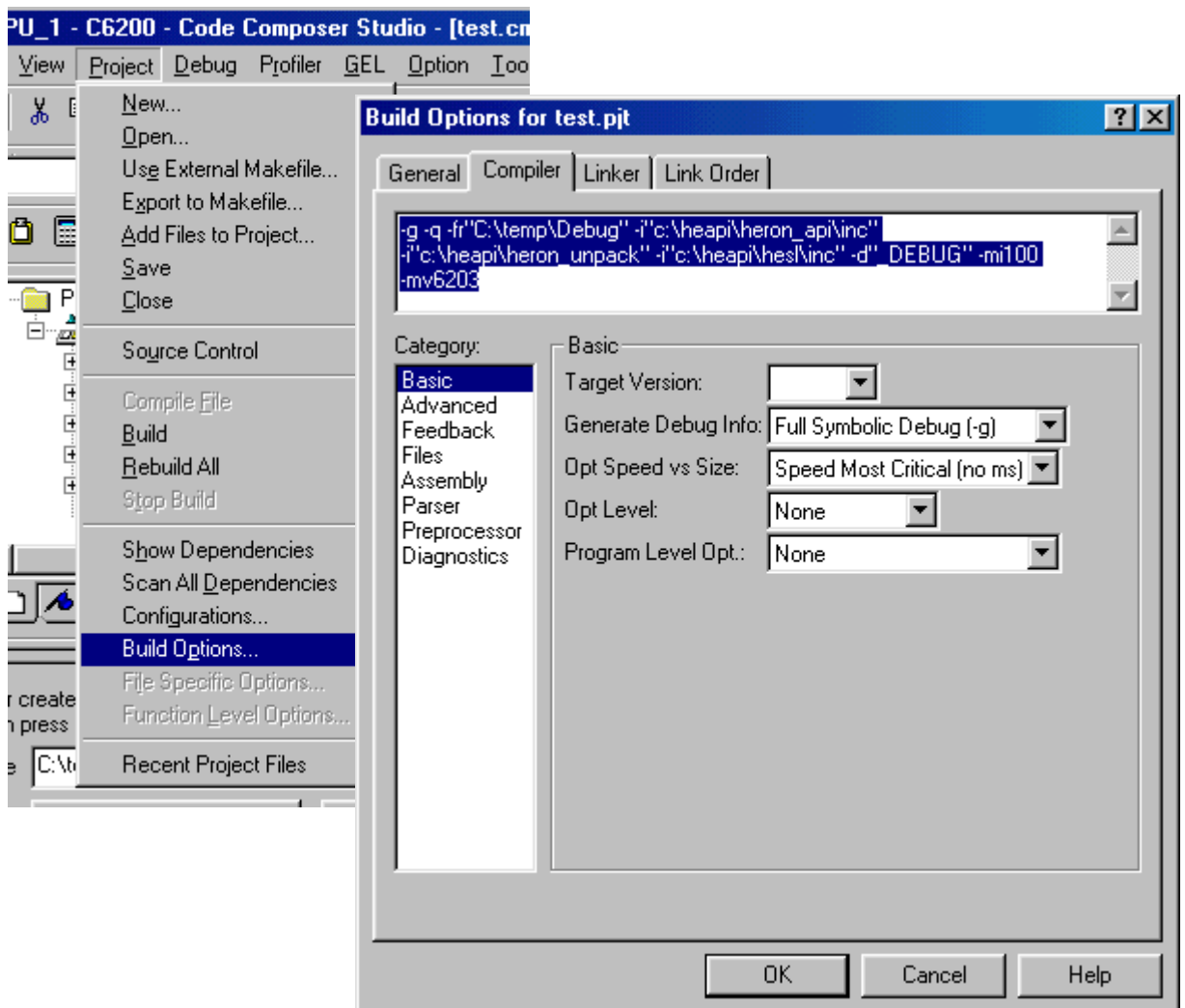
Or you could select the "default" optimisation setting from the property page discussed above.

The project is set to include the correct paths which are taken from the environmental variables set during the installation of your software.

The C file in the project should include the correct HERON-API functions using a line like
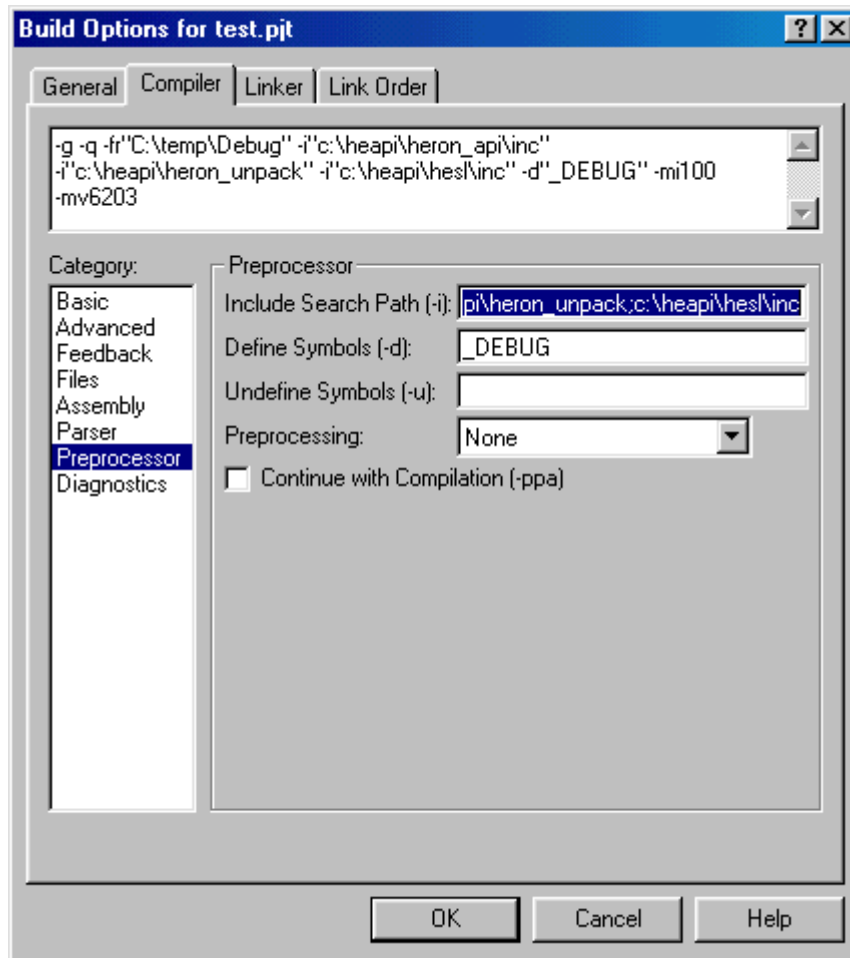
#include "heron2.h"

That line will appear in the template project created for an empty project, and if a similar line already exists in a C file that is included into the project by the plug in, it will be edited to reflect you choice when you made the project.

In this way a C file taken from the HUNT ENGINEERING CD, may include a HERON4 HERON-API, but by using the plug in to create a new project with that file, it will be automatically edited for the module you have chosen.

This is the single change needed in the source code to switch a HERON-API project from one module type to another. However different .cdb files will also be required to reflect the memory configuration etc of the different module.

Note that if you have a project with multiple C files, only 1 C file (the one used to create the project) will have the include statement updated. But all other C files, the ones that you add by Project → Add Files to Project…, will not automatically have this done. With these files you must yourself ensure that you include the correct heron include file.

Whenever you make a project for a HERON system you should use the plug in. A project will immediately be created that can be built and run on your HERON system. You can then change the project to meet your requirements, as you want.

If you move from one version of Code Composer to another version, the project will almost certainly NOT import from the other version. Using the plug in you can create a new project including the same source files that will compile and run under the new version.

If you want to change a project from non Server/Loader to a Server/Loader project or vice versa the Plug in should be used to include the correct settings, libraries etc.

If you want to change a project from one module type to another then you should use the plug in to ensure that you are using the correct configuration files etc.

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