

# ***SmartDesign MSS***

*Running the MSS Configurator in your Software Tool Chain*

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# Integrating the SmartDesign MSS Configurator in your Software Tool Chain

The SmartDesign MSS Configurator can be invoked independently of the Libero IDE tool chain. This can be useful if you are responsible for the embedded code development for the SmartFusion device and are more comfortable in your existing software tool chain.

Any FPGA fabric development needs to be done within the Libero® IDE tool suite. Using the MSS Configurator in standalone mode only enables you to configure the SmartFusion Microcontroller Subsystem (MSS) and not the FPGA fabric.

In this document we will explain how to set up the SmartDesign MSS Configurator to run in your software tool chain. For information on how to hand off your design between different domain experts on your team, see [“Passing your MSS Configuration to the FPGA Engineer”](#) on page 11.

## SoftConsole

You must use SoftConsole v3.1.0.18 or newer for SmartFusion support.

### **To add the SmartDesign MSS Configurator as an external tool in SoftConsole:**

1. From the **Run** menu, choose **External Tools > Open External Tools Dialog**.
2. Double-click **Program** to add a new External Tool configuration
3. Name it SmartDesign MSS Configurator and set the location to the smartdesign.exe in your <Libero IDE installation>\Designer\bin folder.
4. Add arguments to set the default parameters and tool info as follows:

```
"PROJECT_LOCATION:${project_loc} "  
"DESIGN_NAME:${project_name} "  
"STARTED_BY:SoftConsole"  
"FIRMWARE_WORK_DIR:${project_loc} "  
"DEFAULT_SAMPLE_FOLDER:${workspace_loc}
```

DESIGN\_NAME is the default name for your design; modify the variable if you want to use a different name.

FIRMWARE\_WORK\_DIR specifies the location for your generated files; modify the variable to change the location.

DEFAULT\_SAMPLE\_FOLDER is the default folder where you want your firmware sample projects to be generated. Note that if the sample projects are generated into the workspace folder, then you will need to manually import them into SoftConsole.

Figure 1 shows the External Tools dialog after you set it up.

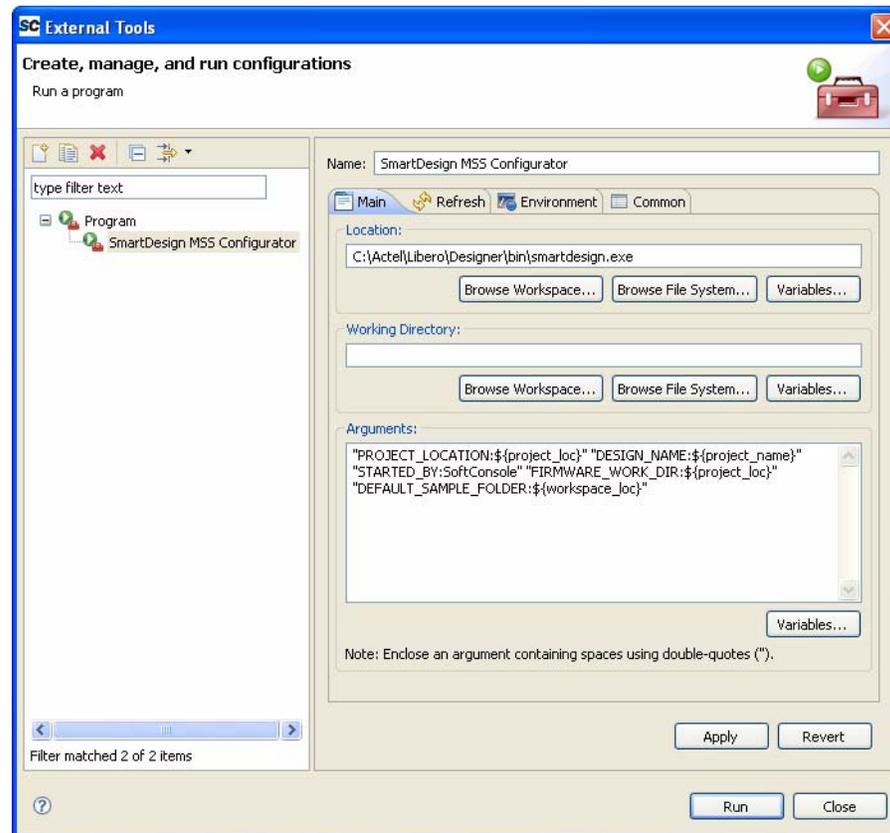


Figure 1 · SoftConsole External Tools Dialog Box

5. Click **Apply** to create the new program and add it to the list of available programs. Click **Run** to test the MSS Configurator.

## Keil and IAR

The SmartDesign MSS Configurator can be integrated in any development IDE that supports external tools. Configure your IDE to start the SmartDesign MSS Configurator's executable and use the parameters below to customize your interface.

```
"PROJECT_LOCATION:<path>"
"DESIGN_NAME:<name>"
"STARTED_BY:<tool>"
"FIRMWARE_WORK_DIR:<path>"
"DEFAULT_SAMPLE_FOLDER:<path>"
```

Table 1 lists the arguments for the Keil and IAR development environments.

Table 1 · Arguments

Name	Description	Possible Values
PROJECT_LOCATION	Project directory location. This is where the MSS files will be generated.	<path>
DESIGN_NAME	Name of your MSS design	<name>
STARTED_BY	Identifies which tool invoked the SmartDesign MSS Configurator.	[ SoftConsole   Keil   IAR EWARM ]
FIRMWARE_WORK_DIR	Location where the firmware and driver files will be generated	<path>
DEFAULT_SAMPLE_FOLDER	Location where sample firmware projects are generated	<path>

## Command Line

If your tool does not support adding any external tools, then you can invoke the SmartDesign MSS Configurator directly from the command line and pass these values as arguments, for example:

```
smartdesign.exe "PROJECT_LOCATION:C:/Project" "DESIGN_NAME:MyMSS" "STARTED_BY:Keil"
"FIRMWARE_WORK_DIR:C:/Project/firmware"
```



# Programming your MSS Configuration

After setting up the SmartDesign MSS Configurator and generating your design, you will be able to program your MSS configuration onto the SmartFusion device. The SmartDesign MSS Configurator produces the following files for programming:

- EFC: MSS configuration that is programmed into ENVM. Generated by MSS Configurator to  
`<project>\component\work\<mss>\MSS_ENVM_0\MSS_ENVM_0.efc`
- UFC: eFROM configuration that is programmed into eFROM (only exported if you have configured eFROM). Generated by MSS Configurator EFROM to  
`<project>\component\work\<mss>\MSS_UFROM_0\MSS_UFROM_0.ufc`

**To import these files into FlashPro for programming:**

1. Open FlashPro and create a FlashPro project. See the FlashPro help for instructions on how to create a FlashPro project.
2. Click **Create** to create a new PDB. Select the **Device** and **Package** for your SmartFusion device (as shown in [Figure 1-1](#)).

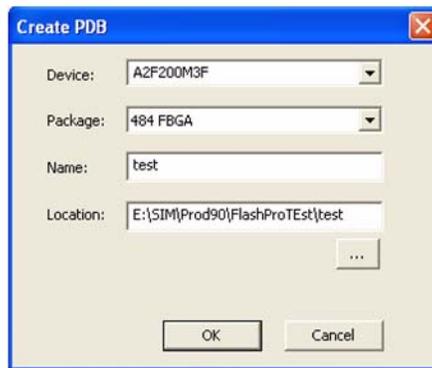


Figure 1-1 · Create PDB Dialog Box

3. Specify your Embedded Flash memory and FlashROM content. Point to the EFC file for the EFM and the UFC file for the FlashROM (as shown in [Figure 1-2](#)).

4. Save the PDB. You can now program your device.

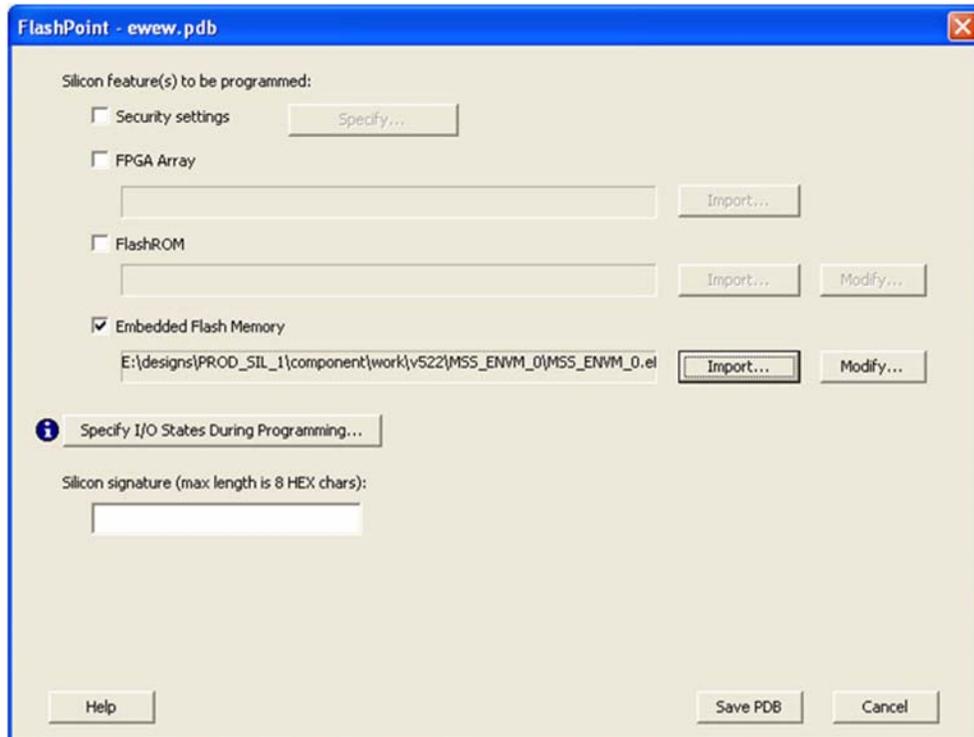


Figure 1-2 · Specify Location of EFM and FlashROM (UFC) File

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## Passing your MSS Configuration to the FPGA Engineer

If you want to extend your SmartFusion MSS with additional soft peripherals or custom logic in the fabric, then you must do so within the Libero IDE tool.

Your MSS configuration can be passed to an FPGA engineer to complete the fabric portion of the design. The files that need to be handed off are located at:

```
<project>\component\work\<design_name>\
```

The files you need are:

```
<design_name>.cdf, <design_name>.sdb
```

## Importing MSS Configuration Files into the Libero IDE Project Manager

***To import the <design\_name>.cdf and <design\_name>.sdb files from the MSS Configuration:***

Open your Libero IDE project, from the **File** menu choose **Import Files** and select **Components** as the file type.

Navigate to the <design\_name>.cdf file.

- If your project does not contain a component of the same name and there is not another MSS in the project, then it will be imported into your project.
- If your project already contains an MSS of the same name, you will be prompted to overwrite the component.

Once imported, the MSS Component appears in your Libero IDE project.



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Actel staffs its Customer Technical Support Center with highly skilled engineers who can help answer your hardware, software, and design questions. The Customer Technical Support Center spends a great deal of time creating application notes and answers to FAQs. So, before you contact us, please visit our online resources. It is very likely we have already answered your questions.

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Visit the [Actel Customer Support website \(www.actel.com/support/search/default.aspx\)](http://www.actel.com/support/search/default.aspx) for more information and support. Many answers available on the searchable web resource include diagrams, illustrations, and links to other resources on the Actel web site.

### Website

You can browse a variety of technical and non-technical information on Actel's [home page](http://www.actel.com), at [www.actel.com](http://www.actel.com).

### Contacting the Customer Technical Support Center

Highly skilled engineers staff the Technical Support Center from 7:00 A.M. to 6:00 P.M., Pacific Time, Monday through Friday. Several ways of contacting the Center follow:

#### Email

You can communicate your technical questions to our email address and receive answers back by email, fax, or phone. Also, if you have design problems, you can email your design files to receive assistance. We constantly monitor the email account throughout the day. When sending your request to us, please be sure to include your full name, company name, and your contact information for efficient processing of your request.

The technical support email address is [tech@actel.com](mailto:tech@actel.com).

## Phone

Our Technical Support Center answers all calls. The center retrieves information, such as your name, company name, phone number and your question, and then issues a case number. The Center then forwards the information to a queue where the first available application engineer receives the data and returns your call. The phone hours are from 7:00 A.M. to 6:00 P.M., Pacific Time, Monday through Friday. The Technical Support numbers are:

**650.318.4460**  
**800.262.1060**

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