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# ***SmartDesign MSS***

## ***Embedded FlashROM (eFROM) Configuration***



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## Configuring Memory Regions

SmartFusion devices have 1,024 bits of on-chip nonvolatile flash memory called embedded flash read only memory (embedded FlashROM or eFROM). The eFROM can be read and written via the JTAG interface when performing external device programming. This embedded flash read only memory is directly accessible for reading during normal operation from user firmware running on the SmartFusion microcontroller subsystem (MSS).

In this document we describe in details how to configure the eFROM read only memory. For more details about the eFROM, please refer to the [Actel SmartFusion Microcontroller Subsystem User's Guide](#).

The Embedded FlashROM can be partitioned into regions and each region can be used for a specific purpose, like serial number storage, version number saving, etc.

The configurator enables you to create a region within a page, modify the region, and assign properties to that region (as shown in [Figure 1](#)). The regions you create can be of arbitrary widths (up to sixteen).

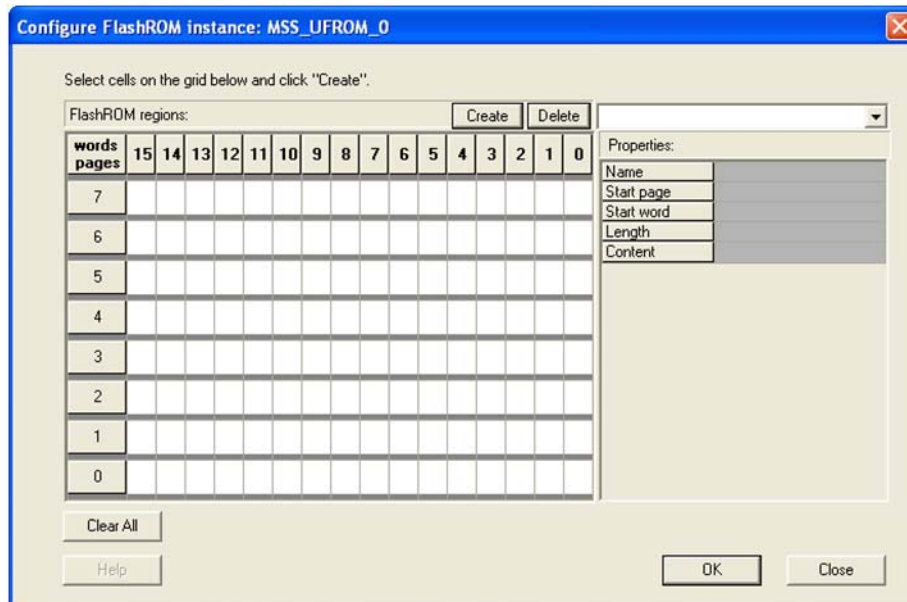


Figure 1 • MSS eFROM

### Creating a Region

1. Click and drag the mouse to select words.
2. Click the **Create** button. The new region properties are displayed in the Properties grid.
3. Click in the **Properties** grid to modify region properties.
  - Start page, Start word, and Length are read-only.
  - You can specify whether the content in this region is Fixed (meaning what you enter here in the GUI is fixed), or Modifiable if you expect to change it the future.
  - The data you enter is validated as soon as you leave the Properties grid and select another region.

You may also right-click a word and choose **Create** from the shortcut menu, or select a word and press the **Insert** key on your keyboard. You can copy and paste regions in the configuration grid; to do so, right-click a word and choose **Copy**, then click an empty word, right-click, and choose **Paste**. The region will not be copied if the page does not have enough room. Try another page with more room.

## Specifying Regions Data

To specify the data that goes into the memory region you just created, you must specify the Type of the content you are about to enter: Binary, Hexadecimal, Decimal, or Text (Character String). And finally, you must specify the actual data in the Value field.

For each region created in the Configuration Grid you can enter the following properties:

### Content

**Static** - Data entered manually when the core is configured and is not changeable. This option is useful when you have fixed data stored in this region that is required for the operation of the design in the FPGA. Key storage is one example.

**Auto Inc** - Specify a starting number, a maximum number and the size of each step between. The starting value and maximum value can be modified in FlashPoint (from FlashPro).

**Read from File** - Data is read from a content file into the selected region. A different content file may be selected in FlashPoint (from FlashPro).

### State

- **Fixed** - Enables you to fix the data so that it cannot be changed during programming time. This option is useful when you have fixed data stored in this region that is required for the operation of the design in the FPGA. Key storage is one example.
- **Modifiable** - Select this option when the data in a particular region is expected to be static data (such as a version number, which remains the same for a long duration, but could conceivably change in the future). This option enables you to identify this region so that you need not come back and change the value every time you enter new data.

### Type (Format)

Specify the data format of the region in the Value field. For example, if you choose DEC for the type then you can only type a decimal value into that field. Text enables you to enter any character string.

### Value

This is the actual content that you want programmed into that FlashROM region.

## Deleting a Region

1. Click to select a region in the Regions window.
2. Click the Delete button in the core generator, press the Delete key on the keyboard or right-click and choose Delete from the shortcut menu.

## Saving a Configuration

Click the OK button. The configuration is saved in the MSS design database and can be modified by re-opening the MSS eFROM configurator.

## A – Product Support

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The Microsemi SoC Products Group backs its products with various support services including a Customer Technical Support Center and Non-Technical Customer Service. This appendix contains information about contacting the SoC Products Group and using these support services.

### Contacting the Customer Technical Support Center

Microsemi 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.

#### Technical Support

Microsemi customers can receive technical support on Microsemi SoC products by calling Technical Support Hotline anytime Monday through Friday. Customers also have the option to interactively submit and track cases online at My Cases or submit questions through email anytime during the week.

Web: [www.actel.com/mycases](http://www.actel.com/mycases)

Phone (North America): 1.800.262.1060

Phone (International): +1 650.318.4460

Email: [soc\\_tech@microsemi.com](mailto:soc_tech@microsemi.com)

#### ITAR Technical Support

Microsemi customers can receive ITAR technical support on Microsemi SoC products by calling ITAR Technical Support Hotline: Monday through Friday, from 9 AM to 6 PM Pacific Time. Customers also have the option to interactively submit and track cases online at My Cases or submit questions through email anytime during the week.

Web: [www.actel.com/mycases](http://www.actel.com/mycases)

Phone (North America): 1.888.988.ITAR

Phone (International): +1 650.318.4900

Email: [soc\\_tech\\_itar@microsemi.com](mailto:soc_tech_itar@microsemi.com)

### Non-Technical Customer Service

Contact Customer Service for non-technical product support, such as product pricing, product upgrades, update information, order status, and authorization.

Microsemi's customer service representatives are available Monday through Friday, from 8 AM to 5 PM Pacific Time, to answer non-technical questions.

Phone: +1 650.318.2470



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