SmartFusion2 MSS

Configurator

Microsemi

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Introduction

The MSS Component Configurator presents you with a graphical block diagram of the SmartFusion2 Microcontroller Subsystem. You can enable/disable and configure each MSS sub-block as per your application requirements (Figure 1).
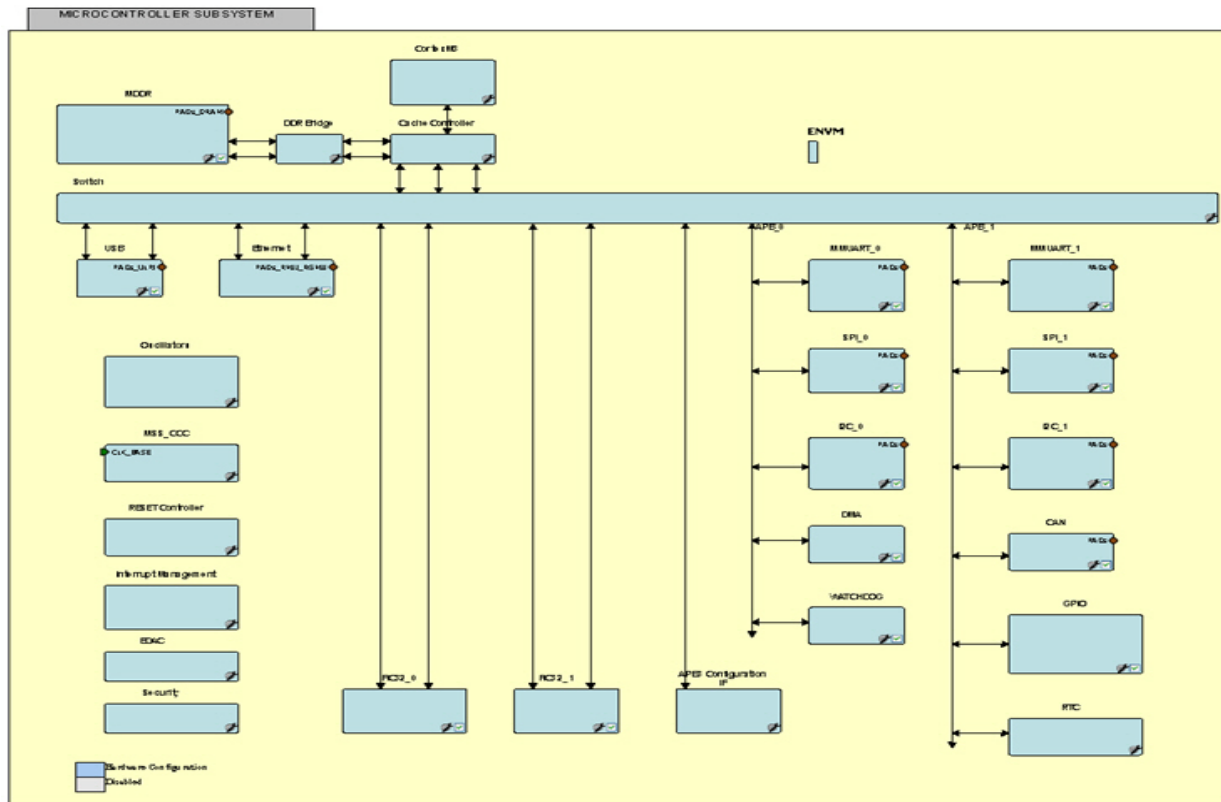

Figure 1 • **MSS Component Configurator**

1 –   Peripherals

Enabling/Disabling MSS Sub-blocks

Certain peripherals in the MSS can be enabled or disabled. This is indicated graphically by the checkbox in the lower right corner of the instance item in the Canvas, as shown in Figure 1-1.
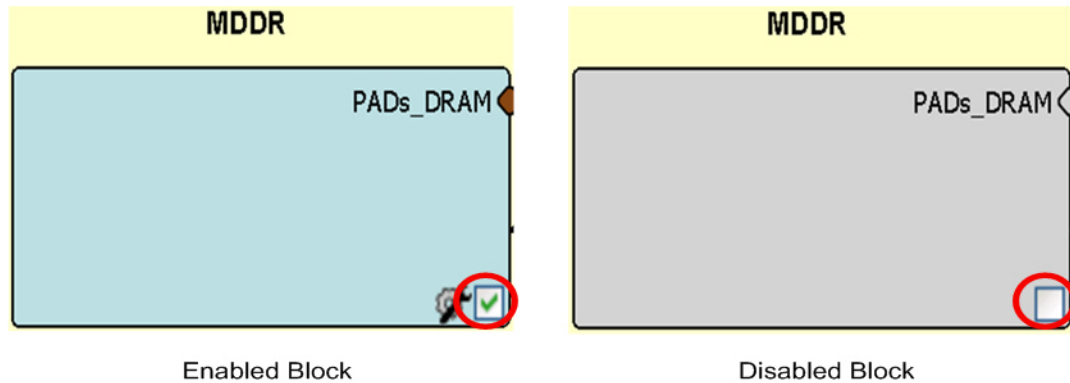

Figure 1-1 • **Enabled and Disabled Blocks**

Click the checkbox icon to enable or disable the sub-block.

You can also use the shortcut (right-click) menu to enable or disable a block. To do so, right-click the block and choose **Disable**.

Why would I disable or enable a sub-block?

- Disabling a sub-block causes it to be held in reset when the Microcontroller Subsystem is powered up. This minimizes any activity that may occur in the sub-block after startup and reduces power consumption.
- In the case of digital peripherals such as USB, Ethernet MAC, MMUART, I2C, SPI, CAN and GPIO it is important to disable peripherals that are not used by the application as they share chip level general purpose I/O resources with other peripherals as well as the FPGA fabric. Leaving a peripheral enabled may prevent you from using other peripherals and lower the total number of general purpose I/Os available to the FPGA fabric.

Configuring Sub-blocks

MSS peripherals that have configurable options have a wrench icon in the lower right corner of the instance item in the Canvas, as shown in Figure 1-2.

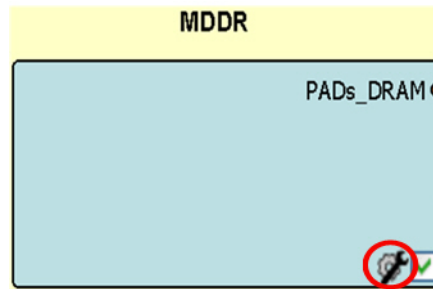Click the wrench icon or double-click the instance to configure the peripheral.

Figure 1-2 • **Wrench Icon on the MSS Canvas**

You can also use the shortcut (right-click) menu to configure the sub-block. To do so, right-click the sub-block and choose **Configure**.

2 – MSS Configuration Guidelines

Although the MSS configurator allows you to configure all sub-blocks out of order, Microsemi recommends that you configure the various sub-blocks in a particular order as the configuration of some sub-blocks depends on others.

Configure the MSS sub-blocks in the following order:

1. External Memory Configuration (MDDR sub-block)
2. Fabric Interface Controller (FIC32_0 and FIC32_1 sub-blocks)
3. MSS digital peripherals in the following order to minimize I/O sharing conflicts:
    – Disable all peripherals that are not being used
    – Configure USB and Ethernet MAC
    – Configure MMUART, I2C, SPI and CAN peripherals
    – Configure GPIO's
4. Clocks (CCC sub-block)
5. Resets (RESET sub-blocks)
6. All other blocks

For example, re-configuring the Fabric Controller Interfaces (FIC32) impacts how the MSS clocks (CCC) are configured:

- Using the CAN will require that the MSS clock (M3_CLK) be a multiple of 8MHz
- Using the USB requires that the MSS clock (M3_CLK) be greater than 30.1MHz
- Configuring the GPIO's first may prevent you from using an entire digital peripheral

Refer to the Configuring the MSS Clock Sub-system document for more details about MSS clock configuration requirements.

For more information on configuring the MSS Sub-blocks, see their documentation.

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Customer Service

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

From North America, call 800.262.1060
From the rest of the world, call 650.318.4460
Fax, from anywhere in the world, 650.318.8044

Customer Technical Support Center

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

Technical Support

Visit the Customer Support website (www.microsemi.com/soc/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 website.

Website

You can browse a variety of technical and non-technical information on the SoC home page, at www.microsemi.com/soc.

Contacting the Customer Technical Support Center

Highly skilled engineers staff the Technical Support Center. The Technical Support Center can be contacted by email or through the Microsemi SoC Products Group website.

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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 soc_tech@microsemi.com.

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