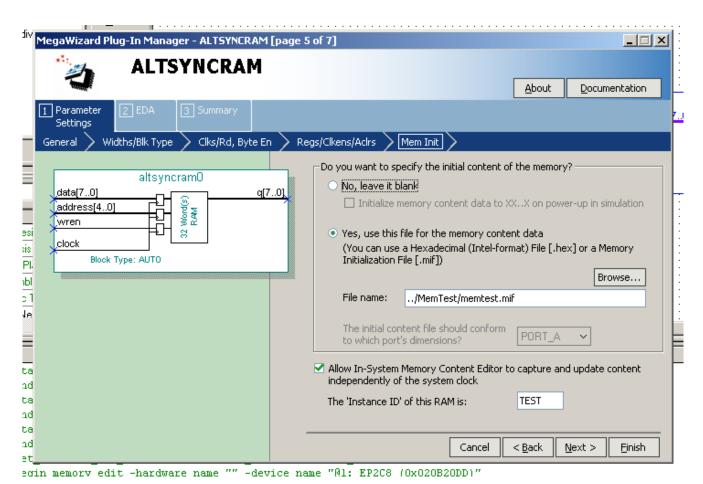
EEL 4712

Alex Weinert Dr. Herman Lam 25-Feb-08

Revision 0 **Tutorial for Quartus' In-System Memory Content Editor**

The In-System Memory Content Editor allows you to view and edit the content of memory over the JTAG interface. Under the Mem Init Tab in the altsyncram MegaWizard, check the box to "Allow In-System Memory Content Editor to capture and update content independently of the system clock". The Instance ID will allow you to differentiate the RAMs if you have more than one RAM with the Content Editor enabled. The rest of the settings will be the same as if you weren't using the In-System Memory Content Editor. However, you cannot use dual-port mode, as the Content Editor uses one of the ports.

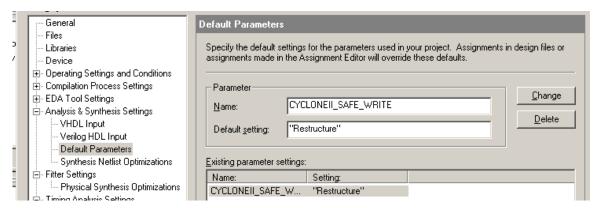


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Revision 0 **Tutorial for Quartus' In-System Memory Content Editor**

You will need to do a workaround if you get the error "M4K Block WYSIWYG primitive ... utilizes dual-port dual-clock mode...". This error occurs because of an error in the CycloneII M4K memory blocks that causes writes to fail occasionally if there is a specific phase relation between the clocks. To fix this, go to Assignments > Settings... > Analysis and Synthesis Settings > Default Parameters. Add a new parameter with the name CYCLONEII_SAFE_WRITE with a default value of "Restructure".



Compile and download you project to you board as normal. You must keep you JTAG programmer connected to your board to use the in-System Memory Content Editor. Now go to Tools > In-System Memory Content Editor. Select the device you are using for JTAG, for most of you this is the USB-Blaster. You should now see the instance ID for your RAM device in the list. You have the options of reading the RAM, continuously reading, and writing. To write data to ram, click on the bytes you want to change and record a new value. The data is displayed in hexadecimal in the middle, with the starting address of each row on the left, and the ASCII representation of the data on the right.

In the sample screen below, I have initialized the RAM with a .mif file to 00, 01..., 1F, and have changed some of the values to 04, 05...

