

RIoTboard Peripheral Access Error

Development environment:

ARM DS-5 Professional Edition
Version: 5.18.0
Build Number: 5180018

Tool chain:

ARM Compiler 5

Overview:

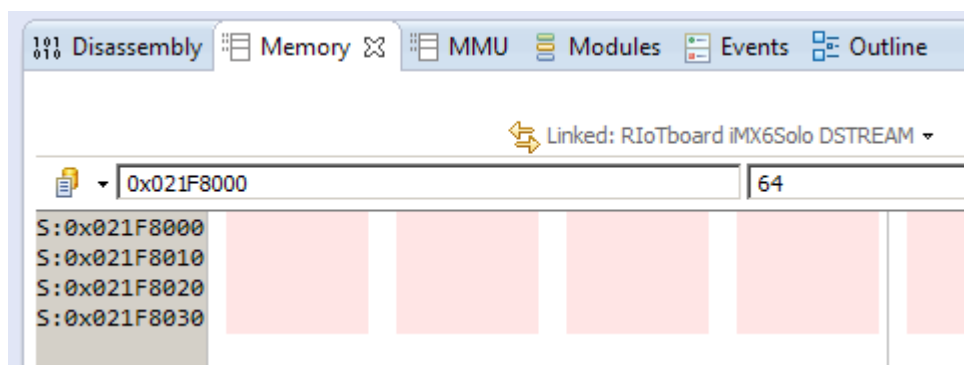
A RIoTboard is being used as part of a PhD research project. The application requires use of a number of the on-chip peripherals, such as eCSPI2 and eCSPI3, which are currently working. However, I need to use the I2C4, UART2, UART3 and UART4 ports and have come across a problem, which I am not sure is configuration related.

In an attempt to solve it I have gone right back to the sample start-up code for the Cortex A9 MPCore supplied with ARM DS-5. The MMU is disabled and as can be seen from the accompanying modified code, the TLB is set up to access the required 1MB memory regions.

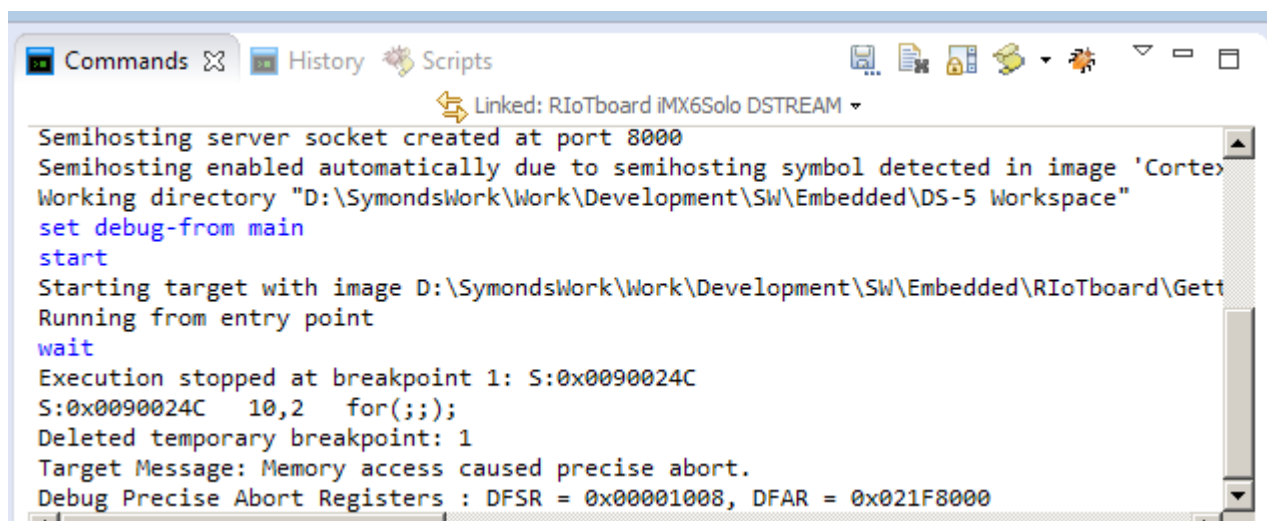
The Problem

When I try and access the I2C and respective UART registers for device configuration, a data abort exception is generated. Hence I reverted to the original start-up code as mentioned above, to see what would happen when simply trying to view the device registers using the memory tab in ARM DS-5 debug. The required memory accesses caused a precise abort.

For example, to view I2C4 memory starting at 0x021F800, I get the following:

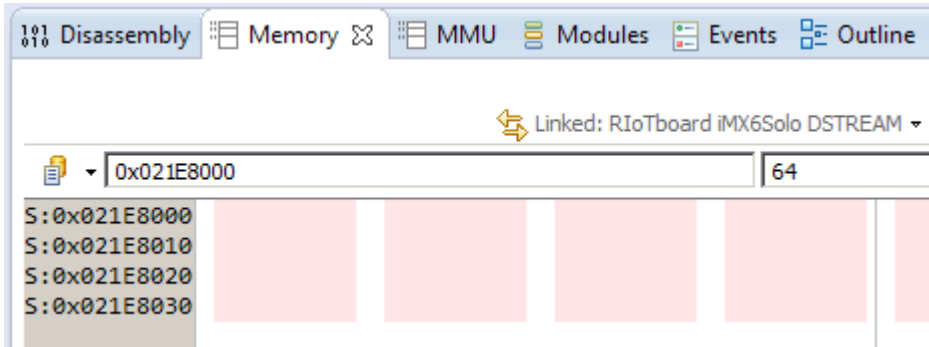


with the error:

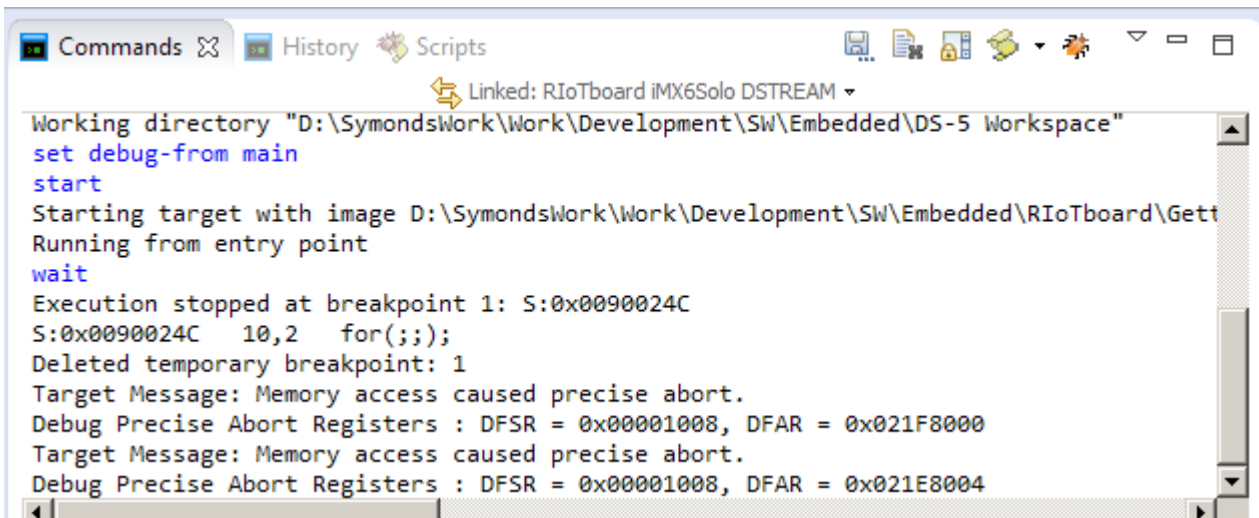


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Likewise with trying to look at any of the UART registers (in this case UART2), I get the same result:



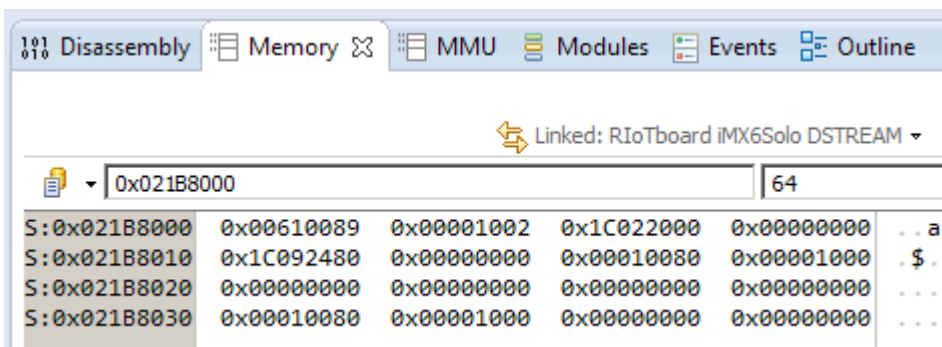
with the error:



The DFSR status, if I am interpreting it correctly, is saying that it is a synchronous external abort.

What is confusing is that I can view other peripheral registers this way, such as the EIM registers at the base-address of 0x021B8000 and uSDHC4 at 0x0219C000.

For example :



and

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Linked: RIoTboard iMX6Solo DSTREAM

Address	Hex Value	Hex Value	Hex Value	Hex Value	...
S:0x0219C000	0x00000000	0x00010200	0x00000000	0x0D1A0000
S:0x0219C010	0x00000900	0xFFFFFFFF	0x320F5913	0x00D04F01
S:0x0219C020	0x00000000	0xFF8D8088	0x08800022	0x008E0018
S:0x0219C030	0x00000000	0x157F513F	0x00000000	0x00000000

I am trying to understand the problem, as I probably have a configuration error somewhere and would appreciate some assistance in order to resolve this issue.