Using the Debugger inside Code Warrior

Once you have confirmed that your assembly code is error free. The next step is uploading the code on to the Adapt9S12X (HS12) microcontroller. Your assembly program is uploaded using the Full Chip simulator (debugger). Starting the debugger can be done by clicking on the debugger icon ().



When you start the debugger, another window will open. This is the "True-Time Simulator and Real-time Debugger". This window consists of seven panels; a source panel, a data panel, a command panel, an assembly panel, a register panel, a procedure panel and a memory panel.



The source panel shows your assembly code as it appeared in the editor panel of Code Warrior. The data panel show the variables used in your assembly code and there current value. The command panel shows the commands sent to the simulator. The assembly panel shows your assembly code in a form similar to how the

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microcontroller sees it. The register panel shows all the registers of the HS12 and their current value. The procedure panel lists all the functions or subroutines contained inside your assembly code. Finally, the memory panel shows the contents of the entire memory of the simulator.

The debugger tool bar contains some of the most commonly used functions inside the debugger. Using the tool bar it is possible to open or save a debugging session, and run your assembly program either completely, an instruction at a time, or a subroutine at a time.



Even though the simulator (debugger) is a powerful tool for finding bugs in our assembly source code. We are primarily using the debugger to upload our code to the Adapt9s12X microcontroller.

Setting up the debugger to talk to the Adapt9S12X

In order to upload our code to the Adapt9S12X microcontroller, we need to set up the debugger to talk to the serial monitor on the Adapt9S12X. This is achieved by following these few steps.

Step 1: Selecting the connection

Firstly click on the "Component" menu and select "Set Connection..."

Time Simulator &	Real-Time Debugger	C:\Documents a	Click here
Run HCS12X FCS	Compone nt Procedure	Window Help	
	Open	k	
	Set Connection 🗕		Then click here
ce C:\Documents and Se	Fonts Background Color	pcuments\test\bin\	
e section ORG ROM	Astart	_	
LDS #RA	AMEnd+l ; ir	itialize the sta	
CLT	: er	able interrunts	

Once you have completed this step a dialog box will appear on the screen.

Step 2: Choosing the HS12 Serial Monitor

Inside the dialog box choose the "HCS12 Serial Monitor" option from the connection drop down menu (second drop down menu). Then click "OK".



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Monitor Setup		
Monitor Communication Vector Table Mirroring Load Options HOST Serial Communication Port: Please select in this dialog the serial communication port used to connect to the hardware. HOST Serial Communication Port:		Make sure this "COM1"
Communication protocol Show Monitor TX/EX OK		Click here

If the following screen appears. Then make sure that the switch on Adapt9S12X is switched to the "LOAD" position and then press the "Retry" button.



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Step 3: *Restarting the Debugger*

Once you have completed the previous step, restart the debugger by closing the debugger window and clicking the debugger icon once more.

True-Time Simulator & Real-Time Debugger C:Documents and Settings/Brett Wildermoth/Wy Documents/test/Full_Chip File Vew Run HCS12XFCS Component Procedure Window Help	p_Simulation.in	ii	Click here	
Source HC12 C\Documents and Settings\Brett Widemoth\My Documents\Vest\bin\main.dbg ; code section 0RG 0RG ROHStart Entry: 100 LDS #RAMEnd+1 cL1 ; enable interrupts mainloop: Spin	Line: 16242	Assembly HC12 Entry 4000 bDS #163344 4003 AMDCC #239 4005 SFA *+0 4007 STAA 0x5A 4009 STAA 0x5A 4009 STAA 0x5A 4000 STAA 0x5A 4000 STAA 0x5A 4000 STAA 0x5A	;abs = 0x4005	
<pre>/* Interrupt Vectors * /* Data HC12 VAR00001 16384 int</pre>	Symb Global	Register HC12 CPU Cycles: 0 D CBCB A IX CBCB IY D CBC9 IY SP CBC9 IPL C EPAGE FE GPAGE C	B CB PPAGE FE CCR SXSITRZYC DIRECT 0 RPAGE FD	Auto
至 Command		Procedure HC12 Entry ()		
Postload Command File execution: .\cmd\Pull_Chip_Simulation_postload.cmd executing .\cmd\Full_Chip_Simulation_postload.cmd !// After load the commands written below will be executed dome .\cmd\Full_Chip_Simulation_postload.cmd Postload command file correctly executed. in>		Memory 000080 00 00 00 00 20 05 000090 00 00 00 00 00 00 000080 00 00 00 00 000080 00 00 00 00 000080 00 00 00 00 000080 00 00 00 00 000080 00 00 00 00 000080 00 00 00 00 00080 00 00 00 00 00080 00 00 00 00 00080 00 00 00 00080 00 00 00 00080 00 00 00 0080 00 00 00 0080 00 00 00 0080 00 00 00 0080 00 00 0080 00 00 0080 00 00 0080 00 00 0080 00 00 0080 00 00 0080	00 00 00 00 00 00 00 00 00 00 FF F 00	Auto Logical

Then restart the debugger again (click the debugger icon on the project panel)...

test.mcp Full Chip Simulation	12 🛩 🌾	*		
File	Code	Data 🕊	4	Click here
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* H- Sources	10 0	0.4		
🛩 🕀 🧰 Prm	Ő.	ō	-	
🗩 🦲 Libraries	0	0	-	
🗉 🦲 Debugger Project File	0	0	-	
		0	-	

When the debugger restarts it will automatically erase and upload your code into the Flash memory of the Adapt9S12X microcontroller.

These steps must only be done once for each new Code Warrior project you create.

To run your code you need only to flick the switch on the Adapt9S12X to the "RUN" position and press the reset button. Your assembly program is now running.

