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Getting Started With the MSC8102ADS

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The MSC8102 application development system (MSC8102ADS) is a powerful software and hardware development board that includes both an MSC8101 and MSC8102 device. This application note assists the first-time board user to get started with the MSC8102ADS.

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1 MSC8102ADS Board

The *MSC8102ADS User's Manual* describes the MSC8102ADS features in detail. This application note highlights the features needed to get started with the board. **Figure 1** shows a high-level diagram of the board layout. **Figure 1** includes circles around the components on the board that are important when the board is first powered on and code is downloaded.

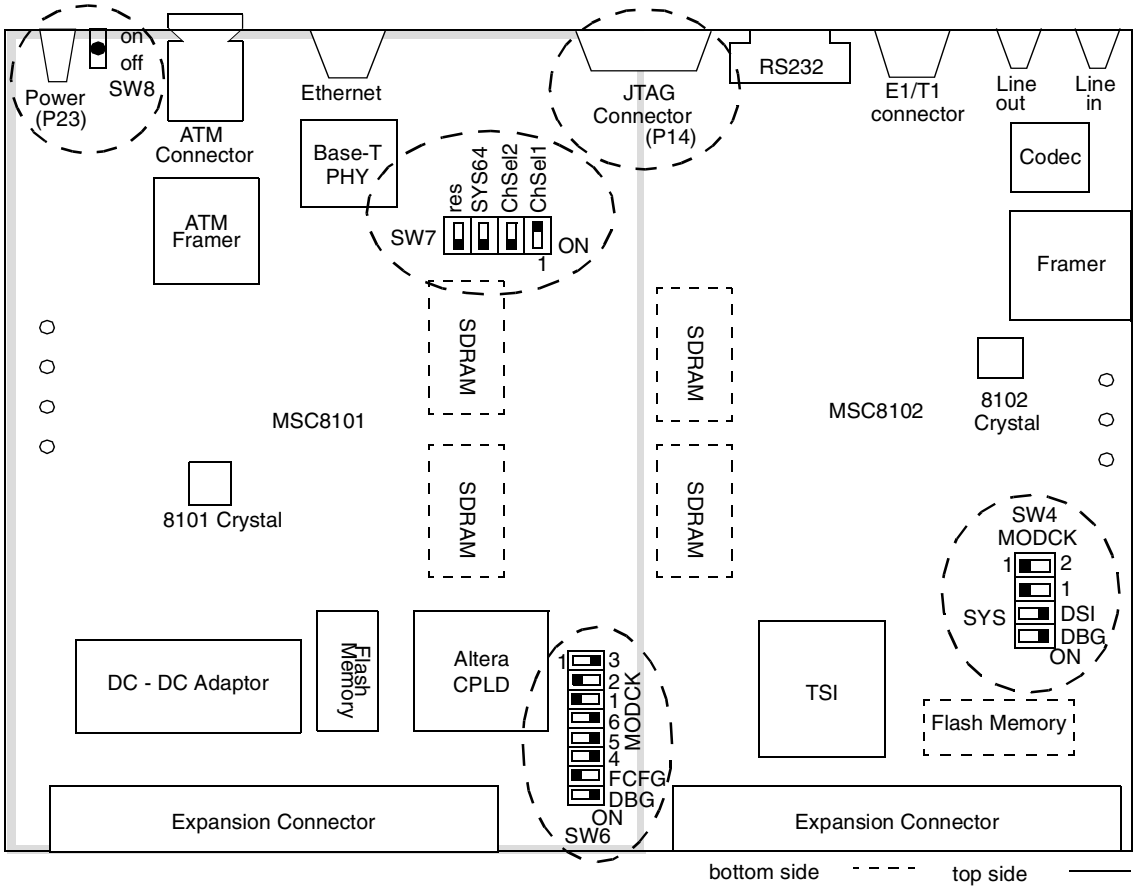

Figure 1. MSC8102ADS

Your MSC8102ADS kit should contain an MSC8102ADS board, along with the following:

- Power supply
- Parallel port wiggler
- Parallel cable

Note: All switch settings in the following steps start with the switch labeled 1 in **Figure 1**.

To set up the MSC8102ADS board, perform the following steps:

1. Ensure that the board is off (SW8 down).
2. Connect P14 on the board to the wiggler. (The other end of the wiggler connects via the included parallel cable to the parallel port of a PC.)
3. Connect the board to the power supply (P23). Plug in the power supply.
4. Check the JTAG chain settings (SW7). They should be OFF-ON-ON-ON.

5. Check configuration control for the MSC8102 (SW4). They should be OFF-OFF-ON-ON. This configuration sets the frequency of the MSC8102 device, defines the configuration source for the MSC8102 to be the DSI (from the MSC8101), and places the MSC8102 device into Debug mode after hard reset.
6. Check configuration control for the MSC8101 (SW6). It should be ON-OFF-OFF-ON-ON-ON-OFF-ON. This configuration sets the system clock ratios of the MSC8101 device to clock mode 57, defines the configuration source to be the on-board status register, and places the MSC8101 into Debug mode after reset.
7. Turn the board on (SW8 up).

2 Getting Started with CodeWarrior® and the MSC8102ADS

The Metrowerks® CodeWarrior® tools communicate with the board via the wiggler and the JTAG port. To verify communication between the board and the software development tools, this section describes how to create, build, and download the C stationery included with the CodeWarrior tools. This section assumes that the CodeWarrior tools are installed on the PC attached to the board.

2.1 Create a New CW Project for the MSC8102ADS

1. Double-click on the CodeWarrior icon on your desktop to invoke the CodeWarrior for StarCore tools.
2. Select **New** from the File menu.

   A window appears with “New” in the title bar. The Project tab should be active.
3. Choose **StarCore Stationery**.
4. Choose the location for the project you are creating by clicking the **Set...** button.
5. Name the project and click **Save**.

   CodeWarrior automatically creates a directory for the project when it is created.
6. Click **OK**.
7. A new window appears with “New Project” in the title bar. Click on the **+** next to MSC8102ADS.
8. Highlight the **C** option under MSC8102ADS to create C stationery code.
9. Click **OK**.

   The MSC8101 CodeWarrior project window appears, displaying a message that the new project is being created. The title bar displays the `<project name you selected>.mcp`.

2.2 Download Stationery Code to the MSC8102ADS

After a project is created, you can build the code for downloading to the board. In the default switch setting modes, CodeWarrior uses the MSC8101 to reset the MSC8102 devices. Therefore, both MSC8101 and MSC8102 project windows are required. When CodeWarrior creates a new project, it also creates projects for all four MSC8102 cores. However, by default, it opens only the MSC8101 project window in the CodeWarrior workspace. CodeWarrior automatically builds the MSC8101 project when you click the **Debug** button on the MSC8101

project window. Then CodeWarrior brings up the project window for each MSC8102 core and builds the code included in those projects. By default in the C stationery code, CodeWarrior downloads code to all five cores. The steps in building and downloading code to the board are as follows:

1. Click on the **Debug** button to compile and debug the MSC8101 and MSC8102.

   MSC8101 project is compiled and downloaded to the board.

   MSC8102 projects for each core open automatically.

   MSC8102 projects are compiled and downloaded to each core automatically.

Note: Code for each core exists in separate project windows, but all code is stored within the project directory created as described in **Section 2.1**.

2. At this point there are 10 windows open on the CodeWarrior desktop (see **Figure 2**). There are five `.mcp` windows that are the CodeWarrior project windows for each SC140 core. An additional five `.eld` windows are the debugger windows for each SC140 core.

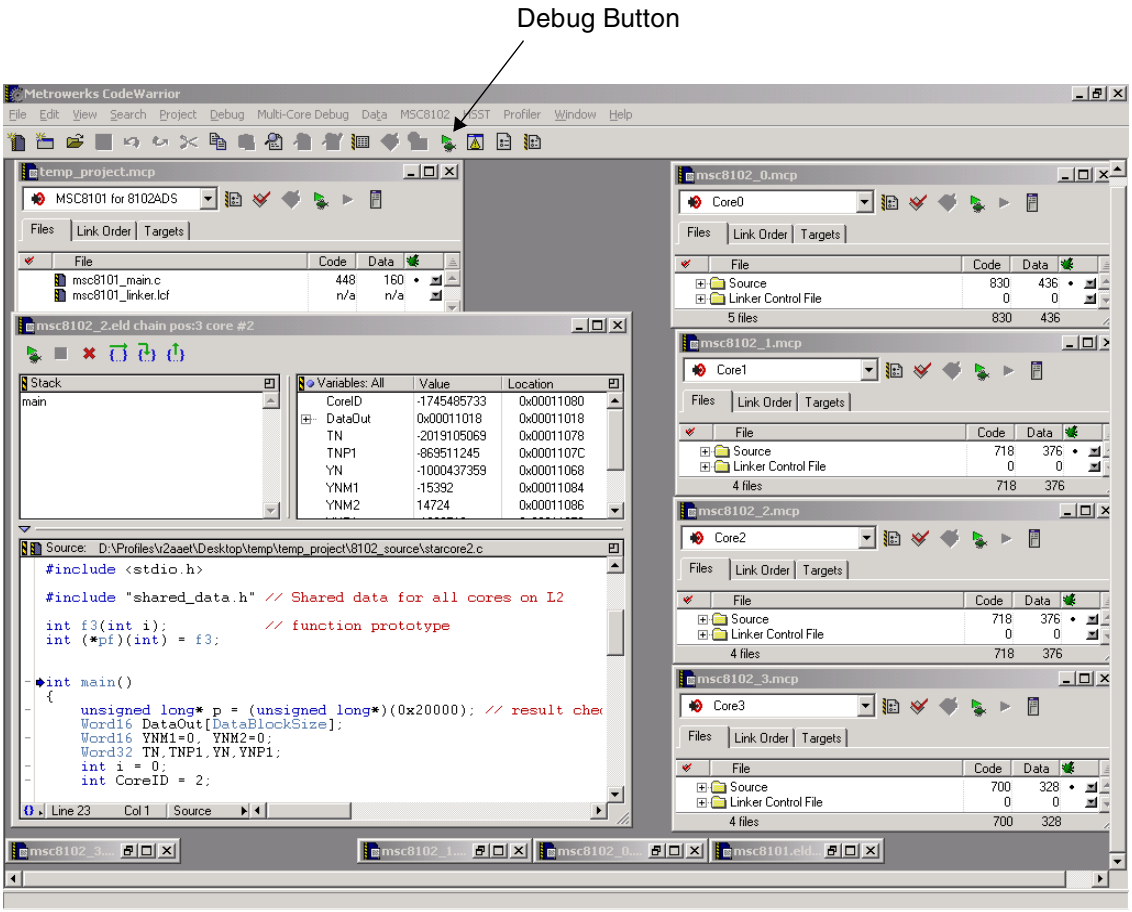

Figure 2. CodeWarrior with Debugger Invoked

3. To run the code, select **Run All** from the Multi-Core Debug menu.

   The code on all five SC140 cores runs simultaneously until completion. A standard I/O window appears, displaying a message that the code passed on each SC140 core.

4. To exit the debugger, select **Kill all** from the Multi-Core Debug menu.

   The five debugger windows exit, and control returns to the project windows.

3 Troubleshooting

If the steps in **Section 2.2** are unsuccessful in downloading code to the board consider, the following:

1. Verify that all switch and jumper settings are correct. The default settings are described in the *MSC8102ADS User's Manual*.
2. Verify that power is applied to the board by verifying that LD12 is lighted. The power switch (SW8) should be up, which is the ON position.
3. Check the JTAG connection. The wiggler should connect to P14 on the MSC8102ADS.
4. Check the wiggler connection to the parallel cable and the parallel cable connection to the PC to ensure that they are secure.
5. Verify that the MSC8101 project window says `MSC8101 for MSC8102ADS`. If this is not for the MSC8102ADS, return to **Section 2.1** and select the appropriate stationery code for the MSC8102ADS.

NOTES:

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