AN2780
Rev. 1, 11/2004

Getting Started With the MSC711x Application Development System (MSC711xADS)

A powerful software and hardware development tool for the MSC711x family, the MSC711xADS board includes both an MPC8272 device and an MSC711x device. This application note assists the first-time board user in getting started with the MSC711xADS. It does not describe use of the MPC8272 and its interface to the MSC711x. It focuses on using Metrowerks® CodeWarrior® to download and run code successfully on the MSC711x device.

Your MSC711xADS kit contains the following items:

- MSC711xADS board
- Power supply
- Parallel cable

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1 MSC711xADS Board

The *MSC711xADS User's Manual* describes the MSC711xADS features in detail. This application note only highlights the features required to get started with the board. **Figure 1** shows a high-level diagram of the board layout, with circles around the board components of interest when the board is first powered on and the code is downloaded.

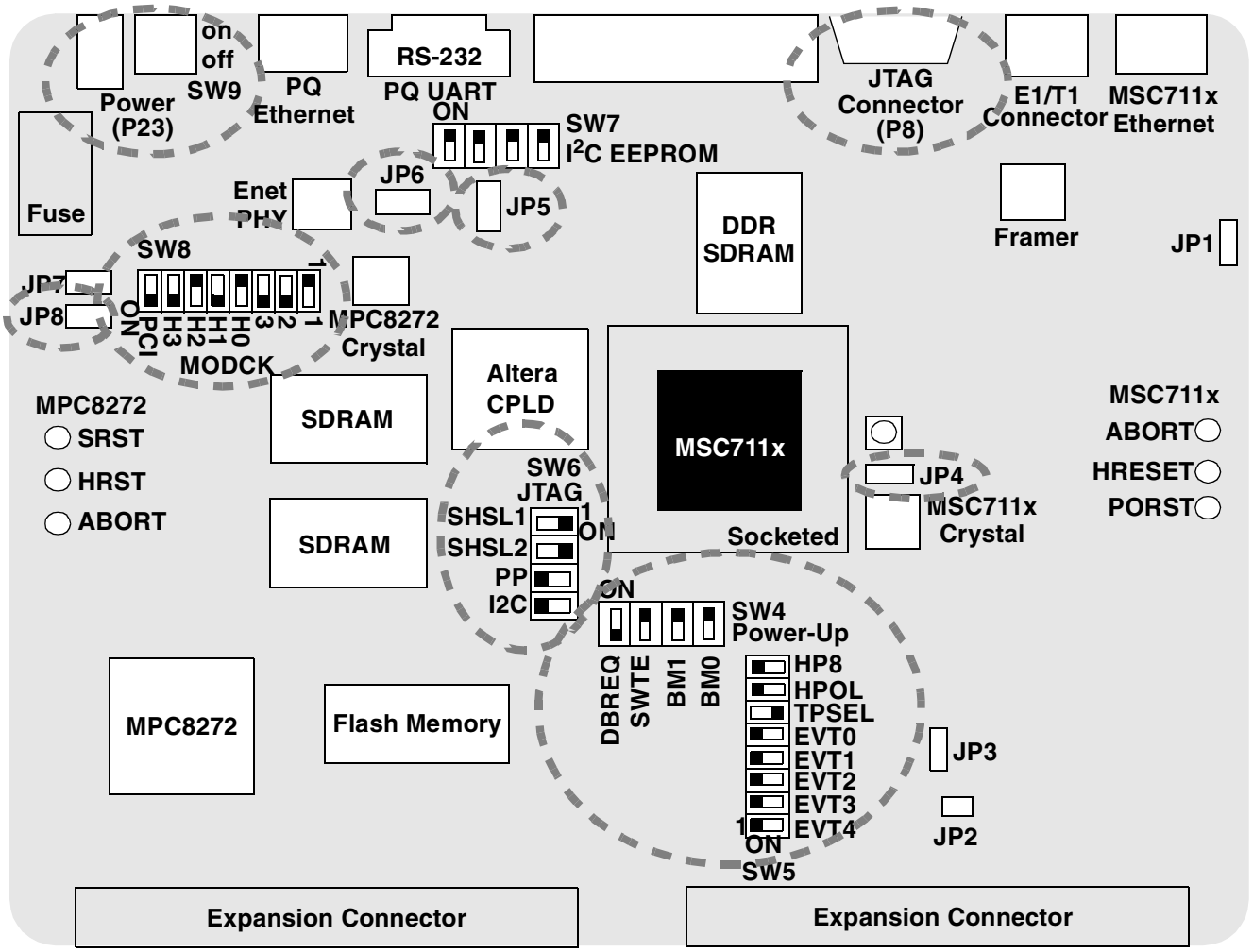

Figure 1. MSC711xADS

The procedure for setting up the board is as follows:

1. Verify that the board is turned OFF (SW9 down).
2. Connect the board to the power supply (P23). Plug in the power supply.
3. Check the MSC711x configuration control switch settings (SW4).

   The switches should be OFF-ON-ON-ON. This configuration places the MSC711x device into debug mode after a hard reset, disables the software watchdog, and selects *boot from HDI16* mode.
4. Switch 6, SW6, defines the JTAG chain. It should be ON-ON-OFF-OFF.

   This configuration forces the parallel port connection, connects the I^2C EEPROM to the MSC711x I^2C port, and separates the MSC711x EOnCE and MPC8272 COP chains.
5. Check the configuration of SW8, which defines the clocking for the MPC8272. The switches should be OFF-ON-ON-OFF-ON-OFF-ON-ON to set the system clock ratios of the MPC8272 device.
6. Pins 2 and 3 of jumper 4, JP4, should be connected to select the on-board oscillator to the clock source for the MSC711x.
7. Pins 2 and 3 of jumper 5, JP5, should be connected to select the BCSR as the hard reset configuration word source for the MPC8272.

8. Pins 2 and 3 of jumper 6, JP6, must be connected in order to disconnect the MPC8272 $\overline{\text{HRESET}}$ signal from the MSC711x $\overline{\text{HRESET}}$ signal.
9. Pins 1 and 2 of jumper 8, JP8, should be connected to enable the connection between the MPC8272 and the MSC711x devices.
10. Turn the board on. (SW9 up)

2 Getting Started with CodeWarrior

The 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. It is assumed that the CodeWarrior tools are installed on the PC attached to the board.

2.1 Create a New CodeWarrior Project

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

   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. Click **SAVE**.

   CodeWarrior automatically creates a directory for the project when it is created.
6. Click **OK**.

   A new window appears with **NEW PROJECT** in the title bar. Click on the + next to MSC711xADS.
7. Highlight the **C** option under MSC711xADS. This creates a C stationery.
8. Click **OK**.

A window appears, stating that the new project is being created. Another window appears with the title bar `<project name you selected>.mcp`. This is the MSC711x CodeWarrior project window.

2.2 Download Stationery Code

Now that you have created a project, you are ready to build the code for downloading to the board. CodeWarrior automatically builds the MSC711x project when you click the debug button on the MSC711x project window. After the MSC711x project is built, CodeWarrior downloads code to the MSC711x core.

Note: For MSC711xADS boards using MSC711x devices with mask set 0L44X, the MSC711xADS board must be powered down and then powered back up (using SW9) each time code is to be downloaded to the board.

The steps to build and download code to the board are as follows:

1. Click on the debug button to compile and debug the MSC711x.

   The MSC711x project is compiled and downloaded to the board.There are two windows open in the CodeWarrior desktop, as shown in **Figure 2**. The `.mcp` window is the CodeWarrior project window for the MSC711x device. The second window is an `.eld` window, which is the debugger window for the

MSC711x core. An additional compile window showing the details of the compile and link process appears immediately after you click on the debug button, but this window disappears when the debugger window appears.

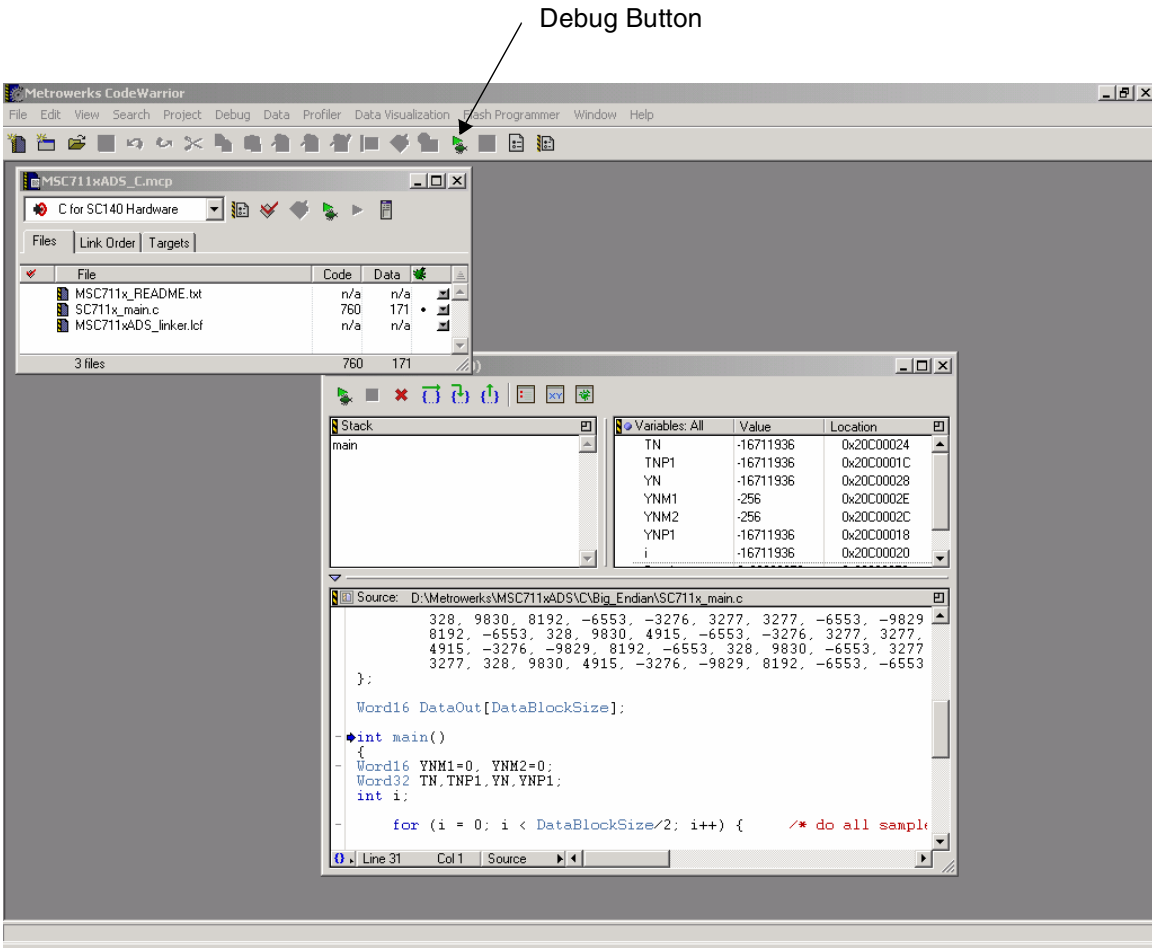

Figure 2. CodeWarrior with Debugger Invoked

2. To run the code, select Debug → **RUN**.

   The code runs on the MSC711x core until completion. A standard I/O window appears, stating that the code passed.

3. To exit the debugger, select Debug → **KILL**.

   The debugger window exits, and control returns to the project window.

3 Troubleshooting

If you experience difficulty 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 *MSC711xADS User's Manual*.
2. Verify that power is applied to the board by verifying that LD29 is lighted. The power switch (SW9) should be up, which is the ON position.

3. Check JTAG connection. The wiggler should be connected to P8 on the MSC711xADS.
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 MSC711x project window label says `MSC711xADS_C.mcp`. If it does not, reread the directions in **Section 2.1** and be sure to select the appropriate stationery for the MSC711xADS.

NOTES:

NOTES:

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AN2780
Rev. 1
11/2004

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