

# Getting Started With the ADS Board for the MSC8102/22/26 Devices

MSC8102ADS, MSC8122ADS, and MSC8126ADS

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The MSC8102/22/26ADS is a powerful hardware development tool for the MSC812x line of DSP devices. When used with the CodeWarrior® development tools, it provides a robust, easy-to-use development platform. The MSC8102/22/26ADS is designed for use with the MSC8122 and MSC8126 DSPs, and it is backwards-compatible for the MSC8102 device. It includes both an MSC8103 and MSC812x device. This application note assists the first-time board user to get started with the MSC8102/22/26ADS.

Your MSC8102/22/26ADS kit should contain the following:

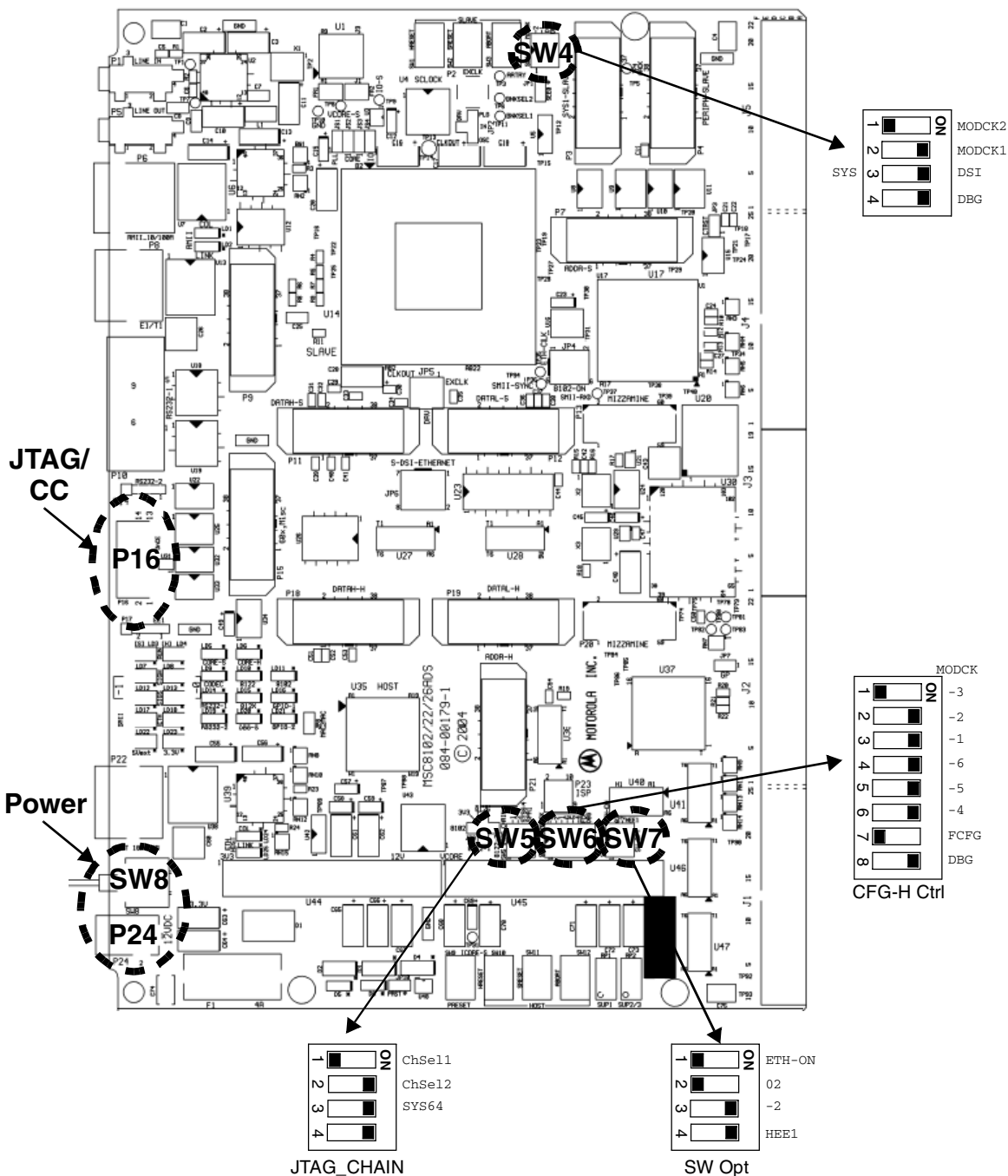
- MSC8102/22/26ADS board
- Power supply
- Command converter (CC)
- Parallel cable

## 1 Board Set-Up

The features of the MSC8102/22/26ADS board are described in detail in the *MSC8102/22/26ADS User's Manual*. This application note points out only the highlights needed to get started with the board. **Figure 1** shows a 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.

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**Figure 1. MSC8102/22/26ADS**

**Note:** All DIP switch setting recommendations in the following steps start with the switch position labeled 1 in **Figure 1** for each DIP switch.

The procedure for setting up the board is as follows:

1. Verify that the board is OFF (SW8 down).
2. Connect P16 on the board to the command converter. The other end of the command converter connects via the included parallel cable to the parallel port of a personal computer (PC) or other host.
3. Connect the board to the power supply (P24). Plug the power supply in to a power source.

4. Check the MSC8122 configuration control switch settings (SW4).

The switches should be OFF-ON-ON-ON. This configuration sets the frequency of the MSC8122 device, defines the configuration source for the MSC8122 to be the DSI (from the MSC8103), and places the MSC8122 device into Debug mode after a hard reset.

5. Check the JTAG chain switch settings (SW5). They should be OFF-ON-ON-ON.

6. Check the MSC8103 configuration control switch settings (SW6).

The switches should be OFF-ON-ON-ON-ON-ON-OFF-ON. This configuration sets the system clock ratios of the MSC8103 device, defines the configuration source to be the on-board status register, and places the MSC8103 into Debug mode after reset.

7. Check the software option MSC8103 device switch settings (SW7).

The switches should be OFF-OFF-ON-ON.

8. Turn the board ON (SW8 up).

## 2 Getting Started with CodeWarrior

The CodeWarrior tools communicate with the board via the command converter 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. Start the CodeWarrior for StarCore tools from the Start menu or double-click on the CodeWarrior icon on your desktop.

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 **SET...** button.

5. Name the project. Click **SAVE**.

If the Create Folder box is checked, CodeWarrior automatically creates a directory for the project.

6. Click **OK**.

A new window appears with **NEW PROJECT** in the title bar. Click on the + next to MSC8122ADS.

7. Highlight the **C** option under MSC8122ADS. This creates a C stationery.

8. Click **OK**.

The a new project appears with the title <project name you selected>.mcp. This is the MSC8103 CodeWarrior project.

## 2.2 Download Stationery Code

Now that you have created a project, you are ready to build the code for downloading to the board. In the board's default switch setting modes, CodeWarrior uses the MSC8103 to reset the MSC8122 device. Therefore, both MSC8103 and MSC8122 projects are required. When CodeWarrior creates your new project, it also creates projects for all four MSC8122 cores. However, by default, it opens only the MSC8103 project in a tab in the dock on the left of your CodeWarrior work space.

CodeWarrior automatically builds the MSC8103 project when you click the Debug button on the MSC8103 project tab (see **Figure 2**). After the MSC8103 project is built, CodeWarrior brings up the project for each MSC8122 core and builds the code included in those projects. By default in the C stationery, CodeWarrior downloads code to all five cores. The steps to build and download code to the board are as follows:

1. Click on the Debug button to compile and debug the MSC8103 and MSC8122 code.

The MSC8103 project is compiled and downloaded to the board. MSC8122 projects for each core are automatically open. MSC8122 projects are automatically compiled and downloaded to each core.

All the code is stored within the project directory. **Figure 2** shows that windows that are open at this point. There are five \*.mcp tabs. These are the CodeWarrior projects for each core. There are five \*.e1d windows. These are the debugger windows for the MSC8103 device and each MSC8122 core.

2. To run the code, select Multi-Core Debug → **RUN ALL**.

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

3. To exit the debugger, select Multi-Core Debug → **KILL ALL**.

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

The getting started process is now complete, and you are ready to begin developing your project.

## 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 *MSC8102/22/26ADS User's Manual*.
2. Verify that power is applied to the board by verifying that LD23 is lit. The power switch (SW8) should be up, which is the ON position.
3. Check the JTAG connection. The command converter should be connected to P16 on the MSC8102/22/26ADS.
4. Check the command converter connection to the parallel cable and the parallel cable connection to the PC to ensure that they are secure.
5. Verify that the MSC8103 project window says MSC8103 for MSC8122ADS. If it does not, return to **Section 2.1** and select the appropriate stationery for the MSC8122ADS.



**NOTES:**

**NOTE:**

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