8051

series

SIGNUM SYSTEMS CORPORATION

Chameleon WEMU51 for the USP-51

Installation Instructions

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Purpose *This document describes the process of installing the Signum Chameleon WEMU51 debugger for use with the Signum Systems USP-51 emulator for the 8051 family of microcontrollers.*

Installation

1. Insert the *Development Tools for Microsoft Windows* CD into your CD-ROM drive. In the Master Setup dialog box, select Chameleon Debugger and double-click USP-51 ICE, as shown in Figure 1.

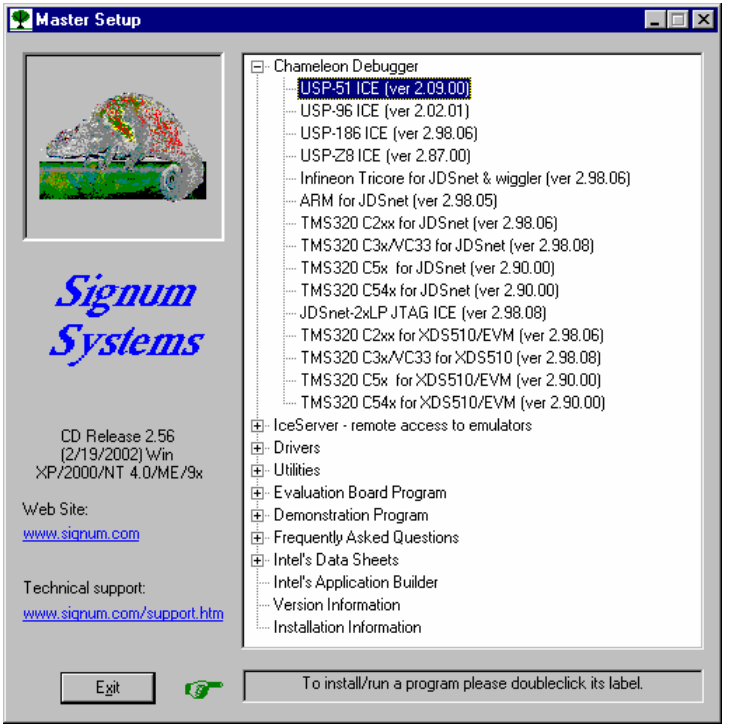

FIGURE 1 Chameleon Master Setup dialog box.

2. On Windows XP/2000/NT, the dialog box shown in Figure 2 appears. If you intend to use the parallel with your emulator, click the Yes button.

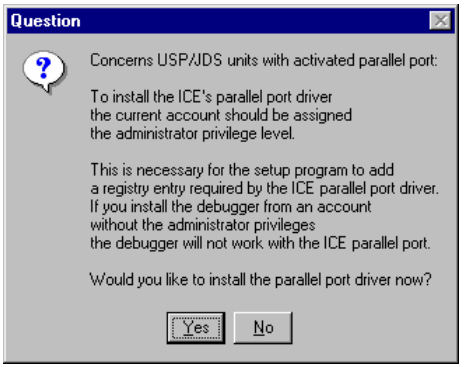

FIGURE 2 Installing the parallel driver.

3. Complete the Chameleon WEMU51 debugger installation process.

4. Connect the USP-51 emulator to your computer through either a serial port (e.g., COM1) or parallel port (e.g., LPT1), then connect it to the power supply. Plug the power supply cord into an outlet. Attach the POD to the emulator using the two white flexible cables that extend from the emulator's front panel. Turn the emulator on. **Do not connect the POD to the user target yet**—please complete the installation procedures described below first.

5. Start WEMU51 by selecting the Windows Start menu and clicking **Programs | Signum Systems WEMU-51**. If you installed Chameleon WEMU51 for the first time, the **WEMU51 Project Manager** dialog box appears (Figure 3).

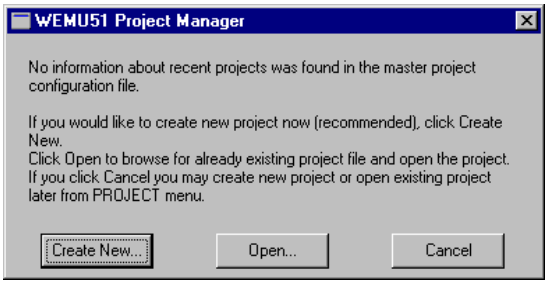

FIGURE 3 WEMU51 Project Manager dialog box..

Create a new debug project to start working with your emulator. The fastest way to do so is to click the **Create New** button in the dialog box in Figure 3. This launches the **Project Creation Wizard**.

Clicking the **Cancel** button dismisses the Project Manager dialog box and enables the debugger menus. Note that some of **Help** and **Project** submenus are available regardless of your project status. This allows you to read the program documentation (**Help** | **Contents**), obtain the program version number (**Help** | **About**) or create a new project (**Project** | **Create New**).

If you reinstalled the debugger, but earlier had created a project with a previous Chameleon WEMU51 version, then click the **Open** button. This brings up the standard Windows **Open** dialog box. Browse for the project configuration file Wemu51.CNF located in the project directoryan select it. This opens the corresponding project.

You can create a brand new project using the **Project Creation Wizard** accessible from the WEMU51 **Project Manager** dialog box. Press the **Create New** button or select **Create New** from the **File** menu (Figure 4).

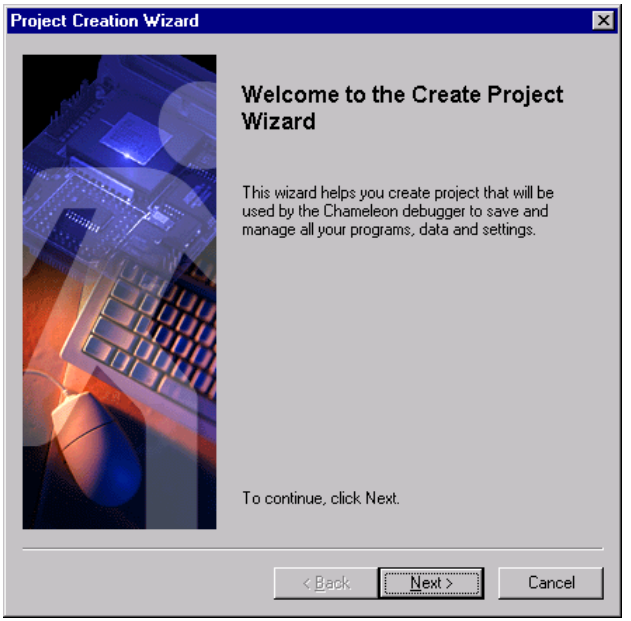

FIGURE 4 Project Creation Wizard—opening dialog box.

Click **Next** to begin creating a new project. Enter the project name along with optional comments (Figure 5).

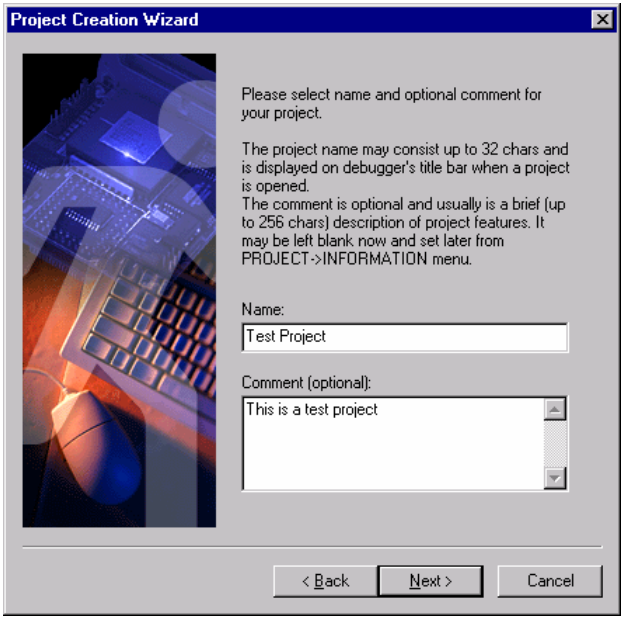

FIGURE 5 Naming the project.

Click **Next**. The wizard prompts you to select the project folder (Figure 6). The folder will contain your application executable file, source code files, the project command startup file Wemu51.INI, definitions of custom toolbar buttons and other project specific files.

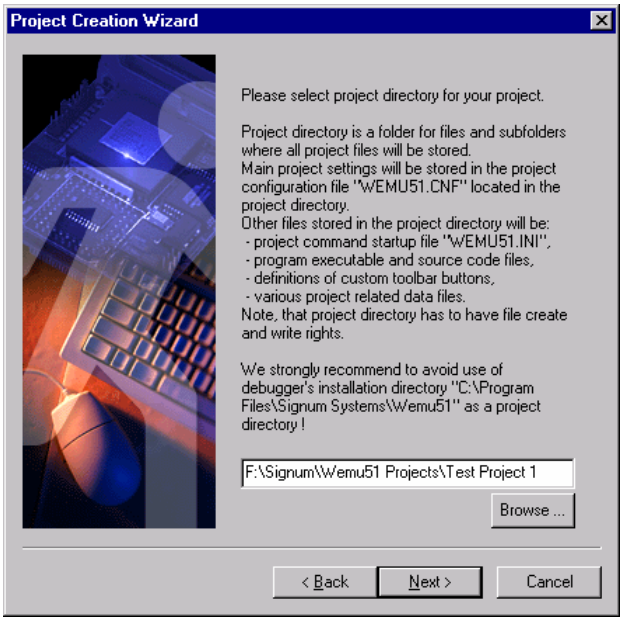

FIGURE 6 Selecting the project library.

Click **Next**. Select USP-51 In-Circuit Emulator as the target for your project, as shown in Figure 7.

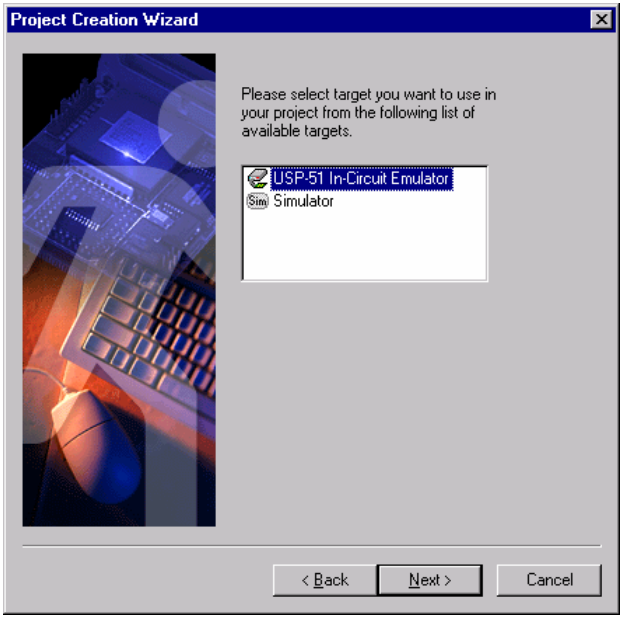

FIGURE 7 Selecting the emulator.

Click **Next**. In the dialog box that appears, choose the communication device, such as one of the host computer communication ports, to connect the selected target device (the USP-51) with the host. From he **Detected Devices** list, select the same port you chose in step 4 above. However, if you connected the emulator to the network, you should select IceServer. Set the remaining parameters. For best performance with the serial port or IceServer, set the highest baud rate, 57600 bps. When using the parallel port under Windows ME, 98 or 95, it is necessary to select the base LPT port address. This address can be found in the Device Manager available from the Windows Control Panel. Windows XP, 2000 and NT provide the base LPT port address automatically; its value cannot be modified and is grayed out (Figure 8).

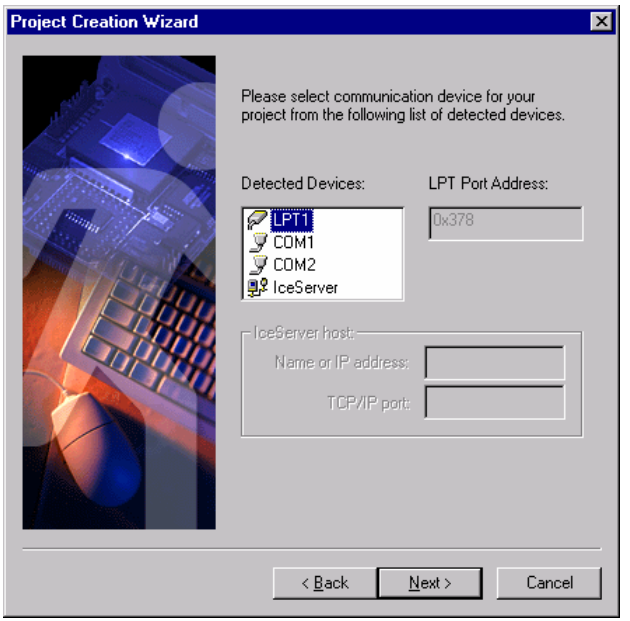

FIGURE 8

Click **Next**. In this step, you select the processor for your project. From the list of available devices, select the processor whose name corresponds to the

processor chip located on the POD connected to the USP-51 emulator via two wide flexible cables (Figure 9).

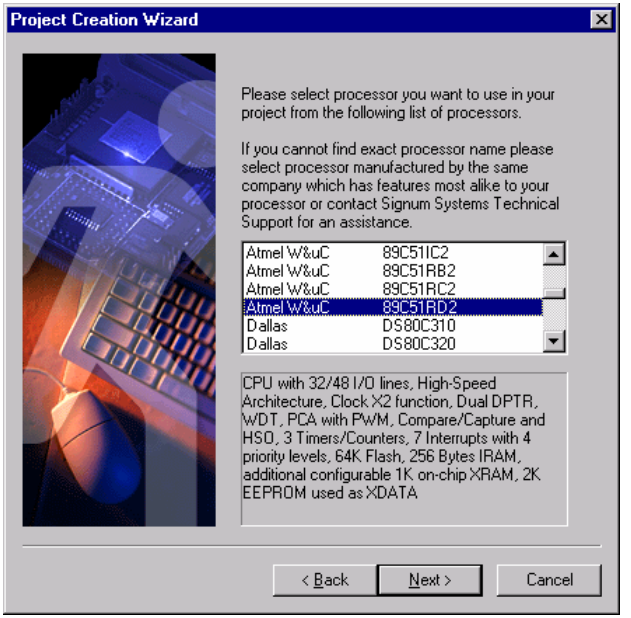

FIGURE 9 Selecting the emulator.

Clicking on the **Next** button brings up the last wizard dialog box. It summarizes the choices you have made. If you want to modify some of these settings, press **Back** to go to the appriopriate wizard dialog box. Make the desired changes and return to the last dialog box. Verify that the **Open new project after it is created** check box is checked. Finally, press the **Finish** button to create the new project.

6. Chameleon WEMU51 debugger opens the project you have created and establishes communication with the USP-51 emulator as the target. The **Select Clock and Power Settings** dialog box appears. Please select the processor power source as **external** (i.e., from your target board) if the emulator's POD is plugged into your target board. If the POD is in the

standalone mode, that is, not connected to any target board, the source should be **internal** (i.e., from the emulator).

Select the processor clock source as **external** or **internal** (from the POD) if the emulator's POD is plugged into your target board. When the POD is unplugged from your target board, then select **internal**. Choose the appropriate clock frequency and clock speed rate: x2 for new chips from Atmel W&uC, Philips or another brand if you plan to use the x2 speed. Otherwise, select x1. The effective processor frequency is calculated as the selected frequency times the speed rate.

Note: The clock frequency selected in the dialog box does not set the frequency of the processor clock located on the POD or on your target board. This value is simply used by the debugger when timing data have to be calculated.

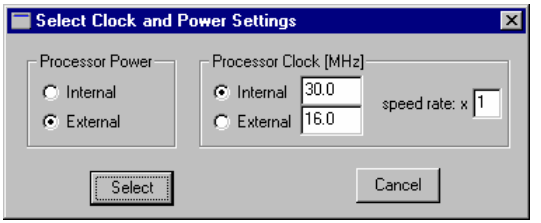

FIGURE 10 Power and clock selection.

7. Upon opening the project, the debugger main window contains the Status, Source, Symbol Explorer and Command windows. Note the names of the selected target (*Emulator*) and project (*Test Project*) displayed on the debugger's title bar (Figure 11).

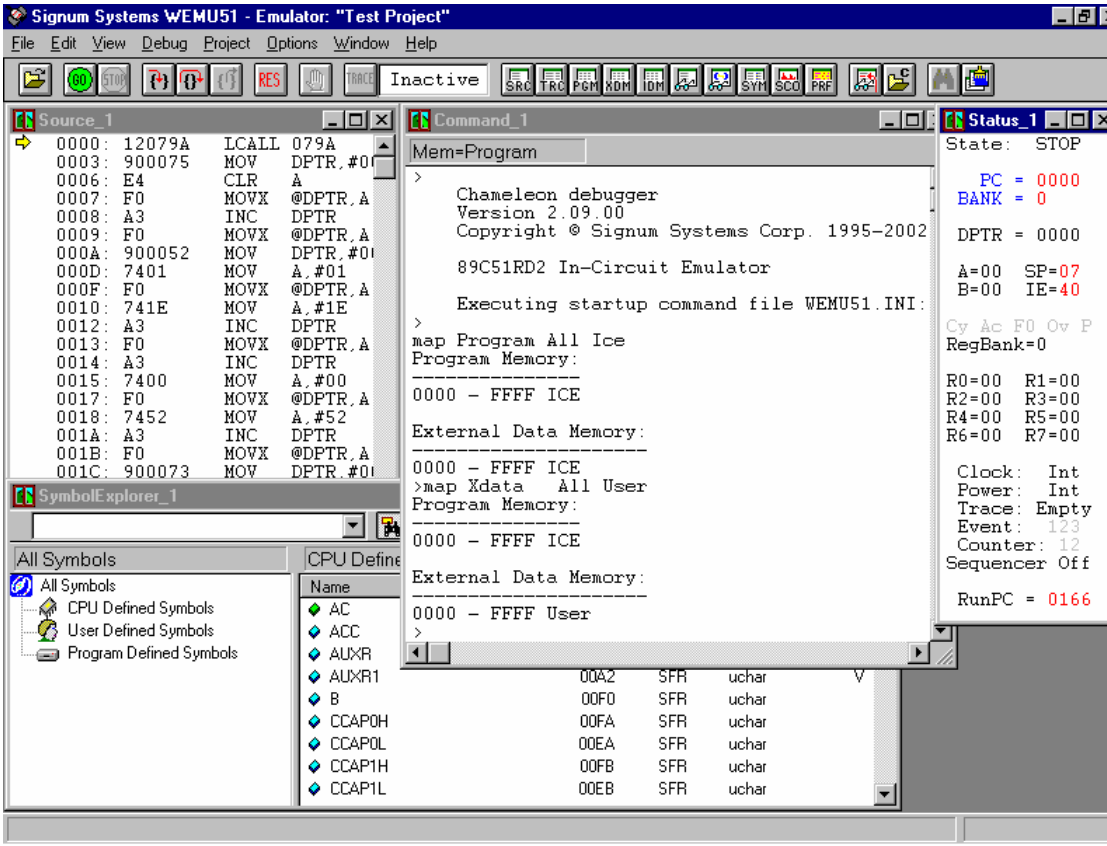

FIGURE 11 Typical project initial screen.

The **File** menu can be used to select and load your application and to open or save various data from/into files.

The **View** menu provides access to various debugger windows, such as Status or Command.

The **Debug** menu allows you to start, stop and step through a loaded application and trigger breakpoints.

The **Project** menu facilitates project management tasks. Use it to create new projects, list and open existing ones, close the current project and modify its settings.

The **Options** serves the purpose of modifying the project target and communication device as well as customizing the toolbars.

The **Help** menu allows you to open the debugger documentation (**Help | Contents**), display the debugger version information (**Help | About**), open Signum web pages (to check for the latest software upgrades, for instance, or send a message to the Signum Systems support personnel.

Turn the entire system off and connect the POD to the target board.

> **Note:** If you would like to explore the program before connecting to the target board, proceed as outlined below.

In the **Command** window on the right side of your screen, you should see a record of the `WEMU51.ini` file commands that were executed when the project was opened. This project startup command file contains the commands run automatically by the debugger when the project opens. Note that the memory mapping is such that the memory on the target board is used and the POD is ready for target board development and debugging. However, if you choose to work with the program before it connects to the target board, you need to remap the memory so that the emulator's memory is used instead. To accomplish that, type "`map P all I`" (map the entire program memory to the emulator) in the **Command** window and hit the **Enter** key. Then type "`map X all I`". This places the external memory data in the emulator's memory (Figure 12).

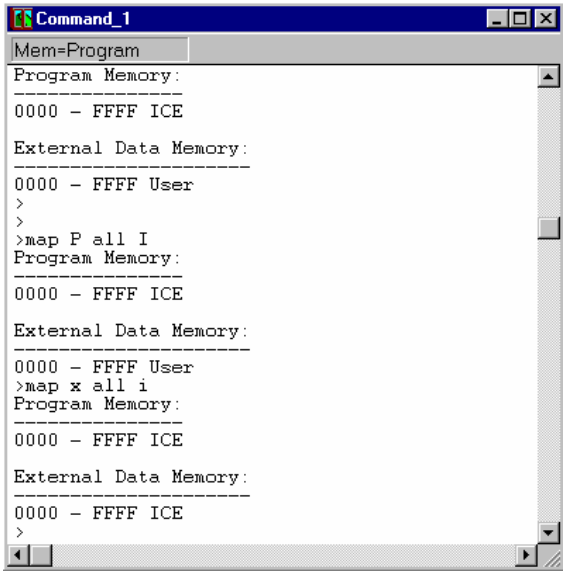

FIGURE 12 Remapping the memory.

Technical Support

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Contact Signum Systems Technical Support by dialing (805) 523-9774, Monday through Friday between 9 A.M. and 5 P.M. Pacific Time. In order to enable our technical support engineers to process your request efficiently, we strongly recommend submitting the Technical Support Request form available at signum.com/support.htm.

A Friendly Reminder We will be able to serve you better if, when contacting our Tech Support, you are at your computer, have your documentation at hand and are prepared to provide:

1. The version of your Signum Systems software, hardware or firmware that you are using and the serial number of your emulator.
2. The exact wording of any messages and prompts that appear on your screen.
3. The environment, in which your software is running, including the type of hardware and operating system.
4. A description of what happened and what you were doing when the problem occurred.

For more information, please visit our home page on the World Wide Web.

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