



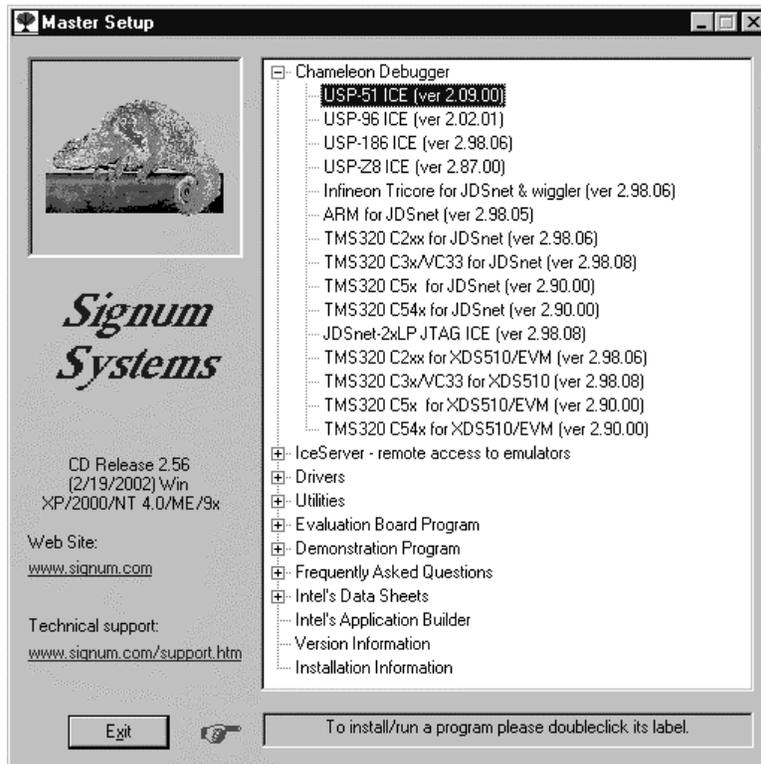
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# Chameleon WEMU51 for USP-51 (8051 Family Emulator) Installation Instructions

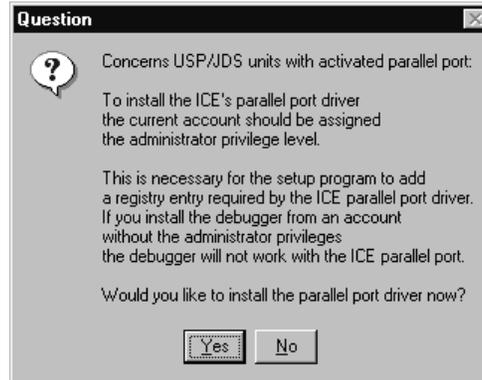
SWII-ChamUSP-51 2.22.02.13.05

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

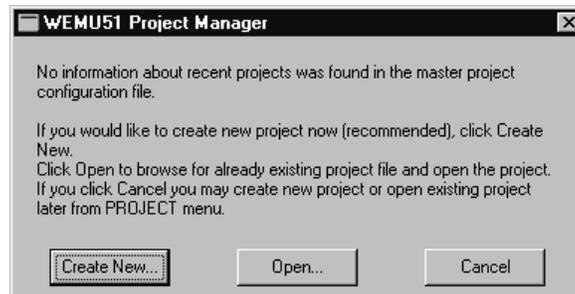
1. Insert the Development Tools for Microsoft Windows CD into your CD-ROM drive. In the **Master Setup** window, select **Chameleon Debugger** and double-click **USP-51 ICE**.



- If you are running Windows XP/2000/NT and intend to use the parallel port, please select **Yes** in the following dialog box to provide Chameleon Debugger with the necessary parallel port driver.



- Complete the Chameleon WEMU51 debugger installation process.
- Connect the USP-51 emulator to your computer through either a serial port (e.g., COM1), or parallel port (e.g., LPT1), and connect it to the power supply. Plug the power supply cord into an outlet and connect the emulator to the POD using the two white flexible cables that extend from the front. Make sure that everything is connected properly and turn the emulator on. **Do not connect the POD to the user target yet.** Please complete the installation procedures described below first.
- Start WEMU51. The program is in the Windows' Start menu under Programs | Signum Systems WEMU-51. If you installed the Chameleon WEMU51 for the first time, **WEMU51 Project Manager** dialog box appears.



In order to begin working with the emulator you have to create a new project. The fastest way to create new project is by clicking the **Create New** button in the dialog box. This launches **Project Creation Wizard**.

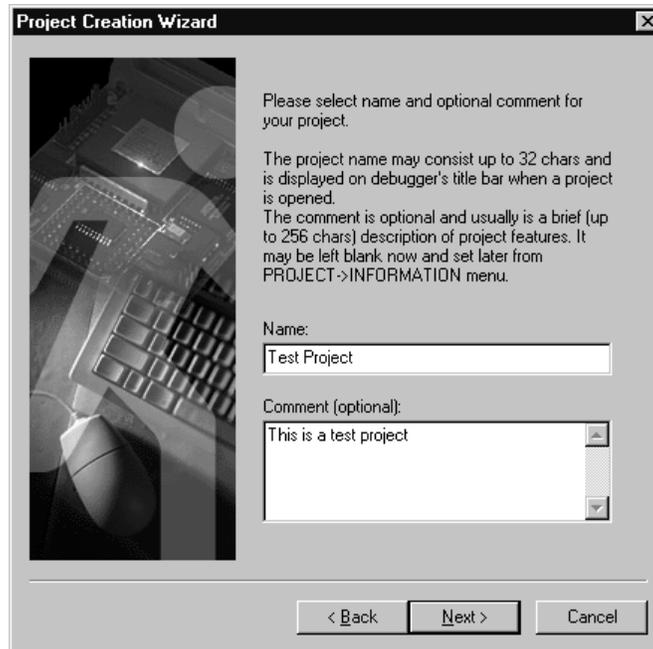
If you click on the **Cancel** button, the dialog box disappears, and the debugger menus become available. Most of the menus are disabled when no project is opened. However a few **Help** and **Project** submenus are still available to allow you to read program documentation (**Help | Contents**), obtain the program version number (**Help | About**) or create a new project (**Project | Create New**).

Click on the **Open** dialog box button if you just reinstalled the debugger, but earlier created a project with a previous Chameleon WEMU51 version. This brings up the standard Windows **Open** dialog box. Browse for a project configuration file Wemu51.CNF located in your project directory. Select Wemu51.CNF to open the corresponding project.

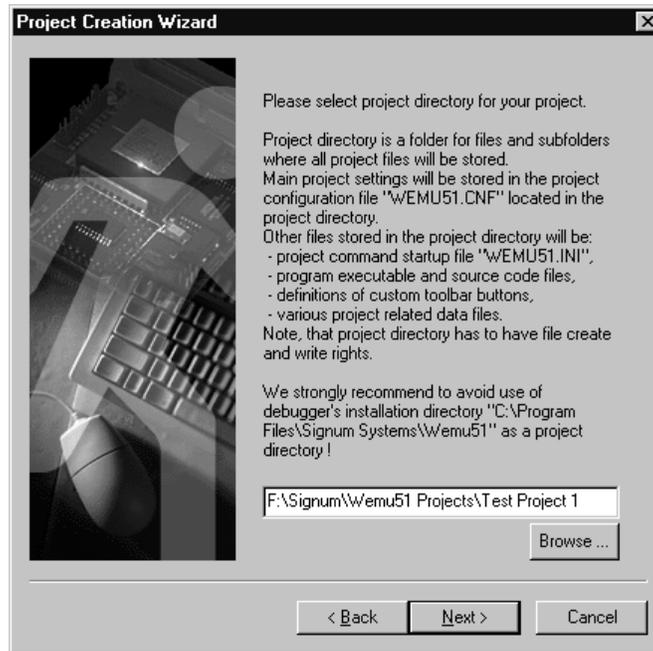
A brand new project is created by launching **Project Creation Wizard** from the WEMU51 **Project Manager** dialog box. Press the **Create New** button or select **Create New** from the **File** menu:



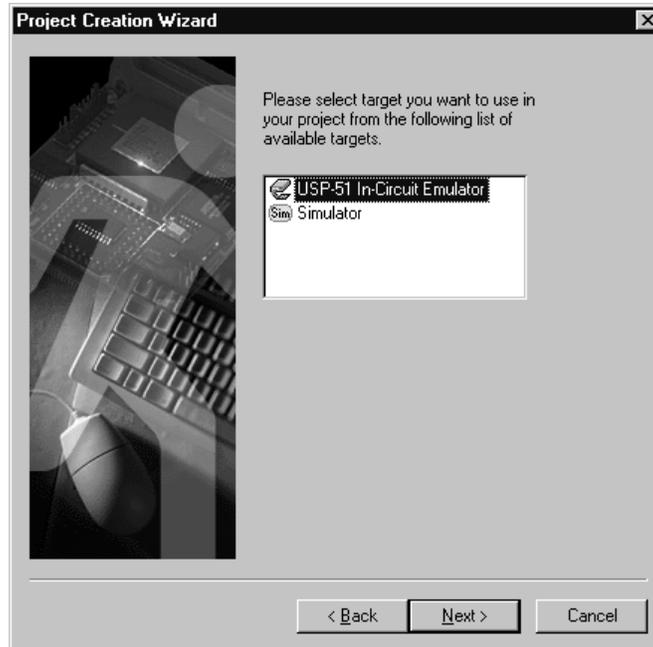
Click on the **Next** wizard button to begin creating a new project. You will be asked to type project name and optional comment text:



Click on the **Next** button. In this step, you are asked to select the project directory, one in which all project related files will reside. These files include your application executable file, source code files, the project command startup file Wemu51.INI, definitions of custom toolbar buttons and the like.



In the next step, you are asked to choose the target for your project. Select USP-51 In-Circuit Emulator in order to work with the Signum Systems emulator, as shown in the illustration:

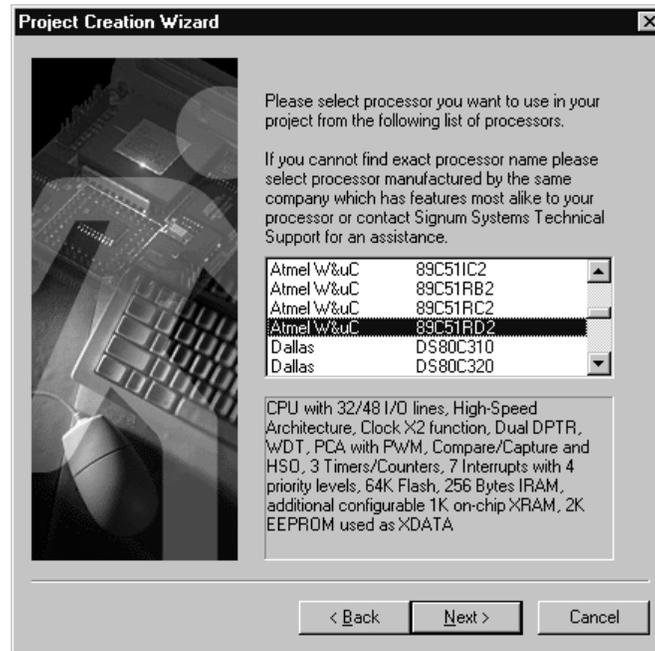


In the next step, select the communication device (e.g., host computer communication port) to connect the selected target device (the USP-51 emulator) with the host computer. The **Detected Devices** list box shows the available computer ports that can be used to establish the connection. Select the proper port (the same as in step 4 above) — or IceServer<sup>1</sup> if you connected the emulator to the network — and set the remaining parameters. When using a serial port or IceServer, for best performance, select the highest baud rate, 57600 bps. When you use the parallel port and your computer is running Windows ME, 98 or 95, you need to select a base LPT port address. Please obtain that address using Device Manager available from the Control Panel System dialog box. Windows XP, 2000 and NT provide this address automatically; the address cannot be modified and is grayed out, as shown below.



<sup>1</sup> IceServer is Signum's optional driver enabling the emulator to be operated remotely over a network.

In the next step, you will be asked to select processor you use in 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, as shown in the illustration below.



Clicking on the **Next** button brings up the last wizard dialog box that summarizes the choices you have made so far. If you want to modify some of these settings, press the **Back**, go to the appropriate wizard dialog box, make the desired changes, and then return to the last dialog box. Verify that the **Open new project after it is created** check box is checked. Eventually, click on the **Finish** button to exit wizard and create your new project using the selected parameters.

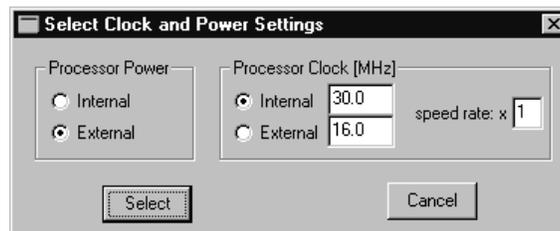
6. Chameleon WEMU51 debugger opens the project you have created, establishes communication with the USP-51 emulator (selected target), and then displays **Select Clock and Power Settings** dialog box. Please select the processor power source as **external** (i.e., from your target board) when the emulator's POD is plugged into your target board. The source should be **internal** (i.e., from the emulator), when the POD is the so-called standalone mode, that is, not connected to any target board.

Select the processor clock source as **external** or **internal** when the emulator's POD is plugged into your target board, or **internal** (from the POD), when the POD is unplugged from your target board. 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 this processor feature; x1 otherwise). The effective processor frequency is calculated as the selected frequency multiplied by the speed rate.

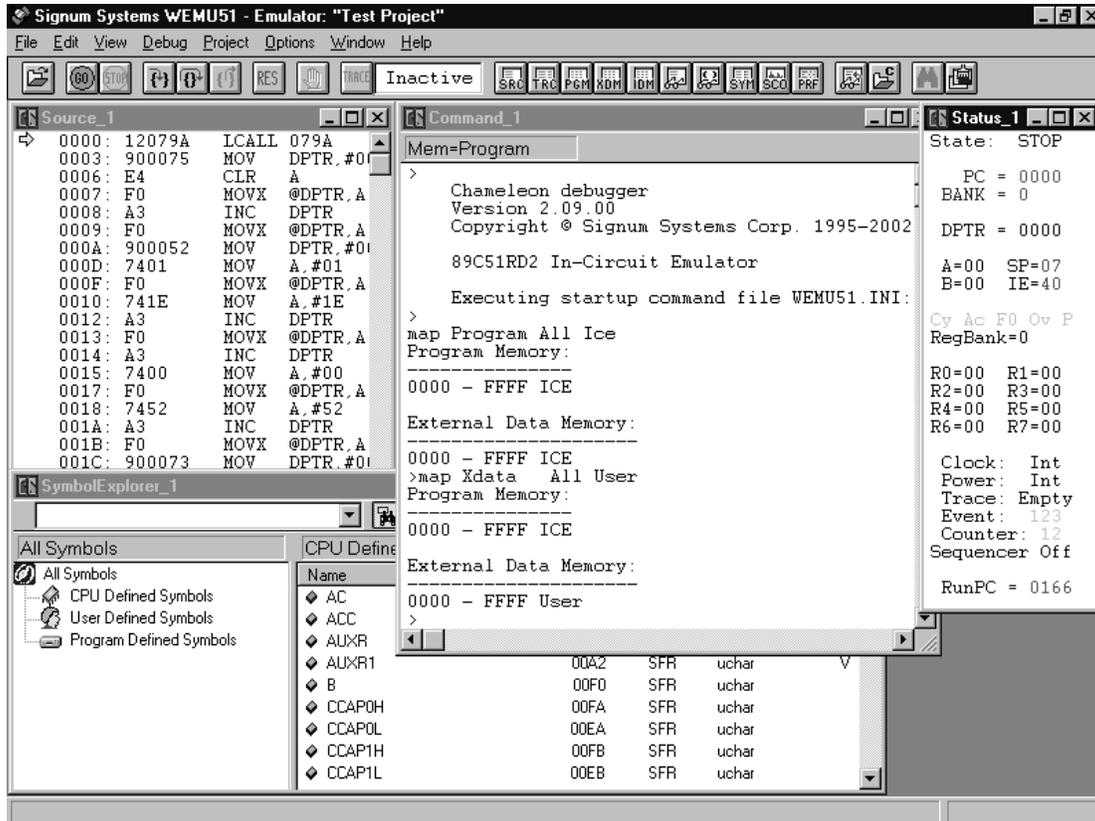
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**IMPORTANT NOTE:** The clock frequency selected in the dialog box does not set the frequency of the processor clock located on the POD or on your target board. This value is simply used by the debugger when timing data have to be calculated.

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7. After the project is opened, the debugger displays the initial window layout with Status, Source, Symbol Explorer and Command windows opened. Please note that the names of the selected target (*Emulator*) and project (*Test Project*) are displayed on the debugger's title bar. The screen should now look like this.



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 allows you to open various debugger windows, like Status or Command (which are already opened).

The **Debug** menu allows you to start, stop and step through loaded application as well as set/clear breakpoints.

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

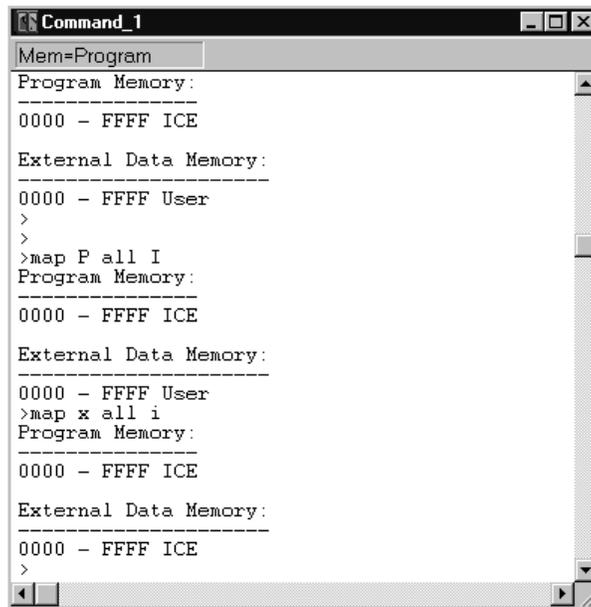
The **Options** menu allows you to change the project target and communication device as well as to customize toolbars.

The **Help** menu allows you to open the debugger documentation (Help | Contents), obtain the debugger version information (Help | About); launch an Internet browser with the Signum Systems WEB site opened (for example, to check for the latest software upgrades); or even to open an e-mail client software to send a message to the Signum Systems support personnel, if necessary.

- 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 follows.

In the **Command** window on the right side of your screen, you should see a record of the WEMU51.ini file commands that have been executed when the project was opened. (This project startup command file contains the commands executed automatically upon opening the project). Note that memory has been mapped so that the memory on the target board is used and the POD is ready for development and debugging of the target board. However, if you choose to explore and experiment with the program before you connect it 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", which will place the external memory data in the emulator's memory.



```
Command_1
Mem=Program
Program Memory:
-----
0000 - FFFF ICE

External Data Memory:
-----
0000 - FFFF User
>
>
>map P all I
Program Memory:
-----
0000 - FFFF ICE

External Data Memory:
-----
0000 - FFFF User
>map x all i
Program Memory:
-----
0000 - FFFF ICE

External Data Memory:
-----
0000 - FFFF ICE
>
```

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