TMS

series

SIGNUM SYSTEMS CORPORATION

Chameleon / JTAGjet for TMS320 Processors

Installation Instructions

SIGNUM SYSTEMS

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Purpose

This document describes the Chameleon Debugger installation process for use with the JTAGjet emulator for Texas Instrument's TMS320 DSPs, including the C54xx, VC33, and C24xx processors.

Note: If you have JTAGjet with USB interface, you must install the USB driver before this step. For instructions on USB driver installation, please refer to the *USB 2.0 Driver for JTAGjet and ADM51: Installation Instructions* booklet.

1. Insert the *Development Tools for Microsoft Windows* CD into your CD-ROM drive. From the Master Setup screen, select Chameleon Debugger and double-click the TMS320 microprocessor that matches your target.

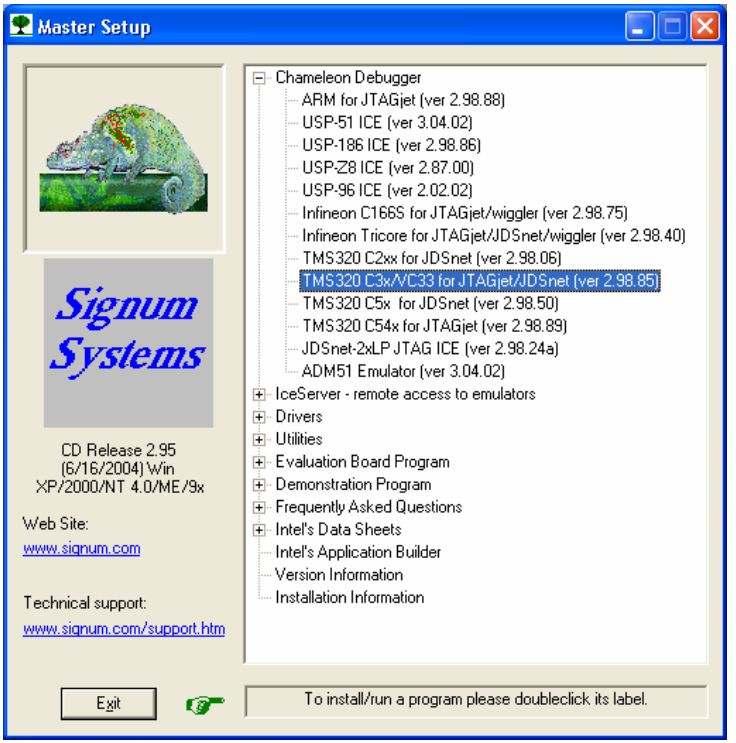

FIGURE 1 Chameleon Master Setup window.

2. Follow online instructions to complete the installation process.

3. Start Chameleon Debugger. In the System Configuration window, click the Add Target button (Figure 2).

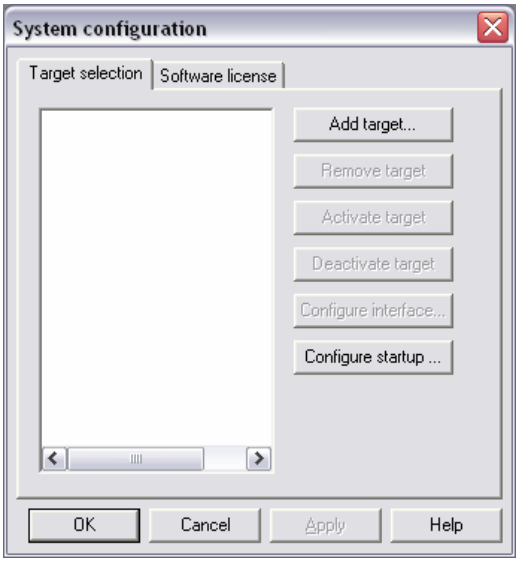

FIGURE 2 System Configuration window.

The Target Selection window (shown later) appears. Click the **Enter Key** button and type the license key in the format shown in Figure 3 The key for your copy of the debugger is found in the "Signum Systems Inc. Product User License Certificate" that was shipped with your emulator.

FIGURE 3 Unlocking Chameleon Debugger. (The upgrade key shown in the illustration is fictitious.)

4. In the Target Selection dialog box, select TMS320C3x (Texas Instruments) as the CPU Family and choose the JTAGjet (Signum Systems) as Emulator/API.

5. In the Target Selection dialog box, choose TMS320C3x (Texas Instruments) as the CPU Family, and JTAGjet (Signum Systems) as the Emulator/API, as shown in Figure 4.

> **Note:** In the remainder of this manual, we will use the VC33 as the target device to illustrate the general installation process. The VC33 example can be straightforwardly extended to other DSPs supported by the JTAGjet emulator.

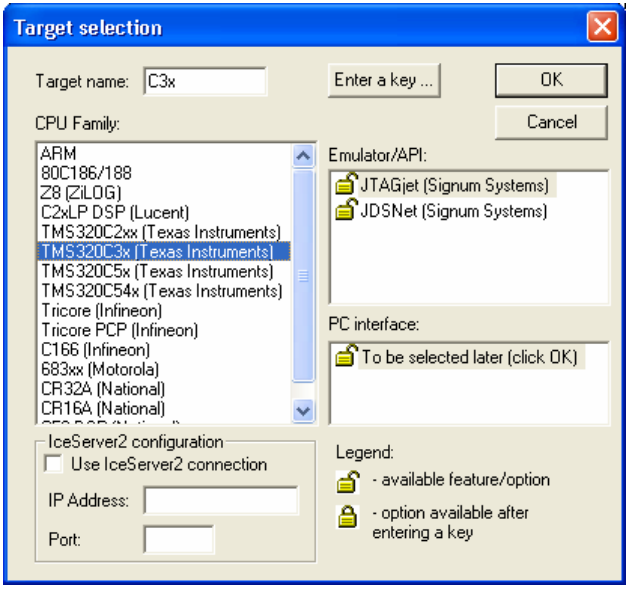

FIGURE 4 Target Selection window.

6. Select the communication port through which the emulator is connected to your computer (Figure 5).

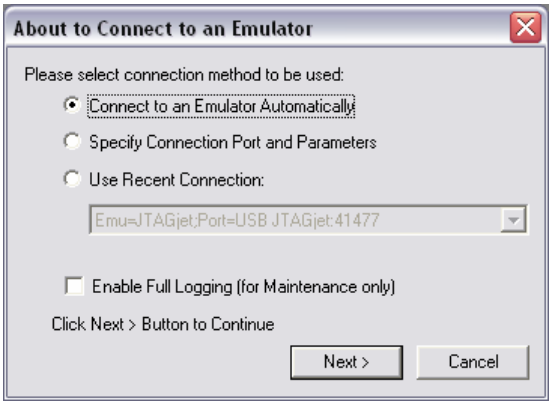

FIGURE 5 Choosing the emulator-PC communication port.

The Connect to Emulator Automatically method is hassle-free, whereas the Specify Connection Port and Parameters option offers greater control of the connection.

7. Specify the CPU model you intend to emulate (Figure 6).

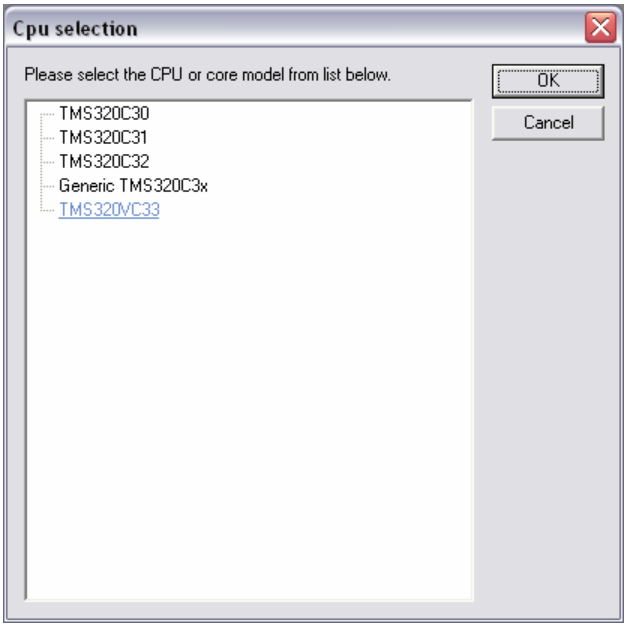

FIGURE 6 Selecting the target CPU model.

8. The Configuration dialog box appears (Figure 7). Click OK if your system contains a single target processor. Otherwise, please refer to Appendix.

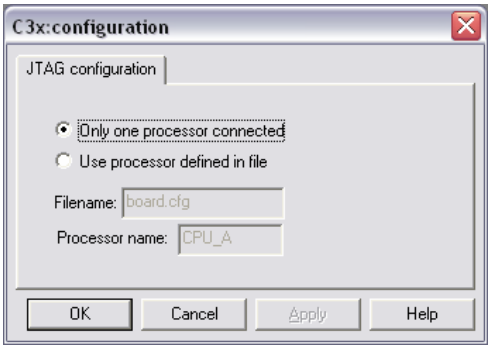

FIGURE 7 The Configuration dialog box.

9. Click OK. In the Startup Configuration Options dialog box, select the Use the Following Macro File When Starting Debugger, and then type or browse for the configuration macro file. In our example, we choose the standard Chameleon C3x.mac file (Figure 8).

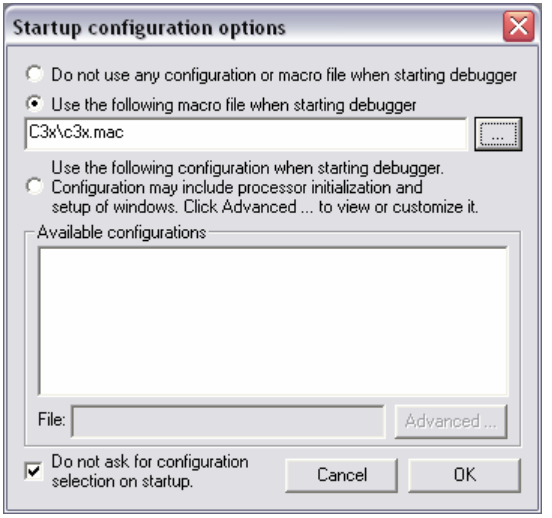

FIGURE 8 Configuring Chameleon's startup.

10. Click OK. After Chameleon establishes connection with the emulator, the initial debugger screen should be similar to that in Figure 9.

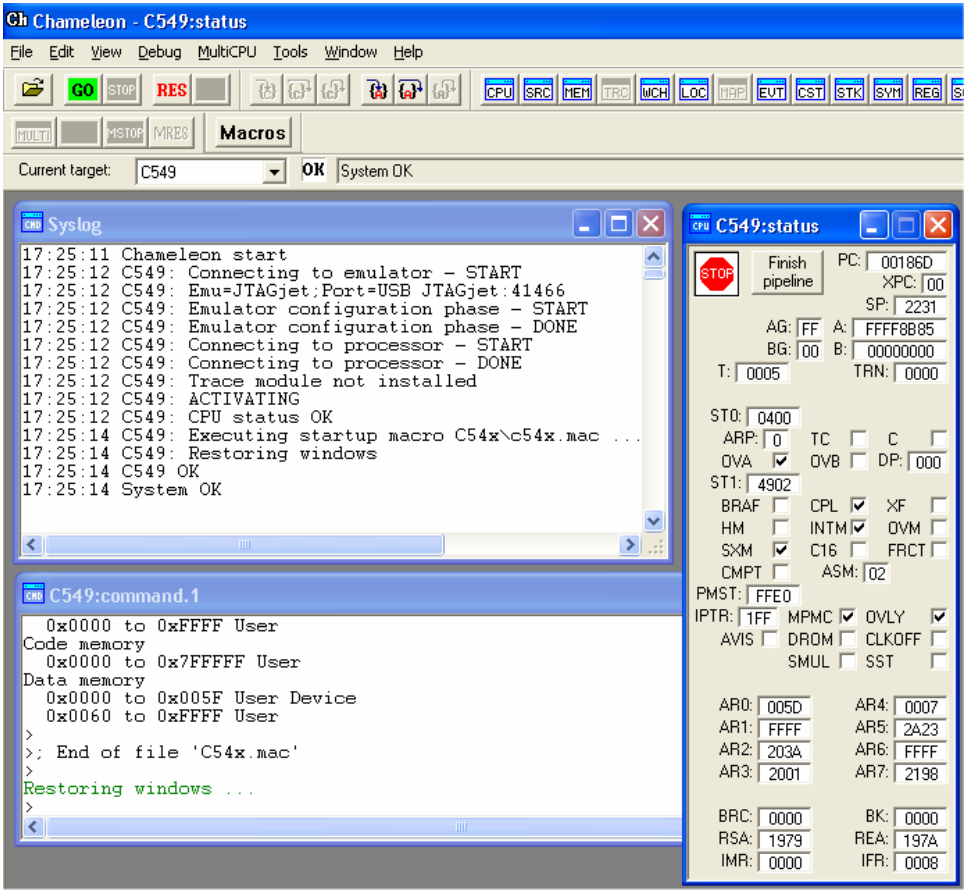

FIGURE 9 Sample initial Chameleon Debugger screen. The target device is the C54xx DSP. The user opened the Status window and Command window.

Appendix

Configuring Chameleon for multi-target systems.

In general, emulation systems are divided into single-processors systems and multi-processor systems. The two groups require different Chameleon configuration settings. The selection takes place in step 8 (page 6) of the installation procedure and comprises in defining the devices in the JTAG daisy chain.

The Configuration dialog box (Figure 7) allows you to choose between single-processor and multi-processor setups through the following options:

Only one processor connected Select this option if there is only one device in the chain.

Use processors defined in file If there are multiple devices in the chain, it is necessary to create an ASCII JTAG configuration file that specifies the symbolic names, types and/or the length of the instruction registers. The file name is arbitrary, but the extension must be .cfg. Each line in the .cfg file—except for comment lines—refers to a separate device:

NAME1 *TYPE1*
NAME2 *TYPE2*
.
.
.

where

NAME is a unique name identifying the device, e.g., "CPU_A", including the double quotes.

TYPE is the type of the device, such as TI320C24xx. Non-DSP devices should be bypassed. Specify their type as BYPASS and append the length of the instruction register in a two-digit format. For example, BYPASS2e denotes a bypassed device with a 46-bit (2e hex) instruction register.

Lines that begin with the semicolon are treated as comments and are ignored. The order in which the JTAG devices are specified in the configuration file is important. The first line corresponds to the device closest to the TDO, the second corresponds to the next device in the chain, and so on. The last line describes the device on the TDI side of the chain.

An example of the JTAG configuration file is shown below.

```
;*************************************************
;* JTAG configuration file
;*************************************************
"PAL2" BYPASS2e
"CPU_A" TI320C33xx
"PAL1" BYPASS05
```

Filename Specifies the JTAG configuration file. The file must reside in the directory where Chameleon Debugger was installed, normally, C:\Signum\Chameleon. The standard configuration file name extention is .cfg.

Processor name Specifies the name of the JTAG device being emulated.

After configuring Chameleon for multi-target systems, proceed to step 9 of the debugger installation procedure.

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