

# ***XDS512RL / Tek™ Emulation System Getting Started Guide***

Literature Number: SPRU256A  
April 1998



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## Read This First

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### ***About This Manual***

This manual describes how to install an XDS510™ emulator controller and the XDS512RL™ emulator board. This manual also describes how to install the TMS320C27xx microprocessor support package on a Tektronix Logic Analyzer model TLA704.

### ***Notational Conventions***

In this manual, program listings, program examples, and interactive displays are shown in a *special typeface*. Examples use a **bold version** of the special typeface for emphasis; interactive displays use a **bold version** of the special typeface to distinguish commands that you enter from items that the system displays (such as prompts, command output, error messages, etc.).

Here is a sample program listing:

```
0011 0005 0001      .field    1, 2
0012 0005 0003      .field    3, 4
0013 0005 0006      .field    6, 3
0014 0006           .even
```

Here is an example of a system prompt and a command that you might enter:

```
C:\ copy a:\*.* c:\temp
```

---

## ***Information About Cautions and Warnings***

This manual contains cautions and warnings.

**This is an example of a caution statement.**

**A caution statement describes a situation that could potentially damage your software or equipment.**

**This is an example of a warning statement.**

**A warning statement describes a situation that could potentially cause harm to you.**

The information in a caution or a warning is provided for your protection. Please read each caution and warning carefully.

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## ***Related Documentation From Texas Instruments***

The following books contain information related to the XDS512 / Tek emulation system and the JTAG cable. To obtain a copy of any of these TI documents, call the Texas Instruments Literature Response Center at (800) 477–8924. When ordering, please identify the book by its title and literature number.

***XDS512RL User's Guide*** (literature number SPRU259) describes the components of the XDS512RL / Tek emulation system. This User's Guide documents how to use the XDS512RL emulator and TLA704 logic analyzer with the BTT GUI and TMS320C27xx microprocessor support package to acquire trace data from your target system.

***JTAG/MPSD Emulation Technical Reference*** (literature number SPDU079) provides the design requirements of the XDS510™ emulator controller, discusses JTAG designs (based on the IEEE 1149.1 standard), and modular port scan device (MPSD) designs.

***TMS320C27xx C Source Debugger User's Guide*** (literature number SPRU214) tells you how to invoke the TMS320C27xx emulator and simulator versions of the C source debugger interface. This book discusses various aspects of the debugger interface, including window management, command entry, code execution, data management, and breakpoints. It also includes a tutorial that introduces basic debugger functionality.

***TMS320C2700-E1 Digital Signal Processor In-Circuit Emulation Device Data sheet*** (literature number SPRS062) describes the TMS320C2700-E1 device.

***T320C2700 Customizable Digital Signal Processor (cDSP™) Core (TSC4000 ASIC Libraries) Data Sheet*** (literature number SPRS057) describes the T320C2700 device.

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DSP Solutions	<a href="http://www.ti.com/dsps">http://www.ti.com/dsps</a>
320 Hotline On-line™	<a href="http://www.ti.com/sc/docs/dsps/support.htm">http://www.ti.com/sc/docs/dsps/support.htm</a>
Microcontroller Home Page	<a href="http://www.ti.com/sc/micro">http://www.ti.com/sc/micro</a>
Networking Home Page	<a href="http://www.ti.com/sc/docs/network/nbuhomex.htm">http://www.ti.com/sc/docs/network/nbuhomex.htm</a>
MOS Memory Home Page	<a href="http://www.ti.com/sc/memory">http://www.ti.com/sc/memory</a>
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DSP Modem BBS	(281) 274-2323		
DSP Internet BBS via anonymous ftp to <a href="ftp://ftp.ti.com/pub/tms320bbs">ftp://ftp.ti.com/pub/tms320bbs</a>			
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DSP Hotline	+03-3769-8735 or (INTL) 813-3769-8735	Fax: +03-3457-7071 or (INTL) 813-3457-7071
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# XDS512RL / Tek Emulation System Overview

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This chapter provides an overview of the XDS512RL / Tek emulation system. Additionally, this chapter contains definitions of frequently used terms you will need to understand to install the XDS510, XDS512RL, and Tektronix logic analyzer model TLA704.

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<b>1.2 What You Need</b> .....	<b>1-4</b>

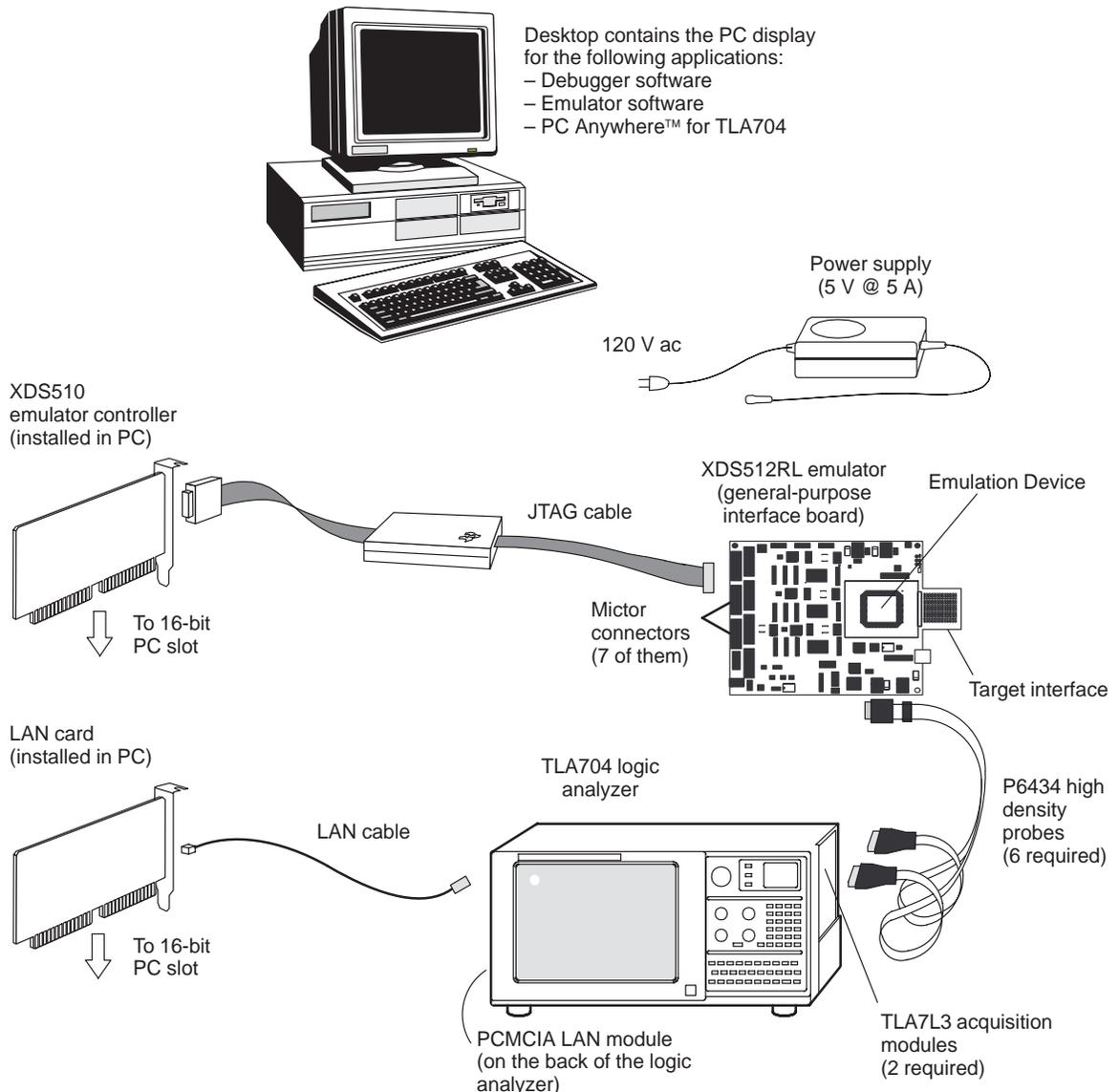
## 1.1 Definitions of Terms

Some of the most frequently used terms in this guide are defined here to help you use the information that follows more effectively.

<b>Target system</b>	The system you want to debug. This can be your actual system, a test system you have created, or an XDS512RL with an emulation device installed in it.
<b>JTAG cable</b>	The cable that attaches the XDS510 to your target system.
<b>JTAG connector</b>	The 14-pin connector on the target system that connects the JTAG cable to the XDS510.
<b>Emulation device</b>	A specialized device that you insert into a socket on the XDS512RL and that performs the same functions as your target device but includes features for gathering debugging information.
<b>Mictor connectors</b>	High-density connectors on the XDS512RL that connect the P6434 high-density probes from the logic analyzer.

This guide describes the installation and configuration of the components shown in Figure 1–1.

Figure 1–1. Overview of the Complete Emulation System with XDS510 and Desktop PC



As with all networkable systems, many LAN configurations are possible. This guide only covers one basic LAN configuration, where a dedicated LAN connection between the PC and TLA704 is used. More complex LAN configurations can be implemented with the assistance of your network administrator.

## 1.2 What You Need

To completely install the XDS512RL / Tek emulation system, you must have the following items:

- |                          |                              |  |
|--------------------------|------------------------------|--|
| <input type="checkbox"/> | <b>Host PC</b>               | An IBM PC/AT or 100% compatible ISA/EISA-based PC  |
| <input type="checkbox"/> | <b>XDS510 emulator kit</b>   | An XDS510 emulator kit, which includes the items listed on page 1-5.                         |
| <input type="checkbox"/> | <b>XDS512RL emulator kit</b> | An XDS512RL emulator kit, which includes the items listed on page 1-5.                       |
| <input type="checkbox"/> | <b>TLA704 kit</b>            | A Tektronix logic analyzer kit, which includes the items listed on page 1-5.                 |
| <input type="checkbox"/> | <b>TMS320C27xx software</b>  | A kit that contains debugging and BTT software, which includes the items listed on page 1-5. |
| <input type="checkbox"/> | <b>Networking kit</b>        | A networking kit, which contains the items listed on page 1-5.                               |
| <input type="checkbox"/> | <b>Emulation device</b>      | A device installed into the socket on the XDS512RL.  |

The components of the XDS512RL / Tek emulation system are available in the following kits:

Table 1–1. Kit Descriptions

This kit...	Has this partnumber ...	And contains these items...
XDS510 emulator kit	TMDS00510 (for desktop PC)	<input type="checkbox"/> XDS510 emulator JTAG controller plug-in board <input type="checkbox"/> JTAG cable/probe <input type="checkbox"/> <i>XDS51x Emulator Installation Guide</i> (SPNU070A)
XDS512RL emulator kit	TMDX00512CU	<input type="checkbox"/> XDS512RL emulator for the TMS320C27xx-based devices <input type="checkbox"/> 5-V power supply <input type="checkbox"/> BTT software with online help <input type="checkbox"/> <i>XDS512RL Emulation System Getting Started Guide</i> (SPRU256) <input type="checkbox"/> <i>XDS512RL / Tek Emulation System User's Guide</i> (SPRU259) <input type="checkbox"/> TMS320C27xx emulation device
TMS320C27xx software kit	TMDX3240127xx	<input type="checkbox"/> TMS320C27xx source code debugger <input type="checkbox"/> <i>TMS320C27xx C Source Debugger User's Guide</i> (SPRU214) <input type="checkbox"/> TMS320C27xx microprocessor support package for the TLA704
Tektronix Logic Analyzer	TLA704HD	<input type="checkbox"/> Tektronix logic analyzer model TLA704 <input type="checkbox"/> 2 TLA7L3/7L4 acquisition modules <input type="checkbox"/> 6 P6434 high-density probes <input type="checkbox"/> LAN PCMCIA card
Networking kit (customer supplied)	Miscellaneous	<input type="checkbox"/> PC Anywhere™ software package <input type="checkbox"/> LAN card, cable, and software

# Installing the XDS510, XDS512RL, and BTT Application

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This chapter explains how to install the XDS510, XDS512RL, and BTT application. The installation of the TLA704 logic analyzer and its related software is covered in Chapter 3.

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## 2.1 What You Need

To install the XDS510, XDS512RL, BTT Application, and TMS320C27xx microprocessor support package, you must have the following items:

- |                          |                              |  |
|--------------------------|------------------------------|--|
| <input type="checkbox"/> | <b>Host PC</b>               | A IBM PC/AT or 100% compatible ISA/EISA-based PC<br>One 16-bit ISA slot available in the host PC |
| <input type="checkbox"/> | <b>XDS510 emulator kit</b>   | An XDS510 emulator JTAG controller plug-in board   |
| <input type="checkbox"/> |                              | JTAG cable/probe   |
| <input type="checkbox"/> | <b>XDS512RL emulator kit</b> | An XDS512RL emulator   |
| <input type="checkbox"/> |                              | 5-V @ 5-A power supply and included power supply adapter cord                                    |
| <input type="checkbox"/> | <b>BTT application</b>       | Disks containing the BTT application.  |

**Note:**

For the XDS510 to function, you must have the *emurst.exe* and *smg510w.dll* files installed on your PC. These files are installed on your PC by the TMS320C27xx emulator debugger installation program.

### Minimizing Electrical Shock and Fire Hazard

To minimize the risk of electric shock and fire hazard, be sure that all major components that you interface with Texas Instruments devices are limited in energy and certified by one or more of the following agencies: UL, CSA, VDE, or TUV.

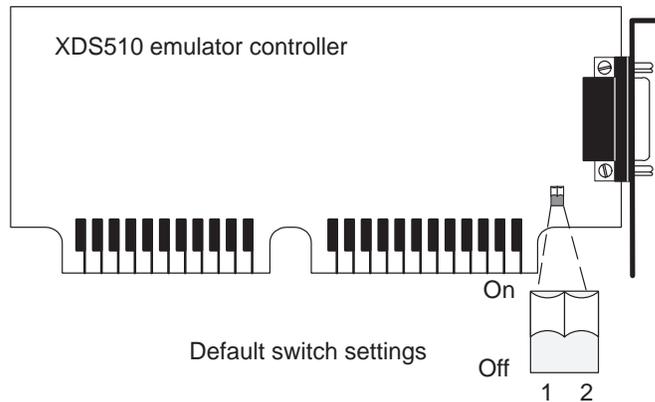
### Minimizing Static Shock

Special handling methods and materials should be used to prevent equipment damage. You should be familiar with identification and handling of ESD sensitive devices before attempting to perform the procedures described in this manual.

## 2.2 Step 1: Preparing the XDS510 for Installation

The XDS510 uses 32 bytes of the PC I/O space. Before you install the XDS510, set its switches to identify the I/O space that the XDS510 can use. Figure 2–1 shows the location of the switches.

Figure 2–1. XDS510 I/O Switches



The switches on the XDS510 are shipped in the default settings. All possible switch settings are listed in Table 2–1.

In most cases, you can leave the switch settings in the default position. However, you must ensure that the XDS510 emulator controller I/O space does not conflict with other bus settings. For example, if you have installed a sound card in your system, you might not be able to use the default switch settings for the I/O space—the sound card might use this space. For more information about avoiding I/O space conflicts, see section 2.3 on the following page.

See your PC technical reference manual and your other hardware-board manuals to see if there are any I/O space conflicts. If you find a conflict, change the switch settings to one of the alternative settings listed in Table 2–1.

Table 2–1. XDS510 Switch Settings

	Address Range	Switch #	
		1	2
<b>Default</b>	0x0240–0x025F	On	On
	0x0280–0x029F	On	Off
	0x0320–0x033F	Off	On
	0x0340–0x035F	Off	Off

## 2.3 Step 2: Preparing the Host PC for XDS510 Installation

The XDS510 board is not plug-and-play compatible; therefore, Windows™ 95 knows nothing about the I/O space you are using for the XDS510. If you install other plug-and-play hardware in your PC and let Windows 95 determine an I/O space for it, the space could conflict with the XDS510 I/O settings.

To reserve I/O space and prevent any XDS510 I/O space conflicts, follow these steps:

- 1) In the Windows 95 Control Panel, double-click the *System* icon.
- 2) In the System Properties window, select the *Device Manager* tab.
- 3) Double-click the *Computer* icon.
- 4) Select the *Reserve Resources* tab.
- 5) Click the *Input/Output (I/O)* option.
- 6) Click the *Add* button.
- 7) In the *Edit Resource Setting* window, enter the beginning and ending values of the input/output range you want to reserve for the XDS510. The default range is 0x0240–0x025f.
- 8) Click *OK*. You must restart your computer to activate the new reserved I/O settings.

## 2.4 Step 3: Installing the XDS510 in Your PC

The XDS512RL emulator requires you to use the XDS510 emulator kit. The XDS510 emulator kit enables your debugger and your XDS512RL to communicate with your target.

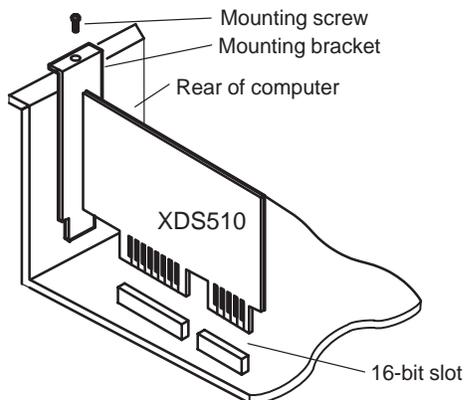
After you have prepared the XDS510 for installation, follow these steps to place it into your PC.

### Minimizing Personal Injury and Equipment Damage

To minimize the risk of personal injury and to avoid damaging your equipment, *always* turn off the power to your PC and unplug the power cord before installing the XDS510.

- 1) Turn off your PC's power and unplug the power cord.
- 2) Remove your PC's cover.
- 3) Remove the mounting bracket from an unused 16-bit slot.
- 4) Carefully but firmly push the XDS510 into the 16-bit slot (see Figure 2–2).
- 5) Return the mounting screw to the mounting bracket and tighten the screw (see Figure 2–2). Make note of the I/O settings and the slot that contains the XDS510. You must have this information available later.
- 6) Replace the PC cover.
- 7) Turn on your PC's power.

Figure 2–2. Placing the XDS510 Into Your PC



## 2.5 Step 4: Connecting the XDS510 to the XDS512RL

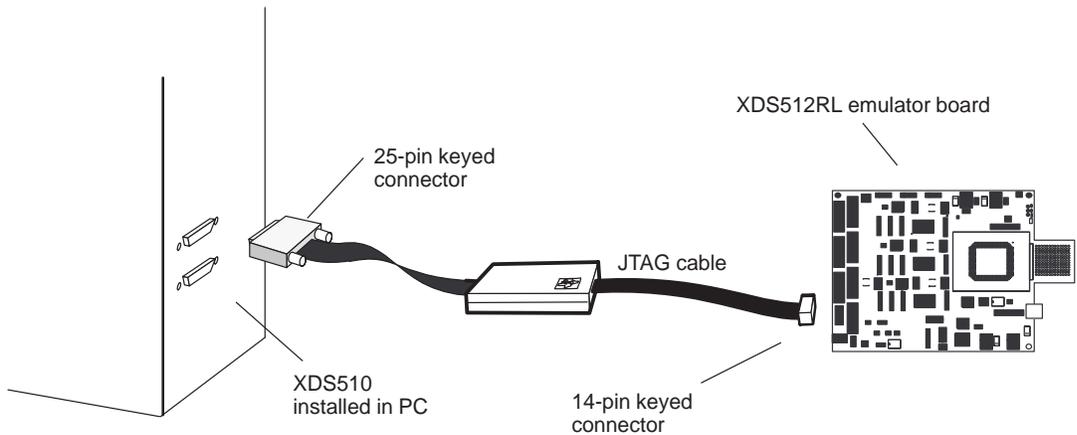
Follow these steps to connect your XDS510 to your XDS512RL:

### Minimizing Equipment Damage

To minimize the risk of damage, be careful with the JTAG cable connectors. Connect them gently; forcing the connectors into position can damage them.

- 1) Plug the 25-pin connector side of the JTAG cable into the XDS510 (see Figure 2–3).
- 2) Plug the 14-pin connector side of the JTAG cable into the JTAG connector on your XDS512RL.

Figure 2–3. Connecting the XDS510 to the XDS512RL



## 2.6 Installing the BTT Application

The installation program installs the BTT (breakpoint, trace, and timing) application on your PC:

To install the BTT application, follow these steps:

- 1) Insert the disk marked *XDS512 Emulation System Beta Release 1.21* Disk 1 into your floppy drive.
- 2) From the Start menu, select *Run*.
- 3) In the *Run* dialog box, enter the following command:  
`A:\setup.exe`

### 2.6.1 Setting the BTT Application to use the Board.dat File

To use the BTT application with the XDS512, you must set the path to the *board512.dat* file. To set the path to the *board512.dat* file, follow these steps:

- 1) Invoke the BTT application.
- 2) From the Program menu, select Emulation Settings to display the Emulation Settings dialog box.
- 3) Click the Browse button to display the Configuration File Selection dialog box.
- 4) From the Configuration File Selection dialog box, navigate to the following path:  
`C:\C27xxDSP\EMU\512`
- 5) Select *board512.dat* and click Open.
- 6) Click OK to save this setting.

## 2.7 Installing the Teksym Utility

The support package contains a symbol translation utility, `teksym.exe`, that converts TI COFF files into Tektronix logic analyzer symbol files. Teksym takes in a single file, `sample.out`, and produces the following files:

- `sample.DPS` (Data pattern symbols)
- `sample.DRS` (Data range symbols)
- `sample.PPS` (Program pattern symbols)
- `sample.PRS` (Program range symbols)

These files contain the symbol tables that correspond to the COFF file you are debugging.

Include the `teksym.exe` file in your COFF build script to ensure that the most current symbol table file is always available for you to retrieve when you are acquiring and building data.

The following options are available with the `teksym` utility:

- b** Specifies the bus width of the architecture in bits (default is 16 bits)
- w** Specifies the CPU word size in bits (default is 16 bits)

Include the following line in your COFF build script to produce symbol table files that the TLA704 can use to understand the symbols in your COFF files:

```
teksym -b22 -w16 sample.out
```

After you build your application, you can access the symbol files from the TLA704 by browsing to your project directory on your PC. You can use the symbol files to help identify target symbols by their address in the TMS320C27xx microprocessor support package. To see an example symbol table file, see Chapter 5 in the *XDS512RL / Tek Emulation System User's Guide*.

## 2.8 Modifying Your Board.dat File

Before using the XDS512RL emulator with the debugging and trace software, you must modify your board.dat file. To modify your board.dat file, follow these steps:

- 1) Create *board512.cfg* text file that contains the following information:

```
cpu_a TMS320C27XX  
cpu_b TMS320C2XX
```

- 2) Use the *composer* utility to create board512.dat file.

```
composer board512.cfg board512.dat
```

For more information about modifying your board.dat files, see Appendix B in the *TMS320C27xx C Source Debugger User's Guide*.

# Connecting the Hardware and Installing The TMS320C27xx Microprocessor Support Package

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This chapter explains how to connect your PC, the Tektronix logic analyzer model TLA704, and the XDS512RL.

Topic	Page
3.1 What You Need .....	3-2
3.2 TLA704 Configuration .....	3-3
3.3 Connecting the TLA704 and the XDS512RL .....	3-4
3.5 Networking the TLA704 and the Host PC .....	3-10
3.6 Installing the TMS320C27xx Microprocessor Support Package .....	3-14
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Before you continue, see the following figures to help prevent probe damage:

See this figure. . .	On this page. . .	To learn about this topic. . .
Figure 3-3	3-6	<i>Inserting the Probes Straight Into the Mictor Connectors on page</i>
Figure 3-5	3-8	<i>Removing Probes From the Mictor Connectors on page</i>
Figure 3-6	3-9	<i>Eliminating Tension at the Mictor Connector Points on page</i>

### 3.1 What You Need

To complete the installation process, you need the following items:

- |                          |  |  |
|--------------------------|--|--|
| <input type="checkbox"/> | <b>Host PC</b>   | An IBM PC/AT or 100% compatible ISA/EISA-based PC<br>One 16-bit slot available in the host PC  |
| <input type="checkbox"/> | <b>LAN card</b>  | A LAN card to connect the PC and the TLA704 (Intel 82557B-based Ethernet PCI adapter recommended).   |
| <input type="checkbox"/> | <b>XDS512RL emulator kit</b>                               | An XDS512RL emulator for TMS320C27xx-based devices<br>5V power supply  |
| <input type="checkbox"/> | <b>Tektronix logic analyzer kit</b>                        | Model TLA704 configured as discussed in section 3.2<br>6 P6434 34-channel high-density probes with labels and retaining brackets<br>2 TLA7L3 acquisition modules<br>LAN PCMCIA card for networking the TLA704 and PC |
| <input type="checkbox"/> | <b>TMS320C27xx microprocessor support package software</b> | Disk containing the TMS320C27xx microprocessor support package   |
| <input type="checkbox"/> | <b>PCMCIA LAN card</b>                                     | For networking the PC and TLA704   |
| <input type="checkbox"/> | <b>LAN cable</b>   | A LAN cable  |

## 3.2 TLA704 Configuration

To support the XDS512RL / Tek emulation system, your TLA704 must meet the following minimal configuration requirements:

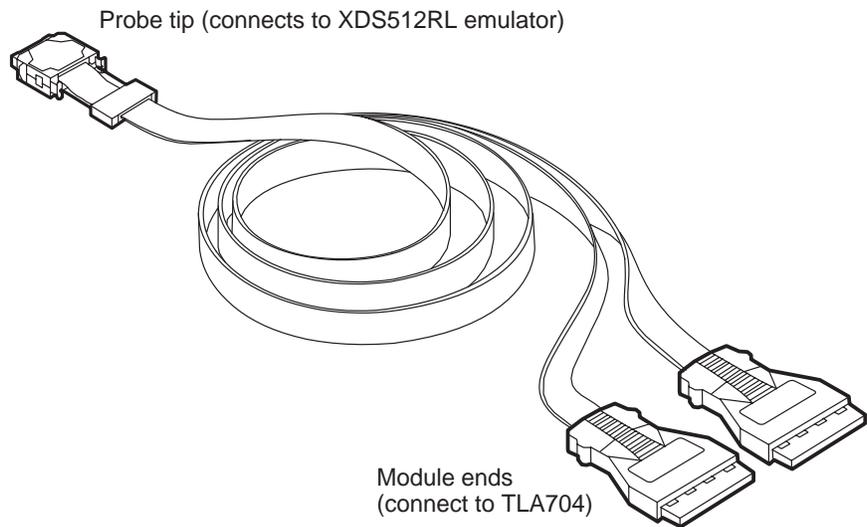
<b>TLA704 mainframe</b>	PCMCIA LAN card installed
<b>TLA7L3 modules</b>	<b>acquisition</b> Two TLA7L3 modules installed and configured for merged operation into the TLA704 mainframe The XDS512RL / Tek emulation system requires the modules to operate only at 100MHz. The faster operation option for the modules is not required. Initial trace buffer size is 32K deep. Deeper trace buffer sizes are available.

### 3.3 Connecting the TLA704 and the XDS512RL

The TLA704 connects to the XDS512RL through six P6434 high-density probes (see Figure 3–1). The process for connecting the TLA704 and XDS512RL consists of the following steps:

- Labeling the probes
- Connecting the XDS512RL and TLA704
- Securing the probes

Figure 3–1. P6434 High-Density Probe



Each probe has connectors on each end. The single end of each probe connects to one of the 6 Mictor connectors on the XDS512RL and is called the probe tip. The connectors on the other end connect to the acquisition modules in the TLA704 and are called the module ends.

#### 3.3.1 Step 1: Labeling the Probes

For each of the six probes, you must apply labels to both sides of each probe-tip and to the module ends of each probe. Label your probes using the sheet of labels included with them. The labels are color-coded to match the module slots on the logic analyzer and have different shapes for the probe tip and the module ends of the probes.

Some of the probe-tip connector labels are marked *Pin 1*. You must attach a Pin 1 label to the pin 1 side of the probe tip and a non-Pin 1 label to the pin 38 side (see Figure 3–2). Table 3–1 on page 3-7 shows which color pairs you must apply to each probe tip.

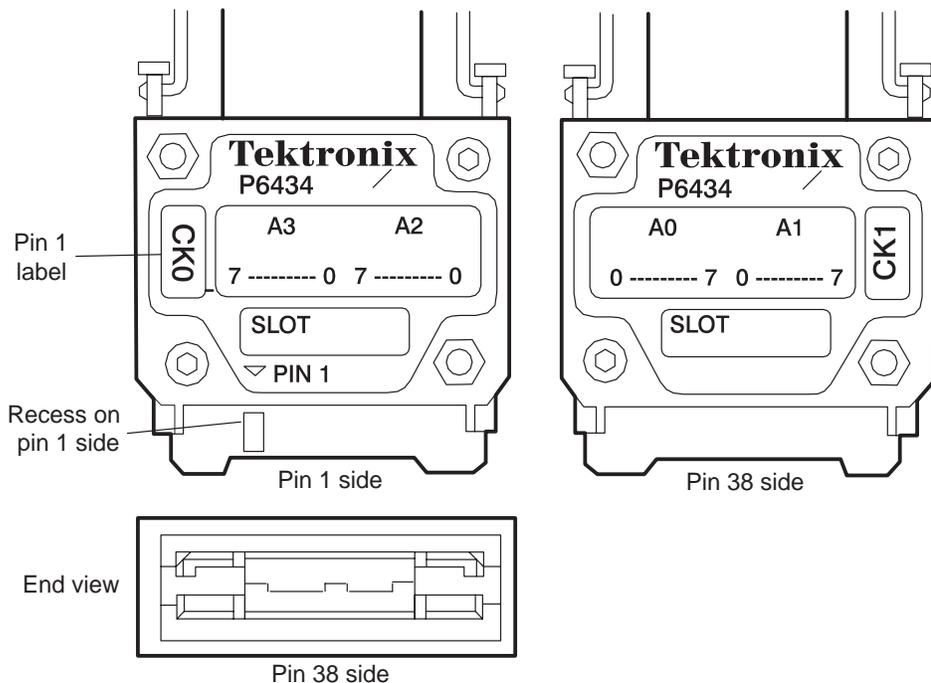
To label your probes, follow these steps:

- 1) Locate the small pin 1 recess on the probe tip and apply a Pin 1 label on that side (see Figure 3–2). Blue, brown, white, and green are Pin 1 labels.
- 2) Apply the non-Pin 1 label to the pin 38 side of the probe tip. Yellow, orange, gray, and violet are non-Pin 1 labels. Follow the color label pairs for a given probe tip as shown in Table 3–1. Be careful not to use two labels with the Pin 1 indicator or two labels with the non-Pin 1 indicator on a single probe.
- 3) Label the module ends of the probe so that the colors match those of the probe-tip labels. The module-end labels go on the nonkeyed half of the connector case. Be careful not to cross cables when applying the matching color labels. See Table 3–1 on the following page and Figure 3–4 on page 3-7 for color assignments.

**Note:**

The recess on the Pin 1 side of the probe-tip is very faint. Look closely to make sure you are labeling the correct side of the probe-tip.

Figure 3–2. Pin 1 and Pin 38 Sides of Probe Tip



### 3.3.2 Step 2: Connecting the XDS512RL and the TLA704

After labeling your probes, you are ready to connect the XDS512RL and TLA704. For probe assignments, see Table 3–1 and Figure 3–4 on the following page. Follow these steps to connect your TLA704 and XDS512RL:

- 1) Attach the module end pairs of each P6434 probe to the corresponding color-coded slots on the TLA7L3 acquisition modules. See Table 3–1 and Figure 3–4 for probe assignments.
- 2) Attach the probe tip of each P6434 probe to the appropriate XDS512RL Mictor connector. Attach the probe tips so that the Pin 1 side of each probe tip is facing the device socket on the XDS512RL.

See Table 3–1 and Figure 3–4 on the following page for probe assignments.

**Probe Damage**  
**You must insert probes straight into the Mictor connectors. If you do not insert them perpendicular to the board, the pins in the probe tip break!**

Figure 3–3. Inserting the Probes Straight Into the Mictor Connectors

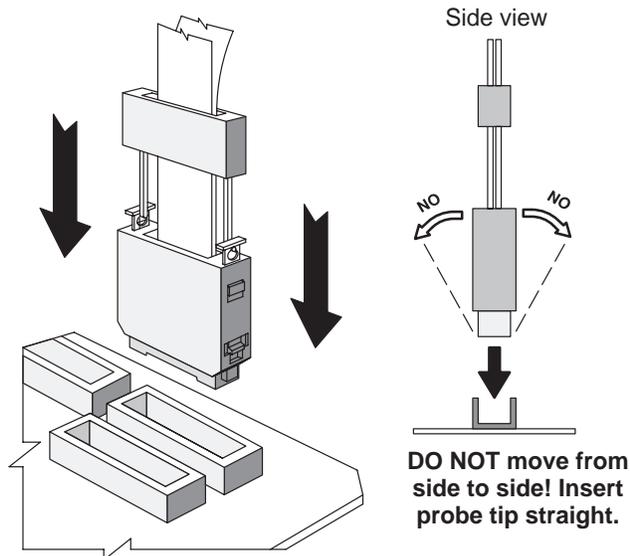
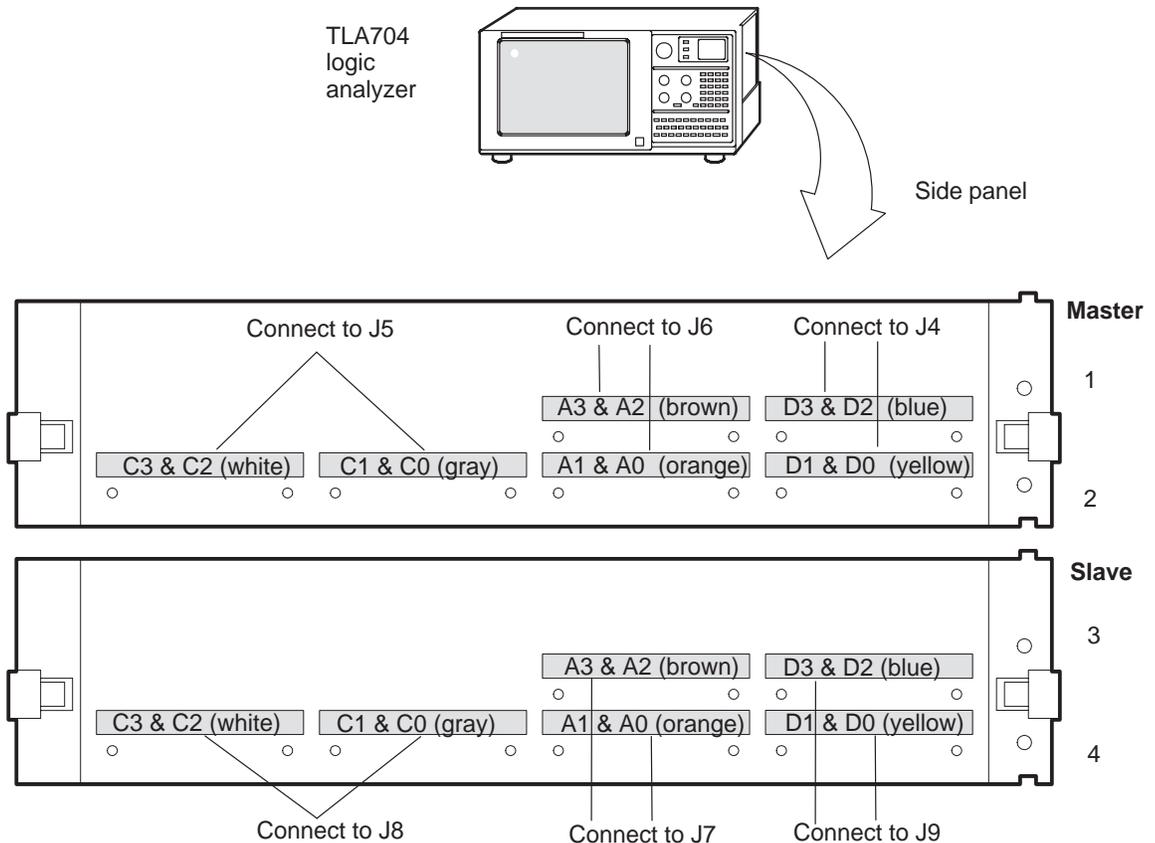


Table 3–1. XDS512RL Trace Interface Probe Assignments for TLA704

TLA7L3 Module Connectors	TLA704 Master or Slave Module	P6434 Probe Tip	XDS512RL Mictor Connector
Blue (D3:D2), Yellow (D1:D0)	Master slot 1&2	Blue/yellow	J4 (PROG_ADD)
Blue (D3:D2), Yellow (D1:D0)	Slave slot 3&4	Blue/yellow	J9 (PROG_DATA)
Brown (A3:A2), Orange (A1:A0)	Master slot 1&2	Brown/orange	J6 (WRITE_ADD)
Brown (A3:A2), Orange (A1:A0)	Slave slot 3&4	Brown/orange	J7 (WRITE_DATA)
White (C3:C2), Gray (C1:C0)	Master slot 1&2	White/gray	J5 (READ_ADD)
White (C3:C2), Gray (C1:C0)	Slave slot 3&4	White/gray	J8 (READ_DATA)

Figure 3–4. TLA704 Side Panel View of Master and Slave TLA7L3 Acquisition Modules



### 3.4 Handling the Probes

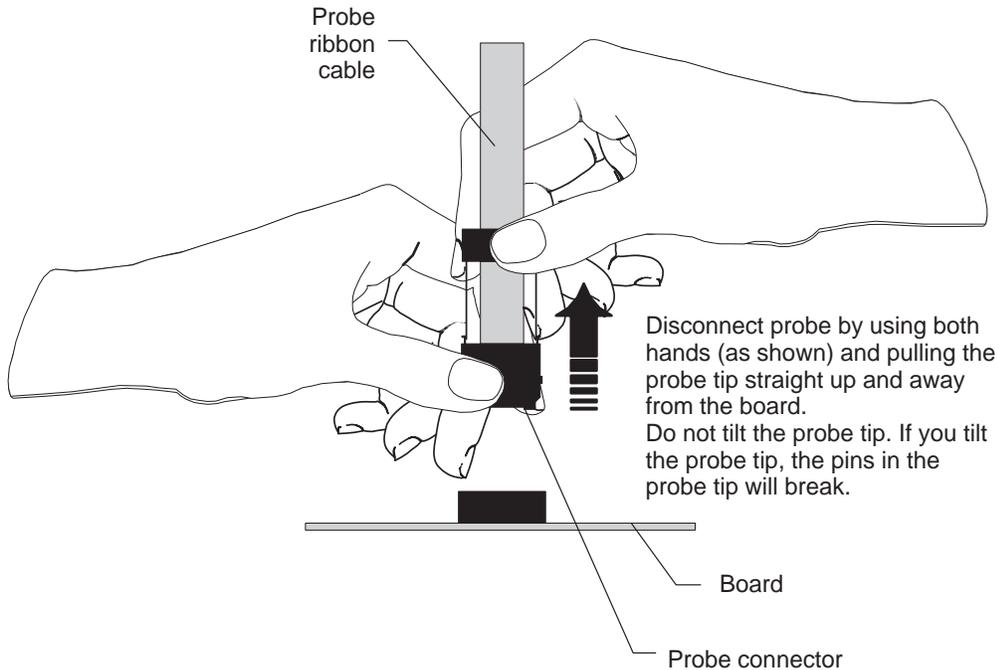
If you don't handle the probes carefully, the pins in the probe tips break. Follow the guidelines on this page to ensure that your probes do not break.

#### 3.4.1 Removing the Probes

If you don't handle the probes carefully, the pins in the probe tips break. When removing the probes from the mictor connectors, follow the guidelines on this page to ensure that your probes do not break.

**CAUTION**  
The Mictor connectors on the XDS512RL are fragile and are only good for 25 insertions. After 25 insertions, the Mictor connectors may break.

Figure 3–5. Removing Probes From the Mictor Connectors

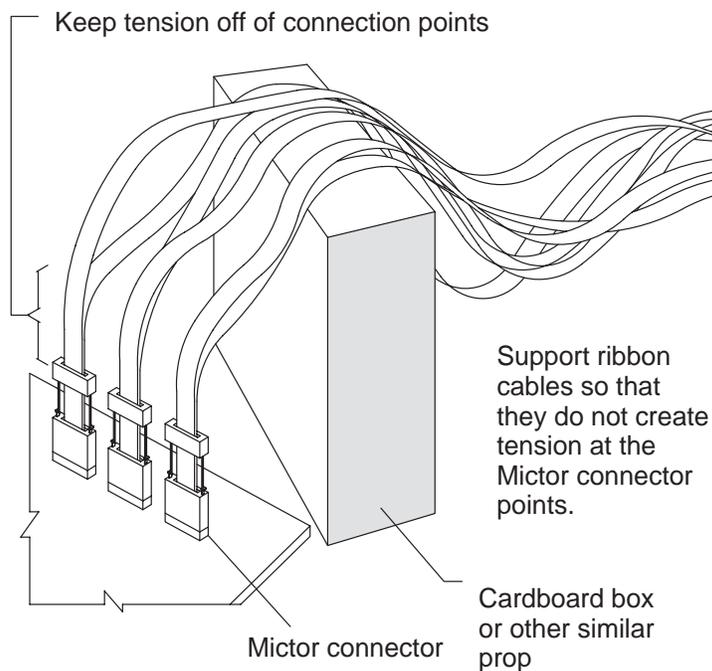


### 3.4.2 Eliminating tension at the Mictor Connector points

**You must support the probes to eliminate tension at the Mictor connectors. Do not let the probe cables hang off a table, or the pins in the probe tips break!**

Figure 3–6. *Eliminating Tension at the Mictor Connector Points*

If you do not store the probe cables carefully, the pins in the probe tips break. Eliminate tension at the Mictor connector points by supporting the probe cables.



## 3.5 Networking the TLA704 and the Host PC

This section assumes that you have already installed a LAN card and the respective network drivers on your PC and TLA704. If you have not yet installed the LAN cards and network drivers on your PC and TLA704, please do so now.

The rest of this chapter walks you through the following tasks:

- Setting network properties on your PC
- Activating file sharing on your PC
- Setting network drivers on your TLA704
- Activating file sharing on your TLA704

### 3.5.1 Setting Network Properties for the PC

To form a closed network between the the PC and TLA704, follow these steps:

- 1) From the Control Panel, double-click the *Network* icon to display the Network Control Panel.
- 2) Select *TCP/IP* and click the *Properties* button to display the TCP/IP Properties Window.
- 3) Select the *Specify an IP Address* radio button.
- 4) In the IP Address field, enter 192.128.128.1.
- 5) In the Subnet Mask field, enter 255.255.255.0.
- 6) Select the WINS Configuration tab and disable WINS resolution by selecting the radio button next to the *Disable WINS Resolution* field.
- 7) Make sure that the Gateways tab does not contain any gateways.
- 8) In the Advanced tab, set the Property field to *None*, and uncheck the *Set this protocol to be the default protocol* checkbox.
- 9) In the Bindings tab, select the checkboxes next to *Client for Microsoft Networks* and *File and printer sharing for Microsoft Networks*.
- 10) Click *OK* to save the settings in the TCP/IP Properties window.
- 11) Click *OK* in the Network Control Panel to save the settings.

The PC must reboot to apply these changes.

---

**Note:**

The IP address and subnet mask used in these steps are standard test addresses used for this purpose. If the IP address conflicts with an existing address on your LAN, you must use another IP address.

---

Note that the PC and TLA704 must be assigned to the same workgroup. You can check these settings in the Identification tab of the Network Control Panel.

### 3.5.2 Activating File Sharing on Your PC

You must activate file sharing on your PC so it can share files on the TLA704's hard drive. To activate file sharing on your PC, follow these steps:

- 1) From the Control Panel, double-click the *Network* icon.
- 2) Select the *Configuration* tab.
- 3) Click the *File and Print Sharing...* button.
- 4) Turn on the check box that reads *I want to be able to give others access to my files*.
- 5) Click *OK* through three dialog boxes to apply your changes. When you click *OK* in the third box, the software reboots your PC.
- 6) Once your PC has rebooted, you can right-click on the C:\ drive and select *Sharing* to share files, folders, or the entire drive with the TLA704.

### 3.5.3 Setting Network Properties for the TLA704

To form a closed network between the the PC and TLA704, follow these steps:

- 1) From the Control Panel, double-click the *Network* icon to display the Network Control Panel.
- 2) Select *TCP/IP* and click the *Properties* button to display the TCP/IP Properties Window.
- 3) Select the *Specify an IP Address* radio button.
- 4) In the IP Address field, enter 192.128.128.0.
- 5) In the Subnet Mask field, enter 255.255.255.0.
- 6) Select the WINS Configuration tab and disable WINS resolution by selecting the radio button next to the *Disable WINS Resolution* field.
- 7) Make sure that the Gateways tab does not contain any gateways.
- 8) In the Advanced tab, set the Property field to *None*, and uncheck the *Set this protocol to be the default protocol* checkbox.
- 9) In the Bindings tab, select the checkboxes next to *Client for Microsoft Networks* and *File and printer sharing for Microsoft Networks*.
- 10) Click *OK* to save the settings in the TCP/IP Properties window.
- 11) Click *OK* in the Network Control Panel to save the settings.

The TLA704 must reboot to apply these changes.

Now that you have installed the necessary hardware and software in your PC and TLA704, your PC and TLA704 can communicate. From Windows Explorer, you can now map the PC's C:\ drive from the TLA704 and the TLA704's C:\ drive from the PC.

---

**Note:**

The IP address and subnet mask used in these steps are standard test addresses used for this purpose. If the IP address conflicts with an existing address on your LAN, you must use another IP address.

---

Note that the PC and TLA704 must be assigned to the same workgroup. You can check these settings in the Identification tab of the Network Control Panel.

### 3.5.4 Activating File Sharing on Your TLA704

You must activate file sharing on your TLA704 so it can share files on the PC's hard drive. To activate file sharing on your TLA704, follow these steps:

- 1) From the Control Panel, double-click the *Network* icon.
- 2) Select the *Configuration* tab.
- 3) Click the *File and Print Sharing...* button.
- 4) Turn on the check box that reads *I want to be able to give others access to my files*.
- 5) Click *OK* through three dialog boxes to apply your changes. When you click *OK* in the third box, the software reboots your PC.
- 6) Once your PC has rebooted, you can right-click on the C:\ drive and select *Sharing* to share files, folders, or the entire drive with the PC.

## 3.6 Installing the TMS320C27xx Microprocessor Support Package

The TMS320C27xx microprocessor support package is software that includes an instrument setup and disassembler for acquiring and processing trace data from the XDS512RL. To install the TMS320C27xx microprocessor support package on the TLA704, follow these steps:

- 1) Insert the TMS320C27xx microprocessor support package disk in the floppy drive of your TLA704.
- 2) From the Start Menu, select *Run*.
- 3) In the *Run* dialog box, enter the following command:

**A: \setup.exe**

The installation program installs the TMS320C27xx microprocessor support package in the following path: C:\ProgramFiles\TLA700\Supports\C27xx.

### 3.6.1 Instrument Setup Files

The support package contains an instrument setup file, c27xxsetup.tla, that sets up the TLA704 for use with the XDS512RL. To preserve the instrument setup file, make a copy of it and place it in the project directory you are going to work from.

**Note:**

Remember to preserve the instrument setup file from unintentional corruption by making a copy of this file and using the copy.

## 3.7 Upgrading The TMS320C27xx Microprocessor Support Package

Whenever you receive a new version of the support package, you must upgrade your current version. This section explains how to upgrade your TMS320C27xx microprocessor support package. Before upgrading your current C27xx support package, check to see if it is currently running. If the C27xx support package is in use, you must first return the TLA704 to its default instrument setup before proceeding with the upgrade. To return the TLA704 to its default instrument setup, follow the steps in section 3.7.1; otherwise, follow the steps in section 3.7.2.

### 3.7.1 Returning Your TLA704 to Its Default Instrument Setup

To return the TLA704 to its default instrument setup, follow these steps:

- 1) From the TLA704 File menu, select *Default System*.
- 2) Click *OK* to restore the default instrument setup.

Once you have returned the TLA704 to its default instrument setup, follow the steps in section 3.7.2 below to upgrade the TMS320C27xx microprocessor support package.

### 3.7.2 Upgrading the TMS320C27xx Microprocessor Support Package

To upgrade the TMS320C27xx microprocessor support package on the TLA704, you must first uninstall the current version. To uninstall and upgrade the support package, follow these steps:

- 1) From the Windows 95 Control Panel, double-click *Add/Remove Programs*.
- 2) Select the *Install/Uninstall* tab.
- 3) Select *DLM27xx C27xx* from the list.
- 4) Click the *Add/Remove* button.
- 5) Click *Yes* to confirm deletion.
- 6) Click *OK* when the installation is complete.
- 7) Insert the TMS320C27xx microprocessor support package upgrade disk in your floppy drive.
- 8) Click *Install*.

- 9) Click Next.
- 10) In the *Run* dialog box, you should see the following:  
**A:\setup.exe**
- 11) Click Finish.
- 12) Click OK when the installation is complete.

For more information about the support package and its use, see the *XDS512RL / Tek Emulation System User's Guide*.

# XDS512RL Configuration

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Before you can begin using the XDS512RL, you must perform the following final configuration procedures:

- Setting jumpers on the XDS512RL
- Inserting an emulation device into the XDS512RL
- Applying power to the XDS512RL

<b>Topic</b>	<b>Page</b>
<b>4.1 Setting Jumpers</b> .....	<b>4-2</b>
<b>4.2 Inserting an Emulation Device Into the XDS512RL Device Socket</b> .....	<b>4-5</b>
<b>4.3 Supplying Power to the XDS512RL</b> .....	<b>4-6</b>

## 4.1 Setting Jumpers

### 4.1.1 Stand-Alone Mode Operation

If you are going to use your XDS512RL emulator board as your target, make sure the jumpers are set according to the default settings shown in Table 4–1 on the following page.

### 4.1.2 Target Mode Operation

If you are going to connect your XDS512RL emulator board to your target, make sure the jumpers are set according to the default settings shown in Table 4–1 on the following page.

For more detailed information about XDS512RL jumper settings, see Appendix C, *Jumper Settings*, in the *XDS512RL Emulator User's Guide*.

Table 4–1. Stand-Alone Mode Jumper Settings for the XDS512RL

Jumper group	Setting
JP2	
XDS512RL operating mode (never jumper 7 and 8)	
JP20	Not set
XDS512RL target reset	
JP23	
stand-alone mode	
JP25	
PLL control signals	
JP26	
PLL control signals	

Table 4–2. Target Mode Jumper Settings for the XDS512RL

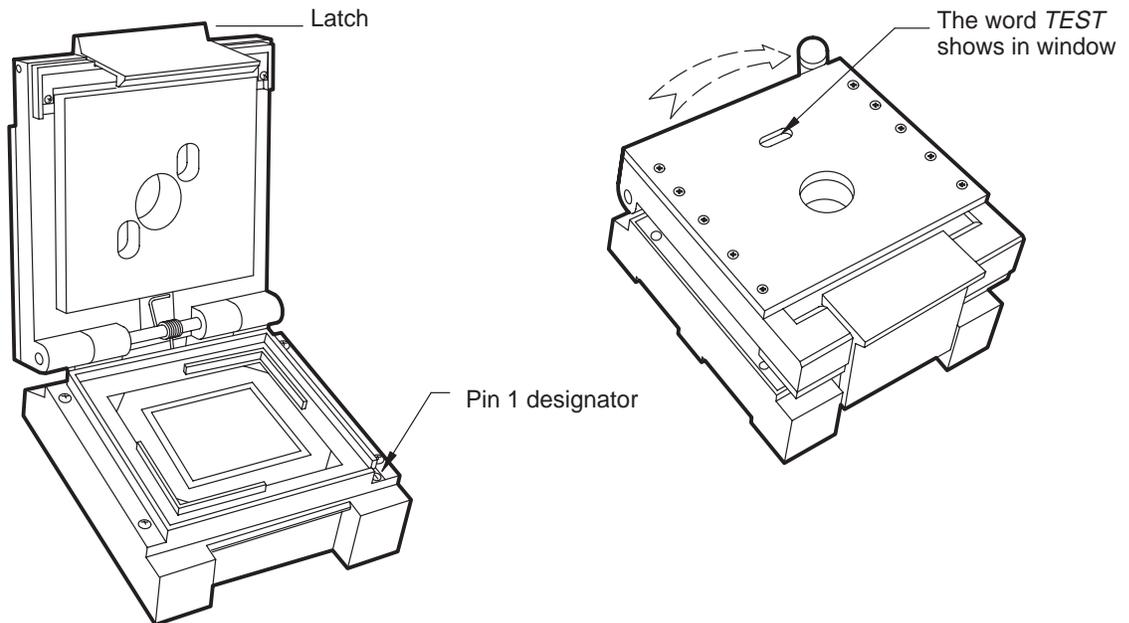
Jumper group	Setting
JP2	
XDS512RL operating mode (never jumper 7 and 8)	
JP20	
Target reset	
JP23	Not set
XDS512RL target mode	
JP25	
PLL control signals	
JP26	
PLL control signals	

## 4.2 Inserting an Emulation Device Into the XDS512RL Device Socket

The TMS320C27xx emulation device operates in a socket on the XDS512RL board. Follow these steps to insert the emulation device into the device socket on the XDS512RL:

- 1) Open the socket by depressing the latch and pulling up on the socket, see Figure 4–1.
- 2) Orient the emulation device so that the Pin1 corner of the device matches up with the Pin1 designator on the socket. Carefully push the emulation device into the socket. The device is keyed with a Pin1 designator to fit only one way.
- 3) Close the lid on the socket and slide the lever into the *test* position as shown in Figure 4–1.

Figure 4–1. XDS512RL Emulation Device Socket



### 4.3 Supplying Power to the XDS512RL

Once you have set the jumpers and inserted the emulation device into the socket, you must supply power to the emulator board. The XDS512RL kit includes a 5-V @ 5-A power supply for this purpose. To supply power to the XDS512RL, follow these steps:

- 1) Attach the power supply adapter cord to the 5-V @ 5-A power supply.
- 2) Plug the power supply into a wall socket.
- 3) Attach the power supply barrel-jack on the 5-V @ 5-A power supply to the barrel-jack connector on the XDS512RL emulator board.

## Glossary

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### B

**BTT:** *Breakpoint, tracing, and timing.* A software tool that adds breakpoint, tracing, and timing functionality to a source code debugger.

### C

**C27xxsetup.tla file:** A default instrument setup file for the C27xx support package.

### E

**EISA:** *Extended Industry Standard Architecture.* A standard for PC buses

### G

**GUI:** *Graphical User Interface.*

### I

**ISA:** *Industry Standard Architecture.* A subset of the EISA standard.

### J

**JTAG cable:** The cable that attaches the XDS510 to your target system.

### E

**emulation device:** A device that connects to the XDS512RL. An emulation device is a specialized device that performs the same function as your target device but includes features for gathering debugging information.

**T**

**target system:** The system you want to debug. This can be your actual system, a test system you have created, or an XDS512 with an emulation device attached to it.

**X**

**XDS510:** An emulator controller board for use in an IBM-compatible PC. The XDS510 enables your debugger to communicate with the target system.

**XDS512RL emulator kit:** The XDS512 emulator kit consists of the XDS510 emulator controller board, a JTAG cable, P6434 high-density probes, Tektronix logic analyzer TLA704, 'C27xx support package, and a 'C27xx emulation device.

**XDS512RL emulator:** A board used to emulate a target system. The XDS512 is connected to an XDS510 or XDS510PP and Tektronix logic analyzer. In turn, you can connect the XDS512 to a target system.

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