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# **SDTSRV EXAMPLES (eZdsp2000) README**

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# 1 Revision History

Date	Name	Version	Description
12/07/2005	Shilpa Byrichetty	1.0	Initial creation of the document
04/17/2006	Shilpa Byrichetty	1.1	Added sdjtag scan chain tests, flash tests
10/18/2007	Shilpa Byrichetty	1.2	Extended support for eZdsp28335. Added command line flash programmer (prog28x).

## 2 Release Notes

### 2.1 Version 1.2

- This is an extension of the previous release with added support for eZdsp28335.
- The target content is build under CCS3.3 environment.
- Added new command line programmer prog28x.exe, a command line version of SDFlash.

### 2.2 Version 1.1

- This release has more tests added to the SD XMLGUI application like SDJTAG scan chain tests, SDJTAG diagnostics tests and flash tests like programming, erasing and verifying Flash for F2800 targets.
- Five new windows created as xml files are added to the SDXMLGUI application. Three windows are for flash tests (Flash erase, Flash program and Flash verify). The fourth window mimics 2808eZdspdiagnostic utility. The fifth window is for SDJTAG scan chain tests and SDJTAG diagnostic tests.
- The test window is modified such a way that all the tests are controlled from this window by checking or unchecking the corresponding test checkbox.

### 2.3 Version 1.0

- Initial Release

### 3 Overview

SD XMLGUI is a general-purpose framework which uses XMLGUI to create a sample application for testing some of the important features of F2800 products. This is an all-in-one application which can be used to load and run coff files without the use of Code Composer Studio, support flash functions (Flash program, Flash Erase and Flash Verify), do SDJTAG scan chain tests, SDJTAG diagnostic tests and also used to test all the diagnostic utility functions tested in 2800diagnostic utility. Each window in the application is defined as xml files which are created on startup of SDXMLGUI. This application is tested on eZdsp2808 and eZdsp2812 targets when installed on a CCS 3.1 environment.

### 4 Description

The SD XMLGUI application has eight windows defined as .xml files (See sample output section 10)

#### 4.1 Settings Window

OPTIONS		DESCRIPTION
Driver	Required for all Tests	Represents the driver path and driver name for a specific target
Board File	Required for all Tests	This is .dat file required for connecting to the target.
Processor Name	Required for all Tests	Default is cpu_0. Must match the board file.
Coff File	Required only for COFF Test.	This is the .out file to be loaded and ran in the target processor.

#### 4.2 Test Window

OPTIONS	DESCRIPTION
Verbose Messages	Display messages on the output window while testing if checked.
Verbose Errors	Display error messages on the output window if checked

Sdjtag Test	Does a scan chain test and diagnostics test on the target with the options specified in the SDJTAG Test window if checked
Register Test	Does a basic Register test for the specific target if checked
Coff Test	Works as a coff loader if checked. Be sure to specify the coff file name in the Settings window.
Diagnostics Test	Does Diagnostic utility tests on the target with the options specified on the 2808eZdspUsbDiags window if checked
Flash Erase	Erases flash with the options specified on the Flash Erase window if checked
Flash Program	Programs flash with the Flash program data file based on options specified on the Flash Program window if checked
Flash Verify	Verifies the data in the flash with the flash program data file based on the options specified in the Flash Verify window if checked.

### 4.3 2800eZdspUSBDiags Window

NOTE: Be sure to check the Diagnostics Test checkbox in the Test window for the tests in this window to work.

OPTIONS	DESCRIPTION
Diagnostics Test File	Test file (.out) required for all 2800eZdspUSBDiags tests. The source for this is located at <CCS_INSTALLDIR>\boards\ 2808eZdspusb\ 2808eZdspUSBDiags\Target directory for F2808 target and <CCS_INSTALLDIR>\boards\ 28335eZdspusb\ 28335eZdspUSBDiags\Target directory for F28335 target
Memory Test	Does a basic Memory Test if checked.
SCI-A to SCI-B Loopback Test	Connect SCI-A to SCI-B (P10 - J10) with external cable. This is tested on 2808eZdsp and 28335eZdsp.
CAN-A to CAN-B Loopback Test	Connect CAN-A to CAN-B (P11 - J11) with external

	cable. This is tested on 2808eZdsp and 28335eZdsp.
I2CLoopBack	Does a basic I2C Loopback test. This is tested on 2808eZdsp and 28335eZdsp

## 4.4 Flash Tests

Each of the Flash tests (Flash Erase, Flash Program and Flash Verify) has algorithm files which are executable on the target. They are required for the flash functions to work on SDXMLGUI. The source, project and algorithm files required for the flash tests can be downloaded from our website at <http://emulators.spectrumdigital.com/utilities/sdf-flash/>.

Download the latest version with the release date July 28<sup>th</sup> 2006 for F2808 target and the download dated Aug 5<sup>th</sup> 2005 for F2812 target and the download dated Sep 13<sup>th</sup> 2007 for F28335. The download includes algorithm files for each of the flash operations and also includes the sample Flash data file as an .out file to be programmed into the flash .If you have your own .out file ready to be programmed you can specify that file as the data file. See the documentation in the website for download and installation instructions.

### 4.4.1 Flash Erase Window

**NOTE:** Be sure to check Flash Erase Checkbox in the Test window for the Flash erase function to work.

OPTIONS	DESCRIPTION
Flash Erase Algorithm file	Executable(.out) file required for the Flash erase to work ( See section 4.4)
Timeout	Erase Timeout – default 3000
User Options1	Erase Sector mask – 0x000F for F2808 and 0x03FF for F2812
User Options2	Blank – for future uses
User Options3	Blank – for future uses
User Options4	Blank – for future uses

## 4.4.2 Flash Program Window

**NOTE:** Be sure to check Flash Program Checkbox in the Test window for the Flash Program function to work.

OPTIONS	DESCRIPTION
Flash Program Algorithm file	Executable(.out) file required for the Flash Program to work(See section 4.4)
Program Data file	This is the .out file that you want to program into the flash. (See section 4.4)
Timeout	Program Timeout – default 3000
User Options1	Blank – for future uses
User Options2	Blank – for future uses
User Options3	Blank – for future uses
User Options4	Blank – for future uses

## 4.4.3 Flash Verify Window

**NOTE:** Be sure to check Flash Verify Checkbox in the Test window for the Flash Verify function to work.

OPTIONS	DESCRIPTION
Flash Verify Algorithm file	Executable(.out) file required for the Flash Verify to work ( See section 4.4)
Timeout	Verify Timeout – default 3000
User Options1	Flash wait states: default is 0x0F0F
User Options2	OTP wait states: default is 0x001F
User Options3	Blank – for future uses
User Options4	Blank – for future uses

## 4.5 SDJTAG Test Window

The tests in this window use SDJTAG interface to access the basic functions of SD emulators. These tests are tested with the targets (F2808, F2812 and F28335) connected via a XDS510USB emulator.

**NOTE:** Be sure to check sdjtag test checkbox in the Test window in order for the tests checked in this window to work.

OPTIONS	DESCRIPTION
Test Scan Chain	Does a basic scan chain test to find the total JTAG IR scan path length and the number of JTAG devices that it finds in your scan chain if checked.
Test Diagnostics	Does diagnostic scan verify test or diagnostic scan pattern test on the emulator if checked
Diagnostics Scan Type	User can specify the diagnostics test method (Scan Verify or Scan Pattern).
Scan Pattern Value	This represents the pattern for Diagnostics Scan Pattern Test to test with.
Stop Error Count	Stop Error Count
Test Loop	Test Loop count

## 5 Finding More Information

If you are interested in source code to the XMLGUI.exe application or XMLPARSER.dll, visit KRKsoft at <http://www.krksoft.com/sd/>.

## 6 Build Environment

- Target – C2000 eZdsp, CCS 3.3 tools
- Host - WinXP Pro, MSVC 6.0 with Service Pack 5

## 7 Assumptions

- All files are installed and copied into <CCS\_INSTALLDIR> \specdig \sdtsrv\Examples directory maintaining the relative directory structure.
- The Directory structure must be exactly duplicated within CCS install for the diagnostic to find emulation drivers.

## 8 Directory Structure

<CCS\_INSTALLDIR>\specdig\sdtshr\Examples

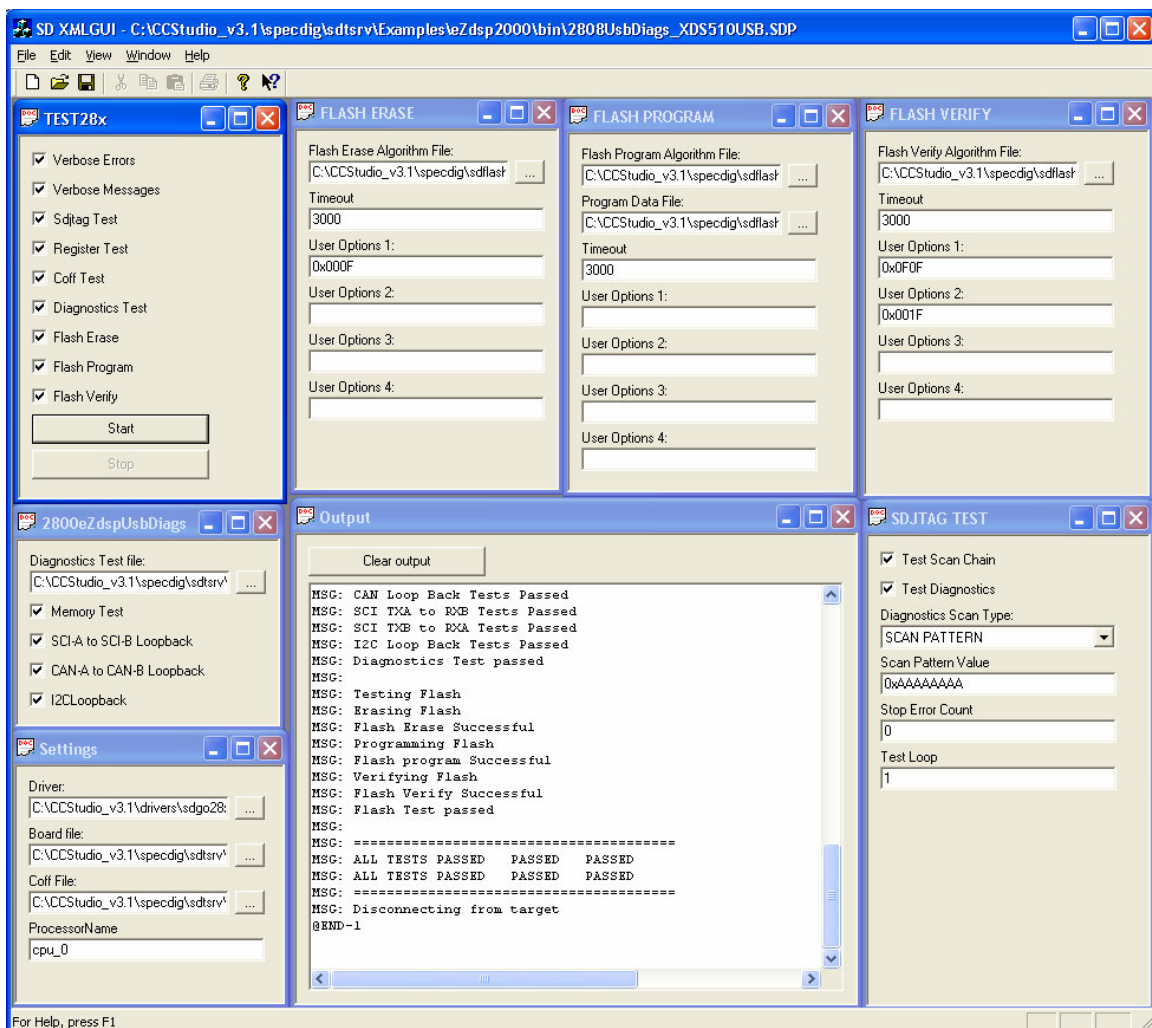
- \Coff- Generic coff files
- \eZdsp2000 - directories specific to 2000
  - \bin-Binary and .dll files required for both the target and host (this is the main working directory).
  - \Common-2000 Target specific files.
  - \Target-Output files
    - \eZdsp28335
      - Step.out – For testing coff.
      - 28335eZdspUSBTest.out – The source can be found at <CCS\_INSTALLDIR>\boards\28335eZdspUsb\28335eZdspUSBDiags\Target directory for diagnostics test.
    - \eZdsp2808
      - Step.out – For testing coff.
      - 2808eZdspUSBTest.out – The source can be found at <CCS\_INSTALLDIR>\boards\2808eZdspUsb\2808eZdspUSBDiags\Target directory for diagnostics test.
    - \eZdsp2812
      - Step.out – For testing coff.
- \Test28xmfc-Source files required to build Test28xmfc.dll (Host Test code).
- \prog28x – Source files required to build prog28x.exe (command line flash utility).

## 9 Running the XMLGUI Application

- Connect your eZdsp to PC and power the eZdsp.
- Double-click on the XMLGUI.exe from the F2800working directory.
- Open 2800UsbDiags\_USB.SDP project in the XMLGUI window if your target is connected to PC via USB.

- Open 2800UsbDiags\_XDS510USB.SDP project in the XMLGUI window if the target is connected to PC via XDS510USB emulator.
- Five tests Sdntag test, Register Test, Coff Test, Diagnostics Test or Flash Test may be performed all together or in any combination by checking and unchecking the checkboxes from the test window.
- Press the start button to see the results on the output window

## 10 Sample Output (XMLGUI)



## 11 Running the Command Line Programmer (prog28x.exe)

- The command line programmer requires SDFLASH algorithm files and SDFLASH project file (.sdp) to run. These can be downloaded at <http://emulators.spectrumdigital.com/utilities/sdf-flash/>.
- It may be necessary to create a new .sdp file or modify an existing .sdp file to make sure all the paths to the algorithm files are correct and that the algorithm files exist.
- The various options for prog28x are:

Options: -s [SdFlash project file, full path name]

-e erase

-p program

-v verify

-n no verbose messages.

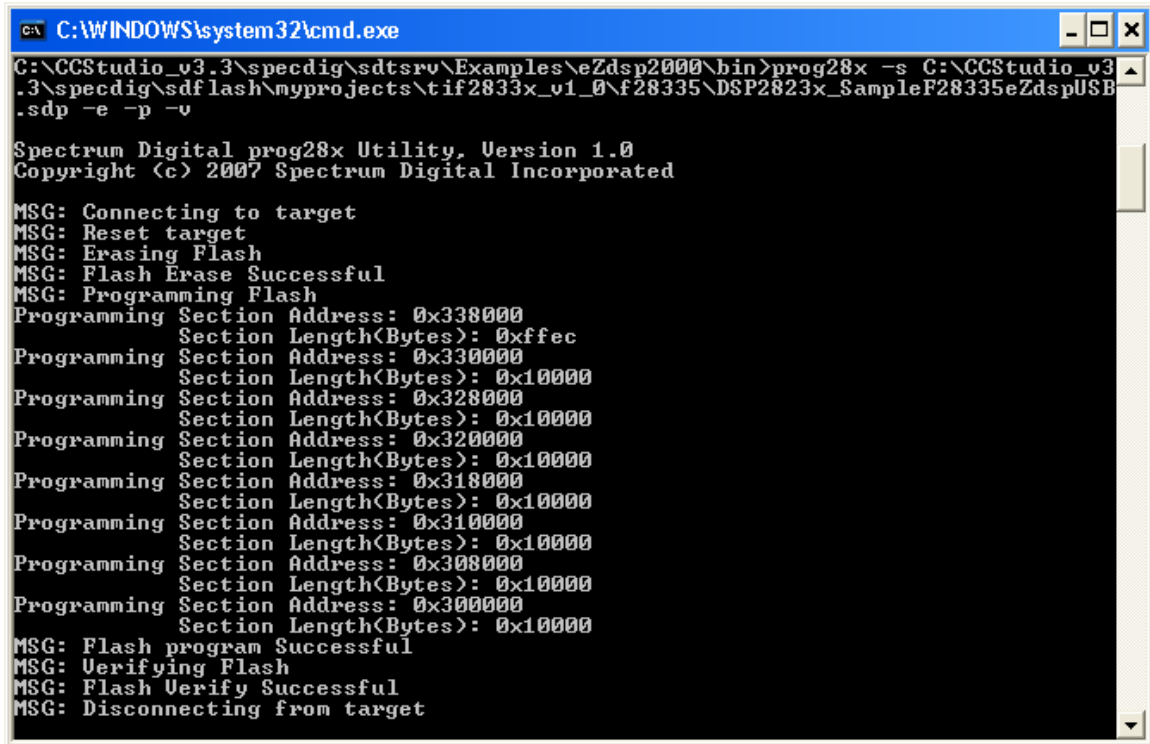
- Connect your eZdsp to PC via XDS510USB emulator and power the eZdsp.
- From the command line as an example:

```
prog28x -s
```

```
C:\CCStudio_v3.3\specdig\sdf-flash\myprojects\tif2833x_v1_0\28335\SampleF28335
```

```
USB.sdp -e -p -v
```

## 12 Sample Output (prog28x.exe)



```
C:\WINDOWS\system32\cmd.exe
C:\CCStudio_v3.3\specdig\sdf\flash\myprojects\tif2833x_v1_0\28335\DSP2823x_SampleP28335eZdspUSB.sdp -e -p -v

Spectrum Digital prog28x Utility, Version 1.0
Copyright (c) 2007 Spectrum Digital Incorporated

MSG: Connecting to target
MSG: Reset target
MSG: Erasing Flash
MSG: Flash Erase Successful
MSG: Programming Flash
Programming Section Address: 0x338000
          Section Length(Bytes): 0xffec
Programming Section Address: 0x330000
          Section Length(Bytes): 0x10000
Programming Section Address: 0x328000
          Section Length(Bytes): 0x10000
Programming Section Address: 0x320000
          Section Length(Bytes): 0x10000
Programming Section Address: 0x318000
          Section Length(Bytes): 0x10000
Programming Section Address: 0x310000
          Section Length(Bytes): 0x10000
Programming Section Address: 0x308000
          Section Length(Bytes): 0x10000
Programming Section Address: 0x300000
          Section Length(Bytes): 0x10000
MSG: Flash program Successful
MSG: Verifying Flash
MSG: Flash Verify Successful
MSG: Disconnecting from target
```