

# ***TMS320C2xx Audio Loopback Using the AD55 Codec in C***



*APPLICATION REPORT: SPRA350*

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## Contents

<b>Abstract</b> .....	<b>7</b>
<b>Product Support</b> .....	<b>8</b>
World Wide Web .....	8
<b>Introduction</b> .....	<b>9</b>
<b>Usage</b> .....	<b>10</b>
Modification.....	10
Troubleshooting .....	10

## Tables

<b>Table 1 List of Files</b> .....	<b>9</b>
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## Abstract

This program demonstrates how to access the AD55 codec via the synchronous serial port using the Texas Instrument (TI™) C-compiler. The program is a C version of the `ad55.asm` file found in example C-14 of Appendix C in the TMS320C2xx User's Guide (SPRU127B).

The program receives input from the codec and outputs each sample as it is received.

It is intended for use with any of several third party evaluation boards that include the AD55 codec.



## Product Support

### World Wide Web

Our World Wide Web site at [www.ti.com](http://www.ti.com) contains the most up to date product information, revisions, and additions. Users registering with TI&ME can build custom information pages and receive new product updates automatically via email.



## Introduction

This program can be obtained via the Internet by typing the following location into your browser and executing the self-extracting archive after downloading it:

<ftp://ftp.ti.com/pub/tms320bbs/c2xxfiles/CODEC2XX.EXE>

This program demonstrates how to access the AD55 codec via the synchronous serial port using the Texas Instruments C compiler.

It is intended to be used with any of the several available third-party evaluation boards include an AD55 codec.

It is a C version of the ad55.asm file found in Example C-14 of Appendix C in the TMS320C2xx User's Guide (SPRU127B).

The program receives input from the codec and outputs each sample as it is received.

*Table 1 List of Files*

File	Description
main.c	Main C module, which initializes the serial port settings and contains the interrupt service routines.
register.h	Header file included by main.c that contains all memory-mapped registers that can be accessed in the C language.
cvectors.asm	Assembly file which generates the C2xx vectors including the reset and synchronous serial receive interrupt vectors.
c203.cmd	Linker command file describing memory map and sections for the C203.
codec2xx.doc	This document (in Microsoft Word format).
codec2xx.htm	This document (in HTML format).
codec2xx.txt	This document (in plain text format).
codec2xx.out	Executable file for sample C program to be loaded by C2xx simulator or hardware.
build.bat	Batch file for building codec2xx.out using only the Texas Instruments toolset.
rts2xx.lib	Runtime support library.



## Usage

Just load `codec2xx.out` into the debugger and then run it.

Attach a line-level input source to the line-level input jack of your test board, and attach an amplified speaker to the line-level output jack. Your signal should be output.

## Modification

The sampling rate and AD55 MCLK rate may be changed in the `#define` statements of `main.c`. To build, just type `build.bat` from a DOS prompt.

If using the GODSP Code Composer development system, create a project with the following files: `rts2xx.lib`, `main.c`, `cvector.asm`, `c203.cmd`, and `registers.h`. Then build as usual.

## Troubleshooting

If you encounter problems,

- Make sure the jumpers are set properly on your evaluation board. See your board's documentation for details.
- Make sure MCLK is set correctly in `main.c`.
- Try switching your input and output cables.