TFLITE MICRO SHARCFX USER'S GUIDE

ANALOG DEVICES, INC.

www.analog.com

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1 Introduction

1.1 Purpose

This document describes how to build and run the examples for TFLite Micro SharcFX module on the SharcFX platform.

1.2 Scope of this Manual

This document describes how to work with TFLite Micro SharcFX on the ADSP-SC835 board. This document explains how to build and run the applications that accompany this product.

This document is intended for engineers who will integrate this product with other software on the ADSP-SC835 platform. This document assumes a background in ADI's Sharc family of processors.

1.3 Acronyms

ADI	**A**nalog **D**evices **I**nc.
EZ-KIT	**E**Z-**K**IT **L**ite or **E**Z-**B**oard
ICE	**In** **C**ircuit **E**mulator
JTAG	**J**oint **T**est **A**ction **G**roup
USB	**U**niversal **S**erial **B**us
CCES	**C**ross**C**ore **E**mbedded **S**tudio
GUI	**G**raphical **U**ser **I**nterface

1.4 Additional Information

For more information on the latest ADI processors, silicon errata, code examples, development tools, system services and devices drivers, technical support and any other additional information, please visit our website at http://www.analog.com/processors.

2 Product Overview

2.1 Software System Overview

The TFLite Micro Library for SharcFX is built upon the TensorFlow Lite Micro framework developed by Google. You can read more about this framework here. Our optimized implemented of this framework is designed to specifically run on ADI's SharcFX line of processors.

The product consists of the TFLite Micro library for SharcFX, sample applications and associated documents.

3 Setup, Install, Build and Run

At the time of release, this product was tested with CrossCore Embedded Studio 3.0.0 on a Windows 10 based host machine. Please note that applications using this product should be able to build and run using any future releases of the tool chain and any OS that it supports. For information about the CrossCore Embedded Studio tool chain refer to www.analog.com/cces.

3.1 Hardware Setup

3.1.1 Switches and Jumpers

None

3.1.2 Required Hardware

ADSP-SC835 Projects' hardware requirements
1) Analog Devices ADSP-SC835
2) Analog Devices EV-SOMCRR-EZKIT board
2) ICE-1000/ ICE-2000
3) USB cable with USB A and Micro USB-B connectors (for ICE connection)
4) USB cable with USB A and Type C connectors (for board connection)
5) 12 V AC adaptor to Power EV-SOMCRR-EZKIT board

3.1.3 Setting up the Hardware

Set up the hardware as shown in the figure below:

1) Connect the ADSP-SC835 board to the EV-SOMCRR-EZKIT as in the Figure 1.
2) Connect the ICE-1000 or ICE-2000 to the 'JTAG' connection (Refer to Figure 1) and the other end to one of the PC's USB ports.
3) Connect the USB Type C connector to the ADSP- SC835 board (refer to Figure 1) and the other end to one of the PC's USB ports.
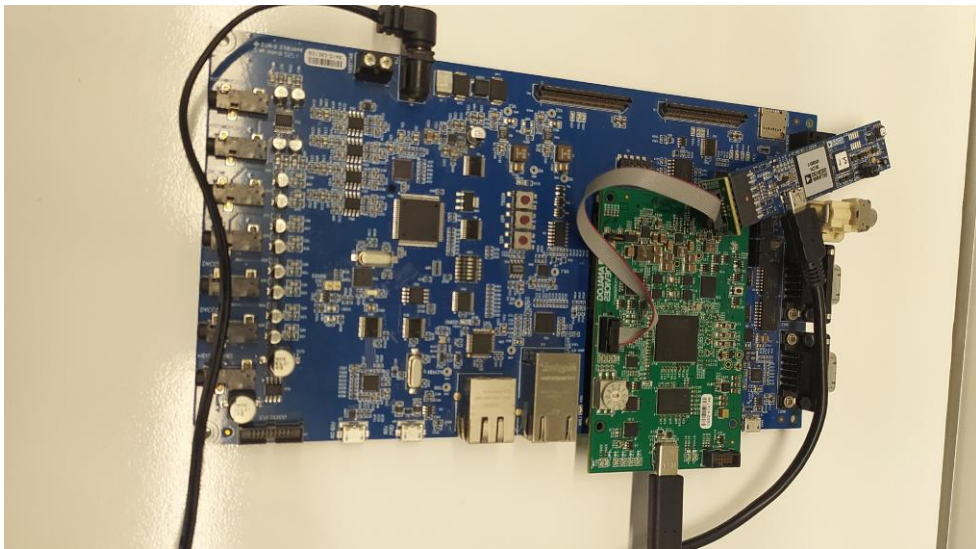4) Power the EV-SOMCRR-EZKIT board using 12 V AC adaptor.

Figure 1: ADSP- SC835 board connections

3.2 Instructions to build and run example application on CCES

3.2.1 To build example projects and run

Follow the steps below to open the project:
The projects can be opened choosing the **File > Import** in CrossCore Embedded Studio. In the Import window, select **Existing Projects into Workspace** and click **Next**. If the next window, provide the directory *Example* from TFLITE-MICRO-SHARCFX package location as **Select root directory** and select any of the projects and click **Finish**. That projects and that will be opened in the IDDE's Project Explorer.

Follow the steps below to run the project:
1. If project is not already opened, please open the project as mentioned above.
   Right click on the opened **Project** and click on **Build Configurations** > **Set Active** – choose (Debug/ Release) for the configuration.

2. For the selected configuration:

   a. Click **Project** > **Clean**. Ensure that only the required project is selected in the Clean window. If desired, build the project immediately after cleaning. Configure to start a build immediately only for the selected project and click '**OK**'.

   b. If the previous step has not already built the project, then Click **Project-> Build Project** or press F7.

   c. The binary (dxe) will be created in the Debug or Release folder located in the workspace depending on the selected configuration. The workspace folder is specified at the top of this section.

3. To debug and run this application please follow the steps listed in You can find steps documented in CrossCoreEmbeddedStudio_SHARC-FX_Getting_Started_Guide.pdf in section 7 and 7.2. This document can be found in Docs folder of your CCES installation. (default location is *C:\analog\cces\3.0.0\Docs*).

3.2.2 Running the File I/O Application

Please follow the readme present in the project folder for more details on how to run and view the outputs

3.2.1 Running the Realtime Application

Please follow the readme present in the project folder for more details on how to run and get the outputs. For audio input/output the connections must be made as shown below
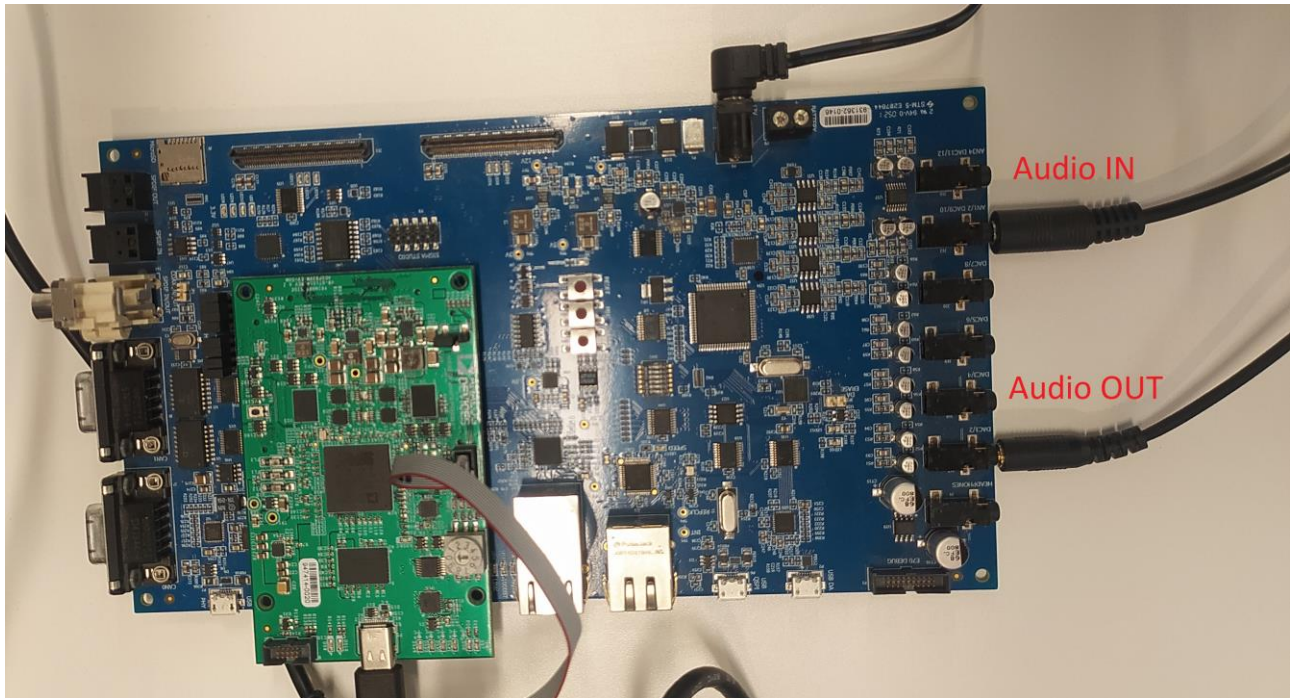

Figure 2: ADSP- SC835 audio connections