Audio Loopback with eZdsp

EXPERIMENT 1.5

Propose of the experiment

- Continue from previous experiments to get familiar with CCS environment
- Build a program that will loop an input audio through eZdsp and send out audio to audio output connector (Headphone output)
- Understand Ping-Pong buffer use

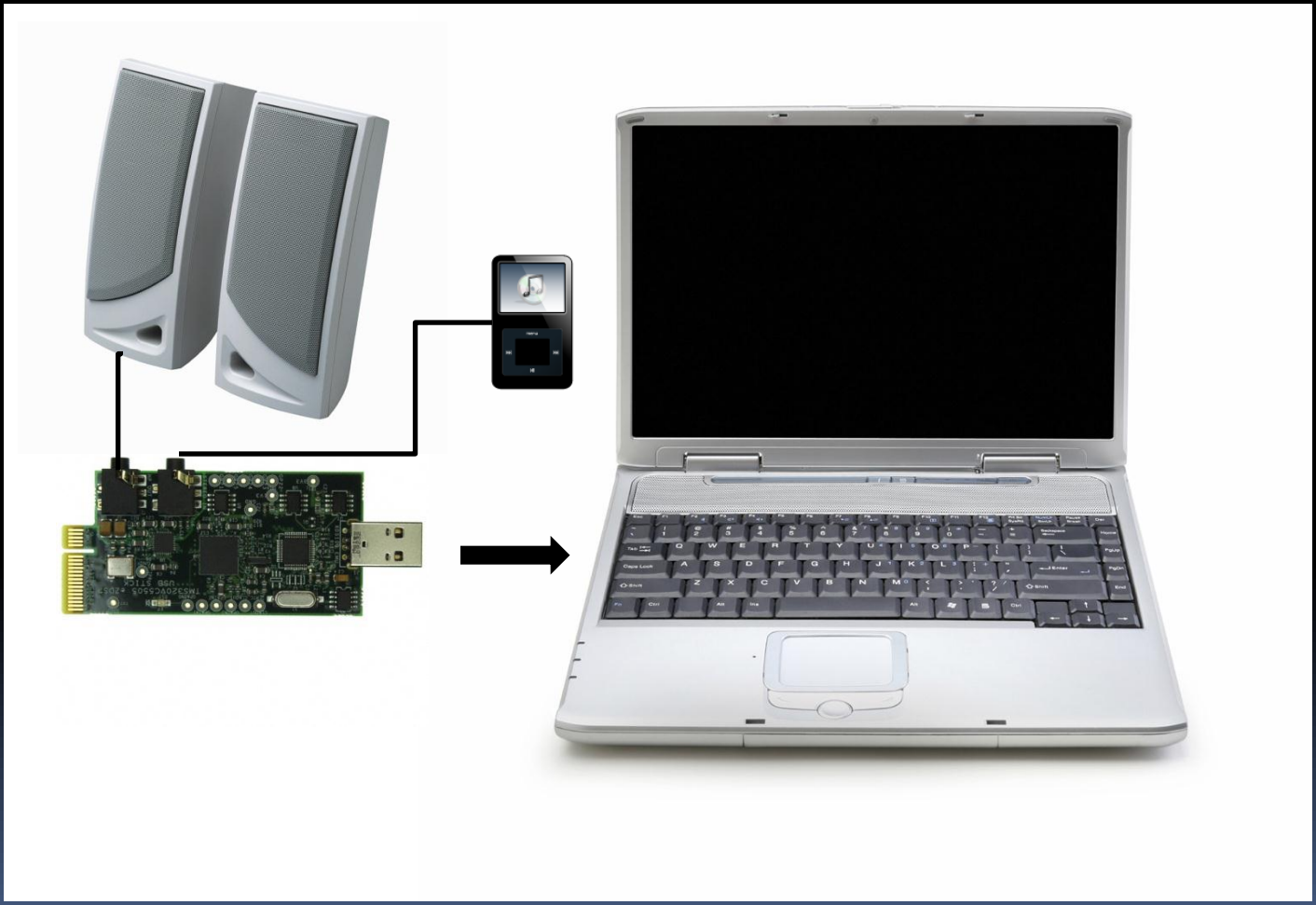
Experiment preparation

- Start CCS
- Import workspace Exp1.5 *audioLoop*
- Use *Build All* command to rebuild the experiment
- Connect eZdsp to computer
- Connect stereo speaker or headphone to eZdsp HP Out
- Connect stereo audio to input jack on eZdsp
- Launch and connect eZdsp
- Load the program *audioLoope.out* and run the experiment

Note this experiment includes several folders

- ***src*** *– source program folder, containing experiment programs*
- **Lib** – library folder that contains *C55xx_csl.lib* and *USBSTK_bsl.lib*
- ***C55xx_csl*** *– folder has all the header files for C55x CSL (chip select library)*
- ***USBSTK_bsl*** *– folder has all the header files for the eZdsp board support library*

Connect Speaker & MP3 player



Build and run the program

- Build the project (use *Build All* or *Clean*)
- Load the program
- Connect a headphone or PC speaker to eZdsp HP jack
- Connect a MP3 player to eZdsp Stereo In jack
- Launch and connect eZdsp target
- Rerun the experiment

- Note:
  - eZdsp is configured for AIC3204 sampling frequency and DAC and ADC gains as previous experiment

New experiment assignments

- Write a program that will
  - Set up the sampling frequency to 8000Hz
  - Write a new function that will replace the input data sample with a 1000Hz tone such that your program will:
    - output the input audio on left output channel through the headphone jack
    - output the 1000Hz tone on right output channel through the headphone jack
  - Run the program and listening the eZdsp to verify your experiment

Programming quick review

- This experiment demonstrates the use of Ping-Pong buffer with DMA
- The while-loop with *leftChannel* and *rightChannel* flags are used to identify the incoming data sources, left stereo channel or right stereo channel
- The Current receiving channel DMA buffer flags *CurrentRxL_DMAChannel* and *CurrentRxR_DMAChannel* tell the program which of the Ping-Pong buffer to use.

References

- Ultra Low Power Stereo Audio Codec, by Texas Instrument, SLOS602A – OCT., 2008
- TMS320C5505 Fixed-Point Digital Signal Processor, SPRS660E – Jan., 2012