SouthAudioLab

dsPIC DSC Starter Kit 1 Audio Effects Project
Manual

March, 2013
V1.01

The all information and materials what are published by SouthAudioLab have an only for acquaintance and educational purposes.

If you have some questions or suggestions, or you have desire to join to the SouthAudioLab please contact with us thru feedback.

Best regards and new creative ideas
SouthAudioLab

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Goals

The DSPIC series by Microchip are not powerful but really simplest MCU's or DSC's (by Microchip classification) what can usees for audio processing purposes. The dsPIC DSC Starter Kit 1 Audio Effects Project demonstrates implementation of some simple audio effects based Microchip architecture. This project can help's people who has experience at using DSPIC architecture and interesting in audio processing or DSP in general.

Description

There are eight algorithms implemented based at dsPIC DSC Statrer Kit 1 by Microchip:

- Hard clipping.
- One pole low pass filter.
- Tremolo.
- Vibrato.
- Flange.
- 0.5 second delay.
- Schoeder's 1 reverberator.

Attention: the project compiles in C30 compiler. Install it before compilation.

How to run

Open project at MPLAB X. Assure that C30 compiler installed. Press "Make and Program Device" button. If programming completed successfully, the signal what is present at audio input will replies at the output. Press button S1, the green LED will light and can be listened clipped signal. The first algorithm (hard clipping) applied.

The LEDs displays number of algorithm.

The button S1 changes the type of algorithm. The button S2 changes algorithm setting. There are 10 steps of this setting per algorithm.

How to create own MPLAB X Project

1. Install C30 compiler, v3.21 or later
2. Check the project properties. The C30 compiler must be active:

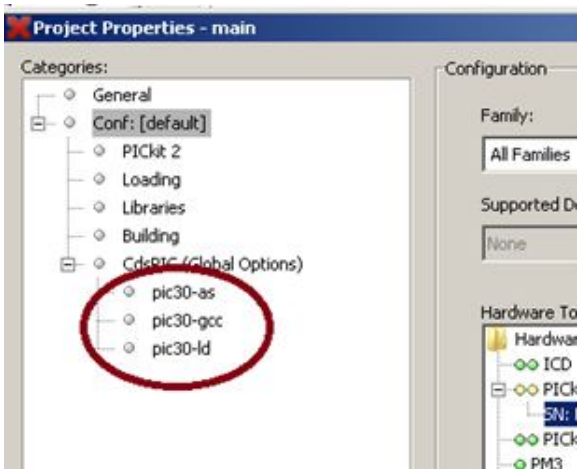

Figure 1 — Project properties.

3. Add C30 libraries to project :

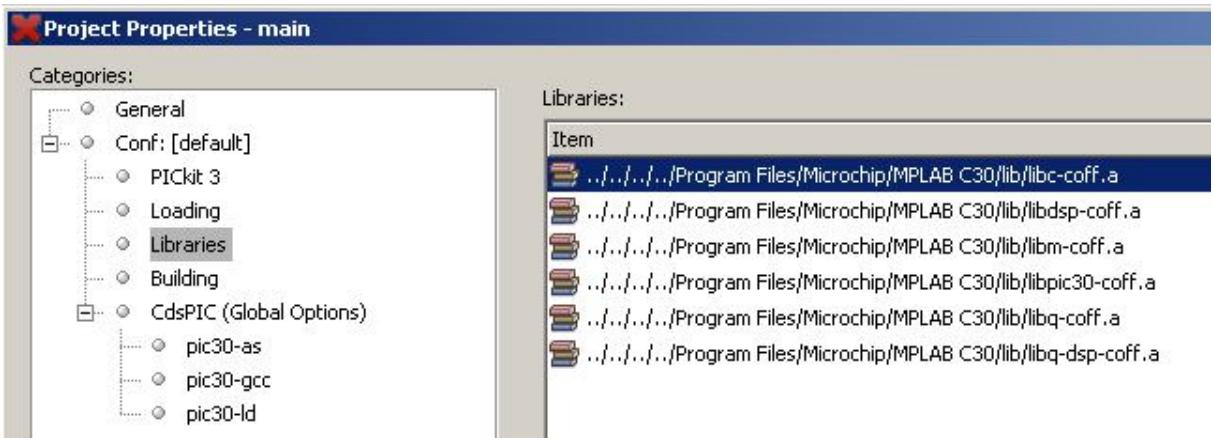

Figure 2 — C30 libraries.

4. Set the next C30 compiler and loader settings:

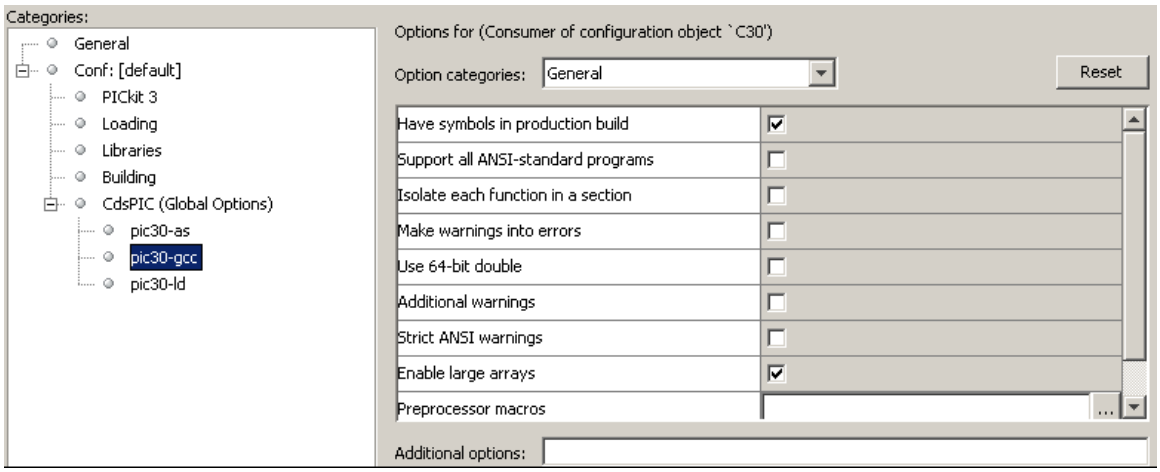

Figure 3 — C30 compiler general settings.

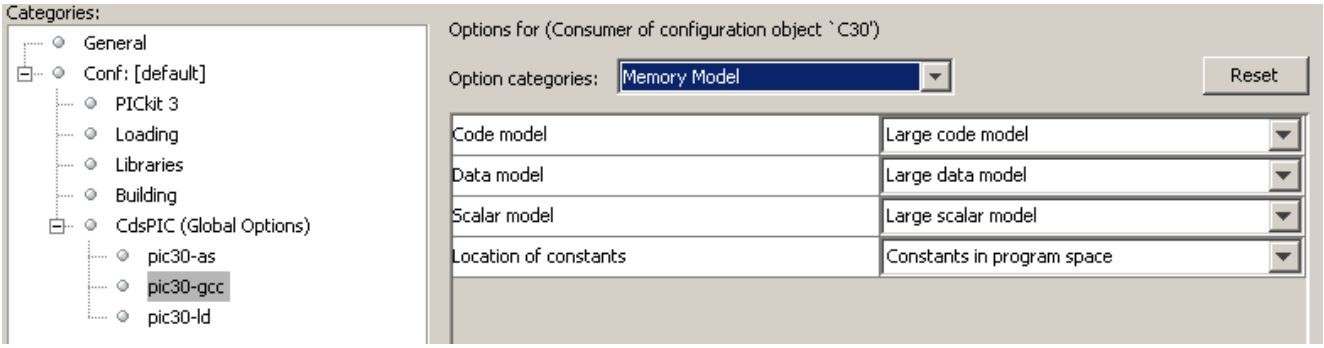

Figure 4 — C30 compiler memory model settings.

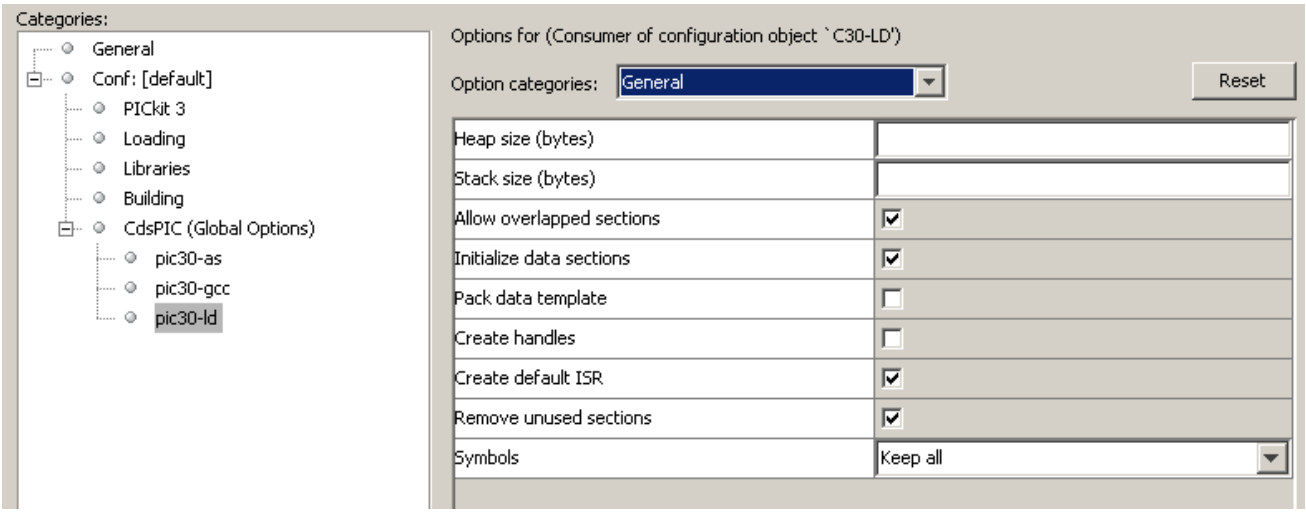

Figure 5 — C30 loader general settings.

5. Create next structure of files in project:

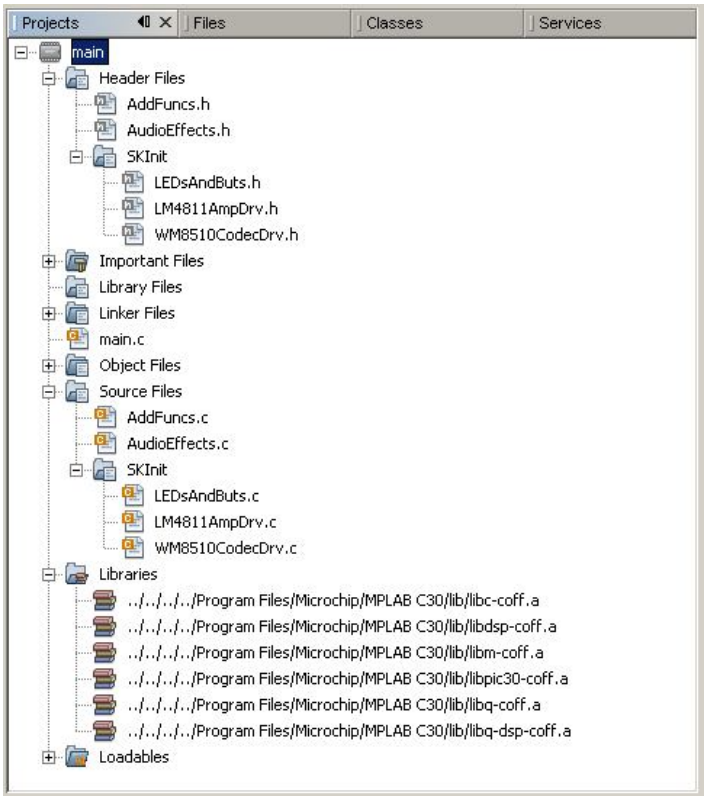

Figure 6 — Structure of project.

References

1. «DAFX: Digital Audio Effects» Second Edition. Edited by Udo Zolzer.
2. microchip.com.