

# ADC\_DelSig Example project

## 2.10

## Features

- Project uses Default single ended mode
- Continuous conversion mode with 16-bit resolution
- Reference used is internal reference

## General Description

This example project demonstrates the operation of the Delta Sigma ADC in single ended mode.

## Development kit configuration

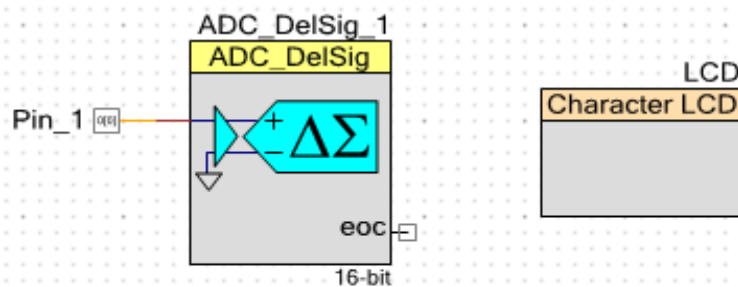
1. This project is written for a 2X16 LCD display as the one available in the Cypress kit CY8CKIT-001.
2. Build the project and program the hex file on to CY8C3866AXI-040 using MiniProg3.
3. Connect pins as described below and power cycle the device.
4. Observe the ADC output on the LCD.

## Project configuration

The example project consists of the ADC\_DelSig and Char LCD components. The top design schematic is shown in Figure 1. The Character LCD component is used for displaying the ADC output.

**Test Setup:**

- 1) Positive terminal of ADC is connected to the analog pin which is mapped to P0[0] of CY8CKIT-001. Connect the analog voltage from variable resistor to P0[0].
- 2) LCD is used to print the result(converted digital value for the corresponding analog value). LCD is mapped to P2[6:0] of CY8CKIT-001. LCD displays the digital value for the corresponding input value to ADC.

**Procedure :**

1. Build the project and program the hex file on to the target device.
2. Power cycle the device and observe the results on the LCD.
3. The digital value is displayed in the LCD module which corresponds to resultant input analog value given to input terminals of ADC.
4. Vary the input analog voltage by using variable resistor and observe the digital value on the LCD. If the effective input value is 0 volts then digital output displayed on the LCD is 0x0000. If the effective input voltage is 1.024V, then output displayed on the LCD is 0xFFFF.

Figure 1. Top design schematic.

The Character LCD uses its default configuration. The ADC is configured in its default single ended mode with 16-bit Continuous conversion mode. The ADC\_DelSig component configuration window is shown below in figure 2.

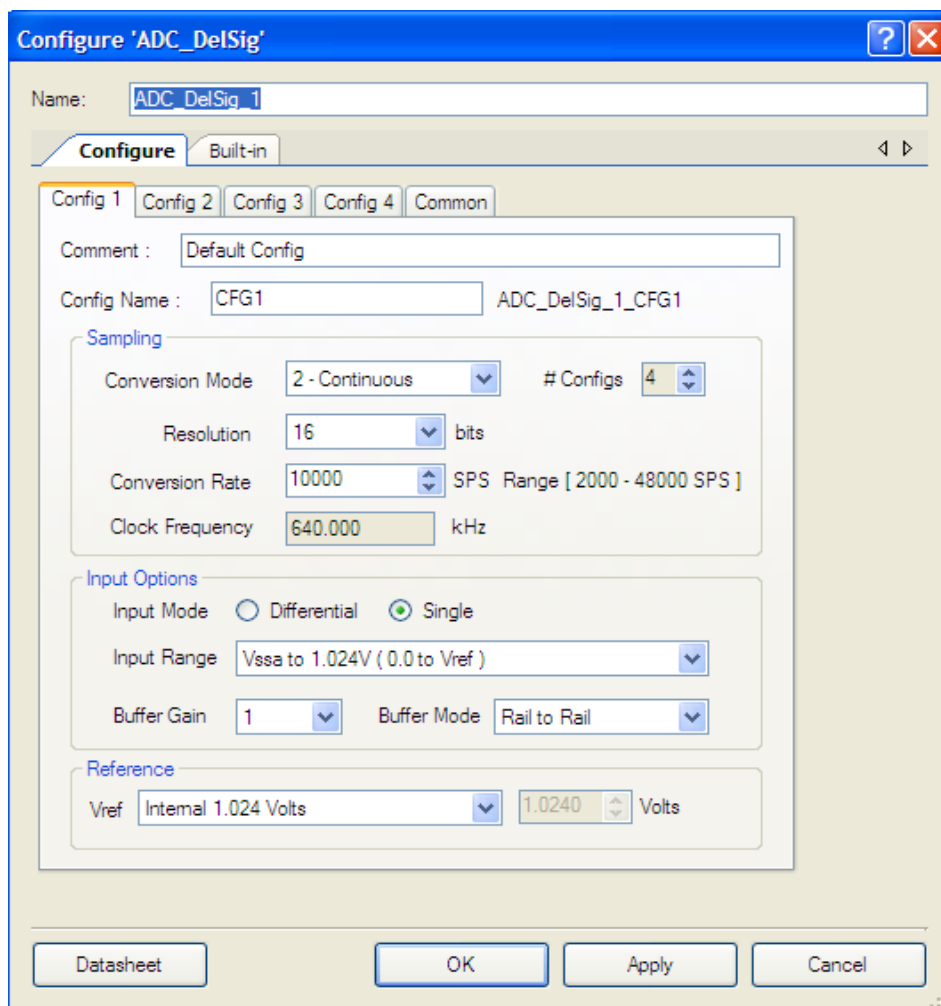


Figure 2. ADC\_DelSig Component Configuration.

## Project description

In the main function all components are started. For the proper usage of the Character LCD component, please refer to the corresponding component datasheet.

ADC\_DelSig is configured in default single ended mode. Continuous conversion mode is used to convert the input analog voltage. ADC\_DelSig\_IsEndConversion() API is used to check the end of each successful conversion. After completing the conversion, digital value is read using ADC\_DelSig\_GetResult16() API. This digital value is then displayed on the LCD.

## Expected Results

The LCD should display the converted output value which is equivalent to the analog input voltage given to the input terminal of the ADC component.

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