

## CapSense\_CSD\_Design

### 2.40

## Features

- CapSense CSD component with Buttons and Linear Slider
- Visual indication of Button press and Slider position with LEDs and LCD.

## General Description

This CapSense\_CSD\_Design example project demonstrates operation of the CapSense CSD component with the PSoC Creator Software and DVK hardware. The component is configured with 2 buttons and linear slider. Visual feedback of a Button/Slider touch can be observed via LEDs/LCD.

## Development Kit Configuration

The following configuration instructions provide a guideline to test this design. For simplicity, the instructions describe the stepwise process to be followed when testing this design with the PSoC Development Kit (CY8CKIT-001) board. For the PSoC 3 Development Kit (CY8CKIT-030) and PSoC 5 Development Kit (CY8CKIT-050), an additional step (point 5 below) will need to be followed.

1. Set LCD power jumper J12 to ON position and leave the rest of the board at default configuration.
2. Connect P1[6] to LED1 and P1[7] to LED2 on the development board.
3. Ensure that the Character LCD is connected to header P18 on the development board.
4. Assign CMod to P15[5] for the PSoC 5 processor module and to P2[7] for the PSoC 3 processor module.
5. For CY8CKIT-030 and CY8CKIT-050:  
Reassign the CapSense LinearSlider and Buttons in the 'Pins' tab of the Design-wide Resources file to port 5. To be precise, reassign the 5 Slider segments to P5[4:0], Button0 to P5[5], and Button1 to P5[6]. Also ensure that the Cmod capacitor is assigned to P6[4] in the pins tab of the Design Wide Resources (.cydwr) file in PSoC Creator.

## Project Configuration

The TopDesign schematic looks as shown in Figure 1 below. The LCD is configured as a horizontal bar graph as shown in Figure 2. The Button and Slider parameters are set as shown in Figure 3. The Advanced Tab settings are as shown in Figure 4. For more information on what these parameters mean, refer to the CapSense\_CSD component datasheet.

### CapSense\_CSD\_Design Example Project

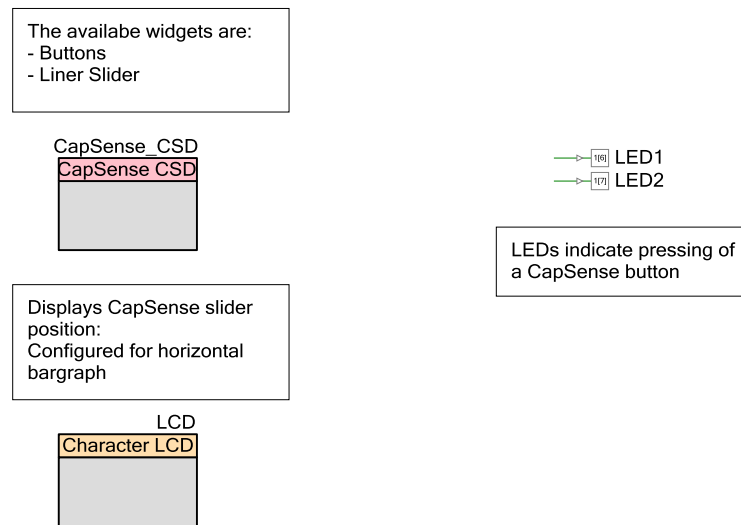


Figure 1. TopDesign schematic

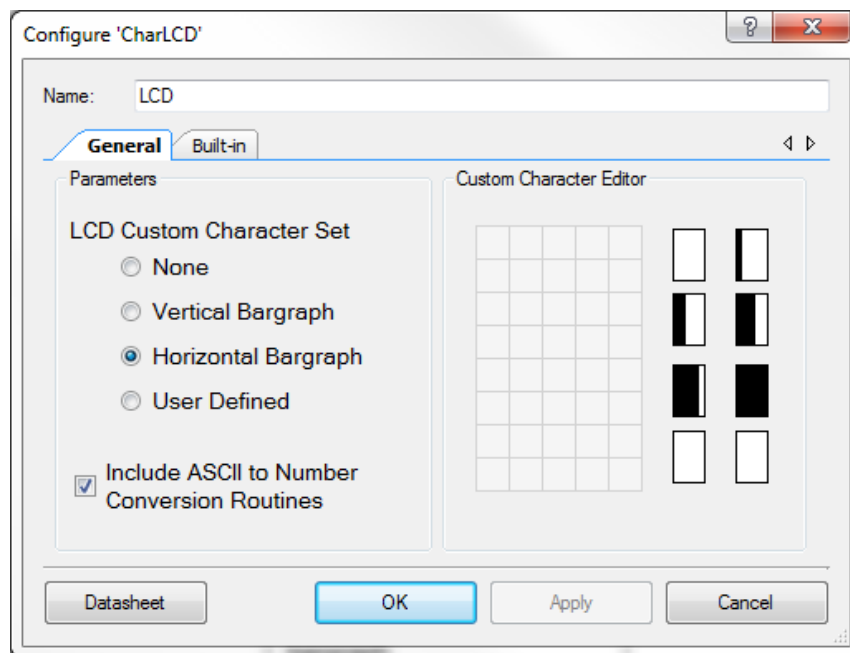
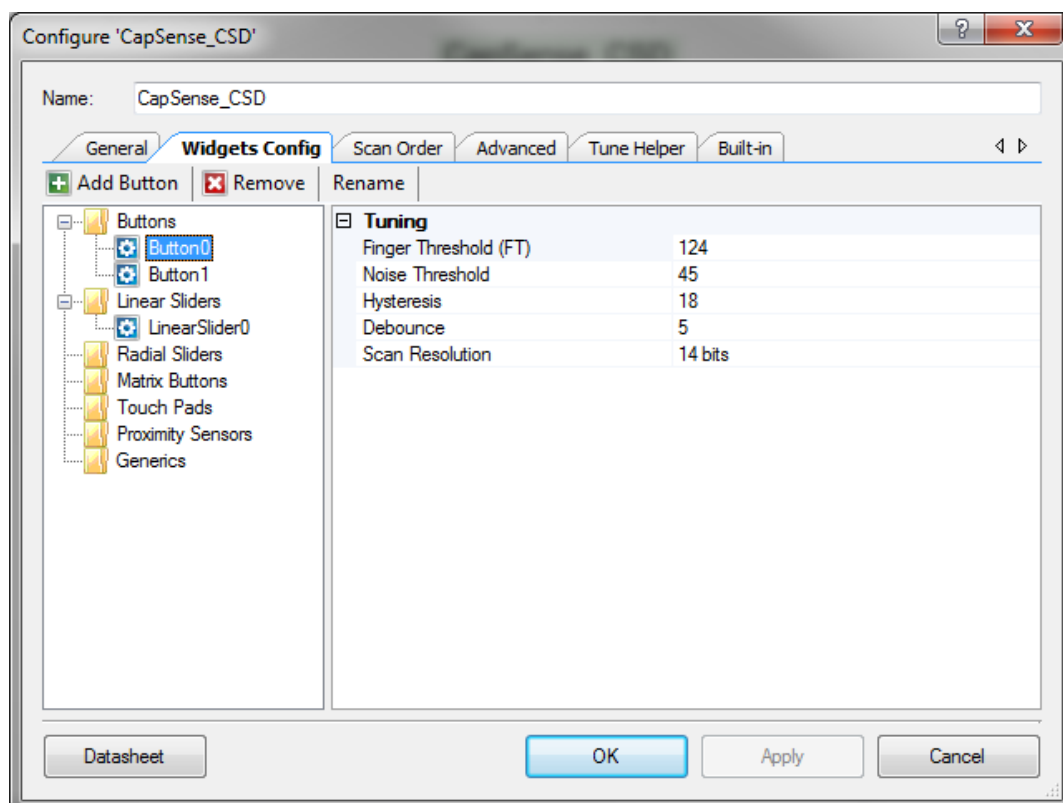


Figure 2. LCD Configuration



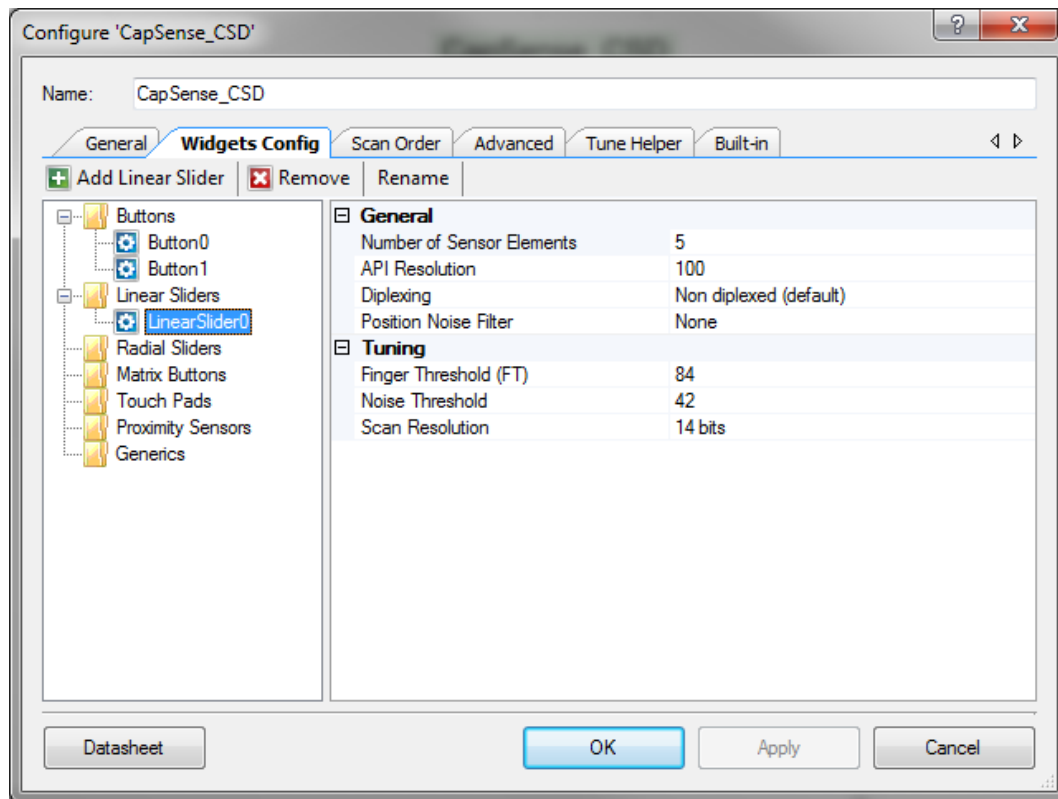


Figure 3. Configuration for CapSense Buttons and Slider

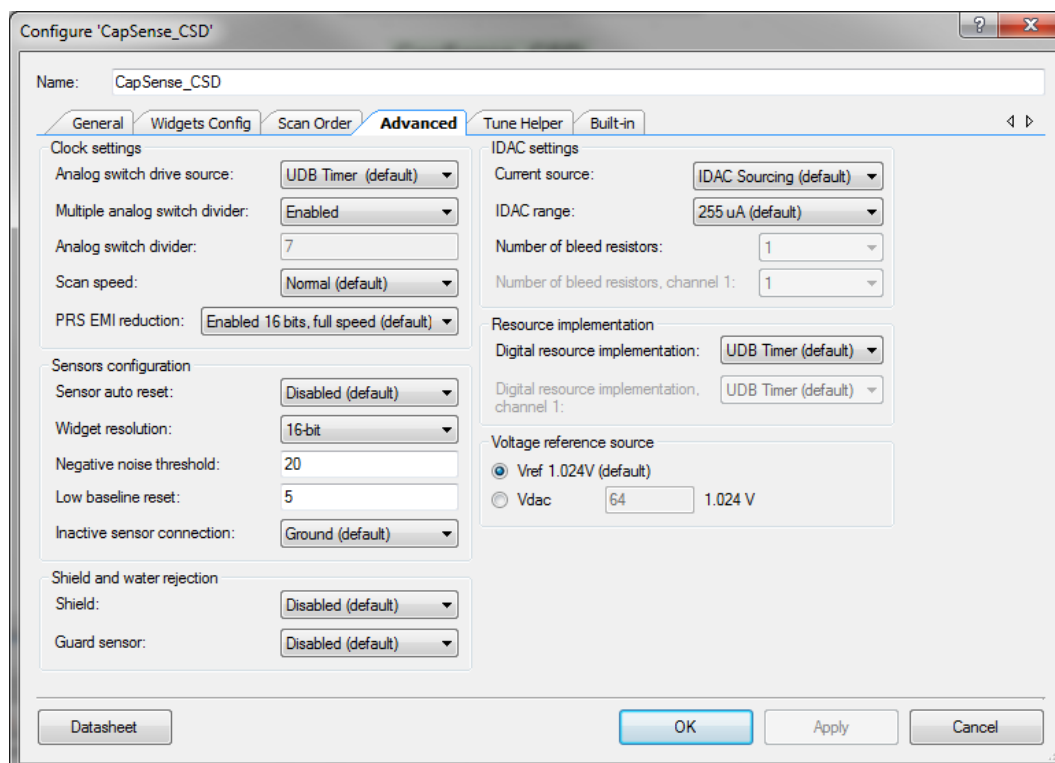


Figure 4. 'Advanced' tab of the CapSense\_CSD component

## Project Description

All components are started in the main function. The custom fonts required for the horizontal bargraph are loaded into the LCD module. Global interrupts are enabled and the CapSense\_CSD sensor baselines are initialized. Then, in the 'forever' loop, the sensor baselines are updated, and the sensors then scanned. After scanning is complete, a custom-function is called to translate the data received into visual feedback via the LEDs or Character LCD.

## Expected Results

When Button0 (P0\_5) is touched and held, LED1 lights up. Similarly, while Button1 (P0\_6) is touched, LED2 stays lit.

The position of the slider (position of finger placed on slider) is indicated via a horizontal bargraph on the LCD screen. The numerical value of the current position is also indicated on the LCD.

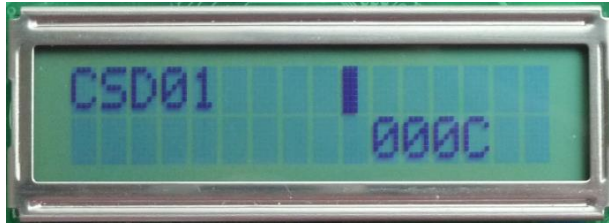


Figure 5. Expected output on LCD

## Related Material

### Example Project

- CapSense\_CSD\_WithTuner

### Training

- [PSoC 3 and PSoC 5 106: Introduction to CapSense Touch Sensing](#)

### Component Datasheet

- [Capacitive Sensing \(CapSense® CSD\)](#)



Cypress Semiconductor  
198 Champion Court  
San Jose, CA 95134-1709

Phone : 408-943-2600  
Fax : 408-943-4730  
Website : [www.cypress.com](http://www.cypress.com)

© Cypress Semiconductor Corporation, 2012. The information contained herein is subject to change without notice. Cypress Semiconductor Corporation assumes no responsibility for the use of any circuitry other than circuitry embodied in a Cypress product. Nor does it convey or imply any license under patent or other rights. Cypress products are not warranted nor intended to be used for medical, life support, life saving, critical control or safety applications, unless pursuant to an express written agreement with Cypress. Furthermore, Cypress does not authorize its products for use as critical components in life-support systems where a malfunction or failure may reasonably be expected to result in significant injury to the user. The inclusion of Cypress products in life-support systems application implies that the manufacturer assumes all risk of such use and in doing so indemnifies Cypress against all charges. PSoC® is a registered trademark, and PSoC Creator™ and Programmable System-on-Chip™ are trademarks of Cypress Semiconductor Corp. All other trademarks or registered trademarks referenced herein are property of the respective corporations.

This Source Code (software and/or firmware) is owned by Cypress Semiconductor Corporation (Cypress) and is protected by and subject to worldwide patent protection (United States and foreign), United States copyright laws and international treaty provisions. Cypress hereby grants to licensee a personal, non-exclusive, non-transferable license to copy, use, modify, create derivative works of, and compile the Cypress Source Code and derivative works for the sole purpose of creating custom software and or firmware in support of licensee product to be used only in conjunction with a Cypress integrated circuit as specified in the applicable agreement. Any reproduction, modification, translation, compilation, or representation of this Source Code except as specified above is prohibited without the express written permission of Cypress.

Disclaimer: CYPRESS MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Cypress reserves the right to make changes without further notice to the materials described herein. Cypress does not assume any liability arising out of the application or use of any product or circuit described herein. Cypress does not authorize its products for use as critical components in life-support systems where a malfunction or failure may reasonably be expected to result in significant injury to the user. The inclusion of Cypress' product in a life-support systems application implies that the manufacturer assumes all risk of such use and in doing so indemnifies Cypress against all charges.

Use may be limited by and subject to the applicable Cypress software license agreement.

