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.

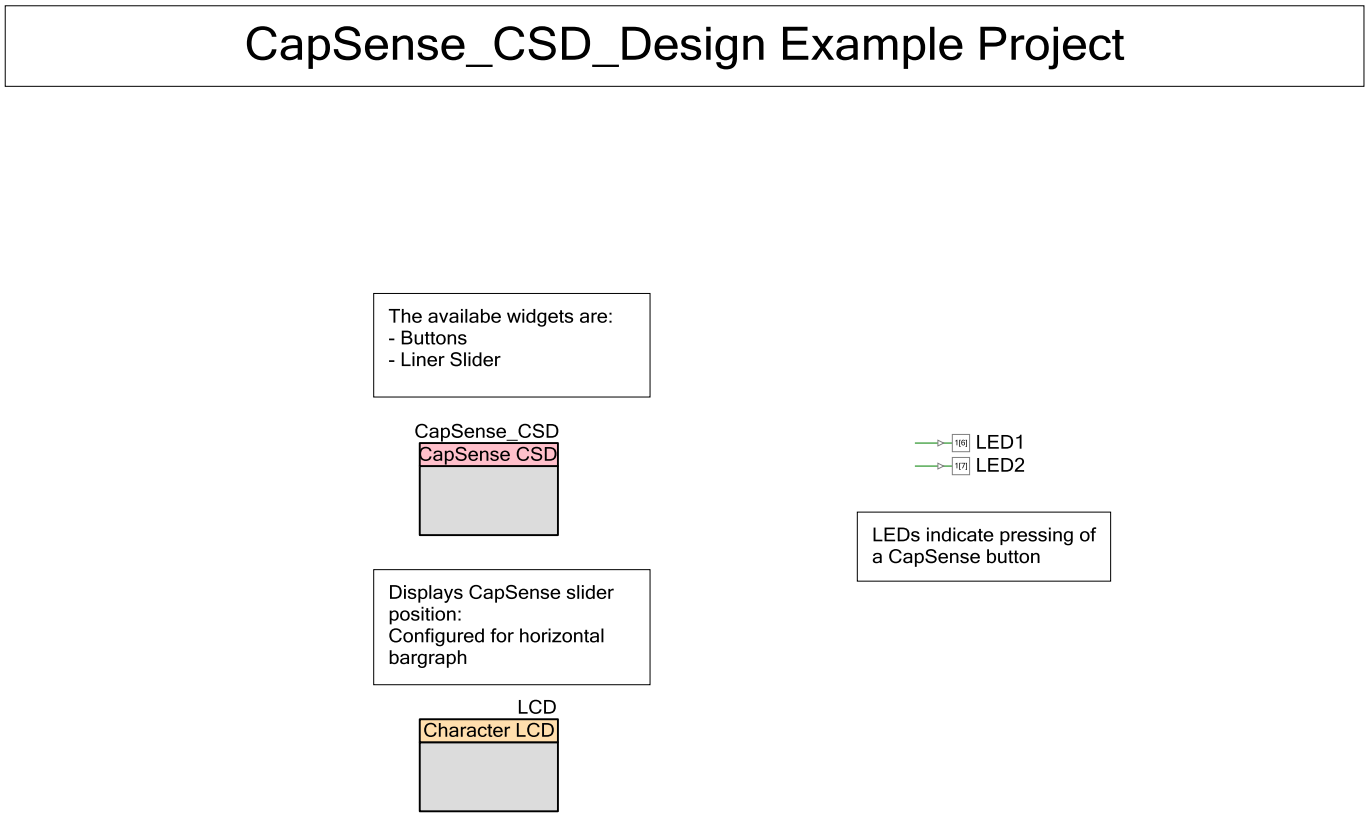


Figure 1. TopDesign schematic

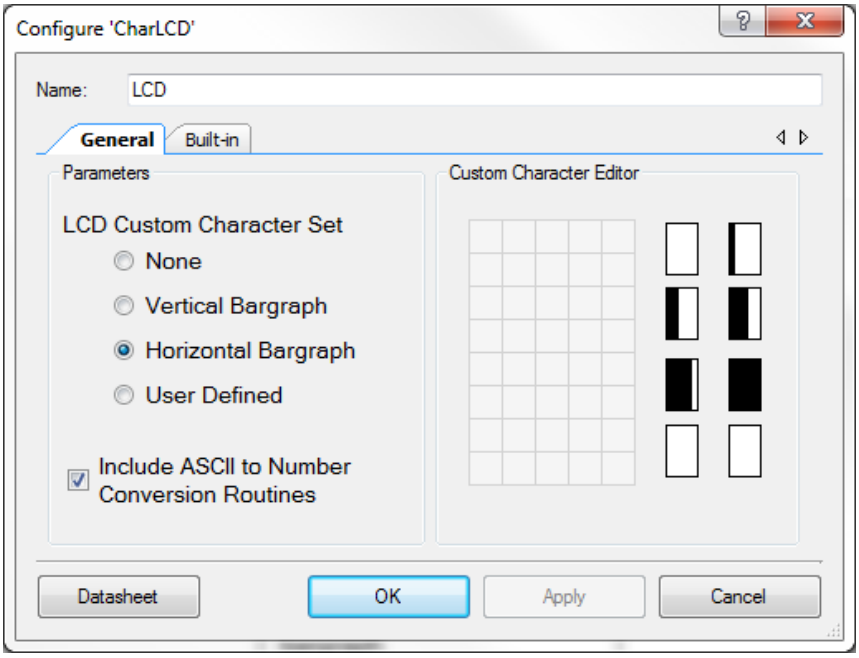
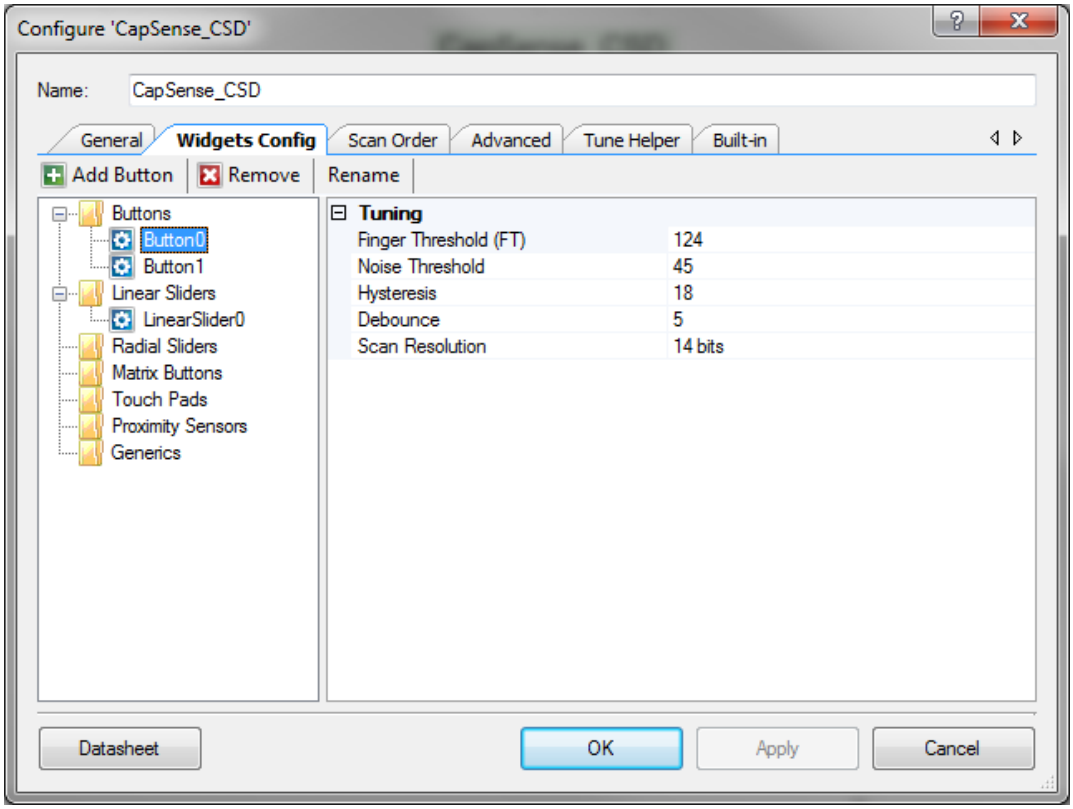


Figure 2. LCD Configuration



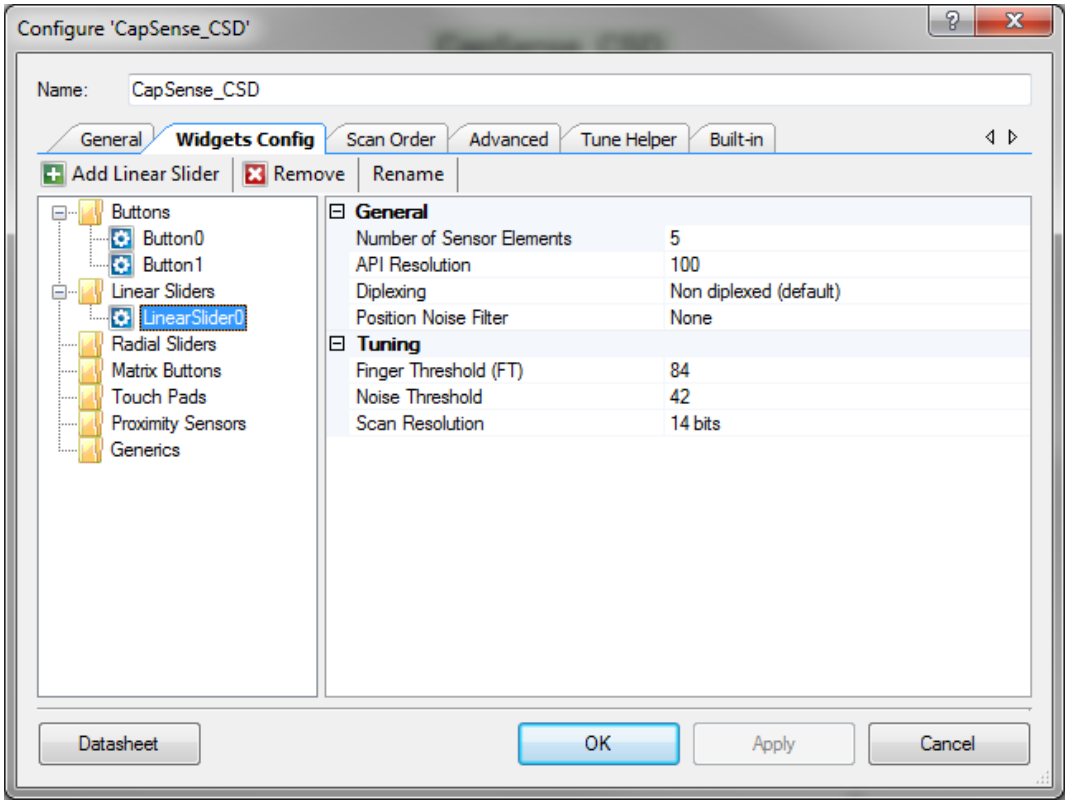


Figure 3. Configuration for CapSense Buttons and Slider

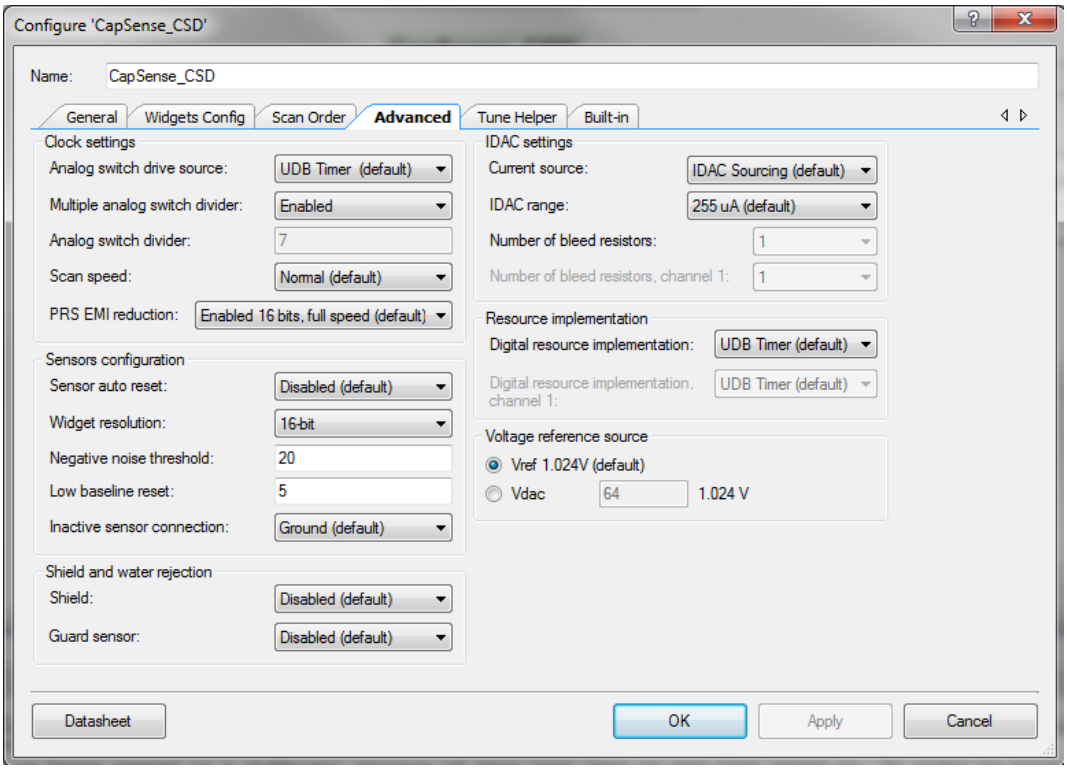


Figure 4. 'Advanced' tab of the CapSense_CSD component

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 bar-graph 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)

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