NRF52840DK Capsense-drv Example

The capsense-drv example shows how to use capacitive sensing on the NRF52 series SOC. This document explains how to set up the nRF52840-DK development kit, PCA10056, when using Segger Embedded Studio to compile and run this demonstration code.

It is assumed that Segger Embedded Studio is installed and the nRF5_SDK_for_Thread_and_Zigbee is also installed. This document was prepared using V4 of the SDK.

The PCA10056 board needs to be set up correctly for this project as it makes use of three GPIO pins to interface to two sensors. You should create two sensors by cutting squares of aluminium foil or similar and attaching wires to these. The wires should be connected to a prototype breadboard and then to pins P0.04 and P0.31 on the PCA10056. On the bread board connect two resistors of approximately 150k ohm value between the two sensor connections and then to pin P0.26 on the PCA10056. This connection provides the charging control to charge the capacitive sensors when measuring their capacitance.

In the embedded studio open the solution for the capsense-drv example by selecting file=>Open Solution and navigating to the

nRF5_SDK_for_Thread_and_Zigbee_v4/examples/peripheral/csense_drv/pca10056/blank/ses/csense_drv_pca10056.emProject

Compile and run the example. Two LEDs on the PCA10056 are mapped to the two sensors such that when a touch is detected the LED will light. The image below shows the PCA10056 connected to two sensors using the ground plane of two small spare printed circuit boards. In this configuration the default value of 850 for the threshold worked perfectly.