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## How to connect the SATEL-VL53L7CX to an STM32 Nucleo-64 board for smart presence detection (SPD)

### Introduction

The purpose of this document is to show how to connect the SATEL-VL53L7CX to an STM32 Nucleo-64 board for smart presence detection (SPD).

The SATEL-VL53L7CX is composed of a miniaturized breakout board, which allows for simple integration into customer development and evaluation devices. The PCB section supporting the VL53L7CX module is perforated, so developers can break off the mini-PCB for use in a 3.3 V supply application using flying wires.

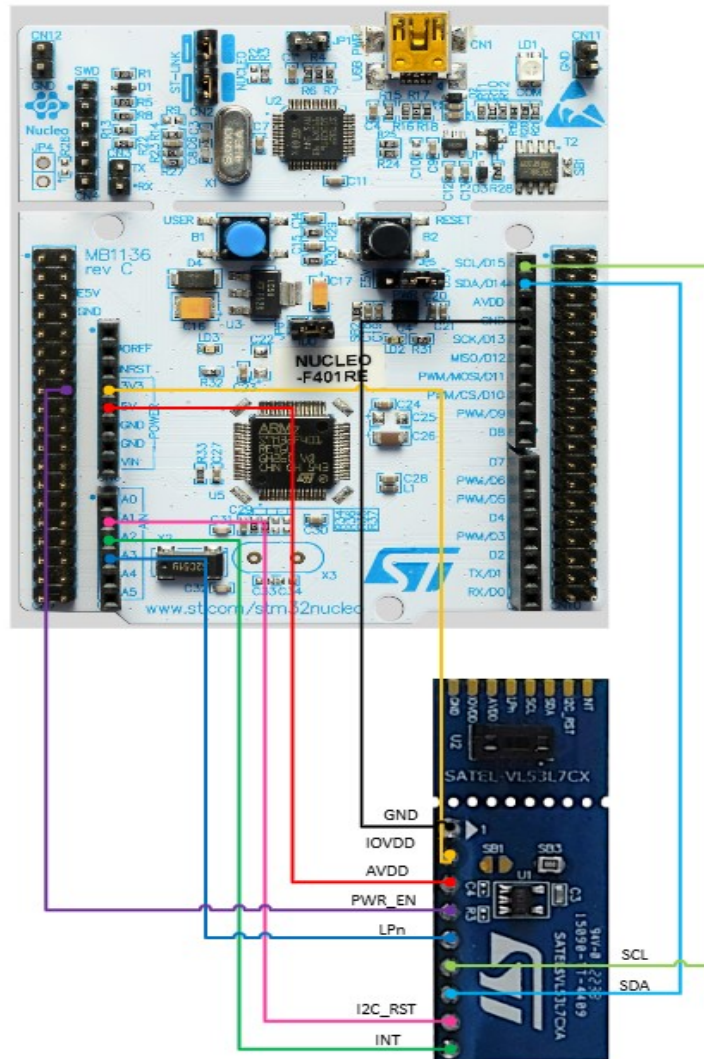
The current configuration described in the application note AN5883 does not work. Therefore, in this document, ST proposes a new configuration that is operational.

# 1 Hardware connection guidelines

## Use of SATEL-VL53L7CX flying leads to connect to a NUCLEO-F401RE board

Figure 1. SATEL-VL53L7CX flying lead connection to NUCLEO-F401RE shows how to connect the SATEL-VL53L7CX board directly to a NUCLEO-F401RE board, without an X-NUCLEO-53L7A1 expansion board, for an SPD use case.

Figure 1. SATEL-VL53L7CX flying lead connection to NUCLEO-F401RE

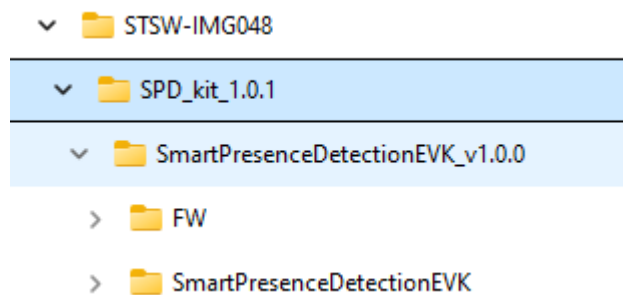


## 2 Programming guidelines

The software project to make the sensor board work directly with the NUCLEO-F401RE is available on st.com. Download the package STSW-IMG048, then install the STSW-IMG048 software pack. The precompiled software project is available under:

C:\xxx\STSW-IMG048\SPD\_kit\_xxx\SmartPresenceDetectionEVK\_vxxx\SmartPresenceDetectionEVK\_vxxx  
A SATEL-VL53L7CX board project for NUCLEO-F401RE is available in the directory tree as shown in

Figure 2. STSW-IMG048 directory



Open the .FW folder in the SmartPresenceDetectionEVK\_v1.0.0 repository to find the firmware compatible with the SATEL-VL53L7CX. Then, drag and drop the .bin file to flash the board.

Figure 3. Firmware loading



For more information on how to run the SPD, refer to the document *SmartPresenceDetection\_UG.pdf*, available in the STSW-IMG048 package.

## Revision history

**Table 1. Document revision history**

Date	Version	Changes
25-Feb-2025	1	Initial release

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