

STM32WL Sensor Node – Schematics, 3D PCB Render, and Layout Overview

This document presents the core hardware design files for the STM32WL-based wireless sensing platform. It includes:

- Schematic diagrams of the system
- 3D render of the PCB
- PCB Layout (multiple Layers)

The design integrates a low-noise analog front end (AFE), LoRa RF communication, and STM32WL microcontroller for signal acquisition and wireless transmission.

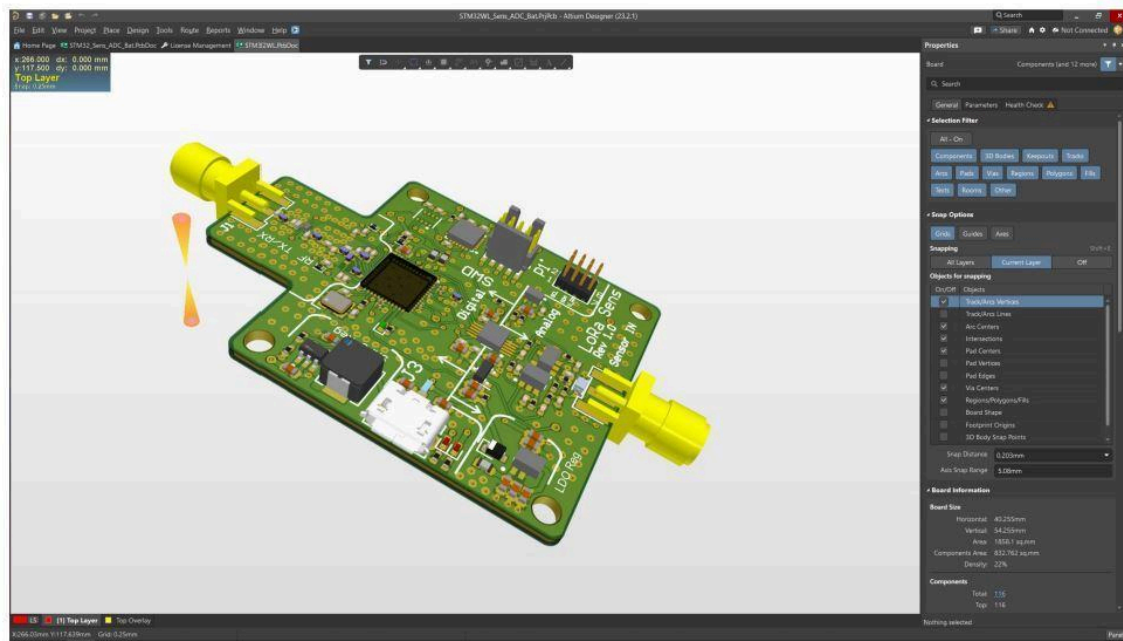


Figure 1: 3D Render of PCB (Altium View)

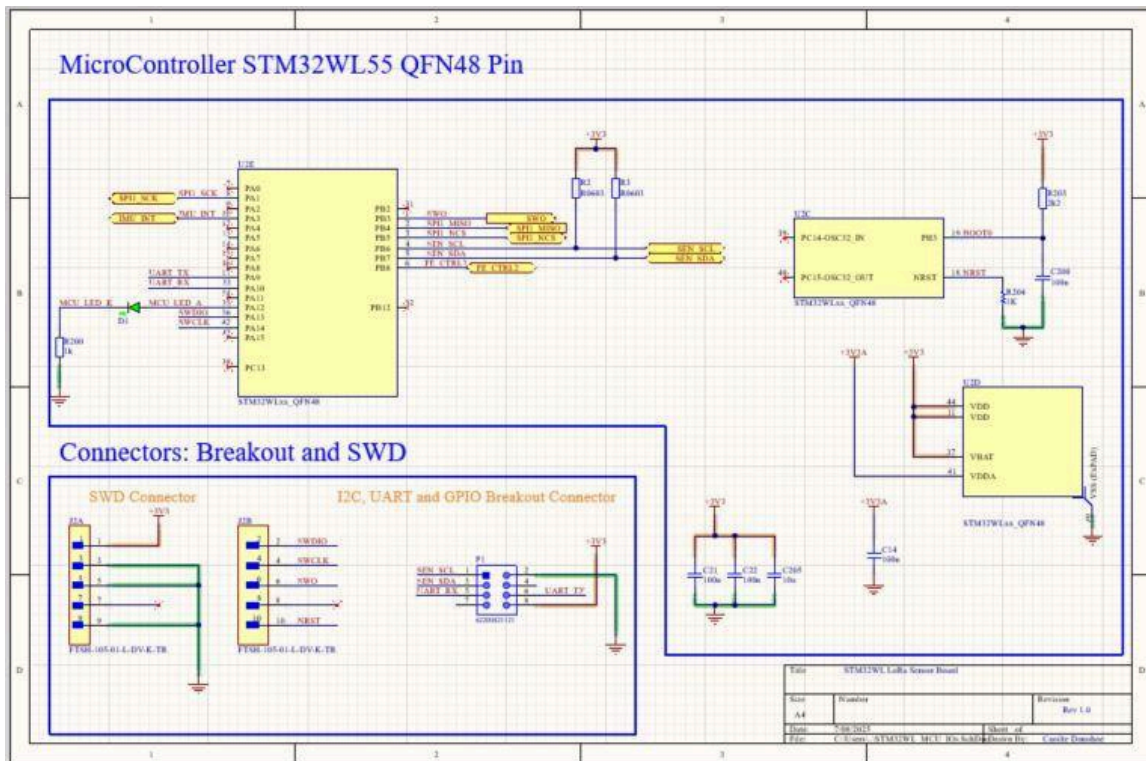


Figure 2: Microcontroller & SWD Connector Schematic

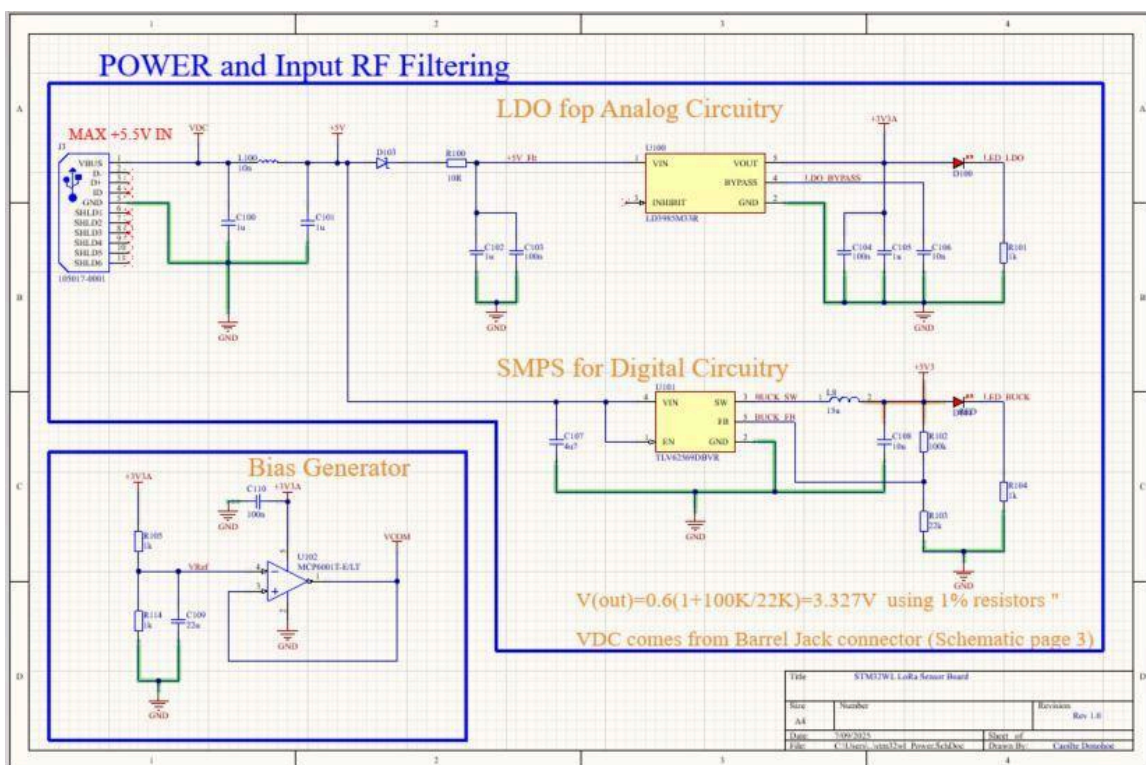


Figure 3: Power and Input RF Filtering Schematic

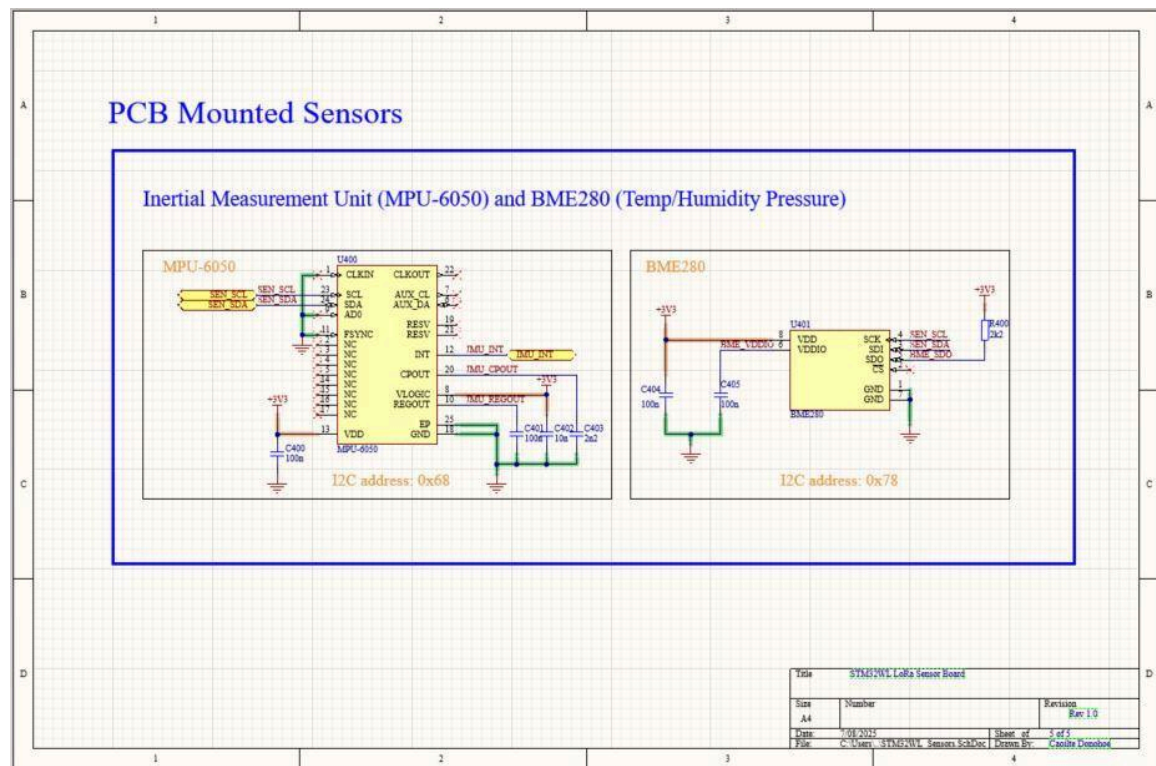


Figure 4: PCB-Mounted Sensor Schematic (MPU-6050 and BME280)

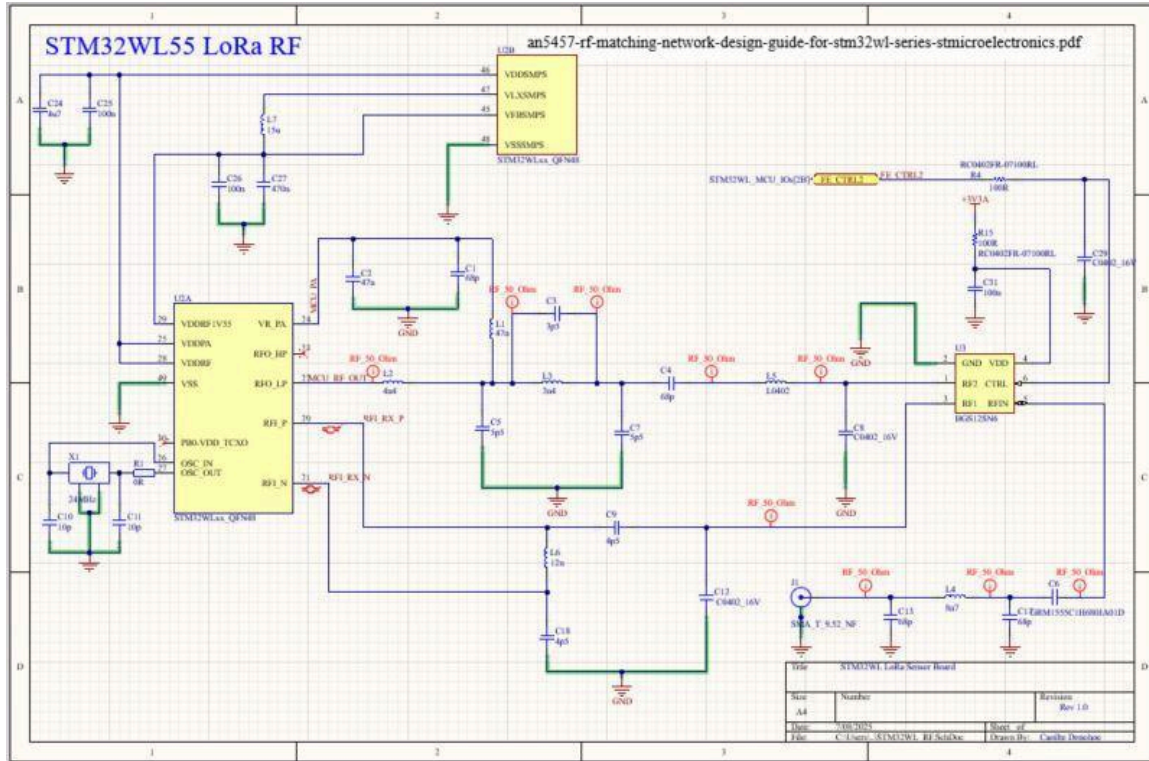


Figure 5: STM32WL55 LoRa RF Schematic

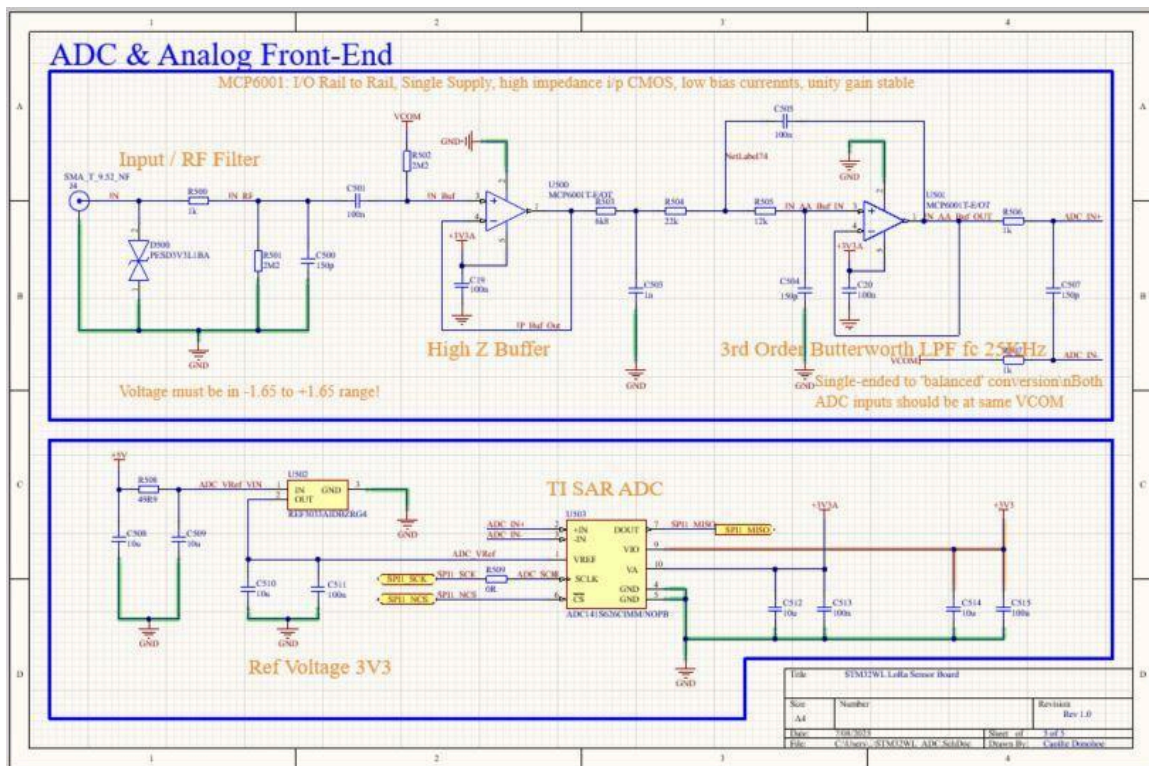


Figure 6: ADC and Analog Front-End Schematic

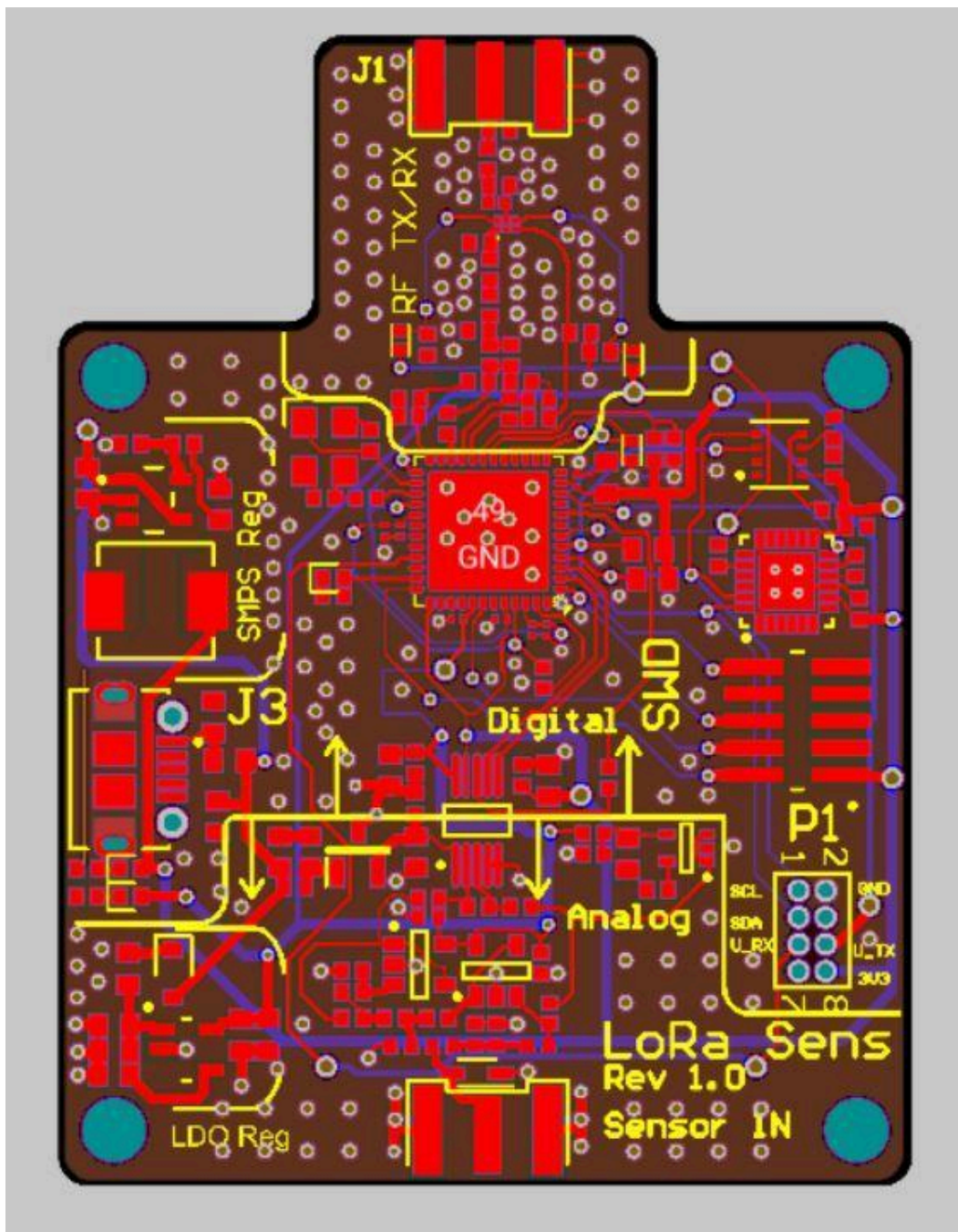


Figure 7: PCB Top Layer Layout

