

# Serial Communication Ver.1 Expansion Board User Guide

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# Chapter 1 Introduction

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## 1.1 Kit Name

Serial Communication Ver.1 Expansion Board

## 1.2 Part Number

TPSX-SER1

## 1.3 Key Features

- SPI Flash: W25Q32 (32 Mbits)
- I2C EEPROM: AT24C02 (2 Kbits)
- Regulable potentiometer for ADC input
- CAN transceiver: TPT1256 (SOP8)
- Audio: Codec WM8978, I2C and I2S interfaces; MIC input, headphone jack or 2-pin 2.54 mm speaker connector
- Dual TPSensor<sup>®</sup> Pads with 2 LEDs

## 1.4 Description

The serial communication Ver.1 expansion board TPSX-SER1 is designed for evaluating the serial peripherals of MCU, including I2C, SPI, I2S and CAN. It also features additional functionalities such as ADC and TPSensor<sup>®</sup>.

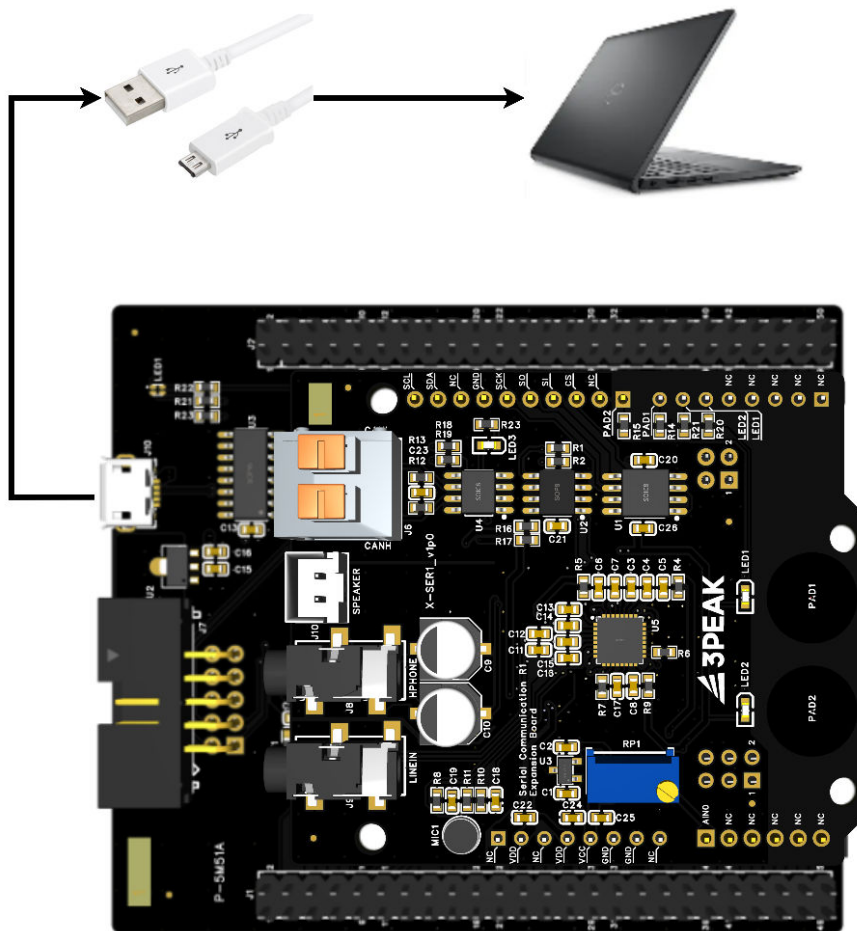
It was designed with audio codec, I2C/SPI memory, CAN bus transceiver, ADC regulable potentiometer and TPSensor<sup>®</sup> PADS and LEDs.

The expansion board does not contain a controller or power supply. It must be combined with a prime board to work.

The connectors between the prime board and the expansion board are the Arduino connector, an extensional I2S (with an SPI port) connector, and a CAN MAC connector.

## Chapter 2 Quick Start

### 2.1 Getting Started



Before power on the board, you need to check the following configurations:

1. Check all the configurations of the prime board (refer to the prime board user guide).
2. Combine the expansion board to the prime board, then connect the assembled boards to the PC.
3. Open a serial terminal on your computer to see the printf information.
4. Press the RESET button to show the test menu.
5. Then, you can test some features through the OOB firmware and more features through the provided software demonstration and examples.
6. Develop your own applications.

# Chapter 3 Hardware Functional Descriptions

## 3.1 Arduino and Other Pins Header

The J5 is used for the CAN MAC connector, and the J7 is used for the I2S connector.

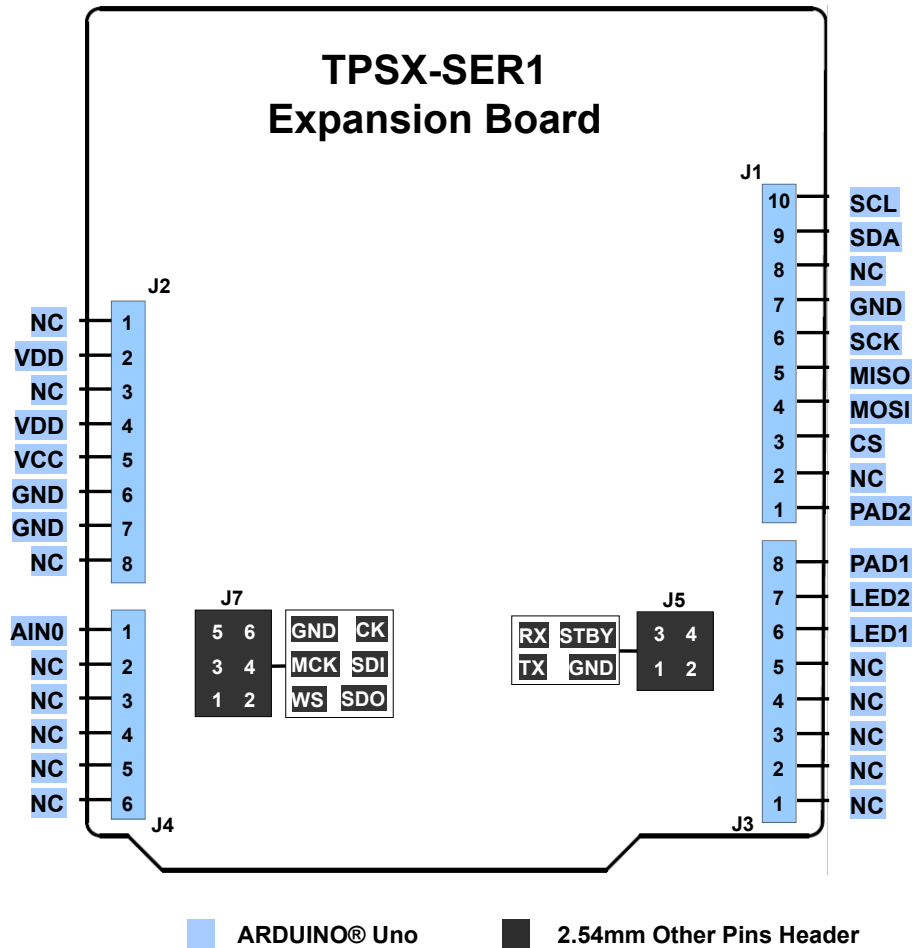


Figure 3-1 Arduino and Other Pins Header

### 3.2 Other Headers and Connectors

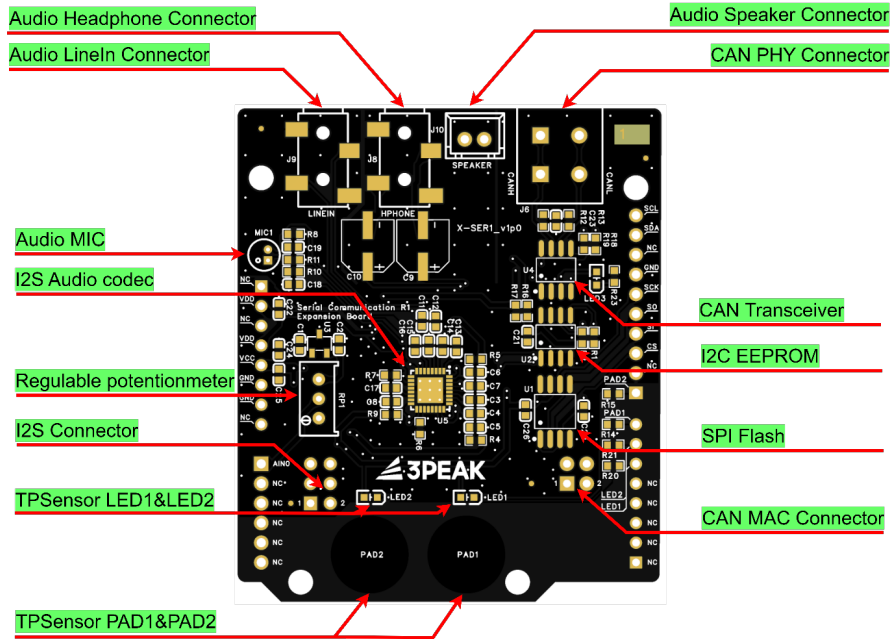


Figure 3-2 Other Headers and Connectors



### 3.3 PCB Layout

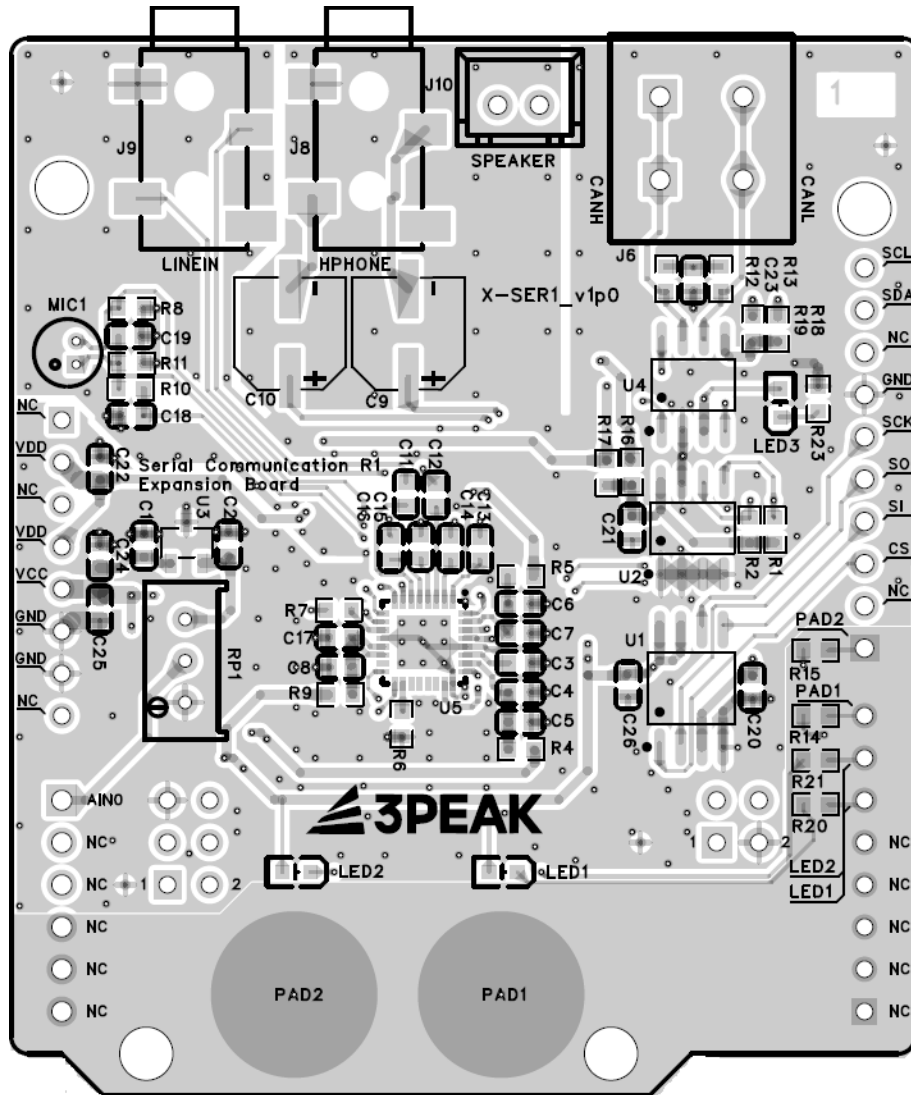


Figure 3-3 PCB Layout Top Layer

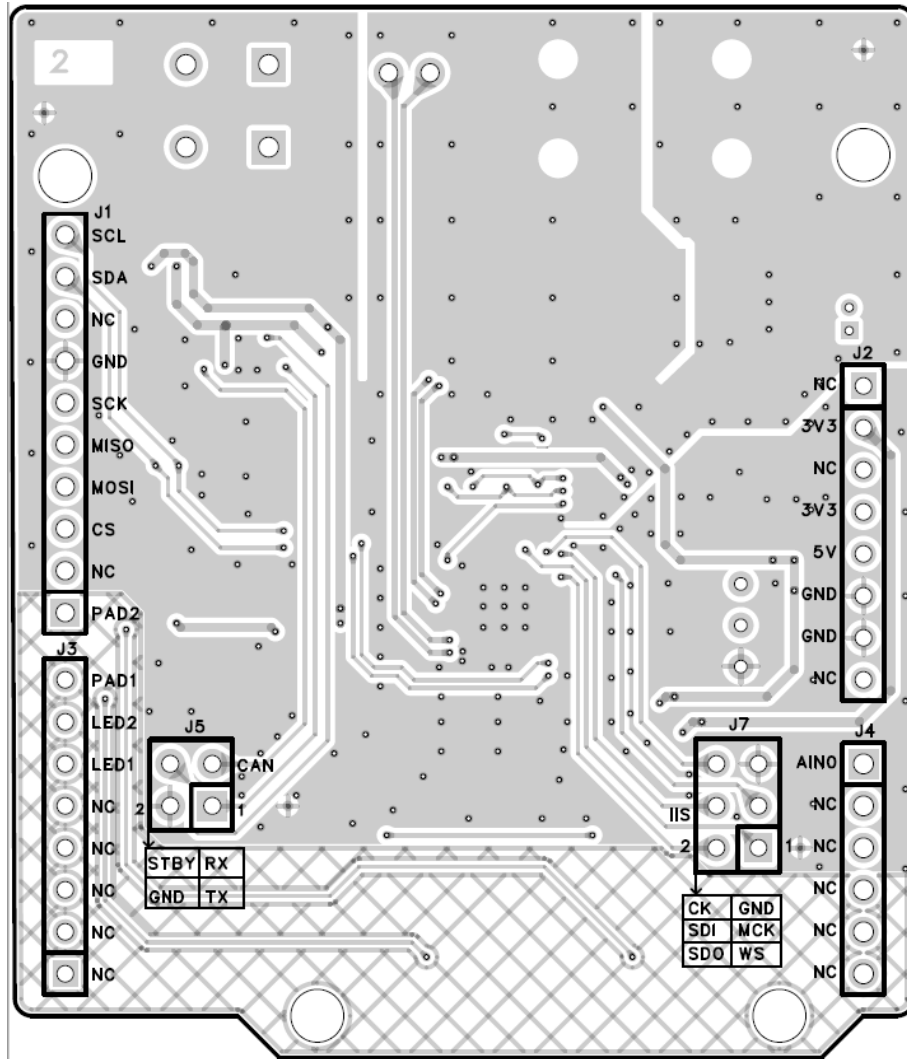


Figure 3-4 PCB Layout Bottom Layer

### 3.4 Resistor for Solder Bridge

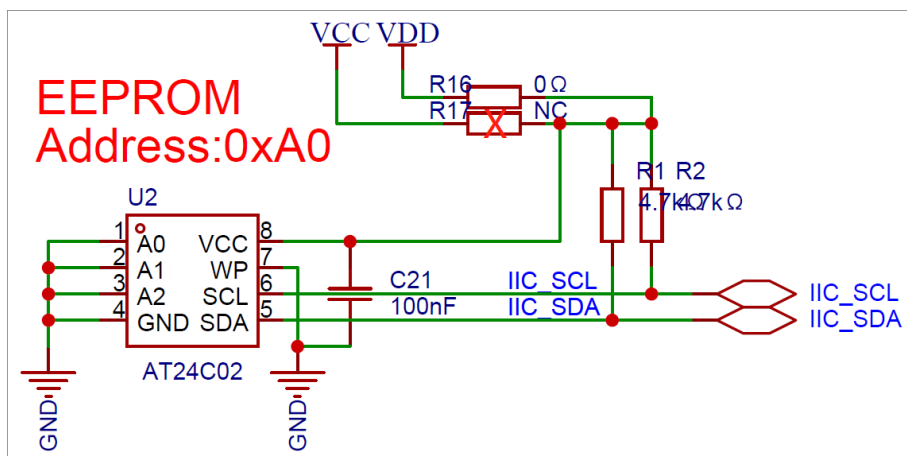


Figure 3-5 Solder Bridge Schematic



MCU Side	Bridge	Default State	Description
CAN transceiver VDDIO	R18	ON	CAN transceiver VDDIO choose the VDD(3.3V)
	R19	OFF	CAN transceiver VDDIO choose the VCC(5V)

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