EVK PCB Adapter Boards

There are several versions of the Femtosense SPU-001 EVK as shown below. In each, a PCB adapter board connects the host processor to the SPU-001 EVB Board. This application note describes the hardware configuration of these boards.

EVK2 (Tympan Host w/ EVB2)

EVK3 (ADI Host w/ EVB3)

EVK2v2 (Tympan Host w/ EVB4)

Table of Contents

FEMT○SENSE
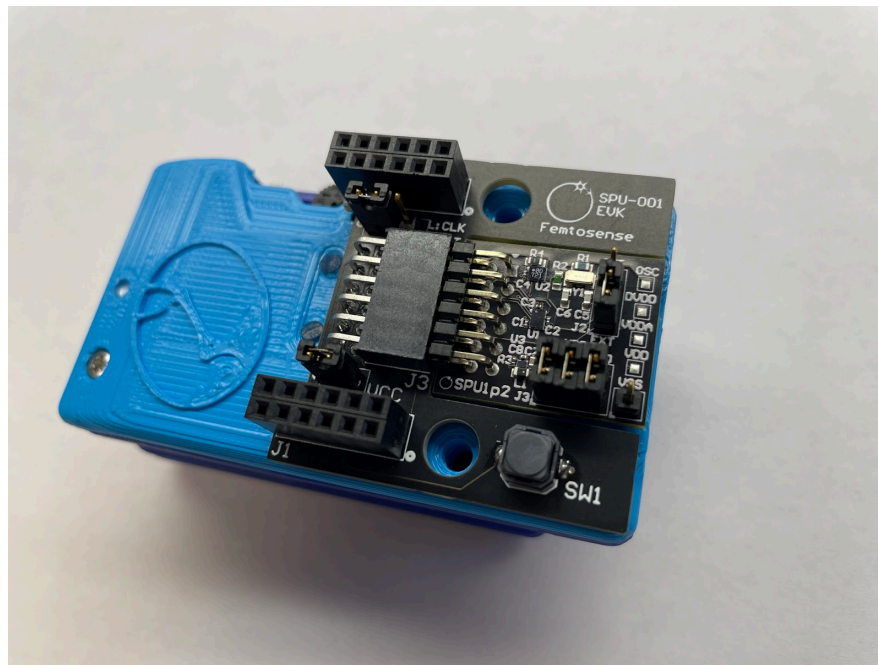
EVK2 PCB Adapter Board

The EVK2 PCB Adapter Board connects the Tympan to the SPU-001 EVB2 circuit board so that jumper wires are not needed. It also contains a user button marked "SW1" that can be used to toggle the SPU processing on and off.

Connect the board between the Tympan and the SPU-001 EVB2 circuit board as shown in the following photo. The PCB should be oriented so that it does NOT cover the Tympan LEDs, volume knob, or power switch. The orientation of the text written on the Tympan and the text written on the PCBs is opposite. Plugging in the PCB in the wrong orientation may damage it.
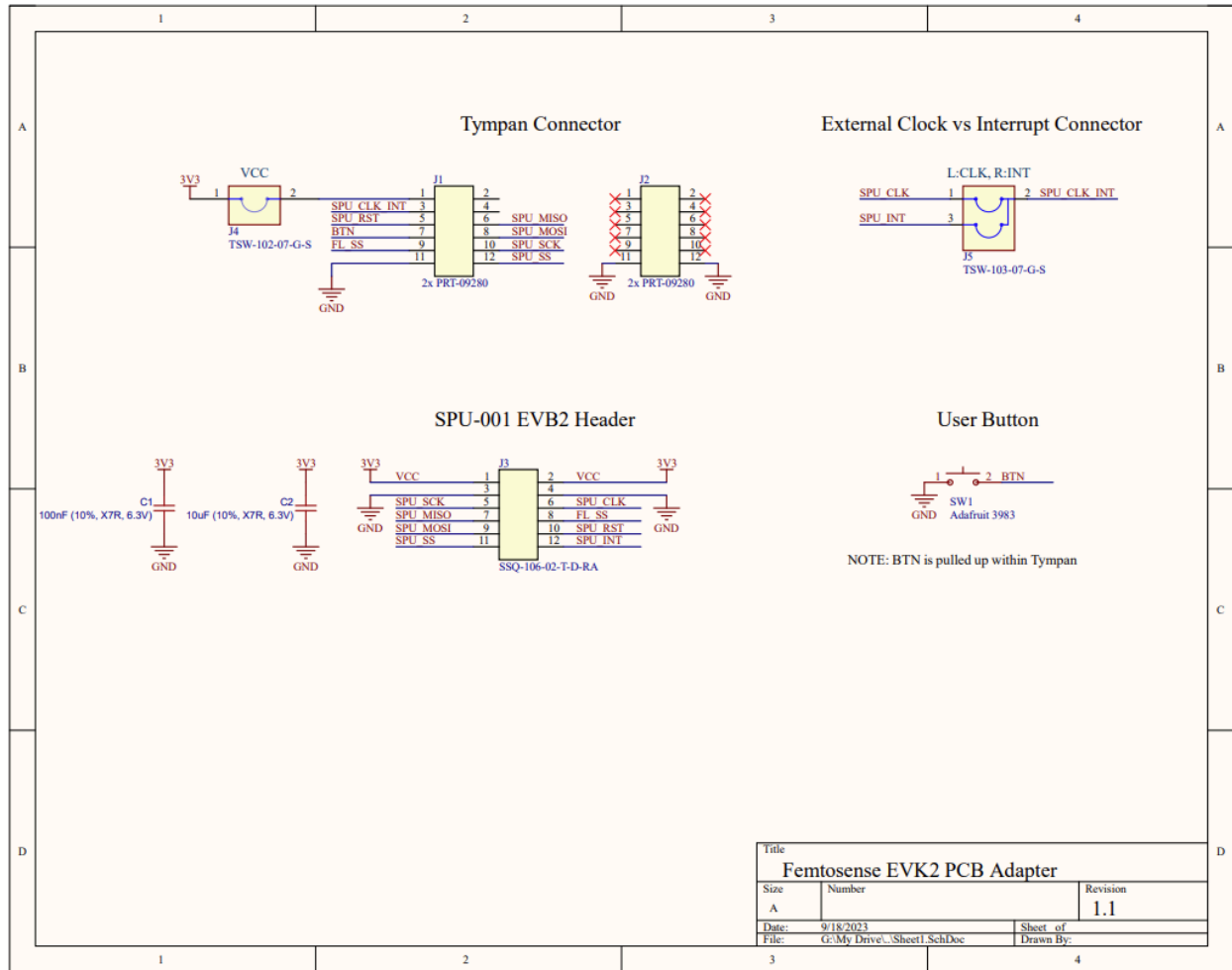
Note: Power should be turned off when connecting PCBs!

Correct installation of the EVK2 PCB adapter board
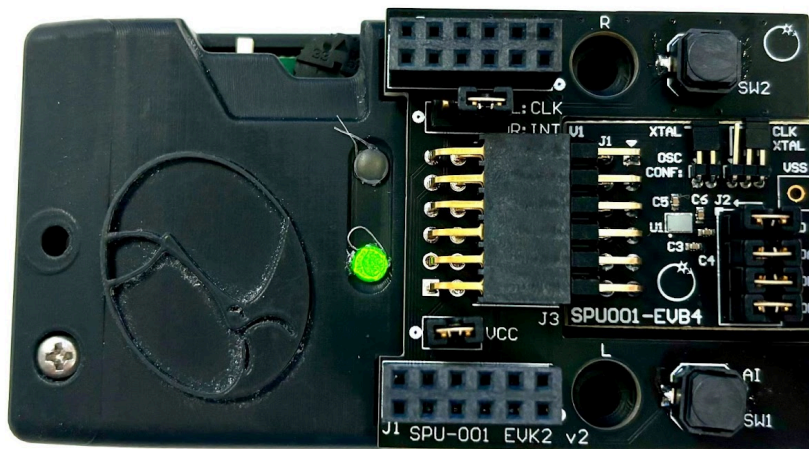

Application Note 003

Schematic

Jumpers & Buttons

Pins	Description	Configuration
J4 (VCC)	VCC Power Disconnect	Connect jumper to enable power rail
J5 (L:CLK R:INT)	External Clock or Interrupt Select	Connect jumper in the left position (CLK) to connect the external clock. Connect jumper in the right position (INT) to connect the interrupt.
SW1	AI Toggle Button	Arduino pin 25. Active low, hardware pull-up.

Application Note 003

EVK2v2 PCB Adapter Board

The EVK2v2 PCB Adapter Board connects the Tympan to the SPU-001 EVB4 circuit board so that jumper wires are not needed. It also contains a user button marked "SW1' and "AI'" that can be used to toggle the SPU processing on and off, and a second button "SW2" that can be programmed by the user.

Connect the board between the Tympan and the SPU-001 EVB4 circuit board as shown in the following photo. The PCB should be oriented so that it does NOT cover the Tympan LEDs, volume knob, or power switch. The orientation of the text written on the Tympan and the text written on the PCBs is opposite. Plugging in the PCB in the wrong orientation may damage it.
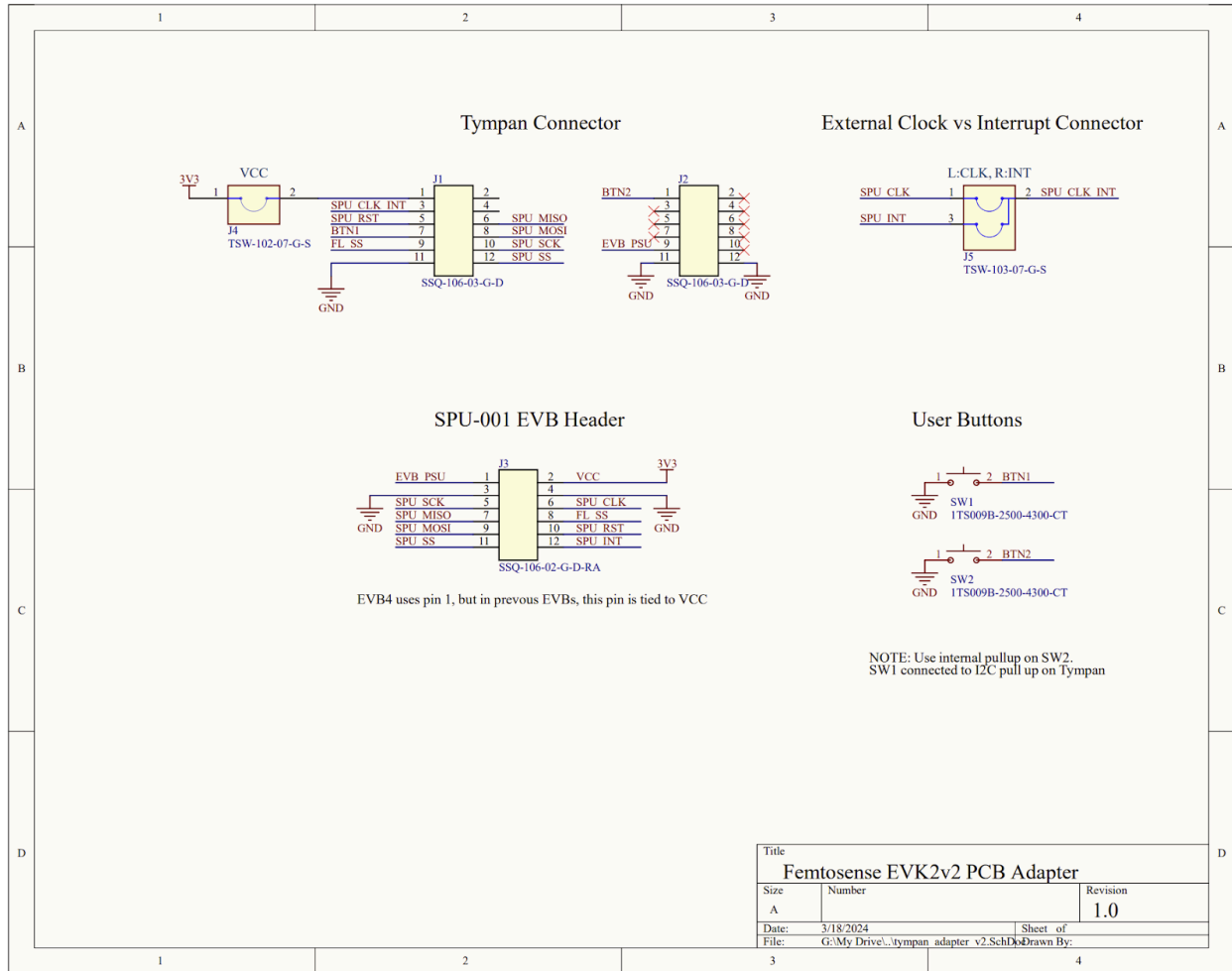
Note: Power should be turned off when connecting PCBs!

Correct installation of the EVKv2 PCB adapter board
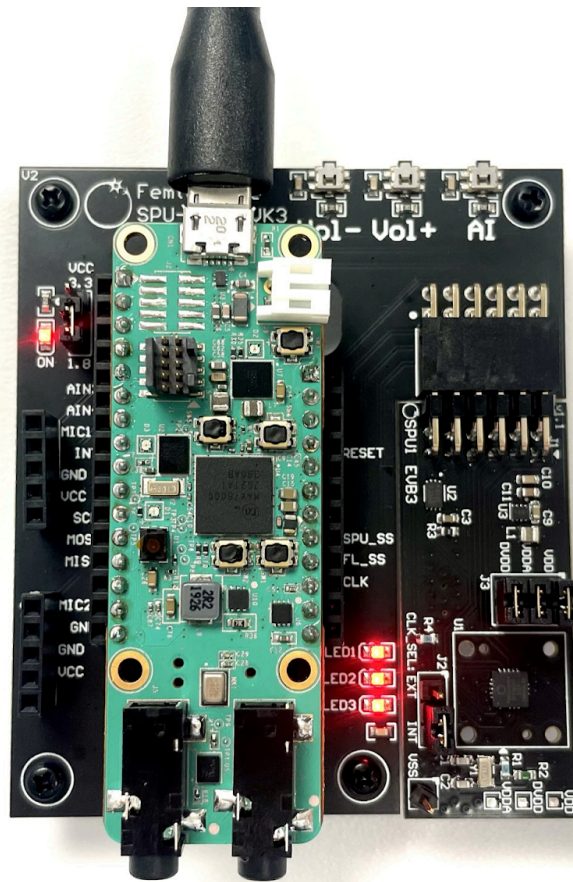

Schematic

Jumpers & Buttons

Pins	Description	Configuration
J4 (VCC)	VCC Power Disconnect	Connect jumper to enable power rail
J5 (L:CLK R:INT)	External Clock or Interrupt Select	Connect jumper in the left position (CLK) to connect the external clock. Connect jumper in the right position (INT) to connect the interrupt
SW1 (AI)	AI Toggle Button	Arduino pin 25. Active low, hardware pull-up.
SW2	User Button	Arduino pin 29. Active Low, use software pull-up.

Application Note 003

EVK3 PCB Adapter Board

The EVK3 PCB Adapter Board connects the ADI MAX78000FTHR host board to the SPU-001 EVB3 circuit board so that jumper wires are not needed. It also contains headers for analog inputs, a voltage rail selector, and some user buttons and LEDs.
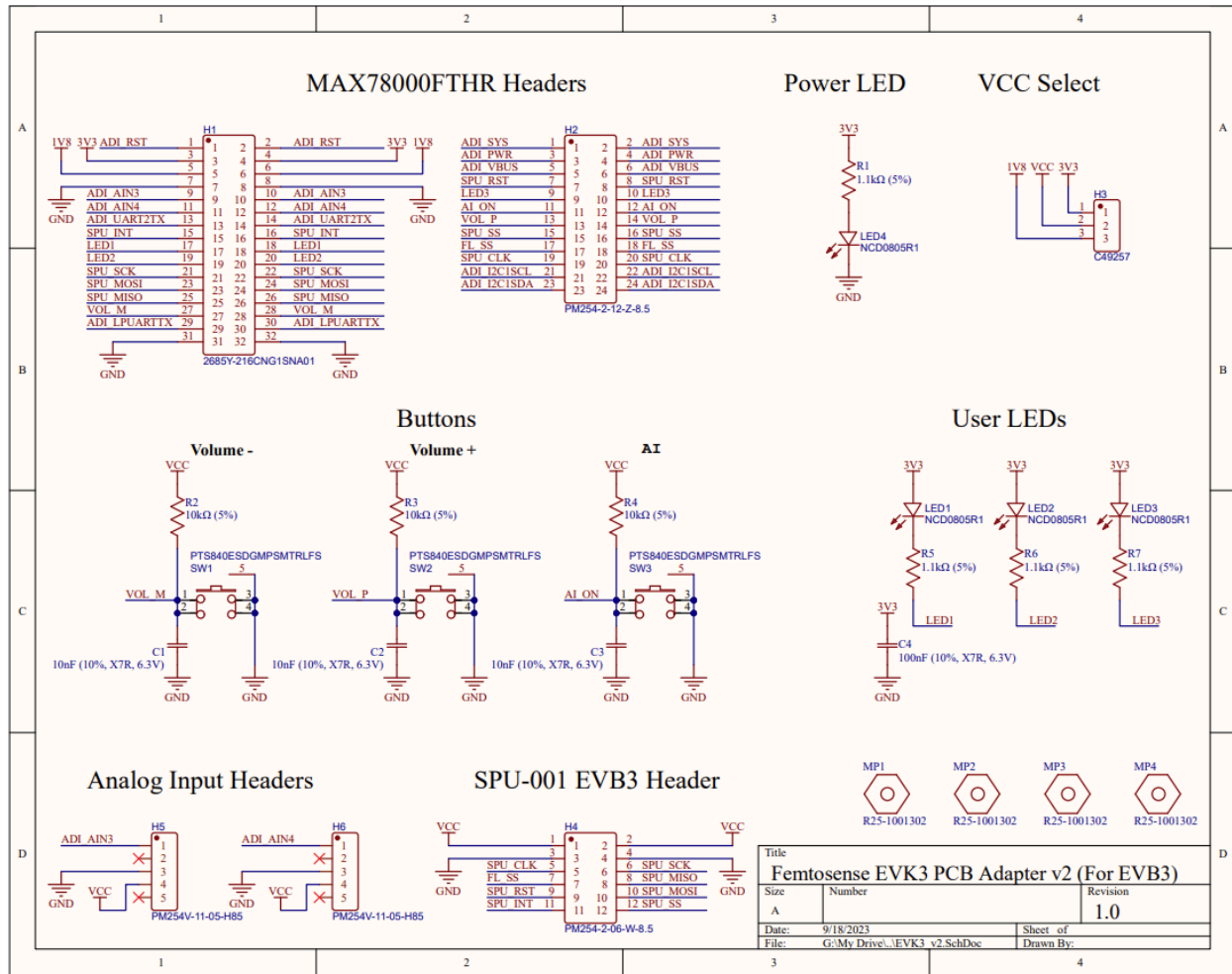
Connect the board between the ADI MAX78000FTHR and the SPU-001 EVB3 circuit board as shown in the following photo. Plugging in the PCB in the wrong orientation may damage it.

Note: Power should be turned off when connecting PCBs!

Correct installation of the EVK3 PCB adapter board

Schematic

Femtosense EVK3 PCB Adapter v2 (For EVB3)

Jumpers, Buttons, & LEDs

Pins	Description	Configuration
H3 (VCC)	VCC Power Select	Connect the jumper to connect either the 1.8V or 3.3V power supply to the SPU. This should be set to the SPI IO voltage selected on the host.
SW1 (VOL-)	Volume Up Button	Access with port P2_6, Active Low
SW2 (VOL+)	Volume Down Button	Access with port P0_8, Active Low
SW3 (AI)	AI Toggle Button	Access with port P0_9, Active Low
LED1	User LED 1	Access with port MCP1 (PMIC), Active Low
LED2	User LED 2	Access with port MCP2 (PMIC), Active Low
LED3	User LED 3	Access with port MCP3 (PMIC), Active Low
LED4 (ON)	Power LED	LED is illuminated with EVK is on

Change Log

Version	Release Date	Description
1.0	2023-06-14	Initial release
1.1	2023-08-24	Updated Schematics and Added EVK3 information
1.2	2023-09-18	Added EVK3 v2 information
1.3	2023-12-28	Consolidated EVK variants
1.4	2024-03-18	Added EVK2v2 adapter