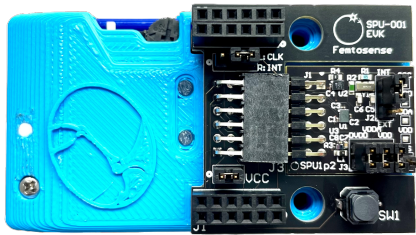
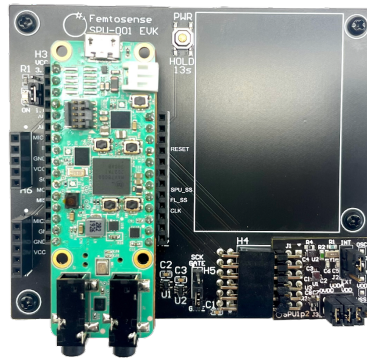


EVK PCB Adapter Boards

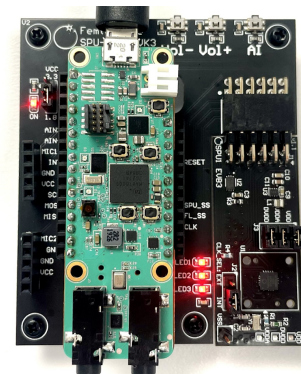
There are several versions of the Femtosense SPU-001 EVK as shown below. In each, a PCB adapter board connects the host processor to the SPU-001 EVB Board. This application note describes the hardware configuration of these boards.



EVK2 (Tympan Host w/ EVB2)



EVK3 (ADI Host w/ EVB2)



EVK3 v2
(ADI Host w/ EVB3)

Table of Contents

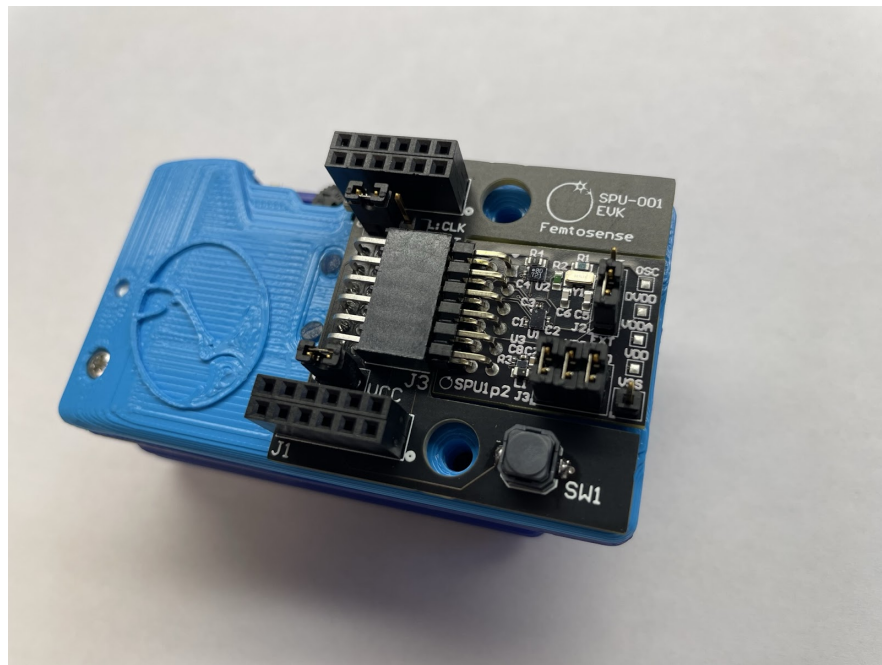
EVK PCB Adapter Boards	1
Table of Contents	1
EVK2 PCB Adapter Board	3
Schematic	4
Jumpers & Buttons	4
EVK3 PCB Adapter Board	4
Schematic	6
Jumpers, Buttons & LEDs	7
EVK3 v2 PCB Adapter Board	8
Schematic	9
Jumpers, Buttons, & LEDs	10
Change Log	11

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 AINR model on and off.

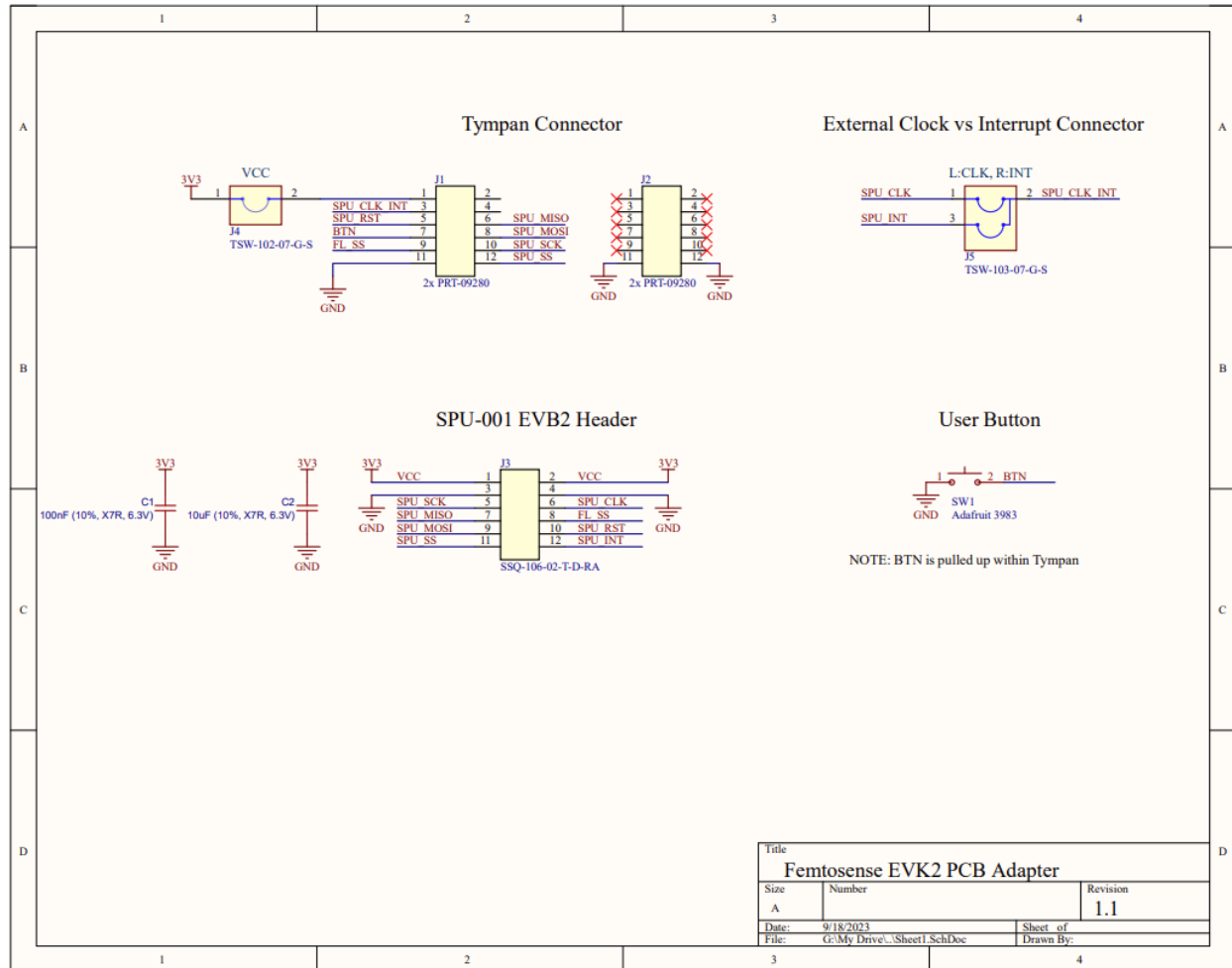
Connect the board between the Tympan and the SPU-001 EVB2 circuit board as shown in the following photo. The PCB should be oriented so that it does NOT cover the Tympan LEDs, volume knob, or power switch. The orientation of the text written on the Tympan and the text written on the PCBs is opposite. 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

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 to the Tympan. Connect jumper in the right position (INT) to connect the interrupt to the Tympan
SW1	AI Toggle Button	Access in Arduino as pin 25. Active Low, includes hardware pull-up.

Application Note 003

EVK3 PCB Adapter Board

The EVK3 PCB Adapter Board connects the ADI MAX78000FTHR host board to the SPU-001 EVB2 circuit board so that jumper wires are not needed. It also contains headers for analog inputs, a voltage rail selector, and logic gates that correct erroneous SPI SCK signals from the host.

More information about this logic gating can be found in Application Note 001. These logic gates are not necessary on firmware versions ≥ 1.0 , and should be bypassed by setting the jumper to the NO GATE.

Connect the board between the ADI MAX78000FTHR and the SPU-001 EVB2 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!

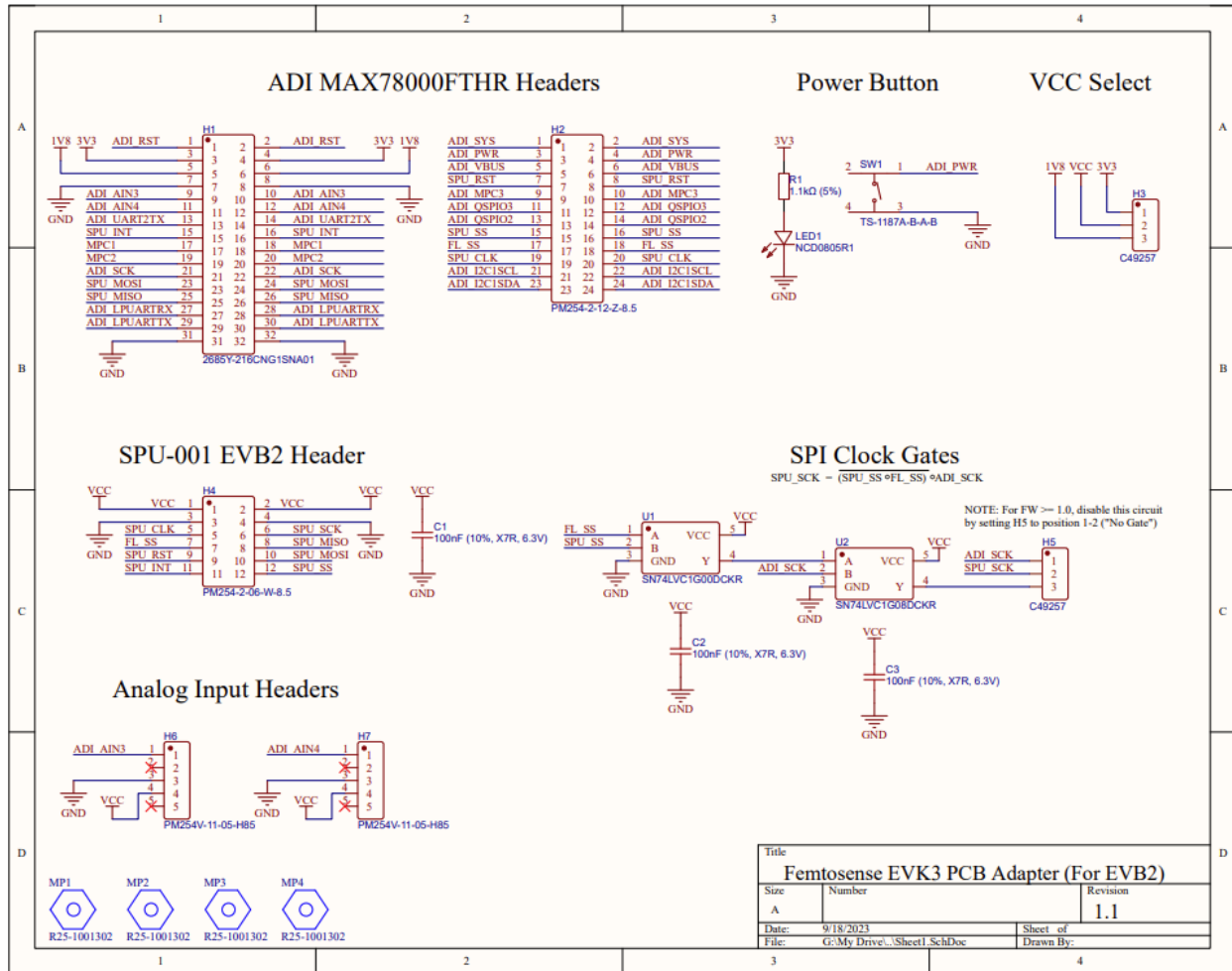


Correct installation of the EVK3 PCB adapter board

SPU-001 Evaluation Kit

Application Note 003

Schematic



Application Note 003

Jumpers, Buttons & LEDs

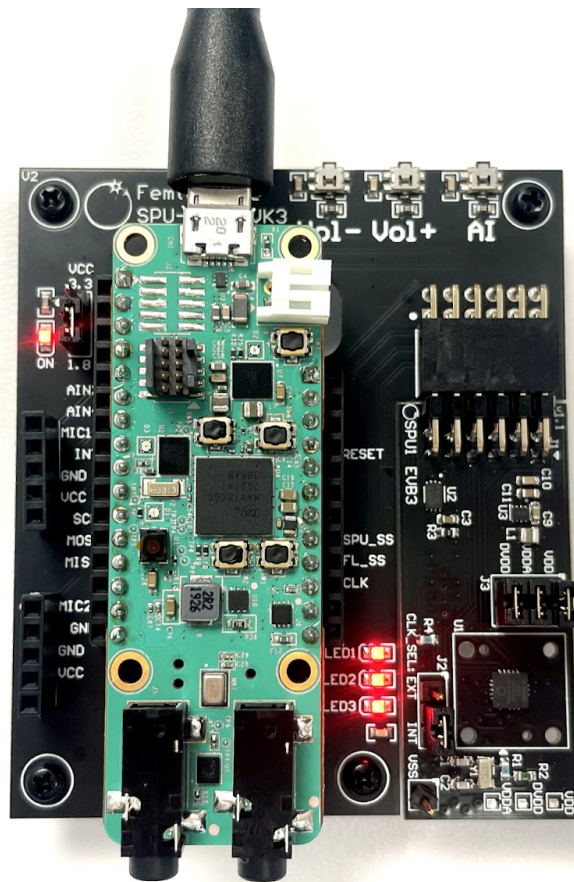
Pins	Description	Configuration
H3 (VCC)	VCC Power Select	Connect the jumper to connect either the 1.8V or 3.3V power supply to the SPU. This should be set to the SPI IO voltage selected on the host.
H5 (L:CLK R:INT)	SCK Gate Select	Connect the jumper in the upper (SCK GATE) position to gate the host SPI SCK signal by the SPU and EVB Flash SS signals. Connect the jumper in the lower (NO GATE) position to bypass the gate.
SW1 (PWR)	Power Button	Hold for 13s to turn off EVK
LED1 (ON)	Power LED	LED is illuminated with EVK is on

EVK3 v2 PCB Adapter Board

The EVK3 v2 is very similar to the original EVK3, and is mostly backwards compatible. However, it does not contain the SCK logic gating hardware. The 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.

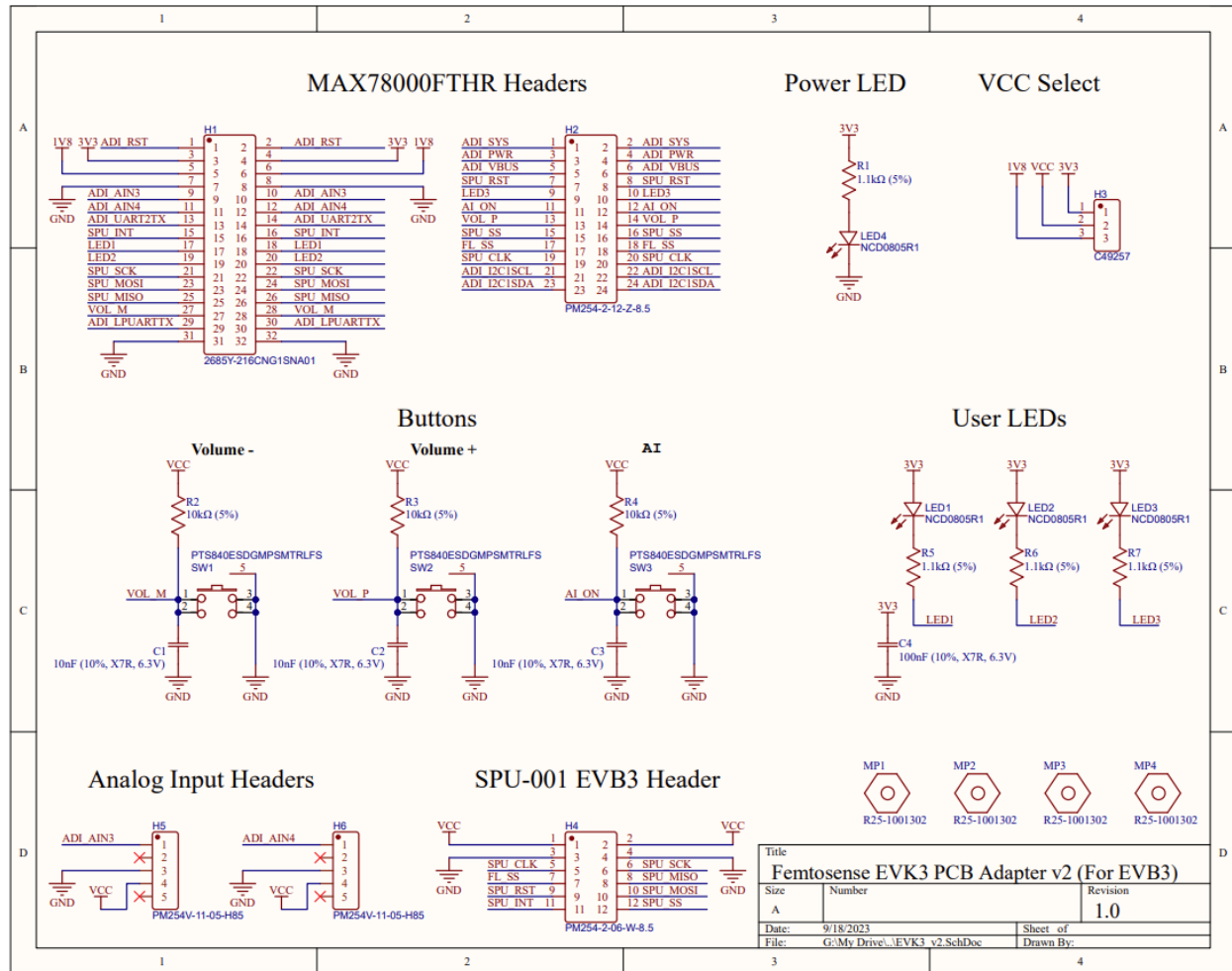
Connect the board between the ADI MAX78000FTHR and the SPU-001 EVB3 circuit board as shown in the following photo. Plugging in the PCB in the wrong orientation may damage it.

Note: Power should be turned off when connecting PCBs!



Correct installation of the EVK3 v2 PCB adapter board

Schematic



Application Note 003

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

Application Note 003

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