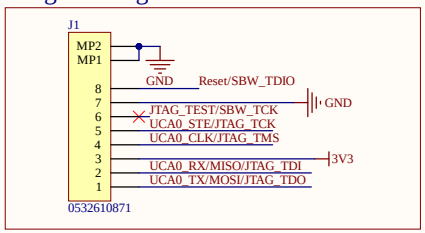
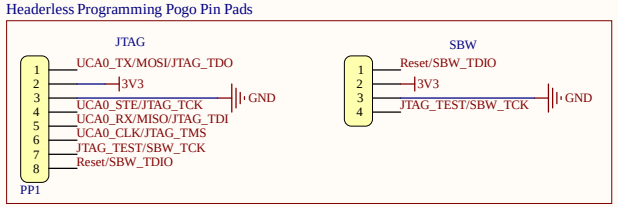
Programming (one required)

Programming Header: 4-Wire JTAG



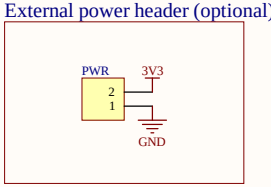
Headerless Programming Pogo Pin Pads



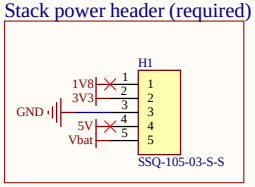
Note: 2-Wire programming uses fewer pins and requires a smaller footprint but is slower
Both 2-wire and 4-wire programming are available on the PCB

Note: Many components are optional and don't need to be soldered unless used

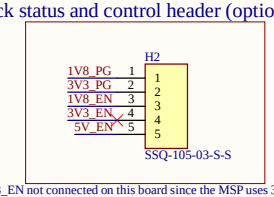
External power header (optional)



Stack power header (required)

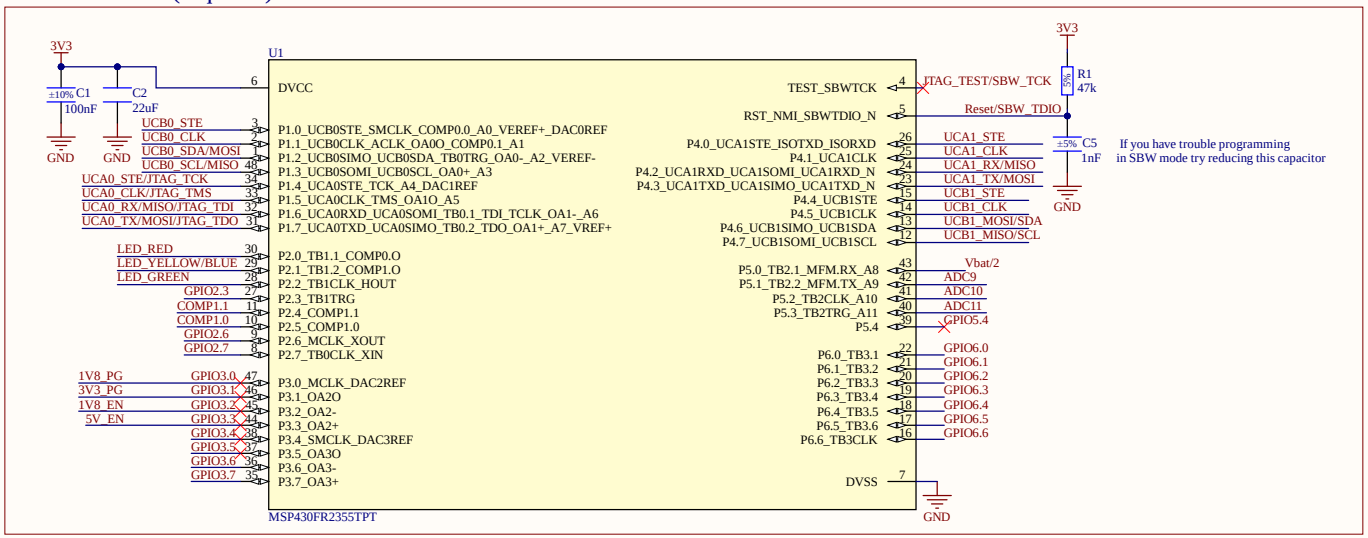


Stack status and control header (optional)



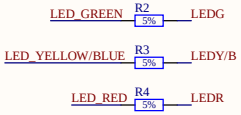
Note: 3V3_EN not connected on this board since the MSP uses 3V3

Microcontroller (required)



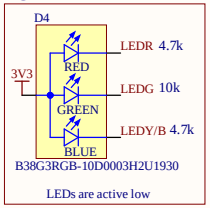
LEDs (optional)

The board supports either an RGB LED
or three individual LEDs



Value of R1,R2,R3 depend on LED
Mount EITHER D4 or D1+D2+D3

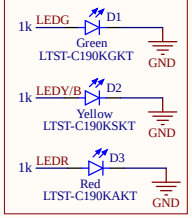
RGB LED



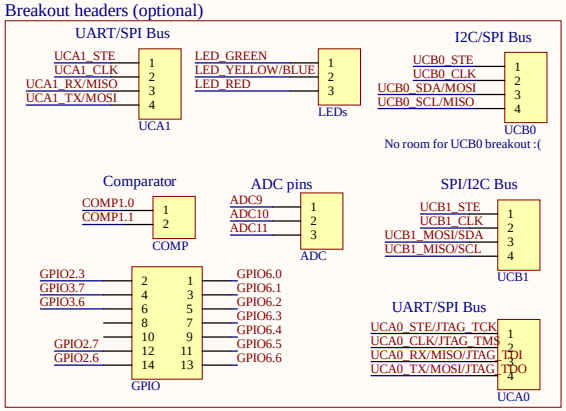
LEDs are active low

Individual G/Y/R LEDs

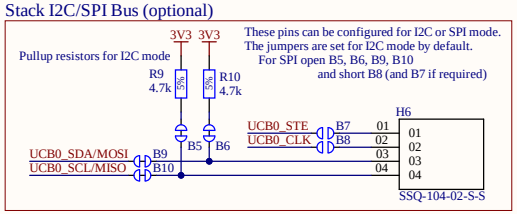
LEDs are active high



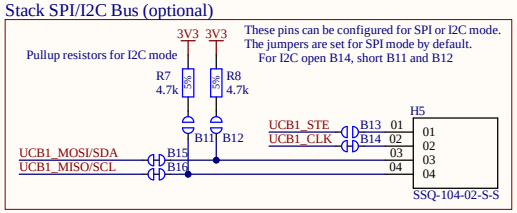
Breakout headers (optional)



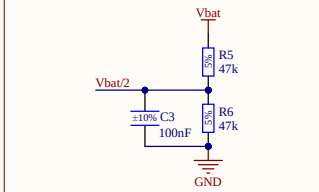
Stack I2C/SPI Bus (optional)



Stack SPI/I2C Bus (optional)

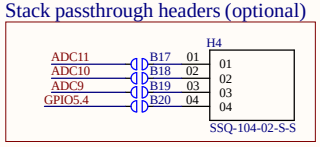


Battery voltage measurement (optional)



Note: Battery measurement invalid for first ~15ms after power on (C3 needs time to fill up)
Battery should be sampled at most 20k times / sec

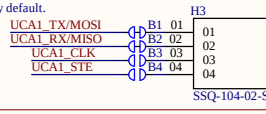
Stack passthrough headers (optional)



We don't use these pins, but something above/below us might

Stack UART/SPI Bus (optional)

These pins can be configured for UART or SPI mode.
The jumpers are set for UART mode by default.
For SPI short B3 (and B4 if necessary)



Note: Some pins are unused in some modes, can be used for GPIO
STE pins are rarely used, so could also be used as GPIO

Title: MCU.SchDoc		
Size: A3	Number	Revision: V
Date: 11/27/2025		Sheet of
File: C:\Users\leevi\Downloads\MCU.SchDoc		Drawn By: