

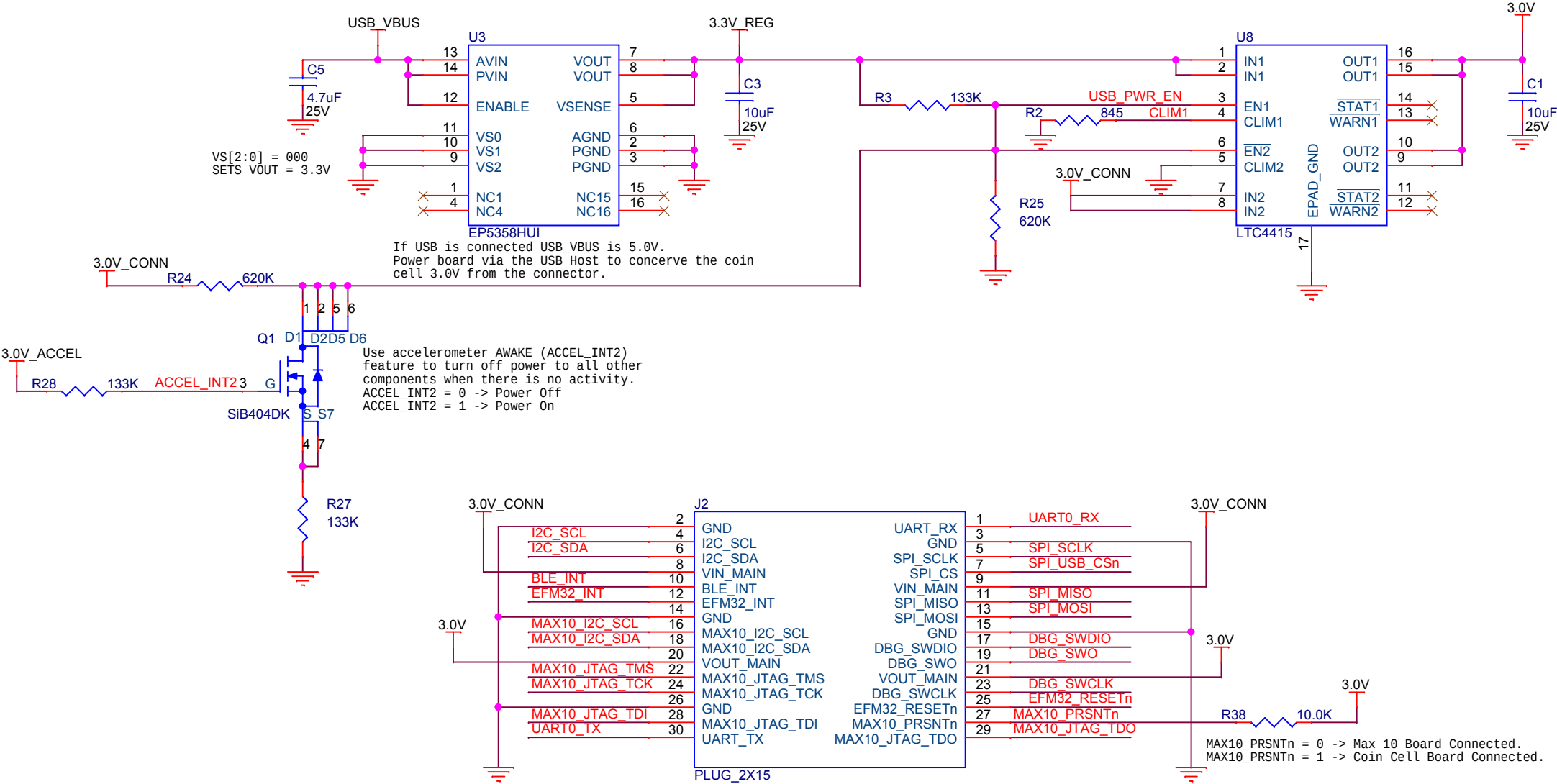
This schematic is "Board 1" of the complete demonstration board, shown in the block diagram below.

PAGE	DESCRIPTION
1	Title, Notes, Block Diagram, Rev. History
2	Power & Connector
3	USB
4	Bluetooth
5	Sensors

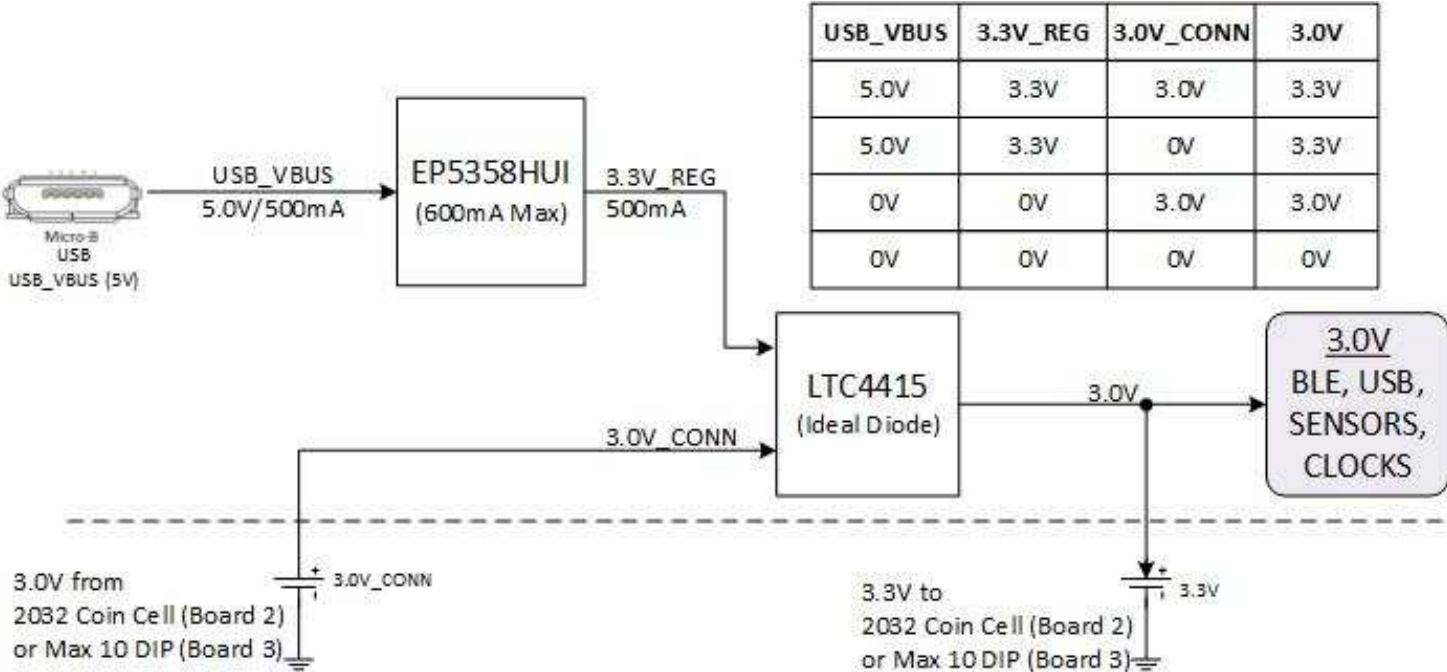


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Title IoT Development Kit - BLE and Sensor Board			
Size B	Document Number 150-00001-C1		Rev C2
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Power & Connector



- EFM32_RESETn 3
- ACCEL_INT2 3,4,5
- I2C_SCL 5
- I2C_SDA 5
- SPI_SCLK 3,4,5
- SPI_USB_CSn 3,4,5
- SPI_MOSI 3,4,5
- SPI_MISO 3,4,5
- DBG_SWCLK 3
- DBG_SWDIO 3
- DBG_SWO 3
- EFM32_INT 3
- BLE_INT 4
- MAX10_I2C_SCL 3
- MAX10_I2C_SDA 3
- MAX10_JTAG_TCK 3
- MAX10_JTAG_TMS 3
- MAX10_JTAG_TDI 3
- MAX10_JTAG_TDO 3
- MAX10_PRSENTn 3,4
- UART0_TX 3,4
- UART0_RX 3,4



- MH1 MH_SPACER
- MH2 MH_SPACER
- MH3 MH_SPACER
- MH4 MH_SPACER



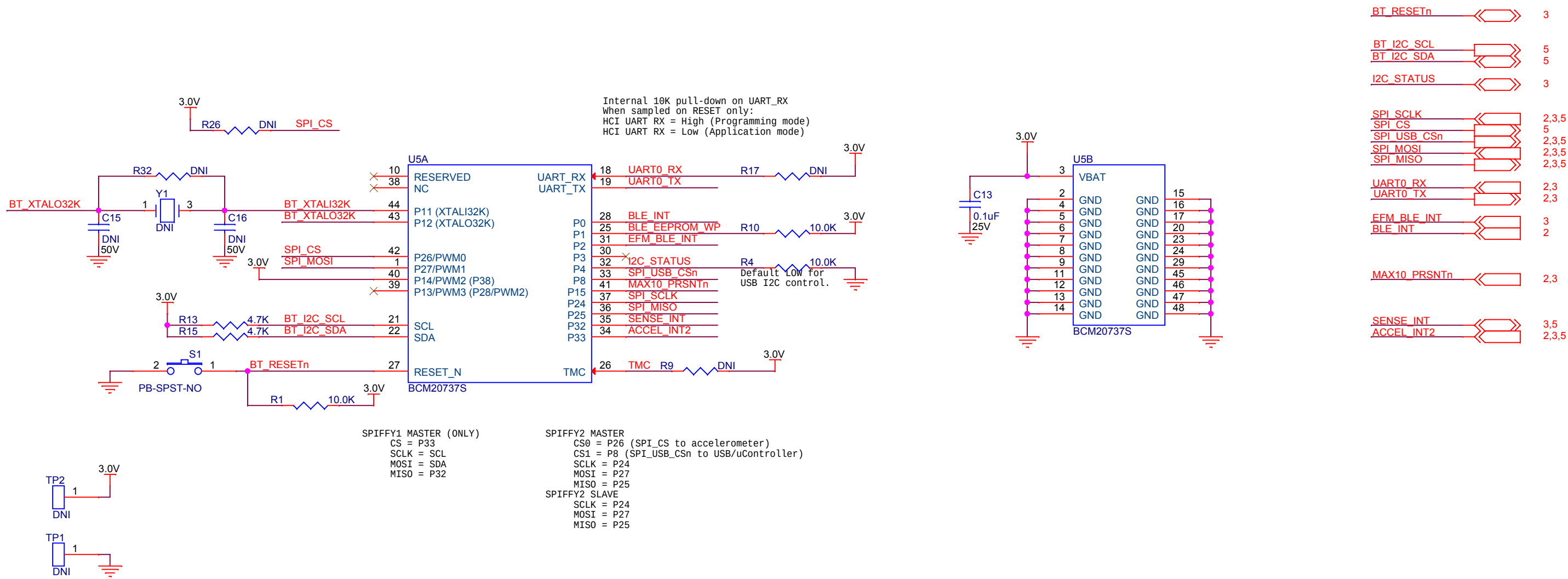
LAYOUT NOTES:
USB Data lines should be routed as 90-ohm differential pairs.
D_P/D_N, USB_D_P/USB_D_N
Match the USB data P/N within +/-10 mils.
Place 15-ohm series resistors near EFM32GG395
Place VBUS ferrite bead and 0.1uF capacitor near USB connector.

- SiLabs AN0046 - USB data pair should be routed as diff 90-ohm
- SiLabs AN0002 - Hardware Design Considerations
- SiLabs AN0016 - Oscillator Design Considerations

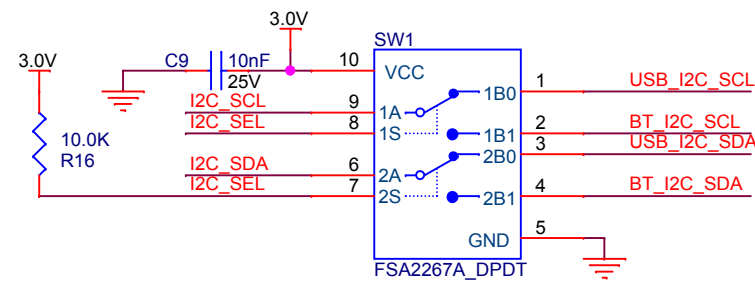


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Bluetooth

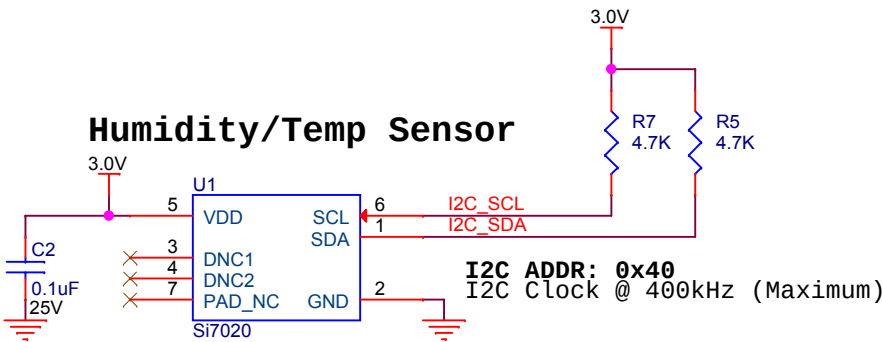


Sensors

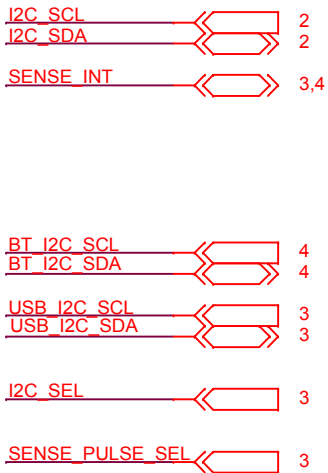


ISC_SEL = 0 -> Connect A to B0 (USB I2C)
ISC_SEL = 1 -> Connect A to B1 (BT I2C)

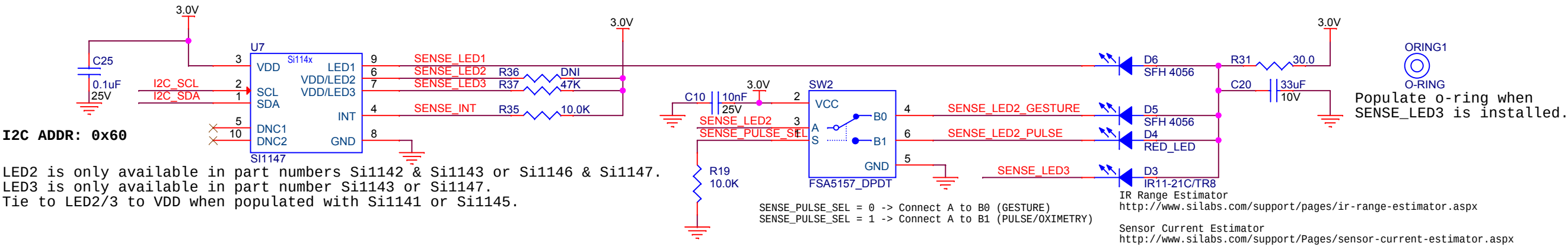
Humidity/Temp Sensor



LAYOUT NOTE:
DNC should be left floating or tied to VDD. (Solder to pads on PCB.)
PAD_NC should be electrically floating. (Solder to pads on PCB.)



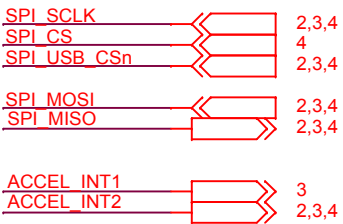
Proximity/UV/Amb Light Sensor



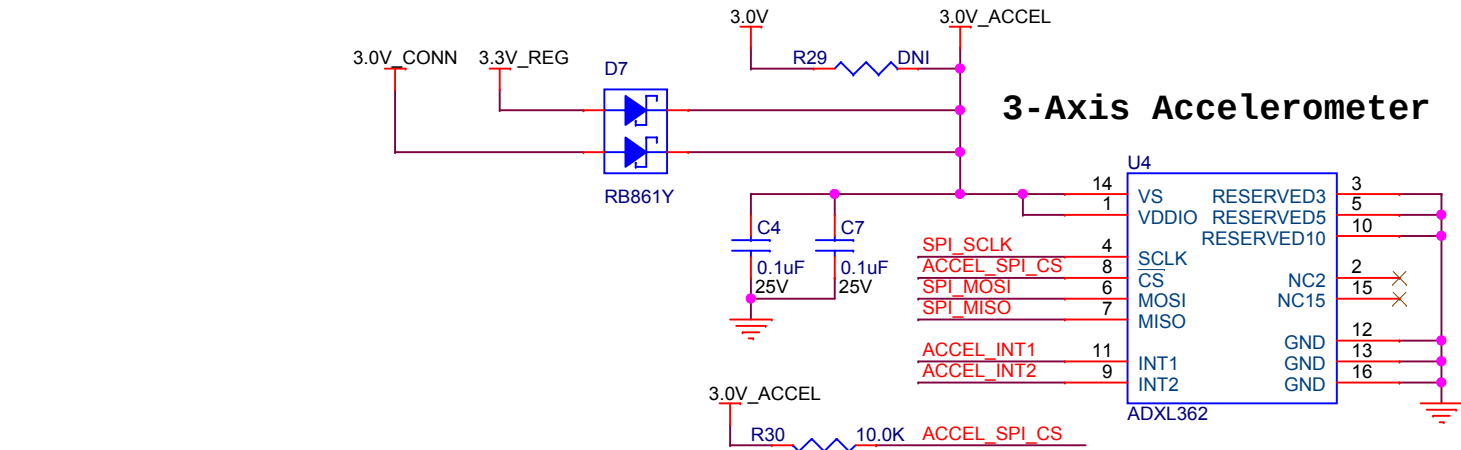
LED2 is only available in part numbers Si1142 & Si1143 or Si1146 & Si1147.
LED3 is only available in part number Si1143 or Si1147.
Tie to LED2/3 to VDD when populated with Si1141 or Si1145.

Si1147 Default - SENSE_PULSE_SEL = 0
Gesture functionality - 2 IR LEDs (SFH 4056-NQ) spaced as far away as possible. (D4 and D5)
HRM functionality - 1 IR LED (IR11-21C/TR8) (D6) placed as close as possible. (D3)

Si1147 Optional Control - SENSE_PULSE_SEL = 1
Pulse/Ox - 1 0805 RED LED (new LED, doesn't exist on Rev A) and 1 IrLED placed as close as possible to each other and to the sensor.



3-Axis Accelerometer



LAYOUT NOTE:
1. Capacitor placement
- Place 0.1uF near pin 14
- Place 0.1uF near pin 1

By default the BLE masters the ADI SPI. Populate 0-ohm resistor to allow the uController to master the ADI SPI.

Remove 0-ohm resistor to allow a device other than the accelerometer to be the slave on the SPI chain.



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