

Agilent PLXB Documentation

Purpose of Document:

The purpose of this document is to outline the program's deliverables, explain the functions utilized, and provide a diagram that details the program's process.

Program Deliverables:

- Initiate an ADC conversion
- Read back thermistor Zones THERM_Z1_TEMP, THERM_Z2_TEMP, THERM_Z3_TEMP, THERM_Z4_TEMP ADC values from the AD7265BC9Z
- Store ADC values from each Zone in their own buffer
- Provide a mean value for all the zones

Description of Functions:

- **init_adc()**: Sets spi pins high, and sets all multiplexer pin high since that configuration does not select a particular adc channel.
- **acd_spi_rx()**: Reads SPI data from the ADC over 14 clock cycles, capturing each bit on both the rising and falling edges of the clock.
- **select_adc_channel()**: takes in an integer and uses bit masks to each of the multiplexer pins.
- **read_zones()**: Reads and stores the adc data of the four zones sequentially while calculating the mean of each zone.

Pin State Table:

PIN	IDLE	ADC READ Z1	ADC READ Z2	ADC READ Z3	ADC READ Z4
TC_SPI_SCK	high	high / low	high / low	high / low	high / low
TC_SPI_MISO	3-state	high / low	high / low	high / low	high / low
TC_ADC_CS	high	low	low	low	low
TC_ADC_A0	high	low	high	low	high
TC_ADC_A1	high	low	low	high	high
TC_ADC_A2	high	low	low	low	low