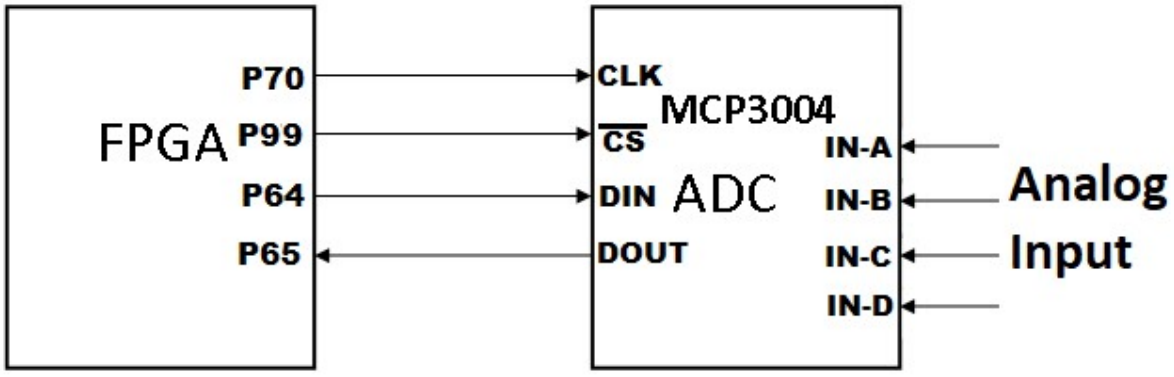
HOW TO TESE ADC

ADC Interface

The **SPARTAN6 STARTER KIT** includes an SPI ADC MCP3004. The ADC has 4 analog input channels. The channels are selected by setting the address pins of ADC. The analog input to all channels is given by external circuit through relimate pins. The other controlling signals of ADC are interfaced with FPGA board as shown in following figure. VREF is connected to 3.3V, **so analog voltage input rang of all channel is 0 to 3.3V.**



Interfacing of ADC with FPGA

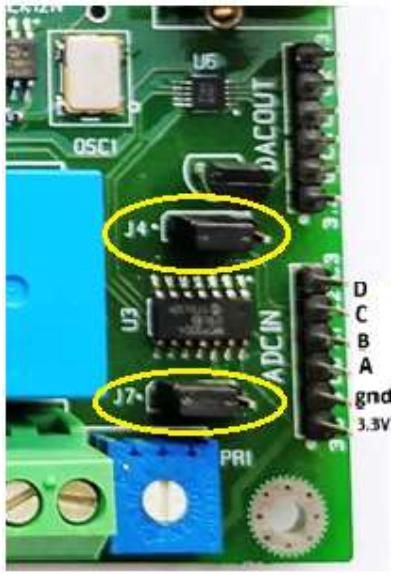
Pin assignment (UCF Location) for ADC:

Signal Name	LX 9
CLK	P70
CS	P99
DIN	P65
DOUT	P64

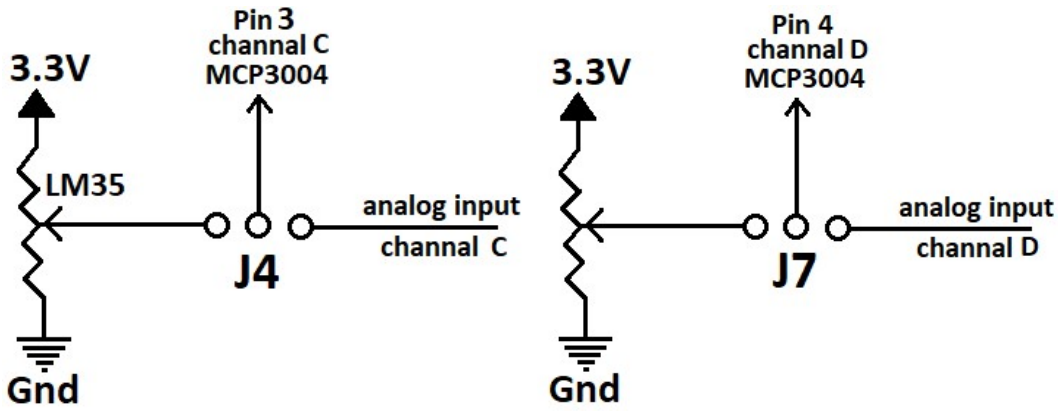
Program bit file from following path (all source code is also given)

https://github.com/fpgatechsolution/Spartan6-starter-kit/blob/master/adc_test.bit

Now as per following image J4 & J7 jumper connected, analog input given from temperature sensor lm35 and pot PR1 respectively

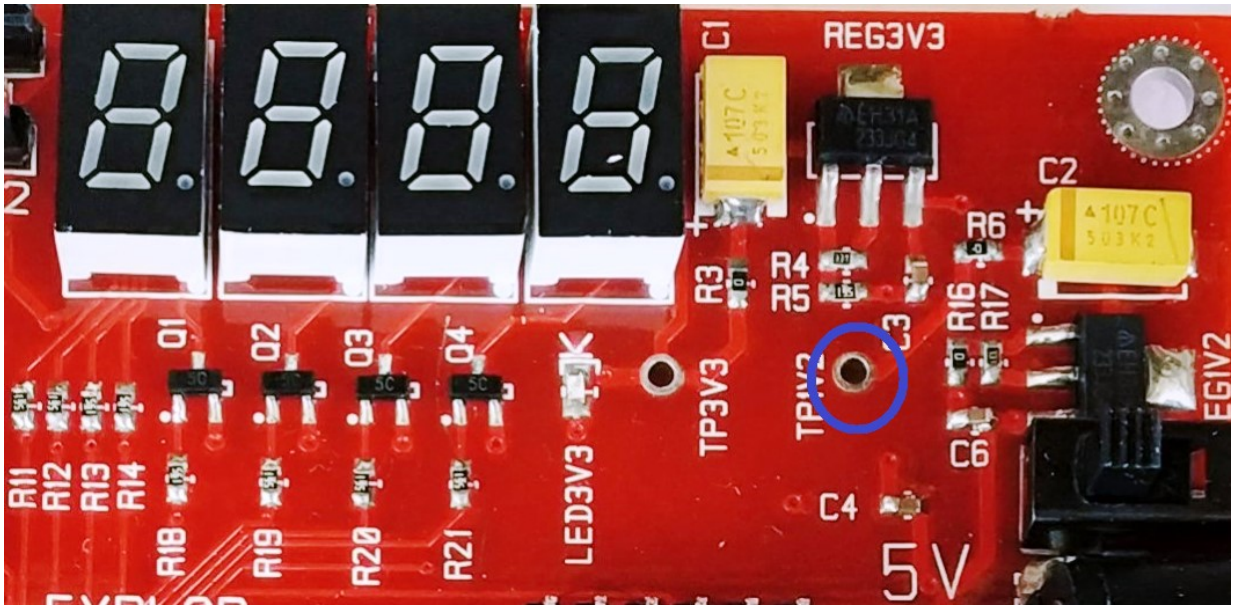


Please do not apply voltage more than 3.3v



Calculations for ADC output

ADC is 10bit, Vref is 3.3V for more accuracy check Vref as shown below



Now suppose Vref is 3.3V

As 10bit ADC max count is 1023

Voltage for one steep = Vref / 1023

Voltage for one steep = 0.00322

Now the see count that display on LCD as shown below

Input voltage at Ain-D =0.00322 X count on LCD