

Connect DAC & ADC
to 8085 via 8255

New kits

Connect DAC

- Connector – J3
- Port addresses: 10, 11, 12, 13
- Display output on CRO by sending data on Port-A
- Display a RAMP waveform
 - Output values in the range 00h-FFh one by one
- Display Triangular waveform
 - Output values 00-FFh and then FFh-00

Connect ADC

- Connector – J8
- Port addresses: 20, 21, 22, 23
- Read analogue input from two sources
 - Variable power supply: to channel-0
 - Output of function generator: to channel-1
- Display the converted value on the data field and also store it in successive memory locations
 - Keep separate data array for ch-0 and ch-1 inputs

ADC program flow

- Port-A channel select: output
- Port-B read converted data: input
- Port-CU: input
 - PC4=1 implies conversion complete
- Port-CL: output
 - PC2=1(0) enable(disable) oscillator
 - PC1: high-low pulse to start conversion
- Program flow
 - 1)Configure ports in mode-0 and I/O
 - 2)Select channel-0
 - 3)Enable oscillator
 - 4)Apply start pulse (high->low) keeping oscillator enabled
 - 5)Poll end of conversion
 - 6)Stop oscillator
 - 7)Read data
 - 8)Repeat from step-3

Combine ADC and DAC

- Read input from channel-0 using ADC
- Display this input on CRO using DAC

Old kits

Connect DAC

- Connector – J1
- Port addresses:
- Display output on CRO by sending data on Port-A
- Display a RAMP waveform
 - Output values in the range 00h-FFh one by one
- Display Triangular waveform
 - Output values 00-FFh and then FFh-00

Connect ADC

- Connector – J2
- Port addresses: 40, 41, 42, 43
- Read analogue input from two sources
 - Variable power supply: to channel-0
 - Output of function generator: to channel-1
- Display the converted value on the data field and also store it in successive memory locations
 - Keep separate data array for ch-0 and ch-1 inputs

ADC program flow

- Port-A channel select + controls: output
 - PA3-0 : channel select
 - PA5: start conversion
 - _ Initially low
 - _ To start send pulse high-low
 - PA6: send read signal
 - _ Initially low
 - _ To read send high to enable reading
 - _ After read make low to disable reading
- As port-A is used for channel as well as control, make sure to preserve the channel number each time you change the control on PA5
- Port-B read converted data: input
- Port-CL: PC0 for end-of conversion
 - Initially 1
 - Check if it becomes low
 - After it is low, check for high
- Program flow
 - 1)Configure ports in mode-0 and I/O
 - 2)Select channel-0
 - 3)Apply start pulse on PA5
 - 4)Poll end of conversion on PC0
 - 5)Assert read signal
 - 6)Read data
 - 7)Deassert read signal
 - 8)Repeat from step-3

Combine ADC and DAC

- Read input from channel-0 using ADC
- Display this input on CRO using DAC