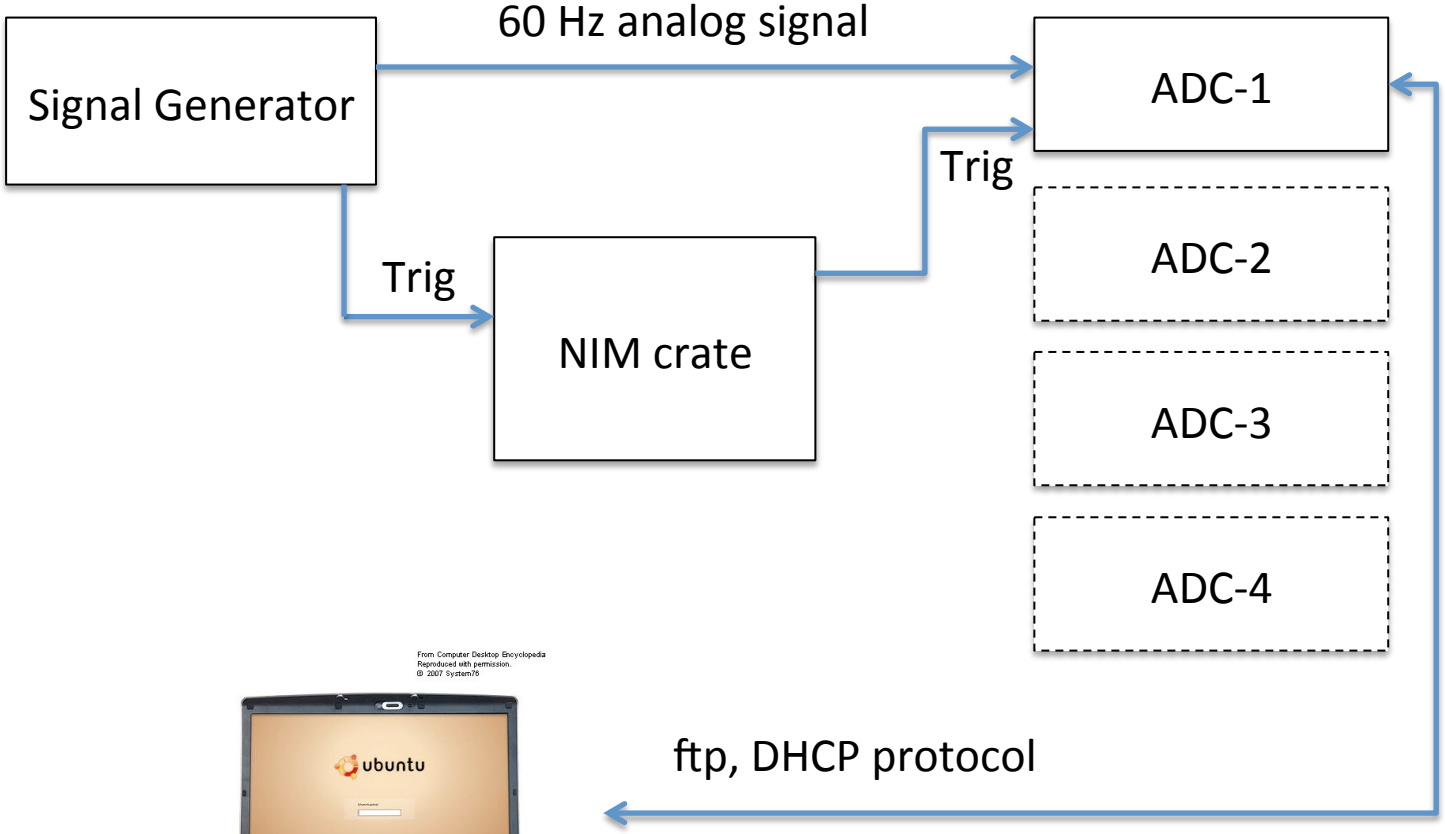
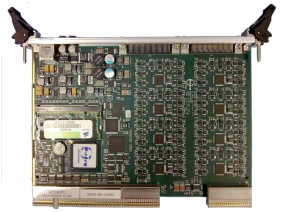
Current (Kabir's) DAQ test setup at Beamline-13





ACQ164CPCI Specs:
32/64 channels,
8 – 128 kHz Sample Rate,
24-bit resolution,
1GB memory

Current DAQ:
Kabir's laptop

Outstanding DAQ issues moving forward to January

Technical issues

1.) What would be the ADC Sampling rate (8 – 128 kHz)?

2.) Connection (network protocol) between ADCs and DAQ machines

3.) How many pulses per sequence ?

4.) How spin flipper signal is encoded into DAQ?

Equipment

1.) DAQ computer Architecture:
    a.) How many machines needed?
    b.) ORNL property vs. non-ORNL property?
    c.) System requirements for each machine

2.) Need new PC for testing right now to substitute Kabir's laptop. Perhaps, it makes sense to use the new PC for testing/setting up current DAQ setup and re-using it for the experiment when starts

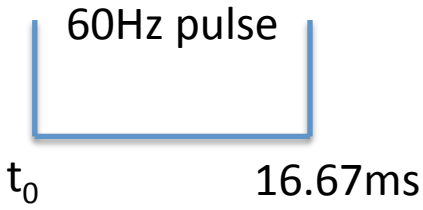
Exercise: a rough estimate of a potential data stream size

Input Assumptions:

1.) **60Hz** SNS pulse

2.) Assuming for starters **8 kHz** sampling rate per ADC ch.
(Current NPDGamma rate is ~ 2.4 KHz per ch. x 48 ADC ch.)

3.) **132** ADC channels x 24 bit



Rate per SNS pulse [Byte] = 132 x 3B x (1/60)/(1/8000) ~ **52 Kbytes per pulse**

Rate [Byte/s] = 52 KB / (16.67ms) ~ **3.045 MB/s**

For example, taking data with 128 KHz ADC sampling rate will result in ~**48.72 MB/s** rate