More A/D

$\Rightarrow$ more detail

- How the buffer works
- Interrupts
- Sequential Scanning

Last time —

Single Channel Scanning

→ manual scan, manual convert

→ timed scan, set the scan
period to be a number of Tad

→ automatic scan and convert.
Auto scan start, timed conversion
(ASAM bit)

Several ways to begin a conversion
Selected by setting the SSRC <2:> in ADICON1<7:5>

 4 - possibalites (for PIC24FJ64GA002)
 · clearing SAMP (default)
 · have a transition on the INTO pin
 · tmer 3 compare
 · internal counter (Tad based)

For PIC24F devices there are 6 possibalites

What about the Results Buffers?

See the data sheet for all the registers associated with A/D

These are all in SFR region of data memory

The results buffer has $\underline{\underline{16}}$ x word registers

After reset or an interrupt results are
put in ADC1BUF0 and the subsequent
buffers up to ADC1BUFF at which point
we return to ADC1BUF0 (and overwrite
what is there)

⟹ you need to read these
results before they are over
written

How much time?

Say Tad = 2 Tcy

Sample for 31 Tad ⎫
Convert for 12 Tad ⎭ 31 + 12 = 43

So 43 Tad = __86 Tcy__

For 1 buffer entry

Examples in section 17 of FRM

- single interrupt with ~~BUF~~ ADCIBUFO
- interrupt for ADCI BUFO → ADCIBUF3
  (interrupt after 4 results)
- interrupt after 4 results with the split buffer

Output Formats of the results placed
in the buffers are selectable (.ADICON1<7:5>)

Integer
Signed Integer
Fractional (1.15)
Signed Fractional (1.15)