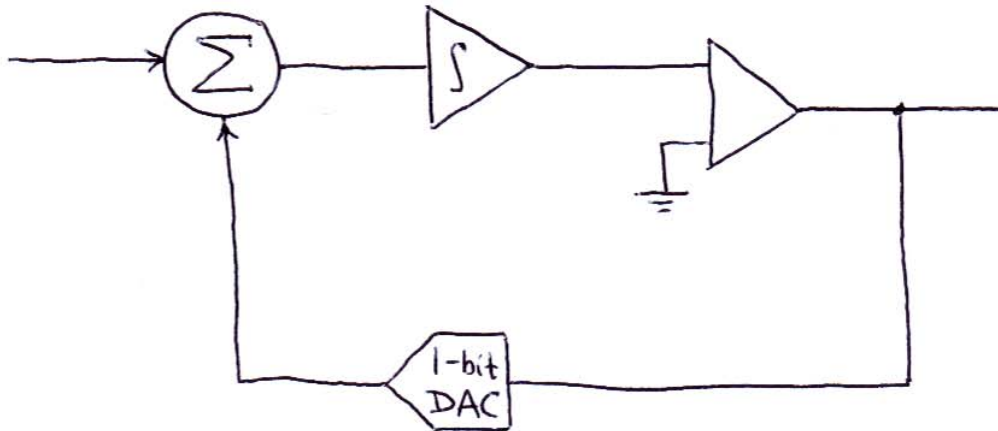


Lecture 38

 Σ - Δ modulator

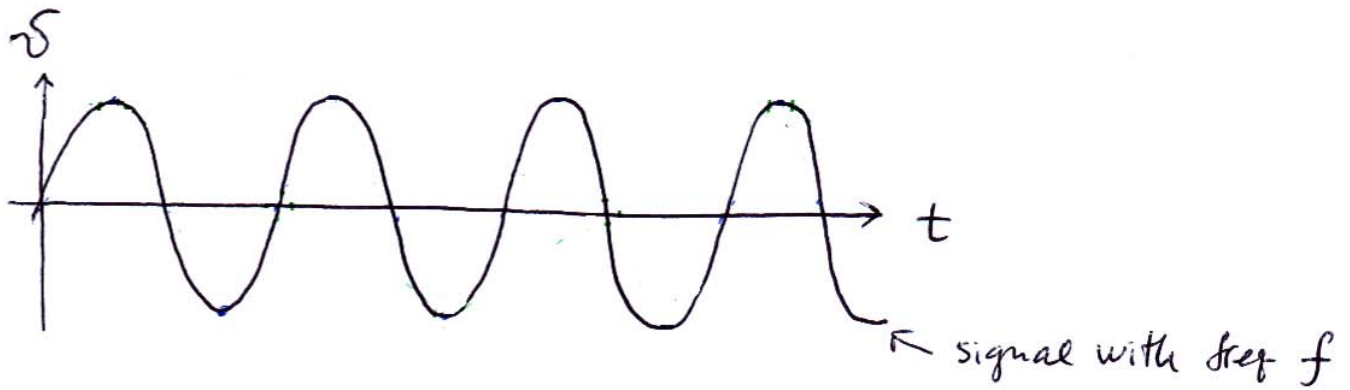
- Σ - Δ name
- unlike other ADC types,
- negative feedback theory:
- (parallel) binary output is obtained

Refer to the schematic

- op-amp #1
- op-amp #2
- op-amp #3

Nyquist sampling criterion & aliasing

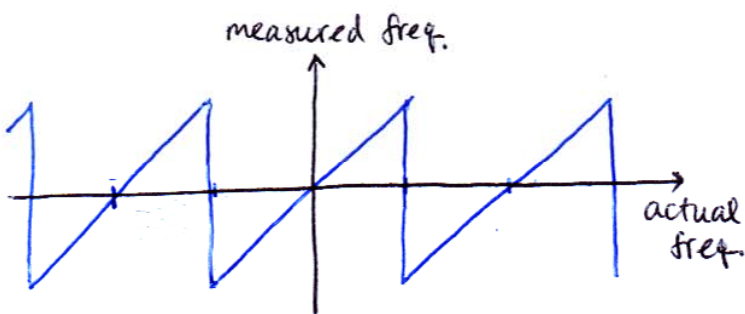
②



- if

- if

- if



Effect of conversion time (t_c) on resolution

$$v_m = v_o \sin(2\pi f t)$$

$$V_{p-p} = 2v_o$$

E.g. 8-bit ADC with $t_c = 10\mu s$ (100kHz)

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Sample & hold circuit

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General A/D converter layout

Digital scopes

Sampling

-

-

Real-time

-

-