ANALOG TO DIGITAL MULTIPLEXING

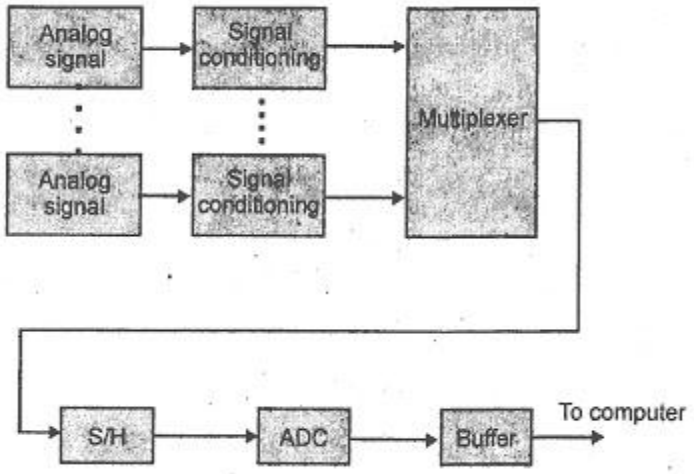
Multiplexing before A/D conversion with single S/H circuit

The multi-channel DAS has a single A/D converter preceded a multiplexer in analog to digital conversion, it is convenient to multiplex analog inputs rather than the digital output. There are three ways f analog to digital multiplexing as discussed below.

1).Multiplexing before A/D conversion with single S/H circuit.

2.) Multiplexing before A/D conversion with individual S/H circuit.

3). Multiplexing after A/D conversion.

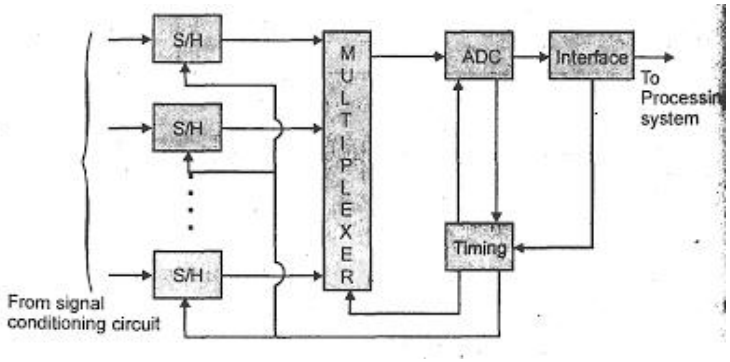


The individual analog signals are applied directly or after amplification and/or signal conditioning, whenever necessary to the multiplexer.

These are further converted to digital signals by the use of A/D converters sequentially. When the conversion is complete, the status line from converter causes the sample/hold to return to the sample mode. Acquires the signal of the next channel on completion of acquisition either immediately or upon command, the S/H is switched to hold mode, a conversion begins again and multiplexer selects next channel. This method is relatively slower than systems S/H outputs or even A/D converter outputs are multiplexed, t has the advantage of low cost due to sharing of a majority of a systems.

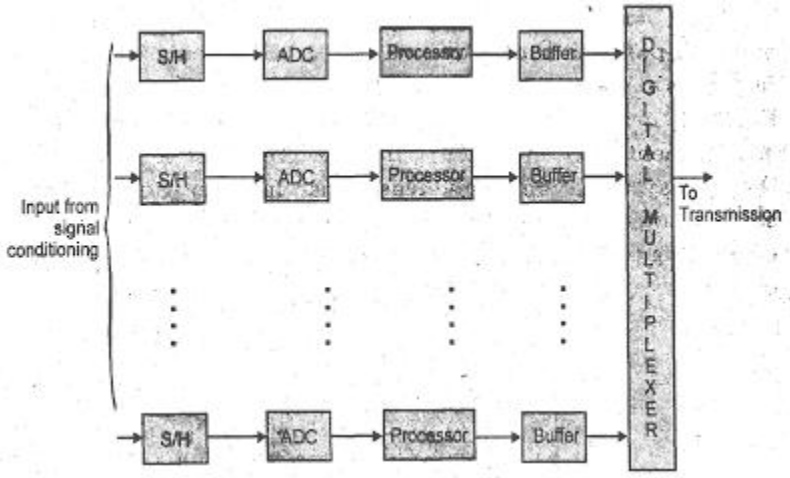
Multiplexing before A/D conversion with individual S/H

When a large number of channels are to be monitored at same time but at moderate speed, the technique of multiplexing outputs of S/H are particularly attractive. The simultaneous sampled system multiplexer. An individual S/H is assigned to each channel and is updated synchronously by a timing circuit. The S/H outputs connected to an A/D converter through a multiplexer, resulting in a sequential readout of the outputs.



Multiplexing after A/D conversion

The block diagram of the multichannel DAS using digital multiplexing .In this each analog input signal is given to an individual sample and hold circuit and A/D converter. This type of DAS is used in industrial data acquisition systems, where many strain gauges, thermocouples and LVDT are distributed over large plant area. The outputs of A/D converters are given to the digital multiplexer through the processor and buffer circuits.



Source: http://mediatoget.blogspot.in/2012/03/analog-to-digital-multiplexing.html