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 of 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, it 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](http://mediatoget.blogspot.in/2012/03/analog-to-digital-multiplexing.html)