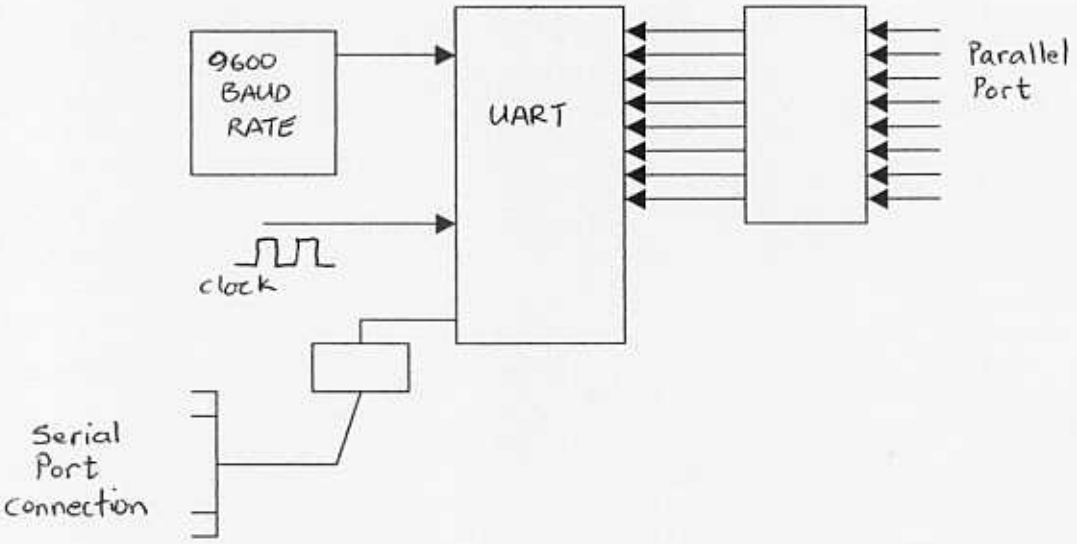


Circuitry of UART and serial port

Recently, I have digitized and transferred a square-wave signal, and a sinusoidal wave signal. Both of the digitized data were captured in the buffer and eventually saved on disc. They were also plotted to see if the result matched the signal on the scope. The digitization channels/period for the signals were also calculated and documented. The digitization and plot of the sinusoidal signal can be viewed on the following page.

There seems to be a minor problem in the transfer speed of the data. If the transfer is done at 9600 bits/second, then 16080 bits should be transferred in no more than 2 seconds. However, it takes about 20 seconds for the data transfer with sweep speed set at 2 seconds/div. I have also noticed that the waveform gets distorted when the sweep speed rate is any faster than 2 seconds/division. There is the speculation of fixing this problem with the use of parallel port connection; however, this problem was not fixed to time constraints.

Another thing that I participated in is the testing of the cables used in the project. The testing of the cables was done to measure the time it takes the signal to travel from one end of the cable and back. This had to be taken into the account of the length of the signals, when evaluating the signals from our photomultipliers. I also created a database for these cables, which is attached to this paper.