Program Counter, Instruction Decoder,
Address Decoder, Arithmetic Logic Unit,
Accumulator, Registers

Central Processing Unit

Main Memory

Bus

Random Access Memory,
Read-Only Memory,

Disk

I/o
CONTROLLER

I/O Bus

Printer

I/O Devices

With the understanding of how waveform digitizer work and how computers work, the next step of the project, the transfer of data from the waveform digitizer to the computer seemed more approachable. This transfer was done using a communication software program: CROSSTALK. The software allows the user to communicate with a computer and its recipient. I am most concerned with the capture function in the software. It allows the user to capture digitized signal in the capture buffer, from the computer, and possibly to a disc. Extensively, the CROSSTALK program simply makes possible, data exchange using programmed I/O; the digitized signal is being transferred through an IN/OUT statement in the software program. The DATA to be received or sent and ADDRESS of sender/receiver are put on respective bus lines by the CPU, and a strobe is also included to show state of data that is being transported, done also by the CPU. The transfer done at 9600-baud rate, meaning that every 8 bits are written at 9600 bits/second, while the time it takes to dump some 8 bits and pick up another 8 bits remains unknowns. Looking back at the waveform digitizer schematic, one see that once the plot switch is turned on, the serial port gets 8 bits from the RAM and writes it to the computer, the transfer rate of 9600 bits/second is the rate at which the serial port transfers the 8 bits to the computer, but as stated earlier, this says nothing about how long it takes the serial port to get another 8 bits. Below is a block diagram of the operations of the UART, with the conversion of 8 bits from the parallel port to the serial port.

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