ABSTRACT

This project involved the design of a 'RTU Logging Operation Unit' for each T&TEC Sub-station around the country. Its requirements are :

1. To create a method so as to maintain a continuous hard-copy log of all RTU transactions at a given site
    and

2. To use the device implemented to request data from the RTU in case of Modem failure.

The above configuration uses RS232C control lines which tap the lines between the CPU and Modem at the RTU sub-station. In the both cases above, operation should be transparent to normal RTU/host interaction.

The System Design includes the use of a single card (ARC-42) which contains a Micro-controller (Z8671) which has both a BASIC/Debug inter-preter and a machine language assembler. It offers faster execution, more efficient use of memory, a more sophisticated interrupt, input/output bit manipulation capabilities and easier system expansion.

There are two types of memory which exist in the Z8671. They are:

(i) an on-chip ROM (2K-byte) which contains on-chip registers and the BASIC/Debug interpreter.
     and

(ii) an external ROM or RAM which has an addressing capability of 62K-bytes.

The Z8671 Micro-computer has 32 I/O lines, a 144-byte register file, an on-board UART and two counter/timers.

The software modules which are required for this System Design are buffer handlers for serial input ports; in which the input ports use an Interrupt Service Routine handler for inserting data from the CPU and Modem. This data is placed in the main handler which obtains data from the CPU and Modem buffers and is serially printed via one of the Input/Output ports. The solution proposed, took into account cost and task performance.

Including the printer, this option costs approximately $500 - $700 US, as opposed to a STE rack system which costs approximately $2,000 US.