Bull Gamma 10 memories

Written by Administrator
Sunday, 04 January 2009 16:16 - Last Updated Sunday, 04 January 2009 17:11

The gamma 10 computer has 3 types of core memory. One "burst" memory of 40 words of 7 bits, two peripheral memories of 4 x 42 x 7 bits, and one main memory of 1K, 2K, or 4K x 7 bits. The presence of so many different types of memory, suggests that the machine is constructed by combining previously designed systems.

Here is the peripheral memory:
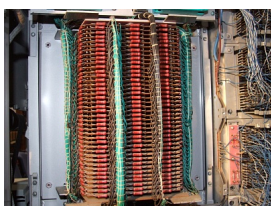
The memory is built out of 40 boards with thje 7 bits each. Readout wires run multiple loops around the core. This boosts the readout signal, and probably alllows reading this memory at a higher speed then the other ones:
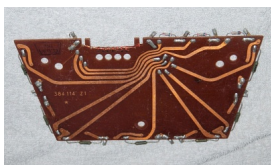
Next is the peripheral memory, it contains of two metal boxes that use connectors to allow them to be removed :
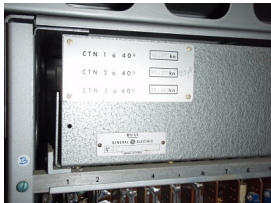
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Inside the metal box is a rack with 6 boards: three memory boards of 42 x 7 bits and three transformer array boards that drive the memory selection lines. Also in this memory,selection, readout and the inhibit lines are threaded multiple times through the cores to boost the signals.

The main memory is much larger and has single wires running through the cores. The stack is 4K by 7 bits, and is constructed by waeving all cores onlong wires, and then folding the large stack in 7 planes. Special about this memory is that it is in a temparature controlled environmemt. Interleaved with the core stacks are heater planes and NTC resistors. The entire stack is stored in a box, enclosed by thermal insulation, and the core box is again stored in a larger metal box with insulation around it. The core memory is kept at a constant temparature of 40 degrees celsius. At startup of the computer, about 10 minutes is required before this temparature is reached.

The memory itself look like this (the metal housing contains one of the shown stacks):

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I still have to make pictures of the inside parts.

The drive electronics contains little transformers such that the switching transistors are isolated and the same circuit can be used both for positive and negative drive pulses. The placement of the diodes and power resistors allows configuring the boards for different applications.