The arithmetic section of the processor consists of two 32-word by 16-bit register files R and S, and five registers, T, L, M, MAR, and IR. The registers are connected to the memory and to an ALU with a 16-bit parallel bus.

The ALU is a SN74181 type, restricted so that it can do only 16 arithmetic and logical functions. The ALU output feeds the L, M, and MAR registers. T may also be loaded from the ALU output under certain conditions. L is connected to a shifter capable of left and right shifts by one place, and cycles of 8. It has a mode in which it does the peculiar 17-bit shifts of the standard instruction set, and a mode which allows double-length shifts to be done.

The IR register is used by the emulator to hold the current emulated instruction.