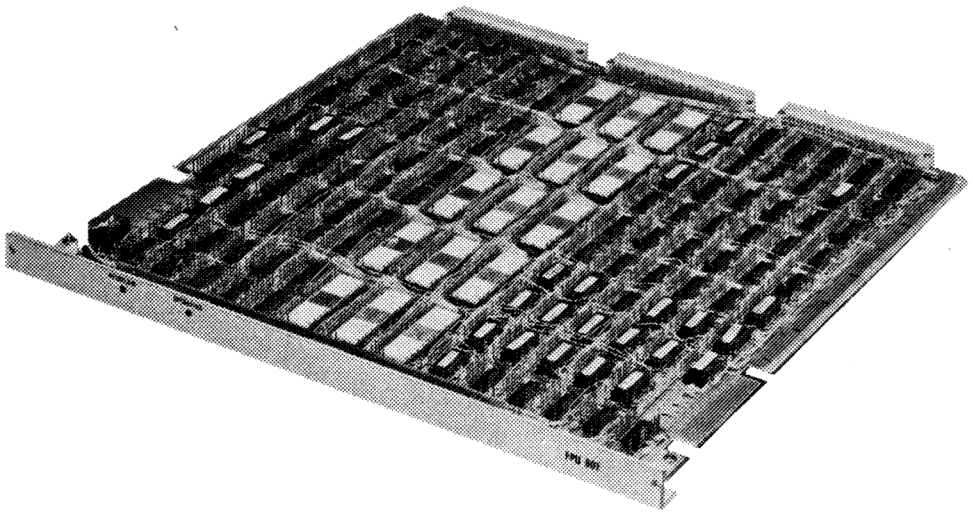
RC 8051

Floating-Point Processor

- INCREASED CALCULATION SPEED
- FULL SCALE FLOATING-POINT ARITHMETICAL OPERATIONS
- MULTIPLICATION & DIVISION BY HARDWIRED CONCEPT
- MICROPROGRAMMED CONTROLS
- CONNECTED TO CPU BUS



GENERAL

The RC 8051 floating-point processor offers an increased speed in processing arithmetical operations. Floating-point instructions and integer multiplication instructions are executed by the floating-point unit by means of hardwired features and microprogrammed controls. The transfers of operands and results between the floating-point processor and the central processing unit take place via the cpu bus. This technique allows the RC 8051 floating-point processor to be adapted to an RC 8000 central processing unit whenever it is convinient.

CHARACTERISTICS

All of the floating-point arithmetical operations are covered by the instruction set of the floating-point processor: addition (FA), subtraction (FS), multiplication (FM) and division (FD) - furthermore integer multiplication (WM) is included.

Multiplications are based on a hardwired concept, thus enhancing the execution speed exceedingly. Divisions are based on the same concept. Divisions use a 10-bit reciprocal table for initial look-up, succeeded by a number of iterative multiplications. Addition and subtraction, calculation of exponent, normalising and rounding-off are controlled by the microprogram, which uses a 40-bit deep arithmetic-logic-unit including registers for keeping track of the intermediate results.

SPECIFICATIONS

Instruction exec. time:	RC 8000-35 S	RC 8000-45 S
FA, FS	10.8 μs	8.0 μs
FM	10.2 μs	7.4 μs
FD	13.4 μs	10.6 μs
WM	7.6 μs	4.3 μs
Micro instr. exec. time:	160 μs	
Micro instr. word length:	48 bits	
Control memory, size:	256 words, 48 bits each	
Evironmental spec.:	Equal to central processing system	
Mounting:	Occupies 1 slot in CPU chassis	