

# 1900 Series

## Characteristics of central processors

		1902	1903	1904	1905	1906	1907	1909
Core store cycle time (micro-seconds)		6	2	2	2	1.1 or 2.1 up to 1.25 or 2.25 average for largest core store	1.1 or 2.1 1.25 or 2.25	6
Core store size—words*		4,096 8,192 16,384	8,192 16,384 32,768	8,192 16,384 32,768	8,192 16,384 32,768	32,768 by 32,768 to 262,144	32,768 by 32,768 to 262,144	16,384 32,768
Data channels (maxima)								
	slow	—	—	18	18	18	18	18
	fast	—	—	5	5	any number as required		5
	general	8	8	—	—	—	—	—
Arithmetic times:		(At average 1.25 $\mu$ s cycle time)						
Fixed point								
	add/subtract	18 $\mu$ s	7 $\mu$ s	7 $\mu$ s	7 $\mu$ s	2.5 $\mu$ s	2.5 $\mu$ s	18 $\mu$ s
	multiply	1.5 ms (average)	650 $\mu$ s (average)	40 $\mu$ s	40 $\mu$ s	11.25 $\mu$ s	11.25 $\mu$ s	67 $\mu$ s
	divide	2.3 ms (average)	900 $\mu$ s (average)	44 $\mu$ s	44 $\mu$ s	18 $\mu$ s	18 $\mu$ s	71 $\mu$ s
	jump	13 $\mu$ s	5 $\mu$ s	5 $\mu$ s	5 $\mu$ s	2.5 $\mu$ s	2.5 $\mu$ s	13 $\mu$ s
Floating point								
	add/subtract	1.15 ms	475 $\mu$ s	111 $\mu$ s	13 $\mu$ s	25 $\mu$ s	2.75 $\mu$ s	21 $\mu$ s
	load	—	—	—	6 $\mu$ s	6.25 $\mu$ s	2.5 $\mu$ s	18 $\mu$ s
	store	—	—	—	8 $\mu$ s	6.25 $\mu$ s	2.5 $\mu$ s	18 $\mu$ s
	multiply	5.25 ms	2.25 ms	285 $\mu$ s	29 $\mu$ s	60 $\mu$ s	7.75 $\mu$ s	37 $\mu$ s
	divide	9.6 ms	3.85 ms	316 $\mu$ s	51 $\mu$ s	65 $\mu$ s	16.75 $\mu$ s	59 $\mu$ s
Address modification †		6 $\mu$ s	2 $\mu$ s	2 $\mu$ s	2 $\mu$ s	1.25 $\mu$ s	1.25 $\mu$ s	6 $\mu$ s
Scalar product loop $x' = x + a; b;$		6.5 ms	2.8 ms	435 $\mu$ s	60 $\mu$ s	103.75 $\mu$ s	20.25 $\mu$ s	112 $\mu$ s
Polynomial loop $x' = x(x + a);$		6.4 ms	2.7 ms	403 $\mu$ s	42 $\mu$ s	88.75 $\mu$ s	10.5 $\mu$ s	58 $\mu$ s
Speed ratio for performing typical scientific calculations based on the above loop times		1	2.3	15	126	67	420	76
Number of time-shared programs each with sub-programs		1 2	1 2	4 2	4 2	16 3	16 3	4 2

ms = milliseconds

$\mu$ s = microseconds

\*Word length.

Fixed point: 24 binary digits—four alpha-numeric characters.

Floating point: Argument 37 bits plus sign.

Exponent 8 bits plus sign.

†1905, 1907 and 1909 processors incorporate floating point unit.

Address modification of most floating point instructions takes no extra time due to overlapping of instructions.