

Operation

Complex Arithmetic (Cartesian)

$$y_r + jy_j = (x_{r_1} + jx_{j_1}) * (x_{r_2} + jx_{j_2})$$

CAC

Use

a) Calling Linkage

L : 100 B L+2 3ff 35f
 L+1: / 5 / / CAC
 L+2: k x_{r1} x_{r2} y_r β

k	*	Operations
0	+	ADD
1	-	SUB
2	x	MUL
3	÷	DIV

b) Adaptation Link Word

L+2: 02b 1wL 02a B

c) Storage

j = 43 words.
 k = 42 orders
1 constants
6 opstos: 35a to 35f

~~x_{j1} in memory in position following x_{r1}. Likewise for x_{j2} follows x_{r2} y_j follows y_r~~

Requirements and Performance

a) Method of operation See back.

b) Additional routines required None

c) Range and form of variable Floating normalized
 x_{j1} must be in location following x_{r1} - same for x_{j2} & y_j

d) Accuracy Normal floating point accuracy

e) Performance time 750ms for addition
 1.1 sec for division

ADD

$$y = x_1 + x_2$$

$$y_r = x_{r1} + x_{r2}$$

$$y_j = x_{j1} + x_{j2}$$

SUB

$$y = x_1 - x_2$$

$$y_r = x_{r1} - x_{r2}$$

$$y_j = x_{j1} - x_{j2}$$

MUL

$$y = x_1 \cdot x_2$$

$$y_r = (x_{r1} x_{r2} - x_{j1} x_{j2})$$

$$y_j = (x_{r1} x_{j2} + x_{r2} x_{j1})$$

DIV

$$y = x_1 \div x_2$$

$$y_r = \frac{x_{r1} x_{r2} - x_{j1} x_{j2}}{x_{r2}^2 + x_{j2}^2}$$

$$y_j = \frac{x_{r1} x_{j2} + x_{r2} x_{j1}}{x_{r2}^2 + x_{j2}^2}$$