ALU

✶ Operación de la ALU 74181 en lógica positiva (TABLE I) y negativa (TABLE II)

TABLE I

SELECTION S_3 S_2 S_1 S_0	ACTIVE-HIGH DATA		
	M = H LOGIC FUNCTIONS	M = L : ARITHMETICH OPERATIONS	
		$C_n = 0$ $\overline{C_n} = 1 = H$	$C_n = 1$ $\overline{C_n} = 0 = L$
L L L L	$F = \overline{A}$	F = A	F = A PLUS 1
L L L H	$F = \overline{A + B}$	F = A + B	F = (A + B) PLUS 1
L L H L	$F = \overline{A}B$	$F = A + \overline{B}$	$F = (A + \overline{B})$ PLUS 1
L L H H	F = 0	F = MINUS 1 (2´s COMPL)	F = ZERO
L H L L	$F = \overline{AB}$	$F = A$ PLUS $A\overline{B}$	$F = A$ PLUS $A\overline{B}$ PLUS 1
L H L H	$F = \overline{B}$	$F = (A + B)$ PLUS $A\overline{B}$	$F = (A + B)$ PLUS $A\overline{B}$ PLUS 1
L H H L	$F = A \oplus B$	F = A MINUS B MINUS 1	F = A MINUS B
L H H H	$F = A\overline{B}$	$F = A\overline{B}$ MINUS 1	$F = A\overline{B}$
H L L L	$F = \overline{A} + B$	F = A PLUS AB	F = A PLUS AB PLUS 1
H L L H	$F = \overline{A \oplus B}$	F = A PLUS B	F = A PLUS B PLUS 1
H L H L	F = B	$F = (A + \overline{B})$ PLUS AB	$F = (A + \overline{B})$ PLUS AB PLUS 1
H L H H	F = AB	F = AB MINUS 1	F = AB
H H L L	F = 1	F = A PLUS A*	F = A PLUS A PLUS 1
H H L H	$F = A + \overline{B}$	$F = (A + B)$ PLUS A	$F = (A + B)$ PLUS A PLUS 1
H H H L	F = A + B	$F = (A + \overline{B})$ PLUS A	$F = (A + \overline{B})$ PLUS A PLUS 1
H H H H	F = A	F = A MINUS 1	F = A

* Each bit is shifted to the next more significant position.

TABLE II

SELECTION S_3 S_2 S_1 S_0	ACTIVE-LOW DATA		
	M = H LOGIC FUNCTIONS	M = L : ARITHMETICH OPERATIONS	
		$\overline{C_n} = 0$ $C_n = 1 = L$	$\overline{C_n} = 1$ $C_n = 0 = H$
L L L L	$F = \overline{A}$	F = A MINUS 1	F = A
L L L H	$F = \overline{AB}$	F = AB MINUS 1	F = AB
L L H L	$F = \overline{A} + B$	$F = A\overline{B}$ MINUS 1	$F = A\overline{B}$
L L H H	F = 1	F = MINUS 1 (2´s COMPL)	F = ZERO
L H L L	$F = \overline{A + B}$	$F = A$ PLUS $(A + \overline{B})$	$F = A$ PLUS $(A + \overline{B})$ PLUS 1
L H L H	$F = \overline{B}$	F = AB PLUS $(A + \overline{B})$	F = AB PLUS $(A + \overline{B})$ PLUS 1
L H H L	$F = \overline{A \oplus B}$	F = A MINUS B MINUS 1	F = A MINUS B
L H H H	$F = A + \overline{B}$	$F = A + \overline{B}$	$F = (A + \overline{B})$ PLUS 1
H L L L	$F = \overline{A}B$	F = A PLUS (A + B)	F = A PLUS (A + B) PLUS 1
H L L H	$F = A \oplus B$	F = A PLUS B	F = A PLUS B PLUS 1
H L H L	F = B	$F = A\overline{B}$ PLUS (A + B)	$F = A\overline{B}$ PLUS (A + B) PLUS 1
H L H H	F = A + B	F = A + B	F = (A + B) PLUS 1
H H L L	F = 0	F = A PLUS A*	F = A PLUS A PLUS 1
H H L H	$F = A\overline{B}$	F = AB PLUS A	F = AB PLUS A PLUS 1
H H H L	F = AB	$F = A\overline{B}$ PLUS A	$F = A\overline{B}$ PLUS A PLUS 1
H H H H	F = A	F = A	F = A PLUS 1