

ADDERS

MC4328 thru MC4331
MC4028 thru MC4031

CONDENSED TRUTH TABLE FOR THE Nth STAGE

		Pin Numbers								
8	9	11	12,13	13,14,1	5	6	7	7	Comment	
A_n	B_n	$C_{in1(n-1)}$	Note 1	Note 2	Sum	\oplus_{out}	MC4330/4030 MC4331/4031 C_{out}	MC4328/4028 MC4329/4029 C_{out}	Note 3	
0	0	0	0	0	0	0	0	0	-	
0	0	0	0	1	1	1	0	0	-	
0	0	0	1	0	1	0	0	0	ϕ	
0	0	0	1	1	1	1	0	0	ϕ	
0	0	1	0	0	0	0	0	0	ϕ	
0	0	1	0	1	1	1	0	0	ϕ	
0	0	1	1	0	0	0	0	0	ϕ	
0	0	1	1	1	1	1	0	0	ϕ	
0	1	0	0	0	0	1	0	0	-	
0	1	0	0	1	1	0	0	1	-	
0	1	0	1	0	0	1	0	1	ϕ	
0	1	0	1	1	0	0	0	1	ϕ	
0	1	1	0	0	0	1	0	0	-	
0	1	1	0	1	1	0	0	1	ϕ	
0	1	1	1	0	0	1	0	1	ϕ	
0	1	1	1	1	1	0	0	1	ϕ	
1	0	0	0	0	0	1	0	0	-	
1	0	0	0	1	1	0	0	1	ϕ	
1	0	0	1	0	0	1	0	1	ϕ	
1	0	0	1	1	0	0	0	1	ϕ	
1	0	1	0	0	0	1	0	0	-	
1	0	1	0	1	1	0	0	1	ϕ	
1	0	1	1	0	0	1	0	1	ϕ	
1	0	1	1	1	1	0	0	1	ϕ	
1	1	0	0	0	0	1	1	1	-	
1	1	0	0	1	1	0	1	1	ϕ	
1	1	0	1	0	0	1	1	1	ϕ	
1	1	0	1	1	1	0	1	1	ϕ	
1	1	1	0	0	0	1	1	1	-	
1	1	1	0	1	1	0	1	1	ϕ	
1	1	1	1	0	0	1	1	1	ϕ	
1	1	1	1	1	1	0	1	1	ϕ	

Note 1 This column represents the AND function whose inputs are pins 13 and 12, and is defined by the expression $(A_n + \oplus_{in1}) \oplus B_n \oplus C_{in1(n-1)}$

Note 2 This column represents the AND function whose inputs are pins 13, 14, and 1, and is defined by the expression $(A_n + \oplus_{in1}) \oplus B_n \oplus C_{in1(n-1)}$

Note 3 ϕ "Don't Care". The "Don't Care" occurs for the MC4330/31/4030/31 only, because the C_{in1} and the \oplus_{in1} from any one previous stage entering a given subsequent stage cannot be simultaneously at logic "1"

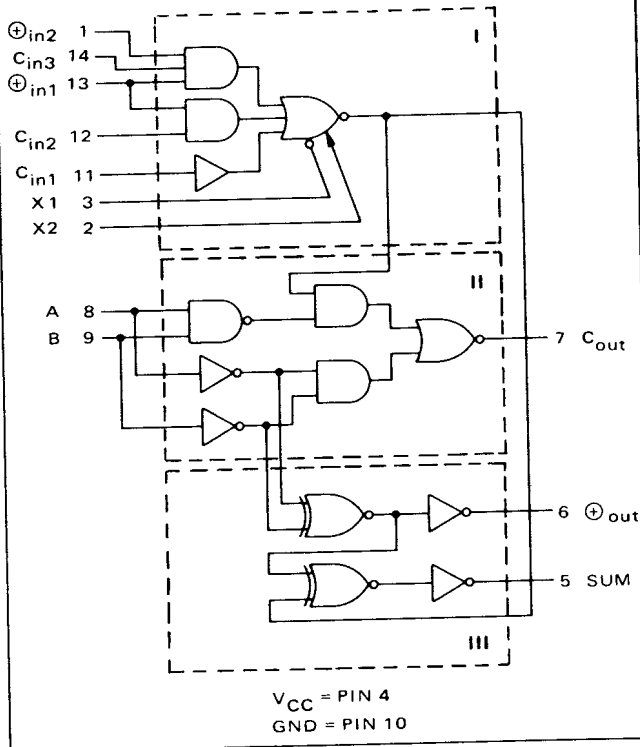
This family of fast adders is designed for use in parallel look-ahead carry adder applications where high-speed addition is required. The dependent-carry fast adders have a Carry output that is dependent upon the two input bits for that stage plus the Carry input from all previous stages. The Carry output from the MC4330/31 is independent of the carry from the previous stages.

Input Loading Factor:
 \oplus_{in1} , A, B = 2
 \oplus_{in2} , C_{in1} , C_{in2} , C_{in3} = 1

Output Loading Factor:
 MC4328, MC4330 = 15 MTTL I Loads
 MC4329, MC4331 = 7 MTTL I Loads
 MC4028, MC4030 = 12 MTTL I Loads
 MC4029, MC4031 = 6 MTTL I Loads

Total Power Dissipation = 125 mW typ/pkg
 Add Delay = 25 ns typ
 Carry Delay = 13 ns typ

DEPENDENT-CARRY FAST ADDER
MC4328/4028, MC4329/4029



INDEPENDENT-CARRY FAST ADDER
MC4330/4030, MC4331/4031

