**ADDITION BINAIRE**

R2 R1 R0

A3 A2 A1 A0

+ B3 B2 B1 B0

R3 S3 S2 S1 S0

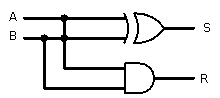
**DEMI ADDITIONNEUR**

| A | B | S | R |
| --- | --- | --- | --- |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 1 |
| 0 | 1 | 1 | 0 |
| 0 | 0 | 0 | 0 |



fonction **S(A, B)** = A . !B + !A . B = A ⊕ B

fonction **R(A, B)** = A . B



**ADDITIONNEUR COMPLET**

| An | Bn | Rn-1 | S | R |
| --- | --- | --- | --- | --- |
| 1 | 1 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 1 |
| 1 | 0 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 | 1 |
| 0 | 1 | 0 | 1 | 0 |
| 0 | 1 | 1 | 0 | 1 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 | 0 |



fonction **S(An, Bn, Rn-1)**

=!An . !Bn . Rn-1 + !An . Bn . !Rn-1 + An . !Bn . !Rn-1 + An . Bn . Rn-1

= !An ( !Bn . Rn-1 + Bn . !Rn-1 ) + An ( !Bn . !Rn-1 + Bn . Rn-1 )

= !An ( Bn ⊕ Rn-1 ) + An !( Bn ⊕ Rn-1 )

= An ⊕ Bn ⊕ Rn-1

fonction **R(An, Bn, Rn-1)**

= An . Bn . !Rn-1 + An . Bn . Rn-1 + An . !Bn . Rn-1 + !An . Bn . Rn-1

= An . Bn ( !Rn-1 + Rn-1 ) + Rn-1 ( An . !Bn + !An . Bn )

= An . Bn + Rn-1 ( An ⊕ Bn )



**MULTIPLEXEUR 2**

| A | B | C | S |
| --- | --- | --- | --- |
| 1 | 1 | 1 | 1 |
| 1 | 1 | 0 | 1 |
| 1 | 0 | 1 | 1 |
| 1 | 0 | 0 | 0 |
| 0 | 1 | 1 | 0 |
| 0 | 1 | 0 | 1 |
| 0 | 0 | 1 | 0 |
| 0 | 0 | 0 | 0 |



fonction **S(A, B, C)**

= A . B .C + A . B . !C + A . !B .C + !A . B . !C

= A . C ( !B + B) + B ( A . !C + !A . !C)

= A . C + B ( !C ( A + !A ))

= A . C + B . !C

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