
Sequential adder

X09271_en

Design a circuit that calculates the addition of two numbers sequentially. The circuit has two inputs, a and b that provide one binary digit at each cycle (starting from the least-significant bits). At each cycle, the circuit produces a binary digit of the addition.

Here is an example of a sequence of cycles (note that time moves from right to left):

```
cycle:    ... 7 6 5 4 3 2 1 0
-----
a:        ... 1 0 0 1 1 0 1 0
b:        ... 0 0 0 1 0 1 1 1
-----
sum:      ... 1 0 1 1 0 0 0 1
```

Specification

```
module sequential_adder (a, b, sum, clk, rst);
    input a, b, clk, rst;
    output sum;
```

Input

- a and b are the two sequential inputs.
- clk is the clock signal.
- rst is the reset signal.

Output

- sum generates the addition of a and b sequentially.

Problem information

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