n-bit adder **X84292_en**

Design a circuit that performs the addition of two n-bit numbers. The result must be represented in n bits also. The number of bits n must be a parameter of the module.

Specification

module *adder* (*a*, *b*, *cin*, *sum*, *cout*);
    parameter N=16;
    input [N−1:0] *a*, *b*;
    input *cin*;
    output [N−1:0] *sum*;
    output *cout*;

Hint

You may want to use several instances of a 1-bit full adder.

Input

- a and b are the two n-bit numbers.
- *cin* is the input carry.

Output

- *sum* is the n-bit output representing $(a + b) \bmod 2^n$.
- *cout* is the output carry.

Problem information

Author: Jordi Cortadella

Generation: 2026-07-14T06:42:40.949Z

© *Jutge.org*, 2006–2026.
https://jutge.org