n-bit adder/subtractor X89356_en

Design a circuit that performs the addition or subtraction of two n-bit numbers. The result (mod 2^n) must be represented in n bits also. The circuit has an input (*op*) that indicates which operation must be performed (0 for addition, 1 for subtraction).
The number of bits must be a parameter of the module, with a default value as shown in the specification.

Specification

```
module add_sub (a, b, op, result );
    parameter N=16;
    input [N-1:0] a, b;
    input op;
    output [N-1:0] result;
```

Input

- *a* and *b* are the two n-bit operands.
- *op* indicates the type of operation (0 for addition, 1 for subtraction).

Output

- *result* is the n-bit result of the operation (mod 2^n).

Problem information

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