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## ***n*-bit incrementer**

**X41839\_en**

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Design a circuit that receives an  $n$ -bit number and produces the same number increased by one unit (mod  $2^n$ ). The number of bits must be a parameter of the module, with the default value as shown in the specification.

### **Specification**

```
module incr(in, out);  
    parameter N=16;  
    input [N-1:0] in;  
    output [N-1:0] out;
```

### **Input**

- *in* represents the  $n$ -bit input number.

### **Output**

- *out* represents the  $n$ -bit output number.

### **Problem information**

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