

# NEXT GREATER POWER OF 2

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Given an unsigned int  $n$ , find the integer greater than or equal to  $n$  which is a power of 2. For example:

Input	Output
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6	8
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12	16
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64	64
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## Answer:

The power of 2 will only have one bit set in its binary representation. We just have to find a number greater than  $n$  with only one bit set in its binary representation.

we can find so by right-shifting '1' till it becomes greater than  $n$ .

if  $n = 6$  (110)

1 < 110
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10 < 110

100 < 110

1000 > 110

Hence 1000, or 8 is the answer (which is greater than 110 or 6).

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1  unsigned int nextPowerOfTwo(unsigned int n)
2  {
3      unsigned int result = 1;
4
5      // If n is a power of 2 then return n itself
6      if (n && !(n & (n - 1)))
7          return n;
8
9      while (result < n)
10         result <<= 1;
11
12     return result;
13 }
```

Source: <http://www.ritambhara.in/next-greater-power-of-2/>