

Binary prefixes

In December 1998, the International Electrotechnical Commission (IEC) approved names and symbols for prefixes for binary multiples for use in the fields of data storage, processing and transmission.

Contents: [Binary prefix calculator](#) and [Binary prefix table](#).

Binary prefix conversion calculator:

(available on <http://conversion.org/binary-prefixes.php>)

prefixes with **red** background are not binary prefixes, they are here just for comparison.

Binary prefix table

Binary prefix table contains 6 prefixes for binary multiples:

Name	Symbol	Factor
(base)	-	$2^0 = 1$
kibi	Ki	$2^{10} = 1024^1$
mebi	Mi	$2^{20} = 1024^2$
gibi	Gi	$2^{30} = 1024^3$
tebi	Ti	$2^{40} = 1024^4$
pebi	Pi	$2^{50} = 1024^5$
exbi	Ei	$2^{60} = 1024^6$

Comparison of binary- and SI prefixes:

B = Byte (= 8 bit)

one **kibibit** = 1 **Kibit** = 2^{10} bit = 1024 bit

one kilobit = 1 kbit = 10^3 bit = 1000 bit

one **mebibyte** = 1 **MiB** = 2^{20} B = 1 048 576 B

one megabyte = 1 MB = 10^6 B = 1 000 000 B

one **gibibyte** = 1 **GiB** = 2^{30} B = 1 073 741 824 B

one gigabyte = 1 GB = 10^9 B = 1 000 000 000 B

Lines with **green** background have binary prefixes.

Notice: See also [SI prefixes](#).

Source: NIST.gov - binary prefixes. (retrieved 2017-04-19)

More info: <https://en.wikipedia.org/wiki/Byte>

Prefixes for multiples of <u>bits</u> (bit) or bytes (B)				
Decimal		Binary		
Value	SI	Value	IEC	JEDEC
1000	k kilo	1024	Ki kibi	K kilo
1000 ²	M mega	1024 ²	Mi mebi	M mega
1000 ³	G giga	1024 ³	Gi gibi	G giga
1000 ⁴	T tera	1024 ⁴	Ti tebi	–
1000 ⁵	P peta	1024 ⁵	Pi pebi	–
1000 ⁶	E exa	1024 ⁶	Ei exbi	–
1000 ⁷	Z zetta	1024 ⁷	Zi zebi	–
1000 ⁸	Y yotta	1024 ⁸	Yi yobi	–