

How much is 1 byte, kilobyte, megabyte, gigabyte, etc.?

Updated: 04/01/2018 by Computer Hope

Below is a list of each of the accepted disk drive space values. It is important to realize that not all manufacturers and developers list their value using binary, which is base 2. For example, a manufacturer may list a product's capacity as one gigabyte (1,000,000,000 bytes, a metric value) and not 1,073,741,824 bytes (Gibibyte) that it actually is. For this page, we are using the "common names" and listing all values in base 2.

Note: All values are listed as whole numbers, which means a GB shows it can only contain one 650 MB CD. Technically, 1 GB could hold 1.5753 CDs worth of data, but this document isn't meant to show you how many "parts" of an object a value can hold. Therefore, we are omitting decimal values. More plainly, you can only fit one complete 650 MB CD on a 1 GB drive since two full 650 MB discs exceed 1 GB.

Tip: With the exception of a bit and a nibble, all values explained below are in bytes and not bits. For example, a kilobyte (KB) is different than a Kilobit (Kb). When referring to storage, bytes are used whereas data transmission speeds are measured in bits.

Bit

A bit is a value of either a 1 or 0 (on or off).

Nibble

A Nibble is 4 bits.

Byte

Today, a Byte is 8 bits.

» 1 character, e.g., "a", is one byte.

Kilobyte (KB)

A Kilobyte is 1,024 bytes.

» 2 or 3 paragraphs of text.

Megabyte (MB)

A Megabyte is 1,048,576 bytes or 1,024 Kilobytes

» 873 pages of plain text (1,200 characters)

» 4 books (200 pages or 240,000 characters)

Gigabyte (GB)

A Gigabyte is 1,073,741,824 (2^{30}) bytes. 1,024 Megabytes, or 1,048,576 Kilobytes.

» 894,784 pages of plain ext (1,200 characters)

Computer Bit



Computer Byte



ComputerHope.com

- » **4,473** books (200 pages or 240,000 characters)
- » **640** web pages (with 1.6 MB average file size)
- » **341** digital pictures (with 3 MB average file size)
- » **256** MP3 audio files (with 4 MB average file size)
- » **1** 650 MB CD

Terabyte (TB)

A Terabyte is 1,099,511,627,776 (2^{40}) bytes, 1,024 Gigabytes, or 1,048,576 Megabytes.

- » **916,259,689** pages of plaint ext (1,200 characters)
- » **4,581,298** books (200 pages or 240,000 characters)
- » **655,360** web pages (with 1.6 MB average file size)
- » **349,525** digital pictures (with 3 MB average file size)
- » **262,144** MP3 audio files (with 4 MB average file size)
- » **1,613** 650 MB CD's
- » **233** 4.38 GB DVDs
- » **40** 25 GB Blu-ray discs

Petabyte (PB)

A Petabyte is 1,125,899,906,842,624 (2^{50}) bytes, 1,024 Terabytes, 1,048,576 Gigabytes, or 1,073,741,824 Megabytes.

- » **938,249,922,368** pages of plaint ext (1,200 characters)
- » **4,691,249,611** books (200 pages or 240,000 characters)
- » **671,088,640** web pages (with 1.6 MB average file size)

- » **357,913,941** digital pictures (with 3 MB average file size)
- » **268,435,456** MP3 audio files (with 4 MB average file size)
- » **1,651,910** 650 MB CD's
- » **239,400** 4.38 GB DVDs
- » **41,943** 25 GB Blu-ray discs

Exabyte (EB)

An Exabyte is 1,152,921,504,606,846,976 (2^{60}) bytes, 1,024 Petabytes, 1,048,576 Terabytes, 1,073,741,824 Gigabytes, or 1,099,511,627,776 Megabytes.

- » **960,767,920,505,705** pages of plain text (1,200 characters)
- » **4,803,839,602,528** books (200 pages or 240,000 characters)
- » **687,194,767,360** web pages (with 1.6 MB average file size)
- » **366,503,875,925** digital pictures (with 3 MB average file size)
- » **274,877,906,944** MP3 audio files (with 4 MB average file size)
- » **1,691,556,350** 650 MB CD's
- » **245,146,535** 4.38 GB DVDs
- » **42,949,672** 25 GB Blu-ray discs

Zettabyte (ZB)

A Zettabyte is 1,180,591,620,717,411,303,424 (2^{70}) bytes, 1,024 Exabytes, 1,048,576 Petabytes, 1,073,741,824 Terabytes, 1,099,511,627,776 Gigabytes, or 1,125,899,910,000,000 Megabytes.

- » **983,826,350,597,842,752** pages of plain text (1,200 characters)

- » **4,919,131,752,989,213** books (200 pages or 240,000 characters)
- » **703,687,443,750,000** web pages (with 1.6 MB average file size)
- » **375,299,970,000,000** digital pictures (with 3 MB average file size)
- » **281,474,977,500,000** MP3 audio files (with 4 MB average file size)
- » **1,732,153,707,691** 650 MB CD's
- » **251,030,052,003** 4.38 GB DVDs
- » **43,980,465,111** 25 GB Blu-ray discs

Yottabyte (YB)

A Yottabyte is 1,208,925,819,614,629,174,706,176 (2^{80}) bytes, 1,024 Zettabytes, 1,048,576 Exabytes, 1,073,741,824 Petabytes, 1,099,511,627,776 Terabytes, 1,125,899,910,000,000 Gigabytes, or 1,152,921,500,000,000,000 Megabytes.

- » **1,007,438,183,012,190,978,921** pages of plaint ext (1,200 characters)
- » **5,037,190,915,060,954,894** books (200 pages or 240,000 characters)
- » **720,575,937,500,000,000** web pages (with 1.6 MB average file size)
- » **384,307,166,666,666,666** digital pictures (with 3 MB average file size)
- » **288,230,375,000,000,000** MP3 audio files (with 4 MB average file size)
- » **1,773,725,384,615,384** 650 MB CD's
- » **257,054,773,251,740** 4.38 GB DVDs
- » **45,035,996,273,704** 25 GB Blu-ray discs

Is there anything bigger than a Yottabyte?

As of 2015, there are no approved standard sizes for anything bigger than a Yottabyte. However, the two standards that have been proposed are the Hellabyte or Brontobyte.

How are you calculating the above values?

Calculating the above values is simple once you know the values of each of the above sizes. For example, in the Gigabyte section above, we know that 1 gigabyte is equal to 1,024 Megabytes. Therefore to determine how many 4 MB MP3 files are in a Gigabyte, we take $1,024 / 4$ which equals 256 or 256 4 MB MP3 files in one gigabyte.

Tip: You can also use our search engine to search engine and our conversion tool also to convert and compare between values.

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