Digital Measurement units

Kilobit = 1 kbit = 1,000bits

Kilobit per second (**kbit/s** or **kb/s** or **kbps**) is a unit of data transfer rate equal to 1,000 bits per second. It is sometimes mistakenly thought to mean 1,024 bits per second, using the binary meaning of the *kilo-* prefix, though this is incorrect.

Examples

- 56k modem — 56,000 bit/s
- 128 kbit/s mp3 — 128,000 bit/s [1]
- 64k ISDN — 64,000 bit/s [2]
- 1536k T1 — 1,536,000 bit/s (1.536 Mbit/s)

Most digital representations of audio are measured in kbit/s: (These values vary depending on audio data compression schemes)

- 4 kbit/s – minimum necessary for recognizable speech (using special-purpose speech codecs)
- 8 kbit/s – telephone quality
- 32 kbit/s – MW quality
- 96 kbit/s – FM quality
- 192 kbit/s – Nearly CD quality for a file compressed in the MP3 format
- 1,411 kbit/s – CD audio (at 16-bits for each channel and 44.1 kHz)

Megabit (**Mb**)= 10^6 = 1,000,000 bits which is equal to 125,000 bytes or 125 kilobytes.

Megabit per second (abbreviated as **Mbps**, **Mbit/s**, or **mbps**) is a unit of data transfer rates equal to 1,000,000 bits per second (this equals about 976 kilobits per second). Because there are 8 bits in a byte, a transfer speed of 8 megabits per second (8 Mbps) is equivalent to 1,000,000 **bytes** per second (approximately 976 KiB/s).

Usage Examples:

The bandwidth of consumer broadband internet services is often rated in Mbps.

Data streams representing compressed video are often measured in Mbit/s:

- 2 Mbit/s — VHS quality
- 8 Mbit/s — DVD quality
- 25 Mbit/s — miniDV
- 55 Mbit/s — HDTV quality

More specific examples found on standard Comcast digital streams (transmitted in MPEG2 format):

- 2-3 Mbit/s — a low-definition digital channel with a very clean signal
- 5-6 Mbit/s — a low-definition digital channel with a digitized ("dirty") analog signal (or just an analog channel)
- 8-12 Mbit/s — a medium to high-definition digital channel with DVD quality data (equivalent to HBO-HD)
- 18-20 Mbit/s — a high-definition digital channel at 1080i (equivalent to Discovery HD)

Another example, Network cards and cables are typically available in 10/100/1000 Mbit/s. This means they can support a transfer rate of 10 or 100 or 1000 Mbit/s.

Example interface and device speeds:

Interface	**Megabits per second** [Mbit/s]	**Megabytes per second** [MB/s]
USB, Low speed	1.5 Mbit/s	0.18 MB/s
USB, Hi speed	12 Mbit/s	1.5 MB/s
USB, Full speed	480 Mbit/s	60 MB/s
Firewire 400 (IEEE 1394)	400 Mbit/s	50 MB/s
Firewire 800 (IEEE 1394b)	800 Mbit/s	100 MB/s
CD-ROM, 1x	1.2 Mbit/s	0.15 MB/s
CD-ROM, 52x	62.4 Mbit/s	7.8 MB/s
DVD-ROM, 1x	11.1 Mbit/s	1.3 MB/s
DVD-ROM, 16x	177.3 Mbit/s	21.1 MB/s
BD-ROM, 1x	54.0 Mbit/s	6.75 MB/s
SATA I	1200 Mbit/s	150 MB/s
SATA II	2400 Mbit/s	300 MB/s

Megabyte (MB) is a unit of information or computer storage equal to either 10^6 (1,000,000) bytes or 2^{20} (1,048,576) bytes, depending on context. In rare cases, it is used to mean 1000×1024 (1,024,000) bytes. It is commonly abbreviated **MB** (not to be confused with **Mb**, which is used for the megabit).

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Measurement unit breakdown

Bit = either a single 0 or 1

Byte = usually 8 bits

KB Bytes = 1024 Bytes

MB Bytes = 1024 KB

GB Bytes = 1024 MB

TB Bytes = 1024 GB

Storage capacity

3.5" Floppy disc = 1.44 MB (megabytes)

Iomega Zip disc = 100, 250, and 750 MB

Compact Disc (CD) = 700 MB

DVD-R/RW +R/RW single layer = 4.7 GB dual layer = 8.5 GB (gigabytes)

HD DVD = 15 GB (single layer) and 30 GB (dual layer)

Blu-ray disc = 25 GB (single layer), 50 GB (dual layer)