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**About.com** Camcorders

## A Beginner's Guide to Camcorder Bit Rates

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Digital camcorders transform moving images in front of the lens into digital data. This video data, called bits, is saved to a storage media like a flash memory card, DVD or hard disk drive.

The amount of data recorded at any given second is called a bit rate, and for camcorders it's measured in megabits (one million bits) per second, or Mbps. The more data you're recording, the better the quality of your video.

### Why Should You Care?

Controlling the bit rate not only determines the quality of video you're recording, but also how long you'll be able to record before running out of memory. There's a trade off: high quality/high bit rate video means a shorter recording time.

You can choose which is more important – recording time or video quality – by controlling the camcorder's bit rate. This is done through the camcorder's recording modes. These modes are typically called high quality, standard and long record. The high quality mode will have the highest bit rate – it will capture the maximum amount of data. The long record modes will have lower bit rates, limiting the amount of data to stretch recording times.

### When Do Bit Rates Matter?

As a general rule, you don't need to be aware of your bit rate while using a camcorder – just find the recording mode that suits your needs and you're all set. When buying a camcorder, however, understanding bit rates can come in handy, particularly when evaluating [high definition camcorders](#)<sup>1</sup>.

Many HD camcorders will tout themselves as "Full HD" and offer 1920 x 1080 resolution recording. However, not all Full HD camcorders record at the same maximum bit-rate. Consider two hypothetical camcorders: Camcorder A and Camcorder B. Camcorder A records 1920 x 1080 video at 15Mbps. Camcorder B records 1920 x 1080 video at 24Mbps. Both have the same video resolution, but Camcorder B has the higher bit rate. All things being equal, Camcorder B will produce the higher quality video.

### Matching Memory

The bit rate also matters if you own a flash memory card-based camcorder. Memory cards have their own data transfer rate, measured in megabytes per second or MBps (1 megabyte = 8 megabits). Some memory cards are too slow for high bit rate camcorders, and others are too fast. They'll still record, but you'll pay extra for speed you don't need.

### Will You See a Difference?

Yes, especially at the far ends of spectrum, between the highest bit rate and the lowest. At the lowest quality setting, you're more likely to notice digital artifacts, or distortions, in the video. As you step from one rate to the next, the changes are subtler.

### What Rate Should You Record In?

Stick to the highest bit rate/quality setting you can, provided you have enough memory. You can always take a high quality video file (i.e., a large data file) and shrink it down with editing software. But it's impossible to take a low quality file and boost its quality by adding more data.

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