



Moser Baer USB Flash drive Guide



	Storage Media	BOM
	Solid-State Media	SSM
	LED Lighting	SSL
	Solar PV	PV

SSD, Flash Card and USB Flash Drive Capacity:

Some of a Flash storage device's listed capacity is used for formatting and other functions and thus is not available for data storage.

The reason:

When a Flash storage device is designed and manufactured, steps are taken to ensure that the device operates reliably and to permit the host device (computer, digital camera, tablets, mobile phone, etc.) to access the memory cells — i.e., to store and retrieve data on the Flash storage device. Formatting includes the following operations:

- 1.1 .Testing each memory cell in the Flash storage device. Identifying all defective cells and taking steps to ensure that No data will be written to or read from a defective cell.
- 1.2 Reserving some cells to serve as “spares.” Flash memory cells have a long but finite lifetime. Therefore, some cells are held in reserve to replace any memory cells that may fail over time.
- 1.3 Creating a File Allocation Table (FAT) or other directory. To enable Flash devices to conveniently store and access customer files, a file management system must be created to allow any device or computer to identify the files stored the Flash storage device. The most common type of file management system for Flash storage devices is the File Allocation Table (FAT), which is also used on hard drives.
- 1.4 Where applicable, reserving some cells for special features. For example, the specification for Secure Digital (SD) cards requires reserved areas to support special copy- protection and security features.

Capacity of the device: (as reported by many operating systems) does not match its label

Why is the *capacity* of my device (as reported by many operating systems) different than the *capacity* that is listed on its label?

Definitions of a Megabyte:

(a) Operating Systems commonly define *capacity* as follows:

Kilobyte (KB) as:

2 to the 10th power (1,024 bytes)

Megabyte (MB) as:

2 to the 20th power (1,024 X 1,024 bytes = 1,048,576 bytes)

Gigabyte (GB) as:

2 to the 30th power (1,024 X 1,024 X 1,024 bytes = 1,073,741,824 bytes)

(b) Disk Drive and Flash Memory Card Manufacturers commonly define a MB as one million bytes (exactly 1,000,000 bytes) and a GB as one billion bytes (exactly 1,000,000,000 bytes).

Moser Baer defines 1 GB as 1,000,000,000 bytes. Operating Systems define 1 GB as 1,073,741,824 BYTES.

Note: Some *capacity* is used for formatting and other functions and thus not available for data storage.

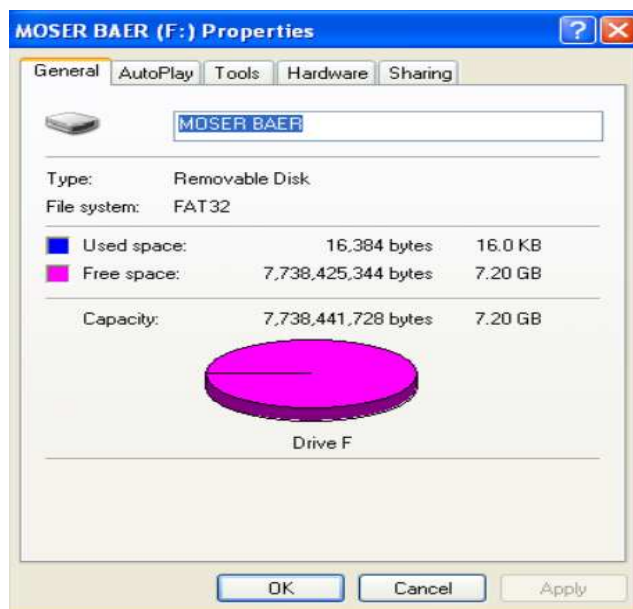
(Some memory is used by the device itself, for its operating Software and its applications. During the format process, device key parameters of HW and SW are stored in the memory. Due to this process some of the memory is not available for data storage by the user)

(c) Example

8GB Flash Drive shows ≥ 7.2 GB on PC

The reason why the flash drive will *only* show 7.2GB on PC is the difference between flash memory manufacturers' definition of gigabyte and how the operating systems report capacity.

Moser Baer defines 1 GB as 1,000,000,000 bytes. Operating Systems define 1 GB as 1,073,741,824 BYTES.



(7,738,425,344 BYTES / 1,073,741,824 BYTES = 7,206,970,214 BYTES)