

Symptoms:

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

Affects:	Description:
Sandisk products:	CompactFlash SmartMedia Multimedia PC card Ultra CompactFlash Memory Stick Memory Stick Pro Memory Stick Duo Extreme CompactFlash Ultra II CompactFlash
Operating systems:	Most
Hardware platform:	All PCs, Jornadas, etc.

Cause:

The operating system, when reading the size of the card, reports a slightly different capacity than what is listed on the card's label

Solution:

Definitions of a Megabyte:

- 1) Operating Systems commonly define a Megabyte (MB) as: 2 to the 20th power (1,024KB-- Kilobytes).
- 2) DiskDrive and Flash Memory Card Manufacturers commonly define a MB as one million bytes (exactly 1,000,000 bytes).

Unformatted (Capacity)

Also known as drive byte capacity **before** formatting. The Maximum capacity of disk drive before formatting equals

[(# Cylinders) X (# Heads) X (# Sectors) X (# Bytes per Track)]

Example:

64MB CompactFlash Card consists of:

490 Cylinders

8 Heads

32 Sectors

512 Bytes per Track

This equates to: [(490) X (8) X (32) X (512)] = 64,225,280

Unformatted Capacity: 64,225,280 bytes

Formatted Capacity: 63,934,464 bytes (User Data)

Cause:

Disk Drive Companies such as SanDisk define 1 MEGABYTE as 1,000,000 BYTES. Operating Systems define 1 MEGABYTE as 1,048,576 BYTES (1024K X 1024K or 2 to the 20th power).

Example:

SanDisk 64MB CompactFlash Card being read by Microsoft Operating System.

SanDisk Total Formatted Capacity divided by 1 MB (as defined by the Operating System)

equates to the following: 63,934,464 BYTES / 1,048,576 BYTES = 60,972,656 BYTES, 60.9MB displayed by OS.