

SD Card

Secure Digital (SD) cards are flash memory cards developed for use in portable devices such as digital cameras, Mobile phones , PDAs and GPS systems etc.

Capacity

SD cards are available in various capacities. Capacity of the SD cards may be 8 MB, 16 MB, 32 MB, 64 MB, 128 MB, 256 MB, 512 MB, 1 GB, 2 GB, 4 GB, 6 GB, 8 GB, and 16 GB etc.

Types of SD cards

Based on the size, SD cards are of three types

1. SD Card 32x24 mm square
2. Mini SD Card 21.5 x 20 mm square
3. Micro SD Card 15 x 11 mm square

Important features of SD cards

1. The SD card is asymmetrically shaped in order not to be inserted upside down
2. SD cards are physically thicker and generally measure 32 mm × 24 mm × 2.1 mm.
3. The contacts are recessed beneath the surface of the card protecting the contacts.
4. SD cards typically have higher data transfer rates.
5. Devices with SD slots can use the thinner MMCs, but the standard SD cards will not fit into the thinner MMC slots.
6. SD cards can be used in Compact Flash or PC card slots with an adapter. Mini SD and Micro SD cards can be used directly in SD slots with a physical interface adapter.

Mode of Operation

SD cards can be operated in either in Serial Mode (SPI) or Parallel mode (SD Mode)

SPI Mode

SPI mode is basically, a simpler subset of the SD protocol for use with microcontrollers)

SD Mode

One-bit SD mode has separate command and data channels and a proprietary transfer format

Four-bit SD mode uses extra pins plus some reassigned pins

All memory cards must support all three modes, except for microSD where SPI is optional. The cards must also support clock frequencies of up to 25 MHz for regular cards, and 50 MHz for high-speed cards.

A memory card reader with USB interface is used to access the data on the SD card.

SD supports at least three transfer modes:

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