

CompactFlash Card



CompactFlash is the world's most popular removable mass storage device. CompactFlash technology has resulted in the introduction of a new class of advanced, small, lightweight, low-power mobile products that significantly increases the productivity and enhances the lifestyle of millions of people.

CompactFlash storage products are solid state, meaning they contain no moving parts, and provide users with much greater protection of their data than conventional magnetic disk. Devices that utilize CompactFlash cards typically include digital cameras, digital music players, desktop computers, handheld PCs (HPCs), personal communicators, Palm PCs, Auto PCs, digital voice recorders and photo printers compatible with today's most popular operating systems such as Windows 95/98, Windows 2000, OS/2 or MAC OS.

It also can be written and reused thousands of times and have been optimized for speed, capacity and durability.

Features

- High transfer rate for fast copy/download
- High storage capacity
- No moving parts maximizes battery power
- Data is not lost when power is turned off

Specification

Physical Dimension	36.4 x 42.8 x 3.3 mm ; 1.433 x 1.685 x 0.130 inch
Number of Pins	50
Storage Capacity	8MB, 16MB, 32MB, 64MB, 128MB, 256MB, 512MB, 1.0GB, 2.0GB and more
Weight	14.2 g or 0.5 oz

Performance

Solid-state reliability, zero-Power data retention, no battery required.

Data transfer rate:	
to / from host	20 MB/sec (Burst)
Command to DREQ	3 ms (Max)
Reset to ready	100 ms (Max)
Sleep to idle	3 ms (Max)
Sustained Write	7.0 MB/sec max.
Sustained Read	10.5 MB/sec max.

Operating Voltage	
DC Input	5V ±10% or 3.3V ±10%

Power Consumption

30 mA typical, very low power consumption with automatic power management

Reliability	
MTBF	1,000,000 power-on hours
Endurance	Minimum 100,000 erase cycles
Durability of Connector	10,000 times

Environment

Operating Temperature	0 degree to 70 degree
Storage Temperature	-20 degree to +70 degree
Relative Humidity	95% RH (max)
Shock	2000-G operating and non-operating shock
Vibration	15-G Vibration

Secure Digital Card



Secure Digital / SD Memory Card are non-volatile, which means they do not require power to retain the information stored on them. They are solid-state devices, so they have no moving parts to skip or break down. They will offer an incredible combination of high storage capacity, data transfer, great flexibility and excellent security. And of course, it is a highly secure stamp-sized flash memory card.

Secure Digital SD Card will facilitate fast, simple, secure downloading of all types of digital files, like music, movies, photos, news — even cooking instructions for your microwave. Once downloaded to your PC, you can organize and store the files as you wish. Then easily transfer the files from your PC to a super-compact Secure Digital / SD Memory Card, which will be accepted by a whole variety of future SD Card enabled products. Of course, you will also be able to directly record your own audio, video, still photos, and more onto Secure Digital / SD Memory Card.

Features

- Postage stamp-sized
- Ideal for cell phones
- Available in 32MB to 2GB capacities
- Write-protect switch prevents inadvertent overwriting of image or audio data
- Low battery consumption to maximize battery life in small portable devices
- Upper compatible with MultiMediaCards (MMC)

Specification

Physical Dimension	32mm x 24mm x 2.1mm
Number of Pins	9
Storage Capacity	32MB~2GB
Weight	2 g

System Performance

Support dual channels with interleave for flash memory	
Read	Up to 6.3 MB / per sec
Write	Up to 4.7 MB / per sec

Power Requirement

Voltage	22.7V ~ 3.6V
Current	3.3V
Standby	Below 33mA
Read	Below 35mA
Write	100µA

Environmental Specifications

Vibration	Operating - 15Gs peak-to-peak Non-operating - 15Gs peak-to-peak Operating - -25°C to 85°C
Temperature	Non-operating - -40°C to 85°C Operating - 8% to 95%
Humidity	Non-operating - 8% to 95%
Shock	1000 G max
Material	
Substrate	PCB
Plastic	ABS

SmartMedia Card



SmartMedia is about one-third the area of a conventional PC Card and only 0.76mm in thickness. It can be used in portable devices that require internal file data storage and in equipment that processes such data, including digital cameras, PDA, electronic musical instruments, voice recorders, faxes, printers, scanners, word processors and handy terminals.

It can also be used in equipment that requires a removable memory chip for portability, version upgrades or memory upgrades for applications.

Features

- ✓ High transfer rate for fast copy/download
- ✓ Multiple storage capacity, highest capacity is 2GB
- ✓ Lower cost- chip size reduced with NAND structure, installation cost reduced by use of fewer pins
- ✓ Low power consumption
- ✓ SSFDC / Flash Memory Card

Specification

Physical	
Dimension	45(L) x 37(W) x 0.76(H) mm
Number of Pins	22
Storage Capacity	8MB-2GB
Weight	1.8g

Performance

Cell array (register)	10 usec (Max)
Serial access	50 ns (Min)
Read time (random)	10 µs
Read time (serial)	50 µs

Reliability

Endurance	1,000,000 Program / Erase cycles
Data retention	Up to 10 years; zero-power data retention

Power Requirement

Operating Voltage	3.3V ±10%
Power consumption	Very low power consumption with auto power management
-Read mode	15 mA (Typical)
-Writing mode	40 mA (Typical)
-Idle mode	100 µA

Environment

Shock	1000G (Max)
Vibration	15Gs peak-to-peak
Operating temperature	0°C to 55°C
Non-operating temperature	-20°C to 65°C
Humidity	5% to 95%

MultiMedia Card



An MMC Card (Multimedia Card) is a tiny memory card that uses flash memory to make storage portable among various devices, such as car navigation systems, cellular phones, eBooks, PDAs, smartphones, and digital cameras, music players, video camcorders and personal computers. About the size of a postage stamp, MMC Card weighs approximately 1.5 grams.

MMC Card features encryption capabilities for protected content, to ensure secure distribution of copyrighted material, such as digital music, video, and eBooks. Come in a range of capacities to suit your storage needs.

Features

- ✓ Very small, about the size of a postage stamp
- ✓ Capacity: 32 MB to 2GB
- ✓ Dual Voltage: 2.7V / 3.6V selectable
- ✓ Low power consumption
- ✓ MMC mode / SPI mode
- ✓ Wide operating range for temperature

Specification

Physical	
Dimension	32mm x 24mm x 1.4mm
Number of Pins	7
Storage Capacity	32MB-2GB
Weight	1.5g

Voltage Range

Communication High Voltage - 2.0V ~ 3.6V

Low Voltage - 1.65V ~ 1.95V, 2.7V ~ 3.6V

Memory Access High Voltage - Card specific (any sub-range of the communication voltage range)

Low Voltage - 1.65V ~ 1.95V, 2.7V ~ 3.6V

System Performance

Data Transfer Rate	2.0MB/sec burst
Sleep to Read	1.0m/sec max
Sleep to Write	1.0m/sec max
Reset to Ready	50 m/sec typical 400 m/sec max

Power Requirement

Power Consumption	27mA
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Environmental Specifications

Vibration	Operating - 15Gs peak-to-peak Non-operating - 15Gs peak-to-peak
Temperature	Operating - 25°C to 85°C Non-operating - 40°C to 85°C
Humidity	Operating - 8% to 95% Non-operating - 8% to 95%
Shock	1000 G max

Material

Substrate	PCB
Plastic	ABS

Memory Stick PRO

Micro SD Card



The Memory Stick PRO (High Speed) features capacities of up to 2GB and are designed to support both read and write speeds of up to 80Mbps (10MB/s.). Among the fastest in the flash media industry, this higher speed will be especially beneficial for transferring data-intensive images, such as high-resolution digital photos, to and from PCs and other devices that may incorporate a high-speed parallel data transfer interface in the future.

The high-performance Memory Stick Pro also offers greater reliability in extreme temperatures with an improved operating temperature range of -13°F to 185°F. Whether your Memory Stick PRO is in your backpack on the ski slopes or in the trunk of your car on a hot summer day, you can trust your media will perform as expected.

This MS Pro card supports the "MagicGate" technology which allows for secure transfer and playback of copyrighted material. It is used in a variety of applications including Sony MP3 Players, Digital Cameras, Camcorders, Printers etc.

The Memory Stick PRO format integrates new technologies:

High Capacity

On a 1GB card, users can enjoy and record approximately: 16 CDs (calculated at 64MB per CD), 385 JPEG images in 5.0-megapixel quality (more than 10 rolls of 24/36 film), 24 minutes of DVD quality video (MPEG2), 6 hours of MPEG4 (384Kbps) moving images

Real-time Recording

Write speed of a minimum 15Mbps** to provide real-time recording of data with optimized Memory Stick PRO? format-compatible devices

Features

- ✔ Supports MagicGate Technology
- ✔ 2 GB storage capacity with approximately 1.85 GB available, 1 GB storage capacity with 940 MB available, 512 MB storage capacity with 460 MB available, 256 MB storage capacity with 220 MB available
- ✔ Designed to support read & write speeds up to 80 Mbps on high speed enabled devices
- ✔ Increased durability with an operating temperature range of -13°F to 185°F
- ✔ Compact, lightweight, and easy to store

Specification

Capacity	256MB, 512MB, 1G & 2G
Interface	10 -pin Serial memory StickR Interface and 4-pin Parallel
Operating Voltage	2.7V - 3.6V
Power Consumption (Parallel)	100 mA (Max.)
Power Consumption (Serial)	65 mA (Max.)
Max. Read Speed	80 Mbps
Maximum Write Speed	80 Mbps
Dimensions (Approx.)	0.85" x 1.97" x 0.11" (21.5mm x 50mm x 2.8mm)
Weight (Approx.)	0.14oz (4g)
Operating Temperature	-13°F - 185°F (-10.56°C - 85°C)

Micro Sd™ cards are tiny-sized flash cards with great performance and fast transfer speeds. When used with the included adapter, microSD can be used in an SD flash card slot, making it a great choice for GPS, mobile phone, PDA and other portable devices.

Features

- ✔ About 25% the size of an SD card
- ✔ All microSD cards are bundled with an SD adapter
- ✔ Built-in security features enable users to download, store, and play secure content just like an SD card
- ✔ Product lifetime warranty

Specification

Compliant with SD Spec Ver 1.1	
Compliant with SDMI digital audio devices	
Support CPRM technology	
Operating voltage	3.3 V
Capacities	128 MB ~ 2GB
Dimensions	15 x 11 x 1 mm
Weight	1 g

Memory Stick PRO Duo



The Memory Stick PRO Duo is 1/3 the size of standard memory stick media that ideal solution for the most portable devices such as pocket-size digital cameras and with the use of Adapter, it can be used in all PRO-compatible devices. It even supports and expanded operating temperature range of -13° F to 185° F, making it the perfect media choice regardless of weather conditions.

Features

- ✦ Embedded MagicGate technology provides secure transfer and playback of copyright-protected content
- ✦ Designed to support read & write speeds of 80Mbps on high speed enabled devices
- ✦ Real-time recording of high resolution images and video
- ✦ Approx. 1/3 the size of a Memory Stick card
- ✦ Operating temperature range of -13° F to 185° allows greater durability
- ✦ Compatible to all MS PRO devices with the use of the Adapter
- ✦ Included adapter

Specification

Capacities	From 256Mb to 2GB
Interface	10-pin Serial memory Stick R Interface and 4-pin Parallel
Operating Voltage	2.7V – 3.6V
Power Consumption (Parallel)	100 MA (Max.)
Power Consumption(Serial)	65 MA (Max.)
Max. Read Speed	80 Mbps
Durability	10,000 insertion/ removal cycles
Operating Temperature	-13°F - 185°F (-10.56°C - 85°C)
Weight	Approx. 0.07oz (2g)
Dimensions	Approx. 0.79" x 1.22" x 0.06" (20 x 31 x 1.6mm)

xD-Picture Card



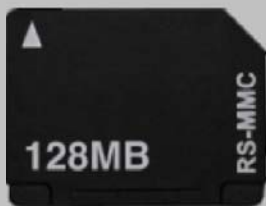
xD-Picture Card is a new type of ultra-compact memory media that has been developed jointly by Fujifilm and Olympus. It is certain to become the standard for the rest of the world & meets the demands of new camera technologies that deliver larger image files and in some cases have the ability to record high-quality movie footage.

It is the only xD cards that support the Panorama function found on most Olympus digital cameras. xD-Picture Cards are also more economical with battery power. User's will benefit immediately from enhanced battery life and fewer recharges. Measuring just 20mm X 25mm X 1.8mm and weighing 2g. Presently available in sizes 16MB, 32MB, 64MB, 128MB, 256MB and 512MB.

Features

- ✦ Capacity: 64MB ~ 2GB
- ✦ Dimension: 20mm x 25mm x 1.7mm (0.8 x 1.0 x 0.07 inches)
- ✦ Read/Write Speeds -The xD-Picture Card will have fast
- ✦ Read/write speeds
- ✦ A 16 or 32MB card can record data at 1.3MB/sec
- ✦ A 64MB card or higher can record data at 3MB/sec and both offer a read speed of 5MB/sec
- ✦ Power Consumption: The xD-Picture Card was designed to use minimal power. Users will benefit from the convenience and savings of longer battery life on a single charger
- ✦ Compatibility: PCMCIA and CF Card Adapters will be available, allowing use of xD-Picture Card in a variety of cameras and other devices

Reduced Size MultiMedia Card



The Reduced Size MultimediaCard (RS-MMC) is a small, removable flash memory card used in mobile phones for the storage of content, images, video and music. It is approximately one-half the size of the standard MMC & offers all of the benefits of MMC but is 50% smaller. With the use of an adapter, the RS-MMC is also compatible with devices using the standard MMC. (RSMCC + adapter = standard size MMC).

Features

- ✓ Ultra Compact: The smallest flash card in the world
- ✓ High storage capacity
- ✓ 100% Compatibility: Compatible with all digital cameras, digital music players, mobile phones, PDAs, and other devices featuring MMC and SD slots
- ✓ Extremely Portable: Weighs less than 1 gram and about half a size of a postage stamp
- ✓ Highly Durable: Store, erase and reuse. MMC can be used over and over again without loss of quality
- ✓ Tough: Designed to withstand rugged weather
- ✓ High-speed: Read: 1.6MB/sec; Write: 1.6MB/sec
- ✓ Low power consumption
- ✓ Operating shock rating of 2,000Gs, equivalent to a 10-foot drop to the floor
- ✓ Included RS-MMC adapter

Specification

Dimension	24 mm x 18 mm x 1.4 mm (L x W x T)
Capacity	128MB - 2GB
Weight	0.8g (Approx.)
Reliability	Data retention is up to 10 years
Durability	Min. 100,000 erase cycles, 1,000,000 hours
Operation Volt	2.7 V/3.6V
Command to DREQ	-25°C (-13°F) ~ 85°C (185°F)

Mini SD Card



Mini SD Card is a new standard for many new mobile phones, small in size but with big capacities. Measuring just 21.5 mm in length by 20.0 mm in width by 1.4 mm in thickness and weighing about a gram, it is the world's smallest flash memory card.

The Mini SD offers the same benefits as SD, including copyright protection. The included adapter allows you to use Mini SD in many standard SD enabled devices.

This Mini SD will truly bring you a different fantastic world.

Features

- ✓ About half the size of SD card
- ✓ Ultra high-speed: Read: 6MB/sec; Write: 4.8MB/sec
- ✓ Suitable for use on the next generation intelligent mobile phones & portable digital peripherals

Specification

Type	Flash
Capacity	64MB - 2GB
Dimensions	21.5 x 20 x 1.4mm
Supply Voltage	2.7 -3.6V