

SimpleTech MultiMediaCard (MMC)/Adapter User Guide

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Introduction

This is an Installation and User Guide for the SimpleTech® **MultiMediaCard** and **MultiMediaCard Adapter**. The SimpleTech MultiMediaCard is a super small form-factor card used in several devices including Digital Cameras, Personal Digital Assistants (PDA), MP3 music players, digital voice recorders, and other electronic devices such as cell phones, and pagers. The MultiMediaCard is a solid-state, nonvolatile removable and reusable mass storage which shows up as an ATA hard drive to the host. However, compared to ATA/IDE/ESDI hard drives with rotating discs, the Solid State MultiMediaCard is extremely rugged and very compact.

The MultiMediaCard Adapter allows the MultiMediaCard to plug into a PC Card socket. Therefore, the MultiMediaCard with the MultiMediaCard Adapter provides removable mass storage to thousands of hosts that have PC Card sockets, standard on many notebook computers.

The SimpleTech MultiMediaCard is available in several capacities for your specific applications. Also, the SimpleTech MultiMediaCard Adapter is available for using MultiMediaCard in PC Card (PCMCIA) slots. Visit www.simpletech.com for details.

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Installation Requirements

The following are the minimum requirements for using the MultiMediaCard:

- A host (e.g., a computer or other devices such as digital camera, MP3 Audio Player/Recorder, PDA that uses MultiMediaCards as a storage device) with one of the following sockets:
 - A MultiMediaCard socket
 - A PC Card Type I or II (PCMCIA) socket when using the MultiMediaCard with the MultiMediaCard Adapter
- One of the following operating systems:
 - MS-DOS 5.0 or higher, Windows 3.x, and Card and Socket Services compatible with PCMCIA Release 2.1 or higher
 - Windows CE
 - Windows 95/98/98SE/ME/XP or 2000
 - Windows NT 3.5.1 /Win NT 4.0
 - OS/2 Warp!
 - Mac OS 8.6 or higher
 - Other hosts with firmware that support ATA data storage, and DOS file/FAT standards (e.g., digital camera, PDA, MP3, etc.)

Installing the MultiMediaCard

A. Digital Cameras/MP3 Players/Digital Camcorders/Printers

Attach the MultiMediaCard to the Digital Cameras/MP3 Players/Digital Camcorders/Printers as follows:

1. Please refer to your System Manual for proper orientation of the SimpleTech MultiMediaCard in your system. Please note that if the MultiMediaCard is improperly inserted, the system will not recognize the card.
2. Formatting the MultiMediaCard in your system:

All SimpleTech MultiMediaCards are factory-formatted in DOS/Windows Operating Systems. Most devices do not require additional drivers to support MultiMediaCard. If your device does not recognize the MultiMediaCard when inserted, you would need to format the MultiMediaCard in the devices. Please refer to the User Guide of your device for basic formatting instructions of the MultiMediaCard.

B. PC Computers /PDA (Handheld Device, Palmtop)

If you are planning to use the MultiMediaCard in the PC Card slot of your PDA/Computer, you would need to insert the MultiMediaCard in the PC Card adapter. Please refer to **Attaching the MultiMediaCard to the MultiMediaCard Adapter section**.

If you are planning to access the MultiMediaCard through USB or Parallel port MultiMediaCard reader, please refer to the following section titled **Attaching the MultiMediaCard to USB MultiMediaCard Reader**.

1) Attaching the MultiMediaCard to the MultiMediaCard Adapter (If Applicable)

Attach the MultiMediaCard to the MultiMediaCard Adapter as follows:

1. Orient the SimpleTech logos on both the MultiMediaCard and the MultiMediaCard Adapter facing upwards.
2. With the “**Insert**” arrow on top of the MultiMediaCard pointing towards the MultiMediaCard Adapter, place the MultiMediaCard onto the rails of the MultiMediaCard Adapter.
3. Slide the MultiMediaCard all the way into the MultiMediaCard Adapter until the connector on the MultiMediaCard fully docks with the connector on the MultiMediaCard Adapter.

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CAUTION: *If the MultiMediaCard doesn't appear to seat properly, try turning the MultiMediaCard over upside down. Do not force the MultiMediaCard into the socket under any circumstances.*

After inserting the MultiMediaCard in the adapter, plug the Adapter in the PC Card socket in your computer.

2) Attaching the MultiMediaCard to USB MultiMediaCard Reader (If Applicable)

Important Note: Users are highly recommended to complete the device driver installation procedure for the USB Reader, prior to connecting the USB card Reader. Make sure USB Flash Card Reader drivers are installed on your system.

1. Turn on your PC and wait for the Windows desktop to appear.
2. Close all applications.
3. Insert the MultiMediaCard in the card reader slot with the proper orientation as specified by the card reader.

Using MultiMediaCard in Notebook/Desktop Computers:

Windows 95/98/98SE/ME/ 2000/XP

Proceed as follows:

1. Start the Windows Operating System and wait for the system to completely boot.
2. Plug the MultiMediaCard (with the adapter, if applicable) into the socket.
3. The computer will respond with a beep and the PC card icon will appear on the right corner of the task bar.

OR,

Windows may respond with dialog boxes. If the "New Hardware Found" window appears, select "Windows default driver," then click on "OK."

4. Follow the on-screen prompts.

The MultiMediaCard will be automatically recognized. Double click on "My Computer" icon on your system desktop. The MultiMediaCard shows up as a removable hard drive, e.g., "Drive D:".

Windows NT 3.5.1/ Win NT 4.0

Windows NT 3.5.1/ 4.0 does not support Plug n' Play. You must plug the MultiMediaCard into the socket before starting Windows NT 3.5.1/ 4.0.

1. Before starting Windows NT 3.5.1/ 4.0, plug the MultiMediaCard into the socket.
2. While booting, Disable PnP (Plug-n-Play) by switching to Off in the BIOS Settings.
3. An additional software such Card Wizard Pro from System Soft may be required for Win NT to recognize the device.
4. The computer will respond with a beep and the PC card icon will appear on the right corner of the task bar.

OR,

Windows may respond with dialog boxes. If the "New Hardware Found" window appears, select "Windows default driver," then click on "OK."

5. Follow the on-screen prompts.

The MultiMediaCard will be automatically recognized. Double click on "My Computer" icon on your system desktop. The MultiMediaCard shows up as a removable hard drive, e.g., "Drive D:" .

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Windows 3.x with Card and Socket Services Release 2.1 or Higher

Proceed as follows:

1. Start Windows 3.x.
2. Plug the MultiMediaCard into the socket. The computer may beep, when the computer recognizes the MultiMediaCard.

Mac OS

Proceed as follows:

1. Start Mac OS.
2. Plug the MultiMediaCard into the socket.
3. The MultiMediaCard is mounted on the desktop and will show up as a volume (i.e. drive icon) on Macintosh computers.

Other Hosts or Operating Systems

Refer to the User guides provided with the host or operating system for instructions on plugging the MultiMediaCard into the socket.

Inserting or Removing MultiMediaCard

Refer to the section appropriate to your operating system.

Inserting or Removing the MultiMediaCard with Windows 98/98SE/ME/2000/XP

You can insert the MultiMediaCard at anytime. When you wish to remove the MultiMediaCard, make sure you are not accessing any data in the card. It is recommended that you “stop” the MultiMediaCard before removing the MultiMediaCard as follows:

1. Double-click on the **PCMCIA icon** located on the right corner of the **task bar** or click on **Start - Settings - Control Panel - PC Card (PCMCIA) icon**. The “**PC Card Properties**” window appears. Select the MultiMediaCard from the list. Click on the “**Stop**” button. When prompted to remove the MultiMediaCard, proceed to next step to eject the card.
2. If your computer has an eject button on the socket, press the button to release the MultiMediaCard. Then, pull the MultiMediaCard from the socket OR,
If your computer does not have an eject button on the socket, carefully pull the MultiMediaCard straight out from the socket.

Proceed to *Protecting the MultiMediaCard*.

Inserting or Removing the MultiMediaCard with Windows NT 3.5.1/ Win NT 4.0

Windows NT 3.5.1/ 4.0 does not support Plug n’ Play. You must plug the MultiMediaCard into the socket before starting Windows NT 3.5.1/ 4.0.

You must insert the MultiMediaCard before booting into Windows NT 3.5.1/ 4.0.

To remove the MultiMediaCard, you must first exit Windows NT 3.5.1/ 4.0, then proceed as follows:

- If your computer has an eject button on the socket, press the button to release the MultiMediaCard. Then, pull the MultiMediaCard from the socket, OR
- If your computer does not have an eject button on the socket, carefully pull the MultiMediaCard straight out from the socket.

Inserting or Removing the MultiMediaCard with Windows 3.x and OS/2 Warp

You can insert the MultiMediaCard anytime. The MultiMediaCard will show up as a drive letter under My Computer. You can remove the MultiMediaCard whenever the computer is not accessing the MultiMediaCard.

Some computers will beep when the computer recognizes the change in status of the socket. To remove the MultiMediaCard, proceed as follows:

- If your computer has an eject button on the socket, press the button to release the MultiMediaCard. Then, pull the MultiMediaCard from the socket, OR
- If your computer does not have an eject button on the socket, carefully pull the MultiMediaCard straight out from the socket.

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Inserting or Removing the MultiMediaCard with Mac OS

You can insert the MultiMediaCard at anytime. The MultiMediaCard will show up as icon on the desktop. You can remove the MultiMediaCard whenever the computer is not accessing the MultiMediaCard. When you wish to remove the MultiMediaCard, drag the MultiMediaCard Drive icon into the trash bin. The MultiMediaCard is ejected from the computer in most cases. Otherwise, carefully remove the card from the socket.

Formatting the MultiMediaCard

All SimpleTech MultiMediaCards are factory-formatted in DOS/Windows Operating Systems. Most devices do not require additional drivers to support MultiMediaCard. If your device does not recognize the MultiMediaCard when inserted, you would need to format the MultiMediaCard in the device itself. Please refer to the User Guide of your device for basic formatting instructions of the MultiMediaCard in the device.

If you wish to format the card in the computer, please refer to the following instructions.

Formatting the MultiMediaCard in Windows Operating Systems

Insert the card in the adapter or the card reader and Right click on the drive letter for the card in windows explorer. Choose "format" among the options and proceed with the on-screen instructions.

Caution: Please note that the formatting the card will erase all the data in the card. Hence, be careful while formatting the card. Also, make sure to choose the correct drive letter for the card while formatting. Otherwise, you might accidentally erase all the data in some other drive.

Formatting the MultiMediaCard in Mac Operating Systems

Insert the card in the adapter or the card reader and highlight the icon for the card on the desktop. Click on "Special" and choose "Erase Disk" and proceed with on-screen instructions.

Caution: Please note that the formatting the card will erase all the data in the card. Hence, be careful while formatting the card. Also, make sure to choose the correct icon for the card while formatting. Otherwise, you might accidentally erase all the data in some other drive.

MultiMediaCard Precaution and Protection

Always carefully observe the following precautions:

- Never remove the MultiMediaCard when the computer is accessing the MultiMediaCard.
- Do not turn off the device while accessing the MultiMediaCard.
- Do not touch the gold leads on the card.
- Keep the MultiMediaCard away from electrostatic sources or magnetic fields.
- Do not bend, drop or impact the MultiMediaCard.
- Keep the card away from heat, water, moisture, and direct sunlight.
- Please be noted that as a security measure, postal department might subject all articles sent through mail to high level radiation. High level radiation erases all data in the MultiMediaCard and renders the card useless. Hence please check and verify postal service policies before sending the cards in the mail.

Technical Support

If you experience any difficulties with the installation of the MultiMediaCard or MultiMediaCard Adapter, visit our web site www.simpletech.com. If you are still unable to resolve the problems, contact SimpleTech Technical Support at the following:

- Tel: 949-476-1180 or
1-800-367-7330 (USA & Canada only)
- Fax: 949-476-1209
- Email: Fill the on-line Support Request Form at www.simpletech.com

MultiMediaCard (MMC) Specifications

ORDERING INFORMATION (SimpleTech MultiMediaCard Part Numbers)

MultiMediaCard P/N	Capacity
• STI-MMC/16.....	16 MBytes
• STI- MMC /32.....	32 MBytes
• STI- MMC /64.....	64 MBytes

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- STI- MMC /128 128 MBytes
- MultiMediaCard Adapter P/N
- STI-MMCSAD MultiMediaCard/Secure Digital Card to Type II PC Card

Physical Dimensions (MultiMediaCard without MultiMediaCard Adapter)

Length	32.0 mm
Width	24.0 mm
Thickness	1.40 mm
Weight	0.5 gms

Performance

Interface	MMC/SPI
Random Access	300 μ s (Max.)
Serial Page Access	50 μ s (Max.)
Data Transfer Rate to/from Host	2.5 MB/Sec (Burst)
Controller Overhead (Command to DRQ)	2ms (Max.)
Sustained Read	1.7 MB/sec
Sustained Write	300 KB/sec

Power Requirements

All values quoted are typical at ambient temperature and nominal supply voltage unless otherwise stated.

DC Input Voltage Range	2.7V - 3.6V
Typical Power Dissipation	
Sleep Current	0.01 mA
Read Current	35 mA
Write Current	35 mA

Environmental Specifications

Temperature Range	
Operating	-25°C to +85°C
Storage	-40°C to +85°C
Humidity	5% to 95% non-condensing
Operating Vibration	100-2000 Hz @ 147 meter/sec ² (20Gs)
Operating Shock	4903.3 meter/sec ² (2000Gs)

Reliability

MTBF (Mean Time Between Failure)	>1,000,000 hours
Data Reliability	<1 non-recoverable error in 10 ¹⁴ bits read

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