

DiosPro MMC/SD FAT16 Memory Card Library



The following is an explanation of the DiosPro FAT16 library. The library is broken down into functions and commands. The functions are application level Dios functions. The commands are built-in language commands. By issuing the MMCinitfat16 function you have access to all commands in the library.

Fat16 Restrictions

- Only 8.3 Names are supported.
- Only Files in Root Directory are supported.
- Directories are not supported
- The maximum number of files created is 512
- Files must be created by Dios MMCcreatefile command.

Functions

Some of the functions require that you pass a 4 byte array. You create this array with the dim command.
example: `dim secarray(2) as integer`

To pass the array to a function you must precede the variable name with a @ when calling the function.
example: `MMCOpenfile("BI GFile.dat",@secarray)`

MMcinitfat16(ss as integer,mode as integer)

Initialize Simple 8.3 Dos Name Fat16

You pass:

- ss = I O port to connect to the chip select pin on MMC card.
see MMcinit command
- mode = 0 suppress debug info data.
1 Displays debug info.

This functions loads the following global variables.
all variables are integer.

- Parsector = array that contains the boot sector location
- Fatsector = array that contains the primary Fat table location
- Fatsector2 = array that contains the secondary Fat table location
- Rootsector = Location of the Root file directory
- Datasector = Location of the Data section where the actual clusters start
- Partype = 1=Fat16 0=Error
- Parcluster = Number of sectors per cluster. Note there are 512 bytes per sector.
- Reservedsectors = Number of reserved sectors
- FATs = Number of Fat tables. Should be 2
- FATsectors = Number of sectors in each Fat table.
- Rootentries = Number of entries in root directory space.

Returns 0 if Error
1 if success

MMccreatefile(clusters,name)

Create a file and allocate space for that file.

You Pass:

- clusters = number of clusters to allocate
- name = short file name of the file to create

MMcopenfile(name,start sector pointer)

Open a file and get its starting sector
Pass name,pointer to start sector
Returns 1 if success and populates start sector array
0 if failure

MMCdir()

Displays all the files in the root directory.
The Start sector of the file and number of sectors in the file are also displayed.

MMCquickformat(mode as integer)

Does a Quick format of the card. It cleans the fat table and the root directory.

You pass:

mode = 0 suppress debug info data.
1 Displays debug info.

MMCdisplaysectorA()

Display a sector loaded into memory banks
13 and 14 in hex format

MMCdisplaysectorB()

Display a sector loaded into memory banks
11 and 12 in hex format

Low Level commands

Some of the functions require that you pass a 4 byte array. You create this array with the dim command.
example: dim secarray(2) as integer

To pass the array to a command you dont need to use the @
example: MMCloadsectorA secarray

MMCloadsectorA sectorarray

Loads a sector into sector memory A (banks 13 and 14)
You pass the 2 byte sector array of sector to read

MMClloadsectorB sectorarray

Loads a sector into sector memory A (banks 11 and 12)

You pass the 2 byte sector array of sector to read

MMCwritesectorA sectorarray

Writes memory banks 13 and 14 to a sector

You pass the 2 byte sector array of sector to write

MMCwritesectorB sectorarray

Writes memory banks 11 and 12 to a sector

You pass the 2 byte sector array of sector to write

MMCdisplayhexword value

Send passed word to debug port in hex

Will display 4 Hex digits

MMCdisplayhexbyte value

Send passed byte to debug port in hex

Will display 2 Hex digits

MMCsectorwritebyteA location,value

Write a byte directly to sector memory A (Banks 13 and 14)

Pass memloc (0=511)

value (0-255)

Note that you normally write data to memory before you write the memory to a sector on a card.

MMCsectorwritebyteB location,value

Write a byte directly to sector memory B (Banks 11 and 12)

Pass memloc (0=511)

value (0-255)

Note that you normally write data to memory before you write the memory to a sector on a card.

MMCsectorreadbyteB location,variable

Reads a byte directly from sector memory B (Banks 11 and 12)
Pass memloc (0=511)
integer variable

Note this command is used to access data that was loaded via
the MMCLoadsector commands

MMCsectorreadbyteA location,variable

Reads a byte directly from sector memory A (Banks 13 and 14)
Pass memloc (0=511)
integer variable

Note this command is used to access data that was loaded via
the MMCLoadsector commands

MMCcopyarray sourcearray,destarray

Copy one MMC 2 part array to another

Pass the source array and the dest array

MMCaddtoitem sourcearray,destarray,value

Add 16 bit value to 32bit sector or address
Pass sourcearray,destarray, value to add
Populates dest array

MMCaddresstosector addressarray,sectorarray

Convert MMC address array to a Sector array

MMCsectortoaddress sectorarray,addressarray

Convert MMC sector array to address array

Other Articles

- MMC DiosPro Interface <http://www.kronosrobotics.com/Projects/MMC.pdf>
- MMC 5v Card Interface <http://www.kronosrobotics.com/Projects/MMCcon.pdf>