



USB CompactFlash/SD Card/MMC Test Commands

User's Guide

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SDSDEV-01

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1 Introduction

The CompactFlash/SD Card/MMC Command User's Guide provides designers with the CompactFlash and SD Card basic commands, and the pass-through commands for the SD Card.

2 CF/SD Basic Command

The CF/SD Basic Command is used for SanDisk's CompactFlash card, Secure Digital (SD) card, and the MultiMediaCard (MMC)

Reset CF

Function: Not supported

Parameter: None

Read blocks

Function: Read blocks from device (CF/SD/MMC card) to file

Parameter: Start block, End block, File Name

Write blocks

Function: Write blocks from file to device (CF/SD/MMC card)

Parameter: Start block, End block, File Name

Compare Blocks

Function: Compare blocks between file and device (CF/SD/MMC card)

Parameter: Start block, End block, File Name

Erase Blocks

Function: Erase blocks from device (CF/SD/MMC card)

Parameter: Start block, End block

Verify Blocks

Function: Read blocks from device (CF/SD/MMC card) to check whether read operation is OK

Parameter: Start block, End block,

Write Pattern

Function: Write pattern from pattern input box to device (CF/SD/MMC card)

Parameter: Start block, End block, Pattern

Compare Pattern

Function: Compare pattern between pattern input box to device (CF/SD/MMC card)

Parameter: Start block, End block, Pattern

Invert Pattern

Function: Invert pattern from Pattern input box

Parameter: Pattern

Read Binary File

Function: Display binary file

Parameter: File Name

View log

Function: Display the history of command and result which is stored in "Response.txt"

Parameter: None

Stop logging

Function: Stop recording the history of command and result in "Response.txt" file.

Parameter: None

Start logging:

Function: Start recording the history of command and result in "Response.txt" file. This is the default setting.

Parameter: None

No Operation:

Function: No operation

Parameter:None

3 SD Pass-Through Command

The SD Pass-Through Command is used for SanDisk SD Cards only. The secure commands are only available with the secure version of the software.

In the commands, a Command Response and a Data Response will be displayed in the data buffer if it is less than or equal to 18 bytes. If not, the data will be written to the file chosen by the user.

Secure Commands

Read MKB Blocks

Function: Read MKB (MKB_ID 0 only) into a file

Parameter: Data Length, Data Start Address, File name

Get MID

Function: Read Media ID from Card

Parameter: None

Get Media Key

Function: Calculate Media Key

Parameter: None

Get Unique Media Key

Function: Calculate Unique Media Key

Parameter: None

Verify Media Key

Function: Use "Verify Media key Record" in MKB to verify the Media key

Parameter: None

Perform AKE

Function: Perform the full sequence of AKE (Send Challenge 1, Get Challenge 2, Send Response 2, Get Response 1, Generate Session Key)

Parameter: Data Length, Data Start Address (Used by "Secure Read – Manual AKE", "Secure Write – Manual AKE", "Secure Erase – Manual AKE")

Send Challenge1

Function: Send Challenge 1 to SD card

Parameter: Data Length, Data Start Address (Used by "Secure Read – Manual AKE", "Secure Write – Manual AKE", "Secure Erase – Manual AKE")

Get Challenge2

Function: Read Challenge 2 from SD card

Parameter: Data Length, Data Start Address (Used by "Secure Read – Manual AKE", "Secure Write – Manual AKE", "Secure Erase – Manual AKE")

Send Response 2

Function: Send Response 2 to SD card

Parameter: Data Length, Data Start Address (Used by "Secure Read – Manual AKE", "Secure Write – Manual AKE", "Secure Erase – Manual AKE")

Get Response 1

Function: Read Response 1 from SD card

Parameter: Data Length, Data Start Address (Used by "Secure Read – Manual AKE", "Secure Write – Manual AKE", "Secure Erase – Manual AKE")

Generate Session Key

Function: Generate Session key for current AKE process

Parameter: None

Secure Read – Auto AKE

Function: Read data blocks from Secure Area of SD card to File (AKE will be automatically done by software)

Parameter: Data Length, Data Start Address, File Name

Secure Write – Auto AKE

Function: Write data blocks from file to Secure Area of SD card (AKE will be automatically done by software)

Parameter: Data Length, Data Start Address, File Name

Secure Erase – Auto AKE

Function: Erase data blocks from Secure Area of SD card (AKE will be automatically done by software)

Parameter: Data Length, Data Start Address

Secure Read – Manual AKE

Function: Read data blocks from Secure Area of SD card to File (Need to perform AKE before this command)

Parameter: File Name

Secure Write – Manual AKE

Function: Write data blocks from file to Secure Area of SD card (Need to perform AKE before this command)

Parameter: File Name

Secure Erase – Manual AKE

Function: Erase data blocks from Secure Area of SD card (Need to perform AKE before this command)

Parameter: None

Secure Compare – Auto AKE

Function: Compare data blocks between Secure Area of SD card with file (AKE will be automatically done by software)

Parameter: Data Length, Data Start Address, File Name

Non-secure Commands

The following are the non-secure commands for the SD Card. See the previous section for secure commands.

Read Binary File

Function: Display Binary file

Parameter: File Name

View log

Function: Display the history of command and result which is stored in "Response.txt"

Parameter: None

Select /DeSelect Card (CMD 7)

Function: SD card is selected by its own RCA and gets deselected by any other address

Parameter: Command Parameter 1: High byte of RCA

Command Parameter 2: Low byte of RCA

Send CSD (CMD 9)

Function: Ask SD card to send its "CSD" register contents (SD card has to be in stby mode)

Parameter: None

Send CID (CMD 10)

Function: Ask SD card to send its "CID" register contents (SD card has to be in stby mode)

Parameter: None

Send Status (CMD 13)

Function: Ask SD card to send its status

Parameter: None

Read Single Block (CMD 17)

Function: Read single data block from User area of SD card in Single Block mode to file

Parameter: Command Parameter 1(Highest address byte), Command Parameter 2, Command Parameter 3, Command Parameter 4(Lowest address byte), File Name

Read Multiple Block (CMD 18)

Function: Read data blocks from User Area of SD card in Multiple Block mode to file

Parameter: Command Parameter 1(Highest address byte), Command Parameter 2, Command Parameter 3, Command Parameter 4(Lowest address byte), Data Length, File Name

Write Single Block (CMD 24)

Function: Write single data block to User area of SD card in Single Block mode from file

Parameter: Command Parameter 1(Highest address byte), Command Parameter 2, Command Parameter 3, Command Parameter 4(Lowest address byte), File Name

Write Multiple Block (CMD 25)

Function: Write data blocks to User Area of SD card in Multiple Block mode from file

Parameter: Command Parameter 1(Highest address byte), Command Parameter 2, Command Parameter 3, Command Parameter 4(Lowest address byte), Data Length, File Name

Tag Sector Start (CMD 32)

Function: Set the address of the first block to be erased

Parameter: Command Parameter 1(Highest address byte), Command Parameter 2, Command Parameter 3, Command Parameter 4(Lowest address byte)

Tag Sector End (CMD 33)

Function: Set the address of the last block to be erased(Inclusive)

Parameter: Command Parameter 1(Highest address byte), Command Parameter 2, Command Parameter 3, Command Parameter 4(Lowest address byte)

Erase Sectors (CMD 38)

Function: Erase all previously selected data blocks from SD card User Area.

Parameter: None

SD Status (ACMD 13)

Function: Ask SD card to send its "SD Status" register contents and write the response to file

Parameter: File Name

Send SCR (ACMD 51)

Function: Ask SD card to send its "SCR" register contents

Parameter: None

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