FIELD	OFFSET	SIZE in bytes	VALUE	Feature Version	Descriptions	header size
magic_number	0x0000	0x4	0xAA55DD44	0xFF	magic number to indicates this header existed, little endian	1Mbytes (0x100000bytes)
reserved			all 0xFF		reserved area	
feature_version	0x0010	0x01	Minimum feature version of used fields	0xFF	feature version	
reserved	0x0011	0x07	all 0xFF	0xFF	reserved area	
magic_number	0x0018	0x04	0xDD77AA33	0xF6	magic number to indicates enable feature: smart partition device. automatic tweak ECSD read from eMMC card to partition device, little endian	
enhance area size	0x001C	0x04		0xF6	size of enhance: unit is block(=512 Bytes).Please set the unused area as all 0xFF bytes. Little endian.	
general purpose 1-4 area size	0x0020	0x10		0xF6	size of GP1-4: unit is block(=512 Bytes), 4 bytes each partition.Please set the unused area as all 0xFF bytes. Little endian.	
reserved			all 0xFF		reserved area	
extended CSD(after program)	0x0200	0x200		0xFF	refer the fields to eMMC4.4 specification. Please fill the value as what you expected.	
mask of extended CSD	0x0400	0x200		0xFF	mask the fields which don't need modification, '1' masks the bit.	
reserved			all 0xFF		reserved area	
eMMC re-partition parameter	0x800	0x10		0xFF	Some eMMC(moviNAND, iNAND, etc..) re-partition parameter. Little endian	
reserved			all 0xFF		reserved area for future partition function usage	
CMD56 Refresh parameter	0xA00	0x100		0xF7	Up to 16 records with refresh parameters. Each record takes 16 bytes; unused records should be set to 0xFF.	
reserved			all 0xFF		reserved area	
magic_number	0x2000	0x4	0xAA55EC33	0xFF	magic number to indicates this super partition header area existed, little endian	
magic_number	0x2004	0x4	0xA9A90033	0xFF	magic number to indicates enable transfer partition start address to end-begin count, little endian	
reserved			all 0xFF		reserved area	
super partition information area	0x2010	0x4000			every partition record takes 16 bytes, 1024 records at most. Please set the unused area as all 0xFF bytes. Little endian.	
reserved			all 0xFF		reserved area	
real_data	0x10_0000		*data*		the customer's data which will be programmed to the device as super partition information specified.	

Notes

For every byte in Extended CSD:
if the mask byte is 0xFF, then this byte will keep as it is;
Otherwise the programmed value will be ((CURRENT_VALUE & MASK) | (EXPECTED_VALUE & (~MASK)))
CURRENT_VALUE is the value in the chip, EXPECTED_VALUE is what specified in this header.

feature_version:
Every implemented field had been assigned a feature_version.
The field of feature_version should be set as the minimum feature version of all the used fields within the header.
E.g.this value should be 0xF7 if "CMD56 Refresh parameter" is being used.

The structure of each partition record is:
{////1 block == 512 bytes
DWORD part_bgn_blk; ///this variable indicates the location of this partition within the physical partition(boot partition, general purpose partition or user data area).
DWORD data_bgn_blk; ///the location of this partition within data file.(please don't include the 1M header.)
DWORD data_length_blk; ///how many blocks of data file this partition occupies. Please NOTE these 2 variables should be TLwin sectors aligned.
*DWORD attr; see *** ////the lowest byte indicate which physical partition it belongs to. the higher 3 bytes are reserved. 0 is user data area; 1&2 is boot area partiton 1 and 2; 3 ~ 6 are related to the general purpose partitions.*
}
**** Partition record would terminate by 16BYTES 0xFF***
***** Please note any data what have not been covered by any partition will be discarded***
****** (attr & 0xF000) = 0x5000,Partition physical start offset means count from partition END to START.***

Up to 16 records with refresh parameters. Each record takes 16 bytes; unused records should be set to 0xFF.
Record definition for CMD56 index 52 ("Refresh Feature")
DWORD magic_number: 0x56520000 If set, below paramters are used:
DWORD LBA_start Refresh Start Address
DWORD LBA_stop Refresh End Address
DWORD bit_limit Refresh ECC Threshold
Record definition for CMD56 index 54 ("Automatic Read Scan")
DWORD magic_number: 0x56540000 If set, below paramters are used:
DWORD num_read_cmd number of read CMD after which FW should start "check for refresh"
DWORD LBA_range range of LBAs to be checked each time
DWORD ecc_threshold Read Scan ECC threshold
All DWORD values are little endian.

0xA9A90033 magic number to indicates enable transfer partition start address to end-begin count, little endian
The magic number 0xA9A90033 was newly introduced at end of 2014. Its usage is:
In case the device physical partition size is 8GB, the part_bgn_blk = 1M, then the data will be put at (8GB – (512*1M)) within the partition of this device.

Re-partition parameter struct is:
{
DWORD magic_number; //Magic number to indetify which device(moviNAND, iNAND, etc..) re-partition routine runs
DWORD boot_area_param; //Boot area re-size parameter (the definition of value is dependent on the device Spec)
DWORD rpmb_area_param; //RPMB area re-size parameter if exist (the definition of value is dependent on the device Spec)
DWORD reserved; //Reserved for future usage
}
About magic_number:
0x53414D50 *indicate "SAMP", Samsung moviNAND partition function active.*
0x53414E50 *indicate "SANP", Sandisk iNAND partition function active.*

The whole file structure should be totally the same as "MMC44 Data File Organization" if don't consider this new super partition features.
"High Capacity Erase Group Size" should be used after configuring partitions.
There will be related information generated within eventlog.txt once loaded.
This document is for Data I/O customers only.

Date	History
6/5/2012	Add partition function support (moviNAND and iNAND)
5/8/2013	Add partition number to 1024 (what was 63 in the past)
6/21/2013	Add partition terminating condition
10/14/2014	Improve the document for clearness
12/30/2014	Add magic code & attribute for partition physical start address End - Begin convert
8/1/2016	Add CMD56 Refresh parameter and, feature version
3/23/2017	Add feature:smart tweak partition relavant eCSD read from chip, update feature version - 1