

# eMMC v4.3+ programming with Data I/O Systems

## Overview

The eMMC 4.3+ feature set introduces new boot area and partitioning features. To use these features a specially formatted image file must be provided to Data I/O's TaskLink software and a set of special features values must be correctly set to match this image file. The image file will contain a 1MByte header which will contain Extended CSD data. Following this header will be the data for each partition, the sizes of which must be specified in the Special Feature tab for each TaskLink programming job.

## File Format

Field	Size (bytes)	Value	Description
magic_number	4	0xAA55EC44	magic number, little endian
Reserved	508	0xFF	Reserved area, fill with 0xFF
Extended CSD	512	<i>CSD data</i>	Refer to the fields in the eMMC 4.4 specification.
Mask of Extended CSD	512	<i>CSD mask</i>	Mask which fields don't need modification, '1' masks the bit
Reserved	1047040	0xFF	Reserved area, fill with 0xFF
Boot Area Partition 1	<i>User Specified</i>	<i>data</i>	Size = [Boot Partition #0 Data Size (block)] * 512bytes
Boot Area Partition 2	<i>User Specified</i>	<i>data</i>	Size = [Boot Partition #1 Data Size (block)] * 512bytes
General Purpose Area Partition 1	<i>User Specified</i>	<i>data</i>	Size = [General Purpose Partition #0 Data Size(block)] * 512bytes
General Purpose Area Partition 2	<i>User Specified</i>	<i>data</i>	Size = [General Purpose Partition #1 Data Size(block)] * 512bytes

Field	Size (bytes)	Value	Description
General Purpose Area Partition 3	<i>User Specified</i>	<i>data</i>	Size = [General Purpose Partition #2 Data Size(block)] * 512bytes
General Purpose Area Partition 4	<i>User Specified</i>	<i>data</i>	Size = [General Purpose Partition #3 Data Size(block)] * 512bytes
User Data Area	<i>User Specified</i>	<i>data</i>	to the end of the data file

## eMMC Special Features

Special Feature	Option	Description
SDMP: multi-partition header	NO Multi-partition header	Data file does not contains header information
	Has Multi-partition header	Data file contains header information
	Auto Check	The data file will be checked for the magic number 0xAA55EC44(or 0xAA55A5A5) to determine if the header is present
SDMP: multi-partition function	Disable	Disable the multi-partition operations
	Enable	Enable the multi-partition operations
	Auto Check	Depends on whether the header existed or not
	Remapping	Remap the data according to the partition header information but not do multi-partition operation

Special Feature	Option	Description
Required Sector Num (SD part)	(Integer Value)	Specifies how many sectors(TLWin sector table) will be erased(if not chip erase) or programmed.
Boot Partition #0 Data Size (block)	(Integer Value)	Specifies the data size within the data file for the boot area partition 1. (see file format section) Value is in blocks which are 512 bytes
Boot Partition #1 Data Size (block)	(Integer Value)	Specifies the data size within the data file for the boot area partition 2. (see file format section) Value is in blocks which are 512 bytes
General Purpose Partition #0 Data Size(block)	(Integer Value)	Specifies the data size within the data file for the General Purpose Area partition 1. (see file format section) Value is in blocks which are 512 bytes
General Purpose Partition #1 Data Size(block)	(Integer Value)	Specifies the data size within the data file for the boot area partition 2. (see file format section) Value is in blocks which are 512 bytes
General Purpose Partition #2 Data Size(block)	(Integer Value)	Specifies the data size within the data file for the boot area partition 3. (see file format section) Value is in blocks which are 512 bytes

Special Feature	Option	Description
General Purpose Partition #3 Data Size(block)	(Integer Value)	Specifies the data size within the data file for the boot area partition 4. (see file format section) Value is in blocks which are 512 bytes

## Other Notes

### Supported Programming Image Size

The size of eMMC devices can be very significant. In some cases Data I/O will only support a portion of the full device size. This will be indicated in the footnotes area of the device support record and will be reflected in the naming by adding the maximum supported size within parenthesis at the end of the name.

### Disabling Sectors with MMC devices

If the program flag of first sector is unchecked, the multi-partition header will be treated as if it does not exist.