

Proposal for the Device Statistic Information Additions Device Solid State Media Statistics Group

To: T13 Technical Committee
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This document shows the list of candidates of device Solid State Media statistic information to be included in the Device Statistic Information Log. Each of the candidates will be reviewed and included in the standard after approval. Support of each of the item on the list is optional.

The Solid State Media includes the Non-Volatile FLASH memory in the NV Cache and the Non-Volatile Solid State Media in a Solid State Disk. The statistics shows the status of the Non-Volatile memory. The statistics indicates the erase cycle and defected condition of the device.

Summary of Device Statistic Information Candidates:

1. Device Statistic Information Header
2. Defect Block Size
3. Erase Block Size
4. Number of Defect Block in the Solid State Media
5. Percentage of Defect Block in the Solid State Media
6. Number of Solid State Media Erase Cycles
7. Percentage of Spare Blocks Remaining in Solid State Media

Device Statistic Information Table

Byte Offset	Bit	Description
0		Device Statistic Information Header
		Description: When T13 decides to make a new revision to this structure
		Update Criteria: When event occurs
		Measurement Units: Number sequence
		Initialization: Set to 0001h at the factory
	63:48	Revision number
	47:0	Reserved
8		Defect Block Size
		Description: This value indicates the number of bytes of the Solid State defect block unit
		Update Criteria: NA
		Measurement Units: Number of bytes for a defect block

		Initialization: Initialized at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Unsigned DWORD Defect Block Size
16		Erase Block Size
		Description: This value indicates the number of bytes of the Solid State erase block unit
		Update Criteria: NA
		Measurement Units: Number of bytes for a erase block
		Initialization: Initialized at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Unsigned DWORD Erase Block Size
24		Number of Defect Blocks in the Solid State Media
		Description: This counter indicates number of defect block detected after the product is in service
		Update Criteria: When a defected block is reassigned and/or removed from the service
		Measurement Units: Defect block
		Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Unsigned DWORD Number of Defect Blocks in the Solid State Media
32		Percentage of Defect Block in the Solid State Media
		Description: This number is the percentage of defect blocks out of the original useable media
		Update Criteria: This number is calculated when the statistic at offset #24 is updated
		Measurement Units: Percentage of defects from original useable media size
		Initialization: Cleared to zero percent at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:8	Reserved
	7:0	Unsigned INT Percentage of Defect Block in the Solid State Media
40		Number of Solid State Media Erase Cycles
		Description: This counter indicates number of solid state media erase cycles
		Update Criteria: When an erase cycle is completed
		Measurement Units: Completed erase cycles

		Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Unsigned DWORD Number of Solid State Media Erase Cycles
48		Percentage of the Rated Lifetime Used
		Description: This number indicates the percentage of current usage state of the solid state media. The rated lifetime of the solid state media is set by the number of erase cycles the device is capable of. The value of the percentage of the rated lifetime used is calculated from the current erase cycle divided by the rated erase cycles. This value maybe greater than 100 percent.
		Update Criteria: When an erase cycle is completed
		Measurement Units: Percentage of remaining endurance
		Initialization: Set to 0 percent at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:16	Reserved
	15:0	Unsigned INT Percentage of the Rated Lifetime Used
56		Percentage of Spare Blocks Remaining in Solid State Media
		Description: This is the percentage of remaining spare blocks which can be used for defect reassign. The percentage is calculated from the remaining number of spare blocks compare with the original number of spare blocks.
		Update Criteria: This number is calculated when the statistic at offset #24 is updated
		Measurement Units: Percentage of spare blocks remaining in Solid State Media
		Initialization: Set to 100 percent at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:8	Reserved
	7:0	Unsigned INT Percentage of Spare Blocks Remaining in Solid State Media