

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. Number of Defect Blocks in the Solid State Media
4. Percentage of Defect Block in the Solid State Media
5. Number of Solid State Media Erase/Program Cycles
6. Percentage of the Solid State Media Remaining Endurance
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		Number of Defect Block Size Blocks in the Solid State Media
		Description: This value indicates the number of bytes of the Solid State counter is incremented by one when a defect block unit is detected

		Update Criteria: <u>NA</u> When event occurs
		Measurement Units: <u>Number of bytes for a defect</u> Defect block
		Initialization: <u>Initialized</u> Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Unsigned DWORD <u>Number of Defect Block Size</u> Sectors in the NV Cache
<u>16</u> *8		<u>Number Percentage</u> of Defect Blocks in the Solid State Media
		Description: This <u>counter indicates number of is incremented</u> <u>by the percentage when</u> defect block <u>is</u> detected <u>after the product is in service</u>
		Update Criteria: When <u>a defected block is reassigned and/or</u> <u>removed from the service</u> event occurs
		Measurement Units: <u>Defect block Percentage of defects in Solid</u> <u>State Media</u>
		Initialization: Cleared to zero at the factory
	<u>63</u>	<u>1=valid statistic data</u>
	<u>62:56</u>	<u>Reserved</u>
	<u>55:32</u>	<u>Reserved</u>
	<u>31:0</u>	<u>Unsigned DWORD</u> <u>Number of Defect Blocks in the Solid State Media</u>
<u>24</u>		<u>Percentage of Defect Block in the Solid State Media</u>
		Description: This number is the <u>percentage of defect blocks</u> <u>out of the original useable media</u>
		Update Criteria: When <u>new defect is detected</u>
		Measurement Units: <u>Percentage of defects from original useable</u> <u>media size</u>
		Initialization: <u>Cleared to zero percent at the factory</u>
	63	1=valid statistic data
	62:56	Reserved
	55:8	Reserved
	7:0	Unsigned CHAR <u>Percentage of Defect Block in the Solid State Media</u>
<u>32</u> *8		<u>Number of Solid State Media Erase/Program Cycles</u>
		Description: This counter <u>indicates number of solid state</u> <u>medi</u> is incremented by one when a erase or program <u>cycle</u> cycle is completed
		Update Criteria: When <u>an erase or program cycle is</u> <u>completed</u> event occurs
		Measurement Units: <u>Completed</u> erase or program <u>cycle</u> event
		Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Unsigned DWORD <u>Number of Solid State Media Erase/Program Cycles</u>

<u>40*</u> 8	Percentage of the Solid State Media Remaining Endurance	
	Description:	This number <u>indicates the remaining endurance of the solid state media. The remaining endurance is calculated</u> decremented by the <u>expected life cycles minus the current number of erase or program cycles. The expected life cycle is vendor specific. The percentage of the remaining endurance is counted from 100 to 0. This number stay at 0 when the number of erase or program cycle is higher than the expected life cycles.</u>
	Update Criteria:	When event occurs
	Update Criteria:	When an erase <u>or</u> /program cycle is completed
	Measurement Units:	Percentage of remaining endurance
	Initialization:	Set to 100 percent at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:8	Reserved
	7:0	Unsigned CHAR
	Percentage of the Solid State Media Remaining Endurance	
<u>48*</u> 8	Percentage of Spare Blocks Remaining in Solid State Media	
	Description:	This <u>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.</u>
	Update Criteria:	When event occurs
	Update Criteria:	This number is decremented by the percentage when defect block is reassigned to a spare block
	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 CHAR
	Percentage of Spare Blocks Remaining in Solid State Media	