

Device Statistics – Solid State

T13 Technical Proposal – e06184r11

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A.5 Device Statistics (Log Address TBD)

A.5.1 Solid State Device Statistics (Page TBD)

A.5.1.1 Overview

Device Statistics log page TBD contains solid state device information about the device as described in table TBD. The summary of this solid state statistics is as followed:

- a) Structure Version;
- b) Number of Defective Logical Sectors in the Solid State Media;
- c) Number of Solid State Media Erase Operations;
- d) Percentage of the Rated Lifetime Used;
- e) Percentage of Spare Blocks Remaining in Solid State Media;
- f) Number of Error Events on Erase; and
- g) Number of Error Events on Program.

Table TBD – Solid State Statistics

Offset	Type	Content								
0-7	QWord	Structure Version								
		<table> <tr> <td>Bit</td> <td>Meaning</td> </tr> <tr> <td>63:56</td> <td>Device Statistics Flags, (See Table TBD)</td> </tr> <tr> <td>55:24</td> <td>Reserved</td> </tr> <tr> <td>23:16</td> <td>TBD, Page Number</td> </tr> <tr> <td>15:0</td> <td>Device Statistics Version Number = 0001h</td> </tr> </table>	Bit	Meaning	63:56	Device Statistics Flags, (See Table TBD)	55:24	Reserved	23:16	TBD, Page Number
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55:24	Reserved									
23:16	TBD, Page Number									
15:0	Device Statistics Version Number = 0001h									
8-15	QWord	Number of Defective Logical Sectors in the Solid State Media								
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16-23	QWord	Number of Solid State Media Erase Operations								
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24-31	QWord	Percentage of the Rated Lifetime Used								
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32-39	QWord	Percentage of Spare Blocks Remaining in Solid State Media								
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Offset	Type	Content						
40-47	QWord	Number of Error Events on Erase						
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55:32	Reserved							
31:0	Number of Error Events on Erase (DWord)							
48-55	QWord	Number of Error Events on Program						
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63:56	Device Statistics Flags, (See Table TBD)							
55:32	Reserved							
31:0	Number of Error Events on Program (DWord)							
-511	Byte	Reserved						

A.5.1.2 Structure Version

A.5.1.2.1 Description

Structure Version defines the version of the data structure arrangement for this page.

Bit 23:16 is the page number of the Log Page. Bit 15:0 is the revision number of the statistics structure.

A.5.1.2.2 Update Interval

NA

A.5.1.2.3 Measurement Unit

NA

A.5.1.2.4 Initialization

Structure Version shall be set to 0001h.

A.5.1.3 Number of Defective Logical Sectors in the Solid State Media

A.5.1.3.1 Description

Number of Defective Logical Sectors in the Solid State Media statistics is a counter that records the number of defected Logical Sectors that has been found after the device is manufactured. This statistic is incremented by one for each defected Logical Sector found.

A.5.1.3.2 Update Interval

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

A.5.1.3.3 Measurement Unit

Logical Sectors

A.5.1.3.4 Initialization

This statistic shall be initialized to zero at the time of manufacture.

A.5.1.4 Number of Solid State Media Erase Operations

A.5.1.4.1 Description

Number of Solid State Media Erase Operations statistics is a counter that records the number of erase performed by the device after the device is manufactured. This statistic is incremented by one for each erase operation performed.

A.5.1.4.2 Update Interval

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

A.5.1.4.3 Measurement Unit

Events

A.5.1.4.4 Initialization

This statistic shall be initialized to zero at the time of manufacture.

A.5.1.5 Percentage of the Rated Lifetime Used

A.5.1.5.1 Description

Percentage of the Rated Lifetime Used statistics is a value that records 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 may be greater than 100 percent. This statistic is measured in the percentage of erase cycles.

A.5.1.5.2 Update Interval

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

A.5.1.5.3 Measurement Unit

Percentage

A.5.1.5.4 Initialization

This statistic shall be initialized to zero at the time of manufacture.

A.5.1.6 Percentage of Spare Blocks Remaining in Solid State Media

A.5.1.6.1 Description

Percentage of Spare Blocks Remaining in Solid State Media statistics is a value that records 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. This statistic is measured in the percentage of remaining spare blocks available.

A.5.1.6.2 Update Interval

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

A.5.1.6.3 Measurement Unit

Percentage

A.5.1.6.4 Initialization

This statistic shall be initialized to one hundred at the time of manufacture.

A.5.1.7 Number of Error Events on Erase

A.5.1.7.1 Description

Number of Error Events on Erase statistics is a counter that records the number of events the device detects error in the erase operation after the device is manufactured. This statistic is incremented by one for each error found while the erase operation performed.

A.5.1.7.2 Update Interval

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

A.5.1.7.3 Measurement Unit

Events

A.5.1.7.4 Initialization

This statistic shall be initialized to zero at the time of manufacture.

A.5.1.8 Number of Error Events on Program

A.5.1.8.1 Description

Number of Error Events on Program statistics is a counter that records the number of events the device detects error in the program operation after the device is manufactured. Device program operation is for device to write the solid state media. This statistic is incremented by one for each error found while the program operation performed.

A.5.1.8.2 Update Interval

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

A.5.1.8.3 Measurement Unit

Events

A.5.1.8.4 Initialization

This statistic shall be initialized to zero at the time of manufacture.