

Device Statistics – Usage

T13 Technical Proposal – e06180r10

By
Steve Livaccari, IBM, and
Joseph Chen, Samsung
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A.5 Device Statistics (Log Address TBD)

A.5.1 General Usage Statistics (Page TBD)

A.5.1.1 Overview

Device Statistics log page TBD contains general usage information about the device as described in table TBD.

The summary of the general usage statistics is as followed:

- a) Structure Version;
- b) Power-on Hours;
- c) Active/Idle Power Loss Events;
- d) Logical Sectors Written;
- e) Number of Write Commands;
- f) Logical Sectors Read; and
- g) Number of Read Commands.

Comment [J1]: This page should be included in the General Statistics Page. The ACS2 editor will add this page into the document for the General Statistics.

Table TBD – General Usage Statistics

Offset	Type	Content								
0-7	QWord	Structure Version								
		<table border="0"> <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
Bit	Meaning									
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55:24	Reserved									
23:16	TBD, Page Number									
15:0	Device Statistics Version Number = 0001h									
8-15	QWord	Power-on Hours								
		<table border="0"> <tr> <td>Bit</td> <td>Meaning</td> </tr> <tr> <td>63:56</td> <td>Device Statistics Flags, (See Table TBD)</td> </tr> <tr> <td>55:32</td> <td>Reserved</td> </tr> <tr> <td>31:0</td> <td>Power-on Hours (DWord)</td> </tr> </table>	Bit	Meaning	63:56	Device Statistics Flags, (See Table TBD)	55:32	Reserved	31:0	Power-on Hours (DWord)
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31:0	Power-on Hours (DWord)									
16-23	QWord	Logical Sectors Written								
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32-39	QWord	Logical Sectors Read								
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Offset	Type	Content						
40-47	QWord	Number of Read Commands						
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Bit	Meaning							
63:56	Device Statistics Flags, (See Table TBD)							
55:48	Reserved							
47:0	Number of Read Commands (Integer)							
48-511	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 Power-on Hours

A.5.1.3.1 Description

The Power-on Hours statistic is a value that records the amount of time that the device has been operational since the device was manufactured. The device:

- a. shall increment this statistic when it is in PM0:Active state;
- b. shall increment this statistic when it is in PM1:Idle state;
- c. should increment this statistic when it is in the PM2:Standby state; and
- d. shall not increment this statistic when it is in PM3:Sleep state.

This statistic is incremented in a volatile location with a resolution of one minute or less. This volatile value is accumulated into a non-volatile location per the update interval.

A.5.1.3.2 Update Interval

One hour

A.5.1.3.3 Measurement Unit

Hours

A.5.1.3.4 Initialization

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

A.5.1.4 Active/Idle Power Loss Events

A.5.1.4.1 Description

The Active/Idle Power Loss Events statistic is a value that records number of power loss events that have occurred when the device was in PM0:Active or PM1:Idle state. When the device is powered on and if it detects that an Active/Idle Power Loss Event has occurred, then this statistic is incremented and stored in a non-volatile location at the next power-up.

A.5.1.4.2 Update Interval

On event occurrence

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 Logical Sectors Written

A.5.1.5.1 Description

The Logical Sectors Written statistic is a value that records the number of logical sectors received from the host. This statistic is incremented by one for each logical sector that was successfully received from the host.

A.5.1.5.2 Update Interval

One hour

A.5.1.5.3 Measurement Unit

Logical Sectors

A.5.1.5.4 Initialization

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

A.5.1.6 Number of Write Commands

A.5.1.6.1 Description

The Number of Write Commands statistic is the number of write commands that completed successfully. This statistic is incremented by one for each write command that successfully completes.

A.5.1.6.2 Update Interval

One hour

A.5.1.6.3 Measurement Unit

Events

A.5.1.6.4 Initialization

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

A.5.1.7 Logical Sectors Read

A.5.1.7.1 Description

The Logical Sectors Read statistic is a value that records the number of logical sectors sent to the host. This statistic is incremented by one for each logical sector that was successfully sent to the host.

A.5.1.7.2 Update Interval

One hour

A.5.1.7.3 Measurement Unit

Logical sectors

A.5.1.7.4 Initialization

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

A.5.1.8 Number of Read Commands

A.5.1.8.1 Description

The Number of Read Commands statistic is the number of read commands that completed successfully. This statistic is incremented by one for each read command that successfully completes.

A.5.1.8.2 Update Interval

One hour

A.5.1.8.3 Measurement Unit

Events that command completed successfully

A.5.1.8.4 Initialization

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

A.5.2 Rotating Media Usage Statistics (Page TBD)

A.5.2.1 Overview

Device Statistics log page TBD contains device rotating media usage information about the device as described in table TBD.

The summary of the rotating media usage statistics is as followed:

- a) Structure Version;
- b) Spindle Motor Power-on Hours;
- c) Head Flying Hours; and
- d) Head Loaded Events;

Table TBD – Rotating Media Usage Statistics

Offset	Type	Content								
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23:16	TBD, Page Number									
15:0	Device Statistics Version Number = 0001h									
8-15	QWord	Spindle Motor Power-on Hours								
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55:32	Reserved									
31:0	Head Loaded Events (DWord)									
32-511	Byte	Reserved								

A.5.2.2 Structure Version

A.5.2.2.1 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.5.2.2.2 Update Interval

NA

A.5.2.2.3 Measurement Unit

NA

A.5.2.2.4 Initialization

Structure Version shall be set to 0001h.

A.5.2.3 Spindle Motor Power-on Hours

A.5.2.3.1 Description

The Spindle Motor Power-on Hours statistic is a value that records the amount of time that the spindle motor has been powered on since the device was manufactured. This statistic is incremented in a volatile location with a resolution of one minute or less. This volatile value is accumulated into a non-volatile location per the update interval.

A.5.2.3.2 Update Interval

One hour

A.5.2.3.3 Measurement Unit

Hours

A.5.2.3.4 Initialization

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

A.5.2.4 Head Flying Hours

A.5.2.4.1 Description

The Head Flying Hours statistic is a value that records number of hours that the device heads have been flying over the surface of the media since the device was manufactured. This statistic is incremented in a volatile location with a resolution of one minute or less. This volatile value is accumulated into a non-volatile location per the update interval.

A.5.2.4.2 Update Interval

One hour

A.5.2.4.3 Measurement Unit

Hours

A.5.2.4.4 Initialization

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

A.5.2.5 Head Load Events

A.5.2.5.1 Description

The Head Load Events statistic is a value that records the number of head load events. A head load event is defined as:

- a. when the heads are loaded from the ramp to the media for a ramp load device; or
- b. when the heads take off from the landing zone for a contact start stop device.

This statistic is incremented by one each time a head load event occurs.

A.5.2.5.2 Update Interval

One hour

A.5.2.5.3 Measurement Unit

Events

A.5.2.5.4 Initialization

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