

Proposal for the Device Statistic Information Additions Device Error Statistics Group

To: T13 Technical Committee
 From: Joseph Chen, Samsung
 Steve Livaccari, IBM
 Date: September 14, 2007

This document shows the list of candidates of device error 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. Supporting of each of the item on the list is optional.

Summary of Device Statistic Information Candidates:

1. Device Statistic Information Header
2. Number of Reallocation Sectors Used (Lifetime)
3. Number of Available Spare Sectors for Reassign
4. Number of Sectors Waiting to be Reallocated
5. Number of Reported Uncorrectable Errors (Lifetime)
6. Number of Reported Non-Uncorrectable Errors (Lifetime)
7. Number of Blown Revolutions (Lifetime)
8. Number of Soft Errors (Since the last power on reset was processed)
9. Number of Write Faults (Lifetime)
10. Number of Seek Error Detected (Since the last power on reset was processed)
11. Number of Spin-up Failures (Lifetime)

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 Reallocation Sectors Used (Lifetime)
		Description: This statistics reports the number of sectors (LBA blocks) that has been reallocated after the device is manufactured. Update Criteria: Update on Timer: Yes (= 1 hour) Update on entering Standby state: Yes Update on entering Sleep state: Yes

		Update on Device Statistics Page Read: Yes Measurement Units: Hours Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Number of Reallocation Sectors Used (Lifetime)
16		Number of Available Spare Sectors for Reassign Description: This statistics reports the number of sectors (LBA blocks) that are available to be used for the bad sector reallocated after the device is manufactured. Update Criteria: Update on Timer: Yes (= 1 hour) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes Measurement Units: Hours Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Number of Available Spare Sectors for Reassign
24		Number of Sectors Waiting to be Reallocated Description: This statistics reports the number of sectors (LBA blocks) that are defective and pending for the reallocation. The pending for reallocation sectors is counted after the device is manufactured. Update Criteria: Update on Timer: Yes (= 1 hour) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes Measurement Units: Hours Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Number of Sectors Waiting to be Reallocated
32		Number of Reported Uncorrectable Errors (Lifetime) Description: This statistics reports the number of errors that are reported as ECC Uncorrectable errors by the host command accesses. Update Criteria: Update on Timer: Yes (= 1 hour) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes Measurement Units: Hours

		Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Number of Reported Uncorrectable Errors (Lifetime)
40		Number of Reported Non-Uncorrectable Errors (Lifetime)
		Description: This statistics reports the number of errors reported to the host that are not reported as ECC Uncorrectable error. Update Criteria: Update on Timer: Yes (= 1 hour) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes Measurement Units: Hours Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Number of Reported Non-Uncorrectable Errors (Lifetime)
48		Number of Blown Revolutions (Lifetime)
		Description: This statistics reports the number of revolutions that is used for the retries by the device. This statistics is applied to rotational media only. Update Criteria: Update on Timer: Yes (= 1 hour) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes Measurement Units: Hours Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Number of Blown Revolutions (Lifetime)
56		Number of Soft Errors (Since the last power on reset was processed)
		Description: This statistics reports the number of soft errors device encountered during the read operation. Soft error is for the errors that are detected but can be recovered by retries. Update Criteria: Update on Timer: Yes (= 1 hour) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes Measurement Units: Hours Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:48	Reserved

	47:0	Number of Soft Errors (Since the last power on reset was processed)
64		Number of Write Faults (Lifetime)
		Description: This statistics reports the number of write fault errors reported to the host.
		Update Criteria: Update on Timer: Yes (= 1 hour) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes
		Measurement Units: Hours Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Number of Write Faults (Lifetime)
72		Number of Seek Error Detected (Since the last power on reset was processed)
		Description: This statistics reports the number of seek errors detected by the device since the last process of power-on reset.
		Update Criteria: Update on Timer: Yes (= 1 hour) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes
		Measurement Units: Hours Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Number of Seek Error Detected (Since the last power on reset was processed)
80		Number of Spin-up Failures (Lifetime)
		Description: This statistics reports the number of spin-up errors since the device is manufactured.
		Update Criteria: Update on Timer: Yes (= 1 hour) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes
		Measurement Units: Hours Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Number of Spin-up Failures (Lifetime)