

Proposal for the Device Statistic Information Additions Transport Statistics Group

To: T13 Technical Committee
 From: Joseph Chen, Samsung
 Steve Livaccari, IBM
 Date: Apr 4, 2008

This document shows the list of candidates of transport statistics 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. Signature Device-to-Host Register FISes sent due to a COMRESET (Lifetime)
3. ~~Number of the D2H Signature FIS in Respond to Reset (Lifetime)~~
4. Signature Device-to-Host Register FISes sent due to a COMRESET (Lifetime)
5. Number ASR (Asynchronous Signal Recovery) Events (Lifetime)
6. Number ASR (Asynchronous Signal Recovery) Events (Short Term)
7. Interface CRC Error Count (Lifetime)
8. Interface CRC Error Count (Short Term)
9. ~~Protocol CRC Error Count (Lifetime)~~
10. ~~Protocol CRC Error Count (Short Term)~~
11. ~~Device Received R_ERR Count (Lifetime)~~
12. ~~Device Sent R_ERR Count (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: NA
		Measurement Units: NA
		Initialization: At the time of manufacture
	63:48	Revision number 0001h
	47:16	Reserved
	15:0	Page Number xxxxxh
8		Signature Device-to-Host Register FISes sent due to a COMRESET (Lifetime)
		Number of the D2H Signature FIS in Respond to Reset (Lifetime)

		<p>Description: This value records number of Signature FIS's sent by the device since the device was manufactured. See SATA 2.6 PHY Event Counter Identifier 00Ah.</p> <p>Update Criteria: Update on Timer: Yes if the statistics is changed since last update (= 5 min) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes</p> <p>Measurement Units: Events</p> <p>Initialization: Cleared to zero at the time of manufacture = yes Preserve over all resets = yes</p>
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Signature Device-to-Host Register FISes sent due to a COMRESET (Lifetime) Number of the D2H Signature FIS in Respond to Reset (Lifetime)
16		Number ASR (Asynchronous Signal Recovery) Events (Lifetime)
		<p>Description: This value records number of successful ASR events since the device was manufactured. See SATA 2.6, Section 8.2.</p> <p>Update Criteria: Update on Timer: Yes if the statistics is changed since last update (= 5 min) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes</p> <p>Measurement Units: Events</p> <p>Initialization: Cleared to zero at the time of manufacture = yes Preserve over all resets = yes</p>
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Number of ASR (Asynchronous Signal Recovery) Events (Lifetime)
24		Number ASR (Asynchronous Signal Recovery) Events (Short Term)
		<p>Description: This value records number of successful ASR events since the last 5 minute. Accumulate the count of ASR on every minute and record the sum of the last five minutes of counts into this statistic. See SATA 2.6, Section 8.2.</p> <p>Update Criteria: Update on Timer: Yes if the statistics is changed since last update (= 5 min) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes</p> <p>Measurement Units: Events</p> <p>Initialization: Cleared to zero at the time of manufacture = yes Preserve over all resets = no</p>

	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Number of ASR (Asynchronous Signal Recovery) Events (Short Term)
32		Interface CRC Error Count (Lifetime)
		Description: This value records number of Interface CRC errors detected by the device since the device was manufactured.
		Update Criteria: Update on Timer: Yes if the statistics is changed since last update (= 5 min) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes
		Measurement Units: Events
		Initialization: Cleared to zero at the time of manufacture = yes Preserve over all resets = yes
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Interface CRC Error Count (Lifetime)
40		Interface CRC Error Count (Short Term)
		Description: This value records number of Interface CRC errors detected by the device in the last 5 minutes. Accumulate the count of Interface CRC errors on every minute and record the sum of the last five minutes of counts into this statistic.
		Update Criteria: Update on Timer: Yes if the statistics is changed since last update (= 5 min) Update on entering Standby state: Yes Update on entering Sleep state: Yes Update on Device Statistics Page Read: Yes
		Measurement Units: Events
		Initialization: Cleared to zero at the time of manufacture = yes Preserve over all resets = no
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Interface CRC Error Count (Short Term)
48		Protocol CRC Error Count (Lifetime)
		Description: This value records number of Protocol CRC errors detected by the device since the device was manufactured. Protocol CRC error is at the FIS level; it is defined for Interface CRC error or other CRC errors occurs in FIS package including the register FIS and other non-command FIS. SATA 2.6 Section 9.5 is where

		<p>the CRC defined.</p> <p>Update Criteria: Update on Timer: Yes if the statistics is changed since last update (= 5 min)</p> <p>Update on entering Standby state: Yes</p> <p>Update on entering Sleep state: Yes</p> <p>Update on Device Statistics Page Read: Yes</p> <p>Measurement Units: Events</p> <p>Initialization: Cleared to zero at the time of manufacture = yes</p> <p>Preserve over all resets = yes</p>
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Protocol CRC Error Count (Lifetime)
56		Protocol CRC Error Count (Short Term)
		<p>Description: This value records number of Protocol CRC errors detected by the device in the last 5 minutes. Protocol CRC error is defined for Interface CRC error or other CRC errors occurs in FIS package including the register FIS and other non-command FIS'.</p> <p>Update Criteria: Update on Timer: Yes if the statistics is changed since last update (= 5 min)</p> <p>Update on entering Standby state: Yes</p> <p>Update on entering Sleep state: Yes</p> <p>Update on Device Statistics Page Read: Yes</p> <p>Measurement Units: Events</p> <p>Initialization: Cleared to zero at the time of manufacture = yes</p> <p>Preserve over all resets = no</p>
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Protocol CRC Error Count (Short Term)

New Statistics

64		Device Received R_ERR Count (Lifetime)
		<p>Description: This value records number of Protocol R_ERR received by the device. Protocol R_ERR is defined for all cases including Data and Register FIS'.</p> <p>Update Criteria: Update on Timer: Yes if the statistics is changed since last update (= 5 min)</p> <p>Update on entering Standby state: Yes</p> <p>Update on entering Sleep state: Yes</p> <p>Update on Device Statistics Page Read: Yes</p> <p>Measurement Units: Events</p> <p>Initialization: Cleared to zero at the time of manufacture = yes</p> <p>Preserve over all resets = no</p>
	63	1=valid statistic data

	62:56	Reserved
	55:32	Reserved
	31:0	Device Received R_ERR Count (Lifetime)
72		Device Sent R_ERR Count (Lifetime)
		<p>Description: This value records number of Protocol R_ERR sent by the device. Protocol R_ERR is defined for all cases including Data and Register FIS'.</p> <p>Update Criteria: Update on Timer: Yes if the statistics is changed since last update (= 5 min)</p> <p>Update on entering Standby state: Yes</p> <p>Update on entering Sleep state: Yes</p> <p>Update on Device Statistics Page Read: Yes</p> <p>Measurement Units: Events</p> <p>Initialization: Cleared to zero at the time of manufacture = yes</p> <p>Preserve over all resets = no</p>
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Device Sent R_ERR Count (Lifetime)