

T10/08-420 Revision 0

Date: October 20, 2008

To: T10 Committee

From Brad Besmer, LSI

Subject: SPL Power Management Reporting and Control

Overview

Background

This proposal adds SMP reporting and control of SAS and SATA Power Management (see 08-015, 08-206 and 08-249).

SPL Changes

SMP PHY CONTROL Changes:

Table 336 defines the request format.

Table 336 — PHY CONTROL request

Byte\Bit	7	6	5	4	3	2	1	0
0	SMP FRAME TYPE (40h)							
1	FUNCTION (91h)							
2	ALLOCATED RESPONSE LENGTH							
3	REQUEST LENGTH (00h or 09h)							
4	(MSB)	EXPECTED EXPANDER CHANGE COUNT						(LSB)
5								
6	Reserved							
8								
9	PHY IDENTIFIER							
10	PHY OPERATION							
11	Reserved							UPDATE PARTIAL PATHWAY TIMEOUT VALUE
12	Reserved							
23								
24	ATTACHED DEVICE NAME							
31								
32	PROGRAMMED MINIMUM PHYSICAL LINK RATE				Reserved			
33	PROGRAMMED MAXIMUM PHYSICAL LINK RATE				Reserved			
34	SAS SLUMBER ENABLE SAS PARTIAL ENABLE SATA SLUMBER ENABLE SATA PARTIAL ENABLE							
35	Reserved							
36	Reserved				PARTIAL PATHWAY TIMEOUT VALUE			
37	Reserved							
39								
40	(MSB)	CRC						(LSB)
43								

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The SAS SLUMBER ENABLE field specifies if the SAS slumber phy power phy power management mode is allowed on the specified phy. Table 337 defines the values for this field.

The SAS PARTIAL ENABLE field specifies if the SAS partial phy power phy power management mode is allowed on the specified phy. Table 337 defines the values for this field.

The SATA SLUMBER ENABLE field specifies if the SATA slumber phy power phy power management mode is allowed on the specified phy. Table 337 defines the values for this field.

The SATA PARTIAL ENABLE field specifies if the SATA partial power phy power management mode is allowed on the specified phy. Table 337 defines the values for this field.

Table 337 — SAS SLUMBER ENABLE field, SAS PARTIAL ENABLE field, SATA SLUMBER ENABLE field and SATA PARTIAL ENABLE field

Code	Description
0h	Do not change current value
1h	Enable power management
2h	Disable power management
3h	Reserved

If the SAS SLUMBER ENABLE field is set to an unsupported or reserved value, then the management device server shall not change the SAS slumber power management and may return a function result of SMP FUNCTION FAILED in the response frame (see table 247 in 10.4.3.3) If the management device server returns a function result of SMP FUNCTION FAILED, then it shall not perform the requested phy operation.

If the SAS PARTIAL ENABLE field is set to an unsupported or reserved value, then the management device server shall not change the SAS partial power management and may return a function result of SMP FUNCTION FAILED in the response frame (see table 247 in 10.4.3.3) If the management device server returns a function result of SMP FUNCTION FAILED, then it shall not perform the requested phy operation.

If the SATA SLUMBER ENABLE field is set to an unsupported or reserved value, then the management device server shall not change the SATA slumber power management and may return a function result of SMP FUNCTION FAILED in the response frame (see table 247 in 10.4.3.3) If the management device server returns a function result of SMP FUNCTION FAILED, then it shall not perform the requested phy operation.

If the SATA PARTIAL ENABLE field is set to an unsupported or reserved value, then the management device server shall not change the SATA partial power management and may return a function result of SMP FUNCTION FAILED in the response frame (see table 247 in 10.4.3.3) If the management device server returns a function result of SMP FUNCTION FAILED, then it shall not perform the requested phy operation.

SMP DISCOVER Changes:

61	Reserved
62	
63	ZONE GROUP
64	SELF-CONFIGURATION STATUS

65	SELF-CONFIGURATION LEVELS COMPLETED				
66	Reserved	SAS SLUMBER CAPABLE	SAS PARTIAL CAPABLE	SATA SLUMBER CAPABLE	SATA PARTIAL CAPABLE
67	Reserved	SAS SLUMBER ENABLED	SAS PARTIAL ENABLED	SATA SLUMBER ENABLED	SATA PARTIAL ENABLED
68	SELF-CONFIGURATION SAS ADDRESS				
75					
76	PROGRAMMED PHY CAPABILITIES				
79					
80	CURRENT PHY CAPABILITIES				
83					

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[The SAS SLUMBER CAPABLE bit, SAS PARTIAL CAPABLE bit, SATA SLUMBER CAPABLE bit and SATA PARTIAL CAPABLE bit indicates if the cooresponding phy power management mode is supported on the specified phy.](#)

[The SAS SLUMBER ENABLED bit, SAS PARTIAL ENABLED bit, SATA SLUMBER ENABLE bit and SATA PARTIAL ENABLED bit indicates if the cooresponding phy power management mode is enabled on the specified phy.](#)