To: T10 Technical Committee
From: Tim Symons, PMC-Sierra (Tim_Symons@pmc-sierra.com)
Date: 27 July 2006
Subject: 06-286r3 SAS-2 SMP ZONE CONFIGURATION LOCK.

Revision Information

- Revision 0: First Revision
- Revision 1: Text revisions per discussion.
- Revision 2: Removed time-out references as these belong in the time-out proposal (06-326). Added definition for configuring zoning expanders that are not zone enabled.
- Revision 3: Added EXPANDER CHANGE COUNT and ZONE CONFIGURATION LOCKED bit to the request and response frames to indicate zoning expander lock status.

Referenced Documents

sas2r05a Serial Attached SCSI – 2 (SAS-2) revision 5a
06-201r1 SAS-2 SMP Configure phy zone (Tim Symons, PMC-Sierra)
06-202r2 SAS-2 SMP Configure zone permission (Tim Symons, PMC-Sierra)
06-281r2 SAS-2 Enable and disable zoning (Rob Elliott, HP)
06-288r3 SAS-2 SMP ZONE CONFIGURATION ACTIVATE function (Tim Symons, PMC-Sierra)
06-289r3 SAS-2 SMP ZONE CONFIGURATION UNLOCK (Tim Symons, PMC-Sierra)
06-326r0 SAS-2 SMP Zone Lock Timer (Tim Symons, PMC-Sierra)
06-358r0 SAS-2 Zone Configuration model (Tim Symons, PMC-Sierra)

Overview

SMP function to lock zoning expander devices to allow SMP zone locked functions.

10.4.3.1 SMP function request frame format

Table 196 – SMP functions (FUNCTION field)

Code	SMP function	Description	Reference
		…	
84h	ZONE CONFIGURATON LOCK	Requests zone lock enable to be set to one for a zoning expander device.	10.4.3.xx
		…	

10.4.3.2 SMP function response frame format

Table 198 – FUNCTION RESULT **field**

Code	Name	SMP function(s)	Description
		…	
21h	ZONE LOCK VIOLATION	CONFIGURE PHY ZONE, CONFIGURE ZONE PERMISSION, ZONE CONFIGURATION LOCK, ACTIVATE ZONE LOCKED UPDATE, ZONE LOCK RELEASE	A zoning expander device that is zone locked, receives an SMP zone locked request function from a source that is not the active zone management application client, or when the zoning expander device is not locked.
		…	

…

Table xx - Function result priority per SMP Function

SMP Function (per table 197)	SMP Function Result Priority
	…
ZONE CONFIGURATION LOCK	1) INVALID REQUEST FRAME LENGTH 2) SMP ZONE VIOLATION 3) ZONE LOCK VIOLATION 4) SMP FUNCTION FAILED 5) SMP FUNCTION ACCEPTED
	…

…

10.4.3.3 REPORT GENERAL function

Table 199 defines the response format.

Table 199 - REPORT GENERAL response

Byte\Bit	7	6	5	4	3	2	1	0
…	…							
3	RESPONSE LENGTH (0bh)							
…	…							
36	Reserved						ZONE CONFIGURATION LOCKED	ZONING ENABLED
…	…							
40	ZONE LOCK SAS ADDRESS							
47								
48	(MSB)	CRC						
51								(LSB)

…

The REQUEST LENGTH field shall be set to (0bh).

…

A ZONE CONFIGURATION LOCKED bit set to one indicates that the ZPSDS is locked by the zone management application client device indicated by the SAS address in the ZONE LOCK SAS ADDRESS field. A ZONE LOCKED bit set to zero indicates that the ZPSDS is not locked and the SAS address in the ZONE LOCK SAS ADDRESS field indicates the zone management application client that last updated the zoning expander device.

The ZONING ENABLED bit is defined in 10.4.3.3

…

The ZONE LOCK SAS ADDRESS field indicates the affiliated STP initiator SAS address of the zone management application client device. This field shall have a user defined default value at power on.

…

Start of new definitions. Changes between revisions are shown in red

---

10.4.3.x ZONE LOCK function

This function shall be supported by all zone management application client devices. The ZONE LOCK function is used by a zone management application client device server to register itself as the active zone management device. A zoning expander device registers the zone management application client device SAS address when it receives the ZONE LOCKED request, if it is not already locked. Each zoning expander device in a ZPSDS shall be locked by the same zone management application client device, and when locked shall only accept SMP zone locked function requests from the active zone management application client.

A zoning expander device shall be locked during zone configuration changes. Zone configuration events shall be constrained by timers, and the active zone management application client shall activate and release the lock shall be released as soon as the changes are complete or when a zone lock timer expires.

Table 1 defines the ZONE CONFIGURATION LOCK request format.

Table 1 – ZONE CONFIGURATION LOCK request

Byte\Bit	7	6	5	4	3	2	1	0
0	SMP FRAME TYPE (40h)							
1	FUNCTION (84h)							
2	Reserved							
3	REQUEST LENGTH (01h)							
4	(MSB)			EXPANDER CHANGE COUNT				
5								(LSB)
6	Reserved							ZONE CONFIGURATION LOCKED
7	Reserved							
8	(MSB)			CRC				
11								(LSB)

The SMP FRAME TYPE field shall be set to 40h.

The FUNCTION field shall be set to 84h.

The REQUEST LENGTH field shall be set to (01h).

The EXPANDER CHANGE COUNT field is defined in 10.4.3.3

The ZONE CONFIGURATION LOCKED bit is defined in 10.4.3.3

The CRC field is defined in 10.4.3.1.

The ZONE LOCK response format is defined in Table 2.

Table 2 – ZONE LOCK response

Byte\Bit	7	6	5	4	3	2	1	0
0	SMP FRAME TYPE (41h)							
1	FUNCTION (84h)							
2	FUNCTION RESULT							
3	RESPONSE LENGTH (02h)							
4	Reserved							ZONE CONFIGURATION LOCKED
5	Reserved							
7								
8	ZONE LOCK SAS ADDRESS							
15								
16	(MSB)	CRC						
19								(LSB)

The SMP FRAME TYPE field shall be set to 41h.

The FUNCTION field shall be set to 84h.

The FUNCTION RESULT field is defined in 10.4.3.2

The RESPONSE LENGTH field shall be set to 02h.

The ZONE CONFIGURATION LOCKED bit is defined in 10.4.3.3

The ZONE LOCK SAS ADDRESS field is defined in 10.4.3.3

The CRC field is defined in 10.4.3.1.