To: T10 Technical Committee
From: Tim Symons, PMC-Sierra (Tim_Symons@pmc-sierra.com)
Date: 3 August 2006
Subject: 06-289r4 SAS-2 SMP ZONE UNLOCK

Revision Information

- Revision 0: First draft.
- Revision 1: Renamed function. Added request codes and moved lock definitions into proposal 06-286.
- Revision 2: Text edits – CRC, Function priority.
- Revision 3: Moved activate Broadcast to this function. Removed time-out references as these belong in the time-out proposal 06-326.
- Revision 4: Renamed the function to SMP ZONE UNLOCK.

Referenced Document

sas2r05a Serial Attached SCSI – 2 (SAS-2) revision 5a
06-201r3 SAS-2 SMP Configure phy zone (Tim Symons, PMC-Sierra)
06-286r4 SAS-2 SMP ZONE LOCK (Tim Symons, PMC-Sierra).
06-288r4 SAS-2 SMP ZONE ACTIVATE function (Tim Symons, PMC-Sierra)
06-289r2 SAS-2 SMP ZONE UNLOCK (Tim Symons, PMC-Sierra)
06-358r1 SAS-2 Zone Configuration model (Tim Symons, PMC-Sierra)
06-326r0 SAS-2 SMP Zone Lock Timer (Tim Symons, PMC-Sierra)

Overview

The active zone manager uses SMP ZONE UNLOCK to unlock zoning expander devices.

[Suggested addition to SAS-2 existing text (included in black), new additional text (included in blue) and changes between revisions shown in red]

10.4.3.1 SMP function request frame format

Table 196 – SMP functions (FUNCTION **field)**

Code	SMP function	Description	Reference
		...	
88h	ZONE UNLOCK	Unlocks a zoning expander device	10.4.3.xx
		...	

Editors Note: Suggestion: 85h-8Fh could be assigned to zoning functions:
85h: ZONE BROADCAST (already defined)
86h: SMP ZONE LOCK
87h: SMP ZONE ACTIVATE
88h: SMP ZONE UNLOCK
89h: Reserved for zoning SMP functions
8Ah: CONFIGURE PHY ZONE
8Bh: CONFIGURE ZONE PERMISSION
8Ch – 8Fh: Reserved for zoning SMP functions

10.4.3.2 SMP function response frame format

Table 198 – FUNCTION RESULT field

Code	Name	SMP function(s)	Description
		...	
21h	ZONE LOCK VIOLATION	... ZONE UNLOCK	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 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 UNLOCK	1) INVALID REQUEST FRAME LENGTH 2) ZONE LOCK VIOLATION 3) SMP FUNCTION FAILED 4) SMP FUNCTION ACCEPTED
	…

…

10.4.3.xx ZONE UNLOCK function

All zoning expander devices and all zone management application clients shall support this function. A ZONE UNLOCK request should only be originated by the active zone management client. The active zone manager shall unlock the locked zoning expander devices when:

    a) all ZONE ACTIVATE requested have successfully completed; or
    b) an SMP zone locked timer expires

When a locked zoning expander device receives a ZONE UNLOCK request the ZONE LOCKED bit shall be set to zero. If the CONFIGURING bit has been set to one then:

    a) for each port that has zone group access permission to zone group 3, and there has been a change to the access permission, then the zoning expander device shall originate a Broadcast (Change) on the port; or

    b) for any port that does not have zone group access permission to zone group 3, the zoning expander device shall originate a Broadcast (Change).

Editors Note: This a), b) list may be obsolete by the revision to SAS domain changes – Broadcast (Change) revisions.

This text should then read: "….If the CONFIGURING bit has been set to one then a Broadcast (Change) shall be originated for all zone groups that have changed."

If a zoning expander device receives a ZONE UNLOCK request that not originated by the active zone manager or when the zoning expander device is not locked then the response FUNCTION RESULT field should be ZONE LOCK VIOLATION

Table 1 defines the ZONE UNLOCK request format.

Table 1 – ZONE UNLOCK request

Byte\Bit	7	6	5	4	3	2	1	0
0	SMP FRAME TYPE (40h)							
1	FUNCTION (86h)							
2	Reserved							
3	REQUEST LENGTH (00h)							
4	(MSB)				CRC			
7								(LSB)

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

The FUNCTION field shall be set to 86h.

The REQUEST LENGTH field shall be set to (00h).

The CRC field is defined in 10.4.3.1.

The ZONE UNLOCK response format is defined in Table 2.

Table 2 – ZONE UNLOCK response

Byte\Bit	7	6	5	4	3	2	1	0
0	SMP FRAME TYPE (41h)							
1	FUNCTION (86h)							
2	FUNCTION RESULT							
3	RESPONSE LENGTH (00h)							
4	(MSB)				CRC			
7								(LSB)

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

The FUNCTION field shall be set to 86h.

The FUNCTION RESULT field is defined in 10.4.3.2

The RESPONSE LENGTH field shall be set to 00h.

The CRC field is defined in 10.4.3.1.