To: T10 Technical Committee
From: Tim Symons, PMC-Sierra (Tim_Symons@pmc-sierra.com)
Date: 28 August 2006
Subject: 06-203r6 SAS-2 SMP REPORT ZONE PERMISSION function.

Revision Information

- Revision 0 : Proposal extracted from 06-019r5 SAS-2 Zoning proposal.
- Revision 1 : Revised text
- Revision 2 : Improved definition of zone configuring bit
- Revision 3 : Added expander change count field per 06-197r3 (Rob Elliott, HP)
- Revision 4: Added function result priorities
- Revision 5: Added bit to enable reading shadow zone permission registers.
- Revision 6: Changes as discussed at Seattle working group meeting

Referenced Document

sas2r05a Serial Attached SCSI – 2 (SAS-2) revision 5a
06-358r3 SAS-2 Zone Configuration model (Tim Symons, PMC-Sierra)

Overview

The SMP REPORT ZONE PERMISSION function is used by a management application client to read the active zone permission table values and the shadow zone permission table values of a zoning expander device.

[Start of suggested additions to SAS-2 existing text (included in black), new additional text (included in blue) and changes between revisions shown in red]

10.4.3.2 SMP function response frame format

Table 198 – FUNCTION RESULT **field**

Code	Name	SMP function(s)	Description
		...	
xxh	SOURCE INDEX DOES NOT EXIST	REPORT ZONE PERMISSION	The STARTING SOURCE ZONE GROUP INDEX contains an index that does not exist.
		...	

…

10.4.3.1 SMP function request frame format

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

Code	SMP function	Description	Reference
		...	
xxh	REPORT ZONE PERMISSION	Return zone permission table values or shadow zone permission table values.	10.4.3.18
		...	

10.4.3.2 SMP function response frame format

…

Table xx - Function result priority per SMP Function

SMP Function (per table 197)	SMP Function Result Priority
…	
REPORT ZONE PERMISSION	1) INVALID REQUEST FRAME LENGTH; 2) SMP FUNCTION FAILED; and 3) SMP FUNCTION ACCEPTED
…	

…

10.4.3.x REPORT ZONE PERMISSION function

The REPORT ZONE PERMISSION function returns a set of zone permission table entries. This function shall be supported by all zoning expander devices.

Table 1 defines the REPORT ZONE PERMISSION request format.

Table 1 – REPORT ZONE PERMISSION request

Byte\Bit	7	6	5	4	3	2	1	0
0	SMP FRAME TYPE (40h)							
1	FUNCTION (03h)							
2	Reserved							
3	REQUEST LENGTH (01h)							
4	Reserved							REPORT SHADOW
5	Reserved							
6	STARTING SOURCE ZONE GROUP INDEX							
7	MAXIMUM NUMBER OF ZONE PERMISSION DESCRIPTORS							
8	(MSB)			CRC				
11								(LSB)

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

The FUNCTION field shall be set to 03h.

The REQUEST LENGTH field shall be set to 01h.

The REPORT SHADOW bit set to zero specifies that the management device server shall return zone permission table values from the zoning expander active values. The REPORT SHADOW bit set to one specifies that the management device server shall return zone permission table values from the zoning expander shadow values.

The STARTING SOURCE ZONE GROUP INDEX field specifies the first source zone group, (i.e., s) returned (see table 3). If the value in this field exceeds the end of the zone permission table then the FUNCTION RESULT field shall be set to SOURCE INDEX DOES NOT EXIST.

The MAXIMUM NUMBER OF ZONE PERMISSION DESCRIPTORS field specifies the maximum number of complete zone permission descriptors that the management device server shall return.

The CRC field is defined in 10.4.3.1.

Table 2 defines the REPORT ZONE PERMISSION response format.

Table 2 – REPORT ZONE PERMISSION response

Byte\Bit	7	6	5	4	3	2	1	0
0	SMP FRAME TYPE (41h)							
1	FUNCTION (03h)							
2	FUNCTION RESULT							
3	RESPONSE LENGTH ((n - 7) / 4)							
4	(MSB)	EXPANDER CHANGE COUNT						
5								(LSB)
6	ZONE LOCKED	Reserved						REPORT SHADOW
7	Reserved							
13								
14	STARTING SOURCE ZONE GROUP INDEX							
15	Reserved	NUMBER OF ZONE PERMISSION DESCRIPTORS						
Zone permission descriptor list								
8	Zone permission descriptor (first)(see Table 3)							
23								
…	…							
n - 19	Zone permission descriptor (last)(see Table 3)							
n - 4								
n - 3	(MSB)	CRC						
n								(LSB)

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

The FUNCTION field shall be set to 03h.

The FUNCTION RESULT field is defined in 10.4.3.2

The RESPONSE LENGTH field indicates the number of dwords that follow, not including the CRC field.

The EXPANDER CHANGE COUNT field is defined in the SMP REPORT GENERAL response (see 10.4.1.3).

A ZONE LOCKED bit set to one indicates that the zoning expander device is locked. A ZONE LOCKED bit set to zero indicates that the zoning expander device is not locked.

The REPORT SHADOW bit indicates the value of the REPORT SHADOW bit in the request frame.

The STARTING SOURCE ZONE GROUP INDEX field indicates the first source zone group, (i.e., s) reported in the first ZONE GROUP PERMISSION descriptor (see table 3) and contains the same value as the STARTING SOURCE ZONE GROUP INDEX field in the request frame.

The NUMBER OF ZONE PERMISSION DESCRIPTORS field indicates the number of zone permission descriptors that follow.

The zone permission descriptor list contains a zone group permission descriptor for each zone group in ascending order starting with the zone group specified in the STARTING SOURCE ZONE GROUP INDEX field in the request.

Table 3 defines the zone permission descriptor format.

Table 3 - Zone permission descriptor format

Byte\Bit	7	6	5	4	3	2	1	0
0	ZP[s, 127]							ZP[s, 120]
…	…			Zone permission entries				…
14	ZP[s, 15]							ZP[s, 8]
15	ZP[s, 7]	ZP[s, 6]	ZP[s, 5]	ZP[s, 4]	ZP[s, 3]	ZP[s, 2]	ZP[s, 1] 1	ZP[s, 0] 0

Editors Note: The zone permission descriptor format is duplicated in the SMP CONFIGURE ZONE PERMISSION proposal (06-202)

The zone permission descriptor contains all of the zone group permission entries for the source zone group s, referenced from the STARTING SOURCE ZONE GROUP INDEX field in the request and response frames. This information is extracted from the zone permission table (see Table 23).

The CRC field is defined in 10.4.3.2.