

To: T10 Technical Committee
From: Tim Symons, PMC-Sierra (Tim_Symons@pmc-sierra.com)
Date: 5 September 2008
Subject: 08-360r3 SAS-2 ZONE GROUP VALID bit

Revision Information

- Revision 0: First draft.
- R1 – Improved description in table 34
- R2 – Further revisions to table 34 and move ZONING ENABLED bit to SMP REPORT EXPANDER ROUTE TABLE LIST response
- R3 – Added table 303 to improve clarity of the final proposal.

Referenced Document

sas2r14d Serial Attached SCSI – 2 (SAS-2) revision 14d

Overview

The purpose of the ZONE GROUP VALID bit needs to be clarified. sas2r14d does not define when this bit is set to one or set to zero.

The ZONE GROUP VALID bit is used in the SMP REPORT EXPANDER ROUTE TABLE LIST response to indicate whether the data in the ZONE GROUP field is valid or not (i.e. zoning is enabled or not).

Other references for the ZONE GROUP VALID bit are in Figure 56 and Table 34 but both references are confusing and unnecessary.

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

4.9.3.4 Zoning expander route table

A zoning expander route table is an expander-based expander route table (see 4.6.7.4) that is able to hold the zone group of each routed SAS address.

Figure 56 shows a representation of the zoning expander route table.

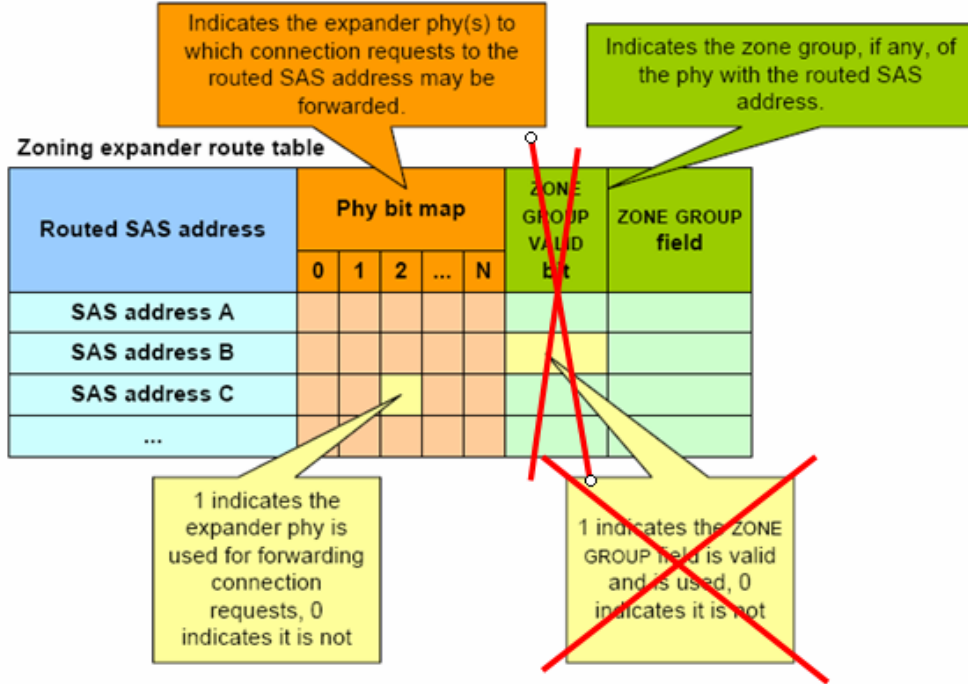


Figure 56 – Zoning expander route table

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Editors note : If zoning is enabled then the ZONE GROUP field is valid else it is not.

4.9.3.5 Source zone group and destination zone group determination

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Zoning expander devices with zoning enabled shall follow the rules in table 34 to determine the zone group of the source port.

Table 34 — Destination zone group determination

Routing method of the destination expander phy	Destination zone group
Direct	Zone group of the destination expander phy
Subtractive	If the ZONE GROUP VALID bit is set to one, then the zone group stored in the zoning expander route table for the destination SAS address. If the ZONE GROUP VALID bit is set to zero, then the zone group of the destination expander phy (i.e., the subtractive routing phy).
Table	If the ZONE GROUP VALID bit is set to one, then the zone group stored in the zoning expander route table for the destination SAS address. If the ZONE GROUP VALID bit is set to zero, then the zone group of the destination expander phy (i.e., the table routing phy).

Table 34 — Destination zone group determination

Routing method of the destination expander phy	Destination zone group
Direct	Zone group of the destination expander phy
Subtractive	If the destination SAS address is in the zoning expander route table, then the zone group stored in the zoning expander route table for the destination SAS address. If the destination SAS address is not in the zoning expander route table, then the zone group of the destination expander phy. (i.e. the subtractive routing phy)
Table	Zone group indicated stored in the zoning expander route table (See 4.9.3.4). (i.e., the table routing phy).

Editors note : If a device is attached to a subtractive port there will be no reference in the zone route table.

10.4.3.17.3 REPORT EXPANDER ROUTE TABLE LIST response

Table 303 defines the response format.

Table 303 – REPORT EXPANDER ROUTE TABLE LIST response (part 1 of 2)

Byte\Bit	7	6	5	4	3	2	1	0	
...	...								
6	(MSB)	EXPANDER ROUTE TABLE CHANGE COUNT						(LSB)	
7									
8	Reserved		SELF CONFIGURING		ZONE CONFIGURING		CONFIGURING	ZONING ENABLED	
9	Reserved								
...	...								

...

A ZONING ENABLED bit set to one indicates that zoning is enabled in the expander device and the ZONE GROUP field is valid. A ZONING ENABLED bit set to zero indicates that zoning is disabled in the expander device and the ZONE GROUP field shall be ignored.

10.4.3.17.4 Expander route table descriptor

Table 304 defines the expander route table descriptor.

Table 304 – Expander route table descriptor

Byte\Bit	7	6	5	4	3	2	1	0
0	ROUTED SAS ADDRESS							
7								
8	(starting phy identifier + 47)	PHY BIT MAP						(starting phy identifier + 40)
13	(starting phy identifier + 7)							(starting phy identifier)
14	ZONE GROUP VALID Reserved	Reserved						
15	ZONE GROUP							

...

~~A ZONE GROUP VALID bit set to zero indicates that the ZONE GROUP field shall be ignored. A ZONE GROUP VALID bit set to one indicates that the ZONE GROUP field is valid.~~

Editors Note: Move ZONING ENABLED bit to Byte 8 bit 0 of the response.

Editors Note:

Use the ZONING ENABLED bit to indicate whether the ZONE GROUP is valid or not.

SMP functions that include ZONING ENABLED definitions are referenced here:

10.4.3.4 SMP REPORT GENERAL function

A ZONING ENABLED bit set to one indicates that zoning is enabled in the expander device. A ZONING ENABLED bit set to zero indicates that zoning is disabled in the expander device. The ZONING ENABLED bit shall be set to zero if the ZONING SUPPORTED bit is set to zero.

10.4.3.10 DISCOVER function

A ZONING ENABLED bit set to one indicates that zoning is enabled in the expander device. A ZONING ENABLED bit set to zero indicates that zoning is disabled in the expander device. The ZONING ENABLED bit shall be set to zero if the management device server is not in a zoning expander device.

10.4.3.15.3 DISCOVER LIST response

The ZONING ENABLED bit is defined in the SMP REPORT GENERAL response (see 10.4.3.4).
