DELL

To: T10 Technical Committee
From: Kevin Marks - Dell, Inc.
Date: March 2, 2006
Subject: T10/06-130r0 – SAS2: Sticky Zone Groups

Revision History
Revision 0 (03/02/06) – Initial proposal

Related Documents
SAS-2 revision 2 (http://www.t10.org/ftp/t10/drafts/sas2/sas2r02.pdf)
SAS-2 Zoning - Phy Features [06-122r1] (http://www.t10.org/ftp/t10/document.06/06-122r1.pdf)
SAS-2 Zoning [06-019r5] (http://www.t10.org/ftp/t10/document.06/06-019r5.pdf)

New text to be added
~~Text to be deleted~~
Editorial Text

Overview

The hardware related parts of the SAS-2 zoning proposal are now defined in T10/06-122. The
material in T10/06-122 defines the behavior of the value of the zone group for a phy across phy reset
events. Dell would like to see an alternate behavior that makes the zone group value persistent
across phy resets or any other phy manipulation other than a CONFIGURE PHY ZONE command.
This proposal suggests changes in both 06-122r1 and 06-019r5 to accomplish this behavior. The
proposal also adds some parts that seem to have been lost in the combining of the two documents to
make 06-122r1 and the removing of duplicate material from 06-019r5.

Suggested Changes to 06-122r1:

[New text notated in blue]

4.9.3 Zone Operation
4.9.3.1 Zone phy information

Each phy of a zoning expander device shall support the following zone phy information fields:
   a) ZONE PARTICIPATING bit;
   b) ZONE ADDRESS RESOLVED bit; ~~and~~
   c) ZONE PERSISTENT bit; and
   ~~c~~d) ZONE GROUP field.

The ZONE PARTICIPATING bit indicates the boundary of the ZPSDS. The ZONE PARTICIPATING bit shall be
set to zero when the phy is attached to an end device or an expander device that does not support
zoning. The ZONE PARTICIPATING bit shall be set to one when the phy is attached to a zoning expander
device. If the ZONE PARTICIPATING bit is set to zero, then zoning information shall not be sent on the
phy and any zoning information received on the phy shall be ignored.

The ZONE ADDRESS RESOLVED bit specifies the method used to determine the source zone group for an
OPEN request received by a phy at the boundary of the ZPSDS as specified in Table ~~k1~~ n3.

The ZONE ADDRESS RESOLVED bit may be set to one when:
    a) the phy is contained within a zoning expander device; and
    b) the ZONE PARTICIPATING bit for the phy is set to zero.

The ZONE ADDRESS RESOLVED bit shall be set to zero when:
    a) the phy is contained within a non-zoning expander device; or
    b) the phy is contained within a zoning expander device and the ZONE PARTICIPATING bit for the phy is set to one.

The ZONE PERSISTENT bit specifies the method of determining the zone group value of the phy after a phy reset event (see 4.9.4).

The ZONE GROUP field has a value in the range 0 to 127 that indicates the zone group to which the phy belongs.

All phys in an expander port have the same zone phy information (see 4.6.2).

….

4.9.4 Phy reset event

After a phy reset event (e.g., the hot swap of an end device), the zone group of the phy ~~permission table~~ shall be maintained according to value of the ZONE PERSISTENT bit and the rules in table n5.

If the ZONE PERSISTENT bit is set to one, the zone group shall not change across any phy reset events. If the ZONE PERSISTENT bit is set to zero, the value of the zone group shall follow the rules in table n5.

<…Insert Table n5 — Phy reset event behavior from 06-122r1….>
……..
Editor's Note: May times on the call I have heard that the Zone Group of a phy can be loaded from EEPROM, however I see nothing in any proposal that address this. Does Table n5 need an Initial Condition Row dealing with a Phy in the SP0 state for a long time or a phy that has just been enabled for the first time or via a phy reset (PHY CONTROL)?
……..

Suggested Changes to 06-019r5:

[New text notated in blue]

….
10.4.3.5 DISCOVER function
….
….

Table 11 defines the response format.

Table 11 – Table 198 - DISCOVER response

Byte\Bit	7	6	5	4	3	2	1	0
…	…							
48	ZONE ADDRESS RESOLVED	ZONE PERSISTENT	Reserved	ZONE PARTICIPATING	ZONE SUPERVISOR PRIORITY			
49	ZONE GROUP							
...	…							

…

A ZONE ADDRESS RESOLVED bit set to one indicates that the phy within a zoning expander device is configured to use an Address-resolved method as specified in Table n3 (in 06-122r1) to determine the source group for received OPEN address frames. A ZONE ADDRESS RESOLVED bit set to zero indicates that the phy within a zoning expander device is configured to use a Phy-resolved method as specified in Table 2 to determine the source group for received OPEN address frames.

A ZONE PERSISTENT bit set to one indicates that the zone group of the phy shall not change across phy reset events (see 4.9.4). A ZONE PERSISTENT bit set to zero indicates that the value of the zone group across phy reset events shall follow the rules defined in table n5.

A ZONE PARTICIPATING bit set to one indicates that the phy is attached to another zoning device.

The ZONE SUPERVISOR PRIORITY field indicates the zone supervisor device election priority of the phy.

The ZONE GROUP field indicates the zone group that contains the phy.

….

10.4.3.13 CONFIGURE PHY ZONE function

…..
…..

The CRC field is defined in 7.8.1.

Table 14 - **Phy zone configuration entry descriptor**

Byte\Bit	7	6	5	4	3	2	1	0
0	**ZONE ADDRESS RESOLVED**	**ZONE PERSISTENT**	Reserved	ZONE PARTICIPATING	ZONE SUPERVISOR PRIORITY			
1	**ZONE GROUP**							

A ZONE ADDRESS RESOLVED bit set to one specifies that the phy within a zoning expander device shall use an Address-resolved method as specified in Table n3 to determine the source group for received OPEN address frames. A ZONE ADDRESS RESOLVED bit set to zero specifies that the phy within a zoning expander device shall use a Phy-resolved method as specified in Table n3 to determine the source group for received OPEN address frames.

A ZONE PERSISTENT bit set to one specifies that the zone group of the phy shall not change across phy reset events (see 4.9.4). A ZONE PERSISTENT bit set to zero specifies that the value of the zone group across phy reset events shall follow the rules defined in table n5.

A ZONE PARTICIPATING bit set to one specifies that the phy is attached to another zoning device. A ZONE PARTICIPATING bit set to zero specifies that the phy is not attached to a zoning device.

The ZONE SUPERVISOR PRIORITY field is defined in section 10.4.3.5.

The ZONE GROUP field is defined in section 10.4.3.5 and only values between 0 and 127 inclusive shall be specified.

….
….