To: T10 Technical Committee
From: Tim Symons, PMC-Sierra (Tim_Symons@pmc-sierra.com)
Date: 28 Aug 2006
Subject: 06-377r1 SAS-2 Broadcast (Zone Activate)

Revision Information

- Revision 0: First draft.
- Revision 1: Text changes per Seattle working group meeting

Referenced Document

sas2r05a Serial Attached SCSI – 2 (SAS-2) revision 5a
06-286r4 SAS-2 SMP ZONE LOCK (Tim Symons, PMC-Sierra).
06-288r5 SAS-2 SMP ZONE ACTIVATE function (Tim Symons, PMC-Sierra)
06-289r4 SAS-2 SMP ZONE UNLOCK (Tim Symons, PMC-Sierra)
06-358r1 SAS-2 Zone Configuration model (Tim Symons, PMC-Sierra)

Overview

Re-define Broadcast (Reserved 3) to Broadcast (Zone Activate) to be used by an active zone
manager to request every locked zoning expander device to set the zoning expander active
values equal to the zoning expander shadow values.

[Suggested addition to SAS-2. Existing text shown in black. Additions to existing text are shown in
blue. Changes between revisions shown in red]

4.1.12 Broadcasts

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Table 6 – Broadcast types

Broadcast	Description
…	
~~Broadcast (Reserved 3)~~ Broadcast (Zone Activate)	~~Reserved. SAS ports shall ignore this Broadcast.~~ Initiates the activate step (see section *4.7.5.x)* Devices that are not locked zoning expander devices shall ignore this Broadcast.
…	

When an expander port receives a Broadcast, the BPP (see 4.6.5) shall forward the Broadcast on
at least one phy in each other expander port if zoning is disabled, or forward the Broadcast as
described in 4.9.5 if zoning is enabled.

4.9.5 Broadcast processing in a zoning expander device with zoning enabled
The BPP determines the source zone group(s) of the Broadcast as follows:

a) if the BPP receives a Broadcast Event Notify message from an expander phy (i.e., a
zoning expander phy received a BROADCAST), the Broadcast has a single source zone
group set to the zone group of that expander phy; and

b) if the BPP receives a message from the management device server indicating that it
received an SMP ZONED BROADCAST request from an SMP initiator port that has
access to zone group 3, the Broadcast has each of the source zone groups specified in
the SMP ZONED BROADCAST request.

The BPP forwards the Broadcast to each expander port other than the one on which the Broadcast was received (i.e., the expander port that received the BROADCAST or SMP ZONED BROADCAST request) if:

a) the broadcast is not a Broadcast (Zone Activate) and any of the source zone groups have access to the zone group of the expander port;

b) if the BPP is in a locked zoning expander device and the broadcast is a Broadcast (Zone Activate), the INSIDE ZPSDS bit is set to one, and the source zone group has access to zone group 2; or

c) if the BPP is not in a locked zoning expander device and the broadcast is a Broadcast (Zone Activate), and any of the source zone groups have access to the zone group of the expander port.

To forward a Broadcast to an expander port:

a) if the expander port's INSIDE ZPSDS bit is set to one, the BPP shall request that the SMP initiator port establish a connection on at least one phy in the expander port to the SMP target port of the attached expander device and transmit an SMP ZONED BROADCAST request specifying the source zone group(s); and

b) if the expander port's INSIDE ZPSDS bit is set to zero, the BPP shall send a Transmit Broadcast

message to at least one phy in the expander port, causing it to transmit a BROADCAST.

4.6.6.5 BPP interface

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Table16 – Expander phy to BPP requests

Message	Description
…	
~~Broadcast Event Notify (Reserved 3 Received)~~ Broadcast Event Notify (Zone Activate Received)	~~Request to forward a Broadcast (Reserved 3) because a Broadcast (Reserved 3) was received.~~ Forward a Broadcast (Zone Activate) because a Broadcast (Zone Activate) was received.
…	

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7.2.2 Primitive summary

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Table 79 - Primitives not specific to type of connection (part 1 of 2)

Primitive	Use[a]	From[b]			To[b]			Primitive sequence type[c]
		I	E	T	I	E	T	
…								
~~BROADCAST (RESERVED 3)~~ BROADCAST (ZONE ACTIVATE)	NoConn	I			I	E	T	Redundant
…								

…

7.2.3 Primitive encodings

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Table 82 - Primitive encoding for primitives not specific to type of connection (part 1 of 2)

Primitive	Character			
	1st	2nd	3rd	4th (last)
…				
~~BROADCAST (RESERVED 3)~~	K28.5	D04.7	D16.7	D02.0

BROADCAST (ZONE ACTIVATE)				
…				

…

7.2.5.5 BROADCAST

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Table 88- BROADCAST primitives

Primitive	Description
…	
~~BROADCAST (RESERVED 3)~~ BROADCAST (ZONE ACTIVATE)	~~Broadcast (Reserved 3)~~ Broadcast (Zone Activate)
…	

…

10.4.3.11 REPORT PHY BROADCASTCOUNTS function

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The BROADCAST ZONE ACTIVATE ~~RESERVED 3~~ COUNT field indicates the value of a wrapping counter counting the number of Broadcast (Zone Activate)s ~~(Reserved 3)s~~ received from an end device attached to the specified phy. This field shall be set to zero at power on. If implemented, the expander device shall increment this field at least once when it receives a Broadcast (Zone Activate) ~~(Reserved 3)~~ from an attached end device and shall not increment this field when it receives a Broadcast (Zone Activate) ~~(Reserved 3)~~ from an attached expander device.

…

10.4.3.16 ZONED BROADCAST function

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Table 247 - BROADCAST TYPE field

Code	Description
…	
110b	~~Broadcast (Reserved 3)~~ Broadcast (Zone Activate)
…	

…

Annex J
(informative)
Primitive encoding

…

Table J.1 — Primitives with Hamming distance of 8 (part 1 of 3)

1st	2nd	3rd	4th	Assignment
…				
K28.5	D04.7	D16.7	D02.0	~~BROADCAST (RESERVED 3)~~ BROADCAST (ZONE ACTIVATE)
…				

…