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07-082r0 SAS-2 Fix target device name PIV bit

To: T10 Technical Committee  
From: Rob Elliott, HP (elliott@hp.com)  
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Subject: 07-082r0 SAS-2 Fix target device name PIV bit

### **Revision history**

Revision 0 (26 January 2007) First revision

### **Related documents**

sas2r08 - Serial Attached SCSI - 2 (SAS-2) revision 8

### **Overview**

In the Device Identification VPD page, if a SCSI target device has SCSI target ports of multiple protocols (e.g., one iSCSI target port, one FCP target port, and one SAS target port), SAM-4 allows each transport protocol to require reporting of a SCSI target device name using a unique format with the PROTOCOL IDENTIFIER VALUE (PIV) bit set to one.

Only one designator in the SCSI name string format is allowed to appear, however; multiple protocols are not allowed to each provide a SCSI name string. The SCSI name string format can contain "eui." or "naa." and thus contain the same value as a binary EUI-based or NAA identifier, so it is expected to be shared. However, the PIV bit needs to be set to zero (i.e., not protocol specific) in that case. Only a SCSI target device with only an iSCSI target port could set the PIV bit to one.

So, SAS-2's optional SCSI target device name in SCSI name string format needs to have the PIV bit set to 0, not 1.

Editorially, "identifier" needs to be changed to "designator" in several places to match a name change made from SPC-3 to SPC-4.

### **Suggested changes to SAS-2**

10.2.11 SCSI vital product data (VPD)

In the Device Identification VPD page (83h) returned by the INQUIRY command (see SPC-4), each logical unit in a SAS target device shall include the **identification****designator** descriptors for the **SCSI** target port identifier (see 4.2.6) and the relative target port identifier (see SAM-4 and SPC-4) listed in table 1.

Table 1 — Device Identification VPD page **identification****designator** descriptors for the SAS target port

Field in <b>identification</b> <b>designator</b> descriptor	<b>Identification</b> <b>Designator</b> descriptor	
	<b>SCSI</b> Target port identifier	Relative target port identifier
<b>IDENTIFIER</b> <b>DESIGNATOR</b> TYPE	3h (i.e., NAA)	4h (i.e., relative target port identifier)
ASSOCIATION	01b (i.e., SCSI target port)	01b (i.e., SCSI target port)
CODE SET	1h (i.e., binary)	1h (i.e., binary)
<b>IDENTIFIER</b> <b>DESIGNATOR</b> LENGTH	8	4
PIV (protocol identifier valid)	1	1
PROTOCOL IDENTIFIER	6h (i.e., SAS)	6h (i.e., SAS)
<b>IDENTIFIER</b> <b>DESIGNATOR</b>	SAS address <sup>a</sup> in NAA IEEE Registered format (see 4.2.2)	Relative port identifier <sup>b</sup> as described in SAM-4 and SPC-4

<sup>a</sup> The **IDENTIFIER****DESIGNATOR** field contains the SAS address of the SSP target port through which the INQUIRY command was received.  
<sup>b</sup> The **IDENTIFIER****DESIGNATOR** field contains the relative port identifier of the SSP target port through which the INQUIRY command was received.

In the Device Identification VPD page (83h) returned by the INQUIRY command (see SPC-4), each logical unit in a SAS target device shall include **an****identification****a** **designator** descriptor for the SAS target device name (see 4.2.4) using NAA format and may include **an****identification****a** **designator** descriptor for the SAS target device name using the SCSI name string format as listed in table 2.

Table 2 — Device Identification VPD page **identification****designator** descriptors for the SAS target device

Field in <b>identification</b> <b>designator</b> descriptor	<b>Identification</b> <b>Designator</b> descriptor for SAS target device	
	NAA format (required)	SCSI name string format (optional)
<b>IDENTIFIER</b> <b>DESIGNATOR</b> TYPE	3h (i.e., NAA)	8h (i.e., SCSI name string)
ASSOCIATION	10b (i.e., SCSI target device)	10b (i.e., SCSI target device)
CODE SET	1h (i.e., binary)	3h (i.e., UTF-8)
<b>IDENTIFIER</b> <b>DESIGNATOR</b> LENGTH	8	24
PIV (protocol identifier valid)	1	<del>1</del> 0
PROTOCOL IDENTIFIER	6h (i.e., SAS)	6h (i.e., SAS)
<b>IDENTIFIER</b> <b>DESIGNATOR</b>	Device name of the SAS target device in NAA IEEE Registered format (see 4.2.2)	Device name of the SAS target device in SCSI name string format (e.g., "naa." followed by 16 hexadecimal digits followed by 4 ASCII null characters)

- | Logical units may include ~~identification~~[designation](#) descriptors in addition to those required by this standard (e.g., SCSI target devices with SCSI target ports using other SCSI transport protocols may return additional [SCSI](#) target device names for those other SCSI transport protocols).