To: T10 Technical Committee
From: Rob Elliott, HP (elliott@hp.com)
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Subject: 03-344r0 SPC-3 Report all target port identifiers

Revision history
Revision 0 (6 October 2003) First revision

Related documents
spc3r15 - SCSI Primary Commands - 3 revision 15
02-419 SPC-3 Device names and VPD data
03-342 SPC-3 Persistent reservations report full status

Overview
In the INQUIRY command's VPD page 83h, device identifiers can return information about
    a)   logical unit (ASSOCIATION = 0)
    b)   target port - the one being used to run this INQUIRY command (ASSOCIATION = 1)
    c)   target device (ASSOCIATION = 2)

Target port device identifiers include:
    a)   relative target port identifier - an internal index 1 .. n of the target ports in the target device
    b)   target port device identifier - the target port name (e.g. FC port name), if the protocol defines port
         names, or the target port identifier (e.g. SAS address) if it does not

However, there is no way to retrieve information about target ports other than the one being used. There is
not even a "number of target ports" field (and the relative target port identifier is 4 bytes) to indicate how many
there might be. This information is useful for commands that use relative target port identifiers:
    a)   asymmetric logical unit access (target port group members are identified this way)
    b)   the proposed persistent reservations report full status feature (reporting the I_T nexus of each regis-
         tered reservation key)

To fill that gap, a new All Target Ports VPD page is proposed to return the number of target ports and the
target port device identifier for each of them.

This page is not mandatory, and might best be implemented by a well-known logical unit.

Suggested changes

7.6 Vital product data parameters

7.6.1 Vital product data parameters overview and page codes

This subclause describes the vital product data (VPD) page structure and the VPD pages (see table 269) that
are applicable to all SCSI devices. These VPD pages are optionally returned by the INQUIRY command (see
6.4) and contain vendor specific product information about a target or logical unit. The vital product data may
include vendor identification, product identification, unit serial numbers, device operating definitions,
manufacturing data, field replaceable unit information, and other vendor specific information. This standard
defines the structure of the vital product data, but not the contents.

Table 1 — Vital product data page codes

Page code	VPD page name	Reference	Support requirements
87h	All Target Ports	7.6.x	Optional

7.6.x All Target Ports VPD page [all new - text is not highlighted any more]

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The Target Ports VPD page (see table 2) provides the means to retrieve identification descriptors applying to all the target ports in the SCSI target device.

Table 2 — All Target Ports VPD page

Byte\Bit	7	6	5	4	3	2	1	0
0	PERIPHERAL QUALIFIER				PERIPHERAL DEVICE TYPE			
1	PAGE CODE (87h)							
2	(MSB)							
3	PAGE LENGTH (n - 3)							(LSB)
4	(MSB)							
7	NUMBER OF TARGET PORTS							(LSB)
	All Target Ports Identification descriptor list							
8	All Target Ports Identification descriptor (first)							
	...							
n	All Target Ports Identification descriptor (last)							

The PERIPHERAL QUALIFIER field and the PERIPHERAL DEVICE TYPE field are as defined in 6.4.2.

The NUMBER OF TARGET PORTS field indicates how many target ports are supported by the SCSI target device.

> NOTE 1 This is not necessarily the same as the number of All Target Ports Identification descriptors that follow.

Each All Target Ports identification descriptor (see table 3) contains information identifying a target port. An All Target Ports identification descriptor shall be included matching each device identifier in the Device Identification VPD page with an ASSOCIATION field set to 1h (i.e., target port) and an IDENTIFIER TYPE field set to

a value other than 4h (i.e., relative target port) for each target port in the SCSI target device that, when an INQUIRY command is processed through that target port, returns such a device identifier.

Table 3 — All Target Ports identification descriptor

Byte\Bit	7	6	5	4	3	2	1	0
0	(MSB)							
3			RELATIVE TARGET PORT					(LSB)
4	PROTOCOL IDENTIFIER				CODE SET			
5	PIV	Reserved			IDENTIFIER TYPE			
6	Reserved							
7	IDENTIFIER LENGTH (n - 7)							
8	IDENTIFIER							
n								

The RELATIVE TARGET PORT field identifies the target port relative to other target ports in the device, and is the same as the RELATIVE TARGET PORT field described in 7.6.4.6.

The PROTOCOL IDENTFIER, CODE SET, PIV, IDENTIFIER TYPE, IDENTIFIER LENGTH, and IDENTIFIER fields are as defined in 7.6.4.1. Since this identification descriptor identifies a target port, the PIV bit should be set to one.

> NOTE 2 This descriptor is similar to the Device identification VPD page identification descriptor, except the RELATIVE TARGET PORT field is added and the ASSOCIATION field is removed.