To: T10 Technical Committee
From: Dennis Spicher (dennis.spicher@hp.com) and Rob Elliott, HP (elliott@hp.com)
Date: 18 July 2002
Subject: T10/02-189r1 SES-2 SPC-3 vendor-specific diagnostic pages

Revision History
Revision 0 (20 May 2002) first revision
Revision 1 (18 July 2002) incorporated feedback from July SAS WG – fewer SPC-3 editorial changes

Related Documents
ses-r08b - SCSI Enclosure Services revision 8b
spc3r06 - SCSI Primary Commands - 3 revision 6

Overview
Section 6.1 Diagnostic parameters and Table 2 – Diagnostic page codes for enclosure service devices of the SES specification define page codes 01h–0Fh as reserved for SES pages. In addition, page codes 80h–FFh are defined as vendor-specific pages for the non-enclosure services devices supporting access to an enclosure services process. This means that vendor-specific pages cannot be defined for the enclosure services device.

While the String In and String Out pages do provide a form of vendor specific SES page, mutual exclusion between multiple initiators becomes a problem. A String Out page needs to be defined to select the vendor-specific information to be presented in the String In page; this is a two step process that provides the opportunity for one application client to interfere with another application client.

Dedicated vendor-specific pages for the SES device will work much better.

Suggested Changes
Dedicate sixteen page codes from 10h–1Fh for use by enclosure services devices as vendor-specific.

SPC-3 8.1.1 Diagnostic page format and page codes for all device types
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Table 167 - Diagnostic page codes

Page Code	Diagnostic Page Name	Reference
00h	Supported Diagnostics Pages	8.1.2
01h	Configuration	SES
02h	Enclosure Status/Control	SES
03h	Help Text	SES
04h	String In/Out	SES
05h	Threshold In/Out	SES
06h	Array Status/Control	SES
07h	Element Descriptor	SES
08h	Short Enclosure Status	SES
09h - 0Fh1Fh	Reserved for SES	SES
10h 20h - 3Fh	Pages that apply to all device types	
40h - 7Fh	See specific device type for definition	
80h	Vendor specific	

6.1 Diagnostic parameters
This clause describes the diagnostic page structure and the diagnostic pages that are applicable to enclosure services devices and other device types that provide communications access to an

enclosure services process. Each diagnostic page provides either control (outbound) or status (inbound) data transmission to or from the enclosure process.

The diagnostic page format is specified in ~~ANSI X3.301~~SPC-3. All diagnostic pages have the diagnostic page header defined in ~~ANSI X3.301~~SPC-3, including the PAGE CODE and PAGE LENGTH fields. The PAGE CODE field identifies the enclosure services page being sent or requested.

The page codes are defined in table 2.

Table 2. Diagnostic page codes for enclosure services devices

Page code	Description	Control or Status	Reference
00h	Supported diagnostics	Status	~~ANSI X3.301~~SPC-3
01h	Configuration	Status	6.1.1
02h	Enclosure Control	Control	6.1.2
02h	Enclosure Status	Status	6.1.3
03h	Help Text	Status	6.1.4
04h	String Out	Control	6.1.5
04h	String In	Status	6.1.6
05h	Threshold Out	Control	6.1.7
05h	Threshold In	Status	6.1.8
06h	Array Control	Control	6.1.9
06h	Array Status	Status	6.1.10
07h	Element Descriptor	Status	6.1.11
08h	Short Enclosure Status	Status	6.1.12
09h-0Fh	Reserved for SES	N/A	6.1
10h-1Fh	Vendor-specific SES pages	N/A	6.1
~~10h~~20h-3Fh	Reserved (applies to all device type pages)	N/A	~~ANSI X3.301~~SPC-3
40h-7Fh	See specific device type for definition	N/A	~~ANSI X3.301~~SPC-3
80h-FFh	Vendor-specific pages	N/A	~~ANSI X3.301~~SPC-3

The supported page list specified in ~~ANSI X3.301~~SPC-3 shall contain a list of all diagnostic page codes implemented by the device server in ascending order beginning with PAGE CODE 00h. If the device is capable of accessing a diagnostic function or enclosure function that may temporarily or permanently be unavailable to the device, the PAGE CODE associated with that information shall be included in the list. The unavailability of the resources necessary to transfer a page shall not result in an error until a diagnostic command that requests the transfer of an enclosure service page is executed. The pages 09h-0Fh are reserved for future SES standardization. Non-enclosure services devices supporting access to an enclosure services process (see 4.1.2) shall direct pages 10h-1Fh to the enclosure services device and ~~may~~ shall include pages 00h-~~0Fh~~1Fh in the supported page list.