

28 April 2007 07-203r0 SBC-3 SPC-4 Block Device Characteristics VPD page and medium rotation rate

To: T10 Technical Committee
From: Rob Elliott, HP (elliott@hp.com)
Date: 28 April 2007
Subject: 07-203r0 SBC-3 SPC-4 Block Device Characteristics VPD page and medium rotation rate field

Revision history

Revision 0 (28 April 2007) First revision

Related documents

sbc3r09 - SCSI Block Commands - 3 (SBC-3) revision 9
spc4r09 - SCSI Primary Commands - 4 (SPC-4) revision 9
04-013r1 - SBC-2 List of functions to obsolete (George Penokie, IBM)
- incorporated into sbc2r12 (January 2004)
T13/e07155r1 - ATA8-ACS Reporting RPM and form factor (Wayne Bellamy, HP)
- RPM field accepted by T13 in April 2007

Overview

SBC-1 defined a Rigid Disk Geometry mode page (04h) which included a lot of meaningless fields for modern disk drives; it was made obsolete in SBC-2. However, one useful field was lost in the process: the MEDIUM ROTATION RATE field indicating the disk drive rpm (e.g., 10K rpm vs. 15K rpm).

This is a read-only value, so fits better in a VPD page than a mode page. A new Block Device Characteristics VPD page is proposed to report this value.

A similar field has been accepted into ATA8-ACS for ATA device IDENTIFY DEVICE data. To ease SAT translations of ATA devices into SCSI block devices, the SBC-3 field should use the same values as the ATA field.

A SAT proposal to map between the ATA and SCSI fields is forthcoming (awaiting ATA8-ACS inclusion of e07155r1).

Another field to report form factor (e.g., 2.5" vs. 3.5") is being proposed for ATA8-ACS as well; it would follow the medium rotation rate field into this SCSI VPD page.

Suggested changes to SBC-4

6.4 Vital product data (VPD) parameters

6.4.1 VPD parameters overview

This subclause defines the VPD pages used only with direct-access block devices. See SPC-4 for VPD pages used with all device types.

The VPD page codes specific to direct-access block devices are defined in table 129.

Table 129 — Direct-access block device VPD page codes

VPD page code	VPD page name	Reference	Support requirements
B9	Block Limits VPD page	6.4.2	Optional
B1	Block Device Characteristics VPD page	6.4.3	Optional
B4h B2h - BFh	Reserved for this standard		

6.4.3 Block Device Characteristics VPD page [all new]

The Block Device Characteristics VPD page contains parameters indicating characteristics of the logical unit.

Table 130 defines the Block Device Characteristics VPD page.

Table 130 — Block Device Characteristics VPD page

Byte\Bit	7	6	5	4	3	2	1	0
0	PERIPHERAL QUALIFIER			PERIPHERAL DEVICE TYPE				
1	PAGE CODE (B1h)							
2	(MSB)	PAGE LENGTH (04h)						(LSB)
3								
4	(MSB)	MEDIUM ROTATION RATE						(LSB)
5								
6	Reserved							
7								

Editor's Note 1: The form factor field will go into bytes 6-7. New fields will be concatenated at the end; software must parse the PAGE LENGTH field and not be upset by pages longer than expected.

The PERIPHERAL QUALIFIER field and the PERIPHERAL DEVICE TYPE field are defined in SPC-4.

The PAGE CODE field shall be set to B1h.

The PAGE LENGTH field shall be set to 04h.

The MEDIUM ROTATION RATE field is defined in table 131.

Table 131 — MEDIUM ROTATION RATE field

Code	Description
0000h	Medium rotation rate is not reported
0001h	Non-rotating medium (e.g., solid state)
0002h - 0400h	Reserved
0401h - FFFEh	Nominal medium rotation rate in rotations per minute (i.e., rpm) (e.g., 7 200 rpm = 1C20h, 10 000 rpm = 2710h, and 15 000 rpm = 3A98h)
FFFFh	Reserved

[\[end of all-new section\]](#)

Suggested changes to SPC-4

C.7 VPD page codes

In table C.12 - VPD page codes, add:

B1h D Block Device Characteristics