ATA8-ACS Report RPM and form factor

16 February 2007

Revision 1

Proposal submitter:

Wayne Bellamy
20555 S.H. 249
Houston, Texas 77070
281-514-5196
wayne.bellamy@hp.com

Document Status

Revision History (part of)		
Rev	**Date**	**Description**
0	February 3, 2007	1) Initial Revision
1	February 16, 2007	2) Changes added, leaving previous data in the proposal requesting selection of preference by the committee.

1 Introduction

Reason for change request: ATA devices can be remotely located in data centers and may be managed by storage management software that recommends appropriate device replacements. As such, the single most important necessity driving this change is to properly facilitate the replacement of a device into a RAID set. A 5400 rpm device should not be added into a 7200 rpm RAID set as it could degrade the RAID set performance. Additionally, device connector type value helps to expedite proper device replacement as does form factor (for obvious reasons).

2 Scope

This proposal requests simple, informational additions to the ATA8-ACS standard. The request is to provide IDENTIFY DEVICE data resource (word(s)) to support this information. The information requested to be supported by IDENTIFY DEVICE data is the ATA device revolutions per minute (RPM), form factor, and possibly the interface connector type.

3 Overview

This proposal does not request implementation of a feature set for this information. All this proposal requests is information to be provided about the ATA end device “geometry”. As such, it is believed at this time that only the IDENTIFY DEVICE data need be affected.

4 Changes to ACS

4.1 Changes to clause 2

4.1.1 Changes to Approved ANSI References

n/a

4.1.2 Changes to ANSI References Under Development

n/a

4.1.3 Changes to Other References

SFF-8111 Specification for 1.8” drive form factor (60x70mm)
SFF-8201 Specification for form factor of 2.5” disk drives
SFF-8301 Specification for form factor of 3.5” disk drives
SFF-8501 Specification for form factor of 5.25” disk drives

NOTE 3 - For more information on the current status of SFF document, contact the SFF Committee at 408-867-6630 (phone), or 408-867-2115 (fax). To obtain copies of these documents, contact the SFF Committee at 14426 Black Walnut Court, Saratoga, CA 95070 at 408-867-6630 (phone) or 408-741-1600 (fax) or see http://www.sffcommittee.org.

4.2 Changes to clause 3

4.2.1 Changes to Definitions and abbreviations

1 **Your Term:** Definition. ?

1 **Your Term:** Definition. ?

4.3 Changes to clause 4

4.3.1 Overview - Changes to the Feature Set Summary Table

n/a

4.3.2 New Feature Set

n/a

4.4 Changes to clause 7

4.4.1 Command Definition

4.4.1.1 Your Command Name – n/a,

n/a

4.4.1.2 Feature Set

n/a

4.4.1.3 Description

n/a

4.4.1.4 Inputs

n/a

4.4.1.5 Normal Outputs

n/a

4.4.1.6 Error Outputs

n/a

4.4.1.7 Input Data Structure

n/a

4.4.1.8 Output Data Structure

n/a

4.4.2 Changes to DCO Set

n/a

4.4.3 Changes to IDENTIFY DEVICE data

Option A:

This proposal does not add a feature set or command. (There should not be an addition to the IDENTIFY DEVICE data to indicate both supported and enabled descriptions.)

Word	O M	S P	F V	Description
TBD A	M	B	F	Medium rotation rate (rpm)
TBD B	M	B	F	Reporting SFF device form factor and connector type supported
			F	15Shall be set to one
			F	15:0SFF form factor and connector type

Key:
O/M Mandatory/optional requirement.
M Support of the word is mandatory.
O Support of the word is optional.
F/V Fixed/variable content
F The content of the field is fixed and does not change. The DCO command may change the value of a fixed field. For removable media devices, these values may change when media is removed or changed.
V The contents of the field is variable and may change depending on the state of the device or the commands executed by the device.
X The content of the field may be fixed or variable
S/P Content applies to Serial or Parallel transport
S Serial Transport
P Parallel Transport
B Both Serial and Parallel Transports
N Belongs to a transport other than Serial or Parallel

X.XX.X.X WORD (TBA): Medium rotation rate (rpm)

Word (TBA) specifies the medium rotation rate (rpm) of the device. The value properly indicates the medium rotation rate in rotations per minute (ex: 7200rpm = 1C20h).

EDITOR's NOTE: (Mention of or reference to ATA byte swapping may be necessary here. This may be misinterpreted since it is planned that this value be translated by a SATL into the same reporting as the MEDIUM ROTATION RATE field of the SCSI (SAS) Geometry mode page).

X.XX.X.X WORD (TBA): Device form factor and device connector type

Word (TBA) specifies the applicable SFF standard that applies to the device for form factor and connector type (ex: 8223h = SFF-8223 2.5" Drive w/Serial Attachment Connector). If bit 15 of this field is set to 0b reporting SFF form factor and connector type is not supported.

Option B:

This proposal does not add a feature set or command. (There should not be an addition to the IDENTIFY DEVICE data to indicate both supported and enabled descriptions.)

Word	O M	S P	F V	Description
TBD A	M	B	F	Maximum medium rotation rate
TBD B	M	B	F	Bits 15:8 <other things> 7:0 Form factor

Key:
O/M Mandatory/optional requirement.
M Support of the word is mandatory.
O Support of the word is optional.
F/V Fixed/variable content
F The content of the field is fixed and does not change. The DCO command may change the value of a fixed field. For removable media devices, these values may change when media is removed or changed.
V The contents of the field is variable and may change depending on the state of the device or the commands executed by the device.
X The content of the field may be fixed or variable
S/P Content applies to Serial or Parallel transport
S Serial Transport
P Parallel Transport
B Both Serial and Parallel Transports
N Belongs to a transport other than Serial or Parallel

EDITOR's NOTE: Assign 2 bytes for Maximum Medium Rotation Rate and 1 byte for Form Factor.

X.XX.X.X Word nn: Maximum medium rotation rate

Word nn indicates the maximum medium rotation rate of the device and is defined in table xx.

Table xx. Maximum medium rotation rate

Code	Description
0000h	Unknown
0001h - FFFEh	Maximum medium rotation rate in rotation per minute (rpm) (e.g., 7200 rpm = 1C20h)
FFFFh	Non-rotating medium (e.g., solid state)

EDITOR's NOTE: This is compatible with the MEDIUM ROTATION RATE field in the SCSI Rigid Disk Device Geometry mode page of ANSI T10 SBC-2r03, page 126.

X.XX.X.X Word nn: TBD

Word nn bits 7:0 indicates the form factor of the device and is defined in table xy.

Table xy. Form factor

Code	Description
00h	Unknown
01h	5.25" (see SFF-8501)
02h	3.5" (see SFF-8301)
03h	2.5" (see SFF-8201)
04h	1.8" (60x70mm)(see SFF-8111)
All others	Reserved