

To: T10 Technical Committee  
 From: Rob Elliott, HP (elliott@hp.com)  
 Date: 4 May 2007  
 Subject: 07-224r0 SAM-4 Include deferred errors in QUERY UNIT ATTENTION

**Revision history**

Revision 0 (4 May 2007) First revision

**Related documents**

sam4r10 - SCSI Architecture Model - 4 (SAM-4) revision 10  
 spc4r10 - SCSI Primary Commands - 4 (SPC-4) revision 10  
 07-144 - FCP-4 QUERY UNIT ATTENTION task management function (Rob Elliott, HP), included in sam4r10

**Overview**

Kevin Butt (IBM) noted that deferred errors (a background error reported with CHECK CONDITION status with a sense key of DEFERRED ERROR on some subsequent command) are a lot like unit attention conditions, and asked whether the new QUERY UNIT ATTENTION task management function should report those as well as unit attention conditions. This seems appropriate.

This entails adding the sense key value to the Additional Response Information. The UA DEPTH field is moved left into byte 0 bits 5:4 so the SENSE KEY field can occupy bits 3:0, paralleling its location in the sense data (see SPC-4).

**Suggested changes to SAM-4**

**7.10 QU~~A~~ERY UNIT ATTENTION**

Request:

**Service Response = QUERY UNIT ATTENTION (IN (I\_T\_L Nexus), OUT ([Additional Response Information]))**

Description:

A SCSI transport protocol may or may not support QUERY UNIT ATTENTION. A SCSI transport protocol supporting QUERY UNIT ATTENTION may or may not require logical units accessible through SCSI target ports using that transport protocol to support QUERY UNIT ATTENTION.

The task manager in the specified logical unit shall return a service response as follows:

- a) if there is a unit attention condition ([see 5.8.7](#)) or [deferred error \(see 3.1.9\)](#) pending for the specified I\_T nexus, FUNCTION SUCCEEDED; and
- b) if there is no unit attention condition [or deferred error](#) pending for the specified I\_T nexus, FUNCTION COMPLETE.

If the service response is not FUNCTION SUCCEEDED, the task manager shall set the Additional Response Information argument to 000000h.

If the service response is FUNCTION SUCCEEDED, the task manager shall set the Additional Response Information argument as defined in table 1.

**Table 1 — Additional Response Information argument for QUERY UNIT ATTENTION**

Byte\Bit	7	6	5	4	3	2	1	0
0	<b>Reserved</b>						<b>UA-DEPTH</b>	
0	<b>Reserved</b>		<b>UA DEPTH</b>		<b>SENSE KEY</b>			
1	ADDITIONAL SENSE CODE							
2	ADDITIONAL SENSE CODE QUALIFIER							

The UA~~DE~~ DEPTH field indicates the number of pending unit attention conditions [or deferred errors](#) and is defined in table 2.

**Table 2 — UA~~DE~~ DEPTH field**

Code	Description
00b	Unknown number of unit attention conditions <a href="#">or deferred errors</a> are pending
01b	Exactly one unit attention condition <a href="#">or deferred error</a> is pending
10b	More than one unit attention condition <a href="#">or deferred error</a> is pending
11b	Reserved

The ADDITIONAL SENSE CODE field indicates the value of the SENSE KEY field that would be returned in the sense data for the highest-priority unit attention condition [or deferred error](#) that is pending (see SPC-4).

The ADDITIONAL SENSE CODE field indicates the value of the ADDITIONAL SENSE CODE field that would be returned in the sense data for the highest-priority unit attention condition [or deferred error](#) that is pending (see SPC-4).

The ADDITIONAL SENSE CODE QUALIFIER field indicates the value of the ADDITIONAL SENSE CODE QUALIFIER field that would be returned in the sense data for the highest-priority unit attention condition [or deferred error](#) that is pending (see SPC-4).