

To: T10 Technical Committee
From: Rob Elliott, Compaq Computer Corporation (Robert.Elliott@compaq.com)
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Subject: MRIE behavior with TEST bit asserted

There is a slight difference in the SPC-2 and SSC definitions of the Method for Reporting Informational Exceptions (MRIE) bit in the Informational Exceptions mode page 02h. (MMC-2 includes portions of the SPC-2 description) See SPC-2 revision 10 section 8.3.6 and SSC revision 17 section 5.3.4.6.

For MRIE = 4, for example, SPC-2 says:

This method instructs the device server to report informational exception conditions, regardless of the value of the per bit of the error recovery parameters mode page, by returning a CHECK CONDITION status on any command.

SSC says:

This method instructs the device server to report information exception conditions (regardless of the value of the per bit of the error recovery parameters mode page) by returning a CHECK CONDITION status on the next SCSI command (excluding Inquiry and Request Sense) after an informational exception condition was detected.

There are two differences:

1. SSC exempts INQUIRY and REQUEST SENSE. SPC-2 does not. This exemption text appears for MRIE values 2, 3, 4, and 5.

The only other way to cause INQUIRY and REQUEST SENSE to return CHECK CONDITION is to use a reserved bit. SSC's exemption seems appropriate. (The use of parenthesis, however, may be improper).

2. SSC says the CHECK CONDITION will be returned on the "next" command. SPC-2 says "any" command. This appears only in the MRIE = 4 description.

In case of an actual hardware exception condition, the application client cannot tell exactly when it happened, so this doesn't matter. Devices may only want to return an error only on commands which relate to the error. If the TEST bit is being used to trigger a fake exception condition, however, the SSC requirement is more useful since the command that must cause the CHECK CONDITION can be predicted.

Suggested changes

Editorial: (Note: The “per” bit means “post error.”) In both SSC and SPC-2, change “the error recovery parameters page” to “the error recovery page” to match the name in SSC and SBC. SBC has both a “read-write error recovery page” and a “verify error recovery page.” SSC just has a “read-write error recovery page.”

Editorial: The SSC table format (3 columns) differs from the SPC-2 table format (2 columns). They should be the same.

Technical: Make the “next” behavior mandatory for TEST mode exceptions, but let real events report exceptions after “any” command.

New SSC MRIE=4 wording:

This method instructs the device server to report informational exception conditions, regardless of the value of the per bit of the error recovery mode page, by returning a CHECK CONDITION status on any command. If the TEST bit is 1, the CHECK CONDITION shall be returned on the next command other than INQUIRY or REQUEST SENSE after the timer interval has elapsed.

New SPC-2 MRIE=4 wording:

4h **Unconditionally generate recovered error:** This method instructs the device server to report informational exception conditions, regardless of the value of the per bit of the error recovery parameters mode page, by returning a CHECK CONDITION status on any command. If the TEST bit is 1, the CHECK CONDITION shall be returned on the next command other than INQUIRY or REQUEST SENSE after the timer interval has elapsed. The sense key shall be set to RECOVERED ERROR and the additional sense code shall indicate the cause of the informational exception condition. The command that has the CHECK CONDITION shall complete without error before any informational exception condition may be reported.