

Date: Jan 10,1995

To: X3T10 Committee (SCSI)

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Subject: Exception Handling Selection Mode Page

## **1 Overview**

Many of today SCSI devices have asynchronous events that occur. These devices use several different methods for reporting asynchronous events. This proposal allows a method for application clients to select the method it expects the target to use when reporting asynchronous events.

This proposal also defines parameters to control reporting of failures that are predicted by a target.

It is recommended that the informational exceptions control page be added to the following command standards:

SCSI-3 Primary Command [X3T10/995D]

It is recommended that the information exceptions control page be added to the following SCSI device types:

All

## **2 Informational exceptions control page**

The informational exceptions control page defines the methods used by the target to control the reporting and the operations of specific informational exception conditions. This page shall only apply to informational exceptions that report an additional sense code of FAILURE PREDICTION THRESHOLD EXCEEDED to the application client.

Informational exception conditions occur as the result of vendor specific events within a target. An informational exception condition may occur asynchronous to any commands issued by an application client.

Table 1 - Informational exceptions control page

Bit Byte	7	6	5	4	3	2	1	0
0	PS	RESERVED	PAGE CODE (1Ch)					
1	PAGE LENGTH (0EH)							
2	PERF	RESERVED			DEXCPT	RESERVED		LOGERR
3	RESERVED				METHOD OF REPORTING INFORMATIONAL EXCEPTIONS			
4	MSB							
5								
6	INTERVAL TIMER							
7	LSB							
8	MSB							
9								
10	REPORT COUNT							
11	LSB							

The log errors bit (LOGERR) of zero indicates that the logging of informational exception conditions within a target is vendor specific. A LOGERR bit of one indicates the target shall log informational exception conditions.

A disable exception control (DEXCPT) bit of zero indicates information exception operations shall be enabled. The reporting of information exception conditions when the DEXCPT bit is set to zero is determined from the METHOD OF REPORTING INFORMATIONAL EXCEPTIONS field. A DEXCPT bit of one indicates the target shall disable all information exception operations. The METHOD OF REPORTING INFORMATIONAL EXCEPTIONS field is ignored when DEXCPT is set to one.

A performance bit (PERF) of zero indicates that informational exception operations that are the cause of delays are acceptable. A PERF bit of one indicates the target shall not cause delays while doing informational exception operations. A PERF bit set to one may cause the target to disable some or all of the informational exceptions operations, thereby limiting the reporting of informational exception conditions.

The METHOD OF REPORTING INFORMATIONAL EXCEPTIONS field (see table 2) indicates the methods that shall be used by the target to report informational exception conditions. The priority of reporting multiple information exceptions is vendor specific.

Table 2 - Format of METHOD OF REPORTING INFORMATIONAL EXCEPTIONS field

Code	Description
0h	<b>No reporting of informational exception condition:</b> This method instructs the target to not report information exception conditions.
1h	<b>Asynchronous event reporting:</b> This method instructs the target to report informational exception conditions by using the rules for asynchronous event reporting as described in the SCSI-3 Architecture Model and the relevant Protocol Standard.  The sense key shall be set to RECOVERED ERROR and the additional sense code shall indicate the cause of the informational exception condition.
2h	<b>Generate unit attention:</b> This method instructs the target to report informational exception conditions by returning a CHECK CONDITION status on any command. The sense key shall be set to UNIT ATTENTION and the additional sense code shall indicate the cause of the informational exception condition.  The command that has the CHECK CONDITION shall not be executed before the informational exception condition is reported.
3h	<b>Conditionally generate recovered error:</b> This method instructs the target to report informational exception conditions, dependent on the value of the PER bit of the error recovery parameters mode page, by returning a CHECK CONDITION status on any command. 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.
4h	<b>Unconditionally generate recovered error:</b> This method instructs the target 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. 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.
5h	<b>Generate no sense:</b> This method instructs the target to report informational exception conditions by returning a CHECK CONDITION status on any command. The sense key shall be set to NO SENSE 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.
6h	<b>Only report informational exception condition on request:</b> This method instructs the target to preserve the informational exception(s) information. To find out about information exception conditions the Application Client polls the target by issuing an unsolicited REQUEST SENSE command. The sense key shall be set to NO SENSE and the additional sense code shall indicate the cause of the informational exception condition.
7h-Bh	Reserved
Ch-Fh	Vendor specific

The INTERVAL TIMER field indicates the period in 100 millisecond increments for reporting that an informational exception condition has occurred. The target shall not report informational exception conditions more frequently than the time specified by the INTERVAL TIMER field and as soon as possible after the timer interval has elapsed. After the informational exception condition has been reported the interval timer shall be restarted. A value of zero in the INTERVAL TIMER field indicates that the target shall only report the informational exception condition one time. A value of FFFFFFFFh in the INTERVAL TIMER field shall indicate the timer interval is vendor specific.

The REPORT COUNT field indicates the number of times to report an informational exception condition to the application client. A value of zero in the REPORT COUNT field indicates there is no limit on the number of times the target shall report an informational exception condition.

The maintaining of the interval timer and the report count across power cycles and/or resets by the target shall be vendor specific.