IBM 209

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X3T9.2/88-127

To: X3T9.2 Committee (SCSI)

From: George Penokie (IBM)

Subject: Error Handling Action Codes

JUSTIFICATION

The SCSI-2 Architecture does not define how errors which are reported across the interface, should be treated. This poses the following problems:

1. An Initiator has to use it's own judgement in handling errors which arrive from a Target. Because of this the Target has no idea of how an Initiator will handle any given error condition.

2. A Target does not have any mechanism for requesting specific actions for a given error.

3. There can be no commonality of error handling in a host system which contains different Initiators and Targets.

PROPOSAL

Define one byte to the sense data table to identify the error handling procedure the Target recommends be implemented. Either the Initiator or the Host system would them implement the requested operation.

SENSE DATA FORMAT TABLE

Bit / Byte	7	6	5	4	3	2	1	0
18	MOP	LERR	HAC			Retry Count		

The message to operator (MOP) bit, when set, indicates a message should be sent to the system operator.

The log error (LERR) bit, when set, indicates that the system should save the most recent sense information onto the error log.

The Host Action Code (HAC) informs the system of the failing device's best guess as to how to recover from the error condition.

Host Action Code	System Action
0h	No error recovery action is required
1h	Retry is not recommended, hardware failure
2h	Hard data error occurred, reallocate failed data
4h	Retry the failed operation the number of times specified in the retry count field

IMPLEMENTORS NOTE: An example of a condition in which the Host Action Code would be 0h is if a read data error occurred and the PER bit of MODE SELECT Page 01h was set.

The Retry Count specifies the number of times the Target recommends the system retry the failed operation.