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To: X3T9.2 SCSI-2 Working Group and X3T9.2 Committee Members

From: Paul R. Nitza

Subj: SCSI-2 Autosense Proposal

Attached for your review is revision 1 of the Autosense proposal with the modification discussed at the May working group meeting.

The Autosense on Check Condition allows the Target to return the sense data whenever a Check Condition status is returned without the Initiator having to send a Request Sense command. The sense data is preceded by an Autosense message (new message) and is sent by the Target to the Initiator immediately after the Status phase but before the Command Complete message is sent. All page numbers refer to the SCSI-2 draft document X3T9.2/86-109 Rev 1.

The following line must be added to the Message Codes Table on page 5-16:

Code	Type	Description	Direction
0Dh	O	Autosense Data Follows	In

The following line must be modified in the Message Codes Table on page 5-16:

Code	Type	Description	Direction
0Eh - 7Fh	R	Reserved Codes	

The following new message must be added on page 5-18:

AUTOSENSE DATA FOLLOWS 0Dh (Optional). This message is sent from the Target to the Initiator after a CHECK CONDITION status to indicate that the Target wants to return the sense data for the check condition (see section 6.8). This message will only be sent immediately after the status phase when a CHECK CONDITION status is returned and the autosense enable bit in the control byte is set to one (see section 6.2.7).

The Control Byte (table 6-5 on page 6-8) must be modified by changing bit 2 from reserved to enable autosense as shown below:

Bit Byte	7	6	5	4	3	2	1	0
Byte	Vendor Unique		Reserved			ASense	Flag	Link

The following paragraph must be added to table 6-5 on page 6-8 for the new enable autosense bit:

Bit	Description
2	Autosense bit - This bit set to one indicates that the Target should use the autosense option to return the sense data when a CHECK CONDITION status is sent (see section 6.8). If this bit is set to zero the Target will not automatically return the sense data when a CHECK CONDITION status is sent and the Initiator must issue a Request Sense command to retrieve the sense data. If this bit is set to one and the Target does not support the autosense option it shall return a CHECK CONDITION status with the sense key set to ILLEGAL REQUEST.

The following section must be added on page 6-13:

6.8 Autosense on Check Condition Option

The Autosense on Check Condition option allows the Target to automatically return sense data when a CHECK CONDITION status is sent without the Initiator having to send a Request Sense command. When the Target returns a CHECK CONDITION status and the autosense enable bit in the control byte is set to one (see section 6.2.7), the Target will send an Autosense Data Follows message, change to a Data In phase and send the sense data then complete the command by sending a Command Complete message. Table 6-xx illustrates the phase sequence when the Target uses the autosense option. The Target shall send all of the available sense data or up to 256 bytes of sense data, whichever is less. After sending the sense data the Target will clear the sense data as if a Request Sense command had been executed. If the Initiator rejects the Autosense Data Follows message the Target shall not send the sense data and will complete the command by sending the Command Complete message. If the Initiator requires the sense data then it must issue a Request Sense command to retrieve it.

Table 6-xx: Autosense Phase Sequence

Phase	Information Transferred to the Initiator
Status	Check Condition status
Message In	Autosense Data Follows message
Data In	Sense Data (up to 256 bytes)
Message In	Command Complete message
Bus Free	