T10/06-397r0 SMC-3 Error codes overview

To: T10 Technical Committee
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Subject: T10/06-397r0 SMC-3 Error codes overview

Revision History
Revision 0 (31 August 2006): initial revision

Related Documents
SMC-3 r0 - SCSI Media Changer Commands – 3, revision 0

Overview
The SMC-3 WG requested a list of the Media Changer specific error codes as defined by SPC-4. The next table shows all Media Changer error codes as listed in SPC-4. The column 'Described in' shows the SCSI standard which specifies a description of the error code. When the column 'Described in' does not contain a reference it means that no SCSI standard was found that recorded a description of the error code.

Error Code	Described in	
NO ADDITIONAL SENSE INFORMATION	SPC-4	
I/O PROCESS TERMINATED		
OPERATION IN PROGRESS	MMC-5	
CLEANING REQUESTED		
NO SEEK COMPLETE		
LOGICAL UNIT NOT READY, CAUSE NOT REPORTABLE		
LOGICAL UNIT IS IN PROCESS OF BECOMING READY	SSC-3	
LOGICAL UNIT NOT READY, INITIALIZING COMMAND REQUIRED	SBC-3	
LOGICAL UNIT NOT READY, MANUAL INTERVENTION REQUIRED		
LOGICAL UNIT NOT READY, REBUILD IN PROGRESS		
LOGICAL UNIT NOT READY, RECALCULATION IN PROGRESS		
LOGICAL UNIT NOT READY, OPERATION IN PROGRESS	SSC-3	
LOGICAL UNIT NOT READY, SELF-TEST IN PROGRESS	SPC-4	
LOGICAL UNIT NOT ACCESSIBLE, ASYMMETRIC ACCESS STATE TRANSITION	SPC-4	
LOGICAL UNIT NOT ACCESSIBLE, TARGET PORT IN STANDBY STATE	SPC-4	
LOGICAL UNIT NOT ACCESSIBLE, TARGET PORT IN UNAVAILABLE STATE	SPC-4	
LOGICAL UNIT NOT READY, AUXILIARY MEMORY NOT ACCESSIBLE	SSC-3	
LOGICAL UNIT NOT READY, NOTIFY (ENABLE SPINUP) REQUIRED		
LOGICAL UNIT NOT READY, OFFLINE	ADC-2	
LOGICAL UNIT DOES NOT RESPOND TO SELECTION		
NO REFERENCE POSITION FOUND	MMC-5	
MULTIPLE PERIPHERAL DEVICES SELECTED		
LOGICAL UNIT COMMUNICATION FAILURE	ADC-2	
LOGICAL UNIT COMMUNICATION TIME-OUT		
LOGICAL UNIT COMMUNICATION PARITY ERROR		
LOGICAL UNIT COMMUNICATION CRC ERROR (ULTRA-DMA/32)		
ERROR LOG OVERFLOW		
WARNING		
WARNING – SPECIFIED TEMPERATURE EXCEEDED		
WARNING - ENCLOSURE DEGRADED	SES-2	
WARNING - BACKGROUND SELF-TEST FAILED	SPC-4	
WARNING - BACKGROUND PRE-SCAN DETECTED MEDIUM ERROR	SBC-3	
WARNING - BACKGROUND MEDIUM SCAN DETECTED MEDIUM ERROR	SBC-3	
AUXILIARY MEMORY WRITE ERROR	SPC-4	
WRITE ERROR - UNEXPECTED UNSOLICITED DATA		
WRITE ERROR - NOT ENOUGH UNSOLICITED DATA		
INVALID INFORMATION UNIT		

INFORMATION UNIT TOO SHORT		
INFORMATION UNIT TOO LONG		
INVALID FIELD IN COMMAND INFORMATION UNIT		
AUXILIARY MEMORY READ ERROR	SPC-4	
READ ERROR – FAILED RETRANSMISSION REQUEST		
RANDOM POSITIONING ERROR		
MECHANICAL POSITIONING ERROR		
PARAMETER LIST LENGTH ERROR	SPC-4	
SYNCHRONOUS DATA TRANSFER ERROR		
INVALID COMMAND OPERATION CODE	SAM-4	
ACCESS DENIED – INITIATOR PENDING-ENROLLED	SPC-4	
ACCESS DENIED – NO ACCESS RIGHTS	SPC-4	
ACCESS DENIED - INVALID MGMT ID KEY	SPC-4	
ACCESS DENIED - ENROLLMENT CONFLICT	SPC-4	
ACCESS DENIED - INVALID LU IDENTIFIER	SPC-4	
ACCESS DENIED - INVALID PROXY TOKEN	SPC-4	
ACCESS DENIED – ACL LUN CONFLICT	SPC-4	
LOGICAL BLOCK ADDRESS OUT OF RANGE	MMC-5, SBC-3	
INVALID ELEMENT ADDRESS	SMC-3	
INVALID FIELD IN CDB	SAM-4	
CDB DECRYPTION ERROR		
LOGICAL UNIT NOT SUPPORTED	SAM-4	
INVALID FIELD IN PARAMETER LIST	SPC-4	
PARAMETER NOT SUPPORTED		
PARAMETER VALUE INVALID	SMC-3	
THRESHOLD PARAMETERS NOT SUPPORTED		
INVALID RELEASE OF PERSISTENT RESERVATION	SPC-4	
DATA DECRYPTION ERROR		
INVALID PARAMETER WHILE PORT IS ENABLED		
NOT READY TO READY CHANGE, MEDIUM MAY HAVE CHANGED	ADC-2	
IMPORT OR EXPORT ELEMENT ACCESSED	SMC-3	
POWER ON, RESET, OR BUS DEVICE RESET OCCURRED	SAM-4	
POWER ON OCCURRED	SAM-4	
SCSI BUS RESET OCCURRED	SPI-5	
BUS DEVICE RESET FUNCTION OCCURRED	SAM-4	
DEVICE INTERNAL RESET	SAM-4	
TRANSCEIVER MODE CHANGED TO SINGLE-ENDED		
TRANSCEIVER MODE CHANGED TO LVD		
I_T NEXUS LOSS OCCURRED	SAM-4	
PARAMETERS CHANGED		
MODE PARAMETERS CHANGED	SPC-4	
LOG PARAMETERS CHANGED	SPC-4	
RESERVATIONS PREEMPTED	SPC-4	
RESERVATIONS RELEASED	SPC-4	
REGISTRATIONS PREEMPTED	SPC-4	
ASYMMETRIC ACCESS STATE CHANGED	SPC-4	
IMPLICIT ASYMMETRIC ACCESS STATE TRANSITION FAILED	SPC-4	
PRIORITY CHANGED	SPC-4	
TIMESTAMP CHANGED	SPC-4	
COMMAND SEQUENCE ERROR	SPC-4	
PREVIOUS BUSY STATUS	SPC-4	
PREVIOUS TASK SET FULL STATUS	SPC-4	
PREVIOUS RESERVATION CONFLICT STATUS	SPC-4	
COMMANDS CLEARED BY ANOTHER INITIATOR	SPC-4	
INCOMPATIBLE MEDIUM INSTALLED	MMC-5	
CLEANING FAILURE		
CLEANING REQUEST REJECTED		
ENCLOSURE FAILURE	SES-2	
ENCLOSURE SERVICES FAILURE	SES-2	

UNSUPPORTED ENCLOSURE FUNCTION	SES-2	
ENCLOSURE SERVICES UNAVAILABLE	SES-2	
ENCLOSURE SERVICES TRANSFER FAILURE	SES-2	
ENCLOSURE SERVICES TRANSFER REFUSED	SES-2	
ENCLOSURE SERVICES CHECKSUM ERROR		
ROUNDED PARAMETER	SPC-4	
SAVING PARAMETERS NOT SUPPORTED	SPC-4	
MEDIUM NOT PRESENT	SPC-4, SSC-3	
MEDIUM NOT PRESENT - TRAY CLOSED		
MEDIUM NOT PRESENT - TRAY OPEN		
MEDIUM NOT PRESENT – LOADABLE		
MEDIUM NOT PRESENT - MEDIUM AUXILIARY MEMORY ACCESSIBLE		
MEDIUM DESTINATION ELEMENT FULL	SMC-3	
MEDIUM SOURCE ELEMENT EMPTY	SMC-3	
MEDIUM MAGAZINE NOT ACCESSIBLE		
MEDIUM MAGAZINE REMOVED		
MEDIUM MAGAZINE INSERTED		
MEDIUM MAGAZINE LOCKED		
MEDIUM MAGAZINE UNLOCKED		
INVALID BITS IN IDENTIFY MESSAGE		
LOGICAL UNIT HAS NOT SELF-CONFIGURED YET		
LOGICAL UNIT FAILURE		
TIMEOUT ON LOGICAL UNIT		
LOGICAL UNIT FAILED SELF-TEST	SPC-4	
LOGICAL UNIT UNABLE TO UPDATE SELF-TEST LOG	SPC-4	
TARGET OPERATING CONDITIONS HAVE CHANGED	SES-2	
MICROCODE HAS BEEN CHANGED	SPC-4	
CHANGED OPERATING DEFINITION		
INQUIRY DATA HAS CHANGED	SPC-4	
COMPONENT DEVICE ATTACHED		
DEVICE IDENTIFIER CHANGED	SPC-4	
REDUNDANCY GROUP CREATED OR MODIFIED		
REDUNDANCY GROUP DELETED		
SPARE CREATED OR MODIFIED		
SPARE DELETED		
OVERLAPPED COMMANDS ATTEMPTED	SAM-4	
MEDIA LOAD OR EJECT FAILED		
MEDIUM REMOVAL PREVENTED	SMC-3	
MEDIUM REMOVAL PREVENTED BY DATA TRANSFER ELEMENT	SMC-3	
INSUFFICIENT RESERVATION RESOURCES		
INSUFFICIENT RESOURCES	SPC-4	
INSUFFICIENT REGISTRATION RESOURCES	SPC-4	
INSUFFICIENT ACCESS CONTROL RESOURCES	SPC-4	
AUXILIARY MEMORY OUT OF SPACE	SPC-4	
OPERATOR REQUEST OR STATE CHANGE INPUT		
OPERATOR MEDIUM REMOVAL REQUEST		
LOG EXCEPTION		
THRESHOLD CONDITION MET	SPC-4	
LOG COUNTER AT MAXIMUM	SPC-4	
LOG LIST CODES EXHAUSTED		
FAILURE PREDICTION THRESHOLD EXCEEDED	SPC-4	
FAILURE PREDICTION THRESHOLD EXCEEDED (FALSE)	SPC-4	
VOLTAGE FAULT		
SET TARGET PORT GROUPS COMMAND FAILED	SPC-4	

The above table shows several error codes that are currently not described in any command spec. This proposal does not intend to describe these error codes. But some of these error codes are used specific

by media changer devices. And in order to standardize the use of these error codes it is encouraged that these error codes are described in the SMC-3 standard.

This proposal suggests adding a description for the following error codes into the SMC-3 standard.

MEDIUM MAGAZINE NOT ACCESSIBLE
MEDIUM MAGAZINE REMOVED
MEDIUM MAGAZINE INSERTED
MEDIUM MAGAZINE LOCKED
MEDIUM MAGAZINE UNLOCKED
LOGICAL UNIT NOT READY, OFFLINE

Suggested changes to SMC-3

Currently there is no definition of magazine, although the term is used 12 times in SMC3r02.

3.1.x   Magazine: A magazine is used to combine a set of volumes within in the media changer. Some media changer devices allow a user to remove the magazine from the media changer.

Currently there is no definition of the term offline, although the term is used 6 times in SMC3r02

3.1.x   Offline: A state of the media changer. When the media changer is offline is not able to process SCSI commands.