Erläuterungen zu SCSI-Fehlern

SCSI-Fehler sind Hardware-Fehler, das heißt sie werden von einem SCSI Gerät gemeldet und an den NetWorker weitergeleitet. Das Programm formt dann den für den Laien nicht erkennbaren 3-Byte langen Fehlercode in eine 'lesbare' Fehlermeldung um und gibt sie an den Anwender weiter.

Allerdings steht im SCSI Standard eine relativ große Menge von möglichen Codes zur freien Verwendung der Hersteller zur Verfügung, außerdem sind durch Firmware-Änderungen weitere Unregelmäßigkeiten vorhanden. Diese in ihrer Gesamtheit zu erfassen ist praktisch unmöglich. Aus diesem Grund gibt der Legato NetWorker in solchen Fällen den Code direkt aus.

Hierzu ein Beispiel aus der Datei `daemon.log`:

```
  ...
failed: Data error
(CRC-check) (23)
03/31/98 11:34:44 nsrd: device disabled warning: Device \\.\Tape0 is
automatically disabled.
nsrjb: error, Data error (CRC-check)
nsrjb: NetWorker error, device `\\.\Tape0' is not enabled
nsrjb: device offline: %s (%d) error, Illegal Request, ASC 0x3b ASCQ 0x83
  ...
```

In diesem Fall erhielt die installierte Jukebox einen unbekannten Befehl oder einen zulässigen Befehl mit unpassenden Parametern.

Wie oben bereits erwähnt, besteht der SCSI Fehlercode normalerweise aus 3 Bytes:

-	dem Sense Key		er gibt den übergreifenden Fehlertyp an
-	dem Additional Sense Code	ASQ	er gibt die Fehlerquelle an
-	dem Additional Sense Code Qualifier	ASCQ	er gibt weitere Details zur Fehlerquelle an

Sind weniger als 3 Bytes vorhanden, fehlt der ASCQ.

Die Entschlüsselung des Fehlers nach der nachfolgenden Liste lautet also:

Sense Key	05hex	>	wird bereits als *Illegal Request* dekodiert
ASC	3Bhex	>	Für einen Wechsler gibt es laut Tabelle nur diese beiden Fehler:
			3B 0D MEDIUM DESTINATION ELEMENT FULL
			3B 0E MEDIUM SOURCE ELEMENT EMPTY
ASCQ	83hex	>	diese Angabe fehlt, deshalb unbekannt für den NetWorker

In diesem Fall kann nur der Hersteller ders Autoloaders weitere Details zur Verfügung stellen.

Es handelt sich also bei einem *Unknown Error* nicht um einen NetWorker-, sondern vielmehr um einen Hardware-Fehler!

Denken Sie bitte auch daran, daß die Ursache für Hardware-Fehler durchaus auch Bedienerfehler sein können, in diesem Fall zum Beispiel der Versuch, ein Medium an einen bereits belegten Slot abzulegen. Die SCSI Hardware kann selbstverständlich nur für sich 'sprechen'.

Ein weiteres Beispiel, diesmal von einem NetWorker Server für UNIX:

```
   ...
box_close: port /dev/robot
nsrjb: Jukebox error, Unknown error: Sense Key <0x2>, ASC <0x55>, ASCQ <0x0>
   ...
```

In diesem Fall wurde auch der Sense Key im 'Klartext' ausgegeben.

Die Entschlüsselung des Fehlers nach der nachfolgenden Liste lautet also:

Sense Key	02hex	>	Das Gerät ist nicht bereit, *Not Ready*
ASC	55hex	>	Diesen Code gibt es jedoch nur für Prozessoren, worauf der NetWorker jedoch nicht programmiert ist. Aus diesem Grund wird der Fehler als unbekannt angenommen.
ASCQ	00hex	>	

In diesem Fall ist eher eine fehlerhafte Implementierung der SCSI Spezifikation zu vermuten. Ursache hierfür könnte ein Bug im Treiber sein, aber auch eine fehlerhafte Firmware ist möglich, durch die ein geräte-untypischer ASC Code ausgegeben wird.

Alle anderen, in den NetWorker Protokolldateien vermerkten Fehler stammen von dem jeweiligen Betriebssystem, so zum Beispiel auch diese Mitteilung:

```
03/04/98 00:36:58 nsrd: media warning: \\.\Tape1 moving: fsr 1910: unknown error
1101 (0x44d) (1101)
```

Die Ursache für diesen Fehler erhalten Sie bei Windows mit dem Befehl **`net helpmsg fehlercode`**.
Für dieses Beispiel müssen Sie also eingeben:

```
E:\NSR\BIN>net helpmsg 1101

Ein Bandzugriff hat eine Dateimarke erreicht.


E:\NSR\BIN>
```

Die Ursache dafür, daß es zum einen *NetWorker Fehler* aber auch *Betriebssystem Fehler* gibt, liegt im Zusammenspiel der einzelnen Programmteile. Da der Legato NetWorker die Laufwerks-Treiber vom Betriebssystem benutzt, muß er folglich auch die Fehlerbehandlung der Laufwerkszugriffe dem Betriebssystem überlassen.

SCSI-2 Sense Keys

Sense key	Description
0h	NO SENSE. Indicates that there is no specific sense key information to be reported for the designated logical unit. This would be the case for a successful command or a command that received CHECK CONDITION or COMMAND TERMINATED status because one of the filemark, EOM, or ILI bits is set to one.
1h	RECOVERED ERROR. Indicates that the last command completed successfully with some recovery action performed by the target. Details may be determinable by examining the additional sense bytes and the information field. When multiple recovered errors occur during one command, the choice of which error to report (first, last, most severe, etc.) is device specific.
2h	NOT READY. Indicates that the logical unit addressed cannot be accessed. Operator intervention may be required to correct this condition.
3h	MEDIUM ERROR. Indicates that the command terminated with a non-recovered error condition that was probably caused by a flaw in the medium or an error in the recorded data. This sense key may also be returned if the target is unable to distinguish between a flaw in the medium and a specific hardware failure (sense key 4h).
4h	HARDWARE ERROR. Indicates that the target detected a non-recoverable hardware failure (for example, controller failure, device failure, parity error, etc.) while performing the command or during a self test.
5h	ILLEGAL REQUEST. Indicates that there was an illegal parameter in the command descriptor block or in the additional parameters supplied as data for some commands (FORMAT UNIT, SEARCH DATA, etc.). If the target detects an invalid parameter in the command descriptor block, then it shall terminate the command without altering the medium. If the target detects an invalid parameter in the additional parameters supplied as data, then the target may have already altered the medium. This sense key may also indicate that an invalid IDENTIFY message was received (6.6.7).
6h	UNIT ATTENTION. Indicates that the removable medium may have been changed or the target has been reset. See 7.9 for more detailed information about the unit attention condition.
7h	DATA PROTECT. Indicates that a command that reads or writes the medium was attempted on a block that is protected from this operation. The read or write operation is not performed.

SCSI-2 Sense Keys, Fortsetzung ...

Sense key	Description
8h	BLANK CHECK. Indicates that a write-once device or a sequential-access device encountered blank medium or format-defined end-of-data indication while reading or a write-once device encountered a non-blank medium while writing.
9h	VENDOR-SPECIFIC. This sense key is available for reporting vendor specific conditions.
Ah	COPY ABORTED. Indicates a COPY, COMPARE, or COPY AND VERIFY command was aborted due to an error condition on the source device, the destination device, or both. (See 8.2.3.2 for additional information about this sense key.)
Bh	ABORTED COMMAND. Indicates that the target aborted the command. The initiator may be able to recover by trying the command again.
Ch	EQUAL. Indicates a SEARCH DATA command has satisfied an equal comparison.
Dh	VOLUME OVERFLOW. Indicates that a buffered peripheral device has reached the end-of-partition and data may remain in the buffer that has not been written to the medium. A RECOVER BUFFERED DATA command(s) may be issued to read the unwritten data from the buffer.
Eh	MISCOMPARE. Indicates that the source data did not match the data read from the medium.
Fh	RESERVED.

ASC & ASCQ Codes

```
+=============================================================================+
|           D - DIRECT ACCESS DEVICE                                          |
|           .T - SEQUENTIAL ACCESS DEVICE                                     |
|           . L - PRINTER DEVICE                                              |
|           .  P - PROCESSOR DEVICE                                           |
|           .  .W - WRITE ONCE READ MULTIPLE DEVICE                           |
|           .  . R - READ ONLY (CD-ROM) DEVICE                                |
|           .  .  S - SCANNER DEVICE                                          |
|           .  .  .O - OPTICAL MEMORY DEVICE                                  |
|           .  .  . M - MEDIA CHANGER DEVICE                                  |
|           .  .  .  C - COMMUNICATION DEVICE                                 |
|           .  .  .  .                                                       |
| ASC ASCQ  DTLPWRSOMC  DESCRIPTION                                           |
| --- ----              ------------------------------------------------      |
|  00  00   DTLPWRSOMC  NO ADDITIONAL SENSE INFORMATION                       |
|  00  01    T          FILEMARK DETECTED                                     |
|  00  02    T    S     END-OF-PARTITION/MEDIUM DETECTED                      |
|  00  03    T          SETMARK DETECTED                                      |
|  00  04    T    S     BEGINNING-OF-PARTITION/MEDIUM DETECTED                |
|  00  05    T    S     END-OF-DATA DETECTED                                  |
|  00  06   DTLPWRSOMC  I/O PROCESS TERMINATED                                |
|  00  11   R           AUDIO PLAY OPERATION IN PROGRESS                      |
|  00  12   R           AUDIO PLAY OPERATION PAUSED                           |
|  00  13   R           AUDIO PLAY OPERATION SUCCESSFULLY COMPLETED           |
|  00  14   R           AUDIO PLAY OPERATION STOPPED DUE TO ERROR             |
|  00  15   R           NO CURRENT AUDIO STATUS TO RETURN                     |
|  01  00   DW  O       NO INDEX/SECTOR SIGNAL                                |
|  02  00   DWR OM      NO SEEK COMPLETE                                      |
|  03  00   DTL W SO    PERIPHERAL DEVICE WRITE FAULT                         |
|  03  01    T          NO WRITE CURRENT                                      |
|  03  02    T          EXCESSIVE WRITE ERRORS                                |
|  04  00   DTLPWRSOMC  LOGICAL UNIT NOT READY, CAUSE NOT REPORTABLE          |
|  04  01   DTLPWRSOMC  LOGICAL UNIT IS IN PROCESS OF BECOMING READY          |
|  04  02   DTLPWRSOMC  LOGICAL UNIT NOT READY, INITIALIZING command REQUIRED |
|  04  03   DTLPWRSOMC  LOGICAL UNIT NOT READY, MANUAL INTERVENTION REQUIRED  |
|  04  04   DTL    O    LOGICAL UNIT NOT READY, FORMAT IN PROGRESS            |
|  05  00   DTL WRSOMC  LOGICAL UNIT DOES NOT RESPOND TO SELECTION            |
|  06  00   DWR OM  NO  REFERENCE POSITION FOUND                              |
|  07  00   DTL WRSOM   MULTIPLE PERIPHERAL DEVICES SELECTED                  |
|  08  00   DTL WRSOMC  LOGICAL UNIT COMMUNICATION FAILURE                    |
|  08  01   DTL WRSOMC  LOGICAL UNIT COMMUNICATION TIME-OUT                   |
|  08  02   DTL WRSOMC  LOGICAL UNIT COMMUNICATION PARITY ERROR               |
|  09  00   DT  WR O    TRACK FOLLOWING ERROR                                 |
|  09  01       WR O    TRACKING SERVO FAILURE                                |
|  09  02       WR O    FOCUS SERVO FAILURE                                   |
|  09  03       WR O    SPINDLE SERVO FAILURE                                 |
+=============================================================================+
```

ASC & ASCQ Codes, Fortsetzung ...

```
+=============================================================================+
|           D - DIRECT ACCESS DEVICE                                          |
|           .T - SEQUENTIAL ACCESS DEVICE                                     |
|           . L - PRINTER DEVICE                                              |
|           .  P - PROCESSOR DEVICE                                           |
|           .  .W - WRITE ONCE READ MULTIPLE DEVICE                           |
|           .  . R - READ ONLY (CD-ROM) DEVICE                                |
|           .  .  S - SCANNER DEVICE                                          |
|           .  .  .O - OPTICAL MEMORY DEVICE                                  |
|           .  .  . M - MEDIA CHANGER DEVICE                                  |
|           .  .  .  C - COMMUNICATION DEVICE                                 |
|           .  .  .  .                                                       |
| ASC ASCQ  DTLPWRSOMC  DESCRIPTION                                           |
| --- ----              ------------------------------------------------      |
|  0A  00   DTLPWRSOMC  ERROR LOG OVERFLOW                                    |
|  0B  00                                                                     |
|  0C  00    T     S    WRITE ERROR                                          |
|  0C  01   D   W  O    WRITE ERROR RECOVERED WITH AUTO REALLOCATION          |
|  0C  02   D   W  O    WRITE ERROR - AUTO REALLOCATION FAILED                |
|  0D  00                                                                     |
|  0E  00                                                                     |
|  0F  00                                                                     |
|  10  00   D   W  O    ID CRC OR ECC ERROR                                   |
|  11  00   DT  WRSO    UNRECOVERED READ ERROR                                |
|  11  01   DT  W SO    READ RETRIES EXHAUSTED                                |
|  11  02   DT  W SO    ERROR TOO LONG TO CORRECT                             |
|  11  03   DT  W SO    MULTIPLE READ ERRORS                                  |
|  11  04   D   W  O    UNRECOVERED READ ERROR - AUTO REALLOCATE FAILED       |
|  11  05       WR O    L-EC UNCORRECTABLE ERROR                              |
|  11  06       WR O    CIRC UNRECOVERED ERROR                                |
|  11  07       W  O    DATA RESYNCHRONIZATION ERROR                          |
|  11  08    T          INCOMPLETE BLOCK READ                                 |
|  11  09    T          NO GAP FOUND                                          |
|  11  0A   DT     O    MISCORRECTED ERROR                                    |
|  11  0B   D   W  O    UNRECOVERED READ ERROR - RECOMMEND REASSIGNMENT       |
|  11  0C   D   W  O    UNRECOVERED READ ERROR - RECOMMEND REWRITE THE DATA   |
|  12  00   D   W  O    ADDRESS MARK NOT FOUND FOR ID FIELD                   |
|  13  00   D   W  O    ADDRESS MARK NOT FOUND FOR DATA FIELD                 |
|  14  00   DTL WRSO    RECORDED ENTITY NOT FOUND                             |
|  14  01   DT  WR O    RECORD NOT FOUND                                      |
|  14  02    T          FILEMARK OR SETMARK NOT FOUND                         |
|  14  03    T          END-OF-DATA NOT FOUND                                 |
|  14  04    T          BLOCK SEQUENCE ERROR                                  |
|  15  00   DTL WRSOM   RANDOM POSITIONING ERROR                              |
|  15  01   DTL WRSOM   MECHANICAL POSITIONING ERROR                          |
|  15  02   DT  WR O    POSITIONING ERROR DETECTED BY READ OF MEDIUM          |
|  16  00   DW     O    DATA SYNCHRONIZATION MARK ERROR                       |
|  17  00   DT  WRSO    RECOVERED DATA WITH NO ERROR CORRECTION APPLIED       |
|  17  01   DT  WRSO    RECOVERED DATA WITH RETRIES                           |
|  17  02   DT  WR O    RECOVERED DATA WITH POSITIVE HEAD OFFSET              |
|  17  03   DT  WR O    RECOVERED DATA WITH NEGATIVE HEAD OFFSET              |
|  17  04       WR O    RECOVERED DATA WITH RETRIES AND/OR CIRC APPLIED       |
|  17  05   D   WR O    RECOVERED DATA USING PREVIOUS SECTOR ID               |
|  17  06   D   W  O    RECOVERED DATA WITHOUT ECC - DATA AUTO-REALLOCATED    |
|  17  07   D   W  O    RECOVERED DATA WITHOUT ECC - RECOMMEND REASSIGNMENT   |
|  17  08   D   W  O    RECOVERED DATA WITHOUT ECC - RECOMMEND REWRITE        |
|  18  00   DT  WR O    RECOVERED DATA WITH ERROR CORRECTION APPLIED          |
|  18  01   D   WR O    RECOVERED DATA WITH ERROR CORRECTION & RETRIES APPLIED|
|  18  02   D   WR O    RECOVERED DATA - DATA AUTO-REALLOCATED                |
|  18  03        R      RECOVERED DATA WITH CIRC                              |
|  18  04        R      RECOVERED DATA WITH LEC                               |
|  18  05   D   WR O    RECOVERED DATA - RECOMMEND REASSIGNMENT               |
|  18  06   D   WR O    RECOVERED DATA - RECOMMEND REWRITE                    |
+=============================================================================+
```

ASC & ASCQ Codes, Fortsetzung ...

```
+=============================================================================+
|           D - DIRECT ACCESS DEVICE                                          |
|           .T - SEQUENTIAL ACCESS DEVICE                                     |
|           . L - PRINTER DEVICE                                              |
|           .  P - PROCESSOR DEVICE                                           |
|           .  .W - WRITE ONCE READ MULTIPLE DEVICE                           |
|           .  . R - READ ONLY (CD-ROM) DEVICE                                |
|           .  .  S - SCANNER DEVICE                                          |
|           .  .  .O - OPTICAL MEMORY DEVICE                                  |
|           .  .  . M - MEDIA CHANGER DEVICE                                  |
|           .  .  .  C - COMMUNICATION DEVICE                                 |
|           .  .  .  .                                                       |
| ASC ASCQ  DTLPWRSOMC  DESCRIPTION                                           |
| --- ----              ------------------------------------------------      |
|  19  00   D      O    DEFECT LIST ERROR                                     |
|  19  01   D      O    DEFECT LIST NOT AVAILABLE                             |
|  19  02   D      O    DEFECT LIST ERROR IN PRIMARY LIST                     |
|  19  03   D      O    DEFECT LIST ERROR IN GROWN LIST                       |
|  1A  00   DTLPWRSOMC  PARAMETER LIST LENGTH ERROR                           |
|  1B  00   DTLPWRSOMC  SYNCHRONOUS DATA TRANSFER ERROR                       |
|  1C  00   D      O    DEFECT LIST NOT FOUND                                 |
|  1C  01   D      O    PRIMARY DEFECT LIST NOT FOUND                         |
|  1C  02   D      O    GROWN DEFECT LIST NOT FOUND                           |
|  1D  00   D   W  O    MISCOMPARE DURING VERIFY OPERATION                    |
|  1E  00   D   W  O    RECOVERED ID WITH ECC                                 |
|  1F  00                                                                     |
|  20  00   DTLPWRSOMC  INVALID command OPERATION CODE                        |
|  21  00   DT  WR OM   LOGICAL BLOCK ADDRESS OUT OF RANGE                    |
|  21  01          M    INVALID ELEMENT ADDRESS                               |
|  22  00   D           ILLEGAL FUNCTION (SHOULD USE 20 00, 24 00, OR 26 00)   |
|  23  00                                                                     |
|  24  00   DTLPWRSOMC  INVALID FIELD IN CDB                                  |
|  25  00   DTLPWRSOMC  LOGICAL UNIT NOT SUPPORTED                            |
|  26  00   DTLPWRSOMC  INVALID FIELD IN PARAMETER LIST                       |
|  26  01   DTLPWRSOMC  PARAMETER NOT SUPPORTED                               |
|  26  02   DTLPWRSOMC  PARAMETER VALUE INVALID                               |
|  26  03   DTLPWRSOMC  THRESHOLD PARAMETERS NOT SUPPORTED                    |
|  27  00   DT  W  O    WRITE PROTECTED                                       |
|  28  00   DTLPWRSOMC  NOT READY TO READY TRANSITION(MEDIUM MAY HAVE CHANGED)|
|  28  01          M    IMPORT OR EXPORT ELEMENT ACCESSED                     |
|  29  00   DTLPWRSOMC  POWER ON, RESET, OR BUS DEVICE RESET OCCURRED         |
|  2A  00   DTL WRSOMC  PARAMETERS CHANGED                                    |
|  2A  01   DTL WRSOMC  MODE PARAMETERS CHANGED                               |
|  2A  02   DTL WRSOMC  LOG PARAMETERS CHANGED                                |
|  2B  00   DTLPWRSO C  COPY CANNOT EXECUTE SINCE HOST CANNOT DISCONNECT      |
|  2C  00   DTLPWRSOMC  command SEQUENCE ERROR                                |
|  2C  01         S     TOO MANY WINDOWS SPECIFIED                            |
|  2C  02         S     INVALID COMBINATION OF WINDOWS SPECIFIED              |
|  2D  00    T          OVERWRITE ERROR ON UPDATE IN PLACE                    |
|  2E  00                                                                     |
|  2F  00   DTLPWRSOMC  commandS CLEARED BY ANOTHER INITIATOR                 |
|  30  00   DT  WR OM   INCOMPATIBLE MEDIUM INSTALLED                         |
|  30  01   DT  WR O    CANNOT READ MEDIUM - UNKNOWN FORMAT                   |
|  30  02   DT  WR O    CANNOT READ MEDIUM - INCOMPATIBLE FORMAT              |
|  30  03   DT          CLEANING CARTRIDGE INSTALLED                          |
|  31  00   DT  W  O    MEDIUM FORMAT CORRUPTED                               |
|  31  01   D L    O    FORMAT command FAILED                                 |
|  32  00   D   W  O    NO DEFECT SPARE LOCATION AVAILABLE                    |
|  32  01   D   W  O    DEFECT LIST UPDATE FAILURE                            |
|  33  00    T          TAPE LENGTH ERROR                                     |
|  34  00                                                                     |
|  35  00                                                                     |
|  36  00     L         RIBBON, INK, OR TONER FAILURE                         |
+=============================================================================+
```

ASC & ASCQ Codes, Fortsetzung ...

```
+=============================================================================+
|           D - DIRECT ACCESS DEVICE                                          |
|           .T - SEQUENTIAL ACCESS DEVICE                                     |
|           . L - PRINTER DEVICE                                              |
|           .  P - PROCESSOR DEVICE                                           |
|           .  .W - WRITE ONCE READ MULTIPLE DEVICE                           |
|           .  . R - READ ONLY (CD-ROM) DEVICE                                |
|           .  .  S - SCANNER DEVICE                                          |
|           .  .  .O - OPTICAL MEMORY DEVICE                                  |
|           .  .  . M - MEDIA CHANGER DEVICE                                  |
|           .  .  .  C - COMMUNICATION DEVICE                                 |
|           .  .  .  .                                                       |
| ASC ASCQ  DTLPWRSOMC  DESCRIPTION                                           |
| --- ----              ------------------------------------------------      |
|  37  00   DTL WRSOMC  ROUNDED PARAMETER                                     |
|  38  00                                                                     |
|  39  00   DTL WRSOMC  SAVING PARAMETERS NOT SUPPORTED                       |
|  3A  00   DTL WRSOM   MEDIUM NOT PRESENT                                    |
|  3B  00    TL         SEQUENTIAL POSITIONING ERROR                          |
|  3B  01    T          TAPE POSITION ERROR AT BEGINNING-OF-MEDIUM            |
|  3B  02    T          TAPE POSITION ERROR AT END-OF-MEDIUM                  |
|  3B  03     L         TAPE OR ELECTRONIC VERTICAL FORMS UNIT NOT READY      |
|  3B  04     L         SLEW FAILURE                                          |
|  3B  05     L         PAPER JAM                                             |
|  3B  06     L         FAILED TO SENSE TOP-OF-FORM                           |
|  3B  07     L         FAILED TO SENSE BOTTOM-OF-FORM                        |
|  3B  08    T          REPOSITION ERROR                                      |
|  3B  09         S     READ PAST END OF MEDIUM                               |
|  3B  0A         S     READ PAST BEGINNING OF MEDIUM                         |
|  3B  0B         S     POSITION PAST END OF MEDIUM                           |
|  3B  0C         S     POSITION PAST BEGINNING OF MEDIUM                     |
|  3B  0D           M   MEDIUM DESTINATION ELEMENT FULL                       |
|  3B  0E           M   MEDIUM SOURCE ELEMENT EMPTY                           |
|  3C  00                                                                     |
|  3D  00   DTLPWRSOMC  INVALID BITS IN IDENTIFY MESSAGE                      |
|  3E  00   DTLPWRSOMC  LOGICAL UNIT HAS NOT SELF-CONFIGURED YET              |
|  3F  00   DTLPWRSOMC  TARGET OPERATING CONDITIONS HAVE CHANGED              |
|  3F  01   DTLPWRSOMC  MICROCODE HAS BEEN CHANGED                            |
|  3F  02   DTLPWRSOMC  CHANGED OPERATING DEFINITION                          |
|  3F  03   DTLPWRSOMC  INQUIRY DATA HAS CHANGED                              |
|  40  00   D           RAM FAILURE (SHOULD USE 40 NN)                        |
|  40  NN   DTLPWRSOMC  DIAGNOSTIC FAILURE ON COMPONENT NN (80H-FFH)          |
|  41  00   D           DATA PATH FAILURE (SHOULD USE 40 NN)                  |
|  42  00   D           POWER-ON OR SELF-TEST FAILURE (SHOULD USE 40 NN)      |
|  43  00   DTLPWRSOMC  MESSAGE ERROR                                         |
|  44  00   DTLPWRSOMC  INTERNAL TARGET FAILURE                               |
|  45  00   DTLPWRSOMC  SELECT OR RESELECT FAILURE                            |
|  46  00   DTLPWRSOMC  UNSUCCESSFUL SOFT RESET                               |
|  47  00   DTLPWRSOMC  SCSI PARITY ERROR                                     |
|  48  00   DTLPWRSOMC  INITIATOR DETECTED ERROR MESSAGE RECEIVED             |
|  49  00   DTLPWRSOMC  INVALID MESSAGE ERROR                                 |
|  4A  00   DTLPWRSOMC  command PHASE ERROR                                   |
|  4B  00   DTLPWRSOMC  DATA PHASE ERROR                                      |
|  4C  00   DTLPWRSOMC  LOGICAL UNIT FAILED SELF-CONFIGURATION                |
|  4D  00                                                                     |
|  4E  00   DTLPWRSOMC  OVERLAPPED COMMANDS ATTEMPTED                         |
|  4F  00                                                                     |
|  50  00    T          WRITE APPEND ERROR                                    |
|  50  01    T          WRITE APPEND POSITION ERROR                           |
|  50  02    T          POSITION ERROR RELATED TO TIMING                      |
|  51  00    T     O    ERASE FAILURE                                         |
|  52  00    T          CARTRIDGE FAULT                                       |
+=============================================================================+
```

ASC & ASCQ Codes, Fortsetzung ...

```
            D - DIRECT ACCESS DEVICE
            .T - SEQUENTIAL ACCESS DEVICE
            . L - PRINTER DEVICE
            .  P - PROCESSOR DEVICE
            .  .W - WRITE ONCE READ MULTIPLE DEVICE
            .  . R - READ ONLY (CD-ROM) DEVICE
            .  .  S - SCANNER DEVICE
            .  .  .O - OPTICAL MEMORY DEVICE
            .  .  . M - MEDIA CHANGER DEVICE
            .  .  .  C - COMMUNICATION DEVICE
            .  .  .  .
 ASC ASCQ   DTLPWRSOMC  DESCRIPTION
 --- ----               ---------------------------------------------------
  53  00    DTL WRSOM    MEDIA LOAD OR EJECT FAILED
  53  01     T           UNLOAD TAPE FAILURE
  53  02    DT  WR OM    MEDIUM REMOVAL PREVENTED
  54  00       P         SCSI TO HOST SYSTEM INTERFACE FAILURE
  55  00       P         SYSTEM RESOURCE FAILURE
  56  00
  57  00         R       UNABLE TO RECOVER TABLE-OF-CONTENTS
  58  00      O          GENERATION DOES NOT EXIST
  59  00      O          UPDATED BLOCK READ
  5A  00    DTLPWRSOM    OPERATOR REQUEST OR STATE CHANGE INPUT (UNSPECIFIED)
  5A  01    DT  WR OM    OPERATOR MEDIUM REMOVAL REQUEST
  5A  02    DT  W  O     OPERATOR SELECTED WRITE PROTECT
  5A  03    DT  W  O     OPERATOR SELECTED WRITE PERMIT
  5B  00    DTLPWRSOM    LOG EXCEPTION
  5B  01    DTLPWRSOM    THRESHOLD CONDITION MET
  5B  02    DTLPWRSOM    LOG COUNTER AT MAXIMUM
  5B  03    DTLPWRSOM    LOG LIST CODES EXHAUSTED
  5C  00    D   O        RPL STATUS CHANGE
  5C  01    D   O        SPINDLES SYNCHRONIZED
  5C  02    D   O        SPINDLES NOT SYNCHRONIZED
  5D  00
  5E  00
  5F  00
  60  00          S      LAMP FAILURE
  61  00          S      VIDEO ACQUISITION ERROR
  61  01          S      UNABLE TO ACQUIRE VIDEO
  61  02          S      OUT OF FOCUS
  62  00          S      SCAN HEAD POSITIONING ERROR
  63  00        R        END OF USER AREA ENCOUNTERED ON THIS TRACK
  64  00        R        ILLEGAL MODE FOR THIS TRACK
  65  00
  66  00
  67  00
  68  00
  69  00
  6A  00
  6B  00
  6C  00
  6D  00
  6E  00
  6F  00
```

ASC & ASCQ Codes, Fortsetzung ...

```
+=============================================================================+
|           D - DIRECT ACCESS DEVICE                                          |
|           .T - SEQUENTIAL ACCESS DEVICE                                     |
|           . L - PRINTER DEVICE                                              |
|           .  P - PROCESSOR DEVICE                                           |
|           .  .W - WRITE ONCE READ MULTIPLE DEVICE                           |
|           .  . R - READ ONLY (CD-ROM) DEVICE                                |
|           .  .  S - SCANNER DEVICE                                          |
|           .  .  .O - OPTICAL MEMORY DEVICE                                  |
|           .  .  . M - MEDIA CHANGER DEVICE                                  |
|           .  .  .  C - COMMUNICATION DEVICE                                 |
|           .  .  .  .                                                       |
| ASC ASCQ  DTLPWRSOMC  DESCRIPTION                                           |
| --- ----              ------------------------------------------------      |
|  70  00                                                                     |
|  71  00                                                                     |
|  72  00                                                                     |
|  73  00                                                                     |
|  74  00                                                                     |
|  75  00                                                                     |
|  76  00                                                                     |
|  77  00                                                                     |
|  78  00                                                                     |
|  79  00                                                                     |
|  7A  00                                                                     |
|  7B  00                                                                     |
|  7C  00                                                                     |
|  7D  00                                                                     |
|  7E  00                                                                     |
|  7F  00                                                                     |
|                                                                             |
|  80  xxh \                                                                  |
|   THROUGH >  Vendor-specific.                                               |
|  FF  xxh /                                                                  |
|                                                                             |
|  xxh 80 \                                                                   |
|  THROUGH >  Vendor-specific QUALIFICATION OF STANDARD ASC.                  |
|  xxh FF /                                                                   |
|               ALL CODES NOT SHOWN OR BLANK ARE RESERVED.                    |
+=============================================================================+
```