NAME

scsi_extended_sense – SCSI extended sense structure

SYNOPSIS

#include <sys/scsi/scsi.h>

INTERFACE LEVEL

Solaris DDI specific (Solaris DDI).

DESCRIPTION

The **scsi_extended_sense** structure for error codes 0x70 (current errors) and 0x71 (deferred errors) is returned on a successful REQUEST SENSE commands. SCSI-2 compliant targets are required to at least return the first 18 bytes of this structure. This structure is part of **scsi_device**(9S) structure.

STRUCTURE MEMBERS

The following definitions describe the **scsi_extended_sense** structure for the SPARC and x86 architectures.

SPARC

```
u_char  es_valid             :1,  /* sense data is valid */
        es_class             :3,  /* Error Class- fixed at 0x7 */
        es_code              :4;  /* Vendor Unique error code */
u_char  es_segnum;                /* segment number: for COPY cmd only */
u_char  es_filmk             :1,  /* File Mark Detected */
        es_eom               :1,  /* End of Media */
        es_ili               :1,  /* Incorrect Length Indicator */
                             :1,  /* reserved */
        es_key               :4;  /* Sense key */
u_char  es_info_1;                /* information byte 1 */
u_char  es_info_2;                /* information byte 2 */
u_char  es_info_3;                /* information byte 3 */
u_char  es_info_4;                /* information byte 4 */
u_char  es_add_len;               /* number of additional bytes */
u_char  es_cmd_info[4];           /* command specific information */
u_char  es_add_code;              /* Additional Sense Code */
u_char  es_qual_code;             /* Additional Sense Code Qualifier */
u_char  es_fru_code;              /* Field Replaceable Unit Code */
u_char  es_skey_specific[3];      /* Sense Key Specific information */
```

x86

```
u_char  es_code              :4;  /* Vendor Unique error code */
        es_class             :3,  /* Error Class- fixed at 0x7 */
        es_valid             :1,  /* sense data is valid */
u_char  es_segnum;                /* segment number: for COPY cmd only */
u_char  es_key               :4;  /* Sense key */
        es_ili               :1,  /* Incorrect Length Indicator */
        es_eom               :1,  /* End of Media */
        es_filmk             :1,  /* File Mark Detected */
                             :1,  /* reserved */
u_char  es_info_1;                /* information byte 1 */
u_char  es_info_2;                /* information byte 2 */
```

```
u_char   es_info_3;            /* information byte 3 */
u_char   es_info_4;            /* information byte 4 */
u_char   es_add_len;           /* number of additional bytes */
u_char   es_cmd_info[4];       /* command specific information */
u_char   es_add_code;          /* Additional Sense Code */
u_char   es_qual_code;         /* Additional Sense Code Qualifier */
u_char   es_fru_code;          /* Field Replaceable Unit Code */
u_char   es_skey_specific[3];  /* Sense Key Specific information */
```

es_valid, if set, indicates that the information field contains valid information.

es_class should be **0x7**.

es_code is either **0x0** or **0x1**.

es_segnum contains the number of the current segment descriptor if the REQUEST SENSE command is in response to a **COPY**, **COMPARE**, and **COPY AND VERIFY** command.

es_filmk, if set, indicates that the current command had read a filemark or setmark (sequential access devices only).

es_eom, if set, indicates that an end-of-medium condition exists (sequential access and printer devices only).

es_ili, if set, indicates that the requested logical block length did not match the logical block length of the data on the medium.

es_key indicates generic information describing an error or exception condition. The following sense keys are defined:

KEY_NO_SENSE
: Indicates that there is no specific sense key information to be reported.

KEY_RECOVERABLE_ERROR
: Indicates that the last command completed successfully with some recovery action performed by the target.

KEY_NOT_READY
: Indicates that the logical unit addressed cannot be accessed.

KEY_MEDIUM_ERROR
: Indicates that the command terminated with a non-recovered error condition that was probably caused by a flaw on the medium or an error in the recorded data.

KEY_HARDWARE_ERROR
: Indicates that the target detected a non-recoverable hardware failure while performing the command or during a self test.

KEY_ILLEGAL_REQUEST
: Indicates that there was an illegal parameter in the CDB or in the additional parameters supplied as data for some commands.

KEY_UNIT_ATTENTION
: Indicates that the removable medium may have been

changed or the target has been reset.

KEY_WRITE_PROTECT/KEY_DATA_PROTECT
Indicates that a command that reads or writes the medium was attempted on a block that is protected from this operation.

KEY_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.

KEY_VENDOR_UNIQUE
This sense key is available for reporting vendor-specific conditions.

KEY_COPY_ABORTED
Indicates a **COPY**, **COMPARE**, and **COPY AND VERIFY** command was aborted.

KEY_ABORTED_COMMAND
Indicates that the target aborted the command.

KEY_EQUAL Indicates a **SEARCH DATA** command has satisfied an equal comparison.

KEY_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.

KEY_MISCOMPARE Indicates that the source data did not match the data read from the medium.

KEY_RESERVE Indicates that the target is currently reserved by a different initiator.

es_info_{1,2,3,4} is device type or command specific.

es_add_len indicates the number of additional sense bytes to follow.

es_cmd_info contains information that depends on the command which was executed.

es_add_code (ASC) indicates further information related to the error or exception condition reported in the sense key field.

es_qual_code (ASCQ) indicates detailed information related to the additional sense code.

es_fru_code (FRU) indicates a device-specific mechanism to unit that has failed.

es_skey_specific is defined when the value of the sense-key specific valid bit (bit 7) is one. This field is reserved for sense keys not defined above.

SEE ALSO

scsi_device(9S)

ANSI Small Computer System Interface-2 (SCSI-2)

Writing Device Drivers