

T10/00-233r0

To: T10 Technical Committee
From: Mark Hamel, Compaq Computer Corporation (Mark.Hamel@compaq.com)
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Subject: Minor SES issues

From Mark Hamel of Compaq, with Robert Snively's (SES editor) comments and additional comments from Compaq software developers.

Issue 1: Product Revision Label

In Annex A, Table A.2, pages 68 and 69, the PRODUCT REVISION LEVEL field of the Primary sub-enclosure descriptor occupies bytes 44-47; this is a 4-byte field. However, this same field for all of the other sub-enclosures in the table is documented as an 8-byte field. Further, the same field is described in section 6.1.1 as a 4-byte field. This seems inconsistent. Is there a specific reason why the fields are of different lengths?

RNS:

The product revision level is 4 bytes in the configuration page. It is also 4 bytes in the document referenced by SES, section A.3, Product Revision Level on pdf page 79.

The document referenced is SPC-2, where the product revision level is defined (in rev 16), section 7.5.1, pdf page 110, as 4 bytes long.

Table A.2, page 68, is the only place where it is referenced as eight bytes, and that is probably a typo, but that is the only direct specification of it, so devices have probably been implemented that way.

CPQ:

The 4-byte field is consistent with the organization of the remainder of the Configuration page. It is our belief that this was the intent of the authors of the spec. Therefore, we would probably choose to follow the description in section A.3 and use the 4-byte field.

Issue 2: Descriptor Length endianness

In the description of the Element descriptor page in section 6.1.11, Table 18 on page 32 shows the DESCRIPTOR LENGTH field to be arranged in Little Endian order. In other SCSI specifications, multiple byte fields are arranged in Big Endian order. Is this a typo? If not, is there a specific reason why this is in Little Endian order?

RNS:

It is a typo.

Issue 3: Type Descriptor Header order

In section A.3, in the sixth paragraph on page 70 labeled TYPE DESCRIPTOR HEADER:, the fourth sentence reads: "All those elements defining SCSI devices shall be listed before elements of other types, regardless of sub-enclosure identification." Does anyone recall why this rule was added??

It seems that an additional pass over the incoming data is needed to satisfy this requirement.

RNS:

I don't remember the details of this. It is my impression that, at least at one time, the subsequent pages that concentrated on device information may have worked better that way.

Issue 4: Primary sub-enclosure identifier

In section 6.1.1, in the seventh paragraph on page 17 labeled SUB-ENCLOSURE IDENTIFIER:, a primary sub-enclosure is defined. Does this definition apply to sub-enclosure reporting as defined in Annex A? Specifically, must the primary's sub-enclosure identifier be zero? This may create fail-over problems for the user of an SES device if the primary must be sub-enclosure zero.

RNS:

Asymmetric fail-over will always be an interesting management challenge. The primary sub-enclosure is the one collecting the information and is often the one connected to the link. If you start to mix and match link relationships and information collecting capabilities, then you must use world-wide identifiers and/or configuration pre-knowledge to sort these out.

CPQ:

The relevant paragraph from section 6.1.1 reads:

SUB-ENCLOSURE IDENTIFIER: The SUB-ENCLOSURE IDENTIFIER field specifies a vendor specific identifier for the enclosure where the elements described by this type descriptor reside. For an enclosure services process that is directly accessed as an enclosure services device or through a logical unit of another type, the SUB-ENCLOSURE IDENTIFIER shall be 00h. Such an enclosure is defined as a primary sub-enclosure. The alternative accessing structure for sub-enclosures is described in annex A.

Does the last sentence override the rest of the paragraph? If so, the requirement for the primary's sub-enclosure identifier to be zero is also overridden. Thus, a sub-enclosure's id stays the same no matter which sub-enclosure is acting as primary. The sub-enclosure id is zero only when annex A is not in effect.