SYMBIOS
L O G I C

Date: November 14, 1995

To: X3T10 Committee

From: John Lohmeyer, Principal member from Symbios Logic

Subject: **Device Identification Page Proposal (Rev 2)**

At the July '95 SCSI working group meeting, I presented revision 0 of this proposal. Rev 0 principally dealt with retrieving SCAM strings and defined an new mode select/sense page. With the input I received at that meeting plus various discussions since the meeting, I have prepared revision 1. This proposal would define a new Vital Product Data page and includes the ability to return multiple identifiers (e.g., a device may have both an X3T10 identifier and an IEEE identifier).

At the November '95 SCSI working group meeting, I received further input and have prepared revision 2 based on this input. The concept of group identifiers was removed, several wording improvements were made, and an example was added.

Proposed changes to SPC are to replace the existing section 8.4.3 with the following paragraphs and to renumber the existing sections 8.4.3--8.4.5 to 8.4.4--8.4.6, respectively. All references to these sections would need to be adjusted, Table 93 would need to be updated, and subsequent tables would need to be renumbered.

8.3.4 Device identification page

The optional device identification page (see table xx) provides the means to retrieve zero or more identification descriptors for the logical unit. Logical units may have more than one identification descriptor if both X3T10 and IEEE identifiers are supported or if group identifiers are supported in addition to device identifiers.

Device identifiers are intended to be assigned to the device (e.g., a disk drive) and not to the currently mounted media in the case of removable media devices. Media identification is outside the scope of this standard. It is expected that operating systems will make use of the device identifiers during system configuration activities to determine whether alternate paths exist for the same device.

Table xx - Device identification page

```
+=====- ========- =========- =========- =========- ========- =========- =========- ========+
| Bit|   7    |   6    |   5    |   4    |   3    |   2    |   1    |   0    |
|Byte |        |        |        |        |        |        |        |        |
|=====+========================+=========================================================|
| 0  | Peripheral qualifier   |      Peripheral device type                             |
|-----+---------------------------------------------------------------------------------|
| 1  |                    Page code (83h)                                               |
|-----+---------------------------------------------------------------------------------|
| 2  |                    Reserved                                                      |
|-----+---------------------------------------------------------------------------------|
| 3  |                    Page length (n-3)                                             |
|=====+=================================================================================|
|    |                    Identification descriptor list                                |
|=====+=================================================================================|
| 4  | (MSB)                                                                            |
|- - -+- -                 Identification descriptor (0)                     - -|
|    |                                                                        (LSB) |
|-----+---------------------------------------------------------------------------------|
|    |                                       .                                          |
|    |                                       .                                          |
|    |                                       .                                          |
|-----+---------------------------------------------------------------------------------|
|    | (MSB)                                                                            |
|- - -+- -                 Identification descriptor (last)                  - -|
| n  |                                                                        (LSB) |
+=====+=================================================================================+
```

Each Identification descriptor (see table xx+1) contains information identifying the <u>logical unit</u>. <u>If the logical unit is accessible through any other path, it shall return the same identification.</u>

Table xx+1 - Identification descriptor

```
+=====- ========- =========- =========- =========- ========- =========- =========- ========+
| Bit|   7    |   6    |   5    |   4    |   3    |   2    |   1    |   0    |
|Byte |        |        |        |        |        |        |        |        |
|=====+========================+=========================================================|
| 0  |       Reserved         |              Code set                                   |
|-----+---------------------------------------------------------------------------------|
| 1  |       Reserved         |              Identifier type                            |
|-----+---------------------------------------------------------------------------------|
| 2  |                    Reserved                                                      |
|-----+---------------------------------------------------------------------------------|
| 3  |                    Identifier length (m-3)                                       |
|-----+---------------------------------------------------------------------------------|
| 4  | (MSB)                                                                            |
|- - -+- -                 Identifier                                        - -|
| m  |                                                                        (LSB) |
+=====+=================================================================================+
```

The code set field specifies the code set used for the identifier field as described in table xx+2. This field is intended to be an aid to software that displays the identifier field.

Table xx+2 - Code set

```
+======+==============================================================+
| Value | Description                                                 |
+======+==============================================================+
|   0   | Reserved                                                    |
+-------+-------------------------------------------------------------+
|   1   | The identifier field contains binary values.                |
+-------+-------------------------------------------------------------+
|   2   | The identifier field only contains ASCII graphic codes (i.e., code |
|       | values 20h through 7Eh).                                    |
+-------+-------------------------------------------------------------+
| 3-Fh  | Reserved                                                    |
+======+==============================================================+
```

The identifier type field specifies the format and assignment authority for the identifier as described in table xx+3.

Table xx+3 - Identifier type

```
+======+==============================================================+
| Value | Description                                                 |
+======+==============================================================+
|   0   | No assignment authority was used and consequently the identifier |
|       | may not be globally unique (i.e., the identifier is vendor specific) |
+-------+-------------------------------------------------------------+
|   1   | The first 8 bytes of the identifier field are an X3T10 Vendor ID |
|       | (see annex C).  The organization assigned to the X3T10 Vendor ID is |
|       | responsible for ensuring that the remainder of the identifier field |
|       | is unique.  One recommended method of constructing the remainder of |
|       | the identifier field is to concatenate the product identification |
|       | field from the standard INQUIRY data field and the product serial |
|       | number field from the unit serial number page.             |
+-------+-------------------------------------------------------------+
|   2   | The identifier field contains an IEEE 64-bit identifier.  In this |
|       | case, the identifier length field shall be set to 8.  Note that the |
|       | IEEE guidelines for 64-bit global identifiers specifies a method |
|       | for unambiguously encapsulating 48-bit identifiers as 64-bit |
|       | identifiers.                                                |
+-------+-------------------------------------------------------------+
|   3   | The identifier field contains an FC-PH 64-bit Name_Identifier field |
|       | as defined in X3.230-1994.  In this case, the identifier length |
|       | shall be set to 8.                                          |
+-------+-------------------------------------------------------------+
| 4-Fh  | Reserved                                                    |
+======+==============================================================+
```

The identifier length field specifies the length in bytes of the identifier. If the allocation length field of the command descriptor block is too small to transfer all of the identifier, the identifier length shall not be adjusted to reflect the truncation.

The identifier field contains the identifier as described by the identifier type, code set, and identifier length fields.

The following example is not a normative part of this standard. The example assumes that the product is a direct-access device with an X3T10 Vendor ID of 'XYZ_Corp', a product identification of 'Super Turbo Disk', and a product serial number of '2034589345'. Furthermore, it is assumed that the manufacturer has been assigned a 24-bit IEEE company_id of 01ABCDh by the IEEE Registration Authority Committee and that the manufacture has assigned a 24-bit extension_identifier of 234567h to this logical unit. The

combined 48-bit identifier is reported in the 64-bit format as defined by the IEEE 64-bit Global Identifier (EUI-64) standard. The data returned in the device identification VPD page for this logical unit would be:

Table xx+3 - Device identification page example

```
+=========- ===========================================================- =================+
| Bytes   | Hexadecimal Values                                         | ASCII Values    |
+========+============================================================+=================+
| 00--15 | 00 83 00 32   02 01 00 22   58 59 5A 5F   43 6F 72 70 |...2..."XYZ Corp|
| 16--31 | 53 75 70 65   72 20 54 75   72 62 6F 20   44 69 73 6B |Super Turbo Disk|
| 32--47 | 32 30 33 34   35 38 39 33   34 35 01 02   00 08 01 AB |2034589345......|
| 48--53 | CD FF FF 23   45 67                                    |......          |
+=====================================================================================+
```

Note: In the above table, non-printing ASCII characters are shown as '.'.