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December 1, 1989

Ms. Lynn Barra (X3 Secretariat)  
CBEMA  
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Suite 500  
Washington D.C. 20001-2178

Dear Ms. Barra:

One of my colleagues brought a serious oversight to my attention in mode sense/select, Page 8. The intent of the cache control page is to allow the user to affect some parameters which may be performance-tuned to a particular system.

One of the most popular cacheing algorithms in use today is anticipatory cacheing, often called read-ahead. The target continues to fill RAM memory with data which immediately follows the data just requested on the anticipation that the subsequent request might be sequential.

As multiple hosts per target and multiple tasks per host become more commonplace, a single-segment look-ahead becomes ineffective as one task consistently overwrites pre-fetch information from another task. The solution to this problem is to create multiple segments within the buffer which can operate independently.

The buffer segmentation scheme is normally specified in one of two ways. If the application is task dependant, it may be optimum to specify the buffer segmentation in terms of absolute number of segments. This allows maximum buffer length per segment.

If the application is block dependent, it may be optimum to specify the buffer segmentation in terms of minimum and maximum pre-fetch. This allows maximum number of segments.

Although current SCSI definition provides a mechanism to set Minimum and Maximum Pre-fetch length, it does not allow a mechanism to specify the number of segments. In order to specify that parameter, it is necessary to utilize the de-facto-standard Quantum page.

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Furthermore, if one implements that page, it is possible to create an error condition by specifying a number of segments which would create smaller segments than that defined by the Minimum Pre-fetch field. A question results as to which "advisory" field takes precedence, and how to report the condition, as one page parameter is in conflict with parameters of an independent page.

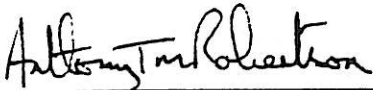
Suggestion:

- Create another field within Page 8 termed the "N-segment" field.
- Utilize a currently-reserved bit to specify which of the "advisory" fields takes priority. Mode Sense can be utilized to read the actual values.

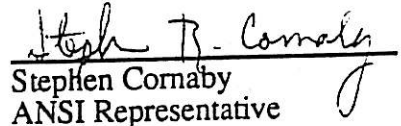
All information is now located in one page and can be processed correctly without conflict.

Sincerely,

**MICROPOLIS CORPORATION**



Tony Robertson  
Vice President - Engineering



Stephen Cornaby  
ANSI Representative

cc: ANSI Board of Standards  
Del Shoemaker, DEC  
John Lohmeyer, NCR  
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