To: INCITS Technical Committee T10

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Subject: SSC-3: Configurable Early Warning

1. Revisions

2. Introduction

Computer Associates responded to a request from ISV's by the SSC and SMC working groups to provide input of functionality that ISV's would like to see added to the standards. CA's request was "Some device support allowing the Early Warning size to be set, but can this be made a standard. This would allow us to calculate how much space we will need at the end of a tape and make sure that there will be sufficient space for dumping our data to the tape before running out of space." This proposal's intent is to accomodate this request. It also allows for handling application client buffers.

3. Proposal

3.1 Add early-early-warning to definitions

3.1.16 early-early-warning (EEW): A configurable position used to establish a unit attention condition indicating that the position on the medium in the device is nearing end-of-partition (see 4.2.3+).

3.2 Add early-early-warning model clause (4.2.3+)

When writing, the application client needs an indication that it is approaching the end of the permissible recording area when moving in a direction toward the end of the partition (see 4.2.4). Some application clients have buffers and need an indication reported early enough for the application client to write any buffered logical objects in the application client buffer to medium while still leaving enough room for additional recorded logical objects. This indication is called early-early-warning (EEW).

Application clients that need this indication are expected to set early-early-warning to a value that allows sufficient recording space for the data that is in the application client buffer and the data that is in the device logical object buffer.

3.3 Add text to Write commands

In 5.6 WRITE(16) command, add:

If the device server encounters EEW during the processing of a WRITE(16) command, an attempt to finish writing any data shall be made. If all data that is to be written is successfully transferred to the medium, the device server shall establish a unit attention condition with an additional sense code set to END-OF-PARTITION/MEDIUM DETECTED.

Encountering EEW should not cause a synchronize operation.

In 5.7 WRITE FILEMARKS(16) command, add:

If the device server encounters EEW during the processing of a WRITE FILEMARKS(16)command, an attempt to finish writing any data shall be made. If all data that is to be written is successfully transferred to the medium, the device server shall establish a unit attention condition with an additional sense code set to END-OF-PARTITION/MEDIUM DETECTED.

In 6.8 WRITE(6) command, add:

If the device server encounters EEW during the processing of a WRITE(6) command, an attempt to finish writing any data shall be made. If all data that is to be written is successfully transferred to the medium, the device server shall establish a unit attention condition with an additional sense code set to END-OF-PARTITION/MEDIUM DETECTED.

Encountering EEW should not cause a synchronize operation.

In 6.9 WRITE FILEMARKS(6) command, add:

If the device server encounters EEW during the processing of a WRITE FILEMARKS(6) command, an attempt to finish writing any data shall be made. If all data that is to be written is successfully transferred to the medium, the device server shall establish a unit attention condition with an additional sense code set to END-OF-PARTITION/MEDIUM DETECTED.

If proposal 06-207 is approved and the WRITE ENCRYPTED(32) command is adopted, then to the WRITE ENCRYPTED(32) command, add:

If the device server encounters EEW during the processing of a WRITE ENCRYPTED(32) command, an attempt to finish writing any data shall be made. If all data that is to be written is successfully transferred to the medium, the device server shall establish a unit attention condition with an additional sense code set to END-OF-PARTITION/MEDIUM DETECTED.

Encountering EEW should not cause a synchronize operation.

3.4 Add Early Early Warning Field to Device Configuration Extension mode page

In 8.3.8 Device Configuration Extension mode page, add a new field called Early Early Warning to bytes 6 and 7 of Table 88 — Device Configuration Extension mode page.

6	(MSB)	
7	EARLY EARLY WARNING	(LSB)

The Early Early Warning field specifies the native capacity prior to the Logical End of Partition (LEOP) that when crossed during writing shall cause the device server to establish a unit attention condition for all I_T Nexus with an additional sense code set to END-OF-PARTITION/MEDIUM DETECTED. The EEW field is specified in megabytes of native capacity. The EEW field set to 0000h results in no early-early-warning unit attention condition being established. The EEW setting may or may not have an effect on the EOM bit.

3.5 Add an In Early Early Warning indicator to Read Position command

In SSC-3, 7.6 READ POSITION command, add the following In Early Early Warning indicator to the returned data in all forms.

In 7.6.2 READ POSITION data format, short form, Table 43 — READ POSITION data format, short form, make bit 0 of byte 0 IEEW. Add the following description of the IEEW bit.

The In Early Early Warning (IEEW) bit set to one indicates that the logical object location is between the EEW position and EOP. A IEEW bit set to zero indicates that the logical object location is not between the EEW position and EOP. This bit is not valid if the LOLU bit is set to one.

In 7.6.3 READ POSITION data format, long form, Table 44 — READ POSITION data format, long form, make bit 0 of byte 0 IEEW. Add the following description of the IEEW bit.

The In Early Early Warning (IEEW) bit set to one indicates that the logical object location is between the EEW position and EOP. A IEEW bit set to zero indicates that the logical object location is not between the EEW position and EOP. This bit is not valid if the LONU bit is set to one.

In 7.6.4 READ POSITION data format, extended form, Table 45 — READ POSITION data format, extended form, make bit 0 of byte 0 IEEW. Add the following description of the IEEW bit.

The In Early Early Warning (IEEW) bit set to one indicates that the logical object location is between the EEW position and EOP. A IEEW bit set to zero indicates that the logical object location is not between the EEW position and EOP. This bit is not valid if the LOLU bit is set to one.

In the same table, bit 2 of byte 0 is incorrectly named LOPU. Correct the to LOLU.