

To: X3T10 Committee
From: Gerry Houlder (Seagate)
Subj: Software write protect proposal X3T10/96-121 rev. 2

I see the need to have a "Write Protect" bit to a mode page so that a SCSI device can be write protected via SCSI. There are some good reasons to do this:

1) Making the WP bit in the MODE SENSE header a "writable" bit can result in unintentional clearing of write protected condition. Many SCSI drivers will always clear these header bits when doing a Mode Sense followed by a Mode Select because all of these bits are supposed to be illegal for MODE SELECT. A bit within a mode page would not have this problem.

2) Many devices (streaming devices in particular) may have other ways of setting a write protected condition. A removable media may have a write protect tab on it or the SCSI device may have a switch. The WP bit in the header is a good way to indicate when any of these write protect mechanisms are active, meaning a separate bit to show the status of only the software write protect bit is needed. A separate bit within a mode page will answer this as well.

The SSC group has put a "Soft Write Protect" bit in a streaming device unique page. I would like to put a SWP bit in mode page Ah byte 4 bit 3 so that direct access (and other devices types) can have this feature. This change affects the SPC document. The additions needed are underlined in following text.

[Changes for SPC document]

Table 95 - Control mode page

Bit Byte	7	6	5	4	3	2	1	0
0	PS	Reserved	Page code (0Ah)					
1	Page length (0Ah)							
2	Reserved						GLTSD	RLEC
3	Queue algorithm modifier				Reserved		QErr	DQue
4	Reserved	RAC	ByprtM	BybthS	SWP	RAERP	UAAERP	EAERP
5	Reserved							
6	(MSB)		Ready AER holdoff period				(LSB)	
7								
8	(MSB)		Busy timeout period				(LSB)	
9								
10	Reserved							
11	Reserved							

A software write protect (SWP) bit of one specifies that the logical unit shall inhibit writing to the medium after writing all cached or buffered write data, if any. When SWP is one, all commands requiring writes to the medium shall return CHECK CONDITION status with sense key of DATA PROTECT and additional sense code set to WRITE PROTECTED. When SWP is one, the WP bit in the mode parameter header shall be set to one for subsequent MODE SENSE commands. A SWP bit of zero specifies that the logical unit may allow writing to the medium, depending on other write inhibit mechanisms implemented for that logical unit. In this case the WP bit in the mode parameter header is set to zero if no other write inhibit mechanisms are active for that logical unit.

For a list of commands affected, refer to

[Changes for SBC document]

5.1.x Write Protection

When a logical unit is in write protected state, writing to media is prohibited. Any of the following commands shall return CHECK CONDITION status because write protection is enabled: COPY, COPY AND VERIFY, FORMAT, REASSIGN BLOCKS, WRITE(6), WRITE(10), WRITE AND VERIFY, WRITE LONG, and WRITE SAME. In this situation the sense key shall be set to DATA PROTECT.

[Changes for SSC document]

5.1.x Write Protection

When a logical unit is in write protected state, writing to media is prohibited. Any of the following commands shall return CHECK CONDITION status because write protection is enabled: COPY, COPY AND VERIFY, ERASE, FORMAT, WRITE, and WRITE FILEMARKS. In this situation the sense key shall be set to DATA PROTECT.

[Similar changes for other command set documents. I will depend on document editors for exact wording.]