To: T10 Technical Committee

From: Bill McFerrin (billmc37@ctesc.net)

Date: 30 August 2006

Subject: 06-367r1 Errata Suggestions for MMC-5

MMC-5 Draft Revision 3b represents the letter ballot comment corrected version, but it has imperfections - primarily typographical (i.e. editor error). There are also suggestions for better description and complaints of omitted detail. The MMC WG shall address this list during the September MMC WG meeting and shall decide on severity and propose a list of errata to be published and posted on the T10 website.

The following are descriptions of the errors/shortcomings of MMC-5 draft revision 3b:

1. Mike Berhan (mikeb@bustrace.com):

    For the commands READ (10), READ (12), READ CAPACITY, SYNCHRONIZE CACHE, VERIFY (10), WRITE AND VERIFY (10), WRITE (10), and WRITE (12), CDB bit 0 of byte 1 is labeled "Obsolete" in SBC-2. In order to have compatibility with SBC-2, MMC-5 has labeled that bit as Obsolete. Unfortunately, WRITE (10) was missed. The WRITE (10) still has bit 0 of byte 1 marked as "Reserved".

2. Mike Berhan (mikeb@bustrace.com):

    In WRITE (10) and WRITE (12), the DPO bit has been removed and labeled "Restricted for [SBC-2]" in order to have informal compatibility with SBC-2. For the commands READ (10), READ (12), and VERIFY (10) "DPO" (bit 4 of byte 1) is described in such a way that it should be treated as reserved. READ (10), READ (12), and VERIFY (10) should be changed to be like WRITE (10) and WRITE (12).

3. Mike Berhan (mikeb@bustrace.com)

    There is a typographical error in the CDB for READ (12). MMC-5 describes the "Streaming" bit in 6.16.2.6, but the bit is not specified in the READ (12) CDB.

4. Jan-Eric Duden, ashampoo Technology GmbH & Co. KG

    The CLOSE TRACK SESSION CDB was correct in MMC-5 draft revision 3, but the CDB was changed and is no longer correct in MMC-5 draft revision 3a (and 3b).

5. Norichika Mine, (norichika.mine@sonynec-optiarc.com)

    The version number of the DVD+RW Feature (002Ah) is shown as 0001b. The Feature has not changed from MMC-4 where the version number was set to 0000b.

6. David Burg (davidburg@windows.microsoft.com)

    There is a typographical error in the description of Free Blocks in READ TRACK INFORMATION (6.27.3.15.1). The following text is extraneous and appears to be a left-over from when DDCD was made Legacy:

    "For the invisible/incomplete track, ATS = (StartTimeofLastPossibleLead-out) – NWA + 4.

    For a reserved track, ATS = (PMAStopTime) – NWA + 4."

    These 2 lines should be removed.

7. David Burg (davidburg@windows.microsoft.com) and

    Keiji Katata (keiji.katata@post.pioneer.com)

    In the CLOSE TRACK SESSION description of closing a CD-R/RW track (6.3.3.1.2) there is no specification for what to do in the case that the invisible track is closed. It is suggested to either treat the case as a no-operation (i.e. do nothing and terminate the command with GOOD status), or terminate with CHECK CONDITION status and set sense to ILLEGAL REQUEST/INVALID FIELD IN CDB.

8. Takaharu Ai (ai.takaharu@jp.panasonic.com)

   In the READ TRACK INFORMATION command, the reporting of RT varies according to media type and situation. It would be better to clearly show the variations as in this table:

Track Type		Media	TIB Data					
			RT	Blank	Inc	LRA_V	NWA_V	Free Blocks
Not Closed	Reserved Blank	DVD-R	1	1	1	0	0	>0
		BD-R	1	1	1	0	0	>0
	Reserved, partially recorded	DVD-R	1	0	1	1	1*	>0
		BD-R	1	0	1	1	1*	>0
	Invisible	DVD-R	0	1	1	0	0	>0
		BD-R	0	1	1	0	0	>0
	Incomplete	DVD-R	0	0	1	1	1*	>0
		BD-R	0	0	1	1	1*	>0
	Reserved, fully recorded, but not closed	DVD-R	1	0	1	1	0	=0
		BD-R	N/A					
Closed	Closed reserved	DVD-R	0	0	1	1	0	=0
		BD-R	1	0	1	1	0	=0
	Closed Incomplete (Invisible track exists next to this track)	DVD-R	0	0	1	1	0	=0
		BD-R	1	0	1	1	0	=0
	Fully recorded Incomplete (Invisible track does not exist)	DVD-R	?	0	1	1	0	=0
		BD-R	1	0	1	1	0	=0

9. Takaharu Ai (ai.takaharu@jp.panasonic.com)

   In CLOSE TRACK SESSION command, close function 010b, earlier versions (back to MMC-1) describe different behavior for CD when the session to be closed contains an open track. In all cases, the command is terminated with CHECK CONDITION status, but different sense codes are specified.

   MMC-1 and MMC-2: Set SK/ASC/ASCQ to 5/72/04 EMPTY OR PARTIALLY WRITTEN RESERVED TRACK

   MMC-3: Set SK/ASC/ASCQ to 5/72/04 EMPTY OR PARTIALLY WRITTEN RESERVED TRACK or 5/72/03 SESSION FIXATION ERROR - INCOMPLETE TRACK IN SESSION

   MMC-4 and MMC-5: Set SK/ASC/ASCQ to 5/72/03 SESSION FIXATION ERROR - INCOMPLETE TRACK IN SESSION

   Mt Fuji 1: Command not described

   Mt Fuji 2: Set SK/ASC/ASCQ to 5/72/04 EMPTY OR PARTIALLY WRITTEN RESERVED TRACK

   Mt Fuji 3-6: Set SK/ASC/ASCQ to 5/72/04 EMPTY OR PARTIALLY WRITTEN RESERVED TRACK or 5/72/03 SESSION FIXATION ERROR - INCOMPLETE TRACK IN SESSION

   It appears that MMC-5 is not correct, but MMC-3 and Mt Fuji 3-6 are confusing. Does this mean that either 5/72/03 or 5/72/04 is acceptable? If not, what are the conditions needed for each error report?

11. David Burg (davidburg@windows.microsoft.com)

There appears to be a conventions problem with the GET EVENT STATUS NOTIFICATION command description of the Operational Change/Request Event.

In older versions of both Mt Fuji and MMC, the In previous Mt Fuji specification, e.g. MMC-3 and Fuji3v100, multiple operation request/report codes were defined beside 00h and 01h.

2h AddChange The Feature list may have added Current Features (no Features became non-Current)

3h Reset The Logical Unit has been reset.

4h Firmware Changed The Logical Unit's microcode may have changed.

5h Inquiry change The Logical Unit's identification information may have changed."

In current Mt Fuji (6) and MMC (5) specification these values are reserved as if for future use: 2h – FFFFh Reserved -"

I believe that instead 2h to 5h need to be marked obsolete to avoid that these values are eventually redefined for a new purpose.

Also, Microsoft would need clarification about the meaning and scope of occurrence (aka condition) of the AddChange. We have observed this in existing drives (during packet writing) and we currently interpret this value in our storage driver as the media behavior may have change thus the file system volume should be checked for change before continuing to write. Notice that verifying that the volume hasn't changed is an expensive check when actually the media hasn't changed: the file system needs to go through all the directory entries to ensure they are still there / intact. Thus we are wondering what are the conditions which caused an AddChange to be triggered and whether we should continue to perform this expensive verification or we can safely continue our reads and writes to this media.

Please clarify when is AddChange report.

Why was this AddChange removed from the specifications?

12. Norichika Mine, (norichika.mine@sonynec-optiarc.com)

In the description of format type 26h there is a statement about adjusting the middle zone start address. "In the case of DVD+RW DL, X may be made smaller by sending the SEND DISC STRUCTURE command with Format Code 20h." We prefer more detail.

13. Norichika Mine, (norichika.mine@sonynec-optiarc.com)

There is a typographical error in 6.5.4.2.15.3, Spares Allocation on Dual Layer BD-RE: MIN[SizeofOSA0 = SizeofOSA1 = 256*….] should be SizeofOSA0 = SizeofOSA1 = MIN[256*….]

14. Norichika Mine, (norichika.mine@sonynec-optiarc.com)

There is a typographical error between sub-clause "6.23.3.2.4 Format Type 03h" and sub-clause "6.23.3.2.5 Format Type 05h". The heading for the description of Format Type 04h does not have a heading number.

15. Norichika Mine, (norichika.mine@sonynec-optiarc.com)

In Table 482 - Track Start Addresses for DVD+MRW Discs, the Track 1 Start Address for the DMA when MSF = 1 is not correct. The value should be 01:10:20.

16. Norichika Mine, (norichika.mine@sonynec-optiarc.com)

In the SEND DISC STRUCTURE command associated features list in Table 571, the command requirements for DVD+R DL and DVD+RW DL are almost correct. DVD+R DL should also require Format 05h. DVD+RW DL should require 30h, but not 20h.

17. Norichika Mine, (norichika.mine@sonynec-optiarc.com)

    In Table 450, the byte 36 offset is labeled PSN of last LSN of user". It should be "Last LSN of user data area."

18. Norichika Mine, (norichika.mine@sonynec-optiarc.com)

    In 6.26.3.2.8 Blank BD-RE, the text is:

    "A blank BD-RE disc has no structure to report. If the currently mounted media is an unformatted BD-RE, the command shall be terminated with CHECK CONDITION status and sense bytes SK/ASC/ASCQ shall be set to ILLEGAL REQUEST/INCOMPATIBLE MEDIUM INSTALLED."

    It should be:

    "An unformatted BD-RE disc has no structure to report. If the currently mounted media is an unformatted BD-RE, the command shall be terminated with CHECK CONDITION status and sense bytes SK/ASC/ASCQ shall be set to ILLEGAL REQUEST/INVALID FIELD IN CDB. Drives that are not capable of reading a BD-RE media should report CHECK CONDITION status, 2/30/02 CANNOT READ MEDIUM - INCOMPATIBLE FORMAT."

19. Norichika Mine, (norichika.mine@sonynec-optiarc.com)

    In 6.26.3.2.10 Blank BD-R, the text is:

    "A blank BD-R disc has no structure to report. If the currently mounted media is a blank BD-R, the command shall be terminated with CHECK CONDITION status and sense bytes SK/ASC/ASCQ shall be set to ILLEGAL REQUEST/INCOMPATIBLE MEDIUM INSTALLED."

    It should be:

    "A blank BD-R disc has no structure to report. If the currently mounted media is a blank BD-R, the command shall be terminated with CHECK CONDITION status and sense bytes SK/ASC/ASCQ shall be set to ILLEGAL REQUEST/INVALID FIELD IN CDB. Drives that are not capable of reading a BD-R media should report CHECK CONDITION status, 2/30/02 CANNOT READ MEDIUM - INCOMPATIBLE FORMAT."

During the September MMC-WG meeting, we shall decide the necessary action for each item.

Kind Regards,
Bill McFerrin