

ATA8-ACS Issues List

Rev 16
June 15, 2007

Line	#	Issue	Owner	Status
1	1	28-bit SETMAX commands are allowed for ATAPI devices and 48-bit SETMAX commands are prohibited. Does this make sense? Should we prohibit them all since similar capability is available through the packet interface? Resolution: Make HPA prohibited for ATAPI devices	Stevens	Done
2	2	Drive vendors to research if PIN1 reset or COMRESET causes the drive to exit standby. This is required to resolve issues with the PM2:PM2 transition. Resolution: Documentation is correct	Chen	Rejected
3	3	Include definition of POR, Hardware Reset and Software Reset. See e06133r0	Evans	Done
4	4	Change "Feature Set" to "feature set"	Stevens	Done
5	5	In 4.4.2 Power Modes, currently there is only a PM2:PM2 for reset. In a SATA device COMRESET takes you to the hardware default setting. This would mean that a hardware reset could take you to PM1 or PM0 from PM2. Resolution: Mark Overby to discuss with SATA Digital group	Overby	Rejected
6	6	Add a subclause that describes the parallel interface and SLEEP state to APT	Overby	APT
7	7	Add a subclause that describes power management for HBA2	Overby	HBA2
8	8	In 4.7.7 SMART device error log reporting, what constitutes all error logs. Resolution: Remove Statement	Stevens	Done
9	9	In 7.9.3.4 Default Command Completion Time Limit (Default CCTL), add description of Allocation Unit and guidelines for setting the value. Resolution: Add the following text below 7.9.3.4 Default Command Completion Time Limit (Default CCTL) in a new 7.9.3.5 Allocation Unit The Allocation Unit Size specifies the number of logical blocks a device should use for read ahead and write cache operations for the stream being configured. Note - Setting the AU Size does not restrict or change command behavior. Nuke definition of AU in glossary change the reference in the flush cache bit in the AV command set to point to this new subclause for AU.	Colegrove	Done
10	10	In 4.16.2.7 Streaming Logs: Add a subclause on Allocation Unit	Colegrove	Rejected
11	11	In 4.18: The deleted material needs to appear in the parallel transport: "To perform a bus release the device shall clear both DRQ and BSY to zero. When selecting the other device during overlapped operations, the host shall disable assertion of INTRQ via the nIEN bit on the currently selected device before writing the to select the other device and then may re-enable interrupts."	Overby	APT
12	12	The following statements needs to appear in APT: "Following an interface CRC error on a the data payload, if the device transmits a response that updates the Status Register it may set bit 7 (i.e. the ICRC bit) to one in the Error field"	Overby	APT

Line	#	Issue	Owner	Status
13	13	The following statement needs to appear in APT: "Following an interface CRC error on a the data payload, if the device transmits a response that updates the Status Register it may set bit 7 (i.e. the ICRC bit) to one in the Error field	Overby	APT
14	14	Change Count field in all queued commands to interrupt reason. This was already the case.	Stevens	Done
15	15	In 7.1.1 Introduction, Need to state that word ordering is mapped differently to different transports	Stevens	Done
16	16	In 7.1.5.1 Inputs for 28-bit Read/Write Commands, Modify word 5 to show both command and device/head register. Add a device field to clause 6 and document LBA Enable bit as always one. Make a statement that the device field is transport specific unless otherwise stated in a command. Also applies to 48-bit commands. Document DH as 4 functional bits and 4 reserved bits	Stevens	Done
17	17	In 7.10.2.2 DEVICE CONFIGURATION FREEZE LOCK description, Is hardware/software reset the right terminology? Resolution: Included in e06133	Evans	Done
18	18	In 7.11.4 (table 91) DEVICE RESET Normal Outputs, The error field returns diagnostic results. This needs to be reconciled with APT that does not have a diagnostic results return. MMC confirmed that diagnostic results were not present, but I still need to know if this is N/A, Reserved, or some other value. Resolution: Change to reserved	Overby	Done
19	19	In 7.12.2 DOWNLOAD MICROCODE description, the text reads: "The Buffer Offset value is defined by the value in the LBA (23:8). The buffer offset value is the starting location in the data relative to the last successful DOWNLOAD MICROCODE command received by the device with a Buffer Offset of zero. The Buffer Offset value shall be between 0 and 65,535. The buffer offset value is the byte count divided by 512." Add a For Example. Resolution "(e.g., if a microcode file is to be transferred to the device in 32KB segments the first command should be issued with 0 buffer offset value, the second command should be issued with 64 buffer offset value, the third command should be issued with 128 buffer offset value and so on until the complete microcode is transferred.)"	Livaccari	Done
20	20	In 7.12.2 DOWNLOAD MICROCODE description, the text reads: If the device receives a command other than DOWNLOAD MICROCODE prior to the receipt of the last segment, then the new command is executed and all previously downloaded microcode is discarded. Resolution: change to read: and all previously downloaded microcode may be discarded.	Stevens	Done
21	21	In 7.17.7 IDENTIFY DEVICE data, change descriptions for fields that apply to both PATA and SATA to have a "for PATA devices" first and "for SATA devices" second	Stevens	Done

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22	22	In 7.17.7.43 Words (87:85): Features/command sets enabled word 85 bit 10, the text reads: "If bit 10 of word 85 is set to one, the Host Protected Area feature set is supported." Resolution: "If the device is not indicating its full size as defined by READ NATIVE MAX or READ NATIVE MAX EXT command because a SET MAX ADDRESS or SET MAX ADDRESS EXT command has been issued to resize the device, then this bit shall be set to one indicating that a Host Protected Area has been established. If the device is indicating its full size as defined by READ NATIVE MAX or READ NATIVE MAX EXT command then this bit shall be cleared to zero indicating that a Host Protected Area has not been established" Change the title in the table to read "1 = Host Protected Area has been established (i.e., the maximum LBA is less than the maximum native LBA).	Stevens	Done
23	23	In table 16 IDENTIFY PACKET DEVICE data word 2 is called Unique Configuration. In IDENTIFY DEVICE data this is called Specific Configuration. Resolution: Change IPD to read specific configuration in table	Stevens	Done
24	24	In table 16 IDENTIFY PACKET DEVICE data word 83 and 86 bit 0 documents DOWNLOAD MICROCODE for ATAPI devices. Resolution: Change this to shall be cleared to zero to indicate....	Stevens	Done
25	25	In 7.18.6.2 General configuration, the text reads: "If bit 2 is set to one it indicates that the content of the IDENTIFY PACKET DEVICE data is incomplete. This may occur if the device supports the Power-up in Standby feature set and required data is contained on the device media. In this case the content of at least word 0 and word 2 shall be valid." Instead of This may occur, this could also read "shall only occur" but that creates a new requirement		Reject
26	26	In 7.26.5 Byte Count and 7.26.6.2 Data Transmission, the list is currently ordered, is this correct? Resolution: Change to unorderd list.	Stevens	Done
27	27	In 7.27.2 READ BUFFER description the text reads: "The command prior to a READ BUFFER command shall be a WRITE BUFFER command." This creates a host requirement. Resolution: The text should be changed to "The command prior to a READ BUFFER command should be a WRITE BUFFER command. If the READ BUFFER command is not preceeded by a WRITE BUFFER command, the data returned by READ BUFFER may be indeterminate."	Stevens	Done
28	28	In 7.26.5 READ DMA QUEUED Error Outputs the text reads: "The device shall return command aborted if the command is not supported or if the device has not had overlapped interrupt enabled." There is no such thing as an overlapped interrupt, this is transport specific. Resolution: Delete the portion about overlapped.	Colgrove	Done
29	29	In table 30 Log address definition, addresses E0 & E1 need to reference clause 9	Stevens	Done
30	30	In table 35 SET FEATURES Feature field definitions, subcommand 09 and 89 are reserved for the address offset TR, but these also have a definition for CFA. Should we document the CFA capability and note the conflict or leave it the way it is? Resolution: If the device implements the CFA feature set, then this subcommand is reserved for CFA. Otherwise this subcommand is reserved for the address offset TR.	Stevens	Done

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31	31	In table 35 SET FEATURES Feature field definitions, subcommand 69 is reserved. This subcommand has a definition in CFA 2.1. Resolution: If the device implements the CFA feature set, then this subcommand is reserved for CFA	Stevens	Done
32	32	In 7.51.19 SET FEATURES Normal Outputs the text reads: See the subcommand descriptions. There are no definitions of Normal Outputs in the subcommand descriptions. Resolution: Add reference to generic normal response w/oLBA value (Table 95)	Stevens	Done
33	33	7.52.2.2 SETMAX ADDRESS description and 7.53.2 SETMAX ADDRESS EXT Description the text reads: "After a successful SET MAX ADDRESS command using a new maximum LBA the content of all IDENTIFY DEVICE data words shall comply with ... and the content of IDENTIFY DEVICE data words (61:60) shall be equal to the new Maximum LBA + 1 Need words, the subclause that used to be referenced no longer exists. The same issue exists in 4.22 48 bit address feature set Resolution: Add this text to HPA feature set and then reference it where necessary: 1) Words (61:60) shall contain the value one greater than the total number of user-addressable sectors in 28-bit addressing and shall not exceed 0FFFFFFFh. The content of words (61:60) shall be greater than or equal to one and less than or equal to 268,435,455. 2) Words (103:100) shall contain the value one greater than the total number of user-addressable sectors in 48-bit addressing and shall not exceed 0000FFFFFFFFh. 3) The contents of words (61:60) and (103:100) may be affected by the host issuing a SET MAX ADDRESS or SET MAX ADDRESS EXT command. 4) The contents of words (61:60) and (103:100) shall not be used to determine if 48-bit addressing is supported. IDENTIFY DEVICE bit 10 word 83 indicates support for 48-bit addressing.	Stevens	Done
34	34	From 7.55.2 SLEEP Description, this text should be in APT: This command shall cause the device to set the BSY bit to one, prepare to enter Sleep mode, clear the BSY bit to zero and assert INTRQ. The host shall read the Status register in order to clear the Interrupt Pending and allow the device to enter Sleep mode. In Sleep mode, the device shall only respond to the assertion of the RESET- signal and the writing of the SRST bit in the Device Control register and shall release the device driven signal lines (See Figure 4). The host shall not attempt to access the Command Block registers while the device is in Sleep mode. Because some host systems may not read the Status register and clear the Interrupt Pending, a device may release INTRQ and enter Sleep mode after a vendor specific time period of not less than 2 s. The only way to recover from Sleep mode is with a software reset, a hardware reset, or a DEVICE RESET command.]	Overby	APT
35	35	In 7.56.6.6 Off-line data collection capabilities, change the unordered list to a table	Stevens	Done

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36	36	In 7.56.7.2.4.4.3 Error data structure the text reads: "Active/Idle indicates the command or reset for which the error is being reported was received when the device was in the Active or Idle mode." This was "and BSY=0" I do not know if removing the BSY statement changes the report. I do not see a BSY=1 entry... Resolution: OK as changed	Stevens	Done
37	37	In 7.56.9.2 SMART WRITE LOG Description the text is lacking in substance.		Reject
38	38	In 7.70.3 WRITE LOG EXT Inputs the log address description is too long and should be moved to a separate subclause		Done
39	39	In 7.79.3 WRITE UNCORRECTABLE Inputs the title of the feature field reads Large Physical Sector/Log. Resolution: Nuke the title	Stevens	Done
40	40	In clause 8, change all references to WRITE LOG EXT to include WRITE LOG EXT DMA	Stevens	Done
41	41	In table 82 Absolute HDA Temperature change references to queue into circular buffer	Stevens	Done
42	42	In table 94 Queued Normal Outputs and table 100 Queued Extended Normal Outputs, Word 5 bit 0, this is called CHK for READ DMA queued. Resolution: Change to Error like all the other queued commands.	Stevens	Done
43	43	In ATA/ATAPI-7 Volume 1, SETMAX ADDRESS, SETMAX ADDRESS EXT, and lists DF and DRQ under normal outputs, the same bits are N/A in error outputs. This makes no sense. I think these were reversed in ATA/ATAPI-7 and earlier. Resolution: Change DF to NA in normal outputs and change NA to DF in error output. Change DRQ to NA in normal outputs for both SETMAX ADDRESS and SETMAX ADDRESS EXT.	Stevens	Done
44	44	In table 119 DCO Set Error the definition of bit location is really unclear. This needs to be reworded. Resolution: 15:0 Bit Location - If the command was aborted because an attempt was made to disable a mode or feature that cannot be disabled with the device in its current state, this field shall contain an array of bits that correspond to the device configuration overlay data structure listed in Table 11 relative to the word indicated in Word Location (23:16). A one in this array indicates that the requested mode or feature could not be disabled by the device. If not, the value shall be 0000h	Puri	Done
45	45	In table A.2 Command codes (sorted by command code) CFA TRANSLOATE SECTOR (87) and CFA ERASE SECTORS (C0) were also listed in the VS list. This looks like a bookkeeping oversight from a previous version of ATA and should remain as is. Resolution: Retain fix	Stevens	Done
46	46	In table A.2 Command codes (sorted by command code) SMART has several entries all listed as command B0. Resolution: Change this to just list SMART with a single entry. In the protocol field create a footnote that says varies by subcommand.	Stevens	Done
47	47	In table A.2 Command codes (sorted by command code) DCO has several entries all listed as command B1. Resolution: See #46	Stevens	Done
48	48	Incorporate e05178r0 to make WWN mandatory	Stevens	Done
49	49	Incorporate e05139r7 to define Trusted Computing Group Commands	Stevens	Done

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50	50	Incorporate e05106r7 to define Hybrid drive commands	Stevens	Done
51	51	Incorporate e05160r0 to clarify flush cache operation	Stevens	Done
52	52	Incorporate e05164r2 to add reporting packet size limits and command completion to Download Microcode	Stevens	Done
53	53	Incorporate e03124r12 to update the HPA state transition diagrams	Stevens	Done
54	54	In 7.20.2.2 IDLE IMMEDIATE UNLOAD Description the text reads: "The device shall retain data in the write cache and resume writing the cached data onto the media after receiving a Software Reset, a Hardware Reset, or any new command except IDLE IMMEDIATE with UNLOAD FEATURE." This creates a requirement to preserve cache across a hardware reset, whatever that is...		Rejected
55	55	Incorporate e05179 to better clarify security. This includes new state transition diagrams	Hatfield	Done
56	56	Incorporate e05102 to provide standardized statistics reporting using a log page	Hatfield	ACS2
57	57	In table 93 Device Reset and Execute Diagnostics ATA-7 marks the device register as being a signature of 00h. I do not think this is true... The ATA/ATAPI-7 ammendment changes this.	Stevens	Done
58	58	There is an inconsistency in most of the extended commands. The Inputs document the LBA bit and all the outputs show the LBA bit as N/A. Should the LBA bit be N/A? Resolution: They should be N/A (leave as documented)	Stevens	Done
59	59	In IDENTIFY DEVICE data word 48, are the bits really reserved for TCG, or are they reserved for a protocol support map? Resolution: Yes, they are reserved for TCG	Hatfield	Rejected
60	60	In 7.59.6.2 TRUSTED RECEIVE Security_Protocol 00h Description, table 62 and the preceeding sentence are confusing...	Hatfield	Done
61	61	I need to know how to add the references for e05139r7	Hatfield	Done
62	62	In 7.59.6.4.2 Public Key certificate description and 7.59.6.4.3 Attribute certificate description, TBD's need to be removed	Hatfield	Done
63	63	In e05139r7 TCG Commands, ISO/IEC 9894-8 is listed as approved, but ISO lists this as under development. This item has been placed under referenced under development.	Hatfield	Done
64	64	In 7.25.5.6 ADD LBA(S) TO NV CACHE PINNED SET Output Data, 7.25.7.6 QUERY NV CACHE PINNED SET Input Data, and 7.25.6.6 REMOVE LBA(S) FROM NV CACHE PINNED SET Output Data, there is no format for the data. Resolution: Frank Shu E-Mail Dated - 8-Nov-2006	Shu	Done
65	65	In 7.25.5.6 ADD LBA(S) TO NV CACHE PINNED SET Error Outputs, there is no generic abort.. Resolution: Add abort bit	Stevens	Done
66	66	In 7.25.6.6 REMOVE LBA(S) TO NV CACHE PINNED SET Error Outputs, there is no generic abort. I am also not sure about the definition of bit 0, please check for correctness Resolution: Add abort. Change to Attempted partial range removal from pinned set.	Stevens	Done

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67	67	In 7.25.7.3 QUERY NV CACHE PINNED SET Normal Outputs and 7.25.8.3 QUERY NV CACHE Misses Normal Outputs, the LBA field is marked TBD. This has been changed to Unpinned LBAs remaining. Resolution: Keep as changed Check error table title and cross references.	Stevens	Done
68	68	In 7.25.7.4 QUERY NV CACHE PINNED SET Error Outputs, 7.25.9.4 FLUSH NV CACHE Error Outputs, and 7.25.8.4 QUERY NV CACHE MISSES Error Outputs, the Error field bit 0 is marked TBD. I have changed this to reserved and made bit 2 the abort bit as in other commands. Resolution: Keep as changed	Stevens	Done
69	69	In Table 14 words 84 and 87 bits 10:9 are marked obsolete. Are they both obsolete, or is this an oversight? Resolution: They are both obsolete (part of the streaming feature set update)		Rejected
70	70	Table 14 uses x-y style for word offsets, but the text uses (y:x) style. Change the text to match the table.	Stevens	Done
71	71	In 7.18.6.2 Word 0: General configuration, the table entries need to be updated to match SPC-3 Resolution: Nuke the table, keep the SPC-3 reference.	Stevens	Done
72	72	In 7.18.6.17 IDENTIFY PACKET DEVICE data word 62 DMADIR bit definitions are not even close to that in the table. Mark Overby to clarify	Overby	ACS2
73	73	In 3.1.27 LBA Range Entry requirements are being stated instead of a definition being presented. Resolution: Delete glossary entry. Format is covered by tables to be added in output data subclauses. Add a cross reference to lba range entry in ADD LBA(S) TO NV CACHE PINNED SET - B6h/10h, DMA.	Stevens	Done
74	74	In 8.1 paragraphs 4 and 5 contain the statement "Shall not be issued by the host" Proposed resolution: Nuke both paragraphs.	Stevens	Done
75	75	Need a definition of BIOS Proposed Resolution: BIOS (Basic Input/Output System): An initial application client run by a computer when power is applied. The primary function of BIOS is initialize various components of the system, including storage devices.	Zelenko	Done
76	76	In 4.23 last paragraph, the reset behavior is being redefined in proposal e06121	Hatfield	Done

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77	77	<p>In 4.14 paragraph 5 states: "A device always powers-up with configuration freeze lock not set. After a successful DEVICE CONFIGURATION FREEZE LOCK command is executed, all DEVICE CONFIGURATION SET, DEVICE CONFIGURATION IDENTIFY, and DEVICE CONFIGURATION RESTORE commands are aborted by the device until the device is powered-down and powered-up again. The freeze locked state is not affected by hardware or software reset."</p> <p>Resolution: "If a device has not completed a DEVICE CONFIGURATION SET command without error, then a device shall be in the DCO Factory_config state after processing a power-on reset. If a device has completed a DEVICE CONFIGURATION SET command without error, then a device shall be in the DCO Reduced_config state after processing a power-on reset.</p> <p>After completing a DEVICE CONFIGURATION FREEZE LOCK command without error, a device aborts all DEVICE CONFIGURATION SET, DEVICE CONFIGURATION IDENTIFY, and DEVICE CONFIGURATION RESTORE commands until after completing the subsequent power-on reset. If a device is in the DCO_locked state, then processing a hardware reset or software reset does not cause the device to change state.</p>	Stevens	Done
78	78	In subclause 8.3.3 write same command table, entries 0003h and 004h should be 0101h and 0102h	Stevens	Done
79	79	In subclause 8.2.3 Extended Status Code table change entry 0013 to read "Invalid revision code in SCT data"	Stevens	Done
80	80	Incorporate e06116r0	Stevens	Done
81	81	Incorporate e06125r0	Stevens	Done
82	82	Alphabetize the feature sets	Stevens	Done
83	83	<p>The description of how to set words 60/61 and 103:100 was removed in an earlier revision and the placeholder for the subclause no longer exists.</p> <p>Resolution: Do we need to add the text below, or should the words in IDENTIFY DEVICE data contain this info.</p> <p>The following text needs to be inserted as a subclause in the HPA feature set: Definitions and value ranges of IDENTIFY DEVICE data words</p> <p>1) Words (61:60) shall contain the value one greater than the total number of user-addressable sectors in 28-bit addressing and shall not exceed 0FFFFFFFh. The content of words (61:60) shall be greater than or equal to one and less than or equal to 268,435,455.</p> <p>2) Words (103:100) shall contain the value one greater than the total number of user-addressable sectors in 48-bit addressing and shall not exceed 0000FFFFFFFFFh.</p> <p>3) The contents of words (61:60) and (103:100) may be affected by the host issuing a SET MAX ADDRESS or SET MAX ADDRESS EXT command.</p> <p>4) The contents of words (61:60) and (103:100) shall not be used to determine if 48-bit addressing is supported. IDENTIFY DEVICE bit 10 word 83 indicates support for 48-bit addressing.</p>	Stevens	Done

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84	84	SECURITY FREEZE LOCK is cleared in the state transition diagrams on hardware reset, but not in the text. Resolution: Drive manufacturers clear FREEZE LOCK on hardware reset. incorporated in e05179.	Hatfield	See issue #55 e05179
85	85	Incorporate e06149 which provides a list of dependencies in IDENTIFY DEVICE data descriptions. This cross reference will add statements for dependent words on what their values should be if the capability is disabled or not present.	Chen	Done
86	86	Incorporate e06123r0	Stevens	Done
87	87	Should we require commands to be aborted when IDENTIFY DEVICE data indicates they are not supported. Resolution: Change "If the host issues a command that is indicated as not supported, the drive may produce indeterminate results" to "If the host issues a command that is indicated as not supported in the IDENTIFY DEVICE data, the device shall abort the command." This same statement shall also be added to 4.1	Stevens	Done
88	88	Clarify the language in DEVICE CONFIGURATION SET (7.10.4.2) to make it clear that features which are turned off shall abort.		Rejected
89	89	Incorporate e06127 which assigns protocol value EEh as "Defined by IEEE-P1667"	Stevens	Done
90	90	Incorporate e06128r1	Stevens	Done
91	91	Incorporate e06121r1	Stevens	Done
92	92	During the incorporation of e06121r1 there were requests to add capability to IDENTIFY PACKET DEVICE. There are no commands present that can apply this feature set.	Stevens	Done
93	93	NV Cache feature sets do not have optional/mandatory listings in the summary table.	Shu	Done
94	94	Table 25, Command Data Structure and Table 26, Error Data Structure, have "See Note", but there is no note Resolution: Copy note from ATA/ATAPI-7	Stevens	Done
95	95	IDENTIFY DEVICE data words 103:100 in the table disagrees the text. In the table, the field is defined as the maximum LBA. In the text the value total number of LBA's Resolution: Change the table (words 100-103) to read: "Total Number of User Addressable Sectors for the 48-bit Address feature set"		Done
96	96	Need to scrub the word register. Pay attention to NV Cache	Stevens	Done
97	97	Remove reference to TF Data in 8.3.3 Write Same Resolution: Change "TF Data" to "Input Data Structure"	Stevens	Done
98	98	Should we require commands to be aborted when IDENTIFY PACKET DEVICE data indicates they are not supported. Resolution: add the statement "If the host issues a command that is indicated as not supported in the IDENTIFY PACKET DEVICE data, the device shall abort the command"	Overby	Done
99	99	Should we add a discussion on what enabled means (related to supported definition)? Should this be in IDENTIFY DEVICE or in 4.1 (Overview)?	Overby	ACS2
100	100	In 7.4.2 (DCO SET) the statement "The term 'is allowed' indicates that the device may report that a feature is supported and/or enabled." is unclear need new wording. Resolution: Change to "The term 'is allowed' indicates that the device may report that a feature is supported."	Overby	Done

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101	101	Trusted Send inputs LBA (7:0) transfer length (7:0) s/b (15:8)	Stevens	Done
102	102	In Read Log Ext 7.28.2.3.3 Error log index 65,536 s/b 65,535	Stevens	Done
103	103	in Smart write log 7.52.9.3 Inputs. What does a value of zero mean Resolution: Add a statement to WRITE LOG EXT (DMA), READ LOG EXT (DMA), SMART READ LOG and SMART WRITE LOG that says "A value of zero is illegal and shall result in command aborted." Add a statement to error outputs: "The abort bit shall be set to one if the count field is cleared to zero"	Stevens	Done
104	104	6.1.8 Stream Error (SE) SE is set to one if an error occurred during the processing of a command in the Streaming feature set and either Read Continuous (RC) is set to one in a READ STREAM command (see 7.36.3.3) or Write Continuous (WC) is set to one in a WRITE STREAM command (see 7.73.3.2). When SE is set to one, the value returned in the LBA bits (7:0) contains the address of the first logical sector in error, and the Count field contains the number of consecutive logical sectors that may contain errors. If RC is set to one in a READ STREAM command or WC is set to one a WRITE STREAM command, and ICRC, UNC, IDNF, ABRT, or CCTO is set to one (see 6.3), then the SE bit is set to one, the ERR bit is cleared to zero, and the error information (e.g., bits set in the Error field) are saved in the appropriate Read Stream or Write Stream Error log. LBA bits (7:0) s/b LBA bits (47:0)	Stevens	Done
105	105	Add to table 71 Extended Status Codes the definiton of code 0015h: The most recent non-SCT command was completed with an error due to the SCT Read Command Timer or Write Command Timer timing out. Update 8.3.4 Error Recovery Control command paragraph 4 (second paragraphs under the table) to the following after the first sentence: "Extended status code 0015h shall be returned if the read command timer expires." in paragraph 6 prior to the last sentence: "Extended status code 0015h shall be returned if the write command timer expires"	Stevens	Done
106	106	Add WRITE LOG DMA EXT to the security table as non-executable	Stevens	Done
107	107	Integrate 05162r0. This was voted in October 2005	Stevens	Done
108	108	In the feature set overview table, make the following changes: 1. Mark NV Cache as prohibited for packet devices and optional for general feature set devices 2. Media card pass through s/b prohibited for PACKET	Stevens	Done
109	109	Change by packet devices to by ATAPI device	Stevens	Done
110	110	Alphebetize DCO and NV-Cache subcommands	Stevens	Done
111	111	Hotlink the set features codes in the set features tables	Stevens	Done
112	112	In 2.3 other references, remove the PC-Card reference	Stevens	Done
113	113	change instances of PACKET Command feature set to PACKET feature set.	Stevens	Done
114	114	Add TCQ to definitions. Update TCQ usage to always refer to TCQ feature set. Resolution: TCQ (Tagged Command Queuing): TCQ feature set (See x.y)	Stevens	Done

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115	115	Change the definition of command released from " command released: When a device supports overlap or queuing, a command is considered released when a release occurs before command completion." to " command released: When a device supports the TCQ feature set, a command is considered released when a Release occurs before command completion."	Stevens	Done
116	116	Add a definition of string that describes byte swapping	Stevens	APT, AST
117	117	in 7.28.2.6 Write Stream Error Log the error log index states in the 3rd paragraph that the acceptable values are 31:0 when they should be 1 through 31. Also change 7.28.2.5 Read Stream Error Log from (31:1) to 1 through 31 Provide Mark Overby with ATA/ATAPI-7 section numbers for inclusion in the second ammendment.	Stevens	Done
118	118	Globally remove "Change to:"	Stevens	Done
119	119	In READ LOG EXT, SMART READ LOG, and SMART WRITE LOG, move the definition of log address to a subclause under the table and make it look like WRITE LOG EXT. Also create a subclass in the SMART READ LOG area for device vendor specific that has the single sentence from the definition of log address in READ LOG EXT.	Stevens	Done
120	120	4.10.4, IDENTIFY DEVICE data, the first bullet is inconsisend Proposed resolution: Replace the bulleted list with a) if the 48 bit address feature set is not supported then words 61:60 shall contain the total number of user addressable sectors and words 103:100 shall be reserved; b) if the 48 bit address feature set is supported and the total number of user addressable sectors is less than or equal to 0FFF_FFFFh then Words 61:60 and 103:100 shall contain the total number of user addressable sectors c) if the 48 bit address feature set is supported and the total number of user addressable sectors is greater than 0FFF_FFFFh then words 61:60 shall contain 0FFF_FFFFh and words 103:100 shall contain the total number of user addressable sectors.	Stevens	Done
121	121	In 7.48.2.3.2 (Setmax address volatile value) change 101-103 to 100-103 throughout	Stevens	Done
122	122	Change all occurances of 101-103 to 100-103. 100-103 is the proper offset range in IDENTIFY DEVICE data for the maximum user LBA.	Stevens	Done
123	123	Change "Volatile Value (VV)" to "Volatile_Value (V_V)"	Stevens	Done
124	124	global: change comply with subclause 4.10.4 to comply with 4.10.4	Stevens	Done
125	125	Make paragraph text in smart all 10pt instead getting smaller	Stevens	Done
126	126	in 7.79.3 (write uncorrectable inputs feature field s/b 15:8 instead of 5:8	Stevens	Done
127	127	In SMART DISABLE note that SCT is not disabled. Resolution: Change "After receipt of this command by the device, all other SMART commands including SMART DISABLE OPERATIONS commands, with the exception of SMART ENABLE OPERATIONS, are disabled and invalid and shall be command aborted by the device." to "After receipt of this command by the device, with the exception of SMART ENABLE OPERATIONS and the SCT Command Transport commands, all other SMART commands including SMART DISABLE OPERATIONS commands are disabled and invalid and shall be command aborted by the device."	Stevens	Done
128	128	change long sector access to SCT Read/Write Long	Stevens	Done

Line	#	Issue	Owner	Status
129	129	Change table 91 write same command description column to only have first word upper case.	Stevens	Done
130	130	In 8.3.4 Error recovery control paragraph 4, change "LBA might" to "LBA may"	Stevens	Done
131	131	Table 96 (Generic normal output w/LBA) s/b removed and the commands linked to table 95 (generic normal output no LBA)	Stevens	Done
132	132	Add the bit positions to clause 6	Stevens	Done
133	133	In table 102 device reset and diagnostic results reword the last sentence of the features field to remove the hyphen and in the sentence with the table reference.	Stevens	Done
134	134	SMART Normal and Error outputs have a value and N/A. The N/A's are not a detectable condition because they allow the same key values. The N/A should be changed to all other values.	Stevens	Done
135	135	Note that table A.4 is not being maintained and will be updated just before letter ballot	Stevens	Done
136	136	Should the description of host vendor specific log pages in 7.28.3.2 and device vendor specific log pages in 7.28.3.3 be moved into Annex A. Resolution: Move Host and Vendor Specific log page descriptions to Annex A. Also move Table 22 (Log address definiton) to an overview section in Annex A.	Stevens	Done
137	137	Should the write protect bit have been obsoleted with the removable media commands. In ATA/ATAPI-7 it appears to be associated with removable media in many commands.	Stevens	Reject
138	138	The requirement that ASCII values be limited to 20h-7Eh was deleted with the subclause on ASCII strings. We need to revisit how to incorporate this requirement. There are also several "See 0" in the text which need a reference or to be removed. Given the description where See 0 is found it looks like the reference could be removed. Resolution: Restore the definition of permitted ASCII values into the description of IDENTIFY DEVICE and refer to it from IDENTIFY PACKET DEVICE. Also place the byte ordering statements in this paragraph as well.	Stevens	Done
139	139	In the WRITE UNCORRECTABLE description, the text currently reads: "If the LOG feature is set to x5h sectors that have been made pseudo uncorrectable when read back shall be listed as failed in the standard error logs and shall cause SMART utilities to indicate failure if too many sectors are uncorrectable. The LOG feature set to xAh shall indicate that reading of pseudo uncorrectable sectors shall not be logged as an error in any standardized error logs." This should read: "If the LOG feature is Uncorrectable options are set to A5h or 55h then sectors that have been made pseudo uncorrectable when read back shall be listed as failed in the standard error logs and shall cause SMART utilities to indicate failure if too many sectors are uncorrectable. The LOG feature If the Uncorrectable options are set to 5Ah or AAh shall indicate that then the reading of pseudo uncorrectable sectors specified in this command shall not be logged as an error in any standardized error logs"	Stevens	Done
140	140	IDENTIFY DEVICE data word 86 bit 8 is marked fixed and should be changed to variable	Stevens	Done
141	141	The SET MAX ADDRESS command has the following statement: "A successful READ NATIVE MAX ADDRESS command shall immediately precede a SET MAX ADDRESS command." This places a requirement on the host and does not actually describe the proper condition. Proposed resolution: "A successful READ NATIVE MAX ADDRESS command should immediately precede a SET MAX ADDRESS command. If the SET MAX ADDRESS command is not preceeded by a successful READ NATIVE MAX ADDRESS command, the device may abort the SET MAX ADDRESS command or execute one of the following commands: SET MAX SET PASSWORD, SET MAX LOCK, SET MAX UNLOCK, SET MAX FREEZE LOCK. The result depends on the value of the Feature field."	Stevens	Done

Line	#	Issue	Owner	Status
142	142	IDENTIFY DEVICE data words 219 & 220 need F/V and O/M Resolution: Word 219: Bit 7:0 should be marked F Word 220: Bits 7:0 mark as O, B, V	Stevens	Done
143	143	The phrase ID Field is used in the defintion of several different commands associated with log addresses. Resolution: Change "sector's ID Field was not found" to "sector was not found" globally. This has nothing to do with ID Not Found.	Stevens	Done
144	144	In the extended comprehensive smart error log, and the extended self-test log (A.2.1 and A.3.1) The maximum size is listed as 65,535 512-byte blocks. However, the index in the first page is limited to 65,535 bytes. It was not clear to me from the description of Self-Test index if the index was a descriptor number or a byte offset of some kind. Proposed Resolution: in A.2.1 (extended comprehensive error log), change 65,535 to 16,383 512 byte blocks. In A.3.1 (extended self test log) Change 65,535 512 byte blocks to 3449 512-byte blocks. In A.2.3 and A.3.3 Change the text from "The error log index indicates the error log data structure representing the most recent error. If there have been no error log entries, the error log index is cleared to zero. Valid values for the error log index are zero to 65,535." to "The error log index is the error log data structure number representing the most recent error. If there have been no error log entries, the error log index is cleared to zero. Valid values for the error log index are zero to 65,535."	Stevens	Done
145	145	There are several instances of Vendor Unique in the appendices. These should be changed to Vendor Specific.	Stevens	Done
146	146	Reserve set feature subcode 41, 83, and C1. Also reserved DCO Word 21 bit 11, and IDENTIFY DEVICE word 119 and 120 bit 5. IDENTIFY DEVICE word 53 bits 8-15 for sensitivuty level.	e06144	Done
147	147	Incorporate e06152r3	Stevens	Done
148	148	Incororate e06102r2	Stevens	Done
149	149	Typo in Download Microccode normal outputs, change 236 and 237 to 234 and 235	Stevens	Done
150	150	Modify DOWNLOAD MICROCODE Inputs (7.12.3) to read. 03h - Optional Download Microcode with offsets for immediate and future use.	Stevens	Done
151	151	Change "07h Save the downloaded microcode for immediate and future use." to 07h Download microcode for immediate and future use."	Stevens	Rejected
152	152	Change "07h Save the downloaded microcode for immediate and future use." to "07h Download and save microcode for immediate and future use." Change "03h Download Microcode with offsets for immediate and future use." to "03h Download with offsets and save microcode for immediate and future use"	Stevens	Done

Line	#	Issue	Owner	Status
153	153	In 4.10.2 (HPA Security Extensions) Delete the "bit n"	Stevens	Done
154	154	In the WRITE UNCORRECTABLE description (7.75.2) the text reads: The pseudo uncorrectable or flagged uncorrectable status of a sector shall remain through a power cycle. If the drive is unable to process a Write Uncorrectable EXT command for any reason the device shall abort the command." This text is unclear about the effect of pseudo-uncorrectable on SMART tests. Resolution: add "Logging of flagged or pseudo-uncorrectable errors during SMART tests is vendor specific. The logging selection does not change the operation of the streaming error logs."	Stevens	Done
155	155	Add a definition of Read Command and Write Command (comprehensive list of commands for each) to definition of terms.	Stevens	Done
156	156	Define standardized list of error logs. Resolution: Standardized error logs are the Summary Error Log, Comprehensive Error Log and the Extended Comprehensive Error Log. List these logs in the commands in place of Standardized error logs and error logs. Update WRITE UNCORRECTABLE and 4.19.7 (SMART device Error Log reporting)	Stevens	Done
157	157	Incorporate e06153r1 - reserve SCT resources for SATA	Stevens	Done
158	158	Incorporate e06126r3	Stevens	Done
159	159	Add WWN to IDENTIFY PACKET DEVICE as mandatory. This was passed in the February meeting (see e06113r0, 9.1.4)	Stevens	Done
160	160	Need policy on how to handle interdependent features in DCO. For example NCQ requires GPL.		Reject
161	161	In 7.21.3.2.2 Populate Immediately there is a reference to Cached Set Data which is undefined Resolution: make the table title in Output Data "Pin Request Data" and change reference in text from Cached Set Data to same.	Stevens	Done
162	162	Global: Change Auto Poll to NOP Poll		Reject
163	163	There was a transcription error in IDLE IMMEDIATE w/unload. The Count field S/B 00h instead of 44h	Stevens	Done
164	164	SET MAX ADDRESS EXT has a statement requiring that READ NATIVE MAX EXT immediately precede the command. I believe that this requirement was placed here because of SET MAX ADDRESS. Is this requirement really necessary? The statement should be reworded to be inline with the statement that was inserted into SET MAX ADDRESS. Resolution: A successful READ NATIVE MAX EXT command should immediately precede SET MAX ADDRESS EXT. If the device receives a SET MAX ADDRESS EXT that is not immediately preceded by READ NATIVE MAX EXT, the device shall report command aborted.	Stevens	Done
165	165	Integrate e06150 - SATA NCQ	Stevens	Done
166	166	Integrate e06144r6 - Free Fall	Stevens	Done
167	167	Integrate e06190 - NV Cache Clarifications	Stevens	Done
168	168	Integrate e05162 - Simulated Delay Event	Chen	ACS2

Line	#	Issue	Owner	Status
169	169	IDENTIFY DEVICE word 214 bits 4 and 0 currently "enabled in the table and supported in the text. The original proposal had bit 4 supported and enabled and bit 0 was just supported. Resolution: handled by e06190	Stevens	Reject
170	170	Alphabetize the log pages	Stevens	Done
171	171	Change "Data Block Offset" to "Page #"	Stevens	Done
172	172	Change IDENTIFY DEVICE data words 82 and 85 bit 1 to match the text	Stevens	Done
173	173	The CFA WRITE MULTIPLE WITHOUT ERASE, READ MULTIPLE and READ MULTIPLE EXT commands have a shall precede If bit 8 of IDENTIFY DEVICE data word 59 is cleared to zero, a successful SET MULTIPLE MODE command shall precede a READ MULTIPLE command. Resolution: If bit 8 of IDENTIFY DEVICE data word 59 is cleared to zero, and a READ MULTIPLE COMMAND is received by the device, and no successful SET MULTIPLE MODE command has been processed by the device, the device shall return command aborted. A successful SET MULTIPLE MODE command should precede a READ MULTIPLE command.	Stevens	Done
174	174	CFA WRITE MULTIPLE WITHOUT ERASE	Stevens	Rejected
175	175	Add READ LOG DMA EXT to table 8, Security Mode Command Actions	Stevens	Done
176	176	Should we remove the "via SET FEATURES" from IDENTIFY DEVICE data text descriptions for words 85 and 86?	Hatfield	Rejected
177	177	The Freefall Control feature set is incomplete. Need to add a paragraph describing the set features and other feature set functions. Conversely, we can delete the feature set and simply have the set features. Resolution: Added text The Free-fall Control feature set is enabled and disabled using the following SET FEATURES subcommands: a) SET FEATURES subcommand 41h - enable the Freefall Control feature set b) SET FEATURES subcommand C1h - disable the Freefall Control feature set The Free-fall control enable and disable subcommands shall be non-volatile. After the feature is enabled, the device shall keep this feature enable until changed by the SET FEATURE enable/disable Freefall Control subcommand. The IDENTIFY DEVICE data word 120 bit 5 or IDENTIFY PACKET DEVICE data word 120 bit 5 indicates when the Free-fall Control feature set is enabled.	Chen	Done
178	178	28-bit command interaction w/48-bit command enabled drive is unclear. Can a 28-bit read to LBA 0FFF_FFFFh succeed on a drive with >0FFF_FFFFh sectors. In ATA/ATAPI-v1 subclause 4.2.2 places requirements on 28-bit commands and has not been replicated in ATA8-ACS. Resolution: Leave ATA8-ACS vague and do not incorporate ATS/ATAPI-7 4.2.2. It is permissible to return 0FFF_FFFF	Stevens	Close

Line	#	Issue	Owner	Status
179	179	NCQ Error Tables were incorporated, but there was no definition in SATA-IO. SATA 2.5 is unclear on this issue. ATA8 currently is unclear on what to return and needs to say something. Resolution:	Dees	Open
180	180	Add Serial ATA 2.6 as transport ID #4 in IDENTIFY DEVICE word 222. Also, define this word in IDENTIFY PACKET DEVICE data.	Stevens	Done
181	181	Word 85 bit 3 is labeled as Power Management feature set Enabled in the table and Supported in the text.	Stevens	Rejected
182	182	The DCO IDENTIFY structure revision is currently 2. This was revised from 1 to 2 in ATA/ATAPI-7. Do we need to roll this to 3 in ATA8-ACS? What is the action on a DCO SET if the revision is not what you expect.		Rejected
183	183	IDENTIFY DEVICE word 85 bit 3 says power management feature set is enabled. Since the feature set is mandatory and there is no way to disable the feature set, this should be changed to read shall be set to 1 to indicate that the power management feature set is supported. Resolution: Changed word 85 bit 3 to say: "shall be set to one to indicate that the Mandatory Power Management feature set is supported."	Stevens	Done
184	184	For NV Cache Disable, should we state that the device shall abort all command in the NV Cache featureset except for NV Cache enable? Add: The device shall abort all commands in the NV Cache featureset except for NV Cache enable? Resolution: Once the device has reported successful command completion, the device shall abort all commands in the NV Cache feature set except for NV Cache enable	Stevens	Done
185	185	FPDMA READ and WRITE error outputs need to be spilt into 2 paragraphs, one for immediate return, one for the processing error case.	Stevens	Done
186	186	In SECURITY SET PASSWORD, if the host sets the master password identifier to 0000h or FFFFh then the command is defined to fail. This has caused an issue with backward compatibility. Proposal is to allow the host to issue master password identifier of 0000h or FFFFh and let the command succeed without modifying the curent master password identifier. Resolution: change "If the host attempts to set the Master Password Identifier from a valid to an invalid value (0000h or FFFFh), the device shall preserve the existing Master Password Identifier and return command aborted." to "If the host attempts to set the Master Password Identifier to 0000h or FFFFh, the device shall preserve the existing Master Password Identifier and return successful command completion."	Stevens	Done
187	187	Incorporate WRITE UNCORRECTABLE EXT into the security command listing in clause 4	Stevens	Done
188	188	IDENTIFY DEVICE data Word 219 says amount of time. The units are not specified. Resolution (Frank Shu): Units are seconds.	Shu	Open

Line	#	Issue	Owner	Status
189	189	<p>In SECURITY ERASE UNIT, the normal method clears to read native max (ext), not the full size of the user area. Using DCO could create an issue. In the enhanced version of the erase, the full user area is specified, but the term user area is not defined.</p> <p>Resolution: When Normal Erase mode is specified, the SECURITY ERASE UNIT command shall write binary zeroes to all user data areas (as determined by READ NATIVE MAX or READ NATIVE MAX EXT). IDENTIFY DEVICE or IDENTIFY PACKET DEVICE word 89 gives an estimate of the time required to complete the erasure.</p> <p>The Enhanced Erase mode is optional. IDENTIFY DEVICE or IDENTIFY PACKET DEVICE word 128, bit 5 indicates whether it is supported. When Enhanced Erase mode is specified, the device shall write predetermined data patterns to all user data areas. In Enhanced Erase mode, all previously written user data shall be overwritten, including sectors that are no longer in use due to reallocation. IDENTIFY DEVICE or IDENTIFY PACKET DEVICE word 90 gives an estimate of the time required to complete the erasure.</p> <p>change to</p> <p>When Normal Erase mode is specified, the SECURITY ERASE UNIT command shall write binary zeroes from LBA 0 to the sector reported by the larger of READ NATIVE MAX or READ NATIVE MAX EXT. The device may write binary zeroes from LBA 0 to the Maximum LBA reported in DCO IDENTIFY data words 3-6. IDENTIFY DEVICE or IDENTIFY PACKET DEVICE word 89 gives an estimate of the time required to complete the erasure.</p> <p>The Enhanced Erase mode is optional. IDENTIFY DEVICE or IDENTIFY PACKET DEVICE word 128, bit 5 indicates whether it is supported. When Enhanced Erase mode is specified, the device shall write predetermined data patterns from LBA 0 to the Maximum LBA reported in DCO IDENTIFY data words 3-6. In Enhanced Erase mode, all previously written user data shall be overwritten, including sectors that are no longer in use due to reallocation. IDENTIFY DEVICE or IDENTIFY PACKET DEVICE word 90 gives an estimate of the time required to complete the erasure.</p>	All	Open
190	190	<p>In DCO SET word 3-6, there is no protection for security enabled.</p> <p>Resolution: Add "The device may abort DCO SET to change words 3-6 if security is enabled."</p>	All	Open
191	191	<p>In NV Cache Set Power Mode, the minimum high power time does not define what to do if the value is 0.</p> <p>Resolution: If this field is zero, the minimum high power time is vendor specific</p>	Shu	Open
192	192	<p>In the power-up in standby feature set, paragraph 3 indicates that you can not exit the standby state until a SET FEATURES spin-up command is received when PUIS is enabled. This is not reflected in the state transition diagram for power management, possibly because we do not have a tendency to document error transitions.</p>	All	Open
193	193	<p>SET FEATURES Reverting to defaults is inconsistent. paragraph 2 directly contradicts that last paragraph. Paragraph 2 states that the device shall not reset parameters to their default power-on state when the device processes a software reset. The last paragraph states that the device may reset parameters to their power-on state...</p>	Stevens	Open
194	194	<p>SMART READ DATA offline data capabilities in bit 3 indicates support for read scanning. However, this does not appear to be tied to any test.</p>	All	Open
195	195	<p>In SMART READ DATA, some of the fields are 2 bytes, and described as bits 15:0. What order are the bytes returned in?</p>	All	Open

Line	#	Issue	Owner	Status
196	196	The Streaming feature set does not mention SET FEATURES "Set Maximum Host Interface Sector Times" I believe that this is an optional portion of the feature set and should be mentioned. The purpose of this is to provide the drive with additional information on host limitations for transferring data at the interface. Although mention has been made in IDENTIFY DEVICE data words 95-104, (excluding 100-103), there is nothing that makes it really clear how these numbers are actually used during the operation of streaming commands. There is also no statement about the set features being optional or mandatory.	All	Open
197	197	The name of the Host Vendor Specific log pages has lead to quite a bit of confusion by host vendors. They look at the name and assume they can define how these logs work. I would like to change the names as follows: Host Vendor Specific log -> Scratch-pad logs Device Vendor Specific log -> Vendor Specific	All	Open
198	198	READ/WRITE LOG EXT do not state if the first page # is 0 or 1	All	Open
199	199	IDENTIFY PACKET DEVICE data words 222 and 223 are not defined to contain the transport revision. Should these words be the same as IDENTIFY DEVICE data?		Open
200	200	APM Issue - Table 4 shows it as optional for Packet devices; IDENTIFY PACKET DEVICE text for words 82-84 references IDENTIFY DEVICE data, but the IDENTIFY PACKET DEVICE table lists word 83 bit 3 as reserved. Proposed Resolution: Add the definition of words 83 and 85 bit 3 to the IDENTIFY PACKET DEVICE data table.		Open
201	201	The DEVICE CONFIGURATION FREEZE LOCK command description states the following: "A device shall be in the DCO factory_config state (see 4.8) after processing a power-on reset. A device shall not change Device Configuration Overlay states as the result of processing a hardware reset or a software reset." Proposed Resolution: A device shall be in the DCO factory_config state <u>or the reduced_config state</u> (see 4.8) after processing a power-on reset. A device shall not change Device Configuration Overlay states exit the DCO_Locked state as the result of processing a hardware reset or a software reset.		Open
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