

Annex of Historical Command Usage

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Change History:

R0: 11/29/2004 Initial proposal

1 Introduction

The purpose of this proposal is to document the historical usage of command opcodes and SET FEATURES codes through the various ATA/ATAPI specifications.

2 Proposal

Add the following material to Annex B of "ATA/ATAPI-8 Command Set" (T13 project D1699) as follows:

Table 1 - Historical Command Assignments

Opcode	Command Name	ATA1	ATA2	ATA3	ATA4	ATA5	ATA6	ATA7	ATA8
00h	NO-OP	C	C	C	C	C	C	C	C
01h		R	R	R	R	R	R	R	R
02h		R	R	R	R	R	R	R	R
03h	CFA REQUEST EXTENDED ERROR	R	R	R	C	C	C	C	C
04h		R	R	R	R	R	R	R	R
05h		R	R	R	R	R	R	R	R
06h		R	R	R	R	R	R	R	R
07h		R	R	R	R	R	R	R	R
08h	ATAPI Soft Reset / DEVICE RESET	R	R	ATAPI soft reset	DEVICE RESET	C	C	C	C
09h		R	R	R	R	R	R	R	R
0Ah		R	R	R	R	R	R	R	R
0Bh		R	R	R	R	R	R	R	R
0Ch		R	R	R	R	R	R	R	R
0Dh		R	R	R	R	R	R	R	R
0Eh		R	R	R	R	R	R	R	R
0Fh		R	R	R	R	R	R	R	R
10h	RECALIBRATE	C	C	C	O	O	O	O	O
11h	RECALIBRATE	C	C	O	E	E	E	E	E
12h	RECALIBRATE	C	C	O	E	E	E	E	E
13h	RECALIBRATE	C	C	O	E	E	E	E	E
14h	RECALIBRATE	C	C	O	E	E	E	E	E
15h	RECALIBRATE	C	C	O	E	E	E	E	E
16h	RECALIBRATE	C	C	O	E	E	E	E	E
17h	RECALIBRATE	C	C	O	E	E	E	E	E
18h	RECALIBRATE	C	C	O	E	E	E	E	E
19h	RECALIBRATE	C	C	O	E	E	E	E	E
1Ah	RECALIBRATE	C	C	O	E	E	E	E	E
1Bh	RECALIBRATE	C	C	O	E	E	E	E	E
1Ch	RECALIBRATE	C	C	O	E	E	E	E	E
1Dh	RECALIBRATE	C	C	O	E	E	E	E	E
1Eh	RECALIBRATE	C	C	O	E	E	E	E	E
1Fh	RECALIBRATE	C	C	O	E	E	E	E	E
20h	READ SECTORS	C	C	C	C	C	C	C	C
21h	READ SECTORS WITHOUT RETRY	C	C	C	C	O	O	O	O
22h	READ LONG	C	C	C	O	O	O	O	O
23h	READ LONG WITHOUT RETRY	C	C	C	O	O	O	O	O
24h	READ SECTORS EXT	R	R	R	R	R	C	C	C
25h	READ DMA EXT	R	R	R	R	R	C	C	C
26h	READ DMA QUEUED EXT	R	R	R	R	R	C	C	C
27h	READ NATIVE MAX ADDRESS EXT	R	R	R	R	R	C	C	C
28h		R	R	R	R	R	R	R	R
29h	READ MULTIPLE EXT	R	R	R	R	R	C	C	C
2Ah	READ STREAM DMA	R	R	R	R	R	R	C	C
2Bh	READ STREAM	R	R	R	R	R	R	C	C
2Ch		R	R	R	R	R	R	R	R
2Dh		R	R	R	R	R	R	R	R

Opcode	Command Name	ATA1	ATA2	ATA3	ATA4	ATA5	ATA6	ATA7	ATA8
2Eh		R	R	R	R	R	R	R	R
2Fh	READ LOG EXT	R	R	R	R	R	C	C	C
30h	WRITE SECTORS	C	C	C	C	C	C	C	C
31h	WRITE SECTORS WITHOUT RETRY	C	C	C	C	O	O	O	O
32h	WRITE LONG	C	C	C	O	O	O	O	O
33h	WRITE LONG WITHOUT RETRY	C	C	C	O	O	O	O	O
34h	WRITE SECTORS EXT	R	R	R	R	O	C	C	C
35h	WRITE DMA EXT	R	R	R	R	R	C	C	C
36h	WRITE DMA QUEUED EXT	R	R	R	R	R	C	C	C
37h	SET NATIVE MAX ADDRESS EXT	R	R	R	R	R	C	C	C
38h	CFA WRITE SECTORS WITHOUT ERASE	R	R	R	C	C	C	C	C
39h	WRITE MULTIPLE EXT	R	R	R	R	R	C	C	C
3Ah	WRITE STREAM DMA	R	R	R	R	R	R	C	C
3Bh	WRITE STREAM	R	R	R	R	R	R	C	C
3Ch	WRITE VERIFY	C	C	C	O	O	O	O	O
3Dh	WRITE DMA FUA EXT	R	R	R	R	R	R	C	C
3Eh	WRITE DMA QUEUED FUA EXT	R	R	R	R	R	R	C	C
3Fh	WRITE LOG EXT	R	R	R	R	R	C	C	C
40h	READ VERIFY SECTORS	C	C	C	C	C	C	C	C
41h	READ VERIFY SECTORS WITHOUT RETRY	C	C	C	C	O	O	O	O
42h	WRITE VERIFY SECTORS EXT	R	R	R	R	R	C	C	C
43h		R	R	R	R	R	R	R	R
44h		R	R	R	R	R	R	R	R
45h		R	R	R	R	R	R	R	R
46h		R	R	R	R	R	R	R	R
47h		R	R	R	R	R	R	R	R
48h		R	R	R	R	R	R	R	R
49h		R	R	R	R	R	R	R	R
4Ah		R	R	R	R	R	R	R	R
4Bh		R	R	R	R	R	R	R	R
4Ch		R	R	R	R	R	R	R	R
4Dh		R	R	R	R	R	R	R	R
4Eh		R	R	R	R	R	R	R	R
4Fh		R	R	R	R	R	R	R	R
50h	FORMAT TRACK	C	C	C	O	O	O	O	O
51h	CONFIGURE STREAM	R	R	R	R	R	R	C	C
52h		R	R	R	R	R	R	R	R
53h		R	R	R	R	R	R	R	R
54h		R	R	R	R	R	R	R	R
55h		R	R	R	R	R	R	R	R
56h		R	R	R	R	R	R	R	R
57h		R	R	R	R	R	R	R	R
58h		R	R	R	R	R	R	R	R
59h		R	R	R	R	R	R	R	R
5Ah		R	R	R	R	R	R	R	R
5Bh		R	R	R	R	R	R	R	R
5Ch	TRUSTED RECEIVE	R	R	R	R	R	R	R	Y

Opcode	Command Name	ATA1	ATA2	ATA3	ATA4	ATA5	ATA6	ATA7	ATA8
5Dh	TRUSTED RECEIVE DMA	R	R	R	R	R	R	R	Y
5Eh	TRUSTED SEND	R	R	R	R	R	R	R	Y
5Fh	TRUSTED SEND DMA	R	R	R	R	R	R	R	Y
60h	SATA READ FPDMA QUEUED	R	R	R	R	R	R	S	S
61h	SATA WRITE FPDMA QUEUED	R	R	R	R	R	R	S	S
62h	SATA (reserved)	R	R	R	R	R	R	S	S
63h	SATA (reserved)	R	R	R	R	R	R	S	S
64h	SATA (reserved)	R	R	R	R	R	R	S	S
65h	SATA (reserved)	R	R	R	R	R	R	S	S
66h	SATA (reserved)	R	R	R	R	R	R	S	S
67h	SATA (reserved)	R	R	R	R	R	R	S	S
68h		R	R	R	R	R	R	S	S
69h		R	R	R	R	R	R	S	S
6Ah		R	R	R	R	R	R	S	S
6Bh		R	R	R	R	R	R	S	S
6Ch		R	R	R	R	R	R	S	S
6Dh		R	R	R	R	R	R	S	S
6Eh		R	R	R	R	R	R	S	S
6Fh		R	R	R	R	R	R	S	S
70h	SEEK	C	C	C	C	C	C	O	O
71h	SEEK	C	C	O	E	E	E	E	E
72h	SEEK	C	C	O	E	E	E	E	E
73h	SEEK	C	C	O	E	E	E	E	E
74h	SEEK	C	C	O	E	E	E	E	E
75h	SEEK	C	C	O	E	E	E	E	E
76h	SEEK	C	C	O	E	E	E	E	E
77h	SEEK	C	C	O	E	E	E	E	E
78h	SEEK	C	C	O	E	E	E	E	E
79h	SEEK	C	C	O	E	E	E	E	E
7Ah	SEEK	C	C	O	E	E	E	E	E
7Bh	SEEK	C	C	O	E	E	E	E	E
7Ch	SEEK	C	C	O	E	E	E	E	E
7Dh	SEEK	C	C	O	E	E	E	E	E
7Eh	SEEK	C	C	O	E	E	E	E	E
7Fh	SEEK	C	C	O	E	E	E	E	E
80h	(vendor unique)	V	V	V	V	V	V	V	V
81h	(vendor unique)	V	V	V	V	V	V	V	V
82h	(vendor unique)	V	V	V	V	V	V	V	V
83h	(vendor unique)	V	V	V	V	V	V	V	V
84h	(vendor unique)	V	V	V	V	V	V	V	V
85h	(vendor unique)	V	V	V	V	V	V	V	V
86h	(vendor unique)	V	V	V	V	V	V	V	V
87h	(vendor unique) / CFA TRANSLATE SECTOR	V	V	V	F	F	F	F	F
88h	(vendor unique)	V	V	V	V	V	V	V	V
89h	(vendor unique)	V	V	V	V	V	V	V	V
8Ah	(vendor unique)	V	V	V	V	V	V	V	V
8Bh	(vendor unique)	V	V	V	V	V	V	V	V
8Ch	(vendor unique)	V	V	V	V	V	V	V	V
8Dh	(vendor unique)	V	V	V	V	V	V	V	V
8Eh	(vendor unique)	V	V	V	V	V	V	V	V
8Fh	(vendor unique)	V	V	V	V	V	V	V	V
90h	EXECUTE DEVICE	C	C	C	C	C	C	C	C

Opcode	Command Name	ATA1	ATA2	ATA3	ATA4	ATA5	ATA6	ATA7	ATA8
	DIAGNOSTICS								
91h	INITIALIZE DEVICE PARAMETERS	C	C	C	C	C	O	O	O
92h	DOWNLOAD MICROCODE	R	C	C	C	C	C	C	C
93h		R	R	R	R	R	R	R	R
94h	STANDBY IMMEDIATE	C	C	C	E	E	E	E	E
95h	IDLE IMMEDIATE	C	C	C	E	E	E	E	E
96h	STANDBY	C	C	C	E	E	E	E	E
97h	IDLE	C	C	C	E	E	E	E	E
98h	CHECK POWER MODE	C	C	C	E	E	E	E	E
99h	SLEEP	C	C	C	E	E	E	E	E
9Ah	(vendor unique)	V	V	V	V	V	V	V	V
9Bh		R	R	R	R	R	R	R	R
9Ch		R	R	R	R	R	R	R	R
9Dh		R	R	R	R	R	R	R	R
9Eh		R	R	R	R	R	R	R	R
9Fh		R	R	R	R	R	R	R	R
A0h	PACKET	R	R	C	C	C	C	C	C
A1h	IDENTIFY PACKET DEVICE	R	R	C	C	C	C	C	C
A2h	SERVICE	R	R	C	C	C	C	C	C
A3h		R	R	R	R	R	R	R	R
A4h		R	R	R	R	R	R	R	R
A5h		R	R	R	R	R	R	R	R
A6h		R	R	R	R	R	R	R	R
A7h		R	R	R	R	R	R	R	R
A8h		R	R	R	R	R	R	R	R
A9h		R	R	R	R	R	R	R	R
AAh		R	R	R	R	R	R	R	R
ABh		R	R	R	R	R	R	R	R
ACh		R	R	R	R	R	R	R	R
ADh		R	R	R	R	R	R	R	R
A Eh		R	R	R	R	R	R	R	R
AFh		R	R	R	R	R	R	R	R
B0h	SMART	R	R	C	C	C	C	C	C
B1h	CFA DEVICE CONFIGURATION	R	R	R	R	R	C	C	C
B2h		R	R	R	R	R	R	R	R
B3h		R	R	R	R	R	R	R	R
B4h		R	R	R	R	R	R	R	R
B5h		R	R	R	R	R	R	R	R
B6h		R	R	R	R	R	R	R	R
B7h		R	R	R	R	R	R	R	R
B8h	CFA (reserved)	R	R	R	R	A	A	A	A
B9h	CFA (reserved)	R	R	R	R	A	A	A	A
BAh	CFA (reserved)	R	R	R	R	A	A	A	A
BBh	CFA (reserved)	R	R	R	R	A	A	A	A
BCh	CFA (reserved)	R	R	R	R	A	A	A	A
BDh	CFA (reserved)	R	R	R	R	A	A	A	A
BEh	CFA (reserved)	R	R	R	R	A	A	A	A
BFh	CFA (reserved)	R	R	R	R	A	A	A	A
C0h	(vendor unique) / CFA ERASE SECTORS	V	V	V	F	F	F	F	F
C1h	(vendor unique)	V	V	V	V	V	V	V	V
C2h	(vendor unique)	V	V	V	V	V	V	V	V

Opcode	Command Name	ATA1	ATA2	ATA3	ATA4	ATA5	ATA6	ATA7	ATA8
C3h	(vendor unique)	V	V	V	V	V	V	V	V
C4h	READ MULTIPLE	C	C	C	C	C	C	C	C
C5h	WRITE MULTIPLE	C	C	C	C	C	C	C	C
C6h	SET MULTIPLE MODE	C	C	C	C	C	C	C	C
C7h	READ DMA QUEUED	R	R	R	C	C	C	C	C
C8h	READ DMA	C	C	C	C	C	C	C	C
C9h	READ DMA WITHOUT RETRIES	C	C	C	C	O	O	O	O
CAh	WRITE DMA	C	C	C	C	C	C	C	C
CBh	WRITE DMA WITHOUT RETRIES	C	C	C	C	O	O	O	O
CCh	WRITE DMA QUEUED	R	R	R	C	C	C	C	C
CDh	CFA WRITE MULTIPLE WITHOUT ERASE	R	R	R	C	C	C	C	C
CEh	WRITE MULTIPLE FUA EXT	R	R	R	R	R	R	C	C
CFh		R	R	R	R	R	R	R	R
D0h		R	R	R	R	R	R	R	R
D1h	CHECK MEDIA CARD TYPE	R	R	R	R	R	C	C	C
D2h	MediaCardPassThru (reserved)	R	R	R	R	R	M	M	M
D3h	MediaCardPassThru (reserved)	R	R	R	R	R	M	M	M
D4h	MediaCardPassThru (reserved)	R	R	R	R	R	M	M	M
D5h		R	R	R	R	R	R	R	R
D6h		R	R	R	R	R	R	R	R
D7h		R	R	R	R	R	R	R	R
D8h		R	R	R	R	R	R	R	R
D9h		R	R	R	R	R	R	R	R
DAh	GET MEDIA STATUS	R	R	R	C	C	C	C	C
DBh	ACKNOWLEDGE MEDIA CHANGE	C	C	O	E	E	E	E	E
DCh	BOOT POST BOOT	C	C	O	E	E	E	E	E
DDh	BOOT PRE BOOT	C	C	O	E	E	E	E	E
DEh	MEDIA LOCK	C	C	C	C	C	C	C	C
DFh	MEDIA UNLOCK	C	C	C	C	C	C	C	C
E0h	STANDBY IMMEDIATE	C	C	C	C	C	C	C	C
E1h	IDLE IMMEDIATE	C	C	C	C	C	C	C	C
E2h	STANDBY	C	C	C	C	C	C	C	C
E3h	IDLE	C	C	C	C	C	C	C	C
E4h	READ BUFFER	C	C	C	C	C	C	C	C
E5h	CHECK POWER MODE	C	C	C	C	C	C	C	C
E6h	SLEEP	C	C	C	C	C	C	C	C
E7h	FLUSH CACHE	R	R	R	C	C	C	C	C
E8h	WRITE BUFFER	C	C	C	C	C	C	C	C
E9h	WRITE SAME	C	C	O	E	E	E	E	E
EAh	FLUSH CACHE EXT	R	R	R	R	R	C	C	C
EBh		R	R	R	R	R	R	R	R
ECh	IDENTIFY DEVICE	C	C	C	C	C	C	C	C
EDh	MEDIA EJECT	R	C	C	C	C	C	C	C
EEh	IDENTIFY DEVICE DMA	R	R	C	O	O	O	O	O
EFh	SET FEATURES	C	C	C	C	C	C	C	C
F0h	(vendor unique)	V	V	V	V	V	V	V	V
F1h	SECURITY SET PASSWORD	V	V	C	C	C	C	C	C
F2h	SECURITY UNLOCK	V	V	C	C	C	C	C	C
F3h	SECURITY ERASE PREPARE	V	V	C	C	C	C	C	C
F4h	SECURITY ERASE UNIT	V	V	C	C	C	C	C	C

Opcode	Command Name	ATA1	ATA2	ATA3	ATA4	ATA5	ATA6	ATA7	ATA8
F5h	SECURITY FREEZE LOCK	V	V	C	C	C	C	C	C
F6h	SECURITY DISABLE PASSWORD	V	V	C	C	C	C	C	C
F7h	(vendor unique)	V	V	V	V	V	V	V	V
F8h	READ NATIVE MAX ADDRESS	V	V	V	C	C	C	C	C
F9h	SET MAX ADDRESS	V	V	V	C	C	C	C	C
FAh	(vendor unique)	V	V	V	V	V	V	V	V
FBh	(vendor unique)	V	V	V	V	V	V	V	V
FCh	(vendor unique)	V	V	V	V	V	V	V	V
FDh	(vendor unique)	V	V	V	V	V	V	V	V
FEh	(vendor unique)	V	V	V	V	V	V	V	V
FFh	(vendor unique)	V	V	V	V	V	V	V	V
Key: C= a defined command. E= a retired command. O= Obsolete. R= Reserved, undefined in current specifications. V= Vendor specific commands.		A=Reserved for assignment by the CompactFlash™ Association F= If the device does not implement the CFA feature set, this command code is Vendor specific. M=Reserved for the Media Card Pass Through Command feature set. S=Reserved for Serial ATA Y=Reserved for Trusted Computing							

Table 2 - Historical SET FEATURE Code Assignments

Feature Code	Description	ATA1	ATA2	ATA3	ATA4	ATA5	ATA6	ATA7	ATA8
01h	Enable 8-bit data transfers	C	C	O	E	F	F	F	F
02h	Enable write cache	V	V	C	C	C	C	C	C
03h	Set transfer mode based on value in sector count register	C	C	C	C	C	C	C	C
04h	Enable all automatic defect reassignment	R	R	C	O	O	O	O	O
05h	Enable advanced power management	R	R	R	C	C	C	C	C
06h	Enable Power-Up in Standby feature set	R	R	R	R	C	C	C	C
07h	Power-up in Standby feature set device spin-up	R	R	R	R	C	C	C	C
09h	Reserved for Address offset reserved boot area method technical report	R	R	R	R	C	C	C	C
0Ah	Enable CFA power mode 1	R	R	R	R	C	C	C	C
20h	Reserved for Technical Report (T13/DT1696)	R	R	R	R	R	R	T	T
21h	Reserved for Technical Report (T13/DT1696)	R	R	R	R	R	R	T	T
31h	Disable Media Status Notification	R	R	R	C	C	C	C	C
33h	Disable retry	V	V	C	C	O	O	O	O
42h	Enable Automatic Acoustic Management feature set	R	R	R	R	R	R	C	C
43h	Set Maximum Host Interface Sector Times	R	R	R	R	R	R	C	C
44h	Vendor unique length of ECC on read long/write long commands	C	C	C	O	O	O	O	O
54h	Set cache segments to sector count register value	V	V	C	O	O	O	O	O
55h	Disable read look-ahead feature	C	C	C	C	C	C	C	C
5Dh	Enable release interrupt	R	R	R	C	C	C	C	C
5Eh	Enable SERVICE interrupt	R	R	R	C	C	C	C	C
66h	Disable reverting to power on defaults	C	C	C	C	C	C	C	C
77h	Disable ECC	V	V	C	O	O	O	O	O
81h	Disable 8-bit data transfers	C	C	O	E	F	F	F	F
82h	Disable write cache	V	V	C	C	C	C	C	C
84h	Disable all automatic defect reassignment	R	R	C	O	O	O	O	O
85h	Disable advanced power management	R	R	R	C	C	C	C	C
86h	Disable Power-Up in Standby feature set	R	R	R	R	C	C	C	C
88h	Enable ECC	V	V	C	C	C	O	O	O
89h	Reserved for Address offset reserved boot area method	R	R	R	R	C	C	C	C

Feature Code	Description	ATA1	ATA2	ATA3	ATA4	ATA5	ATA6	ATA7	ATA8
	technical report								
8Ah	Disable CFA power mode 1	R	R	R	R	C	C	F	F
90h	Reserved for Serial ATA	R	R	R	R	R	R	S	S
95h	Enable Media Status Notification	R	R	R	C	C	C	C	C
99h	Enable retries	V	V	C	O	O	O	O	O
9Ah	Set device maximum average current	R	R	C	O	O	O	O	O
AAh	Enable read look-ahead features	C	C	C	C	C	C	C	C
ABh	Set maximum prefetch using sector count register value	V	V	C	O	O	O	O	O
BBh	4 bytes of ECC apply on read long/write long commands	C	C	C	O	O	O	O	O
C2h	Disable Automatic Acoustic Management feature set	R	R	R	R	R	R	C	C
CCh	Enable reverting to power on defaults	C	C	C	C	C	C	C	C
DDh	Disable release interrupt	R	R	R	C	C	C	C	C
DEh	Disable SERVICE interrupt	R	R	R	C	C	C	C	C
E0h	Vendor unique	R	R	R	R	R	R	O	O
E1h	Vendor unique	R	R	R	R	R	R	O	O
E2h	Vendor unique	R	R	R	R	R	R	O	O
F0h		R	R	R	R	A	A	A	A
F1h		R	R	R	R	A	A	A	A
F2h		R	R	R	R	A	A	A	A
F3h		R	R	R	R	A	A	A	A
F4h		R	R	R	R	A	A	A	A
F5h		R	R	R	R	A	A	A	A
F6h		R	R	R	R	A	A	A	A
F7h		R	R	R	R	A	A	A	A
F8h		R	R	R	R	A	A	A	A
F9h		R	R	R	R	A	A	A	A
FAh		R	R	R	R	A	A	A	A
FBh		R	R	R	R	A	A	A	A
FCh		R	R	R	R	A	A	A	A
FDh		R	R	R	R	A	A	A	A
FEh		R	R	R	R	A	A	A	A
FFh		R	R	R	R	A	A	A	A
Key: C= a defined command. E= a retired command. O= Obsolete. R= Reserved, undefined in current specifications. V= Vendor specific commands.		A=Reserved for assignment by the CompactFlash™ Association. F= If the device does not implement the CFA feature set, this command code is Vendor specific. M=Reserved for the Media Card Pass Through Command feature set. S=Reserved for Serial ATA. T=Reserved for Technical Report T13/DT1696 (Time-Limited Commands).							