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User manual MAXTOR ST9235AG
User guide MAXTOR ST9235AG
Operating instructions MAXTOR ST9235AG
Instructions for use MAXTOR ST9235AG
Instruction manual MAXTOR ST9235AG



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ST9235 Family:

.....
ST9080A, ST9145A, ST9145AG

.....
ST9235A, ST9235AG

.....
AT Interface Drives

.....
Product Manual



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Manual abstract:

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..... ST9235A, ST9235AG

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... AT Interface Drives ..

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@@B 19 April 1993 ©1993 Seagate Technology, Inc. All rights reserved Publication Number: 36206-001, Rev. @@@@Seagate reserves the right to change, without notice, product offerings or specifications. No part of this publication may be reproduced in any form without written permission of Seagate Technology, Inc. ST9235 Family Product Manual, Rev. B iii Contents 1.0 Drive specifications

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1 Formatted capacity ST9080A Guaranteed Mbytes Guaranteed sectors Bytes per sector 64.0 125,096 512 ST9145A ST9145AG 127.9 249,900 512 ST9235A ST9235AG 209.7 409,760 512 1.2 Physical organization ST9080A Read/Write heads Discs 2 1 ST9145A ST9145AG 4 2 ST9235A ST9235AG 6 3 1.
3 Logical organization The ST9235 family drives support all head, cylinder, and sector geometries, subject to the maximums specified below, and to the following condition: (sectors) × (heads) × (cylinders) total sectors per drive Sectors per track (max) Read/Write heads (max) Cylinders (max) 63 15
Unrestricted 2 ST9235 Family Product Manual, Rev. B 1.4 Default logical geometry ST9080A Sectors per track Read/Write heads Cylinders 38 4 823
ST9145A ST9145AG 17 15 980 ST9235A ST9235AG 32 13 985 1.5 Functional specifications ST9080A Interface Recording method Recording density (BPI) Flux density (FCI) Track density (TPI) Spindle speed (RPM ± 0.5%) Internal data transfer rate (Mbits per sec max--ZBR) I/O data transfer rate (Mbits per sec max--ZBR) Interleave Cache buffer (Kbytes) ATA RLL (2,7) 45,500 30,300 2,650 3,449 16 4 1:1 32 ST9145A ST9145AG ATA RLL (2,7) 45,600 30,400 2,650 3,449 16 4 1:1 64 ST9235A ST9235AG ATA RLL (2,7) 45,500 30,300 2,750 3,449 16 4 1:1 64 ST9235 Family Product Manual, Rev. B 3 1.6 Physical dimensions ST9080A Height (max) inches (mm) Width (max) inches (mm) Depth (max) inches (mm) Weight (max) ounces (kg) 0.49 (12.50) 2.76 (70.

10) 4.01 (101.85) 4.80 (0.136) ST9145A ST9145AG 0.75 (19.05) 2.76 (70.10) 4.01 (101.85) 6.50 (0.185) ST9235A ST9235AG 0.75 (19.05) 2.76 (70.10) 4.01 (101.85) 7.25 (0.185)

210) 1.7 Seek time Seek time is a true statistical average (at least 5,000 measurements) of seek time, less controller overhead. All measurements are made with nominal power at sea level and 25°C ambient temperature. Track-to-track seek time is an average of all possible single-track seeks in both directions. Average seek time is measured by executing seek commands between random sector addresses. Full-stroke seek time is one-half the time needed to seek from the first data sector to the maximum data sector and back to the first sector. Host overhead varies between systems and cannot be specified. Seek times for the ST9235 family drives are: Track-to-track typical (msec) maximum (msec) Average typical (msec) maximum (msec) Full-stroke typical (msec) maximum (msec) Average latency (msec) 5 8 16 19 27 30 8.7 4 ST9235 Family Product Manual, Rev. B 1.

8 Spinup times (typical) Power-on to Ready (sec) Standby to Ready (sec) 4 2 1.9 Reliability Nonrecoverable read errors Mean time between failures 1 per 1013 bits read 150,000 power-on hours (nominal power, at sea level, 25°C ambient temperature) Not required 10 minutes 5 years Preventative maintenance Mean time to repair Service life 1.10 Environment 1.10.1 Acoustics ST9080A, ST9145A and ST9145AG: 30 dBA maximum (sound pressure) in Idle mode at 1 meter. ST9235A and ST9235AG: 33 dBA maximum (sound pressure) in Idle mode at 1 meter. 1.10.2 Ambient temperature Operating Nonoperating 5° to 55°C (41° to 131°F) 40° to 70°C (40° to 158°F) 1.10.

3 Temperature gradient Operating Nonoperating 30°C / hr (54°F / hr) max, without condensation 30°C / hr (54°F / hr) max, without condensation ST9235 Family Product Manual, Rev.



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B 5 1.10.4 Relative humidity Operating Nonoperating 8% to 80% noncondensing 8% to 90% noncondensing Transit (as packaged from factory) 5% to 95% noncondensing Maximum wet bulb temperature 26°C (78.8°F) 1.

10.5 Altitude Operating Nonoperating 1,000 ft to 10,000 ft (304.8 m to 3,048 m) 1,000 ft to 40,000 ft (304.8 m to 12,192 m) 1.10.

6 Shock All shock specifications assume that the drive is mounted in an approved orientation with the input levels at the drive mounting screws. Operating shock specifications vary between the "A" and "AG" drives, as described below. The nonoperating specifications assume that the read/write heads are positioned in the shipping zone. Note. At power-down, the read/write heads automatically move to the shipping zone. The head and slider assembly park inside of the maximum data cylinder. When power is applied, the heads recalibrate to Track 0. 1.10.6.

1 Operating shock The maximum shock the ST9080A, ST9145A and ST9235A can experience during operation without incurring nonrecoverable data errors is 2 Gs; the maximum operating shock they can experience without damage to the drive is 10 Gs (based on half sine-wave shock pulses of 11 msec). The ST9145AG and ST9235AG, with their SafeRite™ components, can experience a maximum operating shock of 100 Gs without nonrecoverable data errors (based on half-sine shock pulses of 2 through 11 msec). 1.10.6.2 Nonoperating shock The maximum nonoperating shock that ST9235 family drives can experience without incurring physical damage or degradation in performance when the drive is subsequently put into operation is 150 Gs (based on half-sine shock pulses of 11 msec). 6 ST9235 Family Product Manual, Rev. B 1.10.7 Vibration All vibration specifications assume that the drive is mounted in an approved orientation with the input levels at the drive mounting screws.

The nonoperating specifications assume that the read/write heads are positioned in the shipping zone. 1.10.7.1 Operating vibration The following table lists maximum vibration levels that ST9235 family drives may experience without incurring physical damage or degraded performance.

522 Hz 22400* Hz 400*22 Hz 225 Hz *500 Hz typical 0.020-inch displacement (double amplitude) 0.5 Gs acceleration (peak) 0.5 Gs acceleration (peak) 0.020-inch displacement (double amplitude) 1.

10.7.2 Nonoperating vibration The maximum nonoperating vibration that the ST9235 family drives can experience without incurring physical damage or degradation in performance when the drive is subsequently put into operation: 522 Hz 22500 Hz 50022 Hz 225 Hz 0.162-inch displacement (double amplitude) 4 Gs acceleration (peak) 4 Gs acceleration (peak) 0.162-inch displacement (double amplitude) 1.11 Power specifications ST9235 family drives receive DC power (+5V) through pin 41 and pin 42 of the ATA interface connector; pin 43 is the ground. ST9235 Family Product Manual, Rev. B 7 1.11.1 Power management modes Power management is required for low-power portable systems.

In most systems, you can control power management through the system setup program. The ST9235 family drives feature several power management modes, which are described briefly in the following paragraphs: Active mode. The drive is in Active mode during the read/write and seek operations. Idle-Ready mode. In Idle-Ready mode, the spindle is up to speed and the heads are on track at the last track accessed. The drive accepts all commands, and returns to Active mode when disc access is necessary. Idle mode. At power-on, the drive sets the idle timer to enter Idle mode after 5 seconds of inactivity (default setting). In Idle mode, the spindle remains up to speed. The heads are parked away from the data zones for maximum data safety.

The buffer remains enabled, and the drive accepts all commands and returns to Active mode any time disc access is necessary. Standby mode. The drive 12 Time (seconds) Figure 2. Typical startup and operation current profile for the ST9145A and the ST9145AG Current (mA) 1200 Spinup 1000 Upload code 800 Standby mode 600 Active mode Spindle brake Start spindle Idle mode 400 Ready 200 0 0 1 2 3 4 5 6 7 8 Time (seconds) 9 10 11 12 13 14 15 Figure 3. Typical startup and operation current profile for the ST9235A and the ST9235AG ST9235 Family Product Manual, Rev.

B 11 Standby Sleep 0.17 0.17 0.25 0.25 0.

05 0.05 1.11.2.4 Current profiles Current profiles for the ST9235 family drives are shown in Figures 1, 2 and 3 on pages 9 and 10. 1.11.3 Input power noise Voltage tolerance (including ripple): + 5%, 10% Maximum permitted input noise ripple: 150 mV (peak-to-peak) Maximum permitted input noise: 10 MHz.

1.12 UL/CSA listing The ST9235 family drives are listed in accordance with UL 1950 and CSA C22.2 (950-M89), and meet all applicable sections of IEC 380, IEC 435, IEC 950, VDE 0806/08.

81 and EN 60950 as tested by TUV-Rheinland, North America. 1.13 FCC verification The ST9235 family drives are intended to be contained solely within a personal computer or similar enclosure (not attached to an external device). As such, the drive is considered to be a subassembly even when it is individually marketed to the customer. As a subassembly, no Federal Communications Commission verification or certification of the device is required. Seagate Technology, Inc. has tested this device in enclosures as described above to ensure that the total assembly (enclosure, disc drive, motherboard, power supply, etc.) does comply with the limits for a Class B computing device, pursuant to Subpart J, Part 15 of the FCC rules. Operation with noncertified assemblies is likely to result in interference to radio and television reception. Radio and Television Interference.

This equipment generates and uses radio frequency energy and if not installed and used in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. 12 ST9235 Family Product Manual, Rev. B This equipment is designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television, which can be determined by turning the equipment on and off, you are encouraged to try one or more of the following corrective measures: · Reorient the receiving antenna.

· Move the device to one side or the other of the radio or TV. · Move the device farther away from the radio or TV. · Plug the computer into a different outlet so that the receiver and computer are on different branch outlets. If necessary you should consult your dealer or an experienced radio/television technician for additional suggestions. You may find helpful the following booklet prepared by the Federal Communications Commission: How to Identify and Resolve Radio-Television Interference Problems.



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ST9235 Family Product Manual, Rev. B 25 3.4.1 ATA interface connector pin assignments Figure 13 shows the pin assignments for the standard ATA interface connector and summarizes the ATA interface signals used by the drive.

For an explanation of these signals, see the Seagate ATA Interface Specification, publication number 36111-001. Drive pin # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 Signal name Reset Ground DD7 DD8 DD6 DD9 DD5 DD10 DD4 DD11 DD3 DD12 DD2 DD13 DD1 DD14 DD0 DD15 Ground (removed) Reserved Ground DIOW Ground DIOR Ground Reserved Reserved Reserved Ground INTRQ IOCS16 DA1 PDIAG DA0 DA2 CS1FX CS3FX DASP Ground Power Power Ground Reserved Host pin # and signal description 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 Host Reset Ground Host Data Bus Bit 7 Host Data Bus Bit 8 Host Data Bus Bit 6 Host Data Bus Bit 9 Host Data Bus Bit 5 Host Data Bus Bit 10 Host Data Bus Bit 4 Host Data Bus Bit 11 Host Data Bus Bit 3 Host Data Bus Bit 12 Host Data Bus Bit 2 Host Data Bus Bit 13 Host Data Bus Bit 1 Host Data Bus Bit 14 Host Data Bus Bit 0 Host Data Bus Bit 15 Ground (No Pin) Reserved Ground Host I/O Write Ground Host I/O Read Ground Reserved Reserved Reserved Ground Host Interrupt Request Host 16 Bit I/O Host Address Bus Bit 1 Passed Diagnostics Host Address Bus Bit 0 Host Address Bus Bit 2 Host Chip Select 0 Host Chip Select 1 Drive Active / Slave Present Ground +5V (logic) +5V (motor) Ground for power pins Reserved Figure 13.



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ATA interface signal summary 26 ST9235 Family Product Manual, Rev. B 3.5 ATA interface command description The commands listed on the following pages are specific to the ST9235 family drives.

For a description of any ATA interface commands not found in this manual and Seagate's implementation of the ATA interface, refer to the ATA Interface Specification, Seagate publication number 36111001. In some cases, there may be two opcodes for a single command. In such instances, both opcodes perform in an equivalent manner and are treated identically by the drive. In all of the following tables, D/S designates the drive select bit and an "X" designates that the register is not used for the particular command. Notations for special register functions are listed in the command table and explained in the command descriptions.

ST9235 Family Product Manual, Rev. B 27 3.5.1 Standby Immediate (E0H / 94H) When the drive receives this command, it enters Standby mode immediately. The drive sets BSY, initiates a shutdown sequence, enters Standby mode, clears BSY, and generates an interrupt. If the drive is already in Standby mode when this command is received, it sets BSY, clears BSY and generates an interrupt. E0H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 94H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 1 0 1 D/S X X Bit 7 1 Bit 6 0 Bit 5 0 Bit 4 1 X X X 1 0 1 D/S X X Bit 3 0 Bit 2 1 Bit 1 0 Bit 0 0 Bit 7 1 Bit 6 1 Bit 5 1 Bit 4 0 X X X Bit 3 0 Bit 2 0 Bit 1 0 Bit 0 0 28 ST9235 Family Product Manual, Rev. B 3.5.2 Idle Immediate (E1H / 95H / F8H) When the drive receives this command, it sets BSY and enters Idle mode. If the drive is in Standby mode, the spinup routine is executed.

If the drive is in either Active or Idle mode, the spindle is already up to speed, and the spinup routine is skipped. Next, the drive clears BSY and generates an interrupt. E1H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 95H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 1 0 1 D/S X X Bit 7 1 Bit 6 0 Bit 5 0 Bit 4 1 X X X 1 0 1 D/S X X Bit 3 0 Bit 2 1 Bit 1 0 Bit 0 1 Bit 7 1 Bit 6 1 Bit 5 1 Bit 4 0 X X X Bit 3 0 Bit 2 0 Bit 1 0 Bit 0 1 ST9235 Family Product Manual, Rev. B 29 F8H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) Bit 7 1 Bit 6 1 Bit 5 1 Bit 4 1 X X Bit 3 1 Bit 2 0 Bit 1 0 Bit 0 0 1 0 1 D/S X X X 3.

5.3 Standby (E2H / 96H) When the drive receives this command, it sets BSY and makes a transition to Standby mode. Depending on the value placed in the Sector Count register, the drive either enables or disables the standby timer. The drive then clears BSY and generates an interrupt. Placing a zero value in the Sector Count register disables the standby timer.

Placing a nonzero value in the Sector Count register enables the standby timer to count down in 5-second increments. A value of 12 sets the standby timer for sixty seconds before the standby routine is initiated. A value of 13 sets the timer for sixty-five seconds. The minimum amount of time allowed for the standby timer is sixty seconds. Consequently, all values from 1-11 have an equivalent effect to a value of 12 for the standby timer.

The delay timer is reinitialized by the drive whenever the drive enters Active mode. If the drive is already in Standby mode, this command has no effect. The default power-on condition for this drive is that the standby timer is disabled. 30 ST9235 Family Product Manual, Rev. B E2H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 96H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) Bit 7 1 Bit 6 1 Bit 5 1 Bit 4 0 X X X Bit 3 0 Bit 2 0 Bit 1 1 Bit 0 0 1 0 1 D/S X X standby timer delay (in 5-second increments) Bit 7 1 Bit 6 0 Bit 5 0 Bit 4 1 X X 1 0 1 D/S X standby timer delay (in 5-second increments) X Bit 3 0 Bit 2 1 Bit 1 1 Bit 0 0 ST9235 Family Product Manual, Rev. B 31 3.

5.4 Idle (E3H / 97H) When the drive receives this command, it sets BSY, makes a transition to Idle mode, sets the standby timer if necessary, clears BSY and generates an interrupt. The minimum amount of time allowed for the standby timer is sixty seconds. Consequently, all values from 1-11 have an equivalent effect to a value of 12 for the standby timer. E3H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 97H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 1 0 1 D/S X idle timer delay (in 5-second increments) Bit 7 1 1 0 1 D/S X standby timer delay (in 5-second increments) Bit 6 0 Bit 5 0 Bit 4 1 X X X Bit 3 0 Bit 2 1 Bit 1 1 Bit 0 1 Bit 7 1 Bit 6 1 Bit 5 1 Bit 4 0 X X X Bit 3 0 Bit 2 0 Bit 1 1 Bit 0 1 32 ST9235 Family Product Manual, Rev. B 3.

5.5 Check Power Mode (E5H / 98H) This command returns a code for the power mode the drive is currently in or making a transition to. When the drive receives this command, it sets BSY, returns a value representing the current mode through the Sector Count register, clears BSY and generates an interrupt. The return values are as follows: 00H = The drive is in, or entering, Standby mode. FFH = The drive is in, or entering, either Idle or Active mode. E5H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 98H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 1 0 1 D/S X X Bit 7 1 Bit 6 0 Bit 5 0 Bit 4 1 X X X 1 0 1 D/S X X Bit 3 1 Bit 2 0 Bit 1 0 Bit 0 0 Bit 7 1 Bit 6 1 Bit 5 1 Bit 4 0 X X X Bit 3 0 Bit 2 1 Bit 1 0 Bit 0 1 ST9235 Family Product Manual, Rev. B 33 3.5.6 Set Sleep Mode (E6H / 99H) This command tells the drive to enter Sleep mode immediately. When the drive receives this command, it sets BSY, enters Sleep mode, clears BSY and generates an interrupt. When a soft reset is sent from the host, the drive leaves Sleep mode and makes a transition to Standby mode. After a soft reset has been received, the drive exits Sleep mode and makes a transition to Standby mode with all emulation and translation parameters intact. After a hard reset has been received, the drive returns to Active mode. E6H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 99H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) 1 0 1 D/S X Bit 7 1 Bit 6 0 Bit 5 0 Bit 4 1 X X X 1 0 1 D/S X X Bit 3 1 Bit 2 0 Bit 1 0 Bit 0 1 Bit 7 1 Bit 6 1 Bit 5 1 Bit 4 0 X X X Bit 3 0 Bit 2 1 Bit 1 1 Bit 0 0 34 ST9235 Family Product Manual, Rev. B 34 3.5.7 Identify Drive (ECH) This command is accepted by ROM during system startup.



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ROM clears the BUSY status within 100 nsec from power-on, but does not indicate the DRIVE READY status until after the upload of external RAM is complete. This command can be executed before the DRIVE READY status has been asserted. ECH Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv.

Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 1 0 1 D/S X X Bit 7 1 Bit 6 1 Bit 5 1 Bit 4 0 X X X Bit 3 1 Bit 2 1 Bit 1 0 Bit 0 0 The implementation of this command is compatible with the Seagate ATA Interface specifications. This command causes 512 bytes (256 words) of information to be returned to the host (see table below). When the command is received, the drive sets BSY, stores the information in the sector buffer, sets DRQ, and generates an interrupt. In the following table, an x indicates a drive-specific value; most default values for the ST9235 family drives are listed in Section 1. Word Description Configuration

Information: Bit 10: Disc Transfer 10 Mbits per sec Bit 6: Fixed Drive Bit 4: Head switch time > 15 µsec Bit 3: Not MFM encoded Bit 1: Hard Sector Value 0 045AH ST9235 Family Product Manual, Rev. B 35 Word 1 2 3 4 5 6 7 9 10 19 20 21 22 23 26 27 46 47 48 49 50 51 52 53 54 55 Description Number fixed cylinders: (default logical emulation) Reserved Number of heads: (default) Number of unformatted bytes per track Number of unformatted bytes per sector: 566 Number of sectors per track: (default logical emulation) Reserved Serial number: (20 ASCII characters, 0000H = none) Controller type = Dual-ported multisection buffer with caching Buffer size Number of ECC bytes Firmware revision (8 ASCII character string): xx = ROM ver.

, ss = RAM ver., tt = RAM ver. Drive model number: (40 ASCII characters, padded to end of string) Read Multiple command supported Cannot perform double word I/O Capabilities: DMA not supported Reserved Minimum PIO data transfer cycle time (410 nsec) Minimum DMA transfer cycle time (not supported) The fields in translation mode may be valid Number of cylinders (current emulation mode) Number of heads (current emulation mode) Value xxxH 0000H 00xxH xxxH xxxH 00xxH 0000H ASCII 0003H 00xxH 000BH xx.ss.tt ST9xxx 0010H 0000H 0000H 0000H 019AH 0000H 0000H xxxH xxxH 36 ST9235 Family Product Manual, Rev. B Word 56 57 58 Description Number of sectors per track (current emulation mode) Number of cylinders (current emulation mode) Value xxxH xxxH 0000H 0000H 0000H 59127 Reserved 128159 Vendor unique 160255 Reserved 3.5.8 Set Features (EFH) This command sets values for the features supported by the drive. When the drive receives this command, it sets BSY, checks the contents of the Features register, clears BSY, and generates an interrupt. If the value in the register is not a feature supported by the drive, the command is aborted.

Power-on default has the read look-ahead feature enabled, and 4 bytes of ECC. The acceptable values in the Features register are defined as follows: 44H = 11 bytes of ECC apply on Read Long/Write Long commands. 55H = Disable read look-ahead feature. AAH = Enable look-ahead feature (default). @@EFH Command (1F7H) Cyl.

High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec.

Cnt. @@@@ When the drive receives this command, it sets BSY, makes a transition to Active mode, clears BSY and generates an interrupt. F9H Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 1 0 1 D/S X X Bit 7 1 Bit 6 1 Bit 5 1 Bit 4 1 X X X Bit 3 1 Bit 2 0 Bit 1 0 Bit 0 1 ST9235 Family Product Manual, Rev.

B 39 3.5.10 Idle and Set Idle Timer (FAH) This command enables and disables the automatic idle feature of the drive. When the drive receives this command, it sets BSY, switches to Idle mode, and enables or disables the idle timer according to the value placed in the Sector Count register. The drive then clears BSY and generates an interrupt. If the value in the sector count is zero, the idle timer is disabled and the drive does not automatically switch to Idle mode. If the value is not zero, the drive switches to Idle mode after the specified delay time has elapsed. The delay time is specified in the Sector Count register in 100-msec increments. The delay is reinitialized whenever the drive enters Active mode. Note.

The factory-set default for the idle timer is five seconds. FAH Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 1 0 1 D/S X idle timer delay (in 100-msec increments) Bit 7 1 Bit 6 1 Bit 5 1 Bit 4 1 X X X Bit 3 1 Bit 2 0 Bit 1 1 Bit 0 0 40 ST9235 Family Product Manual, Rev. B 3.

5.11 Active and Set Idle Timer (FBH) This command enables and disables the automatic idle feature of the drive. When the drive receives this command, it sets BSY, switches to Active mode, and enables or disables the idle timer according to the value placed in the Sector Count register. The drive then clears BSY and generates an interrupt. If the value in the Sector Count register is zero, the idle timer is disabled and the drive does not automatically switch to Idle mode. If the value is not zero, the drive switches to Idle mode after the specified delay time has elapsed. The delay time is specified in the Sector Count register in 100-msec increments. The delay is reinitialized whenever the drive enters Active mode. Note. The factory-set default for the idle timer is five seconds.

FBH Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 1 0 1 D/S X idle timer delay (in 100-msec increments) Bit 7 1 Bit 6 1 Bit 5 1 Bit 4 1 X X X Bit 3 1 Bit 2 0 Bit 1 1 Bit 0 1 ST9235 Family Product Manual, Rev. B 41 3.5.

12 Check Idle Mode (FDH) This command reports whether the drive is currently in or making a transition to Idle mode or Active mode. When the drive receives this command, it sets BSY, loads the appropriate code information into the Sector Count register, clears BSY and generates an interrupt. The default time delay before the drive enters Idle mode is five seconds. Depending on what state the drive is in or making a transition to, one of the following values is sent: 00H = The drive is in, or entering, Idle mode. FFH = The drive is in, or entering, Active or Standby mode.

FDH Command (1F7H) Cyl. High (1F5H) Cyl. Low (1F4H) Drv. Head (1F6H) Sec. Num. (1F3H) Sec. Cnt. (1F2H) 1 0 1 D/S X X Bit 7 1 Bit 6 1 Bit 5 1 Bit 4 1 X X X Bit 3 1 Bit 2 1 Bit 1 0 Bit 0 1 Seagate Technology, Inc. 920 Disc Drive, Scotts Valley, California 95066, USA Publication Number: 36206-001, Rev. B, Printed in USA .



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