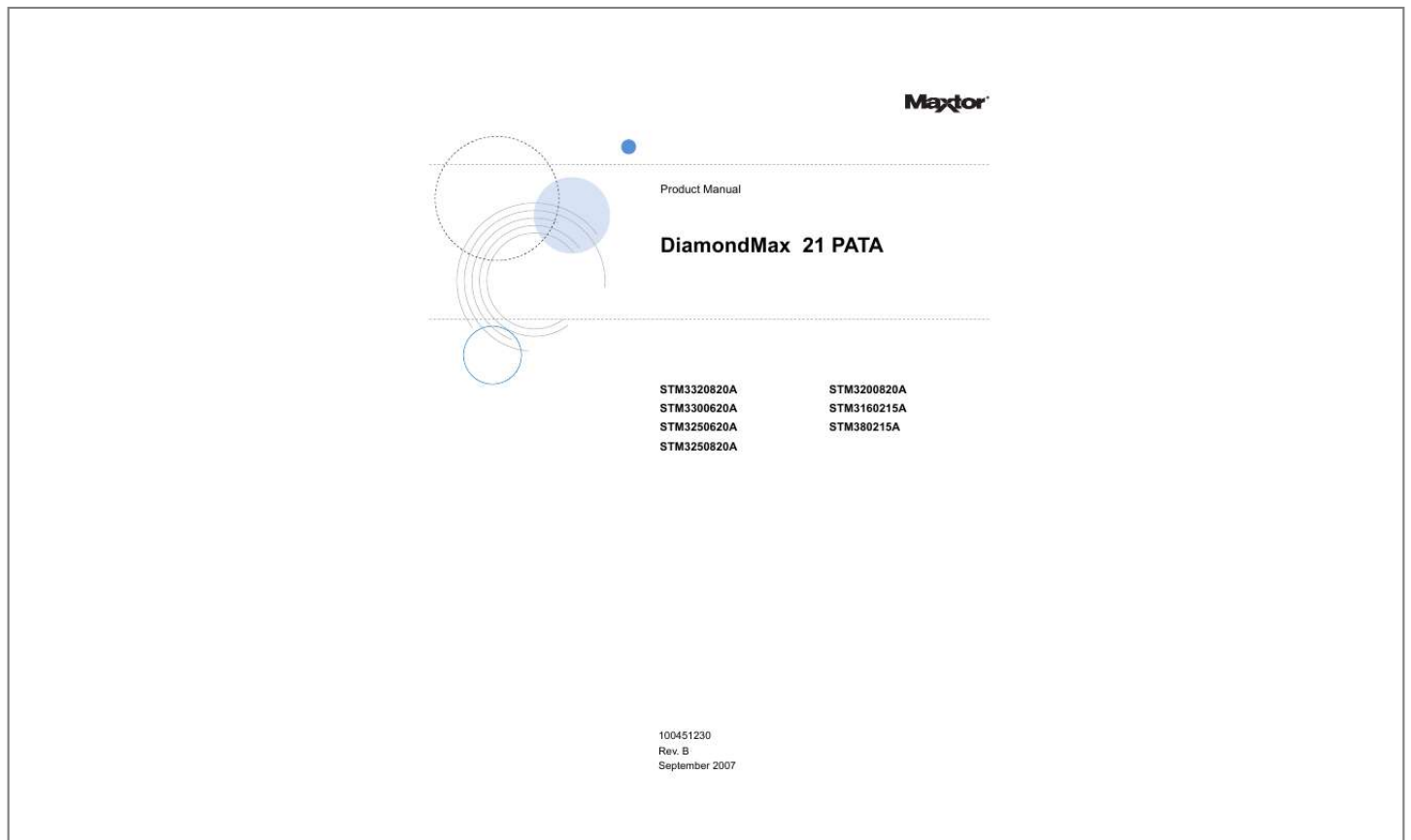




Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for MAXTOR DIAMONDMAX 21 PATA. You'll find the answers to all your questions on the MAXTOR DIAMONDMAX 21 PATA in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual MAXTOR DIAMONDMAX 21 PATA
User guide MAXTOR DIAMONDMAX 21 PATA
Operating instructions MAXTOR DIAMONDMAX 21 PATA
Instructions for use MAXTOR DIAMONDMAX 21 PATA
Instruction manual MAXTOR DIAMONDMAX 21 PATA



[You're reading an excerpt. Click here to read official MAXTOR DIAMONDMAX 21 PATA user guide](http://yourpdfguides.com/dref/2943916)
<http://yourpdfguides.com/dref/2943916>

Manual abstract:

B 11/16/06 09/21/07 Initial Release. ©©All rights reserved. Printed in U.S.A. Publication number: 100451230, Rev. ©©DiamondMax, MaxBlast, Maxtor and the Maxtor logo are either trademarks or registered trademarks of Seagate Technology LLC or one of its affiliated companies in the United States and/or other countries. All other trademarks or registered trademarks are the property of their respective owners. One gigabyte, or GB, equals one billion bytes when referring to hard drive capacity. Accessible capacity may vary depending on operating environment and formatting.

Seagate reserves the right to change, without notice, product offerings or specifications. Contents 1.0 2.0 Introduction . .

.

.

.

.

.

.

.

.

.

1 Drive specifications

.

.

.

.

.

.

.

3 2.1 Specification summary tables

.

.

.

.

. 3 2.2 Formatted capacity .

.

.

.

.

.

.

.

. . . 10 2.2.1 LBA mode

.

.

.

.

.

.

. 10 2.3 Default logical geometry .

.

.

.

.

.

.

. 10 2.

4 Recording and interface technology

.

.

.....
.....

. 11 2.5 Physical characteristics

.....
.....
.....

.....
.....
.....

... 11 2.6 Seek time.....

.....
.....
.....

.....
.....
.....

..... 12 2.7 Start/stop times ...

.....
.....
.....

.....
.....
.....

.... 12 2.8 Power specifications

.....
.....
.....

.....
.....
.....

... 13 2.8.

1 Power consumption

.....
.....
.....

..... 13 2.8.2 Conducted noise ...

.....
.....
.....

.....
.....
.....

..... 14 2.8.3 Voltage tolerance ..

.....
.....
.....

.....
.....

. 14 2.8.4 Power-management modes ...

.....

.....

.....

.....

..... 15 2.9 Environmental specifications .

.....

.....

.....

.....

.....

. 16 2.9.1 Ambient temperature ..

.....

.....

.....

.....

.....

... 16 2.9.2 Temperature gradient.

.....

.....

.....

.....

.....

.....

16 2.9.3 Humidity

.....

.....

.....

.....

.....

.....

.. 16 2.9.4 Altitude .

.....

.....

.....

.....

.....

.....

.....

16 2.9.5 Shock ...

.....

.....

.....

.....

.....

.....

..... 17 2.

9.6 Vibration

.....

.....

.....

.....

.....

.....

. 17 2.10 Acoustics . . .

.
.....

.
.....

.
.....

.
.....

. 18 2.

11 Electromagnetic immunity

.

.

.

. 19 2.12 Reliability

.

.

.

.

. 20 2.12.1 Annualized Failure Rate (AFR and Mean Time Between Failures (MTBF) .

. . . 20 2.13 Agency certification .

.

.

.

.

. 20 2.13.

1 Safety certification

.

.

.

. 20 2.13.2 Electromagnetic compatibility.

.

.

.

. 20 2.13.

3 FCC verification

.

.

.

. 21 2.

14 Environmental protection

.

.

.....

.....

.....

.....

22 2.14.1 European Union Restriction of Hazardous Substances (RoHS) Directive 22 2.14.2 China Restriction of Hazardous Substances (RoHS) Directive .

.....

. . . 22 2.15 Corrosive environment . .

.....

.....

.....

.....

.....

. 22 Configuring and mounting the drive

.....

.....

.....

.....

..... 3.

1 Handling and static discharge precautions

.....

.....

.....

. 3.2 Breather filter hole precautions . . .

.....

.....

.....

.....

.....

. . . 3.3 Jumper settings . .

.....

.....

.....

.....

.....

.....

3.3.1 Master/slave configuration . . .

.....

.....

.....

.....

. . . 3.3.2 Cable-select option

.....

.....

.....

.....

. 3.3.3 Ultra ATA/100 cable . .

.....

.....

.....
.....
.....
..... 3.

4 Drive mounting

.....
.....
.....

.....
.....
.....

..... ATA interface ...

.....
.....
.....
.....

.....
.....
.....
.....

. 4.1 ATA interface signals and connector pins

.....
.....
.....

..... 4.

1.1 Supported ATA commands ...

.....
.....

.....
.....
.....

. 4.1.2 Identify Device command

.....
.....
.....
.....

..... 4.1.3 Set Features command ...

.....
.....
.....

.....
.....
.....

4.1.4 S.M.A.R.T. commands ...

.....
.....
.....
.....

. 23 23 24 25 25 25 26 26 29 29 30 32 35 36 3.0 4.0 5.0 Maxtor support services .

.....
.....
.....

.....
.....
.....

..... 37 DiamondMax 21 PATA Product Manual, Rev.
B i ii DiamondMax 21 PATA Product Manual, Rev. B List of Figures Figure 1. Figure 2. Figure 3. Figure 4.
Figure 5. Figure 6. Figure 7. Typical 5V startup and operation current profile ..

.....
.....
.....

... Typical 12V startup and operation current profile

.....
.....
.....

..... Breather filter hole location ...

.....
.....
.....

.....
.....

... Master/slave jumper settings ..

.....
.....
.....
.....

..... Ultra ATA cable connectors ...

.....
.....
.....

.....
.....
.....

..... Mounting dimensions ...

.....
.....
.....

.....
.....
.....

.. I/O pins and supported ATA signals

.....
.....
.....

..... 14 14 24 25 26 27 29 DiamondMax 21 PATA Product Manual, Rev. B iii iv DiamondMax 21 PATA Product Manual, Rev. B 1.0 Introduction This manual describes the functional, mechanical and interface specifications for the following Maxtor® DiamondMax® 21 PATA model drives: STM3320820A STM3300620A STM3250620A STM3250820A STM3200820A STM3160215A STM380215A These drives provide the following key features: · 7,200-RPM spindle speed · High instantaneous (burst) data transfer rates (up to 100 Mbytes per second) using Ultra DMA mode 5. · Tunneling magnetoresistive (TMR) recording heads and EPRML technology, which provide the drives with increased areal density. · State-of-the-art cache and on-the-fly error-correction algorithms. · Full-track multiple-sector transfer capability without local processor intervention. · Quiet operation. · SeaTools diagnostic software performs a drive self-test that eliminates unnecessary drive returns. · Support for S.M.A.R.T.

drive monitoring and reporting. · Support for Read Multiple and Write Multiple commands. · Support for autodetection of master/slave drives that use cable select (CSEL). DiamondMax 21 PATA Product Manual, Rev. B 1 2 DiamondMax 21 PATA Product Manual, Rev. B 2.0 Drive specifications Unless otherwise noted, all specifications are measured under ambient conditions, at 25°C, and nominal power. For convenience, the phrases the drive and this drive are used throughout this manual to indicate the following drive models: STM3320820A STM3300620A STM3250620A STM3250820A STM3200820A STM3160215A STM380215A 2.1 Specification summary tables The specifications listed in the following tables are for quick reference. For details on specification measurement or definition, see the appropriate section of this manual.



[You're reading an excerpt. Click here to read official MAXTOR
DIAMONDMAX 21 PATA user guide
http://yourpdfguides.com/dref/2943916](http://yourpdfguides.com/dref/2943916)

DiamondMax 21 PATA Product Manual, Rev. B 3 Table 1: Drive specifications summary for the 320 and 300 Gbyte models STM3320820A 320 625,142,448 4 2 512 63 16 16,383 781 kbits/in max 145 ktracs/in avg. 114.4 Gbits/in2 avg 7,200 RPM 1,030 Mbytes/sec max 72 Mbytes/sec max 100 Mbytes/sec max PIO modes 04 Multiword DMA modes 02 Ultra DMA modes 05 8 Mbytes 26.1 mm (1.028 inches) 101.6 mm (4.000 inches) +/- 0.010 inches 146.99 mm (5.787 inches) 635 grams 4.16 msec 15 sec 15 sec <0.8 msec (read), <1.0 msec (write) <11.0 msec <12.

0 msec 2.8 amps 5V ± 5% 12V ± 10% 0° to 60°C (operating) 40° to 70°C (nonoperating) 20°C per hour max (operating) 30°C per hour max (nonoperating) 5% to 90% (operating) 5% to 95% (nonoperating) 30% per hour max 37.7°C (operating) 37.7°C (nonoperating) 60.96 m to 3,048 m (200 ft. to 10,000+ ft.) 60.96 m to 12,192 m (200 ft. to 40,000+ ft.) 68 G at 2 msec 350 G at 2 msec 11 sec 600 grams 16 Mbytes STM3300620A 300 586,072,368 3

Drive specification Formatted Gbytes (512 bytes/sector)* Guaranteed sectors Heads Discs Bytes per sector Default sectors per track Default read/write heads Default cylinders Recording density Track density Areal density Spindle speed Internal data transfer rate Sustained data transfer rate I/O data-transfer rate ATA data-transfer modes supported Cache buffer Height (max) Width (max) Length (max) Weight Average latency Power-on to ready (max) Standby to ready (max) Track-to-track seek time (typical) Average seek, read (typical) Average seek, write (typical) Startup current (typical) 12V (peak) Voltage tolerance (including noise) Ambient temperature Temperature gradient Relative humidity Relative humidity gradient Wet bulb temperature Altitude, operating Altitude, nonoperating (below mean sea level, max) Operational Shock Non-Operational Shock 4 DiamondMax 21 PATA Product Manual, Rev. B Drive specification Vibration, operating STM3320820A 522 Hz: 0.25 G, Limited displacement 22350 Hz: 0.50 G 350500 Hz: 0.25 G 522 Hz: 0.25 G, Limited displacement 22350 Hz: 5.

0 G 350500 Hz: 1.0 G 2.7 (typical) 3.0 (max) 3.0 (typical) 3.4 (max) 1 per 1014 bits read 0.34% STM3300620A Vibration, nonoperating Drive acoustics, sound power (Bels) Idle** Quiet seek Nonrecoverable read errors Annualized Failure Rate (AFR) Warranty 2.5 (typical) 2.8 (max) 3.0 (typical) 3.1 (max) 3 years on distribution units. To determine the warranty for a specific drive, use a web browser to access the following web page: <http://www.se.com> Table 3: Drive specifications summary for the 160 and 80 Gbyte model STM3160215A 160 312,581,808 2 1 512 63 16 16,383 824 kbits/in max 137.259 ktracs/in avg. 101 Gbits/in2 avg 7,200 RPM 930 Mbytes/sec max 78 Mbytes/sec max 100 Mbytes/sec max PIO modes 04 Multiword DMA modes 02 Ultra DMA modes 05 2 Mbytes 19.

99 mm (0.787 inches) 101.6 mm (4.000 inches) +/- 0.010 inches 146.99 mm (5.787 inches) 380 grams 4.16 msec 7.9 sec 7.9 sec <1.0 msec (read), <1.2 msec (write) <11.0 msec <12.0 msec 2.8 amps 5V ± 5% 12V ± 10% 0° to 60°C (operating) 40° to 70°C (nonoperating) 20°C per hour max (operating) 30°C per hour max (nonoperating) 5% to 90% (operating) 5% to 95% (nonoperating) 30% per hour max 37.

7°C max (operating) 40.0°C max (nonoperating) 60.96 m to 3,048 m (200 ft. to 10,000+ ft.) 60.96 m to 12,192 m (200 ft. to 40,000+ ft.) 63 G max at 2 msec 350 G max at 2 msec 365 grams STM380215A 80 156,301,488 1 Drive specification Formatted Gbytes (512 bytes/sector)* Guaranteed sectors Heads Discs Bytes per sector Default sectors per track Default read/write heads Default cylinders Recording density Track density Areal density Spindle speed Internal data transfer rate Sustained data transfer rate OD I/O data-transfer rate ATA data-transfer modes supported Cache buffer Height (max) Width (max) Length (max) Weight (max) Average latency Power-on to ready (max) Standby to ready (max) Track-to-track seek time (typical) Average seek, read (typical) Average seek, write (typical) Startup current (typical) 12V (peak) Voltage tolerance (including noise) Ambient temperature Temperature gradient Relative humidity Relative humidity gradient Wet bulb temperature Altitude, operating Altitude, nonoperating (below mean sea level, max) Operational Shock Non-Operational Shock 8 DiamondMax 21 PATA Product Manual, Rev. B Drive specification Vibration, operating STM3160215A 522 Hz: 0.25 G, Limited displacement 22350 Hz: 0.

50 G 350500 Hz: 0.25 G 522 Hz: 0.25 G, Limited displacement 22350 Hz: 5.0 G 350500 Hz: 1.0 G 2.8 (typical) 3.0 (max) 3.0 (typical) 3.2 (max) 1 per 1014 bits read 0.34% STM380215A Vibration, nonoperating Drive acoustics, sound power (Bels) Idle** Quiet seek Nonrecoverable read errors Annualized Failure Rate (AFR) Warranty 3 years on distribution units. @@@@The system will display the warranty information for your drive. 50,000 at 25°C, 50% rel. humidity Contact start-stop cycles *One Gbyte equals one billion bytes when referring to hard drive capacity. Accessible capacity may vary depending on operating environment and formatting. **During periods of drive idle, some offline activity may occur according to the S.M.A.R.T. specification, which may increase acoustic and power to operational levels.

DiamondMax 21 PATA Product Manual, Rev. B 9 2.2 Model Formatted capacity Formatted capacity* 320 Gbytes 300 Gbytes 250 Gbytes 200 Gbytes 160 Gbytes 80 Gbytes Guaranteed sectors 625,142,448 586,072,368 488,397,168 390,721,968 312,581,808 156,301,488 Bytes per sector STM3320820A STM3300620A STM3250620A STM3250820A STM3200820A STM3160215A STM380215A 512 *One Gbyte equals one billion bytes when referring to hard drive capacity. Accessible capacity may vary depending on operating environment and formatting. 2.2.1 LBA mode When addressing these drives in LBA mode, all blocks (sectors) are consecutively numbered from 0 to n1, where n is the number of guaranteed sectors as defined above. See Section 4.1.2, "Identify Device command" (words 60-61 and 100-103) for additional information about 48bit addressing support of drives with capacities over 137 Gbytes.

2.3 Cylinders 16,383 Default logical geometry Read/write heads 16 Sectors per track 63 10 DiamondMax 21 PATA Product Manual, Rev. B 2.4 Recording and interface technology 320GB 300GB 250GB 200GB 160GB 80GB Interface Recording method Recording density, KBPI (kbits/inch max) Track density, KTPI (ktracs/inch avg) Areal density (Gbits/inch avg) Spindle speed (RPM) (± 0.2%) Internal data transfer rate (Mbytes/sec max) Sustained data transfer rate (Mbytes/sec max) I/O data-transfer rate (Mbytes/sec max) 2 ATA Perpendicular 781 145 114. 4 7,200 1,030 72 100 (Ultra DMA mode 5) 930 78 813 781 824 137.259 101 2.



[You're reading an excerpt. Click here to read official MAXTOR DIAMONDMAX 21 PATA user guide](http://yourpdfguides.com/dref/2943916)
<http://yourpdfguides.com/dref/2943916>

5 Physical characteristics 26.1 mm (1.028 inches) 19.

99 mm (0.787 inches) 101.6 mm (4.000 +/- 0.010 inches) 146.99 mm (5.787 inches) Maximum height (320 - 200 Gbytes models) Maximum height (160 - 80 Gbyte models) Maximum width Maximum length Typical weight 320GB model 300GB, 250GB and 200GB models 160GB model 80GB model Cache Size STM3300620A and STM3250620A STM3320820A, STM3250820A and STM3200820A STM3160215A and STM380215A 635 grams (1.4 lbs) 600 grams (1.32 lbs) 380 grams (0.838 lbs) 365 grams (0.

805 lbs) 16 Mbytes 8 Mbyte 2 Mbytes DiamondMax 21 PATA Product Manual, Rev. B 11 2.6 Seek time Seek measurements are taken with nominal power at 25°C ambient temperature. All times are measured using drive diagnostics. The specifications in the table below are defined as follows: · Track-to-track seek time is an average of all possible single-track seeks in both directions. · Average seek time is a true statistical random average of at least 5,000 measurements of seeks between random tracks, less overhead. 320 - 200GB models *Typical seek times (msec) Track-to-track Average Average latency: Read <0.8 <11.0 4.16 Write <1.

0 <12.0 160 - 80GB models Read <1.0 <11.0 Write <1.2 <12.

0 *Measured in quiet mode Note. These drives are designed to consistently meet the seek times represented in this manual. Physical seeks, regardless of mode (such as track-to-track and average), are expected to meet or exceed the noted values. However, due to the manner in which these drives are formatted, benchmark tests that include command overhead or measure logical seeks may produce results that vary from these specifications. 2.

7 Start/stop times 320GB model 300 - 200GB model 11 (max) 160 - 80GB model 7.9 (max) 7.9 (max) Power-on to Ready (sec) Standby to Ready (sec) Ready to spindle stop (sec) 15 (max) 15 (max) 10 (max) 12 DiamondMax 21 PATA Product Manual, Rev. B 2.8 Power specifications The drive receives DC power (+5V or +12V) through a four-pin standard drive power connector. 2.8.1 Power consumption Power requirements for the drives are listed in the table on page 13. Typical power measurements are based on an average of drives tested, under nominal conditions, using +5.0V and +12.

0V input voltage at 25°C ambient temperature. · Spinup power Spinup power is measured from the time of power-on to the time that the drive spindle reaches operating speed. · Seek mode During seek mode, the read/write actuator arm moves toward a specific position on the disc surface and does not execute a read or write operation. Servo electronics are active. Seek mode power represents the worstcase power consumption, using only random seeks with read or write latency time. This mode is not typical and is provided for worst-case information. · Read/write power and current Read/write power is measured with the heads on track, based on a 16-sector write followed by a 32-msec delay, then a 16-sector read followed by a 32-msec delay. · Operating power and current Operating power is measured using 40 percent random seeks, 40 percent read/write mode (1 write for each 10 reads) and 20 percent drive idle mode. · Idle mode power Idle mode power is measured with the drive up to speed, with servo electronics active and with the heads in a random track location. · Standby mode During Standby mode, the drive accepts commands, but the drive is not spinning, and the servo and read/write electronics are in power-down mode.

Table 4: DC power requirements (TBD) (values taken from DM21 SATA specs) Avg (watts 25° C) -- 9.30 12.60 0.80 Avg 5V typ amps -- 0.611 0.

613 0.106 Avg 12V typ amps 2.8 (peak) 0.520 0.795 0.

023 Power dissipation Spinup Idle* Seeking (random, 20% idle) Standby and Sleep *During periods of drive idle, some offline activity may occur according to the S.M.A.R.T. specification, which may increase acoustic and power to operational levels. DiamondMax 21 PATA Product Manual, Rev. B 13 2.8.1.

1 Typical current profile Figure 1 Typical 5V startup and operation current profile Figure 2 Typical 12V startup and operation current profile 2.8.2

Conducted noise Input noise ripple is measured at the host system power supply across an equivalent 80-ohm resistive load on the +12 volt line or an equivalent 15-ohm resistive load on the +5 volt line. · Using 12-volt power, the drive is expected to operate with a maximum of 120 mV peak-to-peak square-wave injected noise at up to 10 MHz. · Using 5-volt power, the drive is expected to operate with a maximum of 100 mV peak-to-peak square-wave injected noise at up to 10 MHz. Note. Equivalent resistance is calculated by dividing the nominal voltage by the typical RMS read/write current. 2.8.3 Voltage tolerance Voltage tolerance (including noise): 5V ± 5% 12V ± 10% 14 DiamondMax 21 PATA Product Manual, Rev.

B 2.8.4 Power-management modes The drive provides programmable power management to provide greater energy efficiency. In most systems, you can control power management through the system setup program. The drive features the following power-management modes: Power mode Active Idle Standby Sleep Heads Tracking Tracking Parked Parked Spindle Rotating Rotating Stopped Stopped Buffer Enabled Enabled Enabled Disabled · Active mode The drive is in Active mode during the read/write and seek operations.

· Idle mode 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 enters Standby mode when the host sends a Standby Immediate command. If the host has set the standby timer, the drive can also enter Standby mode automatically after the drive has been inactive for a specifiable length of time. The standby timer delay is established using a Standby or Idle command. In Standby mode, the drive buffer is enabled, the heads are parked and the spindle is at rest.

The drive accepts all commands and returns to Active mode any time disc access is necessary. · Sleep mode The drive enters Sleep mode after receiving a Sleep command from the host. In Sleep mode, the drive buffer is disabled, the heads are parked and the spindle is at rest. The drive leaves Sleep mode after it receives a Hard Reset or Soft Reset from the host. After receiving a reset, the drive exits Sleep mode and enters Standby mode with all current translation parameters intact. · Idle and Standby timers Each time the drive performs an Active function (read, write or seek), the standby timer is reinitialized and begins counting down from its specified delay times to zero. If the standby timer reaches zero before any drive activity is required, the drive makes a transition to Standby mode. In both Idle and Standby mode, the drive accepts all commands and returns to Active mode when disc access is necessary. DiamondMax 21

PATA Product Manual, Rev. B 15 2.

9 2.9.1 Environmental specifications Ambient temperature Ambient temperature is defined as the temperature of the environment immediately surrounding the drive.



[You're reading an excerpt. Click here to read official MAXTOR](http://yourpdfguides.com/dref/2943916)

[DIAMONDMAX 21 PATA user guide](http://yourpdfguides.com/dref/2943916)

<http://yourpdfguides.com/dref/2943916>

Actual drive case temperature should not exceed 69°C (156°F) within the operating ambient conditions. Recommended measurement locations are shown in See Figure 6 on page 27. Above 1,000 feet (305 meters), the maximum temperature is derated linearly to 112°F (44°C) at 10,000 feet (3,048 meters). Operating: Nonoperating: 5° to 60°C (41° to 140°F) 40° to 70°C (40° to 158°F) 2.9.2 Operating: Temperature gradient 20°C per hour (68°F per hour max), without condensation 30°C per hour (86°F per hour max) Nonoperating: 2.9.

3 2.9.3.1 Operating: Humidity Relative humidity 5% to 90% noncondensing (30% per hour max) 5% to 95% noncondensing (30% per hour max) Nonoperating: 2.9.

3.2 Operating: Wet bulb temperature 37.7°C (99.9°F max) 37.7°C (99.9°F max) 320 - 200GB models 40.0°C (104°F max) 160 - 80GB models Nonoperating: 2.9.4 Operating: Altitude 60.96 m to 3,048 m (200 ft. to 10,000+ ft.) - 60.96 m to 12,192 m (200 ft. to 40,000+ ft.) Nonoperating: 16 DiamondMax 21 PATA Product Manual, Rev.

B 2.9.5 Shock All shock specifications assume that the drive is mounted securely with the input shock applied at the drive mounting screws. Shock may be applied in the X, Y or Z axis. 2.9.5.1 Operating shock 320GB - 200GB models These drives comply with the performance levels specified in this document when subjected to a maximum operating shock of 68 Gs based on half-sine shock pulses of 2 msec. Shocks should not be repeated more than two times per second. 160GB - 80GB models These drives comply with the performance levels specified in this document when subjected to a maximum operating shock of 63 Gs based on half-sine shock pulses of 2 msec.

Shocks should not be repeated more than two times per second. 2.9.5.2 Nonoperating shock The nonoperating shock level that the drive can experience without incurring physical damage or degradation in performance when subsequently put into operation is 350 Gs based on a nonrepetitive half-sine shock pulse of 2 msec duration.

2.9.6 Vibration All vibration specifications assume that the drive is mounted securely with the input vibration applied at the drive mounting screws. Vibration may be applied in the X, Y or Z axis. 2.

9.6.1 Operating vibration The following table lists the maximum vibration levels that the drive may experience while meeting the performance standards specified in this document. 522 Hz 22350 Hz 350500 Hz 0.25 G (limited displacement) 0.50 G 0.25 G 2.9.6.2 Nonoperating vibration The following table lists the maximum nonoperating vibration that the drive may experience without incurring physical damage or degradation in performance when subsequently put into operation.

522 Hz 22350 Hz 350500 Hz 0.25 G (limited displacement) 5.0 G 1.0 G DiamondMax 21 PATA Product Manual, Rev. B 17 2.10 Acoustics Drive acoustics are measured as overall A-weighted acoustic sound power levels (no pure tones). All measurements are consistent with ISO document 7779. Sound power measurements are taken under essentially free-field conditions over a reflecting plane. For all tests, the drive is oriented with the cover facing upward. Note. For seek mode tests, the drive is placed in seek mode only. The number of seeks per second is defined by the following equation: (Number of seeks per second = 0.4 / (average latency + average access time) Table 5: Fluid Dynamic Bearing (FDB) motor acoustics Acoustic mode Idle* STM3320820A STM3300620A STM3250620A STM3250820A STM3200820A STM3160215A STM380215A 2.7 Bels (typ) 3.0 Bels (max) 2. 5 Bels (typ) 2.8 Bels (max) 2.8 Bels (typ) 3.0 Bels (max) Quiet seek 3.0 Bels (typ) 3. 4 Bels (max) 3.0 Bels (typ) 3.1 Bels (max) 3.0 Bels (typ) 3.2 Bels (max) *During periods of drive idle, some offline activity may occur according to the S.M.A.R.T. specification, which may increase acoustic and power to operational levels.

18 DiamondMax 21 PATA Product Manual, Rev. B 2.11 Electromagnetic immunity When properly installed in a representative host system, the drive operates without errors or degradation in performance when subjected to the radio frequency (RF) environments defined in the following table: Table 6: Radio frequency environments Performance level B A Reference standard EN 61000-4-2: 95 EN 61000-4-3: 96 ENV 50204: 95 Test Electrostatic discharge Radiated RF immunity Description Contact, HCP, VCP: ± 4 kV; Air: ± 8 kV 80 to 1,000 MHz, 3 V/m, 80% AM with 1 kHz sine 900 MHz, 3 V/m, 50% pulse modulation @ 200 Hz ± 1 kV on AC mains, ± 0.5 kV on external I/O ± 1 kV differential, ± 2 kV common, AC mains 150 kHz to 80 MHz, 3 Vrms, 80% AM with 1 kHz sine 0% open, 5 seconds 0% short, 5 seconds 40%, 0.10 seconds 70%, 0.01 seconds Electrical fast transient Surge immunity Conducted RF immunity Voltage dips, interrupts B B A C C C B EN 61000-4-4: 95 EN 61000-4-5: 95 EN 61000-4-6: 97 EN 61000-4-11: 94 DiamondMax 21 PATA Product Manual, Rev. B 19 2.12 2.12.1 Reliability Annualized Failure Rate (AFR and Mean Time Between Failures (MTBF) The product shall achieve an Annualized Failure Rate (AFR) of 0. 34% (MTBF of 0.7 million hours) when operated in an environment of ambient air temperatures of 25°C. Operation at temperatures outside the specifications in Section 2.9 may increase the product AFR (decrease MTBF). AFR and MTBF are population statistics that are not relevant to individual units. AFR and MTBF specifications are based on the following assumptions for desktop personal computer environments: · 2400 power-on-hours per year. · 10,000 average motor start/stop cycles per year. · Operations at nominal voltages. · Temperatures outside the specifications in Section 2.9 may reduce the product reliability. · Normal I/O duty cycle for desktop personal computers. Operation at excessive I/O duty cycle may degrade product reliability. The desktop personal computer environment of power-on-hours, temperature, and I/O duty cycle affect the product AFR and MTBF. The AFR and MTBF will be degraded if used in an enterprise application. Nonrecoverable read errors Annualized Failure Rate (AFR) Contact start-stop cycles Warranty 1 per 1014 bits read, max 0.34% (nominal power, 25°C ambient temperature) 50,000 cycles (at nominal voltage and temperature, with 60 cycles per hour and a 50% duty cycle) 3 years on distribution units. @@@@The system will display the warranty information for your drive. @@@@Drives are tested in representative end-user systems. @@@@Radio and television interference. @@@@. 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're reading an excerpt. Click here to read official MAXTOR DIAMONDMAX 21 PATA user guide](http://yourpdfguides.com/dref/2943916)
<http://yourpdfguides.com/dref/2943916>

You may find helpful the following booklet prepared by the Federal Communications Commission: *How to Identify and Resolve Radio-Television Interference Problems*. This booklet is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Refer to publication number 004-000-00345-4. *DiamondMax 21 PATA Product Manual*, Rev. B 21 2.

14 Environmental protection Seagate designs its products to meet environmental protection requirements worldwide, including regulations restricting certain chemical substances. 2.14.1 European Union Restriction of Hazardous Substances (RoHS) Directive Seagate designs its products to meet environmental protection requirements worldwide, including regulations restricting certain chemical substances. A new law, the European Union Restriction of Hazardous Substances (RoHS) Directive, restricts the presence of chemical substances, including Lead, Cadmium, Mercury, Hexavalent Chromium, PBB and PBDE, in electronic products, effective July 2006.

This drive is manufactured with components and materials that comply with the RoHS Directive. 2.14.2 2.14.

2 China Restriction of Hazardous Substances (RoHS) Directive This product has an Environmental Protection Use Period (EPUP) of 20 years. The following table contains information mandated by China's "Marking Requirements for Control of Pollution Caused by Electronic Information Products" Standard. "O" indicates the hazardous and toxic substance content of the part (at the homogenous material level) is lower than the threshold defined by the China RoHS MCV Standard. "O"RoHS MCV "X" indicates the hazardous and toxic substance content of the part (at the homogenous material level) is over the threshold defined by the China RoHS MCV Standard. "X"RoHS MCV 2.15 Corrosive environment Seagate electronic drive components pass accelerated corrosion testing equivalent to 10 years exposure to light industrial environments containing sulfurous gases, chlorine and nitric oxide, classes G and H per ASTM B845. However, this accelerated testing cannot duplicate every potential application environment. Users should use caution exposing any electronic components to uncontrolled chemical pollutants and corrosive chemicals as electronic drive component reliability can be affected by the installation environment. The silver, copper, nickel and gold films used in Seagate products are especially sensitive to the presence of sulfide, chloride, and nitrate contaminants. Sulfur is found to be the most damaging.

In addition, electronic components should never be exposed to condensing water on the surface of the printed circuit board assembly (PCBA) or exposed to an ambient relative humidity greater than 95%. Materials used in cabinet fabrication, such as vulcanized rubber, that can outgas corrosive compounds should be minimized or eliminated. The useful life of any electronic equipment may be extended by replacing materials near circuitry with sulfide-free alternatives.

22 *DiamondMax 21 PATA Product Manual*, Rev. B 3.0 Configuring and mounting the drive This section contains the specifications and instructions for configuring and mounting the drive. 3.1 Handling and static discharge precautions After unpacking, and before installation, the drive may be exposed to potential handling and electrostatic discharge (ESD) hazards. Observe the following standard handling and static-discharge precautions: Caution: · Before handling the drive, put on a grounded wrist strap, or ground yourself frequently by touching the metal chassis of a computer that is plugged into a grounded outlet. Wear a grounded wrist strap throughout the entire installation procedure.

· Handle the drive by its edges or frame only. · The drive is extremely fragile--handle it with care. Do not press down on the drive top cover. · Always rest the drive on a padded, antistatic surface until you mount it in the computer. · Do not touch the connector pins or the printed circuit board. · Do not remove the factory-installed labels from the drive or cover them with additional labels. Removal voids the warranty. Some factory-installed labels contain information needed to service the drive. Other labels are used to seal out dirt and contamination. *DiamondMax 21 PATA Product Manual*, Rev.

B 23 3.2 Breather filter hole precautions This section contains information regarding the precautions which should be taken regarding the breather filter hole in Seagate hard disc drives. Proper precautions should be taken to ensure full functionality and prevent possible damage to the drive. Breather hole Do not cover or seal this hole. Figure 3 Breather filter hole location Caution: Do not cover, seal, or insert any object into this hole. This hole has two purposes: · To allow condensation inside the hard disc to escape · To allow air pressure inside the hard disc to equalize with ambient pressure Note. If this hole is covered, sealed, or penetrated by any object, the drive reliability may be compromised and could lead to permanent damage. Covering or sealing this hole voids the warranty. 24 *DiamondMax 21 PATA Product Manual*, Rev. B 3.

3 3.3.1 Jumper settings Master/slave configuration The options jumper block shown in Figure 4 is used to configure the drive for operation. It is the 8-pin dual header between the interface connector and the power connector. Use the following settings to configure the drive as a master or a slave. Master or single drive. The drive is configured at the factory for a master or single-drive operation with a jumper set on pins 7 and 8. Drive as slave. Remove all jumpers. Drive as master with a non-ATA-compatible slave.

Use this jumper setting only if the drive does not work as a master with no jumpers installed. Options jumper block *Master or single drive Drive is slave Master with non ATcompatible slave *Cable select 7531 8642 Figure 4 Master/slave jumper settings 3.3.2 Cable-select option Computers that use cable select determine the master and slave drives by selecting or deselecting pin 28, CSEL, on the interface bus. Master and slave drives are determined by their physical position on the cable.

To enable cable select, set a jumper on pins 5 and 6 as shown in Figure 4. Refer to your computer manual to determine whether your computer supports this option. *DiamondMax 21 PATA Product Manual*, Rev. B 25 3.3.

3 Ultra ATA/100 cable An 80-conductor 40-pin cable is required to run Ultra DMA mode 3, mode 4, and mode 5. This cable uses even-numbered conductors connected to the ground pins to improve signal integrity. Master Pin 1 Slave Co Mo mpu the ter rbo ard Note. If you are using a 40-pin, 80-conductor cable, attach the blue connector to the motherboard, the black connector to the master drive, and the gray connector to the slave. Figure 5 Ultra ATA cable connectors Note.



[You're reading an excerpt. Click here to read official MAXTOR](http://yourpdfguides.com/dref/2943916)

[DIAMONDMAX 21 PATA user guide](http://yourpdfguides.com/dref/2943916)

<http://yourpdfguides.com/dref/2943916>

The drive supports both host and drive cable detection. The host detects the 80-conductor cable by sampling pin 34, CBLID, on the interface bus. The drive detects the 80-conductor cable by sensing a capacitor at the host side through the CBLID signal. The result is reported in a Fast Rise Detected bit (bit 13 of word 93 in the Identify drive parameter block). 3.

4 Drive mounting You can mount the drive in any orientation using four screws in the side-mounting holes or four screws in the bottom-mounting holes. See Figure 6 for drive mounting dimensions. Follow these important mounting precautions when mounting the drive: · Allow a minimum clearance of 0.030 inches (0.76 mm) around the entire perimeter of the drive for cooling. · Use only 6-32 UNC mounting screws. · Do not overtighten the mounting screws (maximum torque: 6 inch-lb.). · Do not use a drive interface cable that is more than 18 inches long. 26 DiamondMax 21 PATA Product Manual, Rev.

B Notes: 1. Dimensions are shown in inches (mm). 2 Dimensions per SFF-8301 specification. 0.228 (5.

79) 1.028 max (26.11) 3 x 0.25 0.010 (6.

35 0.037) both sides 2.23 (56.56) 2.83 (71.80) 3.71 (94.35) 0.178 (4.27) 1.

122 0.02 (28.5 0.51) 2 1.625 0.020 (41.28 0.51) 1.638 (41.61 0.

01 0.25) 5.787 max (146.99) 1.75 0.

01 (44.45 0.25) 4.0 0.01 (101.

60 0.25) 4 x 6-32 UNC-2B 0.150 (3.81) max. fastener penetration. 3 threads minimum engagement. Recommended case temperature measurement location 3 x 6-32 UNC-2B 0.150 (3.81) max. fastener penetration both sides.

3 threads minimum engagement. 0.125 0.01 (3.18 0.25) 3.750 (95.25 0.01 0.25) Recommended case temperature measurement location 4.

0 0.01 (101.60 0.25) Figure 6 Mounting dimensions DiamondMax 21 PATA Product Manual, Rev. B 27 28 DiamondMax 21 PATA Product Manual, Rev.

B 4.0 ATA interface These drives use the industry-standard ATA task file interface that supports 16-bit data transfers. It supports ATA programmed input/output (PIO) modes 04; multiword DMA modes 02, and Ultra DMA modes 05. The drive also supports the use of the IORDY signal to provide reliable high-speed data transfers. You can use a daisy-chain cable to connect two drives to a single AT host bus.

For detailed information about the ATA interface, refer to the draft of AT Attachment with Packet Interface Extension (ATA/ATAPI-7), NCITS T13 1410D, subsequently referred to as the Draft ATA-7 Standard. 4.1 ATA interface signals and connector pins Figure 7 on page 29 summarizes the signals on the ATA interface connector that the drive supports. For a detailed description of these signals, refer to the Draft ATA-7 Standard. 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 Signal name Reset Ground DD7 DD8 DD6 DD9 DD5 DD10 DD4 DD11 DD3 DD12 DD2 DD13 DD1 DD14 DD0 DD15 Ground (removed) DMARQ Ground DIOW STOP Ground DIOR HDMARDY HSTROBE Ground IORDY DDMARDY DSTROBE CSEL DMACK Ground INTRQ IOCS16 DA1 PDIAG CBLID DA0 DA2 CS0 CS1 DASP Ground 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 Hardware 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 Device Data (15:0) Ground (No Pin) DMA Request Ground Device I/O Write: Stop Ultra DMA Burst Ground Device I/O Read: Host Ultra DMA Ready: Host Ultra DMA Data Strobe Ground I/O Channel Ready Device Ultra DMA Ready Device Ultra DMA Data Strobe Cable Select DMA Acknowledge Ground Device Interrupt Reserved Host Address Bus Bit 1 Passed Diagnostics Cable Assembly Type Identifier Device Address (2:0) Device Address (2:0) Chip Select (1:0) Chip Select (1:0) Drive Active/Slave Present Ground Pins 28, 34 and 39 are used for master-slave communication (details shown below). Drive 1 (slave) 28 34 39 Drive 0 (master) 28 34 39 CSEL PDIAG DASP Host 28 34 39 Figure 7 I/O pins and supported ATA signals DiamondMax 21 PATA Product Manual, Rev. B 29 4.1.1 Supported ATA commands The following table lists ATA-standard commands that the drive supports. For a detailed description of the ATA commands, refer to the Draft ATA-7 Standard.

See "S.M.A.R.T. commands" on page 36 for details and subcommands used in the S.M.A.R.T.

implementation. Table 7: Supported ATA commands Command code (in hex) 98H or E5H B1H / C1H B1H / C2H B1H / C0H B1H / C3H 08H 92H 90H E7H EAH 50H ECH 97H or E3H 95H or E1H 91H E4H C8H 25H C9H 2FH C4H 29H F8H 27H 20H 24H 21H 40H 42H 41H 10H F6H F3H Command name Check Power Mode Device Configuration Freeze Lock Device Configuration Identify Device Configuration Restore Device Configuration Set Device Reset Download Microcode Execute Device Diagnostics Flush Cache Flush Cache Extended Format Track Identify Device Idle Idle Immediate Initialize Device Parameters Read Buffer Read DMA Read DMA Extended Read DMA Without Retries Read Log Ext Read Multiple Read Multiple Extended Read Native Max Address Read Native Max Address Extended Read Sectors Read Sectors Extended Read Sectors Without Retries Read Verify Sectors Read Verify Sectors Extended Read Verify Sectors Without Retries Recalibrate Security Disable Password Security Erase Prepare 30 DiamondMax 21 PATA Product Manual, Rev. B Command name Security Erase Unit Security Freeze Security Set Password Security Unlock Seek Set Features Set Max Address Note: Individual Set Max Address commands are identified by the value placed in the Set Max Features register as defined to the right. Set Max Address Extended Set Multiple Mode Sleep S.M.

A.R.T. Disable Operations S.M.

A.R.T. Enable/Disable Autosave S.M.A.R.T. Enable Operations S.M.

A.R.T. Execute Offline S.M.A.R.T. Read Attribute Thresholds S.M.

A.R.T. Read Data S.M.

A.R.T. Read Log Sector S.M.

A.R.T. Return Status S.M.A.R.T. Save Attribute Values S.M.

A.R.T. Write Log Sector Standby Standby Immediate Write Buffer Write DMA Write DMA Extended Write DMA Without Retries Write Log Extended Write Multiple Write Multiple Extended Write Sectors Write Sectors Without Retries Write Sectors Extended Command code (in hex) F4H F5H F1H F2H 70H EFH F9H Address: Password: Lock: Unlock: Freeze Lock: 37H C6H 99H or E6H B0H / D9H B0H / D2H B0H / D8H B0H / D4H B0H / D1H B0H / D0H B0H / D5H B0H / DAH B0H / D3H B0H / D6H 96H or E2H 94H or E0H E8H CAH 35H CBH 3FH C5H 39H 30H 31H 34H 00H 01H 02H 03H 04H DiamondMax 21 PATA Product Manual, Rev. B 31 4.1.2 Identify Device command The Identify Device command (command code ECH) transfers information about the drive to the host following power up. The data is organized as a single 512-byte block of data, whose contents are shown in the Table 7 on page 30.

[You're reading an excerpt. Click here to read official MAXTOR](#)



[DIAMONDMAX 21 PATA user guide](http://yourpdfguides.com/dref/2943916)
<http://yourpdfguides.com/dref/2943916>

All reserved bits or words should be set to zero. Parameters listed with an "x" are drive-specific or vary with the state of the drive. See Section 2.0 on page 3 for default parameter settings. The following commands contain drive-specific features that may not be included in the Draft ATA-7 Standard. Word Description Configuration information: · Bit 15: 0 = ATA; 1 = ATAPI · Bit 7: removable media · Bit 6: removable controller · Bit 0: reserved Number of logical cylinders ATA-reserved Number of logical heads Retired Retired Number of logical sectors per logical track: 63 Retired Serial number: (20 ASCII characters, 0000H = none) Retired Retired Obsolete Firmware revision (8 ASCII character string, padded with blanks to end of string) Drive model number (40 ASCII characters, padded with blanks to end of string) (Bits 70) Maximum sectors per interrupt on Read multiple and Write multiple (16) Reserved Standard Standby timer, IORDY supported and may be disabled ATA-reserved PIO data-transfer cycle timing mode Retired Words 5458, 6470 and 88 are valid Number of current logical cylinders Number of current logical heads Number of current logical sectors per logical track Current capacity in sectors Number of sectors transferred during a Read Multiple or Write Multiple command Value 0C5AH 0 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 56 57 58 59 16,383 0000H 16 0000H 0000H 003FH 0000H ASCII 0000H 0400H 0000H x.xx MAXTOR STMxxxxxx 8010H 0000H 2F00H 0000H 0200H 0200H 0007H xxxxH xxxxH xxxxH xxxxH xxxxH 32 DiamondMax 21 PATA Product Manual, Rev.

B Word 6061 Description Total number of user-addressable LBA sectors available (see Section 2.2 for related information) *Note: The maximum value allowed in this field is: 0FFFFFFFh (268,435,455 sectors, 137 Gbytes). Drives with capacities over 137 Gbytes will have 0FFFFFFFh in this field and the actual number of user-addressable LBAs specified in words 100-103. This is required for drives that support the 48-bit addressing feature. Retired Multiword DMA active and modes supported (see note following this table) Advanced PIO modes supported (modes 3 and 4 supported) Minimum multiword DMA transfer cycle time per word (120 nsec) Recommended multiword DMA transfer cycle time per word (120 nsec) Minimum PIO cycle time without IORDY flow control (240 nsec) Minimum PIO cycle time with IORDY flow control (120 nsec) ATA-reserved Queue depth SATA-specific Major version number Minor version number Command sets supported Command sets supported Command sets support extension Command sets enabled Command sets enabled Command sets enable extension Ultra DMA support and current mode (see note following this table) Security erase time Enhanced security erase time Master password revision code Hardware reset value (see description following this table) ATA-reserved Total number of user-addressable LBA sectors available (see Section 2.2 for related information). These words are required for drives that support the 48-bit addressing feature. Maximum value: 0000FFFFFFFFFh. Value 0FFFFFFFh* 62 63 64 65 66 67 68 69 74 75 76 79 80 81 82 83 84 85 86 87 88 89 90 92 93 95 99 100 103 0000H xx07H 0003H 0078H 0078H 00F0H 0078H 0000H 0000H xxxxH 007EH 0000H 346BH 7D01H 4003H 34xxH 3xxxH 4003H xx3FH 0000H 0000H FFFEH xxxxH 0000H STM3320820A = 625,142,448 STM3300620A = 586,072,368 STM3250620A = 488,397,168 STM3250820A = 488,397,168 STM3200820A = 390,721,968 STM3160215A = 312,581,808 STM380215A = 156,301,488 0000H 0001H 104127 128 ATA-reserved Security status DiamondMax 21 PATA Product Manual, Rev. B 33 Word 129159 160-254 255 Description Seagate-reserved ATA-reserved Integrity word Value xxxxH 0000H xxA5H Note. Note. Advanced Power Management (APM) and Automatic Acoustic Management (AAM) features are not supported See the bit descriptions below for words 63, 88, and 93 of the Identify Drive data: Description (if bit is set to 1) Bit 0 1 2 8 9 10 Bit 0 1 2 3 4 5 8 9 10 11 12 13 Bit 13 Word 63 Multiword DMA mode 0 is supported. Multiword DMA mode 1 is supported. Multiword DMA mode 2 is supported. Multiword DMA mode 0 is currently active. Multiword DMA mode 1 is currently active. Multiword DMA mode 2 is currently active. Word 88 Ultra DMA mode 0 is supported. Ultra DMA mode 1 is supported. Ultra DMA mode 2 is supported. Ultra DMA mode 3 is supported. Ultra DMA mode 4 is supported. Ultra DMA mode 5 is supported. Ultra DMA mode 0 is currently active. Ultra DMA mode 1 is currently active. Ultra DMA mode 2 is currently active. Ultra DMA mode 3 is currently active. Ultra DMA mode 4 is currently active. Ultra DMA mode 5 is currently active.

Word 93 1 = 80-conductor cable detected, CBLID above VIH 0 = 40-conductor cable detected, CBLID below VIL 34 DiamondMax 21 PATA Product Manual, Rev. B 4.1.3 Set Features command This command controls the implementation of various features that the drive supports. @@@@ Set transfer mode (based on value in Sector Count register).

Sector Count register values: 00H 01H 08H 09H 0AH 0BH 0CH 20H 21H 22H 40H 41H 42H 43H 44H 45H 55H 82H AAH F1H Set PIO mode to default (PIO mode 2). Set PIO mode to default and disable IORDY (PIO mode 2). PIO mode 0 PIO mode 1 PIO mode 2 PIO mode 3 PIO mode 4 (default) Multiword DMA mode 0 Multiword DMA mode 1 Multiword DMA mode 2 Ultra DMA mode 0 Ultra DMA mode 1 Ultra DMA mode 2 Ultra DMA mode 3 Ultra DMA mode 4 Ultra DMA mode 5 Disable read look-ahead (read cache) feature. Disable write cache. Enable read look-ahead (read cache) feature (default). Report full capacity available Note. At power-on, or after a hardware or software reset, the default values of the features are as indicated above. DiamondMax 21 PATA Product Manual, Rev. B 35 4.1.

4 S.M.A.R.T. commands S.M.A.R.T. provides near-term failure prediction for disc drives. When S.M.A.R.T. is enabled, the drive monitors predetermined drive attributes that are susceptible to degradation over time. If self-monitoring determines that a failure is likely, S.M.A. R.T. makes a status report available to the host. Not all failures are predictable. S.M.A.R.T. predictability is limited to the attributes the drive can monitor. For more information on S.M.A.R.T. commands and implementation, see the Draft ATA-7 Standard. SeaTools diagnostic software activates a built-in drive self-test (DST S.M.A.R.T. T. command for D4H) that eliminates unnecessary drive returns. The diagnostic software ships with all new drives and is also available at: <http://seatools.seagate.com>. This drive is shipped with S.M.A.R.T. features disabled. You must have a recent BIOS or software package that supports S.M.A.R.T. to enable this feature. The table below shows the S.M.A. R.T. command codes that the drive uses. Code in features register D0H D2H D3H D4H D5H D6H D8H D9H DAH S.M.A.R.T. command S.M. A.R.T. Read Data S.M. A.R.T. Enable/Disable Attribute Autosave S.M. A.R.T. Save Attribute Values S.M.A.R.T. Execute Off-line Immediate (runs DST) S.



[You're reading an excerpt. Click here to read official MAXTOR DIAMONDMAX 21 PATA user guide](#)

M.

A.R.T. Read Log Sector S.M.A.R.T. Write Log Sector S.M.

A.R.T. Enable Operations S.M.

A.R.T. Disable Operations S.M.

A.R.T. Return Status Note. If an appropriate code is not written to the Features Register, the command is aborted and 0x 04 (abort) is written to the Error register. 36 DiamondMax 21 PATA Product Manual, Rev. B 5.0 Maxtor support services Before contacting Maxtor Support, use the Hard Disk Information feature in MaxBlast to view the model number and serial number of your drive. These numbers can be used to get help from Maxtor Support, register your drive, and look up information on the Maxtor website. Please visit <http://www.seagate.com/maxtor/> to obtain comprehensive support information, such as: Warranty services Drive returns, warranty status, and limited warranty statement. Product support Installation tutorials, specifications, jumper settings, installation guides, and product manuals. Software downloads Installation software, utilities, and diagnostics. Knowledge Base Troubleshooting information, FAQs, and resolved problem database. Product Index Current and legacy Maxtor products listing. Click on Maxtor Product Support to access the Knowledge Base, download software updates, register your drive, and get assistance via e-mail DiamondMax 21 PATA Product Manual, Rev. B 37 38 DiamondMax 21 PATA Product Manual, Rev. B Index A acoustics 18 Active mode 15 AFR 20 agency certification (regulatory) 20 altitude 16 ambient conditions 3 ambient temperature 12, 16 Annualized Failure Rate 20 Annualized Failure Rate (AFR) 20 areal density 1, 11 ATA interface 29 ATA-standard commands 30 Australian C-Tick 21 autodetection 1 average seek time 12 Device Configuration Identify 30 Device Configuration Restore 30 Device Configuration Set 30 Device Reset 30 diagnostic software 1, 36 dissipation 13 Download Microcode 30 drive diagnostics 12 drive monitoring 1 drive self-test 1, 36 DST 36 duty cycle 20 E electrical fast transient 19 electromagnetic compatibility 20 Electromagnetic Compatibility Directive 20 electromagnetic immunity 19 electrostatic discharge 19 EMC compliance 20 EN 60950 20 enclosures 21 environmental specifications 16 EPRML 1, 11 error-correction algorithms 1 errors 20 EU RoHS directive 22 European Union 20 Execute Device Diagnostics 30 B BPI 11 breather filter hole precautions 24 burst 1 C cable 26 cable select 1 cable-select option 25 cache 1 case temperature 16 CE mark 20 certification 20 Check Power Mode 30 China RoHS directive 22 commands 30 conducted noise 14 conducted RF immunity 19 configuring the drive 23 connector pins 29 connectors 26 Corrosive environment 22 CSA C22.2 (950) 20 CSEL 25 C-Tick 21 current profile 14 cycles 20 F failure prediction 36 FCC verification 21 Features register 35 Flush Cache 30 Flush Cache Extended 30 Format Track 30 formatted capacity 10 frequency 19 G guaranteed sectors 10 H handling 23 heads 1 height 11 humidity 16 D data-transfer rates 1 DC power 13 density 11 Device Configuration Freeze Lock 30 I I/O data-transfer rate 11 I/O duty cycle 20 Identify Device 30 DiamondMax 21 PATA Product Manual, Rev. B 39 Identify Device command 32 Idle 30 Idle and Standby timers 15 Idle Immediate 30 Idle mode 15 Idle mode power 13 IEC950 20 Information Technology Equipment 20 Initialize Device Parameters 30 interface 11, 29 interface signals 29 interference 21 internal data-transfer rate OD 11 ISO document 7779 18 P physical characteristics 11 pins 29 PIO 29 power consumption 13 power dissipation 13 power management 15 power specifications 13 power-management modes 15 Power-on to Ready 12 power-on-hours 20 precautions 26 programmable power management 15 J jumper settings 25 R radiated RF immunity 19 radio and television interference 21 radio frequency 19 random track location 13 Read Buffer 30 Read DMA 30 Read DMA Extended 30 Read DMA without Retries 30 read errors 20 Read Log Ext 30 Read Multiple 1, 30 Read Multiple Extended 30 Read Native Max Address 30 Read Native Max Address Extended 30 Read Sectors 30 Read Sectors Extended 30 Read Sectors Without Retries 30 Read Verify Sectors 30 Read Verify Sectors Extended 30 Read Verify Sectors Without Retries 30 read/write power and current 13 Recalibrate 30 recording and interface technology 11 recording density 11 recording heads 1 recording method 11 register 35 relative humidity 16 reliability 20 resistance 14 resistive load 14 RF 19 RoHS 22 K Korean RRL 21 L LBA mode 10 length 11 logical geometry 10 M maintenance 20 master 25 master/slave 1 Master/slave configuration 25 maximum temperature 16 Mean Time Between Failures 20 measurement locations 16 modes 29 monitoring 1 mounting the drive 23, 26 MTBF 20 N noise 14 nominal power 3 nonoperating shock 17 nonoperating vibration 17 Nonrecoverable read errors 20 O operating power and current 13 operating shock 17 operating vibration 17 orientation 26 S S.M.A.R.T. commands 36 S.M.A.R.T. Disable Operations 31 S.M.A.R.T. drive monitoring 1 S.M.A.R.T. Enable/Disable Autosave 31 40 DiamondMax 21 PATA Product Manual, Rev. B S.M.A.R.T. Enable Operations 31 S.M.A.R.T. Execute Offline 31 S.M.A.R.T. Read Attribute Thresholds 31 S.M.A.R.T. Read Data 31 S.M.A.R.T. Read Log Sector 31 S.M.A.R.T. Return Status 31 S.M.A.R.T. Save Attribute Values 31 S.M.A.R.T. Write Log sector 31 safety certification 20 screws 26 SeaTools 1, 36 sectors 10 Security Disable Password 30 Security Erase Prepare 30 Security Erase Unit 31 Security Freeze 31 Security Set Password 31 Security Unlock 31 Seek 31 seek mode 13 seek time 12 Seeking 13 servo electronics 13 Set Features 31 Set Features command 35 Set Max Address 31 Set Max Address Extended 31 Set Multiple Mode 31 shock 17 signals 29 single-track seeks 12 slave 25 Sleep 13, 31 Sleep mode 15 sound 18 specifications 3 spindle speed 11 Spinup 13 spinup power 13 Standby 13, 31 Standby Immediate 31 Standby mode 13, 15 Standby to Ready 12 start/stop times 12 start-stop cycles 20 static-discharge precautions 23 stop times 12 subassembly 21 support services 37 surge immunity 19 timers 15 TMR 1 track density 11 track-to-track seek time 12 U UL 1950 20 Ultra ATA/100 26 Ultra DMA 26 V vibration 17 voltage 14 voltage dips, interrupts 19 voltage tolerance 14 W Warranty 20 weight 11 wet bulb temperature 16 width 11 Write Buffer 31 Write DMA 31 Write DMA Extended 31 Write DMA Without Retries 31 Write Log Extended 31 Write Multiple 1, 31 Write Multiple Extended 31 Write Sectors 31 Write Sectors Extended 31 Write Sectors Without Retries 31 T technical support services 37 temperature 16 temperature gradient 16 DiamondMax 21 PATA Product Manual, Rev. B 41 42 DiamondMax 21 PATA Product Manual, Rev. B Seagate Technology LLC 920 Disc Drive, Scotts Valley, California 95066-4544, USA Publication Number: 100451230, Rev. B, Printed in U.S.A. .



[You're reading an excerpt. Click here to read official MAXTOR DIAMONDMAX 21 PATA user guide](http://yourpdfguides.com/dref/2943916)
<http://yourpdfguides.com/dref/2943916>