Data Sheet

Barracuda®

Performance and Reliability for Everyone

Key Advantages

- Affordable hard drives in 1TB, 500GB, 320GB and 250GB capacities
- Reliability demonstrated by low predicted annualized failure rates of less than 1%
- Seagate SmartAlign™ technology means a transparent, no-hassle transition to Advanced Format 4K sector hard drives.

Best-Fit Applications

- Desktop or all-in-one PCs
- Home servers
- PC-based gaming systems
- Desktop RAID
- Direct-attached external storage devices (DAS)
- Network-attached storage devices (NAS)

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Specifications	1TB[1]	500GB[1]	320GB[1]	250GB[1]
Model Number	ST31000524AS	ST500DM002[2]	ST320DM000[2]	ST250DM000[2]
Interface Options	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ
Performance				
Spindle Speed (RPM)	7200	7200	7200	7200
Cache, Multisegmented (MB)	32	16	16	16
SATA Transfer Rates Supported (Gb/s)	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5
Seek Average, Read (ms)	<8.5	<11	<11	<11
Seek Average, Write (ms)	<9.5	<12	<12	<12
Sustained Data Rate, Sequential-Write (MB/s)	125	125	125	125
Configuration/Organization				
Heads/Disks	4/2	2/1	2/1	1/1
Bytes per Sector	512	4096 or 512[2]	4096 or 512[2]	4096 or 512[2]
Voltage				
Voltage Tolerance, Including Noise (5V)	+10%/–7.5%	±5%	±5%	±5%
Voltage Tolerance, Including Noise (12V)	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%
Reliability/Data Integrity				
Contact Start/Stop Cycles	50,000	50,000	50,000	50,000
Load/Unload Cycles	—	—	—	—
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14
Annualized Failure Rate (AFR)	<1%	<1%	<1%	<1%
Power-On Hours	2400	2400	2400	2400
Power Management				
Startup Power (A)	2.0	2.0	2.0	2.0
Operating Mode, Typical (W)	6.19	6.19	6.19	6.19
Idle Average (W)	4.60	4.60	4.60	4.60
Standby Mode (W)	0.79	0.79	0.79	0.79
Sleep Mode (W)	0.79	0.79	0.79	0.79
Environmental				
Temperature				
Operating (ambient min °C)	0	0	0	0
Operating (drive case max °C)	60	60	60	60
Nonoperating (ambient °C)	–40 to 70	–40 to 70	–40 to 70	–40 to 70
Physical				
Height (mm/in)	19.98/0.787	19.98/0.787	19.98/0.787	19.98/0.787
Width (mm/in)	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0
Depth (mm/in)	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787
Weight (g/lb)	622 /1.371	415/0.915	415/0.915	415/0.915

1 One gigabyte, or GB, equals one billion bytes and one terabyte, or TB, equals one trillion bytes when referring to drive capacity.
2 Seagate ships this drive in both 4K- and 512-byte sectors. SmartAlign technology is included on 4K sector drives. Both drives are functionally and physically equivalent

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