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Technology Paper

Deliver a Great Viewing Experience With the Seagate Technology DB35 Series Hard Drive in Your Digital Video Recording System

How Seagate DynaPlay helps manufacturers compete in the home digital video recording market

Seagate Technology® provides manufacturers an edge in the dramatically expanding and competitive consumer market—ultimately resulting in a high-quality viewing experience. Seagate DB35 Series hard disc drives are uniquely designed for use in DVRs and home media centers. Available in capacities from 80 to 500 Gbytes, the DB35 Series can store up to 500 hours of standard or up to 85 hours of high-definition television programming, and accommodate as many as ten simultaneous media streams. DB35 Series drives are available in either Serial ATA (SATA) or Parallel ATA (PATA) interfaces.

DB35 Series drives include several Seagate innovations targeted at maintaining video stream integrity, reducing power consumption, minimizing noise and enhancing digital rights management strategies. Collectively referred to as DynaPlay technology, these innovations help manufacturers design and build leading edge DVRs and compete more effectively in the market:

- Time-limited commands
- Advanced power management
- Seagate SoftSonic acoustics-reduction technology
- DriveTrust technology to support Digital Rights Management

A clear winner for consumer DVR applications, the performance, dependability and versatility of the DB35 Series also make these drives a great fit for surveillance DVRs and home media servers.

Improve stream integrity through time-limited commands

Uninterrupted, smooth video delivery is a fundamental customer expectation for any application recording television in the home. Hard drives designed for PC applications are optimized for **data integrity** through enhanced error detection and correction routines. Consumer video recording devices, however, need to be optimized for **stream integrity** to avoid problems caused by over-execution of error checking, which can cause problems in consumer video recording devices. The Seagate DB35 series drives offer *time-limited commands*, which allow manufacturers to adjust error detection and correction in favor of a consistent, smooth video stream. In the rare instance that an error in the video data is detected, the consumer would likely experience a virtually imperceptible drop of a video frame, but would continue to enjoy an uninterrupted stream of entertainment content.

Manufacturers can adjust time-limited commands to preferred specifications, using standard commands to define the drives' timeout performance in error checking. Alternatively, Seagate can configure the drives' time-limited commands settings before the drives ship. Seagate DB35 Series hard drives with time-limited commands capability support a wide range of OEM middleware, operating systems, motherboards and design standards.

Reduce power consumption and control component costs

Offering competitively priced systems in the consumer electronics market is a neverending challenge. Seagate is helping manufacturers deliver to these increasingly difficult price expectations. One example is the low power required by DB35 Series hard drives. The DB35 series requires only 2.0 Amps of startup current—fully 0.5 Amps lower than other drives. DB35 Series drives also have efficient general power consumption specifications, as shown in the table below.

Power Consumption	
Startup current (typical) 12V (peak)	2.0 amps
Seek power (typical)	8.6 watts
Operating (consumer storage profile)	7.2 watts
Idle mode (typical)	6.9 watts
Standby mode (typical)	0.8 watts
Sleep mode (typical)	0.8 watts

This focus on power management allows manufacturers to integrate lower-cost power supplies, saving both system part cost as well as energy.

Minimized operational noise

To provide an optimal entertainment experience, the digital video recording drive must be as close to acoustically invisible as possible. Seagate SoftSonic acoustics-limiting technology facilitates extremely quiet hard drive operation through a combination of quiet seek operations and an innovative motor.

To reduce the noise level from drive operation, DB35 Series drives use customized firmware algorithms referred to as the “silent-seek actuator profile.” The silent-seek actuator profile slows the trajectory of the seek pattern, which results in quiet seek operations and lower power consumption. DB35 Series drives also use the quietest type of motor available: fourth-generation fluid dynamic bearing (FDB) technology. Specifically manufactured to demanding Seagate specifications, FDB motors allow DB35 Series drives to deliver whisper-quiet operating acoustics of 2.4 bels—at the threshold of human hearing. The silent operation of these drives is noteworthy in comparison to competing products. The result is whisper-quiet operation delivering the type of acoustic performance consumers expect from devices intended for the family room, bedroom or home theatre environment.

Protect content and intellectual property with digital rights management

As part of a comprehensive digital rights management solution, Seagate customers can choose to take advantage of the DB35 Series DriveTrust feature. DriveTrust technology provides the optional capability to “lock” the drive to the system on which it is installed. With this feature enabled, only host systems that provide the manufacturer-assigned key to the drive can gain access to stored information. If the drive is removed, the only possible reuse of the drive involves a full erasure of existing content. In most cases, DriveTrust technology will serve as an additional layer of content protection, adding to techniques such as data encryption and conditional access. This offers manufacturers and system designers choice, convenience and security in hard drive-based products.



Work with Seagate to design the best possible systems for your market

OEMs have a powerful digital video system partner in Seagate, enabling them to integrate innovative, industry-leading storage technology into their solutions. Seagate Design Service Centers (DSC) can provide important technical assistance to manufacturers in the areas of integration design and application testing. Seagate DSC team members deliver expertise in such areas as airflow design, thermal performance, shock and vibration protection, and general reliability and durability of devices using hard drive storage. By contributing its substantial expertise and resources, Seagate helps its customers to reduce their time to market for new products and achieve optimized total cost performance by improving quality and reliability—a key part of reducing manufacturers' warranty and failure-related costs.

Trust the leader in hard drive storage

With the DB35 Series, Seagate delivers the best-selling drive in its class. Manufacturers look to Seagate to deliver the best combination of value, video features and reliability for their entire portfolio of DVRs, HDD recorders, and set-top boxes. The DB35 Series is part of a Seagate line of products intended to address virtually every HDD-based consumer electronics system. Contact your local Seagate sales representative for more information on how Seagate can help expand your business in the fast-growing market for storage-based consumer electronics products.

For more information

For detailed information on Seagate products, the company or getting started as a Seagate partner or customer, visit: www.seagate.com.