

# CinemaStar™ 5K500

3.5-INCH CE HARD DISK DRIVES

**HITACHI**  
Inspire the Next

Cool, quiet, power-efficient storage for digital video applications

## Highlights

- > 500GB<sup>1</sup> capacity
- > CoolSpin™ technology
- > Silent-seek acoustics
- > Smart Command Transport (SCT) adaptive error correction
- > Best-in-class power utilization and heat emission
- > Patented load/unload ramp for enhanced reliability
- > Targeted 1.2 million hours MTBF<sup>2</sup>

## Applications

- > HD Digital Video Recorders
- > DVD/HDD recorders
- > DVR-enabled televisions
- > Media center PCs



500GB | SATA 3Gb/s



## Features and Benefits

	Feature / Function	Benefits
<b>Capacity</b>	500GB of storage	* Up to 125 hours of high-definition video, 500 hours of standard video, 178 movies, 125,000 4-min songs or 250 video games
<b>Power</b>	Advanced Power Management	Reduces power during idle periods
	HiVERT™ technology	Best-of-breed power efficiency
	CoolSpin™ motor design	Requires low peak power enabling more cost-effective and cooler power supplies
<b>Acoustics</b>	Silent seek	Ultra quiet operation
<b>Reliability</b>	Thermal Fly-height Control (TFC)	Better soft error rate for improved reliability and performance
	Head load/unload	Protects disk during non-operation
	Internal thermal sensor	Improves data integrity
	Media Maintenance	Prevents track wear-out
<b>Performance</b>	SMART Command Transport (SCT)	Adaptive error correction for optimum video delivery
	SmoothStream™ technology	Optimized video streaming
	CE features set	Improved handling of high-quality video streams

\*Actual storage may vary depending on the compression rate applied. Capacities represented may not be combined.

## A different spin for digital video

The CinemaStar™ 5K500 hard drive provides a generous 500GB capacity and features innovative CoolSpin technology to deliver a new level of power efficiency and quiet operation for digital video applications. Key to CoolSpin technology is a low-power motor design that requires less power to spin up the drive than most 3.5-inch hard drives. Spin-up current typically requires much higher peak current than normal read/write operations. This reduced power requirement enables lower continuous running power and allows for use of more cost-effective power supplies. With customized features, capacity and cool operation, the 3.5-inch CinemaStar 5K500 enables a new generation of digital video recorders and set-top boxes that store more hours of video, run more quietly and use less power.

## Customized features support on-demand digital video solutions

An exceptional blend of audio/visual (AV) features fine tunes the CinemaStar 5K500 for digital video storage needs. Hitachi SmoothStream technology is enabled to support the ATA-7 streaming command set, and SCT provides time-limited error recovery and thermal monitoring capabilities. Because IT-type data and video streams have different throughput demands, AV-Zoning allows the definition of various error recovery procedures for predefined ranges of data blocks, or zones. This feature enables the system to effectively deliver critical system data and time-sensitive video content from a single drive. Other features that tailor this drive for streaming video applications include Read Continuous mode, to help manage error recovery for video streams, and Media Maintenance enhancements, to help prevent track wear-out from around-the-clock operation.

## Specifications

Model(s)	HCS545050GLA380
<b>Configuration</b>	
Interface	Serial ATA 3Gb/s
Capacity (GB) <sup>1</sup>	500
Data heads (physical)	4
Data disks	2
Max. areal density (Gbits/sq. in)	185
<b>Performance</b>	
Data buffer (MB) <sup>3</sup>	8
Media transfer rate (Mbits/sec, max.)	929
Interface transfer rate (MB/sec, max.)	300
<b>Reliability</b>	
Error rate (non-recoverable, bits read)	1 in 10 <sup>14</sup>
Load/unload cycles	300,000
Targeted MTBF <sup>2</sup> (hours)	1,200,000
Availability <sup>4</sup> (hrs/day x days/wk)	24x7
<b>Power</b>	
Requirement	+5 VDC (+/-5%) +12 VDC (+/-10%)
Startup (max. A)	0.55 (+5V) & 1.3 (+12V)
Performance idle (W, avg.)	3.2
<b>Physical size</b>	
z-height (mm, max.)	26.1
Dimensions (width x depth, mm, typical)	101.6 x 147
Weight (g, max.)	550
<b>Environmental (operating)</b>	
Device temperature <sup>5</sup>	0° to 70° C
Relative humidity (non-condensing)	8% to 90%
Shock (half-sine wave (G 2ms))	70
Vibration, random (G RMS)	0.67 (XY)
<b>Environmental (non-operating)</b>	
Ambient temperature	-40° to 70° C
Relative humidity (non-condensing)	5% to 95%
Shock (half-sine wave (G 2ms))	350
Vibration, random (G RMS)	1.04 (XYZ)
<b>Acoustics (A-weighted sound power)</b>	
Idle (Bels, typical)	2.2
Operating (Bels, typical)	2.4

<sup>1</sup> One GB is equal to one billion bytes when referring to hard drive capacity. Accessible capacity may be less.

<sup>2</sup> This MTBF target is based on a sample population in typical CE/surveillance product environment and is estimated by statistical measurements and acceleration algorithms under normal operating conditions. MTBF ratings do not predict reliability of an individual drive.

<sup>3</sup> Portion of buffer capacity used for drive firmware

<sup>4</sup> Designed for low duty cycle, non mission-critical applications requiring up to 20 percent read/write activity per power-on-hour in digital video and consumer electronics applications. Note that customer environments may vary from application to application.

<sup>5</sup> Temperature tested at top cover surface

## Power efficient for cooler operation and longer life

CoolSpin and HiVERT technologies combine to create this new class of CE drive that delivers best-of-breed power utilization and thermal emissions. HiVERT technology, pioneered on Hitachi 2.5-inch drives, helps efficiently manage power consumption. These innovations, together with sixth-generation Advanced Power Management, make the CinemaStar 5K500 the ideal choice for digital video recorders that run cooler, require less power and last longer.

## Hitachi quality and service

All Hitachi hard drives are designed to the highest quality standards with field-proven components. They are backed by Hitachi's worldwide technical support and integration services, enabling customers around the globe to bring their products to market quickly.

## How to read the CinemaStar model number

HCS545050GLA380 = 500GB/8MB buffer

H = Hitachi

C = CinemaStar

S = Series prefix

54 = CoolSpin technology

50 = Full capacity — 500GB

50 = Capacity this model, 50 = 500GB

G = Generation code

L = 26.1mm z-height

A3 = SATA 3Gb/s

8 = 8MB buffer

0 = Reserved

## Information and Technical Support

[www.hitachigst.com](http://www.hitachigst.com) (Main Web site)

[www.hitachigst.com/partners](http://www.hitachigst.com/partners) (Partner Web site)

## North America

[support\\_usa@hitachigst.com](mailto:support_usa@hitachigst.com)

Toll free: 1 888 426-5214, Direct: 1 507 322-2370

## Asia Pacific

[support\\_ap@hitachigst.com](mailto:support_ap@hitachigst.com) / 65 6840 9595

## EMEA and UK

[support\\_uk@hitachigst.com](mailto:support_uk@hitachigst.com) / 44 20 7133 0032

## Germany

[support\\_uk@hitachigst.com](mailto:support_uk@hitachigst.com) / 49 6929 993601

## Program Support

Partners First™ Program

[channelpartners@hitachigst.com](mailto:channelpartners@hitachigst.com)

Hitachi Global Storage Technologies' trademarks are authorized for use in countries and jurisdictions in which Hitachi Global Storage Technologies has the right to use, market and advertise the brands. Contact Hitachi Global Storage Technologies for further information. Hitachi Global Storage Technologies shall not be liable to third parties for unauthorized use of Hitachi Global Storage Technologies trademarks.

References in this publication to Hitachi Global Storage Technologies' products, programs, or services do not imply that Hitachi Global Storage Technologies intends to make these available in all countries in which it operates.

Product specifications provided are sample specifications and do not constitute a warranty. Information is true as of the date of publication and is subject to change. Actual specifications for unique part numbers may vary. Please visit the Support section of our website, [www.hitachigst.com/support](http://www.hitachigst.com/support), for additional information on product specifications. Photographs may show design models.

© 2008 Hitachi Global Storage Technologies

Hitachi Global Storage Technologies  
3403 Yerba Buena Road  
San Jose, CA 95135 USA

Produced in the United States 5/08.  
All rights reserved.

CinemaStar™, SmoothStream™, HiVERT™, CoolSpin™ and Partners First™ are trademarks of Hitachi Global Storage Technologies.