

# Deskstar™ 5K4000

3.5-INCH HARD DISK DRIVES

**HITACHI**  
Inspire the Next

4TB of energy-efficient, quiet PC storage

## Highlights

- > 4TB<sup>1</sup> capacity
- > Advanced Format
- > 512 emulation
- > CoolSpin™ technology
- > Excellent power utilization and heat emission
- > Up to 28% power savings over 7K3000
- > Quiet acoustics
- > Built on award-winning proven design

## Applications

- > Personal storage
- > Environmentally friendly computers
- > Home and small office storage appliances



4TB  
SATA 6Gb/s

## Features and Benefits

	Feature / Function	Benefits
<b>Capacity</b>	4TB of storage	* Up to 1000 hours of high-definition video, 4000 hours of standard video, 1400 movies, 1,000,000 4-min songs or 2000 video games
<b>Power</b>	Advanced Power Management	Reduces power during idle periods
	HiVERT™ technology	Excellent power efficiency
	CoolSpin™ motor design	Requires low peak power enabling more cost-effective and cooler power supplies
<b>Acoustics</b>	Excellent acoustics	Ultra quiet operation
<b>Reliability</b>	Thermal Fly-height Control (TFC)	Better soft error rate for improved reliability and performance
	Head load/unload ramp	Protects disk during non-operation
	SMART Command Transport (SCT)	Adaptive error correction
	LDPC and CRC protection	Data integrity enhanced through circuits
	Internal thermal sensor	Improves data integrity

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

## CoolSpin design for desktop systems

The Deskstar™ 5K4000 hard drive provides an enormous 4TB capacity and features innovative CoolSpin technology to deliver a greater level of power efficiency and quiet operation for energy-conscious, environmentally-friendly computers. This drive uses Advanced Format, which increases the sector size on HDDs from 512 bytes to 4096 (4K) bytes, thereby increasing capacities and improving error correcting capabilities. Consult the Hitachi Advanced Format Technology Brief for more information. CoolSpin technology is an optimization of motor speed to provide an ideal balance of performance, power utilization and acoustics. With low power, high capacity and cool operation, the 3.5-inch Deskstar 5K4000 helps manufacturers deliver more eco-friendly systems. Manufacturers planning to use the 4TB drive in systems should consult the Hitachi High Capacity Technology Brief.

## Power efficient for cooler operation and longer life

The CoolSpin technology, along with other Hitachi power management techniques, gives the Deskstar 5K4000 its 28% power savings over the Deskstar 7K3000. HiVERT technology helps efficiently manage power consumption. These innovations, along with eighth-generation Advanced Power Management, make the Deskstar 5K4000 the ideal choice for energy-efficient PCs that run cooler, require less power and last longer.

## Innovation for a more sustainable environment

The Deskstar 5K4000 demonstrates Hitachi ecological leadership with its halogen-free design and power-efficient operation. Both of these features helped qualify the drive for the Hitachi EcoTrac classification, which identifies products that minimize environmental impact in the areas of product design, manufacturing, operation and disposal.



## Specifications (Preliminary)

Model(s)	HDS5C4040ALE630
<b>Configuration</b>	
Interface	SATA 6Gb/s
Capacity (TB) <sup>1</sup>	4TB
Sector size (bytes) <sup>2</sup>	512e
Max. areal density (Gbits/sq. in)	443
<b>Performance</b>	
Data buffer (MB) <sup>3</sup>	32
Media transfer rate (Mbits/sec, max.)	1293
Interface transfer rate (MB/sec, max.)	600
<b>Reliability</b>	
Error rate (non-recoverable, bits read)	1 in 10 <sup>14</sup>
Load/unload cycles	600,000
Availability <sup>4</sup> (hrs/day x days/wk)	24x7
<b>Power</b>	
Requirement	+5 VDC (+/-5%) +12 VDC (+10%/-8%)
Startup (A, max.)	1.2 (+5V) & 1.5 (+12V)
Idle (W, avg.)	4.9
<b>Physical size</b>	
z-height (mm, max.)	26.1
Dimensions (width x depth, mm, typical)	101.6 x 147
Weight (g, typical)	690
<b>Environmental (operating)</b>	
Ambient temperature	5° to 60° C
Relative humidity (non-condensing)	8% to 90%
Shock (half-sine wave (G 2ms))	70
Vibration, random (G RMS 5 to 500 Hz)	0.67 (XYZ)
<b>Environmental (non-operating)</b>	
Ambient temperature	-40° to 70° C
Relative humidity (non-condensing)	5% to 95%
Shock (half-sine wave, G)	300 (1ms)
Vibration, random (G RMS 2 to 200 Hz)	1.04 (XYZ)
<b>Acoustics (A-weighted sound power)</b>	
Idle (Bels, typical)	2.5

<sup>1</sup> One GB is equal to one billion bytes and one TB equals 1,000GB (one trillion bytes) when referring to hard drive capacity. Accessible capacity will vary from the stated capacity due to formatting and partitioning of the hard drive, the computer's operating system, and other factors.

<sup>2</sup> Advanced Format drive: 4K physical sectors with 512 emulation

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

<sup>4</sup> Intended for low duty cycle, non mission-critical applications in PC, nearline, and consumer electronics environments, which may vary from application to application. Note that customer environments may vary from application to application

## Hitachi quality and service

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

## How to read the Deskstar model number

HDS5C4040ALE630 = 4TB/32MB buffer

H = Hitachi

D = Deskstar

S = Standard

5C = CoolSpin technology

40 = Full capacity — 4TB

40 = Capacity this model, 40 = 4TB

A = Generation code

L = 26.1mm z-height

E6 = SATA 6Gb/s

3 = 32MB buffer

0 = Reserved (2 = 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: 1 408 717-8087

## 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)

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3403 Yerba Buena Road  
San Jose, CA 95135 USA

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