

Power-Thrifty Hitachi Hard Drive Makes for Cool Laptops

July 6 2005

Hitachi Global Storage Technologies is bringing to market the industry's highest-performing*, yet most power-efficient hard drive for the mainstream notebook and consumer electronic segments. In addition, the Hitachi Travelstar 4K120 is the first 2.5-inch hard drive to provide customers with an option for the AV Streaming Command Set – or Smooth Stream as introduced by Hitachi – which enhances audio/video streaming capability in digital entertainment devices, such as digital video recorders (DVR). The combination of these attributes makes Hitachi's 120-gigabyte Travelstar 4K120 the technology leader in the 4200 RPM 2.5-inch hard drive space.

“While the 4K120 is primarily being used in the mainstream notebook segment, we've created a highly sophisticated hard drive that offers users the greatest value for their money for a range of applications,” said Becky Smith, vice president, marketing, Hitachi Global Storage Technologies. “The list of leadership characteristics that the 4K120 has accumulated is representative of the commitment and expertise Hitachi brings to the 2.5-inch segment and our expansion into the consumer electronics space.”

As an added benefit, the 4K120's low power-consumption also results in cooler operation and longer battery life in notebook systems, which could result in extended service life for both the hard drive and host product. In CE environments, the cooler-running hard drive can be used in a new category of smaller, entry-level DVRs intended for spaces such as bedrooms, where quieter operation is possible as fans are not required

for cooling the host device.

Cool, Fast, Long-lasting

In the notebook space, the 4K120 out-performs all other 4200 RPM 2.5-inch hard drives based on published specifications for seek time, read/write functions and data transfer rates. While higher performance usually comes at the expense of power consumption, the 4K120 actual leads the industry in battery life due a new technology called Hitachi Voltage Efficiency Regulator (HiVERT) in conjunction with other power management mechanisms. HiVERT works by reducing the power draw of key hard drive electrical components by 30 percent over the previous generation. In Hitachi 's energy discharge test, the 4K120 shows between a 29- and 178-percent better power utilization than competitive 4200 RPM hard drives available on the market.

The 4K120's excellent power utilization directly correlates to a significant reduction in heat dissipation. With hard drives among the top three heat producers in laptop computers (behind the processor and graphics card), the 4K120's significantly lower heat dissipation will reduce the overall heat emission of notebooks for greater lap comfort. Thermal imaging tests conducted in Hitachi labs show a marked difference in heat emission between the Travelstar 4K120 and competitive hard drives in similar notebook operations

The 2.5-inch category is fast becoming a desirable form factor for CE manufacturers due to its smaller size and high capacity. DVR manufacturers, who typically use 3.5-inch drives for video storage, are now looking for a new hard drive to go into devices that are quieter and smaller. With its cool operation and new AV streaming capabilities, the Travelstar 4K120 is the first 2.5-inch hard drive to meet these needs, helping manufacturers to create a new category of fan-less DVRs that are "bedroom quiet." The Travelstar 4K120 continues the leadership

established by Hitachi's Deskstar 3.5-inch product line by becoming the first 2.5-inch hard drive to offer the ATAPI/ATA-7 AV Streaming Command Set.

The 4K120 is also ideal for interactive game consoles, set-top boxes and digital jukeboxes and personal media player devices.

The Travelstar 4K120 is now shipping in volume to customers in 40-, 60-, 80-, 100- and 120-GB capacities. Availability in the channel is expected by August. The 4K120 is Hitachi's 30th-generation 2.5-inch product, which is based on the industry's most mature and stable platform for the category.

* based on available specifications

Technical Specifications

- 120/100/80/60/40 GB
- 9.5 mm in height
- 99/99/99/95/95 grams maximum weight
- 4200 rpm
- 7.1 ms average latency
- 98 billion bits per square inch maximum areal density
- 2/2/2/1/1 glass disk platter(s)
- 4/4/3/2/2 GMR recording head(s)
- 1000 G/1ms non-operating shock
- 300 G/2ms operating shock
- 11 ms average read time/13 ms average write time
- 0.65 W active idle
- 0.45W low-power idle
- 0.15W standby
- 100 MB/sec maximum interface transfer rate ATA-6 Ultra DMA mode-5

- 2.3/2.3/2.3/ 2.0/2.0 Bels typical idle acoustics
- 2.7/2.7/2.7/2.4/2.4 Bels typical operating acoustics

Citation: Power-Thrifty Hitachi Hard Drive Makes for Cool Laptops (2005, July 6) retrieved 15 May 2024 from <https://phys.org/news/2005-07-power-thrifty-hitachi-hard-cool-laptops.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.