

Hitachi Releases Industry's First ATA-5 Compliant High-Speed Flash Memory Controller HN29W210H01FE-1

— Equipped with an Ultra DMA data transfer mode for industrial applications such as silicon disks and high-speed cache applications such as routers, achieving a random write speed of 8.5 Mbytes/sec(max.) —

Tokyo, November 28, 2001 — Hitachi, Ltd. (TSE: 6501) today announced the HN29W210H01FE-1 as the industry's first ATA-5*¹ compliant flash memory controller, equipped with an Ultra DMA data transfer mode*², for industrial applications such as silicon disks and communication applications such as routers. Mass production will begin in February 2002 in Japan.

The HN29W210H01FE-1 is a controller for 1-gigabyte to 8-gigabyte flash disk systems that demand high speed and high reliability. It employs Ultra DMA to achieve a fast random write speed of 8.5 Mbytes/sec (max.), four times faster than previous Hitachi products, and a random sector read speed of 14 Mbytes/sec (max.), seven times faster than previous Hitachi products.

The 32 -Mbyte (256-Mbit) HN29W25611WT-80 and 64 -Mbyte (512-Mbit) HN29W51214WT-80 are also being released as AND-type flash memories for chipsets with this controller, with mass production also scheduled to begin in February 2002. These chipsets offer a one million rewrite capability.

[Background]

In industrial fields that have previously used small-capacity HDDs, there is a growing trend away from HDDs to silicon disks comprising flash memory and a controller, because of their small size, low power consumption, and excellent vibration tolerance, as well as the small system maintenance load they entail. As well as high reliability, silicon disks offer an extremely short interval between command input and data reading since there is no head seek time as incurred in HDDs, and for this reason they are beginning to be employed as cache disks for system cache use in communication applications such as routers.

Hitachi currently provides for such applications with ATA-1 compliant CompactFlashTM*³ and PC-ATA cards, but the future will bring further demands for 1-gigabyte to 8-gigabyte large-capacity, high-speed flash disk systems. To meet these needs, Hitachi has developed a high-speed flash memory controller with ATA-5 compliant interface specifications.

[About this Product]

Major features of the HN29W210H01FE-1 flash memory controller are summarized below.

- (1) Industry's first ATA-5 compliant flash memory controller
By using a Hitachi H8S high-performance 16-bit microcomputer core and revising the flash memory write algorithm, it has been possible to produce the industry's first flash memory controller supporting the Ultra DMA data transfer mode, and achieve higher speed.
In case of using Ultra DMA, system performance figures achieved are a random write speed of 8.5 Mbytes/sec(max.) and a random read speed of 14 Mbytes/sec(max.), four-fold and seven-fold improvements respectively over Hitachi's HB28B256C6 256-Mbyte CompactFlash.
- (2) One million rewrite capability
In a system employing the HN29W25611WT-80 (32 -Mbyte) or HN29W51214WT-80 (64 -Mbyte) chipset flash memory, the memory can be rewritten one million times, providing high reliability.

This controller does not support a PCMCIA interface.

The package used is a 176-pin LQFP.

Future plans will expand product line up by developing higher reliability and higher speed products.

- Notes: 1. ATA-5: An ATA (AT Attachment) interface standard established by ANSI (American National Standards Institute).
2. Ultra DMA: A data transfer method defines from ATA-4 onward, offering higher speed and a lighter host system load than conventional PIO transfer*.
- *PIO transfer: A data transfer method defines from ATA-1 onward. CPU does data transfer directly.
3. CompactFlash: CompactFlash is a trademark of SanDisk Corporation of the United States and is licensed to the CFA (CompactFlash Association). Hitachi, Ltd. is a member of the CFA.

< Typical Applications >

- Systems requiring high-speed random access of recording devices
- Systems requiring vibration tolerance in recording devices
- Systems requiring low power consumption for recording devices

< Prices in Japan >(For Reference)

Product Code	Sample Price (Yen)
HN29W210H01FE-1	4,000

< Specifications >

Item	HN29W210H01FE-1 Flash Memory Controller
Interface (ATA-5)	PIO Mode 4 (16.6 Mbytes/sec)
	Multiword DMA Mode 2 (16.6 Mbytes/sec)
	Ultra DMA Mode 4 (66.6 Mbytes/sec)
Random read speed (system performance*)	14 Mbytes/sec (max.)
Random write speed (system performance*)	8.5 Mbytes/sec (max.)
Operating voltage	Both 3.3 V \pm 5% and 5.0 V \pm 10%
Package	176-pin LQFP

Note: * This is a system performance figure, and is not a guaranteed value after user mounting.