

Ideally Ordered Nanohole Patterned Media Enables Capacity Potential to 1.2TB for 2.5" HDD

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Fujitsu today announced the results of a joint collaboration by Yamagata Fujitsu Limited, Fujitsu Laboratories Limited, and Kanagawa Academy of Science and Technology to create ideally “ordered” alumina nanohole patterned media.

In a world first, Fujitsu has achieved the basic read/write capability of ideally ordered alumina nanoholes on a 2.5” magnetic disk with a flying head.

In January 2007, Fujitsu announced one Terabit/in² technology, a breakthrough for future HDD capacity expansion. At that time, one-dimensionally aligned alumina nanohole patterns with 25nm pitch were produced to support one Terabit/in² bit recording density.

Now for the first time, Fujitsu has successfully created ideally “ordered” alumina nanohole patterns for isolated bit-by-bit recording on a large disk area by establishing an innovative fabrication process, and confirmed the basic read/write capability in each individual nanohole of the patterned media using a flying head on a rotating disk.

Using Perpendicular Magnetic Recording (PMR) processes, the patterned alumina nanohole media was fabricated using nano-imprint lithography, anodic oxidation, and cobalt electrodeposition at a density of 100nm pitch nanoholes that was suitable to currently available head

technology.

“This technology achievement is a major leap for the industry and confirms Fujitsu’s position as a research leader on the path to one Terabit/in²,” said David James, vice president, advanced product engineering, Fujitsu Computer Products of America, Inc. “Fujitsu is the first company to demonstrate read/write signals in individual ideally ordered alumina nanohole using a flying head for measurement. With the growing demand for hard drives with high capacities, especially in small form factors, one Terabit/in² would enable potential storage capacities of up to 1.2TB on a 2-platter 2.5” drive. We expect this breakthrough to provide revolutionary changes for various IT and consumer applications.”

This achievement has been published in the July online version of the eminent technology journal, *Applied Physics Letters* Volume 91 Issue 2, July 9th 2007.”

Source: Fujitsu

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