Breakthrough Achievement for One Terabit/Inch^2 HDD Recording Density

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Fujitsu today announced a breakthrough in magnetic recording. Using patterned media technology, Fujitsu was able to achieve a one-dimensional array nanohole pattern with an unprecedented 25 nanometer pitch. This dramatic new achievement was presented at the 10th Joint MMM/Intermag Conference in Baltimore, MD.

This revolutionary accomplishment came from the joint work of Yamagata Fujitsu Limited, Fujitsu Laboratories Limited and Kanagawa Academy of Science and Technology (KAST). With this latest patterned media announcement, Fujitsu has successfully realized a nanohole pattern with 25 nanometer pitch, a process which will enable one Terabit/in^2 recording on HDDs in the future.

Fujitsu first announced innovations with patterned media recording in June 2005. At that time, advancements were made with the introduction of a process to pre-pit aluminum media, resulting in nanoholes with an extremely dense and ordered structure. In addition, a technique called land/groove texturing allowed for the creation of discrete tracks in which the nanoholes could be formed. This progress in patterned media has enabled the development of high capacity hard disk drives, especially in smaller form factors.

During the MMM/Intermag conference, Fujitsu also revealed a new development involving perpendicular magnetic recording (PMR) read/write operation on random patterned media. With this technology, the soft underlayer (SUL) is used as the PMR media, another important

milestone. This progress in patterned media recording closely follows the November 2006 Fujitsu announcement regarding the optical element being developed for thermal assisted recording, another promising advancement for future capacity increases. These accomplishments indicate that Fujitsu now possesses a variety of enabling technology options that allow for the engineering of hard disk drives with increased areal densities.

Growing demand for HDDs with high capacities, especially in small form factors, are being generated from both the enterprise and mobile arenas. Manufacturers of database servers and NAS and SAN systems are seeking these models so that they can create products that feature greater amounts of storage space, but which require less power and generate less heat. Notebook and consumer electronic (CE) companies covet these hard disk drives so they can design the sleek, high-performance products that are so popular in the mass market.

Source: Fujitsu