Toshiba Brings Perpendicular Data Recording to HDD

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According to JCN Network, Toshiba has announced a new breakthrough technology in hard disk drives (HDD) based on perpendicular recording, setting new benchmarks for data density, boosting the capacity of a single 1.8-inch hard-disk platter to 40 gigabytes.

Perpendicular recording with a probe head and soft keeper layer has recently received renewed interest because of successful demonstrations of high areal density and conjectures that it may offer superiority over conventional longitudinal recording in the tradeoff between media signal-to-noise ratio and thermal stability.

Toshiba has brought the new technology to two high capacity drives: the MK4007GAL HDD packs 40GB into a drive only five millimeters thick, while the MK8007GAH achieves a capacity of 80GB--the largest capacity yet achieved in the 1.8-inch form factor.

Conventional longitudinal recording stores data on a magnetic disk as microscopic magnet bits aligned in plane. Although advances in magnetic coatings continue to improve data recording densities on HDD, the magnetic bits repulse each other due to in-plane alignment.

Squeezing more bits on to a disk will eventually reach a point where crowding degrades recorded bit quality. This places fast-approaching limits on storage capacities. By standing the magnetic bits on end, perpendicular recording reinforces magnetic coupling between neighboring bits, achieving stable higher recording densities and

improved storage capacity.

Toshiba plans to start mass production of the 40GB and 80GB drives in the first and second quarters, respectively, of the fiscal year starting April 1, 2005.