Toshiba Presents High Recording Density Technology at the 11th Joint MMM-Intermag Conference

Toshiba presents two papers on high density HDD technologies for read heads, media and the drive system attempting to reach 5Terabits per square inch creating a path to future areal density advancement.

Jan. 20, 2010 - PRLog -- WASHINGTON D.C. – Toshiba Corporation announced the company will present two papers on high recording density technology at the 11th Joint MMM (Magnetism and Magnetic Materials) and Intermag (International Magnetic Conference) Conference in Washington D.C. The conference annually brings together scientists and engineers of fundamental and applied magnetism from around the world to discuss new, advanced and controversial developments.

The 11th Joint MMM/Intermag Conference is sponsored jointly by the American Institute of Physics (PCI) and the Magnetics Society of the IEEE, in cooperation with The American Physical Society. The conference is designed for members of the international scientific and engineering communities interested in recent developments in fundamental and applied magnetism. Speakers are invited to present papers, oral and poster presentations at the symposia.

In preparing these two papers, Toshiba’s development team goal was to set a recording density of 5Tbpsi. The high density HDD technologies for read heads, media and the drive system were developed with partial funding by the New Energy and Industrial Technology Development Organization (NEDO) under the Japanese National Project “Development of nanobit technology for ultra-high density magnetic recording (Green IT)” in cooperation with Hitachi and HGST. The Toshiba development team presented two papers titled,

• “MR Ratio and RA Design of CCP-GMR Film for over 2Tb/in2 Read Sensors”
• “Fabrication of Ridge-and Groove Servo Pattern Consisting Self-Assembled Dots for High-Density Bit Pattern Media.”

MR Ratio and RA Design of CCP-GMR Film for Over 2Tb/in2 Read Sensors technology was developed by Toshiba to extend the original Nano Contact Magneto-Resistive (NCMR) head technology that enables ultra-high sensitivity with a nano magnetic domain wall – aiming at a recording density of 5Tbpsi. The development teams from the Corporate R&D Center in Kawasaki, Japan will present the research simulation results that revealed the key specifications of CCP-GMR and the resistance range for 2-to-5 Tbpsi NCMR heads.

The second paper, Fabrication of Ridge-and Groove Servo Pattern Consisting Self-Assembled Dots for High-Density Bit Pattern Media, will present bit patterned medium (BPM) in such a way that the magnetic recording layer is cut into rows of tiny magnetic dots in the size of one-bit. A self-assembled material is used to create the bit pattern of 2.5 Tbpsi as well as servo signal patterns. The Toshiba development team from the Corporate R&D Center in Kanagawa, Japan will discuss their simulation study based on the fabricated BPM sample, the servo signal qualities and future challenges for BPM.

Both achievements were presented at the 11th Joint MMM and INTERMAG conference in Washington D.C. on January 20th and 21st respectively.

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