STMicroelectronics' Tintoretto Disk Drive Read Channel Achieves 1.4-Gbit/s Speed at 1.5W Power Dissipation

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Chip delivers leading signal-processing speeds with low power dissipation

Geneva, June 2, 2004 - STMicroelectronics today announced a new read-write channel technology for hard disk drives that achieves speeds up to 1.4-Gbit/s while maintaining the power dissipation below 1.5W in Read mode at maximum speed. Called Tintoretto, the new technology was designed and can be fabricated in 130nm CMOS technology with improved SNR performances for next-generation hard disk drives that will support capacities in excess of 120-Gbyte/platter and rotation speeds up to 10,000rpm.

Tintoretto achieves data rates in the range of 250MHz to 1400MHz making it suitable for all consumer and personal computer applications while holding power dissipation to a minimum to allow higher levels of integration and reduced packaging costs.

"ST offers a pin-compatible family of read/write channel platforms including firmware, and the technology to support both mobile and desktop applications," said Gianluca Bertino, General Manager of ST's Data Storage Division. "This allows our customers to pick the best approach for each target market leveraging a common pc-board design, software, and production test environment, thereby reducing time-to-market and development-cost without compromising performance.

Tintoretto, in combination with the latest SATA PHY offering from ST, represents the best components for SoC integration for the HDD market."

Tintoretto Highlights:
Second Generation 10-bit High-Rate Codes - A variable number of very-high-rate parity-based codes are available in Tintoretto. All codes support short codeword truncation for optimum formatting efficiency at the factory level.v Pattern Independent Data Detector - The Viterbi detector has a fully programmable target to correct misequalization and head geometry variation. In addition, each of the branch metrics can be independently optimized through a proprietary algorithm to compensate for pattern-dependent noise specific to each head and media combination.

Advanced Defect Detection - Various statistical analyses can be performed on specific defect scanning patterns in real time through the Channel Quality Monitor embedded in Tintoretto during factory optimization. Also, the same operations can be performed during the normal life of the drive to anticipate potential failures or reliability issues.

Self Servo Write - By means of the 'Self Servo Write' technology embedded in Tintoretto, the hard disk drive manufacturer can write proprietary servo patterns on the media at the factory, avoiding the use of costly and bulky servo track writers. At the same time the improved flexibility of the production line allows better inventory planning and the capacity to easily meet peaks in demand from HDD customers.

Availability
Tintoretto technology is available for evaluation purposes in a 64-pin TQFP ePAD package, can be customized for particular customer needs, and will be supported by custom hardware and software evaluation tools.

The original press release can be found on www.st.com