Abstract of the Disclosure

SAMPLED DATA CHANNEL SERVO DETECTOR USING PRML TECHNIQUES

A synchronous servo data detection subsystem for a PRML sampled data channel of a hard disk drive including a plurality of radially extending servo sectors embedded on a rotating data storage surface. Each servo sector includes a servo synchronization field, a synchronous servo address mark field, and fields providing coarse and fine head position information. A data head reads and writes data signals from and to the storage surface, and a voice coil actuator structure positions the head at each selected data track under control of a head position servo loop. The sampled data channel receives, synchronously samples and decodes analog signals into digital data and reads the servo fields as the data head passes over each servo sector. The servo detection system includes a timing loop for synchronizing the sampled data channel to the servo synchronization field to provide synchronous samples from the servo sector, a synchronous servo address mark pattern detector connected to an output of the sampled data channel for detecting the unique recording pattern and for thereupon generating a servo address mark found signal, a synchronous coarse head position information detector connected to an output of the sampled data channel responsive to the address mark found signal for detecting and accumulating coarse bits comprising the coarse head position information, and a synchronous fine head position detector connected to the sampled data channel for detecting the fine head position information. Preferably, the synchronous servo address mark pattern bears low correlation to the synchronization field and to the position information fields.

FIGURE 1