FEEDFORWARD CONTROL OF TEMPERATURE-INDUCED HEAD SKEW FOR HARD DISK DRIVES

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Abstract In hard disk drives (HDDs), head skew error among multiple heads is calibrated during manufacturing process, and will be implemented prior to head switching seeks. In operational environment, additional head skew deviation due to temperature drift may be observed, which could introduce heavy handling burden for feedback controller along with unacceptable noise to HDD customers. Therefore, a thorough analysis of head skew variation against temperature is carried out in this paper. With help of accurate estimation of head skew based on drive temperature, smart feedforward control strategy during drive startup is embedded. Experimental results demonstrating its effectiveness to enhance drive performance are given.

Index terms*:* Head skew deviation, hard disk drives, calibration, and temperature coefficient.