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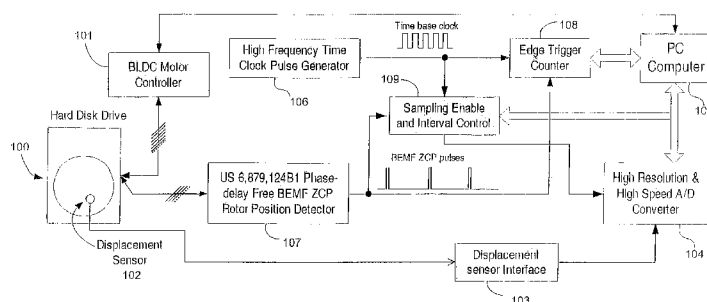


Fig. 7

(57) Abstract: A runout measurement system is proposed for measuring the runout of a moving surface of a device having a rotating body, such as a mass storage device (100) (e.g. a hard disk drive) having a rotor which in use includes a rotating recording medium. A sensor (102) interacting with the moving surface obtains a displacement signal. The displacement signal is sampled by a sampling unit (104) controlled by a unit (109) which initiates sampling based on both a signal indicating a ZCP and the clock signal of a high frequency (e.g. 20MHz) clock (106). Simultaneously, the same clock (106) is used by a counter 108 to measure the spacing between one or more ZCP times. This permits the correspondence between the sampling times and the angular position of the rotor to be found with a high accuracy which depends upon the clock frequency, and thereby allows calculation of repeatable runout (RRO) and non-repeatable runout (NRRO).