PHASE LOCKED LOOP SYSTEM AND METHOD FOR USE IN A DATA CHANNEL

ABSTRACT OF THE DISCLOSURE

A phase locked loop system (52) and method for use in a synchronously sampled data channel (10) of a disk drive mass storage system (30) is provided. The phase locked loop system (52) provides a read clock signal to a read channel (18) during read operations and a write clock signal to a write channel (16) during a write or non-read operation. The phase locked loop system (52) includes a read phase detector (80), a write phase detector (90), an adder circuit (92), and a voltage controlled oscillator (94). During a non-read operation, the write phase detector (90) receives a reference clock signal and the output clock signal of the voltage controlled oscillator (94). The write phase detector (90) determines the phase difference of these two signals and provides a corresponding write control voltage to the adder circuit (92). Adder circuit (92) provides this signal to the voltage controlled oscillator (94) which provides an output clock signal serving as a write clock signal to the write channel (16). During a read operation, the write phase detector (90) maintains the last write control voltage provided during a non-read operation and provides this to the adder circuit (92). The read phase detector (80) receives an error signal from the read channel (18) and the output clock signal of the voltage controlled oscillator (94). The read phase detector (80) determines the phase difference of these two signals and provides a corresponding read control voltage to the adder circuit (92). The adder circuit (92) adds these signals and provides them to the voltage controlled oscillator (94) to produce the read clock signal for the read channel (18).

Figure 3