

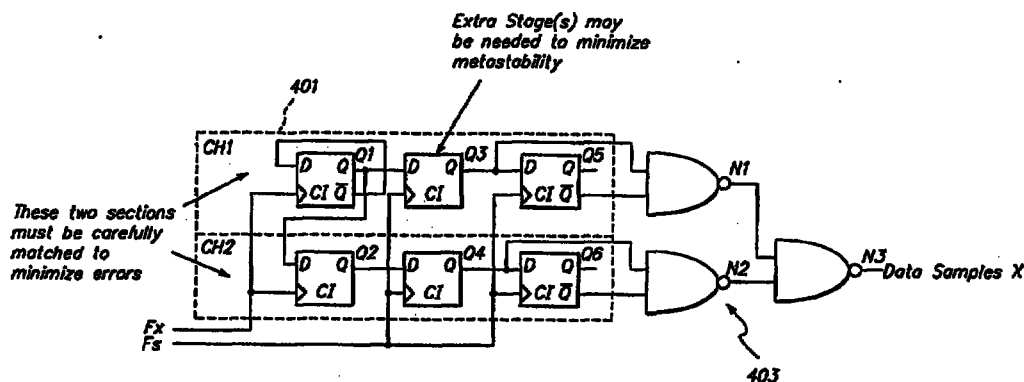
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(54) Title: DIGITAL PHASE DISCRIMINATION BASED ON FREQUENCY SAMPLING



(57) Abstract

The present invention provides a simple all digital method and apparatus (fig. 4) for determining the phase of a first clock signal (F_s) relative to a second clock signal (F_s). The first clock signal (F_s) may be a digital approximation of a periodic analog signal such as an RF signal. A sampling technique is employed that produces a stream of digital bits (X) containing relative phase information. From the stream of digital data bits is formed a digital word indicative of the relative phase (fig. 11A). The digital word may be formed using a digital filter (fig. 13). Advantageously, an extensive body of digital filtering techniques applicable to Sigma-Delta (sometimes referred to as Delta-Sigma) A/D converters (fig. 1) may be applied directly to the digital stream (X). By using an appropriately chosen weighting function, high accuracy may be obtained.