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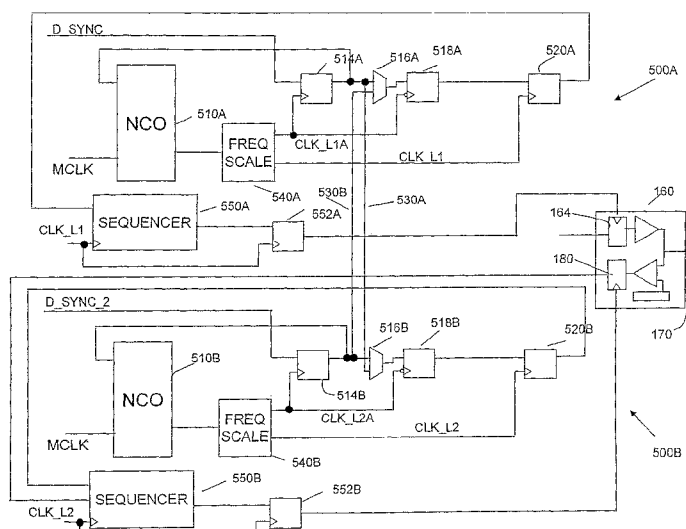
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
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(54) Title: PRECISE TIME MEASUREMENT APPARATUS AND METHOD



(57) Abstract: A time measurement system that uses two signals generated by direct digital synthesis. The generated signals have the same frequency but different phase. One signal is used to identify the start of the measurement interval and the other signal is used to identify a measurement window in which a signal indicating the end of the measured interval might be detected. The time measurement system is used as part of a time domain reflectometry (TDR) system. An incident pulse is synchronized to the first signal and launched down on a line. In the measurement window, the signal on the line is compared to a threshold value to determine whether the pulse has been reflected and traveled back to the source. By iteratively repeating the measurement with a different measurement window, the time of arrival of the reflected pulse can be determined. This time domain reflectometry approach is incorporated into automatic test equipment for testing semiconductor devices and is used to calibrate the test equipment.

WO 2006/004829 A3



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