

ABSTRACT

A receiver includes an analog front end configured to receive a data input/output signal and amplify the data input/output signal and generate a processing signal, a time interleaved analog-to-digital converter (TI ADC) configured to sample the processing signal and generate a plurality of digital data signals, a Mueller-Muller phase detector configured to receive the digital data signals and drive at least one of a plurality of calculators based on a transition between two digital data signals, a monitoring circuit configured to receive the digital data signals, receive a multi-level signal transmitted from a transmitter, and generate a monitoring output signal based on the digital data signals and the multi-level signal, and a control logic circuit configured to receive a monitoring output signal output and generate a plurality of calculator selection signals for driving the calculators based on the monitoring output signal.

FIG. 5