

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2022/0376677 A1 YOU et al.

Nov. 24, 2022 (43) **Pub. Date:**

(54) ADJUSTABLE PHASE SHIFTER

(71) Applicant: International Business Machines Corporation, Armonk, NY (US)

(72) Inventors: Yang YOU, Austin, TX (US); Chad

Andrew MARQUART, Austin, TX (US); Glen A. WIEDEMEIER, Austin, TX (US); Tyler BOHLKE, Rochester, MN (US); Daniel M. DREPS, Georgetown, TX (US)

(21) Appl. No.: 17/325,299

Filed: May 20, 2021 (22)

Publication Classification

(51) Int. Cl.

H03H 11/20 (2006.01)G06F 1/08 (2006.01)G06F 1/10 (2006.01) (52) U.S. Cl.

CPC H03H 11/20 (2013.01); G06F 1/08 (2013.01); **G06F 1/10** (2013.01)

(57)ABSTRACT

A method includes determining a phase error for a first clock signal and a second clock signal and determining an offset based on the phase error for the first clock signal and the second clock signal. The method also includes adding the offset to a phase of the first clock signal to produce a first adjusted clock signal and subtracting the offset from a phase of the second clock signal to produce a second adjusted clock signal. A phase error for the first adjusted clock signal and the second adjusted clock signal is smaller than the phase error for the first clock signal and the second clock signal.

