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(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2022/0416774 A1**  
(43) **Pub. Date: Dec. 29, 2022**(54) **PHASE ROTATOR**(71) Applicant: **International Business Machines Corporation**, Armonk, NY (US)(72) Inventors: **Yang YOU**, Austin, TX (US); **Venkat Harish NAMMI**, Austin, TX (US); **Pier Andrea FRANCESE**, ADLISWIL (CH); **Chad Andrew MARQUART**, Austin, TX (US); **Glen A. WIEDEMEIER**, Austin, TX (US); **Daniel M. DREPS**, Georgetown, TX (US)(21) Appl. No.: **17/362,553**(22) Filed: **Jun. 29, 2021****Publication Classification**(51) **Int. Cl.**  
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**H03K 5/135** (2006.01)(52) **U.S. Cl.**CPC ..... **H03K 5/131** (2013.01); **H03K 5/135** (2013.01); **H03K 2005/00286** (2013.01)(57) **ABSTRACT**

A method includes connecting inputs of a first plurality of interpolation branches to a first clock signal, connecting inputs of a second plurality of interpolation branches to a second clock signal, and connecting inputs of a third plurality of interpolation branches to a third clock signal. The method also includes combining outputs of the first plurality of interpolation branches, the second plurality of interpolation branches, and the third plurality of interpolation branches to produce an output clock signal and adjusting a phase of the output clock signal by connecting an input of an interpolation branch of the third plurality of interpolation branches to the second clock signal.

