US 20230231565A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2023/0231565 A1**
LUO (43) **Pub. Date: Jul. 20, 2023**

(54) **CALIBRATION METHOD, CALIBRATION APPARATUS, TIME-INTERLEAVED ADC, ELECTRONIC DEVICE, AND READABLE MEDIUM**

(71) Applicant: **ZTE CORPORATION**, Shenzhen, Guangdong (CN)

(72) Inventor: **Xin LUO**, Shenzhen, Guangdong (CN)

(21) Appl. No.: **17/998,801**

(22) PCT Filed: **May 27, 2021**

(86) PCT No.: **PCT/CN2021/096555**
§ 371 (c)(1),
(2) Date: **Nov. 14, 2022**

(30) **Foreign Application Priority Data**

Jun. 22, 2020 (CN) 202010575519.8

Publication Classification

(51) **Int. Cl.**
H03M 1/10 (2006.01)
H03M 1/12 (2006.01)

(52) **U.S. Cl.**
CPC *H03M 1/1009* (2013.01); *H03M 1/121* (2013.01)

(57) **ABSTRACT**

The present disclosure relates to communication devices and provides a method and apparatus for calibrating a sampling timing skew between time-interleaved analog to digital converter (ADC) channels, a time-interleaved ADC, an electronic device, and a computer readable medium. The time-interleaved ADC includes multiple ADC channels. The method includes: calculating, for every two adjacent channels, a correlation value between digital signals of two adjacent channels, according to the digital signals output by every two adjacent channels; calculating a timing skew adjustment amount corresponding to a sampling timing skew of each of the channels relative to a reference channel according to the correlation value corresponding to every two adjacent channels, the reference channel being any designated channel among the plurality of channels; and calibrating the sampling timing skew of each of the channels relative to the reference channel according to the timing skew adjustment amount corresponding to each of the channels.

11
Calculates, for each two adjacent channels in multiple analog to digital converter, ADC, channels, a correlation value between digital signals of two adjacent channels, according to digital signals output by every two adjacent channels

12
Calculates a time offset adjustment amount corresponding to a sampling time offset of each of the multiple channels relative to a reference channel according to the correlation value corresponding to every two adjacent channels

13
Calibrates the sampling time offset of each of the multiple ADC channels relative to the reference channel according to the time offset adjustment amount corresponding to each of the multiple ADC channels