

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2024/0223220 A1

Jul. 4, 2024 (43) **Pub. Date:**

(54)	METHOD, APPARATUS, AND DEVICE FOR
	DECODING ERROR CORRECTION CODE,
	AND STORAGE MEDIUM

(71) Applicant: Tongxin Microelectronics Co., Ltd.,

Beijing (CN)

(72) Inventor: Sen CHAI, Beijing (CN)

(73) Assignee: Tongxin Microelectronics Co., Ltd.,

Beijing (CN)

Appl. No.: 18/344,566

Filed: Jun. 29, 2023

(30)Foreign Application Priority Data

Dec. 30, 2022 (CN) 202211741382.4

Publication Classification

(51) Int. Cl. H03M 13/00 (2006.01) (52) U.S. Cl. CPC *H03M 13/6516* (2013.01)

ABSTRACT (57)

A method, an apparatus and a device for decoding an error correction code, and a medium are provided. The method includes: acquiring a Galois field equation corresponding to the error correction code, where a total length of the error correction code is a predetermined number of digits; determining a target relational expression corresponding to a plurality of error locations after decoding the error correction code based on the Galois field equation, where the target relational expression is derived based on the Vedic theorem; determining a first traversal range based on the target relational expression and the predetermined number of digits; determining a first error location from values included in the first traversal range; and determining a second error location based on the target relational expression and the first error location.

