



(54) **METHOD AND SYSTEM FOR ON-ASIC ERROR CONTROL DECODING**

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(57) **ABSTRACT**

There are provided methods and systems for on-ASIC error control coding for verifying the integrity of data from a memory. For example, there is provided a method for encoding data into a beat. The method can be executed by a digital system configured to receive the data and construct the beat. The method includes assembling, by the digital system, a plurality of words consecutively. The plurality of words can include a first set of words in which each word has a length W, where W is the beat width. The plurality of words can further include a second set of words in which each word has a length that is smaller or equal to W. The method can further include constructing a parity word of length W, wherein each bit in the parity word is a parity associated with a distinct word in the first and second set of words. The method further includes adding the parity word to the plurality of words to form the beat.

