

ERROR CORRECTION SYSTEM, ERROR CORRECTION METHOD, AND DATA MEMORY WITH ERROR CORRECTION FUNCTION

ABSTRACT

An error correction system of the present invention includes a formatter (20) generating an ECC block including at least data arranged in rows and columns and row error correction codes for the respective rows. The system includes a syndrome generator (38) between the formatter (20) and a first buffer memory (22). The syndrome generator (38) generates syndromes based on the respective ECC block rows supplied from the formatter (20). The ECC block rows and associated syndromes are stored in the first buffer memory (22). Only the syndromes in the first buffer memory (22) are transferred to a second buffer memory (24) and an error correction code decoder (26). The first buffer memory (22) stores data in a bank interleave mode, and syndromes are stored in empty positions of the first buffer memory (22).

FIG 4

