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(54) **METHOD AND SYSTEM FOR PROVIDING LOW DENSITY PARITY CHECK (LDPC) ENCODING**

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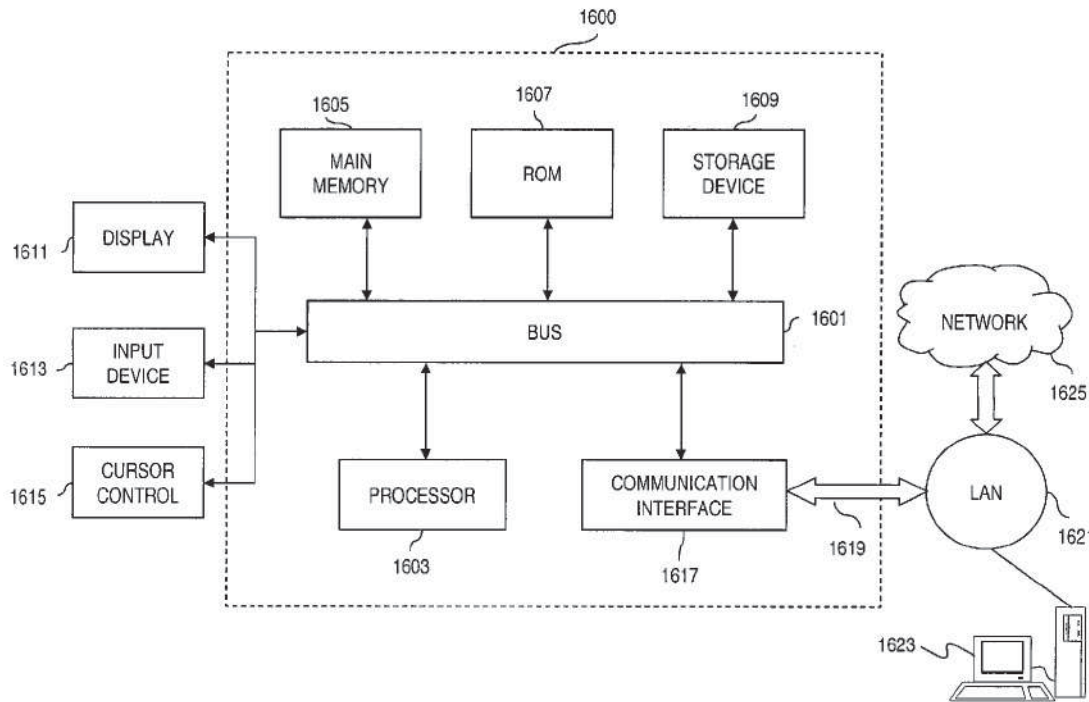
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(57) **ABSTRACT**

An approach is provided for a method of encoding structure Low Density Parity Check (LDPC) codes. Memory storing information representing a structured parity check matrix of Low Density Parity Check (LDPC) codes is accessed during the encoding process. The information is organized in tabular form, wherein each row represents occurrences of one values within a first column of a group of columns of the parity check matrix. The rows correspond to groups of columns of the parity check matrix, wherein subsequent columns within each of the groups are derived according to a predetermined operation. An LDPC coded signal is output based on the stored information representing the parity check matrix.
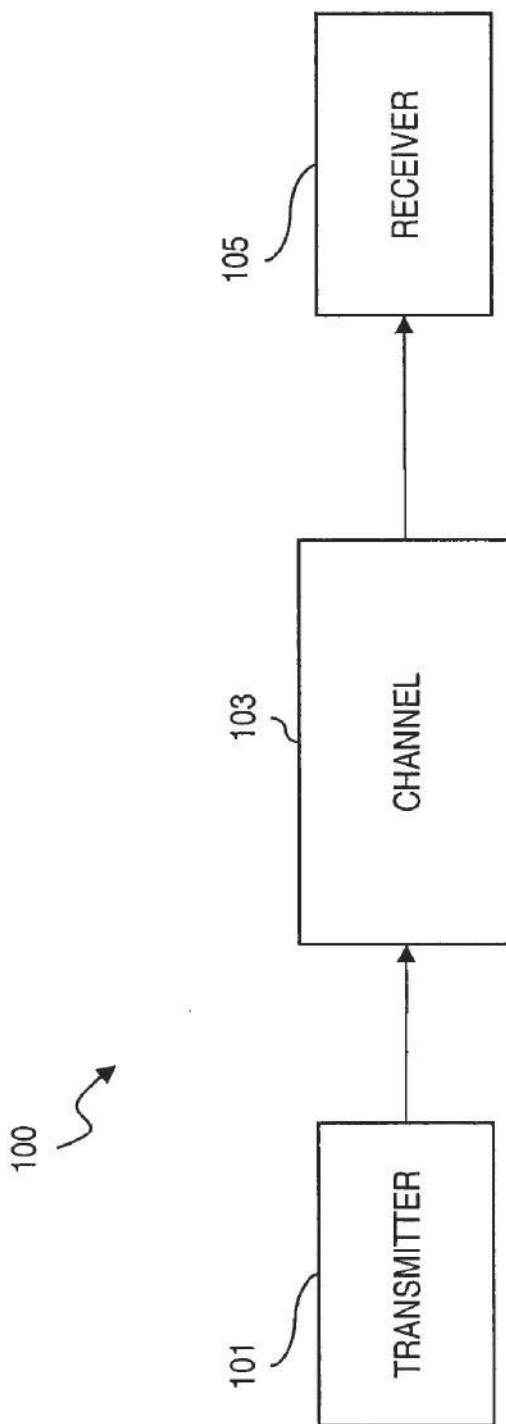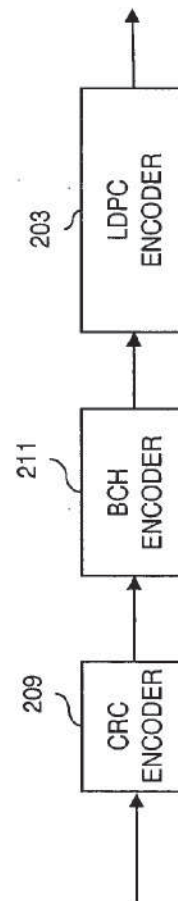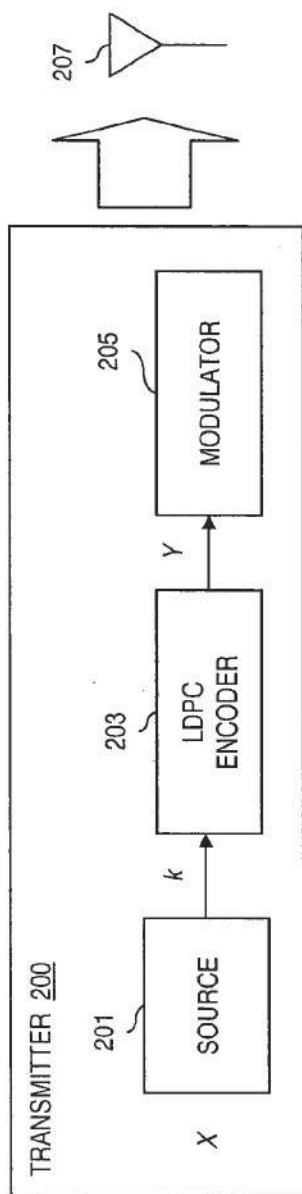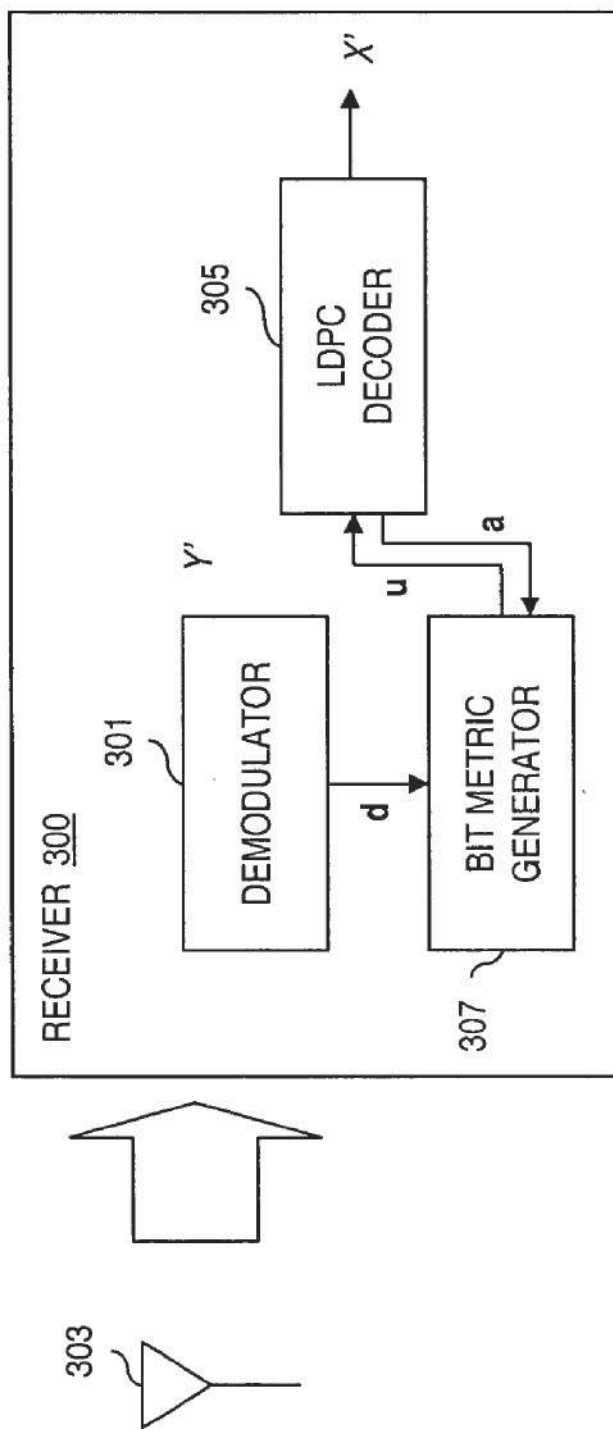
FIG. 1

FIG. 2A

FIG. 2B

FIG. 3

$$
B = \begin{bmatrix} 1 & & & & & 0 \\ x & 1 & & & & \\ x & x & 1 & & & \\ x & x & x & 1 & & \\ x & x & x & x & 1 & \\ x & x & x & x & x & 1 \end{bmatrix}
$$

FIG. 6

$$
H = \begin{bmatrix}
& n_1 & n_2 & n_3 & n_4 & n_5 & n_6 & n_7 & n_8 & \\
m_1 & 1 & 0 & 0 & 1 & 1 & 0 & 0 & 1 \\
m_2 & 0 & 1 & 1 & 0 & 1 & 0 & 1 & 0 \\
m_3 & 1 & 0 & 1 & 0 & 0 & 1 & 0 & 1 \\
m_4 & 0 & 1 & 0 & 1 & 0 & 1 & 1 & 0
\end{bmatrix}
$$

FIG. 4

FIG. 5

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