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(54) **Title:** NEURAL PROCESSING CORE, METHOD OF PROGRAMMING A SYNAPTIC MEMORY ARRAY THEREOF AND METHOD OF PERFORMING NEURAL NETWORK INFERENCE THEREON

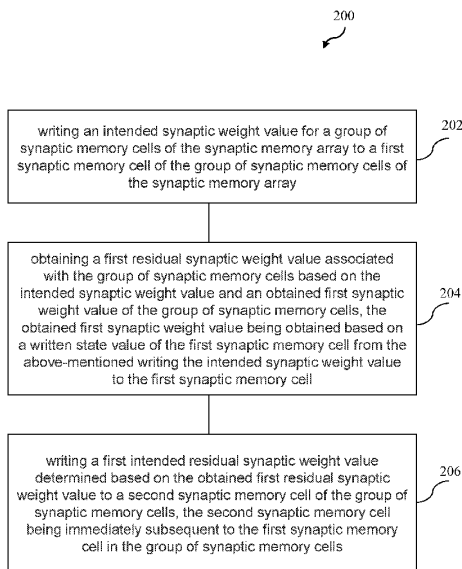


FIG. 2

(57) **Abstract:** There is provided a method of programming a synaptic memory array of a neural processing core configured to perform neural network computations for a neural network. The method includes: writing an intended synaptic weight value for a group of synaptic memory cells of the synaptic memory array to a first synaptic memory cell of the group of synaptic memory cells of the synaptic memory array; obtaining a first residual synaptic weight value associated with the group of synaptic memory cells based on the intended synaptic weight value and an obtained first synaptic weight value of the group of synaptic memory cells, the obtained first synaptic weight value being obtained based on a written state value of the first synaptic memory cell from the above-mentioned writing the intended synaptic weight value to the first synaptic memory cell; and writing a first intended residual synaptic weight value determined based on the obtained first residual synaptic weight value to a second synaptic memory cell of the group of synaptic memory cells, the second synaptic memory cell being immediately succeeding the first synaptic memory cell in the group of synaptic memory cells. There is also provided a corresponding neural processing core and a corresponding method of performing neural network inference thereon.

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