



[54] **MEDIAN CALCULATION USING SIMD OPERATIONS**

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[57] **ABSTRACT**

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A method of finding median values from different sets of values includes a step of forming a plurality of bit registers. Each bit register has bit groups corresponding respectively to the different sets of values, and each bit group has bit positions corresponding respectively to different individual ones of the values of the corresponding set. Bits in different bit registers at bit positions corresponding to a particular one of the given values indicate the truth or falsity of different possible relationships between the particular given value and other individual ones of the given values in the same set. The method includes a further step of logically ANDing different combinations of the bit registers to form a plurality of parallel condition registers having bit positions corresponding respectively to different individual ones of the given values of the different sets. The parallel condition registers are evaluated to determine the median values of the different sets—a true value at any particular bit position in any of the parallel condition registers indicates that the given value corresponding to that particular bit position is the median value of its set. The data structures employed in the above steps are particularly well adapted to single-instruction multiple data (SIMD) operations, which produce efficiencies based on parallel processing.

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[58] Field of Search ..... 345/501–506, 345/513, 514, 203; 382/262; 708/304

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