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- (54) Title of the Invention: System, apparatus, and method for aligning registers Abstract Title: System, apparatus, and method for aligning registers
- (57) Embodiments of systems, apparatuses, and methods for performing an align instruction in a computer processor are described. In some embodiments, the execution of an align instruction causes the selective storage of data elements of two concatenated sources to be stored in a destination.

FETCH ALIGN INSTRUCTION WITH A DESTINATION OPERAND, TWO SOURCE OPERANDS, A WRITEMASK, AND AN OFFSET 401

DECODE ALIGN INSTRUCTION 403

RETRIEVE SOURCE OPERAND VALUES 405

TRANSFORM SOURCE DATA ELEMENTS 407

EXECUTE ALIGN INSTRUCTION TO CONCATENATE THE SOURCE OPERANDS, SHIFT ON AN ELEMENT BASIS THE CONCATENATED SOURCE OPERANDS BY THE IMMEDIATE VALUE, AND DETERMINE WHICH OF THE ELEMENTS OF THE SHIFTED CONCATENATED SOURCE ARE TO BE STORED IN A CORRESPONDING POSITION OF THE DESTINATION REGISTER BASED ON THE WRITEMASK REGISTER409

STORE THE APPROPRIATE ELEMENTS OF THE SHIFTED CONCATENATED SOURCE INTO THE DESTINATION OPERAND LOCATION FOR EACH BIT POSITION IN THE MASK WHEN THE BIT POSITION INDICATES THAT THE CORRESPONDING ELEMENT OF THE SHIFTED CONCATENATED FIRST AND SECOND SOURCES IS TO BE STORED IN A CORRESPONDING LOCATION IN THE DESTINATION REGISTER 411

FIGURE 4