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(54) **MINIMIZING MEMORY ACCESS
CONFLICTS OF PROCESS
COMMUNICATION CHANNELS**

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(57) **ABSTRACT**

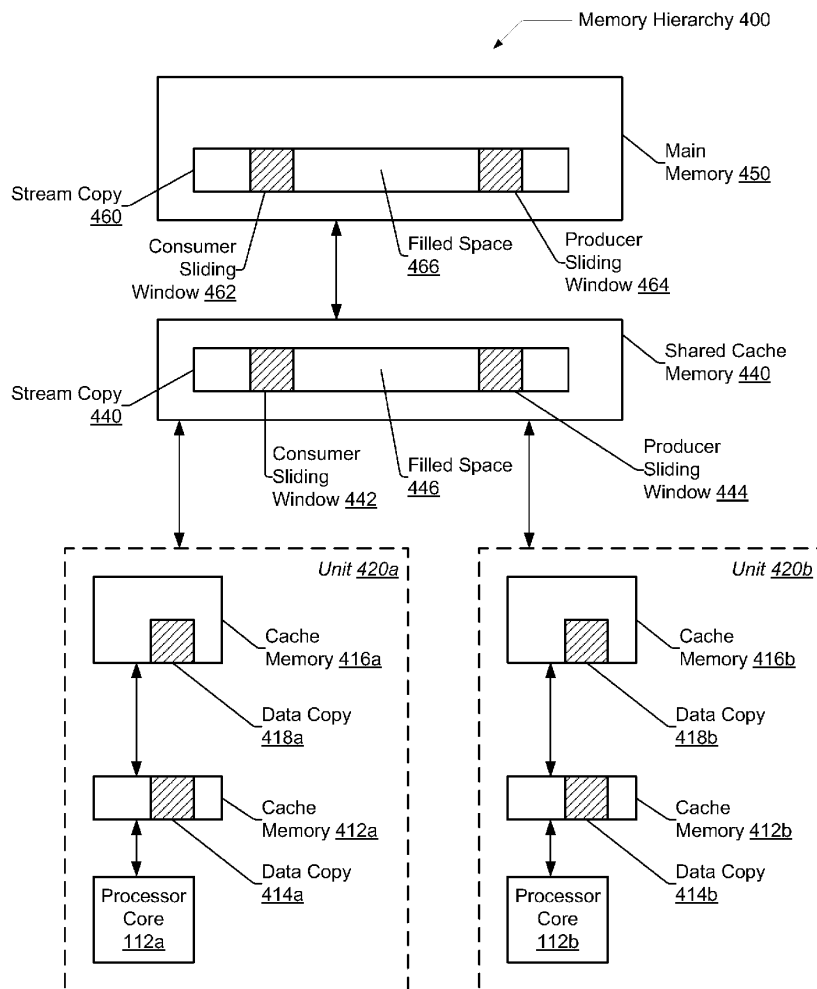
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A system and method for minimizing cache conflicts and synchronization support for generated parallel tasks within a compiler framework. A compiler comprises library functions to generate a queue for parallel applications and divides it into windows. A window may be sized to fit within a first-level cache of a processor. Application code with producer and consumer patterns within a loop construct has these patterns split into producer and consumer tasks. Within a producer task loop, a function call is placed for a push operation that modifies a memory location within a producer sliding window without a check for concurrent accesses. A consumer task loop has a similar function call. At the time a producer or consumer task is ready to move, or slide, to an adjacent window, its corresponding function call determines if the adjacent window is available.

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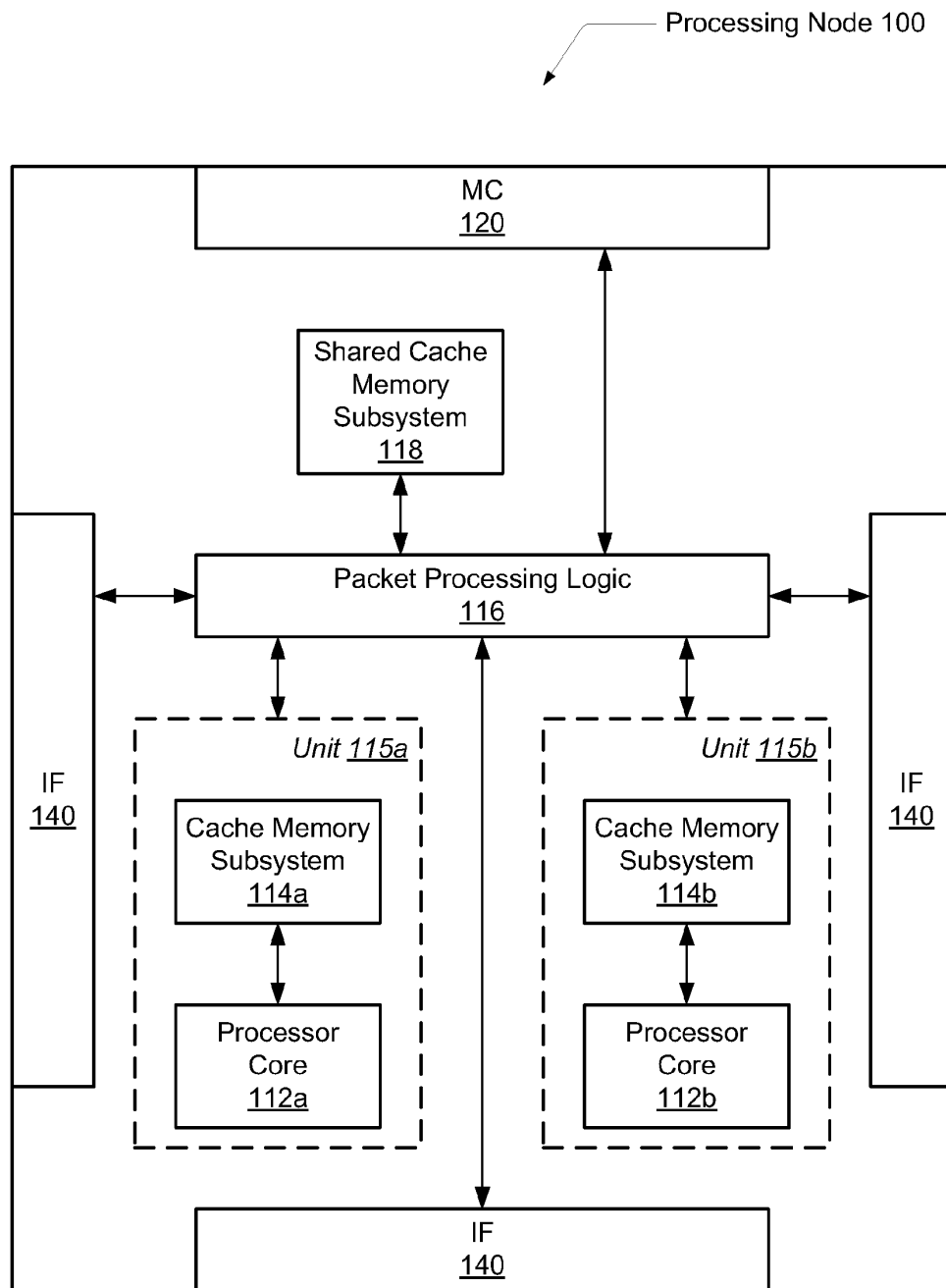



Fig. 1

Method 200 

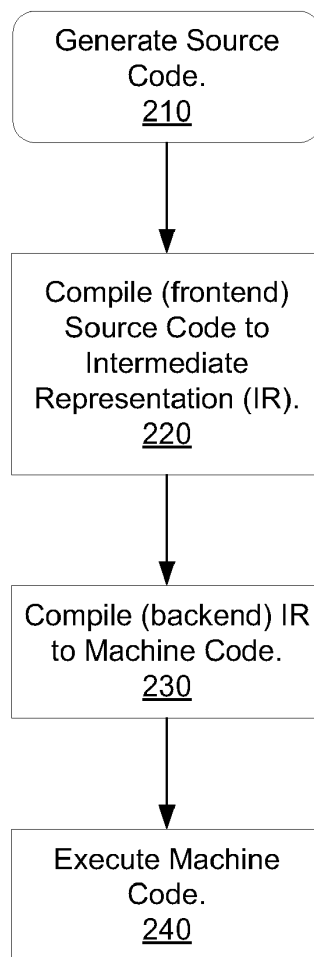


FIG. 2

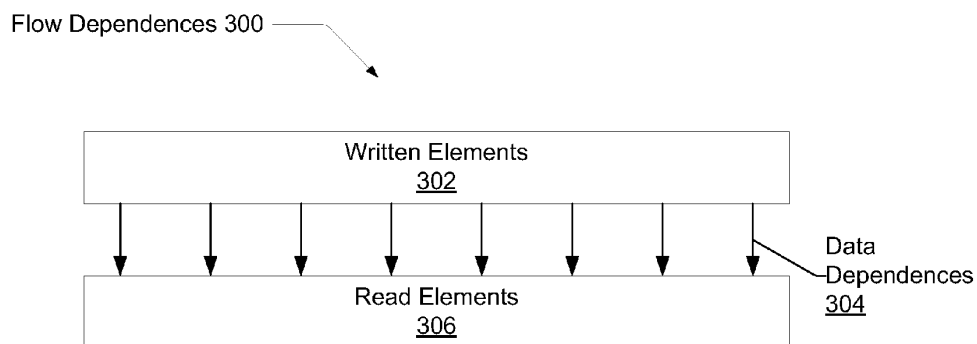


FIG. 3A

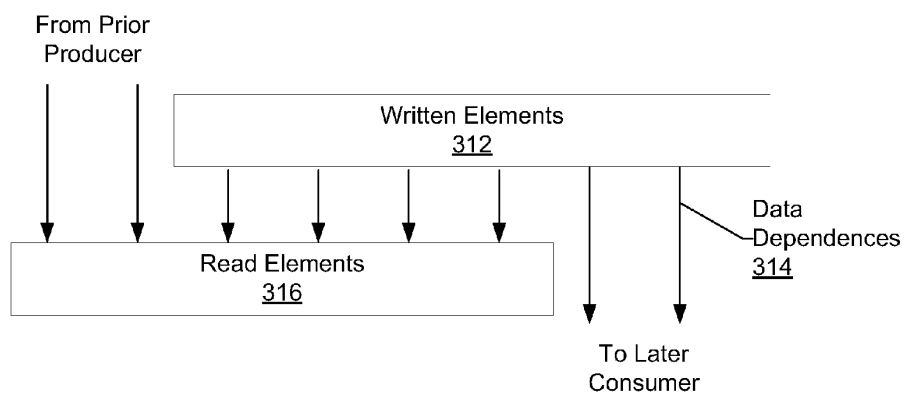


FIG. 3B

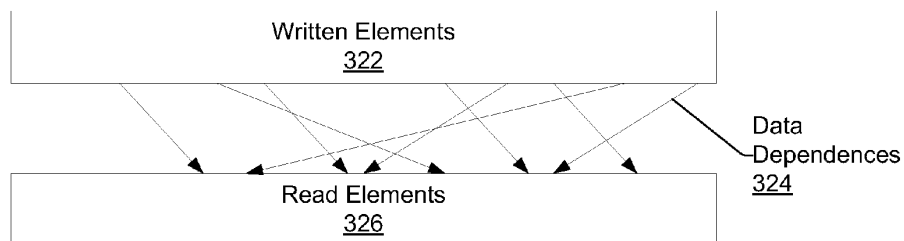


FIG. 3C

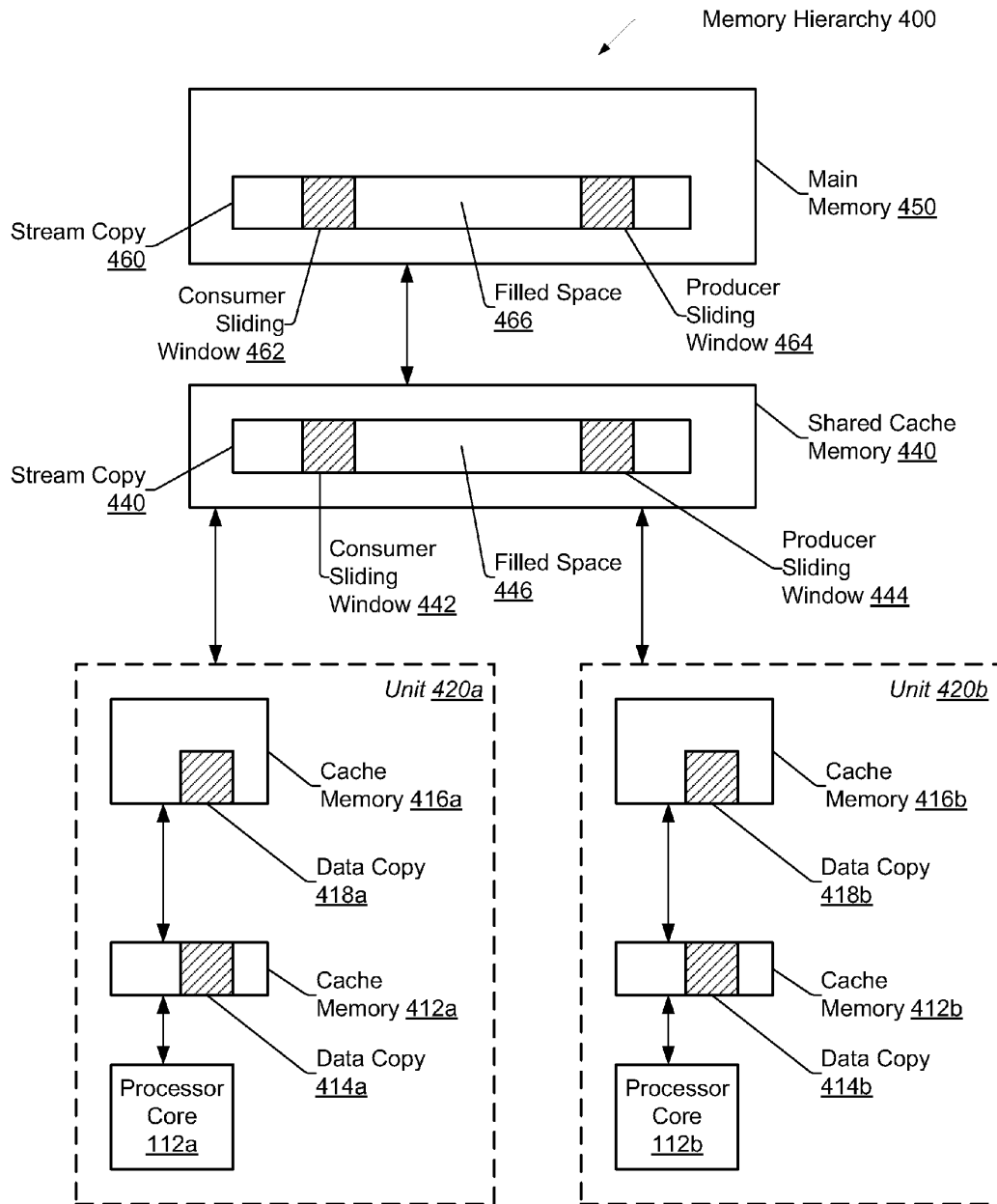


Fig. 4

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