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(54) Title: A PROCESSOR PIPELINE INCLUDING INSTRUCTION REPLAY

(57) Abstract

The invention provides a method for executing instructions. The method includes dispatching and executing a first and second plurality of instructions in a portion of a pipeline without first determining whether stages of the portion of the pipeline are ready. The method further includes determining if an execution problem is encountered and replaying the first plurality of instructions in response to determining that the first plurality of instructions encountered an execution problem. The invention also provides a processor pipeline. The processor pipeline includes a front end to fetch a plurality of instructions for execution and a back end to execute the plurality of instructions fetched by the front end. The back end includes a retirement stage to determine if an instruction had an execution problem. The back end is non-stallable. The processor pipeline also includes a channel to send an indication that the instruction encountered an execution problem from the retirement stage to a replay point of the pipeline from which the instruction may be re-executed.

