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(54) **COPROCESSOR DYNAMIC POWER GATING FOR ON-DIE LEAKAGE REDUCTION**

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(58) **Field of Classification Search**

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See application file for complete search history.

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(57) **ABSTRACT**

An apparatus is disclosed for managing operational modes of a processor. The apparatus may include the processor which may include a coprocessor, an instruction queue, and a monitoring circuit for detecting instructions for the coprocessor in the instruction queue. The monitoring circuit may detect when the instruction queue holds no instructions for the coprocessor. If the instruction queue holds no instructions for the coprocessor, the coprocessor may be placed into a mode in which the coprocessor consumes less power. The monitoring circuit may detect an instruction for the coprocessor in the instruction queue. In response to the instruction for the coprocessor, the coprocessor may be placed into a mode in which the coprocessor may execute the instruction.

14 Claims, 4 Drawing Sheets

