

Specific Mathematical Model of Memory Sharing Predictor

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A lot of researches had been concerned with the memory sharing predictor (MSP), they defined the main purpose of such architecture explained how the mechanism of message prediction occurs through speculative coherence protocol to avoid the remote latency in memory sharing systems. This protocol is very vital specially when the messages and the acknowledgements are sent and received through slow processors. Most of the researches which had been done on MSP concentrated on avoiding latency in memory sharing system by investigating mechanisms for message prediction through speculative coherence. The lack of these researches is in ignoring a lot of parameters which may have a great impact on the performance analysis. The main objective of this paper is to introduce a MSP mathematical model that takes into account most of the important parameters that affect the prediction. Extracted results based on simulation are compared with the most recent model. Analyzing of the comparison shows that how the prediction accuracy affects the performance of memory sharing systems. Finally this paper also suggests using a new developed and a low constant synchronization overhead operating system called K42/Tornado to increase the performance of memory sharing systems.

Keywords: Active memory, Memory sharing predictor, Modeling, Speculative coherence