EM3: A Taxonomy of Heterogeneous Computing Systems

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References:

Abstract:
The field of heterogeneous computing is growing rapidly. New concepts and systems appear daily. Hence, it is important to fit each new contribution into its proper place in the puzzle called heterogeneous computing. This is possible only if an adequate taxonomy/classification exists, one that can show whether or not a new system is heterogeneous, and if so, what kind of heterogeneity it exhibits. We propose a new taxonomy that shows the relative position of each and every heterogeneous system in the overall computer systems world. The proposed taxonomy is intended to be both broad enough to encompass all existing heterogeneous systems and simple enough to be easily accepted. Consequently, our taxonomy includes only four classes of computer systems. We propose that computer systems be classified as follows: SESM (single execution mode, single machine model); SEMM (single execution mode, multiple machine models), MESM (multiple execution modes, single machine model), and MEMM (multiple execution modes, multiple machine models)

Keywords: