A Survey of Techniques for Approximate Memory Management

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Abstract

Approximate computing is a type of computation that returns a possibly inaccurate (i.e., approximate) result for situations where an approximate result is acceptable. The argument is that relaxing the guarantee for accurate result would enhance the performance of the application or the energy efficiency of the system. The memory subsystem is a typically a major performance and energy bottleneck of computing systems and therefore approximate memory management is a promising way of improving the system’s energy efficiency and/or performance. In this technical report, we provide a classification of prior researches in this area based on a number of criteria and review major contributions in this domain.