

Abstract

Embodiments of the invention provide method, system and apparatus for timestamp-based cache coherence in a system comprising a plurality of cores, private caches and at least one shared cache. The method comprises in a write operation, writing, by a private cache, a data associated with a memory address to a shared cache; returning, by the shared cache, a timestamp of data to a requesting private cache; determining, by the private cache, whether the timestamp is expired based on a current system time, and adding, by the private cache, the address associated with the data into a Local Write Set (LWS) of the private cache; in a release operation, merging, by a private cache, its own RWS and LWS and releasing the merged RWS and LWS to a shared cache; and merging, by the shared cache, RWS and LWS received from a private cache with GWS of the shared cache.

(Figure 1(a))