

Title (en)
APPARATUS AND METHOD FOR MAINTAINING HIGH SNOOP TRAFFIC THROUGHPUT AND PREVENTING CACHE DATA EVICTION DURING AN ATOMIC OPERATION

Title (de)
VORRICHTUNG UND VERFAHREN ZUR AUFRECHTERHALTUNG EINES HOHEN SNOOP-VERKEHRSDURCHSATZES UND ZUR VERHINDERUNG DER AUSRÄUMUNG VON CACHE-DATEN WÄHREND EINER ATOMISCHEN OPERATION

Title (fr)
APPAREIL ET PROCEDE POUR MAINTENIR UN FILTRAGE DE HAUTE CAPACITE DE TRAFIC DE FURETAGE ET DE PREVENTION D'EXPULSION DE DONNEES DE CACHE AU COURS D'UNE OPERATION ATOMIQUE

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Application
EP 01908995 A 20010209

Priority
• US 0104147 W 20010209
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• US 51303400 A 20000225

Abstract (en)
[origin: WO0163240A2] An embodiment of the invention provides an apparatus that permits snoop filtering to occur while an atomic operation is pending. The apparatus includes first and second request queues and a cache. The first request queue tracks cache access requests, while the second request queue tracks snoops that have yet to be filtered. The cache includes a dedicated port for each request queue. The first port is dedicated to the first request queue and is a data-and-tag read-write port, permitting modification of both a cache line's data and tag. In contrast, the second port is dedicated to the second request queue and is a tag-only port. Because the second port is a tag-only port, snoop filtering can continue while a cache line is locked without fear of any modification of the data associated with the atomic address. In another embodiment, the present invention further includes an atomic address block that prevents eviction of a cache address during an atomic operation.
[origin: WO0163240A2] An embodiment of the invention provides an apparatus that permits snoop filtering (Ref. 51) to occur while an atomic operation is pending. The apparatus includes first and second request queues and a cache. The first request queue (Ref. 52) tracks cache access requests, while the second request queue (Ref. 54) tracks snoops that have yet to be filtered. The cache includes a dedicated port for each request queue. The first port is dedicated to the first request queue and is a data-and-tag read-write port, permitting modification of both a cache line's data and tag. In contrast, the second port is dedicated to the second request queue and is a tag-only port. Because the second port is a tag-only port, snoop filtering can continue while a cache line is locked without fear of any modification of the data associated with the atomic address. In another embodiment, the present invention further includes an atomic address block that prevents eviction of a cache address during an atomic operation.

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Citation (search report)
• [Y] US 5765199 A 19980609 - CHANG JOSEPH Y [US], et al
• [Y] EP 0889403 A2 19990107 - SUN MICROSYSTEMS INC [US]
• [A] US 4783736 A 19881108 - ZIEGLER MICHAEL L [US], et al
• See references of WO 0163240A2

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WO 0163240 A2 20010830; **WO 0163240 A3 20020117**; AU 3679301 A 20010903; EP 1275045 A2 20030115; EP 1275045 A4 20051221; JP 2003524248 A 20030812

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