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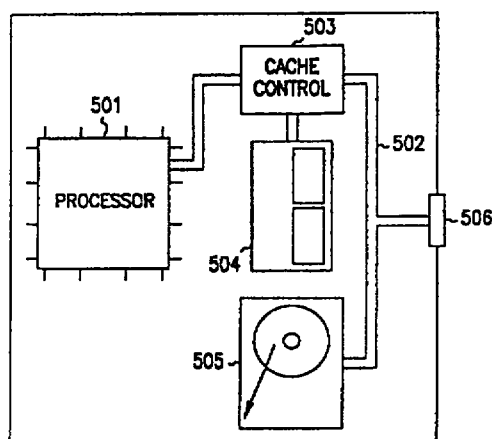


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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : G06F 12/12		A1	(11) International Publication Number: WO 00/70468
			(43) International Publication Date: 23 November 2000 (23.11.00)
(21) International Application Number: PCT/US00/13569 (22) International Filing Date: 17 May 2000 (17.05.00) (30) Priority Data: 09/314,233 18 May 1999 (18.05.99) US (71) Applicant: INTEL CORPORATION [US/US]; 2625 Walsh Avenue, Santa Clara, CA 95051 (US). (72) Inventors: WILKERSON, Christopher, B.; 2312 NW Schmidt Way #34, Beaverton, OR 97006 (US). WADE, Nicholas, D.; 2730 NW 81st Street, Portland, OR 97229 (US). (74) Agent: VIKSNINS, Ann, S.; Schwegman, Lundberg, Woessner & Kluth, P.O. Box 2938, Minneapolis, MI 55402 (US).			(81) Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: LEAST RECENTLY USED REPLACEMENT METHOD WITH PROTECTION



(57) Abstract

An LRU with protection method is provided that offers substantial performance benefits over traditional LRU replacement methods by providing solutions to common problems with traditional LRU replacement. By dividing a cache entry list into a filter sublist and a reuse list, population and protection processes can be implemented to reduce associativity and capacity displacement. New cache entries are initially stored in the filter list, and the reuse list is populated with entries promoted from the cache list. Eviction from the filter list and reuse list is done by a protection process that evicts a data entry from the filter, reuse, or global cache list. Many variations of protection and eviction processes are discussed herein, along with the benefits each provides in reducing the effect of unwanted displacement problems present in traditional LRU replacement.