980627E-9

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International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G06F 9/00 — A1

(11) International Publication Number: WO 98/00778

(43) International Publication Date: 8 January 1998 (08.01.98)

(21) International Application Number: PCT/US97/11153

(22) International Filing Date: 26 June 1997 (26.06.97)

(30) Priority Data:
08/672,621 28 June 1996 (28.06.96) US

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(81) Designated States: AL, AM, AT, AT (Utility model), AU (Petty patent), AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, 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: A PROCESSOR AND METHOD FOR SPECULATIVELY EXECUTING INSTRUCTIONS FROM MULTIPLE INSTRUCTION STREAMS INDICATED BY A BRANCH INSTRUCTION

(57) Abstract

A microprocessor for efficient processing of instructions in a program flow including a conditional program flow control instruction, such as a branch instruction. The conditional program flow control instruction targets a first code section to be processed if the condition is resolved to be met, and a second code section to be processed if the condition is resolved to be not met. A fetch unit (304) fetches instructions to be processed and branch prediction logic (336) coupled to the fetch unit (304) predicts the resolution of the condition. The branch prediction logic (336) of the invention also determines whether the resolution logic is likely to be predicted accurately. resolution of the condition is unlikely to be predicted accurately. Stream management logic (314) responsive to the branch prediction logic (336) directs speculative processing of instructions from both the first and second code sections prior to resolution of the condition if the resolution of the condition is unlikely to be predicted accurately. Results of properly executed instructions are then committed to architectural state in program order. In this manner, the invention reduces penalty related to mispredictions.

