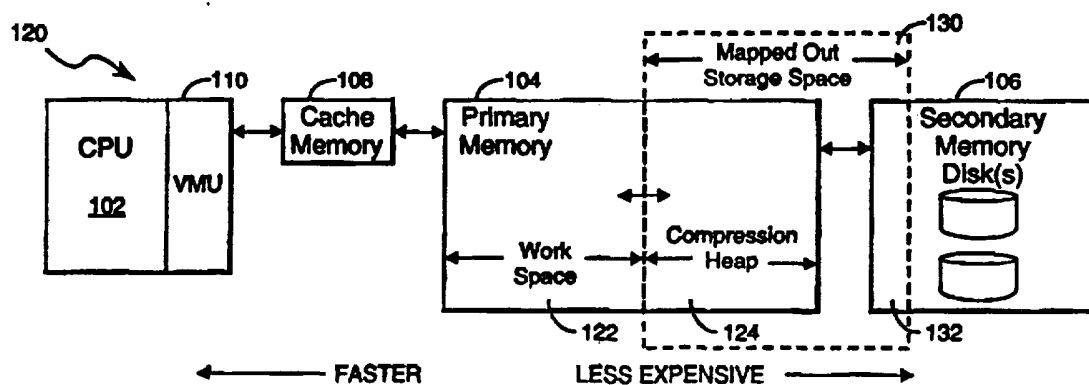




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(21) International Application Number: PCT/US94/14987 (22) International Filing Date: 29 December 1994 (29.12.94) (30) Priority Data: 08/177,622 30 December 1993 (30.12.93) US (71) Applicant: CONNECTIX CORPORATION [US/US]; 2655 Campus Drive, San Mateo, CA 94403 (US). (72) Inventors: GARBER, Jonathan, F.; 13503 Skyline Boulevard, Woodside, CA 94062 (US). BROWN, Jorg, A.; 1516 Wicket Court, Concord, CA 94518 (US). WALTERS, Chad, Perry; 550 Middlefield Avenue, Palo Alto, CA 94301 (US). (74) Agents: WILLIAMS, Gary, S. et al.; Flehr, Hohbach, Test, Albritton & Herbert, 4 Embarcadero Center, Suite 3400, San Francisco, CA 94111-4187 (US).		(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, 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), ARIPO patent (KE, MW, SD, SZ). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 31 August 1995 (31.08.95)

(54) Title: VIRTUAL MEMORY MANAGEMENT SYSTEM AND METHOD USING DATA COMPRESSION



(57) Abstract

A virtual memory system and method enable a computer system (120) to use a virtual memory address space larger than the size of physical primary memory (104) while swapping few, if any, pages out to secondary memory (106). Primary memory (104) is divided into a work space (122), used for storing uncompressed pages in current use, and a "Compression Heap" (124). A MappedOut storage space (130), which includes the Compression Heap and a portion of secondary memory (106), is used to store all pages swapped out of the work space (122). A virtual memory manager (110) dynamically determines the number of pages of primary memory (104) which need to be included in the work space, and moves pages of primary memory into the work space from the Compression Heap (124) as needed. Pages are selected to be swapped out of the work space to the MappedOut storage space (130), and a data decompressor decompresses the compressed virtual memory pages when a fault occurs on those pages. The virtual memory manager (110) includes logic for preferentially compressing and storing swapped out virtual memory pages in the Compression Heap (124) so long as the MappedOut storage space (130) includes a sufficient number of pages of primary memory to store those virtual memory pages, and for storing ones of the swapped out virtual memory pages in secondary memory (106) when insufficient space is available in the Compression Heap (124).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US94/14987

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : GO6F 12/08, 13/14

US CL : 395/400, 425

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 395/400, 425

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
APS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, A, 5,237,460 (Miller et al.) 29 JANUARY 1991, entire document	1-14
A	US, A, 4,989,134 (Shaw et al.) 29 JANUARY 1991, entire document	1-14
A	US, A, 5,101,485, (Perrazoli, Jr.) 31 MARCH 1992, entire document	1-14
A	IEEE COMPUTER, VOLUME 15, NO. 3, H. M. LEVY ET AL., MARCH 1982, "VIRTUAL MEMORY MANAGEMENT IN THE VAX/VMS OPERATING SYSTEM", PAGES 35-41	1-14

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 ☐ See patent family annex.

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