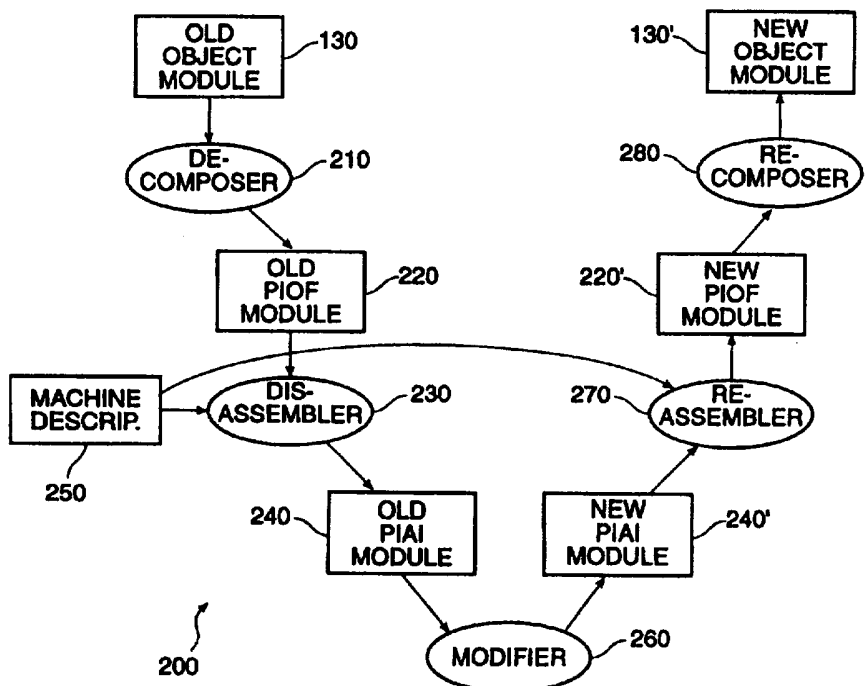




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification 6 : G06F 11/00</p>	<p>A3</p>	<p>(11) International Publication Number: WO 97/12508 (43) International Publication Date: 10 April 1997 (10.04.97)</p>
<p>(21) International Application Number: PCT/US96/15763 (22) International Filing Date: 1 October 1996 (01.10.96) (30) Priority Data: 08/538,961 4 October 1995 (04.10.95) US (71) Applicant: PLATINUM TECHNOLOGY, INC. [US/US]; 1815 South Meyers Road, Oakbrook Terrace, IL 60181 (US). (72) Inventors: CAHILL, Conor, P.; 43359 Ice Pond Drive, Ashburn, VA 22011 (US). WEXELBLAT, David; 1811 Vance Place, Vienna, VA 22182 (US). MATTHEWS, Edmund; 503 Handley Avenue, Winchester, VA 22601 (US). HONDEL, Dirk; Alte Zieglei L, D-65812 Badsoden (DE). ZHANG, Ning; 508 Florida Avenue, Herndon, VA 22070 (US). (74) Agents: D'ALESSANDRO, Kenneth et al.; D'Alessandro & Ritchie, P.O. Box 640640, San Jose, CA 95164-0640 (US).</p>	<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, 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, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), 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).</p> <p>Published <i>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.</i></p> <p>(88) Date of publication of the international search report: 12 September 1997 (12.09.97)</p>	

(54) Title: TRANSFORMING AND MANIPULATING PROGRAM OBJECT CODE



(57) Abstract

A method and system for transforming and manipulating program object code. A set of program object code is transformed into a form in which it may be readily manipulated, preferably a form which is independent of both the processor and the operating system with which the object code will execute. The transformed object code is manipulated, preferably to add error-checking instructions, but possibly to add other functions or to alter the functions of the object code. The manipulated code is then reverse-transformed to program object code of the same type as the original object code.

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INTERNATIONAL SEARCH REPORT

Internat Application No
PCT/US 96/15763

A. CLASSIFICATION OF SUBJECT MATTER IPC 6 G06F11/00				
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) IPC 6 G06F				
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 practical, search terms used)				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
Y A	WO 93 00633 A (PURE SOFTWARE INC) 7 January 1993 see abstract see page 3, line 28 - line 33 see page 6, line 13 - line 15 see page 13, line 20 - line 31 see page 19, line 35 - line 37 see page 21, line 35 - line 38 ---	1,3,4 2,6,7		
Y	ACM SIGPLAN NOTICES, vol. 29, no. 6, 1 June 1994, pages 290-301, XP000450425 AUSTIN T M ET AL: "EFFICIENTY DETECTION OF ALL POINTER AND ARRAY ACCESS ERRORS" see page 300, column 1, line 8 - line 17 --- -/--	1,3,4		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. </td> <td style="width: 50%; border: none;"> <input checked="" type="checkbox"/> Patent family members are listed in annex. </td> </tr> </table>			<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.	<input checked="" type="checkbox"/> Patent family members are listed in annex.
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.	<input checked="" type="checkbox"/> Patent family members are listed in annex.			
* Special categories of cited documents :				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed </td> <td style="width: 50%; border: none;"> "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family </td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family
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Date of the actual completion of the international search <div style="text-align: center; font-weight: bold;">10 July 1997</div>	Date of mailing of the international search report <div style="text-align: center; font-weight: bold;">18.07.97</div>			
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl, Fax (+ 31-70) 340-3016	Authorized officer <div style="text-align: center; font-weight: bold;">Fernandez Balseiro, J</div>			

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INTERNATIONAL SEARCH REPORT

Internat Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	MICROPROCESSING AND MICROPROGRAMMING, vol. 22, no. 4, 1 October 1988, pages 255-262, XP000242274 CHARLTON C C ET AL: "A MICROPROGRAM META-DISASSEMBLER" see page 255, column 1, line 20 - column 2, line 7 see page 255, column 2, line 30 - page 256, column 1, line 26 ---	1,3,4
A	COMPUTER DESIGN, vol. 23, no. 13, November 1984, LITTLETON,MA,USA, pages 147-153, XP002034962 LOWELL W., CHUNG K.M.: "Portable compiler eases problems of software migration" see page 148, column 1, line 46 - column 2, line 17; figures 1,2 see page 149, column 1, line 23 - line 36 ---	2,5
A	US 5 450 575 A (SITES RICHARD L) 12 September 1995 see abstract ---	6
X	ACM SIGPLAN NOTICES, vol. 28, no. 6, 1 June 1993, pages 1-12, XP000380794 WAHBE R ET AL: "PRACTICAL DATA BREAKPOINTS: DESIGN AND IMPLEMENTATION" see page 4, column 1, line 15 - line 46; figure 2 ---	8
X	ELECTRONIC DESIGN, vol. 34, no. 11, May 1986, HASBROUCK HEIGHTS, NJ, USA, pages 151-154,156,158,160-161, XP002034896 CRUESS M.W.: "Memory management chip for 68020 translates addresses in less than a clock cycle" see page 151, line 23 - page 152, line 5; figure 1 -----	9

INTERNATIONAL SEARCH REPORT

International application No.

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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. Claims 1-7: Method and system for transforming and manipulating program object code.
2. Claims 8-9: Data structure for checking memory access.

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9300633 A	07-01-93	US 5193180 A AU 2188792 A CA 2111958 A EP 0591360 A US 5535329 A US 5335344 A	09-03-93 25-01-93 07-01-93 13-04-94 09-07-96 02-08-94
US 5450575 A	12-09-95	NONE	