

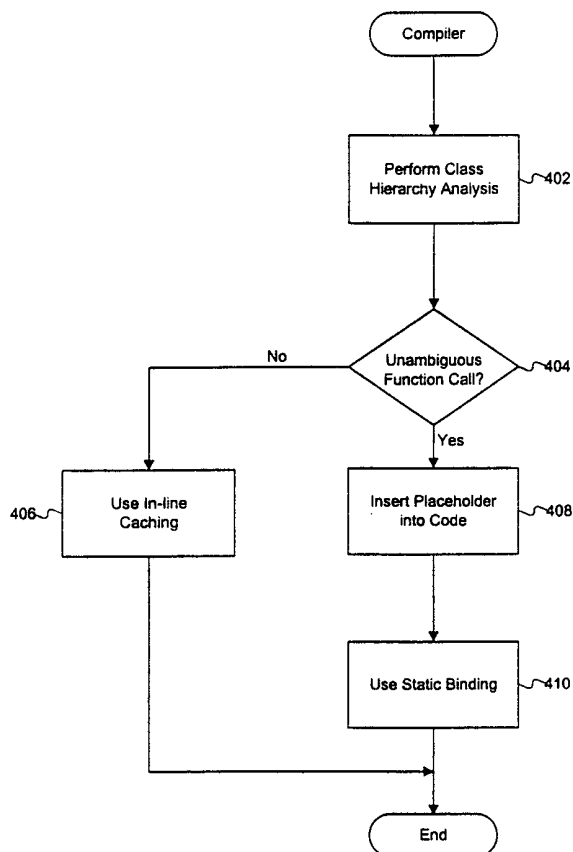
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(71) Applicant: SUN MICROSYSTEMS, INC. [US/US]; 901 San Antonio Road, MS UPAL01-521, Palo Alto, CA 94303 (US).			
(72) Inventor: MITROVIC, Srdjan; 827 Mediterranean Lane, Redwood City, CA 94065 (US).			
(74) Agents: GARRETT, Arthur, S.; Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P., 1300 I Street, N.W., Washington, DC 20005-3315 (US) et al.			
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**(54) Title:** DYNAMICALLY CONVERTING STATICALLY BOUND FUNCTION CALLS TO DYNAMICALLY BOUND FUNCTION CALLS WITHOUT RECOMPILE**(57) Abstract**

An improved hybrid dynamic-binding system for switching between static binding and dynamic of function calls is provided. This system provided static binding for functions calls when the function is unambiguous, and at runtime, when the function becomes ambiguous, this system switches to dynamic binding, without recompiling the code of the function call, thus improving performance over conventional systems. The system performs this functionality by inserting a placeholder into a statically bound function call, so that when the statically bound function call needs to be converted to a dynamically bound function call, the placeholder can be overwritten to perform the conversion without having to recompile the code.



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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 99/11520

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 6 G06F9/44

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.
X A	US 5 579 518 A (YASUMATSU KAZUKI) 26 November 1996 (1996-11-26) column 5, line 40 -column 7, line 27; figure 2 column 9, line 45 -column 10, line 53; figures 5A-C	12, 16  1, 2, 6, 8, 18, 20
X A	WO 96 35990 A (DESIGN INTELLIGENCE INC ; ORR MICHAEL B (US)) 14 November 1996 (1996-11-14) page 8, line 1 -page 12, last line	8, 20  1, 5, 6, 10-12, 18, 22, 23
	-/-	

☒ Further documents are listed in the continuation of box C.

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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,  
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Authorized officer

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## INTERNATIONAL SEARCH REPORT

In International Application No

PCT/US 99/11520

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>CHAMBERS C ET AL: "Customization: optimizing compiler technology for SELF, a dynamically-typed object-oriented programming language"</p> <p>ACM SIGPLAN '89 CONFERENCE ON PROGRAMMING LANGUAGE DESIGN AND IMPLEMENTATION, PORTLAND, OR, USA, 21-23 JUNE 1989, vol. 24, no. 7, pages 146-160, XP002122859</p> <p>SIGPLAN Notices, July 1989, USA</p> <p>ISSN: 0362-1340</p> <p>abstract</p>	1,2,6,8, 10-12, 18,20, 22,23
A	<p>DEAN J ET AL: "Optimization of object-oriented programs using static class hierarchy analysis"</p> <p>ECOOP '95 - OBJECT-ORIENTED PROGRAMMING. 9TH EUROPEAN CONFERENCE. PROCEEDINGS, ECOOP '95 - OBJECT-ORIENTED PROGRAMMING. 9TH EUROPEAN CONFERENCE. PROCEEDINGS, AARHUS, DENMARK, 7-11 AUG. 1995, pages 77-101, XP002122860</p> <p>1995, Berlin, Germany, Springer-Verlag, Germany ISBN: 3-540-60160-0</p> <p>abstract</p>	1,2,6-8, 12,15, 16,18-20
A	<p>UNGAR D ET AL: "Architecture of SOAR: Smalltalk on a RISC"</p> <p>11TH ANNUAL INTERNATIONAL SYMPOSIUM ON COMPUTER ARCHITECTURE. CONFERENCE PROCEEDINGS (CAT. NO. 84CH2051-1), ANN ARBOR, MI, USA, 5-7 JUNE 1984, pages 188-197, XP002121028</p> <p>1984, Silver Spring, MD, USA, IEEE Comput. Soc. Press, USA ISBN: 0-8186-0538-3</p> <p>page 190, paragraph 4 -page 191; figures 6,7</p>	3,9,14, 16,21
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Information on patent family members

International Application No

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EP 0950947 A	20-10-1999	NONE	