

Nom	version	last version date	languages	os	dependency	requirement	type of bugs	description / remarque
Jahob system	preview	04 / 08 / 2007	subset of Java	Linux, Mac, Win	Ocaml, CVC3	annotated code in Isabelle syntax	- high-level data structure consistency	- static analysis and verification system for modular analysis of imperative computer
FindBugs	1.2.1	04 / 25 / 2007	Java	Linux, Mac, Win	Java 1.4.0 or above	at least 512 MB of memory	- Correctness bug - Bad Practice - Dodgy	- static analysis to look for bugs in Java code
PMD	3.9	12 / 19 / 2006	Java	Linux, Mac, Win	Java	java source code	-Possible bugs -Dead code -Suboptimal code -Overcomplicated expressions -Duplicate code	- PMD scans Java source code and looks for potential problems
F-Rex	1.1.0	04 / 15 / 2007	Java	Linux, Mac, Win	Java, Soot, Kaffe, JikesRVM	-	- memory management	- explicit free and region support for Java
Purity Analysis Kit	0.09	07 / 31 / 2006	Java (.class)	Linux	JDK 1.5	???	- detects pure methods à la JML	- pointer and purity analysis tool for Java programs
ESC/Java2	2.0b0	- / 10 / 2006	Java	Any	Java	Java JML-annotated program	- common run-time errors	- static analyzer
Daikon	4.2.16	01 / 05 / 2007	C, C++, Java, Perl, IOA	Any	Java 5.0 or above, JVM	???	- invariant detector	- easy to extend to other applications (e.g., an interface exists to the Java PathFinder model checker) - front end for Java (Chicory), for C/C++(Kvasir, mangel-wurzel)
CUTE	1.0.1	29 / 06 / 2006	C, Java	Linux, Win	Java 1.4 or above, bash shell (optional) optional: Win: Cygwin	???	- concolic execution	- CUTE (a Concolic Unit Testing Engine for C and Java) is a tool to systematically and automatically test sequential C programs (including pointers) and concurrent Java programs. - Automatic testing of C and Java programs, there is no need to write test cases, test cases are generated by dynamic analysis of source code.
Jlint	3.0	21 / 06 / 2004	Java	Linux, Win	Java	???	- bugs - inconsistencies - synchronization problems	- check your Java code and find bugs, inconsistencies and synchronization problems by doing data flow analysis and building the lock graph.
KeY	1.0.0	- / 04 / 2007	Java Card	Linux, Solaris, Win	JDK1.4.1	ocl/uml, jml	- invariants inconsistency	- static analyzer
Comfort	2.0	02 / 01 / 2006	Construction and Composition Language (CCL)	Any	Copper	CCL	Assertion-based: - Counterexample-Guided Abstraction - State/Event-based Software Model Checking - SAT-based Predicate Abstraction - Automated Assume-Guarantee Reasoning - Compositional Deadlock Detection - Software Certification - Component Substitutability	- the Component Formal Reasoning Technology (ComFoRT) is a reasoning framework for predicting whether a system will satisfy its safety, reliability, and security requirements. In ComFoRT, these requirements are encoded as behavioral assertions that are verified automatically.
Berkeley Lazy Abstraction Software Verification Tool	2.0	- / 12 / 2005	C	Linux, Win	Ocaml, cygwin, Symplify Theorem Prover	annotated preprocessed C code	- safety	- safety assertion check of C programs
ARMC	1.0 ?	04 / 12 / 2007	armac	Linux	/	???	- verification of reachability - termination properties	- it is a tool for the verification of reachability and termination properties
Hob system	0.1.0	12 / 09 / 2005	homemade	Linux	Ocaml	write code for abstraction, implementation and specification	- data structure consistency	- verify sophisticated properties of programs that manipulate complex, heterogenous data structures
Leak contradictor	1.0	- / 11 / 2006	C	Any	Java 1.5, Apache Ant, Crystal Framework	C preprocessed code	- memory leaks	- memory leak detection tool for C programs
TVLA	2(alpha)	- / 08 / 2004	tvp	Any	Java 1.4.2, Graphviz	tvp file	- data Structures	- properties checker of heap allocated data
PALE	1.0-9	03 / 08 / 2007	pale	Linux, Win	MONA	annotated program	- null-pointer dereferences - memory leaks - violations of assertions - graph type errors	- expressing assertions about the heap structure of imperative languages
UCLID	1.0	06 / 02 / 2003	ucl	Linux	???	writing model	- model checking - correspondence checking - deductive verification - predicate abstraction-based verification	- verification tool for Infinite-State Systems

Spec#	1.0.7301	- / 05 / 2007	spec#	Win	-	spec# program	- invariants inconsistency	- static verifier
KIV	???	06 / 04 / 1996	-	Any	-	making your own code !?!	- formal specification and verification	- The KIV system, as a tool for interactive proof engineering, has turned out to be very successful in verification tasks which cannot be tackled fully automatically.
Spin	4.2	01 / 05 / 2007	C	Any	gcc, Tcl/Tk Wish optional: Yacc, Dot, JSpin, LtL2Ba	???	- search algorithm - verification option - complete language	- in April 2002 the tool was awarded the prestigious System Software Award for 2001 by the ACM.
CBMB	2.5	- / 08 / 2006	ANSI-C	Linux, Win	Win: CL	C	- bounds checking - dynamic memory allocation - ...	- uses Bounded Module Checking
MAGIC	1.0	05 / 06 / 2004	C	Linux, Win	Win: Cygwin	FSP notation to specify state machines	- verify that an implementation conforms to its specification	- implementations could be concurrent - command line base tool
Saturn	1.0	- / - / 2004	C	Linux	-	-	- SAT-based	- the goal of the Saturn project is to statically and automatically verify properties of large (meaning multi-million line) software systems. - the release includes a sound alias analysis and an unsound (bug-finding) null dereference analysis for C programs
CAsCaDE	1.0 ?	- / 01 / 2006	C	Linux	CVC Lite, EDG	control file specifies the assertion(s) to be checked (XML format)	???	- tool to check assertions in C programs as part of multi-stage verification strategy - it takes as input a C program and a control file
SatAbs	1.8	- / - / 2005	ANSI-C	Linux, Win	Win: CL (comes with Microsoft Visual Studio) or Visual C++ Express Linux: gcc/g++	Model Checker for SATABS (recommend either Cadence SMV or BOPPO)	- verifying array bounds (buffer overflows) - pointer safety - exceptions - user-specified assertions	- it allows verifying array bounds (buffer overflows), pointer safety, exceptions and user-specified assertions - furthermore, it can check ANSI-C for consistency with other languages, such as Verilog. SATABS computes an abstraction of the program in order to handle large amounts of code. - eclipse plugin
ObjectCheck	???	- / 05 / 2006	code OO via xUML	???	xUML COSPAN OOA	construct xUML schema	- verification of liveness and safety specification of xUML system	- the key approach of the project is to couple design techniques with system verification. The design techniques propose software systems as executable object-oriented models specified using high-level design description languages (e.g., UML statecharts, etc.). Verification is conducted by direct application of model checking-based analysis to program designs. - PROGRAM NOT FOUND
B-toolkit	5.7	- / 02 / 2002		Win	-	-		- it provides full support the B-Method, is a mature, integrated suite of tools, built partly on the B-Tool interpreter, and covering many aspects of software engineering
Code Surfer	2.0	- / - / 2007	C, C++	Linux, Solaris, Sparc, Win	Code Sonar	-	- null-pointer dereference - divide-by-zero - resource leak - buffer overflow - and many others	- code analysis tool
Why	2.0.3	- / 04 / 2007	-	Linux, Win	-	annotated programs(imperative language), OCaml-like syntax	-	- verification conditions generator.generates proof obligations for many systems: the proof assistants Coq, PVS, Isabelle/HOL, HOL 4, HOL Light, Mizar
Calysto	1.7	- / 05 / 2007	-	Linux, Mac	-	-	???	- bug hunting companion rather than a formal verification tool
Flawfinder	1.27	17 / 01 / 2007	C, C++	Linux	Python	???	- security flaws	- program that examines source code and reports possible security weaknesses ("flaws") sorted by risk level.
Splint	3.1.1	30 / 10 / 2003	C	Linux		???	- security vulnerabilities - coding mistakes	- tool for statically checking C programs for security vulnerabilities and coding mistakes
RATS	2.1	24 / 09 / 2002	C, C++, Perl, PHP and Python	Linux, Win	Expat	???	- buffer overflows - TOCTOU (Time Of Check, Time Of Use) race conditions	- RATS scanning tool provides a security analyst with a list of potential trouble spots on which to focus, along with describing the problem, and potentially suggest remedies
FxCop	1.35	06 / 23 / 2006	.NET	Win	.NET 2.0	???	- Defects in Library design - Localization - Naming conventions - Performance - Security	- code analysis tool that checks .NET managed code assemblies for conformance to the Microsoft .NET Framework Design Guidelines.
BOON	1.0	03 / 07 / 2002	C	Linux		???	- buffer overrun	- automatically finding buffer overrun vulnerabilities in C source code
C Code Analyzer - CCA	0.8	30 / 04 / 2005	C	Linux	Ocaml, Perl	???	- memory leak detection - multiple/dangling free detection - array out of bound accesses - potential bufferoverflow detection	- static analysis tool for detecting potential security problems in C source code.