15th Competition on Software Verification

Dirk Beyer and Jan Strejček

Participants

Table 1: Competition candidates and representing jury members; Hors Concours participants are not listed since they are not represented by a jury member. new for first-time participants, meta for meta-verifiers

Participant	Jury member	Affiliation
AISE	Z. Chen	NUDT, China
APROVE (KOAT+LOAT)	N. Lommen	RWTH Aachen, Germany
BRICK	L. Bu	Nanjing U., China
COPEORACE meta	V. Vojdani	U. Tartu, Estonia
CPACHECKER	M. Jankola	LMU Munich, Germany
CPV	P.-C. Chien	LMU Munich, Germany
CSEQ	O. Inverso	Gran Sasso Sc. I., Italy
DARTAGNAN	H. Ponce de León	Huawei Dresden, Germany
DASA new	F. Mächtle	U. Lübeck, Germany
DEAGLE	F. He	Tsinghua U., China
EMERGENTHETA	L. Bajczi	BME Budapest, Hungary
ESBMC-INCR	X. Li	U. Manchester, UK
ESBMC-KIND	X. Li	U. Manchester, UK
GDART	M. Mues	TU Wuppertal, Germany
GOBLINT	S. Saan	U. Tartu, Estonia
GOBLITCH new	K. Holter	U. Tartu, Estonia
HORNIX	M. Blicha	U. Lugano, Switzerland
IEKKE new	P. Di Biase	Unimol, Italy
JAYHORN ∅	H. Mousavi	U. Tehran and TIAS, Iran
JBMC	P. Schrammel	Diffblue, UK
JLISA new	G. Zanatta	U. Venice, Italy
KORN	G. Ernst	LMU Munich, Germany
MLB	L. Bu	Nanjing U., China
MOPSA	R. Monat	Inria & U. Lille, France
MUVAL new	H. Unno	Tohoku U., Japan
NACPA meta	H. Wachowitz	LMU Munich, Germany
OGCHECKER new	Z. Yang	Xidian U., China
PROTON	R. Metta	TCS, India
PYSVLIB-CHC new	G. Ernst	LMU Munich, Germany
RACERF	T. Dacík	BUT, Czechia
REFUNCTION new	N. Moussaoui Remil	Inria and ÉNS, France
RE3VER new	A. Štěpková	Masaryk U., Czechia
SEAL new	T. Dacík	BUT, Czechia
SVF-SVC	M. Richards	U. New South Wales, AU
SVLIBCHECKER new	M. Lingsch-Rosenfeld	LMU Munich, Germany
SV-SANITIZERS	S. Saan	U. Tartu, Estonia
SWAT	N. Loose	U. Luebeck, Germany
SYMBIOTIC	M. Jonáš	Masaryk U., Czechia
THETA	C. Telbisz	BME Budapest, Hungary
THORN	L. Bajczi	BME Budapest, Hungary
UAUTOMIZER	M. Heizmann	U. Freiburg, Germany
UGEMCUTTER	D. Klumpp	U. Freiburg, Germany
UKOJAK	M. Bentele	U. Freiburg, Germany
UPARALIZER new	M. Barth	LMU Munich, Germany
UTAIPAN	D. Dietsch	U. Freiburg, Germany

Cummulative Score

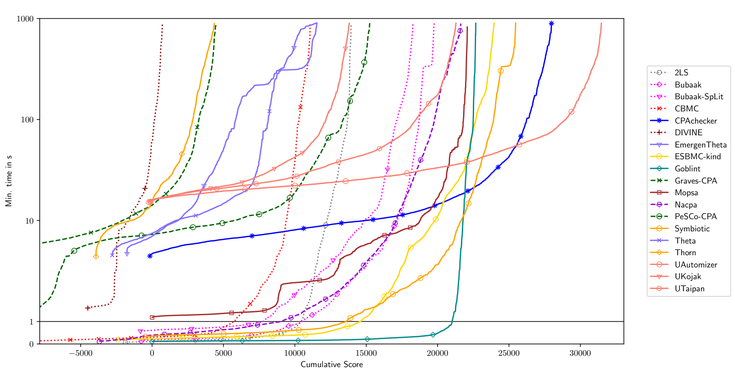

Figure 1: Quantile plot for the category *C.Overall*.

Reference

Report

D. Beyer and J. Strejček. Evaluating software verifiers for C, Java, and SV-LIB (report on SV-COMP 2026). In *Proc. TACAS (2)*, LNCS 16506. Springer, 2026

Competition Report

Web Site

Acknowledgment

We thank the verification community for contributing their tools to the evaluation.

Features

Table 2: Algorithms and techniques that the participating verification systems used; new for first-time participants, ∅ for hors-concours participation, and meta for meta-verifiers

Tool	Abstract Interpretation	Algorithm Selection	ARG-Based Analysis	Automata-Based Analysis	Bit-Precise Analysis	Bounded Model Checking	CEGAR	Concurrency Support	Constrained Horn Clauses	Explicit-Value Analysis	Floating-Point Arithmetic	Interpolation	k-Induction	Lazy Abstraction	Numeric Interval Analysis	Portfolio	Predicate Abstraction	Property-Directed Reach.	Ranking Functions	Separation Logic	Shape Analysis	Symbolic Execution	Targeted Input Generation	Task Translation
AISE																						✓		
APROVE																			✓					
BRICK						✓	✓	✓							✓							✓		
BUBAAK ∅					✓			✓								✓			✓			✓		
BUBAAK-SPLIT ∅		✓		✓	✓			✓					✓			✓			✓			✓		
CBMC ∅					✓	✓		✓																
COASTAL ∅								✓														✓		
CONCURRENTW2T		✓						✓								✓								
COPEORACE meta			✓		✓		✓			✓		✓		✓			✓							
CPA-BAM-BNB ∅		✓		✓	✓		✓	✓				✓	✓		✓	✓	✓		✓	✓	✓	✓		
CPACHECKER			✓		✓		✓	✓		✓		✓		✓		✓	✓	✓						
CPALOCKATOR ∅				✓														✓						
CPA-W2T ∅		✓			✓	✓	✓					✓	✓			✓	✓	✓						✓
CPV																						✓		
CRUX ∅					✓	✓		✓																
CSEQ					✓	✓		✓															✓	
DARTAGNAN						✓		✓																
DASA new					✓											✓						✓		
DEAGLE		✓						✓		✓														
DIVINE ∅					✓	✓	✓									✓								
EBF ∅					✓	✓	✓	✓			✓	✓				✓	✓	✓						✓
EMERGENTHETA		✓	✓		✓	✓	✓	✓					✓											
ESBMC-INCR					✓			✓																
ESBMC-KIND					✓			✓		✓	✓		✓		✓									
FRAMA-C-SV ∅															✓									
CPROVER-W2T ∅						✓																		
REFUNCTION new															✓									
GAZER-THETA ∅			✓		✓	✓	✓			✓		✓		✓		✓	✓							
GDART					✓											✓						✓		
GDART-LLVM ∅					✓																	✓		
GOBLINT	✓	✓			✓			✓		✓	✓				✓	✓								
GOBLINT-PAR		✓						✓			✓				✓									
GOBLITCH new	✓	✓									✓				✓							✓		
GRAVES-CPA ∅ meta		✓	✓		✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓		✓		✓			
GWIT ∅					✓											✓						✓		
HORNIX									✓									✓						
IEKKE new						✓		✓																
INFER ∅															✓	✓				✓	✓			
JAVA-RANGER					✓																	✓		
JAYHORN ∅							✓		✓			✓		✓	✓		✓	✓						
JBMC					✓	✓		✓																
JCWIT ∅						✓																		
JDART ∅					✓											✓						✓		
JLISA new	✓																							
KORN							✓		✓	✓						✓	✓					✓		
LAZY-CSEQ ∅					✓	✓		✓																
LIV								✓																
LOCKSMITH ∅																								✓
METAVAL		✓																						✓
MLB					✓											✓						✓		
MOPSA	✓	✓								✓	✓				✓	✓							✓	
MUVAL new																			✓					
NACPA meta		✓														✓								
NITWIT ∅										✓														
OGCHECKER new			✓					✓																
PESCO-CPA ∅ meta		✓	✓		✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓		✓		✓			
PICHECKER ∅		✓	✓		✓	✓	✓	✓				✓					✓							
PINAKA ∅					✓	✓																✓		
PREDATORHP ∅																					✓			
PROTON						✓																		
PYSVLIB-CHC new									✓															
RACERF								✓																
RE3VER new					✓			✓			✓		✓		✓	✓					✓	✓		
SEAL new	✓																			✓	✓			
SPF ∅								✓													✓	✓		
SVF-SVC																						✓		
SVLIBCHECKER new			✓	✓		✓	✓			✓		✓	✓	✓			✓					✓		
SV-SANITIZERS								✓																
SWAT																						✓		
SYMBIOTIC					✓			✓			✓	✓	✓		✓	✓	✓				✓	✓	✓	
SYMBIOTIC-WITCH ∅																						✓		
THETA		✓	✓		✓	✓	✓	✓		✓	✓	✓	✓			✓	✓							✓
THORN		✓							✓							✓	✓							
2LS ∅					✓	✓							✓		✓				✓		✓			
UAUTOMIZER		✓		✓	✓		✓	✓				✓		✓		✓	✓		✓					
UGEMCUTTER		✓		✓	✓		✓	✓				✓		✓		✓	✓							
UKOJAK					✓		✓					✓		✓			✓							
UPARALIZER new				✓			✓					✓				✓								
UREFEREE		✓		✓	✓		✓	✓				✓		✓		✓	✓		✓					
UTAIPAN		✓		✓	✓		✓	✓		✓		✓		✓	✓	✓	✓							
VERIABS ∅		✓				✓	✓			✓			✓		✓	✓								
VERIABSL ∅		✓				✓	✓			✓			✓		✓	✓								
WITCH																						✓		
WIT4JAVA																							✓	

Sponsors

HUAWEI

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

Ranking

Table 6: Overview of the top-three verifiers for each category; measurements for CPU time rounded to two significant digits.

Rank	Verifier	Score	CPU Time (in h)	Solved Tasks	Unconf. Tasks	False Alarms	Wrong Proofs
C.ReachSafety (14375 tasks, max. score 23331)							
1	**CPAchecker**	**12866**	150	8053	365	2	0
2	ESBMC-KIND	11037	57	7273	2456	0	0
3	SYMBIOTIC	10788	110	4080	207	1	0
C.MemSafety (4145 tasks, max. score 6529)							
1	**Symbiotic**	**4738**	3.9	3834	11	0	2
2	CPACHECKER	4646	19	3814	5	1	0
3	UAUTOMIZER	3957	35	2226	80	0	0
C.Concurrency (3124 tasks, max. score 5656)							
1	**Deagle**	**4630**	3.1	2513	19	1	3
2	DARTAGNAN	3516	19	2052	43	3	1
3	IEKKE new	3428	2.3	2473	216	44	22
C.NoOverflows (8218 tasks, max. score 13281)							
1	**UParalizer** new	**11049**	88	6700	22	0	0
2	UAUTOMIZER	10831	67	6669	59	1	0
3	UTAIPAN	10645	75	6572	56	0	0
C.Termination (2146 tasks, max. score 3734)							
1	**PROTON**	**3368**	22	1780	162	1	0
2	UAUTOMIZER	2616	17	1558	5	0	0
3	APROVE	2077	31	1011	42	0	0
C.SoftwareSystems (4394 tasks, max. score 7140)							
1	**Mopsa**	**2746**	11	1920	28	0	0
2	SYMBIOTIC	2614	6.2	1165	94	1	0
3	CPACHECKER	1496	28	1857	257	0	0
C.FalseOverall (36402 tasks, max. score 12195)							
1	**Symbiotic**	**7833**	42	7378	52	2	
2	CPACHECKER	7389	100	7668	454	4	
3	UAUTOMIZER	5835	53	4864	569	7	
C.TrueOverall (36402 tasks, max. score 48413)							
1	**UAutomizer**	**25637**	200	11 686	167		3
2	GOBLINT	22673	24	10 364	352		0
3	MOPSA	20637	26	9766	26		0
C.Overall (36402 tasks, max. score 60609)							
1	**UAutomizer**	**31472**	260	16 550	736	7	3
2	CPACHECKER	27979	240	21 632	930	4	0
3	SYMBIOTIC	25471	160	16 158	347	2	3
Java.Overall (1731 tasks, max. score 2821)							
1	**JBMC**	**1561**	1.5	1033	315	1	13
2	GDART	1470	4.3	920	107	1	1
3	JLISA new	1311	2.0	617	1	0	0

Frameworks

Table 3: Solver libraries and frameworks that are used as components in the participating verification systems; new for first-time participants, ∅ for hors-concours participation and meta for meta-verifiers

Tool	APRON	BITWUZLA	BOOLECTOR	CPACHECKER	CPROVER	CVC	ELDARICA	ESBMC	FRAMA-C	GLUCOSE	GOLEM	JAVASMT	JPF	KLEE	MATHSAT	MINISAT	SMTINTERPOL	SYMBIOTIC	ULTIMATE	Z3
AISE						✓														✓
APROVE (KOAT+LOAT)																				✓
BRICK																✓				✓
BUBAAK ∅																				✓
CBMC ∅					✓											✓				
COASTAL ∅													✓							
CPA-BAM-BNB ∅				✓								✓			✓					
CPA-BAM-SMG ∅				✓								✓			✓					
CPACHECKER	✓			✓								✓			✓					
CPALOCKATOR ∅				✓								✓			✓					
CPV		✓	✓			✓									✓	✓				
CRUX ∅																				✓
CSEQ					✓											✓				
DARTAGNAN												✓								
DEAGLE																✓				
EBF ∅								✓							✓					
EMERGENTHETA		✓	✓			✓						✓			✓		✓			✓
ESBMC-INCR								✓							✓					
ESBMC-KIND								✓							✓					
FRAMA-C-SV ∅									✓											
REFUNCTION new	✓																			
GDART						✓														✓
GDART-LLVM ∅																				✓
GOBLINT	✓																			
GOBLINT-PAR	✓																			
GOBLITCH new	✓													✓				✓		✓
GRAVES-CPA ∅ meta				✓								✓			✓					
HORNIX											✓									
IEKKE new																✓				
JAVA-RANGER													✓							
JBMC					✓					✓						✓				
JDART ∅						✓							✓							✓
KORN							✓				✓									✓
LAZY-CSEQ ∅					✓											✓				
MOPSA	✓																			
MUVAL new																				✓
NACPA meta				✓																
OGCHECKER new				✓																
PESCO-CPA ∅ meta				✓								✓			✓					
PICHECKER ∅				✓								✓			✓		✓			
PYSVLIB-CHC new							✓				✓									✓
RACERF									✓											
RE3VER new														✓				✓		✓
SEAL new									✓											
SPF ∅													✓							
SVLIBCHECKER new															✓					✓
SWAT																				✓
SYMBIOTIC															✓			✓		✓
THETA		✓	✓			✓						✓			✓		✓			✓
2LS ∅					✓					✓						✓				
UAUTOMIZER						✓									✓		✓		✓	✓
UGEMCUTTER						✓									✓		✓		✓	✓
UKOJAK																	✓		✓	✓
UPARALIZER new						✓									✓		✓		✓	✓
UREFEREE						✓									✓		✓		✓	✓
UTAIPAN						✓									✓		✓		✓	✓
VERIABS ∅				✓	✓											✓				✓
VERIABSL ∅				✓	✓											✓				✓
WITCH														✓				✓		✓

Results

Table 4: Quantitative overview over all regular results; empty cells are used for opt-outs, new for first-time participants, ∅ for hors-concours participation, and meta for meta-verifiers

Verifier	C.ReachSafety 14375 tasks max. score 23331	C.MemSafety 4145 tasks max. score 6529	C.Concurrency 3124 tasks max. score 5656	C.NoOverflows 8218 tasks max. score 13281	C.Termination 2146 tasks max. score 3734	C.SoftwareSystems 4394 tasks max. score 7140	C.FalseOverall 36402 tasks max. score 12195	C.TrueOverall 36402 tasks max. score 48413	C.Overall 36402 tasks max. score 60609	C.Huawei-Con.-Chall. demo 66 tasks max. score 123
AISE										
APROVE					**2077**					
BRICK										
COPEORACE meta										
CPACHECKER	**12866**	**4646**	2146	8474	1152	**1496**	**7389**	20589	**27979**	3
CPV	10626				1358					
CSEQ			-12677							-48
DARTAGNAN			**3516**							71
DEAGLE			**4630**							-11
EMERGENTHETA	4414	642	2636	1821	796	-18	1091	10400	11491	0
ESBMC-INCR			2435							-70
ESBMC-KIND	**11037**	3309	2410	9109	1074	14	5232	18732	23964	-70
GOBLINT	4664	2840	2555	8658	1614	457		**22673**	22673	34
GOBLITCH new	6552					611				
HORNIX										
IEKKE new			**3428**							-12
KORN										
MOPSA	4501	3165	0	9906	1571	**2746**	1442	**20637**	22079	0
MUVAL new					356					
NACPA meta	5959	3940	1578	7869	860	1477	4089	17538	21627	1
OGCHECKER new			131							0
PROTON					**3368**					
RACERF										
REFUNCTION new					294					
RE3VER new	2583									
SEAL new										
SV-SANITIZERS		878		837						
SVF-SVC	-9866	0				-346				
SYMBIOTIC	**10788**	**4738**	42	8476	1427	**2614**	**7833**	17638	**25471**	0
THETA	5252	695	2157	2586	796	-18	-329	11885	11556	0
THORN	738	12	1247	-174	583	69	187	4178	4365	0
UAUTOMIZER	8243	**3957**	2986	**10831**	**2616**	730	**5835**	**25637**	**31472**	0
UGEMCUTTER			3189							1
UKOJAK	6012	2982	0	8821	0	290	3468	10347	13815	0
UPARALIZER new	8279			**11049**						
UTAIPAN	7013	3517	2453	**10645**	0	404	4243	17044	21287	0

Score Schema

Table 5: Scoring schema for SV-COMP 2026 (unchanged from 2021)

Reported result	Points	Description
UNKNOWN	0	Failure to compute verification result
FALSE correct	+1	Violation of property in program was correctly found and a validator confirmed the result based on a witness
FALSE incorrect	−16	Violation reported but property holds (false alarm)
TRUE correct	+2	Program correctly reported to satisfy property and a validator confirmed the result based on a witness
TRUE incorrect	−32	Incorrect program reported as correct (wrong proof)